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UNITED STATES DEPARTMENT OF AGRICULTURE
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HEDGING IN GRAIN FUTURES

By

J. M. MEHL

Assistant Chief, Grain Futures Administration



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INTRODUCTION

PURPOSE

This circular deals with the subject of hedging, especially as applied to the handling of grain at country elevators. Its purpose is to acquaint readers with the various kinds of protective use to be made of the futures market and to explain some of the fundamentals to be observed in connection with such use.

The futures market, as a proper aid in the marketing of grain, is the subject of widespread misunderstanding. Many look upon future trading as being largely a means for gambling and are opposed to it on general principles. These will deny that legitimate business can borrow any stability from or make any worth-while economic use of the machinery of future trading under any circumstances. On the other hand, many are disposed to claim too much for the

¹ This study has been conducted as time would permit in connection with other work of the Grain Futures Administration. Thus much of the material presented is of older date than it otherwise would be, some of it having been gathered in 1925 when the study was first commenced. The study has been made under the general direction of J. W. T. Duvel, Chief of the Grain Futures Administration. G. Wright Hoffman, assistant professor of insurance, University of Pennsylvania, rendered valuable assistance in the compiling of certain price data.

system and go to extremes in defending everything connected therewith. It is not strange, therefore, that hedging oftentimes is confused with speculation and that misunderstanding and misuse result among those seeking guidance in these matters.

It is believed that a not too technical discussion of hedging, from a nonpartisan standpoint, together with some examples and viewpoints based on the experience of others, may be helpful to managers of elevators and others connected with the country grain business and may serve to dispel some of the more common forms of misunderstanding and error. The material presented herein has been developed with this idea in mind and with a view to accomplishing special purposes, as follows:

To describe the various uses to be made of the futures market;

To distinguish between the use of futures for hedging purposes and their use for purely speculative purposes;

To trace a typical futures transaction through the machinery of the grain exchange and explain the various steps involved in its handling;

To show what obligations are assumed in futures transactions and how they may be discharged;

To show results actually obtained in a number of typical hedging transactions; and

To present certain facts and figures bearing upon the relative advantages of various methods of marketing, together with a consideration of the risk-bearing value of the futures market.

No attempt has been made to formulate specific rules for hedging, nor is it intended to suggest a more extensive use of futures for hedging purposes. These are matters to be determined largely in the light of local conditions and with reference to the experience and ability of individual operators.

It is hoped that by providing unbiased information regarding the fundamentals involved in hedging and by pointing out certain conditions and tendencies to be observed, the individual operator may derive a larger measure of satisfaction from his hedging operations if and when he determines that hedging is desirable. In like manner it is hoped that some who otherwise might be led into speculating in grain futures inadvertently may be assisted in distinguishing between hedging and speculation and be properly warned against mistaking one for the other.

BASIS FOR STUDY

In connection with this study questionnaires were mailed to approximately 6,000 elevators² in five States. The States covered by the survey were Illinois, Iowa, North Dakota, Ohio, and Kansas. The number of replies to the questionnaires, about 20 per cent, is considered satisfactory for this form of inquiry. Conditions reflected in the five States named are indicative, no doubt, of conditions in certain other neighboring States and parts of States. The results of the survey are of interest principally as showing how representative country elevators in several States look upon the use of the futures market and as indicating the extent and manner of its use by such elevators. The elevators for the most part are either farmer-owned or privately owned elevators of the local independent type as distinguished from "line houses."

² Strictly speaking, the word elevator describes a type of building used for handling bulk grain. However, it is used throughout this circular in the personal form as representing the operator for convenience and because it is generally so used in the grain trade.

Following the survey by means of questionnaires, several men experienced in country-elevator management and accounting were employed for short periods to visit a number of elevators and secure first-hand information and actual concrete cases of hedging experience. These cases, while not sufficient in number nor of a character to enable any comprehensive analysis from a statistical viewpoint, nevertheless, are interesting as showing the various ways in which hedging is attempted and the varying results obtained. From these may be seen how certain so-called hedging transactions shade into operations that fall far short of a practical hedging purpose and how opinions regarding the legitimate use of futures are sometimes warped by experiences chargeable to speculative tendencies and bad management rather than to the real results of hedging.

In addition to the material described, certain price data have been used to make general comparisons between various methods of selling grain, such as hedged consignments, sales "to arrive," and sales on open consignment. These comparisons are arrived at on more or less hypothetical ground but are thought to be useful in indicating probable results in a very general way.

LIMITATIONS OF STUDY MATERIAL

One of the difficulties of making a study of hedging based upon actual cases of hedging experience is that of securing data comparable as to time, place, and operating conditions. It is not practical, for example, to measure the value of hedging by comparing the general financial results of elevators that hedge with those of elevators that do not hedge. In order to do so one would need to be sure that every factor of operation and management affecting hedging elevators was exactly duplicated in the nonhedging elevators. Such a condition can not exist by reason of the fact that no two elevators are likely to be managed with exactly the same degree of efficiency, nor are operating conditions on exact parity in any two instances.

On first thought it might appear that the financial statements of elevators would indicate whether their hedging operations had been profitable or unprofitable. A little consideration will show that the real story is seldom found in these statements. In the first place, a profit-and-loss statement even though itemized to the last detail does not reflect true hedging results unless it can be shown that each and every "long" or "short" interest in cash grain is covered at all times by an offsetting short or long interest in the futures. Not only must this condition exist in a general way, but it must be practically complete and perfect at all times with respect to quantities, time, and the other elements that enter into hedging practice. To the extent that one waited perhaps a day or two before placing or removing a hedge, just to that extent, if there were a change in the market, would speculative profit or loss enter into and be confused with the hedging results. In the same way, unless the cash grain dealt in was bought and handled always on the same basis and without variation in buying margin, it would be impossible to separate actual merchandising profit or loss from profit or loss arising from other sources.

Many elevators do not carry their hedging accounts separately from their cash-grain accounts but carry all profits and losses on trades in futures directly to the cash-grain accounts. In the case of farmers' elevators, some managers have taken the position that it is inadvisable

to separate the futures accounts from the regular grain accounts. They say that directors, even after giving their consent to hedging, do not understand the operations, and if a hedging account shows a large loss they are likely to believe that the hedging operations have been unsuccessful and blame the manager. Manifestly, if one follows consistently the policy of hedging cash-grain purchases by sales in the futures market, he will, during a period of declining prices, show profits on his futures and losses on his cash grain. Similarly, if prices advance, the profits will appear in the cash-grain accounts, and losses will be shown on the futures. These facts alone will not disclose whether the hedging operations have been conducted successfully or unsuccessfully, nor will they indicate whether hedging is a more desirable form of protection than selling "to arrive." The usual form of financial statement, therefore, is of little value in measuring the true results of sound hedging practice. In the absence of anything better, it has been thought permissible in this bulletin to use a few actual cases to illustrate certain points and to rely more or less upon general price data to indicate statistically certain probable results.

THE MECHANICS OF FUTURE TRADING

THE FUTURES CONTRACT

In order to use the futures market intelligently either for hedging or for speculative purposes, one should know something about the machinery of future trading and should understand the nature of the contracts involved. Few subjects, perhaps, are so generally misunderstood; yet in essentials trading in futures is relatively simple and easy to understand.

The business of dealing in futures is nearly always thought of in connection with the established boards of trade and commodity exchanges where, by reason of the machinery required for large-scale handling, it is made to appear more complicated than it really is. In primary essentials this type of trading is no different from hundreds of everyday transactions outside the boards of trade, that are accepted as a matter of course. A simple comparison may be helpful to illustrate this point.

The housewife, for example, wants a particular kind of merchandise which the neighborhood merchant does not have in stock, but which he agrees to procure for her. If the merchant, for a consideration and for a definite price agreed upon, undertakes to have this merchandise delivered at a particular time and in a specified quantity, there has been made a contract which has in it every essential involved in the purchase of wheat futures on the Chicago Board of Trade. In the case of the wheat futures, certain details, certain rights of substitution, and certain remedies in case of failure of performance, instead of being arrived at by private agreement, are made subject to the rules and regulations of the board of trade governing such contracts. These rules have been worked out in great detail for the very purpose of avoiding the disputes and misunderstandings that would inevitably arise if much business of this kind were to be carried on by private agreements covering each transaction.

The requirement by the merchant of a small cash deposit to protect him in case the merchandise is not accepted on delivery would be equivalent to what in the grain trade is called a margin. Should the

merchant be unable to make delivery as agreed, the measure of damages would be the difference between the agreed price and what the housewife might be required to pay in the way of a reasonable market price in order to obtain the particular kind of merchandise elsewhere. Should the housewife without cause refuse to accept delivery, the merchant ordinarily would be entitled to retain such part of the deposit as would represent the difference between the price agreed upon and the price which he was able to realize for the merchandise by disposing of it as best he could under the circumstances.

The exact legal status of such transactions will depend upon varying rules of law and custom as well as by varying facts and understandings peculiar to each transaction, but fundamentally the same principles are involved in these transactions as are involved in the contracts made on the organized exchanges of the country. Practically the only difference lies in the machinery provided to facilitate trade and the greater opportunity offered for speculation in the exchange type of contract.

FUTURES CONTRACTS DISTINGUISHED FROM ACTUAL SALES

Transactions in grain futures are commonly spoken of as purchases and sales. In a strictly legal sense, this is incorrect. They are merely agreements to buy or agreements to sell, as the case may be. What is known as a sale of grain for future delivery is really not a sale but is merely an agreement to sell. Title does not pass ordinarily until delivery is actually made, and not until that time does the transaction become a sale.

Much misunderstanding will be avoided if one bears constantly in mind that a sale of May wheat is not really a sale of wheat, but is the establishment merely of certain contract rights that involve wheat. Unless superseded by other agreements in the meantime, these contract rights normally culminate in an actual sale of wheat. Until completed by the delivery of wheat, however, they exist only as contract rights. It is through the convenient means provided for making and passing from one person to another these contract rights that future trading on a large scale is made possible in an organized and orderly manner.

Considered from the viewpoint of the hedger, the futures market would be of little value if agreements to buy and agreements to sell could not be transferred quickly and freely from one owner to another and settlements made on the basis of existing price differences. Generally speaking, the hedger is not interested either in making delivery or in taking delivery but wants merely to hold temporarily certain contract rights in order to be protected against possible adverse changes in price. Unless he can rely upon an instantly available opportunity to either buy or sell futures in amounts to balance his cash-grain risks the futures market ceases to be for him a practical medium of protection.

GRAIN EXCHANGE FACILITIES

The modern grain exchange serves the same purpose fundamentally that the trading post served in pioneer days. It is, in fact, a kind of trading post still, highly specialized and through modern means of communication bringing together from great distances those who wish to buy and those who wish to sell. In this connection it

may be observed that wherever trading centers appear, even under the most primitive conditions, there will be found either existing or in process of development certain customs and rules of conduct governing the transaction of business. The modern grain exchange does little more than furnish (1) a common meeting place for those who wish to trade, and (2) rules of conduct designed to facilitate trade, coupled with certain service functions for the benefit of members.

The facilities of the grain exchange are separable into two main divisions: (1) Those relating to trade in cash grain; and (2) those having to do with futures. Necessarily there is a close relationship between the two and the facilities and rules governing one must function with due respect to their effect upon the other. There is, however, considerable difference between the manner of making and settling contracts involving cash grain and the manner of making and settling contracts involving grain futures.

THE MEETING PLACE

In the case of the Chicago Board of Trade the meeting place for those who wish to trade in cash grain is around the sample tables. These can be seen at the left in Figure 1 or at the right in Figure 2. Here commission merchants and others, members of the board of trade, display samples of the grain offered for sale. These samples, taken by State inspectors (or by board of trade samplers), are accompanied by memoranda showing the grade of the grain and the number and initials of the car from which drawn. The representatives of mills, elevators, local dealers, exporters, and others come to these tables, examine the samples, and buy as their needs require. Those who have the grain represented by the samples likewise are busy seeking buyers and are trying to sell at the best prices obtainable.

Those who wish to trade in futures meet within the raised circular platforms or pits as they are called. The one shown in right foreground of Figure 1 is the widely known Chicago wheat pit.³ Other pits are provided for trade in other grain futures and for trade in provisions and cotton futures. In these pits are assembled during trading hours those members of the board of trade who either for themselves or as agents for others are engaged in buying and selling the various commodities for future delivery.

TRADING RULES

Every trade made on the grain exchanges, whether in cash grain or in futures, is subject to the rules of the exchange governing such trades. These rules become part of the contract terms as fully and as effectively as though written into a separately executed agreement. For this reason it is necessary for those interested in future trading, whether as hedgers or speculators, to be familiar to some extent with grain-exchange rules, otherwise they will be ignorant of certain rights as well as of certain obligations that constitute the very essence of their contracts. It must be evident that one can not determine intelligently and wisely his course of dealings in futures without knowing the nature of the futures contract in its legal as well as its economic aspects.

³ Wheat pit located in the Chicago Board of Trade building erected in 1883. This historic old building has since been replaced with a new 44-story modern office building. Wheat pit in new building is shown in Figure 2.



FIGURE 1.—Trading floor of Chicago Board of Trade. (Old building)

It will not be necessary to discuss all of the rules and regulations which apply to futures contracts, but it may be of interest to take a typical case representing an actual transaction in futures and trace it through the machinery of the exchange, explaining various terms and rule applications as the transaction proceeds.

TYPICAL FUTURES TRANSACTIONS

The following transactions have been selected as typical of how one large wire house in Chicago handles the orders from customers when they are transmitted through the firm's branch office at Omaha. Except for fictitious names, the transactions are genuine.

On November 8, 1928, a customer designated here as "John Doe" gave his order through the Omaha office of "Burt & Lamon" to sell



FIGURE 2.—Trading floor of Chicago Board of Trade. (New building)

5,000 bushels of May wheat, at the same time advancing \$500 to cover margin requirements. The order is what is known as a "market order" as distinguished from a "limited order" and means that it is to be executed at once at whatever the market price may be. (An order is regarded as a limited order whenever a price is named and some time is stated governing its execution. Such an order may be good for the day or for a longer or shorter period although in practice, and where no specific instructions accompany the order, orders to buy or sell at a certain price are considered good for the day only. They may be canceled, of course, or the price limit may be changed at any time.)

The order was transmitted from the Omaha office of Burt & Lamon by private wire direct to Chicago. In the Chicago office it was received over what is known as the Omaha wire by a telegraph operator

who, in a room with many other operators, is busy transcribing the orders as they come from the several outside offices. As the order comes over the Omaha wire at Chicago it is copied by the receiving operator directly upon an order form (fig. 3) marked "private wire." Thereafter and until executed in the pit and reported back the order is known by order number, in this case No. 29. From the receiving operator the order is passed quickly under a time-clock stamp and given to one of the telephone operators handling wheat orders who in turn transmits it by telephone to another operator on the exchange floor. The latter operator is located at an open booth conveniently near the wheat pit, from where he can signal the firm's brokers in the pit. The operator on the exchange floor, if working on what is known as "flash" orders, merely makes a note of the order number and by the usual finger and hand code (fig. 4) directs the broker to sell "5 May wheat." Just as soon as the broker

BURT & LAMON ^{MA} 17		<u>PRIVATE WIRE</u>
		NOV 8 1928 192
# <u>29</u>		
Sell 5 May wheat		
acc John Doe		
Maha		
1044a		
<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> 5 <hr/> 1218 </div>	<div style="border: 1px solid black; padding: 5px; display: inline-block; transform: rotate(-45deg);"> 28 NOV 8 1928 </div>	14 OM 1045A B

FIGURE 3.—Copy of a sales order

in the pit can secure the attention of a buyer, which usually is a matter of seconds, the trade is made and noted on the broker's card (Fig. 5.) The fact of execution and the price is flashed back over the telephone to the main office where the price is noted on the order, which is passed under a time stamp again and given to a sending telegrapher for reporting back to Omaha. At a convenient time the broker in the wheat pit notes on his trading card the order number. These cards together with the original order, become the basis for bookkeeping entry and for confirmation by mail direct to customers.

This method of handling applies especially to flash orders. On all except flash orders the telephone operator at the pit side will rewrite the order and send a copy by messenger to one of the brokers in the pit who, after filling, sends it back with the price noted at which it was filled. In some cases original orders may be conveyed directly to the brokers in the pit.

In the present case the 5 May wheat was sold by broker A. B. Kirk to the H. G. Co., notation to that effect appearing on Kirk's card. (Fig. 5.) This notation together with a similar notation on the card of the broker for the H. G. Co. furnishes the basis of settlement as between the H. G. Co. and Burt & Lamon. Transactions involving millions of dollars hinge on these simple memoranda. Very seldom do disputes arise either regarding prices or amounts, for traders know that the moment one is suspected of having taken unfair advantage of another in respect to these matters that moment he is marked among the other traders, and it will be difficult if not impossible for him to do business with them. Furthermore, an offense of this sort subjects a trader to suspension or expulsion from the exchange and to loss of his membership privileges.

In the case considered, the selling order is transmitted to the exchange floor by telephone. When executed, the fact of execution is flashed back to the operator in Burt & Lamon's main office, who time-stamps the order again after noting on its face the amount and price. Thereafter, the Omaha sending operator, in this case No. 14, gets the order and reports execution to the Omaha office, where the customer, if present, learns of the fact at once. Figure 3 gives an idea of the speed with which these orders move under normal conditions. It is a copy of the order to sell as received in Chicago. The order number is 29. The notation "Oma 17" identifies the telegraph operator taking the order. The notation "14 Om 10:45 A. B." indicates that the sale was confirmed to the Omaha office by the Omaha sending operator No. 14 at 10.45 a. m. This order was received from Omaha at 10.44 a. m., it was turned over to an order clerk and phoned to the pit-side operator at the same time "10 44 00" as indicated by the first time stamp. At 10.44.50, or within 50 seconds, the order had been communicated to the broker in the pit and executed by him and the fact of execution flashed back to the order clerk in the main office of Burt & Lamon. At 10.45 the Omaha sending operator had finished his work of reporting to the Omaha office "5 May wheat sold 121½ John Doe No. 29." The whole operation had been concluded in exactly one minute.

It must not be inferred that every order is handled with this speed, for there are times when the orders are coming in too fast for the operators to keep up with them, and also there may be either dull periods in the pit or such a rush of trading that some time may elapse before the broker can find a taker for his orders. When a broker has many large orders which he must break into smaller units in order to place, it may take him some little time to catch up with orders coming fresh off the wires. Usually, however, the brokers are able to handle the orders as fast as they can be transmitted over the telephones.

BOARD OF TRADE RULES APPLIED

John Doe has now agreed to sell 5,000 bushels of May wheat at \$1.21½, "subject to the rules, regulations, and customs of the Board of Trade of the City of Chicago, and the rules, regulations and requirements of its board of directors and all amendments that are made thereto". This is per confirmation (fig. 6) which is mailed to him after the close of the market and on which will be itemized all trades made for him that day.

receiving \$1.21%, the price named in his contract, he will receive \$1.16%, the No. 3 being deliverable at 5 cents discount.

With reference to methods of delivery, board of trade rule No. 281 provides that ⁵—

Except as otherwise provided, deliveries shall be made by the delivery of registered warehouse receipts issued by warehouses which have been declared regular by the Board. The board by regulation may prescribe the conditions upon which warehouses may be declared regular, and also conditions upon which warehouse receipts issued by regular warehouses shall be deliverable.

This means that ordinarily to make a valid delivery on a futures contract the grain must be in a "regular" public elevator in the city of Chicago and have issued against it a proper warehouse receipt, but even this rule has its exceptions, for by the rule next following (rule 282) provision is made whereby during the last three business days of the delivery month, or in case an emergency is declared by the board of directors of the board of trade, grain may be delivered on futures contracts if it is in cars properly inspected and properly located within the Chicago switching district.

According to rule 284, unless otherwise agreed, the seller may make delivery on any business day of the specified month he may select. Delivery is effected by the passing of delivery notices as described in rules 285–287. The form of delivery notice is prescribed by rule 1717.

Now, it may be that the seller having no grain of his own with which to make delivery, and expecting lower prices, waits until the last day and then defaults on his contract. Rule 296 provides that in case of default—

the President, with the approval of the Board, shall appoint a Committee of three from the membership at large, who shall determine the true commercial value of of such commodity at the time of the default. The true commercial value of such commodity shall be determined in the light of its value in this and other established markets, its value for manufacturing purposes, together with such other facts as may properly be considered. The Committee shall also assess, as liquidated damages against the defaulting seller, from one to ten per cent of such true commercial value. The true commercial value as found by the Committee, plus such award of damages, shall constitute the basis of adjustment on such defaults.

The object of the penalty, of course, is to discourage default on contracts. The method of measuring damages set forth in the rule referred to is much the same as would be applied by a court of law in the absence of any advance agreement. But in the present case under normal conditions the damages are not only assessed, but the parties through the margins required to be on deposit have put themselves in a position where the money is already available for payment. This is not limited by the amount of the original deposit, but by rule 211:

A member acting as commission merchant for a customer (member or non-member) may require from such customer, as indemnity against liability, a deposit of 15 per cent of the contract price of the commodity bought or sold for the customer's account, and subsequent deposits to the extent of any adverse fluctuations in the market price. Such deposits must be made with the commission merchant within a reasonable time after demand, and, in the absence of unusual circumstances, one hour shall be deemed a reasonable time. The failure of the customer to make such deposit within such time shall entitle (but shall not obligate) the commission merchant to close out the trades of the defaulting cus-

⁵ Reference to rules is to the Codification of the Rules and Regulations of the Board of Trade of the City of Chicago in force Oct. 18, 1928.

tomer. If the commission merchant is unable to effect personal contact with the customer, a written demand left at the office of the customer during business hours shall be deemed sufficient.

There have already been considered various possibilities open to one who has contracted to sell grain for future delivery where the intention, for a time at least, has been to make delivery. There is still another possibility which, although it requires a closing out of the trade in one future month, offers opportunity for such delivery at a later date. For example, if in the case considered the seller still feels confident in his judgment that prices will eventually go lower but has come to see that present prices likely will continue beyond the delivery month first considered—in this case May—he may, if the difference appears favorable, buy in or close out his May contract and at the same time make a new sale for July delivery, thus transferring his contract from one delivery month to another. In this particular case, however,

BURT & LAMON <i>Omaha</i> <i>14</i>		<u>PRIVATE WIRE</u>
		NOV 14 1928
<i>#22</i>		192
<i>Buy 5 May Wheat</i>		
<i>and John Doe</i>		
<i>5</i> <i>12438</i>	<i>11 14 10 40 00 AM 28</i> <i>28 AM 00 00 01 14 11</i>	<i>Omaha</i> <i>1040</i>
<i>13 OM 1041 R B</i>		

FIGURE 7.—Copy of a purchase order

John Doe found it desirable to close out or settle his contract within a few days after he made it. Copy of purchase order (fig. 7) indicates that on November 14 he bought back his May wheat at $\$1.24\frac{3}{4}$, the market having advanced in the meantime so he was obliged to pay $2\frac{3}{4}$ cents more than he contracted to sell it for. This amount, plus commission, represents his loss on the transaction.

MODE OF SETTLEMENT

It will be apparent that so far as John Doe is concerned he has made two separate contracts. On November 8, he contracted to sell 5,000 bushels of May wheat at $\$1.21\frac{1}{2}$, and on November 14 he contracted to buy 5,000 bushels at $\$1.24\frac{3}{4}$. Now it would be quite possible, although not always practicable, for both contracts to be carried open until the wheat was delivered to John Doe in May on his purchase contract, when it might be passed immediately over in delivery on his sales contract. This would be effected by mere endorse-

ment of the delivery notice. As a matter of fact, however, it is unnecessary to wait so long and go through this process in order to accomplish settlement. The reason will be plain when it is considered that trades in grain futures on the Chicago Board of Trade must be made through members of the board and that while these members may be acting as agents for their customers, yet as between members the individual customers of each are not recognized and the members themselves are considered liable to each other on contracts made whether acting as agents or otherwise. Hence in matters of accounting between members of the board of trade, the trades and accounts of customers are grouped and handled as so much May wheat, or July wheat as the case may be, long or short to various houses. Through a modern clearing-house system these accounts between houses are adjusted and settled to the market each day, the aggregate of the accounts of individual customers being handled in terms of net result. As to these results the clearing organization assumes the position of buyer to the seller and of seller to the buyer, so that thereafter each member deals only with the clearing organization with respect to margins, as well as with respect to settlements.

Assume that on the last trading day in May, 10 customers of Burt & Lamon are each long 5,000 bushels of May wheat. Finally, in the process of passing delivery notices from one house to another, some house or a group of houses which have customers who have sold May wheat to Burt & Lamon and are in position to deliver, will pass to Burt & Lamon delivery notices representing 50,000 bushels of wheat. This 50,000 bushels of delivered wheat is then apportioned by Burt & Lamon among its customers who are long and they must either take it and pay for it or, if there is time, they may make another sale and pass on the delivery notices until the notices finally lodge with some house willing and able to take the actual wheat and pay for it. In this highly developed process of settlement, which is absolutely necessary with the large volume of business involved, it will be seen that so far as it concerns the individual customers of any one house who have bought and sold in equal amounts, the house being responsible for the net results in any event, there is no need of delaying settlement. In the end results are the same if purchases and sales of single customers are merely offset one against the other and settlement made by money difference at the time.

This explanation appears somewhat lengthy, perhaps, and elementary to an unnecessary degree. It is believed, however, that it will be of assistance to many in better understanding just what takes place and why certain board of trade transactions and practices take on strange aspects only because of the methods necessary to large-scale handling and the elimination of all unnecessary detail.

To resume the John Doe illustration, when the transaction is closed by buying back the future previously sold, the purchase order follows the same routine as that described for the selling order. The same procedure is followed in transmitting it from Omaha, Nebr., to the Chicago wheat pit. The same kind of confirmation goes forward, followed by what is known as a "P & S" slip, being merely a statement of account, showing both sides of a transaction together with the net result credited or charged, as the case may be, to the customer's account.

Figure 8 shows P & S slip which would go forward to John Doe in the case described.

If John Doe calls for final settlement he will receive a statement as per Figure 9, accompanied by a check for \$349.39, being his original deposit of \$500, less a loss of \$137.50 (2¾ cents on 5,000 bushels), and the commission of \$12.50 and tax of 61 cents.

The hedger in placing and removing his hedges will find his futures transactions governed by the same general procedure as outlined in the John Doe illustration. In the case of the hedge, however, the loss or gain resulting from the transactions in futures merely operates to offset gains or losses on cash grain arising by reason of price changes in the cash-grain market.

ACCOUNT PURCHASE AND SALE OF <u>5 May Wheat</u> M. BUSHEL				FOR ACCOUNT AND RISK OF <u>John Doe owner</u>			
17016				BY BURT & LAMON			
<u>1914</u> BOUGHT				<u>1914</u> CHICAGO ILL. <u>Nov 14 '18</u> SOLD			
DATE	DESCRIPTION	PRICE	COST	DATE	DESCRIPTION	PRICE	PROCEEDS
<u>Nov 14</u>	<u>5 Nov 14/8</u>	<u>6 1/2</u>	<u>6 1/2</u>	<u>Nov 8</u>	<u>5 Nov 12/8</u>	<u>6 08 1/2</u>	<u>6 08 1/2</u>
TOTAL COST				TOTAL PROCEEDS			
E. & O. E. GAIN		COMMISSION		E. & O. E. LOSS		TO YOUR DEBIT	
		TAX					
TO YOUR CREDIT							
		<u>12 50</u> <u>61</u>		<u>137 50</u>		<u>150 61</u>	

FIGURE 8.—Copy of a customer's account purchase and sale

HEDGING THEORY

HEDGING DESCRIBED

Country elevators face almost constantly the possibility of price declines between the time when grain is bought and the time when it is sold. It is not practicable always to maintain an even balance between the amounts of cash grain being purchased and the amounts being sold. Grain must be bought whenever it is offered, otherwise customers will be disposed to take their business elsewhere. There will be times, therefore, when grain is being accumulated faster than it can be marketed to advantage, or it may be desirable at times to take advantage of special offers and make sales of grain in advance of its actual purchase. Under these circumstances the elevator operator is forced either to assume a speculative risk with respect to possible price changes taking place between the time of purchase and time of sale, or vice versa, or he must seek some form of price protection.

If cash-grain prices and futures prices moved up or down together always and by the same amount, it will be seen that in order to be

protected against loss through price changes in the cash market it would only be necessary to take an exactly opposite position in the futures market, the effect being that for any loss in one market there would be a compensating gain in the other market. Thus explained, hedging appears to be a very simple process. Unfortunately, an

SAVE FOR INCOME TAX PURPOSES		STATEMENT FROM		COMMODITY DEPT.		
If this statement does not agree with your records in any respect please notify us at once.		BURT & LAMON BROKERS WEBSTER BUILDING CHICAGO				
IN ACCOUNT WITH						
•						
• JOHN DOE						
• OMAHA						
		<p>IMPORTANT</p> <p>We wish to call the attention of our customers to the advisability of keeping, for future reference, the statements which we render monthly. These statements constitute a complete record of a customer's transactions and are very important for him to have at the end of the year in making income tax returns.</p> <p>We are always ready to answer any special questions asked, but it is manifestly impossible for us to render the entire year's work again.</p> <p style="text-align: right;">BURT & LAMON</p>				
		STATEMENT FOR NOV 1928				
9-28-SIMPLEX-20307						
NO	DATE	DESCRIPTION	DEBITS	CREDITS	BALANCE	
					DEBIT	CREDIT
	8	BY CASH		500 00		500 00 *
17016	14	5 MAY WHT	150 61			349 39 *
	15	TO CASH	349 39			0 00 *
YOUR PRESENT BALANCE IS AMOUNT IN BALANCE COLUMN AFTER LAST ENTRY.						E. & O. E.

FIGURE 9.—Copy of a customer's statement of account

explanation of hedging is not a formula for hedging, as many have learned through bitter experience.

Hedging involves more than just maintaining an even balance between cash grain long and futures short, or vice versa. One can not buy or sell futures simply as such, but must select that particular future which will match most nearly the cash-grain risk to be covered.

Grades and delivery terms which govern a contract in futures do not often square exactly with the kind of cash-grain risk to be pro-

tected. Therefore, to hedge with much hope of success one must be constantly alert to the various possibilities and opportunities that present themselves as between different futures and be quick to sense when changing conditions require change in policies and methods.

Intelligent and skillful selection of compensating risks is the secret of successful hedging. Unless the hedger can give considerable time to studying fundamental conditions and to weighing price differences existing at different times between various futures and between the various grades of cash grain, he will be unable to realize fully satisfactory results from his hedging operations.

If all grain could be sold to the best advantage always by the acceptance of "on track" or "to arrive" bids, country elevators might operate without any other form of protection against price changes. This may not be done always. Certain grades and qualities of grain can be marketed to best advantage, perhaps, by being consigned to some large sample market where before being sold, it may be seen and examined by a large number of competing buyers. Under such circumstances, and in order to be protected against loss by reason of a price decline before the grain can reach market, the elevator may wish to hedge its risk by selling an equal amount of some future. In a hedge of this kind the object is to secure, in general results, the price which prevails in the spot market at the time of placing the hedge. If cash-grain prices and futures prices maintain the same relative difference between the time the hedge is placed and the time removed, it makes no difference in the actual realized price result whether the markets in the meantime have moved up or down or have remained stationary. Any gain or loss on the cash grain is offset by an opposite result on the future. This result when added to or deducted from the price actually received for the spot grain, depending upon whether it be a loss or gain, adjusts that price to exactly the same price which ruled for cash grain at the time of selling the future.

To illustrate: On July 1 the spot price in Chicago for No. 3 Yellow corn is, say, 90 cents per bushel. A country dealer buys 5,000 bushels of this grade of corn for which he hopes to realize 90 cents per bushel at Chicago. He is unable to get his grain to Chicago in less than 10 days, and since the bids "to arrive" perhaps are under the spot price by several cents, he decides to consign his grain rather than to sell "to arrive." Desiring to be hedged in case prices decline, he sells 5,000 bushels of the September future at, say, 93 cents per bushel. Ten days later his cash grain is on the market and is sold for 80 cents per bushel, the market in the meantime having declined exactly 10 cents per bushel on both cash and futures. The results would show as follows:

On July 1 the cash price aimed at was.....	\$0. 90
Between July 1 and July 10 the market declines.....	. 10
On July 10 the cash grain is actually sold at.....	. 80
On July 1 the September future was sold at.....	. 93
The futures market in the meantime declines 10 cents, enabling it to be bought back on July 10, to close the hedge, at.....	. 83
Profit on the future.....	. 10
Price cash corn sold for.....	. 80
Full return, which exactly equals the original price aimed at ⁶ 90

⁶ In this example no account has been taken of the cost of hedging, i. e., commission on futures.

It is, of course, immaterial what prices are used in the illustration. The results are the same whether futures prices taken are higher or lower than cash prices, or whether the market is assumed to move up or down, so long as the price movement either up or down is the same for both cash and futures.

It is apparent from the above illustration of this use of the futures that its usefulness and value for protection purposes depends upon how closely the realized price (actual sale price adjusted by loss or gain on future) approximates the ruling price of spot grain at the time of selling the future. This is merely another way of saying that the effectiveness of a hedge depends upon the uniformity with which price movements in the cash market are accompanied by like price movements in the futures market.

HEDGING DISTINGUISHED FROM INSURANCE

The hedging possibilities of the futures market are well recognized as a source of protection to cover certain kinds of cash-grain risks. Some writers have even gone so far as to classify hedging as a form of insurance. The protection purpose is apparent. The insurance form, however, is not so evident. It would, perhaps, be more nearly correct to classify insurance as a form of hedging.

Insurance contracts undertake the shifting of risk, as a burden upon one person or a group of persons, to other persons or groups having the benefit of larger numbers or better ability to withstand and absorb losses. As to the particular risk shifted and to the extent it is shifted, the insured person has only to fulfill his part of the contract to receive in full measure the protection bargained for, barring, of course, financial failure on the part of the insurer, and excluding from consideration what may be a variation from full protection due to change in the purchasing power of money. In the case of hedging, however, the hedger not only holds the original risk, but he takes on another risk of opposite character as nearly as possible in the expectation that loss on the one will be offset by a gain from the other. He deals constantly with two risks instead of one, and it becomes his own individual business and not the business of others so to balance these risks that they will give a compensating result.

Every contract of insurance has embodied in it an undertaking on the part of one party or parties to reimburse another party or parties in a sum certain or ascertainable upon the happening of the particular event against which protection is sought. None of the contracts or obligations involved in a hedging transaction contain any undertaking or agreements which resemble the obligations of insurer to the insured or of the insured to the insurer.

WHAT IS REQUIRED OF HEDGING MARKET

The futures market, if it is to serve fully the needs of the hedger at all times, must be a constantly available market. It must be a market where either purchases or sales can be made at any time in reasonably large amounts without appreciable price effect. This means that it must be a broad market, highly liquid, and free at all times from either individual or group control. It should be a market where the position of the small trader is just as secure as that of the large trader and where all may place their orders with equal confidence and equal certainty of prompt and efficient execution.

With respect to most futures markets, the hedger has very little cause, if any, to complain of inability to find takers for his hedging orders. Most of the markets will absorb all of the hedging orders that come to them at any time without difficulty. In the light of present information it appears that this condition is dependent somewhat on having a volume of trading considerably larger than that furnished by hedgers alone. This extra volume must come from the speculative class of traders.

The amount of purchases and sales of futures upon the Chicago Board of Trade that represents purely hedging transactions is possibly less than 5 per cent of the total. On the other hand, the amount of futures contracts carried open from day to day that represent hedging transactions is on the average probably close to one-third of the total open contracts. Just how much speculative trading is required to furnish the best hedging market is difficult to say. The margin of speculative trading over and above hedging requirements seems to be sufficient always to absorb readily hedging orders; at least there has never been any complaint made to the Grain Futures Administration in this regard, even at times when the volume of trading has been relatively small and when commission firms were complaining bitterly of the lack of speculative business.

HEDGERS NOT INTERESTED IN SPECULATIVE RESULTS

A first requisite for success in hedging is to bear constantly in mind that hedging is not a device for making profits but is rather for the purpose of protecting profits already in sight. This statement is subject to some qualification as regards hedging where one purpose may be to earn carrying charges. But even here a merchandising profit must appear as the main objective, otherwise the hedge reverts to a form of speculation known as "spreading." The spreading in this case would be between futures and cash grain with the hope of profit centered on a favorable change in relationship between cash prices and futures prices taking place sometime between the date of purchase and the date of sale of the cash grain.

It can not be emphasized too strongly that grain must be bought in the first instance on a basis which at the time promises a definite profit on resale. In other words, cash grain can not be bought at a loss with the expectation that that loss will convert itself into a profit through the device of hedging. If the grain business is so conducted that it depends upon fortunate changes in the market for profit, hedging will add its weight definitely to the failure side of the scales. This is so because of the commission charges involved, which, unless there is an already existing margin of profit, become just so much additional expense. Commissions on futures can be justified as part of the expenses of conducting a country grain business only if the protection which hedging offers is worth the cost.

HEDGING SHOULD BE COMPLETE

To hedge successfully one must disregard the day-to-day market movements and give attention solely to keeping the ownership risk completely covered as nearly as possible at all times. This applies not only in a general way from day to day but really in the very special sense of covering every open position of consequence immedi-

ately when it arises during the day. It is a practice among country elevators in some sections, especially those heavily financed by terminal commission houses, to give hedging control over to the commission firms handling the cash grain. In these cases the commission firms will attend to the hedging of grain as purchases are reported and will remove hedges as cars of grain arrive and are sold. Such arrangements are not always satisfactory, nor are they recommended as desirable policy. That such arrangements exist does suggest how important the matter of full coverage is regarded by those who make large loans to country elevators with cash grain as the principal security.

The usual practice in hedging is to cover net positions only. When purchases and sales of cash wheat occur in such order and in such amounts as to offset one another there obviously is no need for hedging. The net amount long or short at a given time, taking cash wheat and wheat futures together, is the amount to be covered. Purchases and sales of cash grain rarely occur at the same time, however, and if one waits a time before placing or removing his hedges in the hope of having other transactions serve to even an open position, he will be without hedge protection in the meantime and will find it increasingly difficult to maintain that disinterest in up-and-down movements, which is so necessary to success in hedging.

Under certain conditions and even though there be a saving of commissions in hedging only net positions, it may be better to sell futures instantly upon the purchase of any substantial amount of cash grain without waiting to balance possible offsets through other transactions, such as cars of consigned grain that are due to arrive and be sold. Similarly, one would buy back futures sold against consigned grain immediately upon a car being sold, without waiting for possible offsetting purchases of cash grain. This plan makes record keeping a little easier since it is necessary only to buy and sell futures in amounts to correspond with purchases and sales separately as made, carrying along a memorandum record in such case of the net amount by which the unit of futures bought or sold varies from the amount of cash grain actually bought or sold. That is to say, since in grain futures the smallest trading unit is 1,000 bushels and neither cars nor country purchases break up into even 1,000-bushel lots, it is necessary even under the method of hedging just described to keep a cumulative record of the differences. These must be considered in connection with the amount of futures to be bought or sold each time in order to keep fully hedged as nearly as possible at all times.

The practice of hedging all purchases separately also enables one more easily to attach hedging results to specific lots of grain and to note and study the varying results of hedging different grains and grades under various price conditions. Where an elevator hedges only net positions and there are large purchases and sales of various grades of cash grain made currently, it is almost impossible to measure accurately the hedge result in its relation to any one parcel or lot of cash grain.

RELATION OF CASH TO FUTURES

The matter of changing relationships between cash-grain prices and futures prices is of vital interest to those who use the futures market for hedging purposes. This factor more than any other determines whether a hedge is fully or only partially protective.

Various causes operate to effect price relationships. These causes can not always be anticipated, nor can their probable effect be measured accurately at all times. On the other hand, certain conditions and tendencies may be observed which bear directly or indirectly upon price relationships and which must be taken into account.

With respect to certain futures and certain grades of cash grain, there nearly always comes a time when the relationships between them are well marked and practically fixed. If, on December 30, for example, No. 2 Hard Winter wheat is found in public store in Chicago available for delivery on futures contracts in considerable amount, and the price differences on other deliverable grades are such as to assure delivery of the No. 2 Hard grade, it is apparent that the relationship between the December futures and this particular grade of actual wheat in store is practically fixed. Under such circumstances variation in price relationships is possible only because of preferences that a buyer of this class of wheat may have for wheat out of some particular warehouse, influenced perhaps by his belief that wheat therein is of higher quality within the grade, or that it is owned by persons or firms with whom above others he prefers to do business. Under normal conditions, and for all practical purposes, a purchase of Chicago wheat futures during the last trading days of a delivery month may be regarded as a purchase of No. 2 Hard Winter wheat in public store in Chicago. In these premises, the unqualified statement sometimes heard that cash grain and grain futures bear no relationship to each other is suggestive of careless thought.

If all wheat was of identical kind and quality and the supply was at all times constant in respect to delivery requirements, it is quite certain that cash prices and prices of the near futures would vary only to the extent that storage was a factor. As between cash prices and the more distant futures, however, there would still be considerable opportunity for independence of movement. Why? Simply because the futures price (distant futures) reflects human judgment as to what prices will be under conditions and subject to influences yet in the making and which with the best possible facilities for estimate and forecast can only be known to a limited and partial extent. Varying supplies of different grades of grain, change in demand for certain grades over others, coupled with the other factors, will result in prices being established for some grades which bear little or no relation to prices of other grades or to the futures market. These are conditions which call for careful analysis in connection with every hedging program.

SELECTION OF FUTURES IN WHICH TO HEDGE

In the business of hedging, it is of primary importance to select those futures that bear the closest relationship to and reflect most nearly the value of the particular kind of grain sought to be hedged. If the problem is to secure hedging protection on corn that is moving to market in November, for example, and which it is anticipated will be sold before or during December, there is a choice between placing hedging sales in the December or in the May futures. Ordinarily, the hedging would be done in the December future because normally the near-by future can be expected to follow more closely the current cash grain prices. On the other hand, should the hedging be designed to protect a low grade of cash corn and the December

future should appear likely to suffer congestion on account of a scarcity of deliverable grades, the May future would possibly furnish better protection than the December.

The quantity of deliverable grain in public elevators is not the only factor of importance in maintaining normal relationships between cash prices and futures. Sometimes quality is of even greater importance. For example, during July of 1926 the September corn future was at a premium over the July future not at all justified from the standpoint of carrying costs, nor by prices prevailing in the spot market for deliverable grades of country-run grain. The September future sold as high as 7 cents per bushel more than the July. The reason for this difference lay in the fact that there were less than a million bushels of No. 3 corn in the Chicago public elevators at the time, and this, according to trade opinion, was in large part kiln-dried corn which had been dried down to make No. 3, but which still retained a moisture content unsafe for summer storage. The corn had been placed in storage during cold weather, and there was danger of it going out of condition at any time. The buyer of July corn futures, while perhaps willing and anxious to take delivery of good No. 2 or even No. 3 corn, could not afford to take the chance of having delivered to him a warehouse receipt which, while purporting to call for No. 2 or No. 3 corn, was likely to be issued by a warehouse having some of this questionable No. 3 kiln-dried corn.

Under then existing rules⁷ of the Chicago Board of Trade when corn (or any grain) in a public warehouse went out of condition the warehouse might "post" the oldest outstanding warehouse receipts covering corn in that warehouse regardless of the time when the corn going out of condition was actually placed in storage. If the buyer of the July corn futures under such circumstances should be unfortunate enough to have delivered to him one of these posted warehouse receipts he might find himself in the position one day of holding a receipt for No. 3 corn and a few days later being notified that this corn was going out of condition and must be moved. In this event, he would be compelled to resell the corn at the best price obtainable. His loss might be very large and for no reason other than that he was unfortunate enough to receive delivery of a warehouse receipt bearing an old date. Under such conditions the July corn futures would necessarily be out of line with other futures and would fail to reflect values properly.

It will be difficult for country hedgers to keep informed always regarding all of the factors which make for congestion or for abnormal conditions in a current delivery month. They can not ordinarily know as much of the gossip and undercurrent of information concerning the condition of grain in certain warehouses and of the probable policies of those in control of large stocks of grain as is known by those who have daily personal contact with many other persons variously employed in the large terminal markets. Nevertheless, it is possible through one's broker or commission firm to keep in fairly close touch with what is going on. The stocks of grain in public warehouses at Chicago, for example, are published weekly by grades. Total stocks in private elevators are also given weekly but not by

⁷ Since the particular instance described took place the Chicago Board of Trade has tried with some success to correct and prevent abuses growing out of the posting of corn.

grades. Commencing August 1, 1928, the Grain Futures Administration has published daily the amount of contracts open in the various futures. A study of these figures in connection with the size of the deliverable stocks will be helpful in determining what policies should govern both as regards placing hedges in the near-by futures and in transferring hedges from one future to another.

With reference to the figures of the Grain Futures Administration on open contracts, open interests, or open commitments, as they are variously known, it may be explained that when an open-interest figure is given at, say 30,000,000 bushels for the Chicago September corn future, it means that there are trades open between clearing members of the Chicago Board of Trade which, if a warehouse receipt were to pass just once from one seller to one buyer, it would require 30,000,000 bushels of corn to settle. If there should be an open interest of 25,000,000 bushels in September corn during the latter part of September and only a small amount of deliverable corn in Chicago, those who have sold September corn short might find it difficult to fill their contracts, and what is known as a squeeze would develop. It must be remembered, however, that a warehouse receipt for 5,000 bushels of corn may settle more than one contract and that under the right kind of conditions one million bushels of corn could satisfy several million bushels of open trades and no so-called squeeze would result. On the other hand, if warehouse receipts covering the full deliverable supply of corn at Chicago should come immediately into possession of any man or group of men who would take and pay for all the corn represented by these receipts, those who still had contracts open would be without the means for settlement other than by offsetting trades made in the pit. Those holding the purchase side of the contracts would under such circumstances have at their mercy those on the short side. If among the latter are hedgers who have waited until the last minute either for their cash grain to reach market or for transferring hedges to the next future, they will be caught with the rest of the shorts and be forced to pay, perhaps, an exorbitant price to settle or be required to default on their contracts. If they default they will, of course, suffer the penalties imposed by the boards of trade for defaults.

Regardless of location, the average country hedger can generally secure information enabling him to avoid situations such as these and can usually so arrange his hedges that they need give him little worry from the standpoint of being caught in a so-called squeeze.

THE TRANSFERRING OF HEDGES

It becomes necessary at times to transfer hedges from one future to another. Grain purchased and hedged by a sale of December futures, for example, may be delayed in movement to market to such an extent that it becomes necessary to buy in the December and make a new sale of the May future. The time when this transfer can best take place becomes a matter of extreme importance at times.

It is not possible to judge with any degree of accuracy just when is the most favorable time for shifting hedges from one month to another, but in general, and unless special conditions develop, it will be found inadvisable to carry hedges in any delivery month beyond the first few days in that month. The wiser policy in most instances will be to transfer hedging sales into the next future month not later than the

15th of the month preceding the delivery month. Special attention should be given to an early shifting of hedges when stocks of deliverable grain appear to be low and there is a tendency for receipts to fall off. Under such conditions the longs in the market will be disposed to keep their contracts open, and the danger increases of the shorts being caught in a squeeze during the last days of the month. Prices in the current future then tend to advance relative to the next deferred future, and hedgers short can shift their hedges only at a loss, whereas normally as between futures of the same crop year the distant futures should be higher than the near-by futures.

USE OF FUTURES TO SOLVE STORAGE PROBLEMS⁸

The situation last described, of course, affects more particularly those hedgers who have taken a seller's position in the futures market. Where hedges are in the form of purchases to protect customers' stored grain shipped and sold, an exactly opposite situation confronts the elevator operator. If he sells out his near futures long at a stimulated price and buys a distant future at a relatively lower price he seems to be in a fair way to make a profit. On the other hand, if he transfers his hedge purchases from the near month to a distant month, he may find that a squeeze in the near month has effected a temporary price advance in cash grain that must be reflected in his prices to customers. If those who have grain stored with him choose the opportunity to sell he is forced to pay a cash price influenced by the current future when his hedge is in a month not affected by those conditions. Under such circumstances loss is inevitable, and moreover the remedy does not always lie in keeping the hedges in the current month. In fact, it may be impossible to keep his long position open in the current month except at heavy expense. For example, he has no assurance that delivery will not be tendered on his open contracts the very first day of the delivery month. What is he then to do? He can accept delivery, in which case he has the actual grain in a terminal elevator with which to offset his customer's grain sold short, but in this event he not only becomes liable for certain storage, insurance, and elevator charges accruing on the grain, but he must also be in position to pay for the grain delivered. Ordinarily the operator of a country elevator is neither willing nor able to assume these burdens. If, when notified that delivery is tendered, he chooses to make a resale and pass delivery on, at the same time making another purchase to continue his hedge, he is forced to pay double commissions and has no assurance that delivery will not come right back to him on his new contract. It can be seen, therefore, that the elevator operator who assumes to do a storage business and depends upon the futures market to furnish a substitute for actual storage space is facing a situation in which the odds are strongly against him, unless, indeed, he can exact a charge for this service which is adequate to cover the risk. To most farmers, no doubt, such a charge would appear prohibitive.

At present about the only practical method of dealing with farmers who insist upon storing grain, under conditions which require the grain to be shipped and replaced with a purchase of futures, is to contract for its purchase at a stipulated difference under some given

⁸ See also p. 37.

future and grant the farmer the right to choose when, during the life of that future, he will have his price established. This method, of course, makes the purchase price of the cash grain dependent solely upon the futures, and in its last analysis is merely a means of enabling the elevator to do for its customers what the customers could do equally well for themselves, except that they may prefer not to deal directly in the futures market.

Another method of dealing with farmers' stored grain would be to forward the grain to some terminal market to be stored there until sold. This practice has not been adopted to any great extent for several reasons. The cost of terminal storage, while perhaps not excessive, seems high in comparison with what country elevators ordinarily can charge their customers for similar service. Grain in terminal storage, unless special binned, not only loses its identity, but loses also its character as country-run grain, and must be sold as grain in store and as part of the regular elevator stocks. Any premium qualities possessed by such grain would also be lost, and this, together with the additional loading and unloading cost, works to the disadvantage of the average country shipper, and if assessed against the owner of stored grain would no doubt result in dissatisfaction with this method of meeting the storage problem.

In connection with this discussion it may be observed that unless millers who purchase futures against forward sales of flour can be assured of receiving delivery of wheat to meet their milling requirements, their position with respect to hedge purchases carried open in the current months is much like that of the country elevator operator who has shipped and sold the cash grain of his customers and replaced the same with futures. They may base their flour prices on the futures hedged in, but these are not always a guide to the price which will have to be paid for the milling wheat.

It might be said that elevators that wish to engage in the business of storing grain for the public should first provide themselves with storage facilities. But this kind of answer does not seem fully adequate when directed to the mills who, by reason of booking flour sales ahead of their ability to purchase the actual wheat, are seeking to make a quite similar use of the futures market.

The problem of securing perfectly satisfactory protection to cover either a long or a short position in cash grain as needs require, yet allowing for perfect freedom in market movements and taking into account that it costs something to carry grain forward from month to month, is an exceedingly difficult one. It will always be a matter of some uncertainty. There can never be 100 per cent protection to all classes of dealers with respect to all grades and classes of grain, at all times. But the field for improvement is sufficiently large to justify some effort in making more constant and certain the benefits which in theory at least are supposed to exist.

SPREADING

The term "spread" is used in the grain trade to denote price differences between different markets, between different grains, between different grades, or between different futures of the same grain.

By spreading is meant generally the buying in one market against simultaneous selling in another market. Spreading also takes the

form of selling one kind of futures in one market to offset purchases of other kinds of futures in the same market or in other markets. In all spreading operations the object is to profit by an expected change in price differences. Without such change there can be no profit.

At the time of buying in one market and selling in another market the spreader believes that some time later he will be able to reverse his operations and make a profit. He may, for example, believe that wheat in Chicago is too low as compared with the price of wheat in Liverpool, or in Winnipeg, or in Minneapolis. In that event, and anticipating that the difference will narrow, he buys wheat in Chicago and sells wheat in the market which he believes is too high with respect to Chicago. Or, believing that December wheat in Chicago is too high relative to May, he sells December and buys May. Or, again, believing that one kind of wheat is selling in Chicago at a premium over the futures not large enough to represent the real premium value of that wheat at the time, he may fill his bins with this kind of wheat and sell the futures as a hedge. In this case he really engages in a kind of transaction which combines hedging with a form of spreading. He has hedged his cash wheat by a sale of futures, but in a selection of futures in which to hedge he has also introduced an attempt at speculative gain in that he hopes to profit primarily from an expected change in relationship between the price of the future and the price of his particular kind of wheat. Looked at from this viewpoint, perhaps, it is difficult to imagine any kind of a hedge that does not have associated with it the hope that favorable changes in price relationships will give some additional profit.

In the case of the larger grain concerns with offices and elevators in several different markets, watchful attention and discriminating judgment is directed always toward taking advantage of various spreading possibilities, although in the main, perhaps, most of the business of spreading in a strictly technical sense is done by a class of speculative traders known as spreaders. Country dealers will not be interested in these operations except as they suggest how important it is in selecting futures and markets in which to hedge, that care be taken to select those which give the greatest promise of favorable price relationship to the particular kind and grade of grain it is desired to hedge.

USE OF FUTURES IN EXPORT TRADE

While this bulletin deals with hedging primarily from the standpoint of the country dealer it must not be inferred that this use of the futures market represents either its largest or its most important protection utility. It is in fact in other fields that it assumes its largest importance and finds perhaps a more uniform and constant use.

Futures are used extensively in export trade and greatly facilitate the conduct of what otherwise would be a most hazardous business.⁹ Without the futures market the operations of the average exporter of grain would become exceedingly difficult and the risks incident to the export business would be greatly multiplied.

⁹ An excellent discussion of export methods may be found in the following publication: HAMMATT, T. D. METHODS OF MERCHANDISING AMERICAN WHEAT IN THE EXPORT TRADE. 2 v., illus. 1924. (U. S. Dept. Com., Bur. Foreign and Dom. Com., Trade Inform. Bul. 183 and 185.)

By watching our futures markets and knowing at what difference over or under the futures cash grain of the desired grade can be bought, an exporter may instantly take advantage of any change either in our market or in his bids from abroad enabling him to work grain for export.

Assume, for example, that some day during the month of August an exporter located in New York receives an offer for wheat from a British importer of, say, \$1.85 per bushel, c. i. f. Liverpool, good for acceptance before the close of the Chicago market. This offer is equal to, say, 15 cents over the price of the Chicago September future for wheat of the desired grade, f. o. b. New York. After sizing up the situation he finds that wheat of the desired grade can not be had for less than 15½ cents over the September future. During the course of the day, however, Chicago September future may sell off by a cent a bushel. He immediately cables an acceptance of the importer's offer and simultaneously buys an amount of Chicago September future to cover the amount of his sale abroad. He has now sold the cash wheat on the basis of 16 cents over the September future, and if he can buy it on the basis of 15½ cents per bushel over he will have a half cent per bushel profit in the transaction. His problem now is one merely of finding cash wheat which can be bought on the basis of 15½ cents or less over the September futures delivery New York. So long as he is able to buy cash wheat on this basis, it makes no difference whether prices go up or down. Our markets may immediately advance above an export basis without any loss being suffered by the exporter, so long as the relationship between cash prices and futures prices is not disturbed. He may buy all of his wheat from one concern, or he may buy it in various quantities from different concerns. He may have no difficulty in finding wheat which can be bought on the basis of 15½ cents over the September future, but he still has the problem of removing his hedge in such a way as to give him definite and absolute assurance of being able to lift the hedge at exactly the price difference aimed at. This is accomplished through what is known as the exchange of cash for futures.

EXCHANGING FUTURES FOR CASH GRAIN

Ordinarily, and in the absence of the arrangements now to be described, an exporter who had purchased, say, 40,000 bushels of Chicago September wheat through a commission firm in Chicago, would, upon buying 40,000 bushels of actual wheat from some elevator interest in Chicago, or perhaps in Kansas City, wire instructions to his commission firm to sell out 40,000 bushels of the September future. Since this would not be done until the contract for the cash wheat had been closed, considerable time might elapse before the future would be sold. In the meantime the futures market could change materially. Even if no change took place, it would not be certain that the futures could be sold at exactly the difference aimed at when the cash wheat was bought. This difference, however slight, is of considerable consequence in transactions involving such large amounts of wheat. By means of a very simple arrangement the problem is easily solved for both buyer and seller.

Knowing that dealers from whom he will buy cash wheat have previously sold futures as a hedge against their stocks of actual wheat and will now wish to cover—or if dealing with “fobbers” who do not

yet have the wheat, that they will want to buy futures as a hedge—the exporter buys the cash wheat in the first place with the understanding that those who sell him the wheat will take the futures at a price to be agreed upon. Since the exporter will pay a price for the cash wheat based on these futures it makes no difference to either party what price is agreed upon for the futures. It could be \$1 or any other price, but usually the price agreed upon is somewhat near the market at the time.

The following example may be helpful to illustrate the principles involved:

EXAMPLE

(1) On Aug. 1, elevator operator A, located in Chicago, buys a certain lot of wheat suitable for export at a price which with shipping costs added would be equal to----- \$1. 60 f. o. b. New York.
On the same date A sells the Chicago September future as a hedge at----- 1. 47

A's cash wheat has been bought then on the basis of-- . 13 over September.

(2) On Aug. 15, exporter B, located in New York, sells cash wheat to a British importer at a price equal to----- 1. 54 f. o. b. New York.
At the same time he buys Chicago September future at----- 1. 38

B's cash wheat has been sold then on the basis of-- . 16 over September.

(3) On Sept. 1, exporter B contracts with elevator operator A for the purchase of A's cash wheat on the basis of $15\frac{1}{2}$ cents over the Chicago September future, f. o. b. New York, with the understanding that A will take the September future from B at a price to be agreed upon. The price of the future is fixed arbitrarily between the parties, usually at a figure somewhat near the market at the time. The price is immaterial. Assume that \$1.35 is the price fixed for the future. On instructions from B, B's commission firm gives to A (or to A's commission firm if different from B's) the Chicago September future at \$1.35. This evens the position of A in the futures market as well as the position of B. A invoices the cash wheat to B at the agreed price of $15\frac{1}{2}$ cents over the September future, or at \$1.50½.

Results for elevator operator A:

Aug. 1, cost of cash wheat (f. o. b. New York)-- 1. 60
Sept. 1, receives for cash wheat (f. o. b. New York)----- 1. 50½

Loss on cash wheat----- . 09½

Aug. 1, Chicago September future is sold at--- 1. 47

Sept. 1, takes Chicago September future from B at----- 1. 35

Profit on future----- . 12

Net profit for A----- . 02½

Results for exporter B:

Aug. 15, sells cash wheat abroad (basis f. o. b. New York) at.....	\$1. 54
Sept. 1, pays for cash wheat (basis f. o. b. New York).....	1. 50½
Profit on cash wheat.....	. 03½
Aug. 15, buys Chicago September future at....	1. 38
Sept. 1, Chicago September future is taken over by A at.....	1. 35
Loss on future.....	. 03
Net profit for B.....	. 00½

Elevator operator A bought cash wheat on the basis of 13 cents over the Chicago September future and was able to sell it on the basis of 15½ cents over, thereby making a profit of 2½ cents per bushel.

Exporter B bought cash wheat on the basis of 15½ cents over the Chicago September future and sold it on the basis of 16 cents over, thereby making a profit of one-half cent per bushel.

In the foregoing example it has been assumed that from August 1 to September 1 there has been a decline in the market (measured by the September future) of 12 cents per bushel. On August 1 the price was \$1.47, on August 15 it was \$1.38, and on September 1, when the transactions were closed as to both A and B, it was \$1.35. The net results, however, for both A and B would have been unchanged regardless of what prices had been used, providing the same trading bases were maintained.

In the example given both parties were shown to be hedged in the same future. They might be hedged in different futures and still carry out the arrangement practically as described, the only difference being that elevator operator A, instead of being even in the futures market would be short in one future and long in another future. In this case he would instruct the simultaneous closing out of both futures. So long as the relationship between the two futures remained the same it would make no difference whether the futures were closed out at once or at some later date.

Arrangements whereby futures are exchanged for cash grain at stipulated price differences, serve two purposes: (1) It enables the contracting parties not only to consummate a deal in cash grain based upon an established relationship between cash-grain prices and futures but also to be relieved of their commitments in the futures markets on the basis exactly of the price differences so established; and (2) it permits the closing of hedges outside of the pit, where the force of such hedges, if of large amount, might be a price factor. In other words, it saves the party who is long futures from the possible danger of forcing the price down on himself by the act of selling and relieves the other party of the danger of forcing prices up by his act of buying.

HEDGING USE v. SPECULATIVE USE OF FUTURES

The futures market is frequently held out as offering opportunity to farmers and others to replace cash-grain risks with more favorable risks in the futures market. There are times unquestionably when this can be done to advantage, but these transactions should not be confused with hedging.

Magazine articles and literature are circulated at times which, while purporting to deal with hedging and the protective use of the futures market, in reality suggest practices that can not be classified otherwise than as speculation. For example, a small folder was circulated some time ago by a large and favorably known firm in the Southwest entitled "The Machinery of Grain Futures as Applied to Protection." Four uses of futures were described under this title. The first use suggested was that grain dealers having insufficient room or expecting an advance in the market should ship their cash wheat to market and repurchase a similar amount of futures when the cash grain was sold, thus having the advantage of more space for larger turnover and the release of funds for other purposes. There is, of course, no objection to such use of the futures market for speculative purposes and, as previously suggested, it may at times be preferable to speculate in the futures market rather than in cash grain. However, it is unfair to the futures market as well as to those seeking guidance in the protective use of futures to put forward any such proposition as being in the nature of a hedge.

The problem of the average country grain dealer is to avoid speculative risks rather than to make a choice of risks. There may be times, of course, when being unable to avoid risk altogether, he wishes to choose the less dangerous form of risk. In this connection, it may be noted that the producer of grain more than the dealer is faced constantly with what at present seems to be an unavoidable risk. He has available various forms of insurance against damage or destruction of property, including crops, but he does not have available at all times any certain means of protection against price declines affecting the value of his crops. This risk obtains practically from the time he prepares his ground for planting and even before. It is a kind of risk that can not be avoided altogether although the time during which it is carried may be controlled to some extent at least.

There are times when a good price opportunity presents itself in advance of having the crop in a salable condition and when by hedging in the futures market this opportunity can be taken advantage of. There are other times, perhaps, when the producer could better dispose of his surplus wheat, corn, or oats at harvest time and repurchase an equal amount of futures, if he believes in higher prices and is convinced that the futures can be carried more economically than can the actual grain. The latter practice, however, is not hedging in any sense. It is merely a change in the form of risk.

The producer, no doubt, can make his best use of the futures market by way of selling futures against his cash crop at times when a satisfactory price is reflected in the futures but the actual grain is not yet in a marketable position.

Suppose, for example, that a producer in the fall of the year is reasonably certain of having 3,000 bushels of corn which will grade No. 3 mixed in December and which he is willing to sell at, say, 87 cents per bushel, basis Chicago. By watching the December future he may see it reach a point some time which will reflect 87 cents per bushel, basis Chicago, for No. 3 mixed corn. He may then sell 3,000 bushels of the December future, protecting his sale by ample margins, and thereafter he can feel reasonably certain of realizing this price for his corn even though the market declines and is much lower at the time his actual corn is ready for market.

To illustrate, on October 1 he sells 3,000 bushels of the December future, say, at 90 cents, it being thought that No. 3 mixed corn in December will be selling at no greater discount under the December future than 3 cents per bushel. (No. 3 mixed corn under present rules is deliverable on Chicago futures contracts at $2\frac{1}{2}$ cents discount.) By December 15, when the cash corn is ready for delivery and sale to the local elevator, prices have declined, say, 10 cents per bushel. Instead of receiving a price which with freight and handling charges added would be equal to 87 cents per bushel, basis Chicago, he receives a price equal to only 77 cents. Having sold the December future at 90 cents per bushel, however, he will be able to buy it back at 80 cents or at a profit of 10 cents. This profit added to the price received for his cash corn will give him his original price objective of 87 cents per bushel. Should prices advance instead of decline by 10 cents a bushel the situation will be reversed. The producer then will realize 10 cents per bushel more for his cash corn but will lose this amount in having to buy back the December future at \$1 per bushel. In either event the effect has been to fix the price at 87 cents per bushel, assuming, of course that the relationship between cash and futures is maintained.

The above described use of the futures market is properly considered as hedging. It is a use of the futures market which producers can well afford to study since it may at times enable them to take advantage of a profitable price situation when it presents itself which might not obtain at the time that the cash crop is actually ready for market. Obviously, no one should be encouraged to deal in the futures market for any purpose unless he has a complete and clear understanding of just what is involved and is fully acquainted with the various contingencies that may arise.

COUNTRY PRACTICE IN USE OF FUTURES

The material presented in this part of the bulletin is based primarily upon the results of a survey, by means of questionnaires, of farmers' elevators and independently-operated private elevators in five States. The States selected were Ohio, Illinois, Iowa, North Dakota, and Kansas. Each of these States shows conditions that are typical of certain adjacent and surrounding territory so that a fairly good index to practices in the grain belt as a whole may be obtained from the five States.

EXTENT OF HEDGING BY COUNTRY ELEVATORS

Considerable variation is found among country elevators with respect to hedging practices. Dealers who hedge extensively will be found in the same town with dealers who do not hedge at all. There seems to be a difference, however, between farmers' elevators as a class and private dealers, private dealers hedging to a considerably larger extent than the farmers' elevators. The exception is found in North Dakota. While the percentage of both farmers' elevators and private dealers in that State that never hedge is practically the same (less than 3 per cent) the percentage of farmers' elevators classified as generally hedging (89.9 per cent) is larger than for the private dealers (81.1 per cent).

Table 1 shows the percentage of elevators, both farmers and private, reported as (1) never hedging, (2) hedging occasionally, and (3) hedging generally. It will be observed that in States other than

North Dakota the percentage of farmers' elevators classified as never hedging is over 60 per cent, the lowest being 63.9 per cent in Iowa, and the highest 72.7 per cent in Ohio. On the other hand, the lowest percentage of private dealers classified as never hedging, in States outside of North Dakota, is 30.8 per cent in Illinois, and the highest, 50.6 per cent, in Ohio. Elevators were classified as hedging generally when it appeared that they made regular use of the futures market and where a large proportion of purchases were reported as covered immediately either by sales of futures or by sales of futures and the acceptance of card bids. They were classified as hedging occasionally when they reported some use of the futures markets but where it appeared that such use was occasional only and not a matter of established practice.

TABLE 1.—*Reported hedging policy of country elevators*

Hedging policy	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Elevators reporting-----	156	169	135	115	44	83	129	74	127	192	592	633
No hedging-----	<i>Per ct.</i> 68.6	<i>Per ct.</i> 30.8	<i>Per ct.</i> 63.9	<i>Per ct.</i> 39.1	<i>Per ct.</i> 72.7	<i>Per ct.</i> 50.6	<i>Per ct.</i> 2.3	<i>Per ct.</i> 2.7	<i>Per ct.</i> 67.7	<i>Per ct.</i> 44.8	<i>Per ct.</i> 53.2	<i>Per ct.</i> 35.8
Occasional hedging-----	18.6	23.6	30.2	32.2	20.5	43.4	7.8	16.2	29.1	40.6	21.3	32.1
Hedging as a general practice-----	12.8	45.6	5.9	28.7	6.8	6.0	89.9	81.1	3.2	14.6	25.5	32.1

REASONS FOR NOT HEDGING

Table 2 shows a summary of the reasons most frequently given for not using the futures market at all for hedging purposes. Among farmers' elevators the reason most frequently given is that use of the futures market is prohibited as a matter of policy. In some cases the nonuse policy is determined by the board of directors, and in others it is covered by special provision in the company's by-laws, which can be changed only by action of the stockholders.

TABLE 2.—*Reasons most frequently given for never using futures*

Reason given	Elevators reporting			
	Farmers' elevators		Private dealers	
	Number	Per cent	Number	Per cent
Use prohibited-----	94	41.05	7	5.74
Do not believe in it-----	53	25.33	39	31.97
Do not understand-----	13	5.68	9	7.38
Spreads not uniform-----	18	7.86	6	4.92
Better results not hedging-----	18	7.86	15	12.29
Volume of business too small-----	11	4.80	17	13.93
Unsatisfactory past experience-----	9	3.93	16	13.11
Near market-----	6	2.62	2	1.64
Fluctuations too great-----	2	.87	11	9.02
Total-----	229	100.00	122	100.00

A number of the managers of those farmers' elevators reporting that hedging was prohibited as a matter of policy either by the board of directors or by the by-laws of the company took occasion to express personal views favorable to hedging.

In Illinois, among 37 farmers' elevators reporting that hedging was prohibited either by the directors or by by-law provision, the managers of three expressed personal views favoring hedging. In Iowa, among 29 farmers' elevators prohibiting hedges, 9 managers expressed favorable personal views. In Kansas, among 21 elevators prohibiting hedges, 4 managers expressed favorable personal views, and in Ohio, among 7 farmers' elevators prohibiting hedges, 1 manager expressed a favorable personal opinion.

The reason most frequently given by private dealers for nonuse of the futures market was that they did not believe in it. This was also the second largest reason given by farmers' elevators for not using it. This answer does not always reflect exactly the same attitude, but for the most part it represents the attitude of those who do not believe in it as a matter of principle rather than of those who do not believe in its hedging value. This reason for nonuse by private dealers grows out of much the same attitude that induces farmers' elevators to prohibit its use. The real reason for many of these answers undoubtedly is found in a lack of understanding. While lack of understanding was reported by a number of elevators as reason for nonuse, it is probable that this is a larger factor than appears from the answers.

TENDENCY IN REGARD TO USE OF FUTURES

The survey upon which these studies are based was made shortly following the unsatisfactory market conditions existing in the 1925 May wheat future, and it is possible that some of the answers relative to the use of futures on the whole may have been influenced in some measure by experiences in that particular market. This seems to be true more especially of answers bearing on the question of whether greater or less use was being made of futures than formerly.

Table 3 summarizes the answers received bearing upon use tendency.

TABLE 3.—*Summary of answers to question "Do you use futures market more or less than formerly?"*

Item	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Elevators reporting—												
More frequent use of futures market.....	17	45	19	28	7	19	33	16	23	56	99	164
Less frequent use of futures market.....	37	53	16	24	6	19	11	19	14	31	84	146
No change.....	13	30	11	21	2	5	60	32	9	21	95	109
Total.....	67	128	46	73	15	43	104	67	46	108	278	419

Except in Illinois, farmers' elevators appeared to be using the futures markets to a slightly greater extent than formerly. In Kansas both farmers' and private elevators appeared to be making more use of futures than formerly. Otherwise the answers were indicative of but little change either way.

Out of 191 elevators, both farmers' and private, in the five States reporting specific reasons for increased use of futures, answers were given as follows: By 72, greater necessity; by 52, greater fluctuations; by 29, results more satisfactory; by 13, found to be better policy; by 13, better understanding; by 12, various reasons not classified. Out of 116 elevators giving specific reasons for a decreased use of the futures markets answers were given as follows: By 32, greater fluctuations; by 20, not profitable; by 14, unsafe; by 13, no protection; by 12, prefer to sell on track; by 6, margins too large; by 5, use prohibited; and by 14, various reasons not classified.

DEALERS' ATTITUDE TOWARD USE OF FUTURES

In addition to questions concerning some specific point in connection with the elevators' use of futures or its application to certain phases of their business, the questionnaires invited an expression of views and suggestions generally on the subject of hedging in futures. A wide variety of suggestions and comments was found in the answers to this part of the questionnaire. Some went to one extreme in praising the futures market as an imperative necessity in the safe conduct of their business, while others went to the other extreme in condemning everything connected with future trading and in claiming that the grain markets and the country as a whole would be better off if it were prohibited altogether.

Table 4 shows the expressed attitude of country elevator operators generally, as resolved into three general classes: Favorable, unfavorable, and neutral. That the attitude of many operators was influenced to some extent, perhaps, by the unsatisfactory conditions attending the markets in the winter and spring of 1925, must be considered in connection with these results. The unfavorable attitude of some was no doubt of temporary character and did not fairly reflect the attitude normally theirs.

TABLE 4.—General attitude of country elevator operators toward future trading

Attitude toward future trading	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
	Perct.	Perct.	Perct.	Perct.	Perct.	Perct.	Perct.	Perct.	Perct.	Perct.	Perct.	Perct.
Elevators reporting.....	155	169	132	111	38	63	129	74	118	191	572	608
Favorable.....	15	53	26	50	32	54	82	88	30	45	37	54
Unfavorable.....	69	38	55	22	47	35	11	5	57	35	49	30
Neutral.....	16	9	19	28	21	11	7	7	13	20	14	16

Table 5 represents an effort to summarize in a general way the comments and statements of experience furnished by elevators in the five States.

TABLE 5.—*Summary of experience statements and comments of country elevator operators most frequently given*

Comments	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Elevators reporting.....	129	130	114	81	29	50	119	64	107	149	498	474
	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>	<i>Perct.</i>
Results satisfactory.....	14.0	42.3	19.3	50.6	20.7	40	79.8	82.8	25.2	40.3	33.7	48.3
Results not satisfactory.....	7.0	5.4	4.4	13.6	3.5	6	8.4	3.1	6.5	10.1	6.4	8.0
Results only fair.....	8.5	17.7	14.8	16.1	6.9	8	11.8	14.1	3.8	14.8	9.7	14.9
Better results not hedging.....	8.5	3.1	3.5	-----	10.3	4	-----	-----	4.7	5.4	4.6	3.0
Fluctuations too great.....	1.6	12.3	1.8	4.9	3.5	4	-----	-----	.9	6.7	1.2	6.8
Spreads between cash and futures not uniform.....	12.4	6.1	5.2	-----	-----	4	-----	-----	2.8	2.0	5.0	2.7
Near market, hedging unnecessary.....	2.3	.8	.9	-----	-----	-----	-----	-----	1.9	.6	1.2	.4
Volume of business too small.....	1.6	3.8	1.8	1.3	13.8	12	-----	-----	2.8	3.4	2.2	3.6
Use only in case of car shortage.....	1.5	-----	.9	-----	-----	2	-----	-----	1.9	-----	1.0	.2
Do not believe in hedging.....	11.6	3.9	14.8	11.1	13.8	12	-----	-----	23.4	14.1	12.3	8.7
Hedging prohibited as matter of policy.....	29.5	1.5	24.5	1.2	24.1	-----	-----	-----	22.4	1.3	19.5	1.1
Do not understand hedging. Better understanding now than formerly.....	1.5	3.1	7.2	-----	3.4	4	-----	-----	3.7	1.3	3.0	1.7
	-----	-----	.9	1.2	-----	4	-----	-----	-----	-----	.2	6

RESULTS OF HEDGING FOR DIFFERENT PURPOSES

There are three main purposes to which hedging in the futures market may be applied in the country grain business: (1) Selling futures against cash grain purchased and either consigning the cash grain or later selling it "on track" or "to arrive." The object here is to approximate as nearly as possible the then-prevailing spot price which the seller is unable to take advantage of directly, or it may be to give a wider opportunity to canvass the market for special track bids while at the same time having protection against general price declines; (2) Selling futures (usually the more distant) against cash-grain purchases or grain in warehouse, not intending immediately to market the cash grain but expecting to earn an extra profit in the way of a carrying charge; (3) Purchasing futures against the grain of customers which was received for storage but which has been shipped and sold. The elevator in this case attempts in effect to replace by the purchase of futures grain which has been shipped and sold in advance of its purchase.

Table 6 shows the extent to which elevators make use of the futures market for each of the purposes named.

TABLE 6.—*Extent of hedging for different purposes as reported by country elevators in five States*

Purpose of hedging	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
To protect cash grain purchased:												
Elevators reporting number	146	142	123	103	39	65	102	59	119	174	529	543
Elevators hedging number	34	78	29	52	4	12	93	53	31	88	191	283
Elevators hedging per cent	23.3	54.9	23.6	50.5	10.3	18.5	91.2	89.8	26.1	50.6	36.1	52.1
To earn carrying charge:												
Elevators reporting number	146	137	114	103	37	66	88	54	104	156	489	516
Elevators hedging number	22	65	15	46	-----	12	45	29	5	30	87	182
Elevators hedging per cent	15.1	47.4	13.2	44.7	-----	18.2	51.1	53.7	4.8	19.2	17.8	35.3
To replace customers' stored grain shipped and sold:												
Elevators reporting number	150	145	128	109	42	70	118	69	114	168	552	561
Elevators hedging number	42	67	34	42	9	17	100	60	21	37	206	223
Elevators hedging per cent	28.0	46.2	26.6	38.5	21.4	24.3	84.7	86.9	18.4	22.0	37.3	39.8

STORING GRAIN FOR FARMERS

Table 7 shows results of hedging for the various purposes as reported by a number of elevators, both farmers' and private, in each of the five States. It will be seen from this table that use of the futures market to replace farmers' stored grain shipped and sold is the least satisfactory of the hedging uses. Only about 57 per cent of the elevators reporting upon this use of the futures market reported satisfactory results. Table 6 seems to indicate that on the whole farmers' elevators put the futures market to this use fully as much as to other uses, while the largest use by the private elevators is shown to be for the purpose of protecting cash grain purchased.

The storing of grain by country elevators for farmers is a hazardous undertaking unless such elevators have ample storage space as well as good cleaning and conditioning facilities and are in a position to obtain reasonable charges for this service. Comparatively few country elevators are so situated that they can carry on profitably a storage business. The average country elevator does not have the necessary storage space, nor does the revenue ordinarily to be obtained from storing grain justify an increase in storage space. Hence, elevators engaging in this kind of business are soon confronted with the problem of shifting the burden of actual storage to some one else. The futures market is naturally looked to as offering a possible solution.

The practice of buying futures to replace customers' grain shipped and sold is somewhat similar to the practice of millers in making forward sales of flour and hedging their short position in flour by the purchase of wheat futures. In practice, however, country elevator operators attempting to replace customers' grain shipped out by purchases of futures usually find themselves in a more difficult

position. In fact, were the elevators that engage in this class of business to adopt a schedule of adequate charges and take the proper measures of safeguard in their contracts with customers, it is unlikely that much business of this kind would be done with farmers.

TABLE 7.—*Results of hedging for different purposes as reported by country elevators in five States*

Purpose of hedging	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
To protect cash grain purchased:	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
Elevators reporting.....	26	64	23	42	2	7	82	42	27	78	160	233
Elevators reporting good results.....	<i>Perct.</i> 57.69	<i>Perct.</i> 70.31	<i>Perct.</i> 56.52	<i>Perct.</i> 66.67	<i>Perct.</i> 50.00	<i>Perct.</i> 71.43	<i>Perct.</i> 82.93	<i>Perct.</i> 78.57	<i>Perct.</i> 74.07	<i>Perct.</i> 67.95	<i>Perct.</i> 73.13	<i>Perct.</i> 70.39
Elevators reporting fair results.....	38.46	25.00	34.78	23.81	50.00	28.57	17.07	19.05	18.52	23.08	23.75	23.18
Elevators reporting poor results.....	3.85	4.69	8.70	9.52	-----	-----	-----	2.38	7.41	8.97	3.12	6.43
To earn a carrying charge:	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
Elevators reporting.....	19	55	14	39	-----	11	40	24	4	23	77	155
Elevators reporting good results.....	<i>Perct.</i> 68.42	<i>Perct.</i> 68.96	<i>Perct.</i> 64.29	<i>Perct.</i> 76.92	<i>Perct.</i> -----	<i>Perct.</i> 81.82	<i>Perct.</i> 82.50	<i>Perct.</i> 70.83	<i>Perct.</i> 75.00	<i>Perct.</i> 60.86	<i>Perct.</i> 75.32	<i>Perct.</i> 70.97
Elevators reporting fair results.....	26.32	25.86	35.71	15.39	-----	9.09	12.50	25.00	25.00	34.78	20.78	23.23
Elevators reporting poor results.....	5.26	5.18	-----	7.69	-----	9.09	5.00	4.17	-----	4.36	3.90	5.80
To replace customers' stored grain shipped and sold:	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
Elevators reporting.....	37	62	32	38	8	16	88	48	21	33	186	197
Elevators reporting good results.....	<i>Perct.</i> 35.14	<i>Perct.</i> 43.55	<i>Perct.</i> 50.00	<i>Perct.</i> 63.16	<i>Perct.</i> 62.50	<i>Perct.</i> 81.25	<i>Perct.</i> 67.04	<i>Perct.</i> 66.67	<i>Perct.</i> 61.90	<i>Perct.</i> 51.52	<i>Perct.</i> 56.99	<i>Perct.</i> 57.36
Elevators reporting fair results.....	27.02	40.32	25.00	13.16	25.00	12.50	19.32	20.83	14.29	18.18	21.51	24.37
Elevators reporting poor results.....	37.84	16.13	25.00	23.68	12.50	6.25	13.64	12.50	23.81	30.30	21.50	18.27

The obligations assumed by those who do considerable business of the kind described are for the most part unreasonably large in proportion to the charges at which the service is offered. Normally, spot prices should gain relative to the futures during periods, say, from December to May, thereby reflecting what is known as a carrying charge. In spite of this, elevators are found that actually undertake to store grain for farmers without making any storage charge whatever. Having no storage space of their own they ship the stored grain to market and buy the futures. This means that if there is a carrying charge the elevator, while collecting no storage charges of its own, is actually paying storage in the form of a carrying charge as the grain is carried forward.

There is another matter to be considered in connection with the practice of storing where the customers' stored grain must be shipped and sold and replaced with purchases of grain futures. Obviously grain stored under such conditions is not stored at all in the sense of being withheld from market. It exerts the same sort of selling pressure in the cash market as though sold in the first instance by the farmer. It might be thought that the purchase back of futures

would have an offsetting effect on price, but it must be remembered that the futures market is so much larger that purchases and sales in the futures market do not have the same effect as the same sized purchases and sales in the cash market.

FUTURES PRICES USED AS BASIS FOR LOCAL PRICES

Many elevators, while not using the futures market at all for hedging purposes, have found it a valuable guide in determining prices to be paid locally.

Table 8 is of interest as showing what factors are regarded as most important in establishing local prices.

TABLE 8.—*Main factors reported in establishing prices to be paid farmers by country elevators*

Factors	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Elevators reporting.....	220	260	199	172	62	115	158	89	167	246	806	882
	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
Futures.....	12.7	26.5	10.5	21.5	17.7	19.1	37.4	34.8	24.6	30.9	19.8	26.6
Overnight bids.....	50.0	40.8	49.3	38.4	43.4	43.5	1.9	1.1	23.9	18.3	34.4	30.4
Spot price.....	37.3	32.7	39.2	40.1	35.3	33.9	39.2	36.0	51.5	50.8	40.7	39.7
Other main factors ¹	-----	-----	1.0	-----	3.6	3.5	21.5	28.1	-----	-----	5.1	3.3

¹ A few elevators gave local competition as principal factor. In North Dakota a considerable number gave Daily Bulletin as principal factor. This is a price-guide card sent daily from Minneapolis giving prices which its editor believes should be paid.

It appears that in Ohio, Illinois, and Iowa overnight bids are a large factor in establishing prices to be paid farmers, whereas in North Dakota bids are a relatively unimportant factor. In North Dakota futures prices and spot prices in the terminal markets seem to be relied upon to about the same extent. For elevators in Kansas spot prices are given as the largest factor in determining prices locally. While no information was obtained on this particular point, it is possible that where protein in wheat is an important factor, elevators in trying to reflect protein premiums may have to be guided in the prices paid locally more by the spot market for various qualities of such wheat than by either the futures or the card bids.

CONSIGNMENTS v. TIME SALES

Some elevators favor the consignment method of selling, while others prefer to sell grain by the acceptance of "on track" or "to arrive" bids. Those favoring consignments usually claim the advantage of a more highly competitive market where various interests have an opportunity to examine the grain and discover any special qualities. Spot prices are generally, though not always, higher than bids "to arrive". This will apply more particularly to bids coming from the larger terminal markets and does not apply with equal force to the bids of interior industries and mills. This class of buyer sometimes sends out bids that, for short periods at least, may be higher than either the spot or "to arrive" prices in near-by terminal markets. Mills and industries finding that their sales of grain products are running ahead of their grain purchases, or that their stocks of raw grain must

be increased and the flow of grain stimulated in their direction take this means of more quickly and certainly meeting their requirements. While the interior mills and industries may and do use the futures markets of the larger terminals to hedge their forward sales of flour and grain products such hedges do not solve the problem of actually getting grain for milling purposes at the time, at the place, and in the quantities wanted; therefore, they must at times make their bids reflect some special price inducement.

Country elevators that prefer selling grain "on track" or "to arrive" watch carefully the bids from the larger terminal markets as well as those of the local mills and industries. Past favorable or unfavorable experience in matters of weighing, grading, promptness of pay, etc., as well as the known financial responsibility and integrity of individual firms, all are taken into account and receive more consideration, perhaps, in the case of selling on bids to local industries and mills than in the case of shipments either on consignment or on sale to the larger terminal markets where handling practice is more or less uniform.

Elevators favoring the acceptance of "to arrive" or "on track" bids usually claim the advantage of greater price security and freedom from loss through fluctuating markets. If all grain can be sold to advantage on bids as soon as purchased, there will, of course, be no need for hedging. On the other hand, in the case of consigned grain not hedged there is an open price risk existing from the time of purchase until the time of sale, days and even weeks apart.

Table 9 indicates the proportion of grain shipments reported moving to market on consignment and on time sales. The figures presented are based upon averaging the estimates given by a number of representative elevators and are to be given weight accordingly. For example, while 11 farmers' elevators and 4 private elevators in North Dakota are shown as reporting on corn, figures obtained as the result of averaging the percentages given by these elevators are not to be given the same weight as those obtained from one of the corn-producing States, such as Iowa, where 136 farmers' elevators and 137 private elevators have reported. It is believed, however, that taken as a whole, the distribution of shipments as between consignments and times sales is fairly representative of practices normally followed. The extreme of differences in practice exists in the States of North Dakota and Ohio as to all grains. The preference among North Dakota elevators appears to be strongly in favor of consignments whereas the Ohio elevators seem to run even more strongly in favor of selling "on track" or "to arrive." This is easily accounted for by the fact that Ohio elevators find more points of local contact with interior mills and manufacturers, while the movement in North Dakota is to Minneapolis and Duluth, larger terminal centers with highly developed spot markets.

Elevator operators who follow a strict consignment policy in the disposal of their grain naturally may be expected to be larger and more consistent users of the futures for hedging purposes than those operators who sell largely "to arrive" or "on track".

North Dakota elevators hedge more extensively than those of any other State included in this study and at the same time favor more markedly the consignment method of sale. Ohio elevators, on the other hand, appear to hedge very little and also stand out as consign-

ing grain to the least extent. Other factors, of course, are important as accounting for the difference in use and nonuse of futures in these two States.

TABLE 9.—Average percentage of shipments reported moving to market on consignment and on time sales from country elevators in five States

Shipments moving	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Wheat:												
Elevators reporting												
-----number-----	136	138	47	41	35	54	102	61	119	170	439	464
On consignment												
-----per cent-----	54.2	54.5	49.8	68.7	9.0	13.6	66.8	75.7	63.1	61.7	55.5	56.4
Applying on time sales												
-----per cent-----	45.8	45.5	50.2	31.3	91.0	86.4	33.2	24.3	36.9	38.3	44.5	43.6
Corn:												
Elevators reporting												
-----number-----	136	137	127	93	17	34	11	4	89	137	380	405
Moving on consignment												
-----per cent-----	41.7	48.7	45.8	54.1	13.9	14.2	85.4	78.7	38.9	41.6	42.5	44.9
Applying on time sales												
-----per cent-----	58.3	51.3	54.2	45.9	86.1	85.8	14.6	21.3	61.1	58.4	57.5	55.1
Oats:												
Elevators reporting												
-----number-----	130	136	122	92	23	40	76	46	12	36	363	350
Moving on consignment												
-----per cent-----	48.1	49.2	49.6	55.1	14.3	16.4	77.9	70.2	42.5	22.2	52.4	47.1
Applying on time sales												
-----per cent-----	51.9	50.8	50.4	44.9	85.7	83.6	22.1	29.8	57.5	77.8	47.6	52.9

There is a wide difference between elevator operators in the same State with respect to sales practices. This is shown in Table 10 where elevators are grouped according to percentage of shipments reported moving to market on consignment.

TABLE 10.—Percentage of shipments moving to market on consignment as reported by elevators in five States

Percentage of shipments	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Wheat:												
Elevators reporting												
None	136	138	47	41	35	54	102	61	119	170	439	464
Under 25	16	17	10	-----	17	25	9	6	2	8	54	56
25 to 49	25	23	5	7	12	19	4	2	19	25	65	76
50 to 79	15	19	7	4	4	3	6	2	16	19	48	47
80 to 99	29	24	6	8	2	5	12	11	23	45	72	93
100	17	17	10	5	-----	1	23	15	47	42	97	80
Corn:												
Elevators reporting												
None	136	137	127	93	17	34	11	4	89	137	380	405
Under 25	9	3	5	5	4	13	-----	-----	16	22	34	43
25 to 49	43	32	34	15	9	12	-----	1	23	34	109	94
50 to 79	23	32	18	15	3	5	-----	-----	8	13	52	65
80 to 99	32	34	44	31	1	4	1	-----	23	37	101	106
100	18	18	19	19	-----	-----	1	1	16	19	54	57
Oats:												
Elevators reporting												
None	130	136	122	92	23	40	76	46	12	36	363	350
Under 25	5	7	5	2	7	16	8	7	5	20	30	52
25 to 49	33	33	30	16	10	13	3	4	1	2	77	68
50 to 79	22	19	14	17	5	5	2	2	-----	6	43	49
80 to 99	37	40	36	29	1	4	7	4	2	4	83	81
100	17	13	25	14	-----	1	10	6	-----	1	52	35
	16	24	12	14	-----	1	46	23	4	3	78	65

In order to test whether elevators favoring the consignment method of sale are also more disposed to look with favor upon hedging in the futures market, elevators were thrown into two groups. In one group were placed those that indicated a marked preference for consignment selling and in another group those that showed marked preference for selling "on track" or "to arrive" (time sales). Many elevators, of course, showed consignment preference for one kind of grain and time-sales preference for other kinds. In this grouping were included only those elevators that showed a pronounced liking for one or the other method of sale regardless of grains. Necessarily the number of elevators was cut down by this method of classification, and the results for some States are based on such small numbers as to be of little significance. Results are presented in Table 11 and should be read with these qualifications in mind.

TABLE 11.—*Hedging policies of elevators that sell grain principally on consignment and of elevators that sell principally on bids*

Principal method of selling	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Selling on consignment:												
Elevators reporting												
.....number.....	45	47	41	42	-----	3	79	48	36	68	201	208
Elevators that never												
hedge.....number.....	33	12	28	15	-----	2	-----	2	25	27	86	58
Elevators that hedge												
generally or occasion-												
ally.....number.....	12	35	13	27	-----	1	79	46	11	41	115	150
Do.....per cent.....	26.6	74.5	31.7	64.3	-----	33.3	100	95.8	30.5	60.3	57.2	72.1
Selling on bids:												
Elevators reporting												
.....number.....	49	48	49	32	28	45	17	10	34	50	177	185
Elevators that never												
hedge.....number.....	37	14	34	13	19	21	-----	-----	22	25	112	73
Elevators that hedge												
generally or occasion-												
ally.....number.....	12	34	15	19	9	24	17	10	12	25	65	112
Do.....per cent.....	24.5	70.8	30.6	59.4	32.1	53.3	100	100	35.3	50.0	36.7	60.5

The relationship between consignment preferences and hedging preferences is not so pronounced as might be expected. This may be accounted for by the fact that in Illinois, Iowa, Kansas, and Ohio the large number of elevators reporting no hedging done reflects to some extent an unfriendly attitude toward hedging and future trading. Their nonhedging policy, therefore, does not indicate any special preference for a method of sale that makes hedging unnecessary. Among the elevators that seem violently opposed to hedging and to future trading, there are quite as many apparently preferring the consignment method of selling as there are of those preferring to sell "on track" or "to arrive".

A straight out-and-out consignment policy, combined with a strictly nonhedging policy would indicate a willingness to take chances or a belief that average experience will contain enough fortunate results to offset the unfortunate.

CARRYING OF PRICE RISK

Table 12 indicates the average percentages of wheat, corn, and oats in the several States which are hedged immediately in the futures market, the percentages sold immediately by the acceptance of card bids and the percentages carried long.

TABLE 12.—*Reported sales policies of country elevators*

Sales method (per cent)	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Wheat:												
Purchases immediately hedged in futures market.....	9.9	30.4	12.8	22.8	8.8	14.3	85.3	79.9	7.1	17.2	35.4	31.5
Purchases immediately sold by acceptance of card bids.....	59.4	43.4	44.5	39.3	77.4	65.3	8.6	13.0	42.4	33.9	40.1	38.2
Purchases carried long.....	35.4	29.1	37.0	36.4	15.5	24.3	6.1	8.3	46.4	46.6	27.6	31.8
Corn:												
Purchases immediately hedged in futures market.....	9.5	29.8	7.0	23.4	13.2	13.0	-----	-----	7.2	16.1	10.6	22.6
Purchases immediately sold by acceptance of card bids.....	66.5	48.8	52.9	38.0	65.2	65.4	-----	-----	55.3	42.7	59.0	46.0
Purchases carried long.....	28.0	25.8	38.5	34.6	26.2	22.4	-----	-----	38.0	41.4	32.4	32.7
Oats:												
Purchases immediately hedged in futures market.....	10.4	33.8	4.5	23.6	13.2	10.7	68.4	71.3	12.5	9.2	25.5	32.4
Purchases immediately sold by acceptance of card bids.....	59.9	36.5	48.3	37.4	64.7	63.1	9.5	14.8	65.6	61.1	44.6	39.2
Purchases carried long.....	34.7	35.2	46.0	37.3	23.6	27.1	24.3	18.9	25.0	37.8	34.2	32.7

NOTE.—Percentage distribution as between amounts immediately hedged, sold, and carried long approximates but does not equal 100 per cent. This is because the same elevators did not always report on all three propositions.

Grain carried long is in a speculative position and involves a market risk. The extent of the risk is measured somewhat by the length of time during which grain is held in a speculative position, although sometimes sudden change in price can wipe out profits almost as quickly as those taking place over longer periods of time.

Answers bearing upon the number of days grain was carried long varied greatly, some holding grain unhedged and unsold for extremely long periods, while others made disposition of some kind almost at once.

For farmers' elevators reporting the approximate number of days grain was carried long on an average, the following results appear: Wheat (168 reporting), 27 days; corn (143 reporting), 27 days; oats (131 reporting), 42 days. For private dealers: Wheat (219 reporting) 39 days; corn (203 reporting), 42 days; oats (154 reporting), 71 days.

These figures, being based upon an average of the estimates of a comparatively small number of elevators scattered throughout five States, are indicative of conditions only in a general way. However, they tend to confirm the general belief that oats are carried by elevators in a speculative position to a considerably larger extent than is either wheat or corn, and that when private dealers undertake to carry grain for speculative profit they are disposed to carry it for

longer periods than are farmers' elevators. It would appear, therefore, that while private dealers (outside North Dakota) use the futures markets for hedging purposes to a larger extent than farmers' elevators those of them that are disposed to take a speculative position are also more daring in this direction than are the farmers' elevators.

KEEPING OF RECORDS

That speculation is a common cause of failure among country elevators, both farmers' and private, is generally conceded. It is not generally appreciated, however, that speculation sometimes is only the indirect cause of such failures and that a more direct cause lies in the failure of many elevators to keep any kind of permanent record from which their actual market position, long or short, can be determined at all times.

Table 13 shows a rather surprising situation in this regard. In the States other than North Dakota it appears that only about 50 per cent of the elevators reporting maintain any permanent records of their position long, or short. The percentage of farmers' elevators that report the keeping of permanent records exceeds that of the private elevators. There is a possibility, of course, that temporary memorandum records may be kept by some of the elevators reporting no records. On the other hand, many of the sample records submitted were of such character that in actual operating practice it would be extremely unlikely that they could be kept up to date to a point where they would furnish a really live record for daily use.

TABLE 13.—*Extent to which permanent records are kept by country elevators showing their market position long or short at all times, based upon reports from elevators in five States*

Elevators—	Illinois				Iowa				Ohio			
	Farmers		Private		Farmers		Private		Farmers		Private	
	No.	Perct.	No.	Perct.	No.	Perct.	No.	Perct.	No.	Perct.	No.	Perct.
Reporting.....	96	100	129	100	75	100	86	100	32	100	58	100
Having records.....	46	47.9	55	43.4	41	54.7	34	39.5	14	43.7	17	29.3
Not having records.....	50	52.1	73	56.6	34	45.3	52	60.5	18	56.3	41	70.7

Elevator—	North Dakota				Kansas				All replies			
	Farmers		Private		Farmers		Private		Farmers		Private	
	No.	Perct.	No.	Perct.	No.	Perct.	No.	Perct.	No.	Perct.	No.	Perct.
Reporting.....	116	100	59	100	93	100	147	100	412	100	479	100
Having records.....	108	93.1	48	81.4	55	59.1	80	54.4	264	64.1	235	49.1
Not having records.....	8	6.9	11	18.6	38	40.9	67	45.6	148	35.9	244	50.9

A great deal has been written and said concerning the accounting needs of country elevators. The field seems to have been particularly inviting to inventors of systems. All kinds of accounting forms and mechanical contrivances have been put on the market to ease the bookkeeping difficulties of the country dealer. To date, however, no system has been found that is fully self-paying. In fact, a large proportion of them are deficient in the very essential that country

operators need most—exact cumulative knowledge of open risks. Some of the systems have ingeniously devised schemes for keeping all general and financial accounts in perfect balance and down to date, including even a perpetual inventory, but when it comes to telling the operator what his position long or short in cash grain and in futures may be, they seem to be grossly deficient. Why is this? Mainly because one's position in the market is a constantly changing one and the factors which enter into it are outside of the ordinary accounting field. The accountant deals mostly with the proper recording of completed transactions while one's risks (market positions) are made up largely of ownership obligations and contractual relationships that are past history by the time the money transactions themselves reach the bookkeeping stage.

Consider the following transactions that may take place in a country elevator during a single day:

Purchases of various kinds of grain from many different customers at varying prices, depending upon grades to be delivered and the time of delivery.

Receipts of different lots of varying kinds and grades of grain which are to apply on prior contracts and which may, or may not, be of the grades actually contracted for and may be in amounts over or under the amounts actually contracted, thus necessitating different price adjustments and adjustment in contract quantities.

Grain received which is neither sold nor applied on contracts but which is either to be placed in cars and shipped separately for the accounts of customers, or is to be stored or held temporarily for the accommodation of customers who are awaiting a more favorable time to sell.

The purchase of odd lots of grain of various kinds which may already have been delivered for storage or are held temporarily for the accommodation of customers.

Reported sales of car lots of grain arriving in the different markets on consignment.

Sales of special lots of grain "on track" or "to arrive" induced by special bids.

Grain sold to local feed trade, or for seed purposes, or transferred from the elevator into the feed department for grinding prior to local sale.

Reported arrival of cars at terminal markets or interior points and their application on previous sales, or reports of cars failing to grade and involving price adjustments or replacement by new shipments and new disposal of the cars in question.

Purchases or sales of futures made to protect net long or short interests as they develop on cash grain.

Closing open trades in futures or transferring from one month to the next.

From the above list of possible transactions arising during the course of the day and while the market is subject to fluctuations exceeding frequently the margin of profit upon which the elevator operates, it will be seen a country elevator operator may have much to occupy his time. The business of recording and assembling this complex mass of detail so as to furnish constant and exact knowledge of one's market position at any moment should not be left to memory or to bookkeeping methods that deal only with completed transactions. Unfortunately, too many country operators still conduct this part of the grain business on a more or less hit-or-miss basis. It is indeed the key to many failures—failures due to inadvertent speculation induced by lack of information concerning a most essential phase of the grain business.

CHOICE OF HEDGING MARKETS

Elevators in the five States covered by the study are scattered over territory served by the futures markets of Chicago, Minneapolis, Duluth, Kansas City, St. Louis, and Milwaukee. The influence of

Chicago, of course, extends much farther than any of the others and is used to some extent by some elevators in all of these States. As might be expected, however, the disposition of elevators generally is to use that futures market to which they are most logically tributary and to which they ordinarily send their grain consignments. Table 14 is a tabulation of answers received to the question, "What markets do you use for futures?"

TABLE 14.—Principal hedging market reported by country elevators in five States

Market used	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Chicago.....	58	130	44	63	13	37	2	3	—	10	117	243
St. Louis.....	1	3	—	1	—	—	—	—	—	—	1	4
Kansas City.....	—	—	—	—	—	—	—	—	32	89	32	89
Chicago and St. Louis.....	1	3	1	3	—	—	—	—	—	—	2	6
Chicago and Kansas City.....	—	—	—	2	—	—	—	—	5	22	5	24
Chicago and Milwaukee.....	—	—	—	1	—	—	—	—	—	—	—	1
Minneapolis.....	—	—	—	—	—	1	121	71	—	—	121	72
Duluth.....	—	—	—	—	—	—	86	43	—	—	86	43
Total.....	60	136	45	70	13	38	209	117	37	121	364	482

MOVEMENT OF GRAIN DIRECT TO MILLS AND INDUSTRIES AFFECTS NEED FOR HEDGING

For some years, in Illinois and Iowa at least, there has been a growing tendency for country elevators to find outlet for more and more of their grain through the smaller outside markets. Just what proportion of the grain, which otherwise would move to Chicago and other large markets, is now passing into the smaller outside markets is not known, but Table 15, showing the percentage of shipments reported by certain elevators to be moving direct to industries, mills, feeders, etc., and not passing through the larger terminal markets, throws some light upon the present existing practice. The older men in the business can easily recall when comparatively little of the grain marketed from Iowa and Illinois moved otherwise than to the larger markets and when the mills and industries depended almost entirely upon these markets for their supplies.

TABLE 15.—Percentage of grain shipments moving directly to industries, mills, feeders, etc., as reported by country elevators in five States

Shipments (per cent)	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Wheat:												
Elevators reporting; number-----	27	40	14	8	31	51	46	30	73	107	191	236
Under 25-----	10	13	5	4	5	4	30	15	29	43	79	79
25 to 49-----	3	5	4	-----	1	2	8	6	11	18	27	31
50 to 79-----	6	9	2	1	8	8	3	5	18	25	37	48
80 to 99-----	4	3	-----	2	6	13	2	2	7	15	19	35
100-----	4	10	3	1	11	24	3	2	8	6	29	43
Average per cent of those reporting-----	46.7	52.6	41.5	45.0	71.4	80.7	24.1	32.6	41.0	41.0	42.7	50.6
Corn:												
Elevators reporting; number-----	85	87	73	63	18	31	2	3	54	86	232	270
Under 25-----	28	24	45	32	2	3	-----	1	16	25	91	85
25 to 49-----	19	19	13	11	2	2	-----	1	5	6	39	39
50 to 79-----	28	30	12	11	5	7	1	-----	13	27	59	75
80 to 99-----	6	8	1	6	2	9	-----	-----	6	19	15	42
100-----	4	6	2	3	7	10	1	1	14	9	28	29
Average per cent of those reporting-----	41.1	44.6	25.2	34.1	73.8	73.8	-----	-----	54.5	53.8	42.2	48.5
Oats:												
Elevators reporting; number-----	63	64	63	57	22	31	16	17	8	25	172	194
Under 25-----	25	26	41	24	3	5	5	7	-----	2	74	64
25 to 49-----	12	8	9	11	2	1	1	-----	1	1	25	21
50 to 79-----	14	23	8	13	8	8	6	6	1	5	37	55
80 to 99-----	8	4	4	6	2	7	1	1	1	5	16	23
100-----	4	3	1	3	7	10	3	3	5	12	20	31
Average per cent of those reporting-----	41.1	39.6	26.5	38.8	65.9	71.2	46.5	46.2	83.1	79.7	41.4	50.2

Out of 172 Illinois elevators reporting upon corn shipments, 82, or about 48 per cent, fall into a group reporting 50 per cent or more of their shipments as moving direct to industries, mills, or feeders. Ten of the 82 reported 100 per cent of their shipments as moving direct. The average of the various percentages reported for the Illinois elevators amounts to 42.9 per cent. This latter figure, of course, is indicative only in the most general and elastic kind of way of the percentage of corn shipments moving direct to industries. Averages of this kind may not be applied with safety to the total crop marketed from any one State since they are at best the estimates of individual elevators located in various sections of the State and handling varying amounts of grain.

The tables would seem to indicate that with respect to wheat the smallest percentage of direct marketing existed in North Dakota and the largest in Ohio. This is natural enough considering the centralization of milling facilities in the larger markets at Minneapolis and Duluth to which the wheat from North Dakota finds its most natural entry through commission firms operating on the organized exchanges of Minneapolis and Duluth. In Ohio there are a considerable number of small mills drawing their supplies from the local dealers and even from the farms direct.

With respect to corn, Ohio also appears to sell a larger percentage direct but, of oats, elevators in Kansas report the largest percentage moving direct. Of corn and oats, Illinois elevators appear to sell a larger percentage direct than do elevators in Iowa.

From the study as a whole it would appear that the private elevators are a trifle more keen in seeking market routes leading direct to the industries than are the farmers' elevators. The difference in this respect is not sufficiently marked to draw positive conclusions but is in accord with some trade opinion.

If the farmers' elevators have been slower to avail themselves of direct-shipping possibilities the tabulation of answers received to the question, "Is tendency to ship grain directly to industries, mills, etc., growing in your community?" would seem to indicate that in Illinois, Iowa, and Kansas at least they too are awake to the development mentioned at the beginning of this discussion. The tendency is most striking among farmers' elevators in Kansas and least so among farmers' elevators in North Dakota. Table 16 gives results of this tabulation.

TABLE 16.—*Tendency of grain shipments to move directly to mills and industries as reported by country elevators in five States*

Elevators reporting—	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Number.....	61	87	60	53	61	95	62	35	26	34	270	304
Tendency as growing.....	60.7	49.4	53.3	45.3	39.3	42.1	19.4	28.6	80.8	64.7	46.7	45.7
per cent.....												
Tendency as not growing.....	39.3	50.6	46.7	54.7	60.7	57.9	80.6	71.4	19.2	35.3	53.3	54.3
per cent.....												

Table 17, while not bearing specially upon the matter of direct shipment, shows how elevators in the several States regard certain markets as their principal market for certain grains and how elevators particularly in Illinois, Iowa, and Kansas are reaching out beyond the larger terminal markets to which they are tributary. There was a time not many years ago when a like canvass undoubtedly would have shown a comparatively small number of markets given as principal ones for elevators in the States mentioned.

TABLE 17.—Principal shipping market for wheat, corn, and oats for country elevators in five States

WHEAT

Market	Number of elevators reporting from—											
	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Atchison										3		3
Baltimore	2					3						5
Battle Creek												2
Buffalo		1			1	3					1	4
Cairo		2	1								1	2
Cedar Rapids			3	1							3	1
Chicago	122	121	28	36							150	157
Cincinnati		1			7	9					7	10
Cleveland						4						1
Des Moines			4	1							4	4
Duluth							94	56			94	56
Hutchinson									19	18	19	18
Indianapolis	3	13									3	13
Kansas City									100	149	100	149
Louisville	1	1									1	1
Milwaukee			7	3							7	3
Minneapolis			3	2			102	63			105	65
Nashville		4										4
New Orleans	2	3									2	3
Omaha			9	8							9	8
Peoria	2	2	1								3	2
Philadelphia						2						2
Pittsburgh						1						1
Salina									8	4	8	4
St. Joseph									4	7	4	7
St. Louis	34	32	8	16							42	48
Terre Haute		3										3
Topeka									3	2	3	2
Toledo		1			15	15					15	16
Wichita									16	12	16	12
Local mills and interior					11	16			2	8	13	24
Southern markets					4	4			2	5	6	9
Eastern markets						3				1		4
Miscellaneous	2	4	2	1	6	4	3		3		16	9
Total	166	192	66	68	44	64	199	119	157	209	632	652

CORN

Atchison									3	4	3	4
Battle Creek	17	10									17	10
Buffalo		4			8	3					8	7
Cairo	1	1	2	3							3	4
Cedar Rapids			15	15							15	15
Chicago	88	82	96	65							184	147
Cincinnati		4			1	1					1	5
Cleveland					2	5					2	5
Clinton	2										2	
Davenport			1	1							1	1
Decatur	23	35									23	35
Des Moines			4	3							4	3
Duluth							5	2			5	2
Hutchinson									9	8	9	8
Indianapolis	26	32									26	32
Kansas City			5	2					64	111	69	113
Louisville	2	4									2	4
Memphis	1	3									1	3
Milwaukee			34	16							34	16
Minneapolis							9	3			9	3
Nashville		3										3
New Orleans		2										2
Omaha			24	12							24	12
Peoria	28	20	8	5							36	25
Philadelphia						2						2
Pittsburgh					2						2	
Salina									2	2	2	2

TABLE 17.—Principal shipping market for wheat, corn, and oats for country elevators in five States—Continued

CORN—Continued

Market	Number of elevators reporting from—											
	Illinois		Iowa		Ohio		North Dakota		Kansas		All replies	
	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private	Farmers	Private
Sioux City.....			4	2							4	2
St. Joseph.....									11	14	11	14
St. Louis.....	32	26	25	29							57	55
Terre Haute.....	2	2									2	2
Topeka.....									3	3	3	3
Toledo.....	1	2			8	10					9	12
Wichita.....									13	10	13	10
Local mills or interior.....		1	1	1	4	8			4	8	9	18
Southern markets.....		3				2			1	8	1	13
Eastern markets.....		3			1	3					1	6
Miscellaneous.....	4		2	5	1	6		1	3	11	10	23
Total.....	227	237	221	159	27	40	14	6	113	179	602	621

OATS

Atchinson.....										1		1
Baltimore.....						1						1
Battle Creek.....	1	2									1	2
Buffalo.....	2	5			6	4					8	9
Carlo.....	27	29	7	6							34	35
Cedar Rapids.....			15	18							15	18
Chicago.....	71	66	60	44							131	110
Cincinnati.....		3			1	1					1	4
Cleveland.....					3	6					3	6
Davenport.....			2								2	
Decatur.....	4	6									4	6
Des Moines.....			13	4							13	4
Detroit.....	1										1	
Duluth.....							49	34			49	34
Hutchinson.....									1		1	
Indianapolis.....	18	21									18	21
Kansas City.....			13	2					8	28	21	30
Lockport.....	8	3									8	3
Louisville.....	3	2									3	2
Memphis.....	10	24								3	10	27
Milwaukee.....			25	9							25	9
Minneapolis.....							69	32			69	32
Nashville.....	7	7									7	7
New Orleans.....		3										3
Omaha.....			32	15							32	15
Peoria.....	14	10	4	1							18	11
Philadelphia.....						2						2
Pittsburgh.....					3	2					3	2
Salina.....									1	2	1	2
Seattle.....							1				1	
Sioux City.....			2	2							2	2
Spokane.....							2	2			2	2
St. Louis.....	36	40	39	36							75	76
Terre Haute.....		4										4
Toledo.....	2	3			11	10					13	13
Wichita.....									5	2	5	2
Local mills or interior.....	1			1	7	11			2	5	10	17
Southern markets.....	2	2	1							4	3	6
Eastern markets.....		2				4						6
Miscellaneous.....			5	5		1				7	5	13
Total.....	207	232	218	143	31	42	121	68	17	52	594	537

ACTUAL EXAMPLES ILLUSTRATING HEDGING PRACTICE

The statement is heard frequently that hedging is good in theory but does not work in practice. In order to determine what might be wrong when country elevators have difficulty in hedging, an effort was made to abstract from the records of different elevators a number of actual cases showing their experience in attempting to hedge grain under various conditions. It was not practicable to secure actual case records in numbers sufficient to enable any extended statistical analysis, but enough were secured to furnish representative samples of hedging practice, both good and bad, as applied to various purposes under different conditions. While the information presented here can not be treated or summarized collectively, it is nevertheless believed to be of value in showing concretely the great diversity of situations that arise from time to time and as indicating how some elevators meet certain problems and how others fail to make the best use of their opportunities.

CASE DATA DESCRIBED

In this study of cases about 200 records were secured which were said to represent actual hedges applied to certain specific lots of cash grain. Of this number slightly more than 100 were found that could be said to be of hedging character. A great many of the remainder, while purporting to be hedging transactions, were in fact purely speculative and had not a remote connection with any cash-grain dealings.

A small number of the records represented hedging in the futures market at Kansas City and Minneapolis, but the number collected was not sufficiently large to justify a separate study; hence the cases presented include only hedging where the futures were bought and sold on the Chicago Board of Trade.

Not all of the cases included in this study can be vouched for as being strictly accurate in every particular. It is not improbable that errors in dates as well as in prices and grades have found their way into these data, abstracted under conditions and from records which were not always the best. For the purposes of this study, the effect of such errors is relatively unimportant.

In analyzing the hedging records an attempt has been made to separate from other factors that part of the actual loss or gain which might fairly be said to grow out of the failure of cash-grain prices and futures prices to move together. A first step in this direction is to provide some means of determining the relationship between the price of certain grades of cash grain and of certain futures on two or more different dates. This is not so easy as it might appear to be. Although in this study the difference between cash prices and futures prices was determined on the basis of the average of the high and the low, it is to be noted that this method is not altogether satisfactory. The high and the low of the sales of a particular grade of cash grain are affected by factors which do not necessarily affect the futures. Ranges in value are found within the grade, sales of the same grade being made at different prices during the same day. Also, high and low points are made in futures without being reflected in the spot market. It may be, for example, that a high or a low price is registered in the

future market early in the trading session before any cash grain is sold, or these may come late in the session after the cash grain has been sold. It will be seen, therefore, that taking the average of the high and the low of the recorded prices for a given future and comparing it with the average of the high and low of the sales of a particular grade of grain for the same day is not a perfect comparison. It is, however, the easiest and most practical way of making comparisons for present purposes.

TABLES EXPLAINED

One hundred and four cases of hedging experience are here presented. These have been classified according to the purpose of the hedge and the kind of grain involved. As heretofore indicated, country-elevator hedges have one of three purposes: (1) To protect country purchases; (2) to earn carrying charges; or (3) to cover a risk arising from having shipped and sold customers' grain stored.

Under the classification of hedging to protect country purchases 7 cases are presented which involve wheat, 6 which involve oats, and 50 which involve corn. These are found in Table 18. Columns 3 to 12, inclusive, of Table 18 relate to the purchases and sales of cash grain. Columns 13 to 21 inclusive, relate to the transactions in futures reported as constituting hedges against cash grain bought. Column 12 shows the amount of profit or loss sustained on the cash grain. Column 21 shows the net profit or loss sustained on the futures transactions. Column 22 shows the net profit or loss on the cash and futures transactions combined.

Columns 23 to 28, inclusive, indicate the state of the Chicago market for futures and for cash grain at the time hedges were placed and at the time removed. Column 25 shows the difference between cash grain and the futures at the time the hedge was placed, and column 28 shows the difference at the time the hedge was removed. The difference between these two columns is extended into column 29 and shows the amount of profit or loss which can be said to accrue by reason of the cash and futures failing to move together in cases where no transfers of hedges are involved. The figures in column 29 are repeated in column 30, modified by any differences there may be between the futures when hedges are transferred from one future to another. Where such transfers occur the figures in column 29 show the combined results of profit or loss in the transfer of hedges and the profit or loss due to basis change, so that column 30 represents the true amount of loss or gain due to basis change only. By basis change is meant the amount by which cash-grain prices gain or lose relative to futures prices during the period when a hedge is in effect.

The figures in column 30 may be said to show the amount of deviation from a theoretically perfect hedge as measured by the state of the market for cash grain and futures between the time the hedge was placed and the time removed. It represents the maximum loss or gain that is properly chargeable to the failure of the hedge to provide 100 per cent protection. This is predicated on the assumption that correct judgment was used in the selection of futures in which to hedge. The errors in this assumption will be pointed out and discussed later.

It will be observed that in most of the cases, but not all, the first sale of futures is reported on the same date that cash grain is reported

[Figure after the decimal indicates eighths of a cent, i. e., 88.3 is 88 $\frac{3}{8}$ cents]

WHEAT

Columns 12 and 21 combined.

⁴ Derived from columns 23 and 24.^a Difference between columns 15 and 21 and between columns 19 and 25.^b Difference between columns 15 and 24 and between columns 19 and 27.

1. Price received less than 3.1 Adjusted by amount of profit or loss on futures

bought and the futures are shown as bought back on the same date that cash grain is reported sold. There are a number of exceptions, however, and because these exceptions do occur the basis change has been computed as between the dates when hedges were placed and when removed. Obviously, the protection value of the future market must be judged on that basis alone and without injecting possibilities of gain or loss due to market changes that have occurred during days when the hedge was not in full effect. It will be noted that in some of the cases specific dates are not attached, purchases and sales of cash grain being reported as of various dates or as not known. These uncertainties do not affect the figures in column 30 since the latter are derived from the change in relationship between cash prices and futures as between certain specific dates based on Chicago prices alone.

The paid and received items in column 31 are taken, respectively, from columns 7 and 11 after adding Chicago freight and commissions to make a Chicago price equivalent. Chicago average cash prices for comparable grades appear in column 32. Differences between columns 31 and 32 are carried into column 33. The upper figure represents the elevator's buying margin or visible profit on cash grain, based on the Chicago market at the time of placing the hedge. The lower figure represents the difference between the price actually received for the cash grain, basis Chicago, and the Chicago average price of grain of comparable grades on the day that the hedge was removed.

The grade basis for Chicago average price is always the grade shown in column 10, that being the grade attached when the cash grain is actually sold. In exceptional cases where grade records are lacking one of the ordinary commercial grades is selected arbitrarily for Chicago average price purposes, and for measuring changes in relationship between cash grain prices and futures. No. 2 Hard Winter grade is used for wheat, No. 3 White for oats, and No. 3 Yellow or mixed for corn.

Column 33 shows the difference then between Chicago average prices and the prices actually paid and actually received by the country elevator after the latter have been adjusted to a Chicago basis. These differences expressed in terms of possible profit or loss to the elevator are extended in column 35 as a net result.

The figures in column 34 indicate the amount of profit or loss, not counting commissions, which would have obtained for the elevator in the case of a perfect hedge, i. e., if cash prices and futures prices had maintained an unchanged relationship during the period of the hedge. They also indicate the amount of profit or loss which would have resulted for the elevator, based upon Chicago prices, without hedging had there been no change in price. The difference between the amount of prospective profit or loss shown in column 34 and the amount of actual profit or loss as shown in column 22 is accounted for exactly by the figures shown in columns 36, 37, and 38.

The figures in column 35 indicate the difference between the prices at which the futures were actually bought and sold over or under the Chicago average price of the futures at the time. The net deviation from the Chicago average price, in terms of profit or loss, is extended in column 36. Columns 37 and 38 are self-explanatory. The actual net profit realized as the result of the hedge is restated in column 40. The difference between the amount of a prospective profit or loss

(columns 33 and 34) and the amount of actual profit or loss (columns 39 and 40) is accounted for by columns 36, 37, and 38.

Columns 41 and 46, inclusive, show possible alternative price results to be had from various methods of sale including possible results from selling "to arrive" based on Chicago bids. Chicago "to arrive" bids are taken from the records of the Chicago Board of Trade and represent the best available "to arrive" bids for early shipment. The bids for the most part are for shipment within 10 days. The bid prices given are subject to commission and are therefore comparable with Chicago spot prices. Bids are given as of the date when futures are reported sold, that being the time when ownership risk is shifted. This makes bid prices comparable with the actual hedge results.

Column 47 shows the approximate number of days that elapse between the placing and removing of hedges. When sales or purchases of futures are shown as made on different dates and in varying amounts, an average is arrived at by weighting the different periods of time by the number of bushels involved for each.

DISCUSSION OF CASES IN WHICH PURPOSE OF HEDGE IS TO PROTECT COUNTRY PURCHASES

CASE NO. 1, TABLE 18, WHEAT

A detailed explanation of the first case in Table 18 will enable a more ready understanding of the tables as a whole. Case No. 1 is furnished by an elevator, designated as No. 7. It involves the purchase and sale and hedging of 5,000 bushels of wheat. The cash wheat was bought on April 1, 1921 (column 4). It was bought currently as No. 2 Hard Winter and was paid for at the rate of \$1 per bushel (column 7). On the same day, April 1, 1921, there were sold 5,000 bushels of the July future at \$1.20 per bushel (columns 13 to 16). On June 30 the hedge was transferred from the July future to the September future. The July future was bought back on that day at \$1.23 $\frac{3}{4}$ %, involving a loss of 3 $\frac{3}{4}$ % cents (columns 19 and 20). At the same time the September was sold at \$1.22 $\frac{1}{2}$ % (column 15).

On July 29 the cash wheat was sold at \$1.20% net at the country point (column 11), giving the elevator company a profit on the cash wheat of 20% cents (column 12). On the same day the September future was closed out at \$1.23 $\frac{3}{4}$ % (column 19), with loss of 1 cent a bushel (column 20). With commissions added, in this case amounting to one-half cent a bushel on the 5,000-bushel lot, the loss on the futures transactions amounted to 4% cents (column 21). The net profit to the elevator company, therefore, was the difference between 4% cents lost on the futures and 20% cents made on the cash, or 16 cents per bushel (column 22).

Referring to columns 23, 24, and 25, it will be seen that on the date that the future was first sold, being April 1, 1921, the Chicago cash price was 29 $\frac{1}{2}$ % cents above the future (column 25), whereas, at the time the hedge was removed the Chicago cash price was two-eighths of a cent under the future (column 28), involving an apparent loss of 29 $\frac{1}{2}$ % cents due to change of relationship between the cash and the futures (column 29). However, since the relationship of cash to futures is measured with respect to the September future at the time of removing the hedge, the basis change must be adjusted by the difference in price between the July and September at the time of trans-

ferring from one to the other on June 30. The September future being 1 cent less than the July at the time of transferring, this 1 cent must be added to the figure in column 29 to make a real loss due to change in relationship of 30% cents (column 30).

This case is interesting in that while the cash and futures failed to move together and there was an apparently large loss on this account, actually the elevator made a profit of 16 cents on the transaction. The analysis portion of the table (columns 31 to 40) will make clear why this was possible.

The cash wheat being bought on April 1, 1921, was necessarily old-crop wheat. It was hedged in a new-crop future because there was no old-crop future other than the May in which to hedge, and the May would expire in 60 days. At the time of buying the cash grain and selling the future, cash wheat in Chicago was selling 29½ cents above the July future (column 25). In hedging under such conditions the elevator should know that this spread could not continue up to the time new-crop wheat is available for market. By July 29, 1921, Chicago cash prices had gone to a discount of two-eighths of a cent under the September future (column 28). How could the elevator protect itself against such a contingency? The answer is found in columns 31 and 32 showing that when the elevator paid \$1 a bushel for the wheat on April 1, 1921, it paid the equivalent of \$1.08% at Chicago, whereas the Chicago average price at that time was \$1.47%. In other words, it anticipated that the premium of 29½ cents in the cash over the futures would not continue and took this into account in fixing its buying margin, and as indicated by column 33, it bought the cash wheat on the basis of 39 cents under the Chicago average price.

The wheat may have been sold in Chicago or in some other market but the sale price, basis Chicago, of \$1.29% (column 31) shows a price 4% cents (column 33) over the Chicago average price (column 32). Thus, if there had been no change in price between the time of purchase and the time of sale and the elevator had been able to realize 4% cents over the Chicago average price of \$1.47% which existed at the time of purchase, it would have made on the transaction 43% cents a bushel (column 34).

As previously explained, it is not always possible for cash grain and futures to be bought and sold at any fixed price relationship, even during the day, and the average of the high and the low of cash and futures is not an absolutely correct measuring stick for determining relationships between them. In the particular case under discussion the future was sold on April 1 at \$1.20 for the July (column 16), whereas the average of the high and the low for that day was \$1.17% (column 24). The hedge, therefore, was placed, as indicated by column 35, at 2% cents over the average. When the future was purchased back on July 29, 1921, it was bought, as indicated by column 35, at 1% cents under the average of the high and low. The net of the deviation from the Chicago average on the complete turn of the futures is extended into column 36 as resulting to the advantage of the elevator by an amount of 4 cents per bushel.

The actual realized net price as the result of hedging in this case was \$1.24% (column 41) basis Chicago, or a net profit of 16 cents (column 42). Had the wheat not been hedged, the elevator would have realized the sale price of \$1.29% (column 43) basis Chicago, or a net profit of 20% cents (column 39). The best available Chicago "to arrive" bid

on April 1, 1921, was \$1.14½ (column 45), which, if it had been accepted, would have given the elevator a profit of 6½ cents (column 46).

Case No. 1, discussed above, is hardly typical of the cases that follow in that it represents hedging old-crop grain in new-crop futures during a period when cash prices may be expected to lose relative to the futures. It is interesting on that account, however, and in that this particular case still shows a profit to the elevator company, whereas in most such cases large losses are the rule. Poor judgment, of course, was exercised even in this case by carrying old-crop wheat into the new-crop year, and the elevator could have profited greatly by marketing it a month or two earlier, before new wheat had become a dominant factor in cash prices.

CASE NO. 3, TABLE 18, OATS

Case No. 3 shows a gain of 2½ cents as the result of cash prices gaining on the futures. Only 13 days intervened between purchase and sale, and the cash and futures were both of the same crop year. By referring to the figures in column 25 of Table 18, it will be seen that on the date that the hedge was placed the Chicago average cash price for No. 3 White oats was 6 cents under the average of the high and the low of the May future, whereas at the time the hedge was removed, it was only 3½ cents under (column 28). The difference of 6 cents between No. 3 White oats and the May future in the month of February is somewhat unusual and would not be expected to continue long. The alert country elevator operator will be quick to take advantage of such conditions when they appear and will sell the future in preference to almost any other method of disposal with the hope of profiting by the narrowing of spreads. As the result of hedging in this particular case, the elevator company realized a net profit of 6½ cents per bushel as against a loss of 3½ cents had the grain been shipped to Chicago and sold without a hedge and as against 1½ cents loss in the case of accepting the best Chicago bid "to arrive."

By referring to column 33 of Table 18, it will be seen that in the actual disposal of these oats the elevator company realized 4½ cents above the Chicago average of the high and the low. But since the Chicago average cash price is of the date when the hedge was removed, February 17, and the oats were actually sold on February 16, the 4½ cents obtained over the Chicago average represents in part a speculative profit through market decline occurring between the time the cash oats were sold and the time the hedge was removed.

CASE NO. 19, TABLE 18, CORN

The amounts of basis loss or gain, as shown by column 30, seem rather large in many of the cases given in Table 18. It will be observed, that in most cases of excessively large basis change there is involved a No. 4 or No. 5 grade of corn, or old-crop grain is being hedged in a new-crop future or some similar factor is involved.

The relationship between cash prices and futures prices is less constant in the case of grades lower than No. 2. There is likely also to be a wider price range, making more difficult the proper measurement of relationship between cash and futures on the basis of the average of the high and the low of sales.

Many of the cases that appear in Table 18 show rather large profits on cash transactions (column 12), and for the most part there are correspondingly large losses on the futures transactions (column 21), so that a casual study of these cases might indicate that the elevators would have fared better had they not hedged. It must be remembered, though, that had the course of prices been reversed in these cases the figures in column 12 would have shown up as losses, in which case the amounts in column 20 would have been gains going a long way toward offsetting the losses. They would have failed to compensate exactly for such losses by the amounts which now appear as minus items in column 30. These would be far from giving perfect hedging protection but nevertheless they suggest a considerable protective value.

Case No. 19, for example, indicates a loss through change of relationship between cash prices and futures amounting to $8\frac{1}{2}$ cents. By referring to column 12 it will be seen that the profit on the cash grain in that case was $42\frac{1}{2}$ cents. The shipper in this case would have made a net profit of $42\frac{1}{2}$ cents had he not hedged at all as against $2\frac{1}{2}$ cents profit realized as the result of hedging. However, this $42\frac{1}{2}$ cents possible gain involved a price risk that might have resulted in loss instead of profit had the market declined instead of advanced.

The $8\frac{1}{2}$ cents loss due to change in relationship between cash and futures is easily explained when it is noted that the cash grain purchased on June 11, 1924, was old-crop corn. It was hedged on that date by selling the December future. By reference to column 25 it will be seen that cash corn at that time was selling $6\frac{1}{2}$ cents over the December future, which is a new-crop future, and it could hardly be expected that such a spread would continue up to the time when the cash grain was sold and the future purchased back on December 1. At that time, as will be evident from the figures in column 28, cash prices were for new crop grain, the No. 3 grade selling at 2 cents under the December future.

In this case there is what on first thought may seem to be a fairly large deviation from a perfect hedge; yet examination of the figures in columns 23 to 28, inclusive, will show that there was a normal relationship between the cash and futures both at the time the hedge was placed and at the time it was removed.

CASE NO. 11, TABLE 18, CORN

Case No. 11 would indicate that cash prices and futures prices failed to move together to the extent of $22\frac{1}{2}$ cents. The shipper in this case made $16\frac{1}{2}$ cents on the cash grain and lost $13\frac{1}{2}$ cents on the futures transaction, the result being a net gain of $3\frac{1}{2}$ cents in spite of a basis loss of cash relative to the future amounting to $22\frac{1}{2}$ cents. Here again the explanation lies in the fact that the cash price of $85\frac{1}{2}$ cents set up in column 23 is a price based upon the average of the high and the low at Chicago on September 20, 1923, and would represent old-crop corn. The December future which was sold as a hedge against the cash grain purchased was at that time $67\frac{1}{2}$ cents. In other words, old-crop cash corn at the time of placing the hedge was selling at $17\frac{1}{2}$ cents over the December future (column 25), whereas when the hedge was removed on January 19, 1924, after having been transferred from the December to the July future, the same grade on a new-crop basis, was selling $3\frac{1}{2}$ cents under the future.

Referring to the analysis of this case in columns 31 to 40, it will be seen that the elevator company purchased the cash grain on the basis of 24½ cents under the average of the high and the low of the Chicago price (column 33). At this point attention must be directed to the wide discrepancies that exist in some of the cases as between the Chicago price equivalent received and the Chicago average price. Case No. 9, for example, shows that corn was bought at 29½ cents under the Chicago average and was sold at 16½ cents less than the Chicago average. Such a thing, of course, could hardly occur, and the explanation lies in the fact that the elevator in submitting its lot record has given either erroneous purchase and sale dates, or has erred in the reporting of prices paid or received. As has been previously explained, errors of this kind do not impair the value of the hedge illustrations. They do exaggerate certain results by injecting large errors at times into the amounts of net profit or loss shown arising on the cash transactions.

CASES NOS. 9, 10, AND 11, TABLE 18, CORN

Cases 9, 10, and 11 show prices paid in the country which, on their face, appear to be very far out of line with Chicago prices. The purchase of No. 3 corn on August 10 (case No. 9) at 50 cents per bushel in the country, or the equivalent of 57½ cents basis Chicago, seems far out of line with the Chicago average spot price of 87 cents. There is a difference of 29½ cents. Obviously no elevator could take such enormous profits and expect to buy any grain. It was not done in this case. The corn which was bought on August 8 was for deferred delivery and represented a contract for new-crop corn. It was hedged by the sale of May futures at 65½ cents, and in relation to that future the price paid presents a quite different picture. The average of the high and low of cash corn at Chicago, both at the time of placing the hedge in August and removing it in October, being for the old-crop corn, has no bearing upon the purchase in the country of new-crop corn. At the time of contracting the new corn in August the only price measure was the price of the new-crop futures.

Cases Nos. 10 and 11 are like No. 9. With respect to these and similar cases, columns 23 to 30 have little or no significance. It must also be noted that the "to arrive" bids set up in column 45, being the best available "to arrive" bids at the time regardless of time of shipment, were bids for old corn and have no application to the new-crop corn bought for deferred delivery as represented by these cases. The purpose of including cases of this kind is the more forcibly to direct attention to certain errors that are easily fallen into when attempting to judge the protective value of the futures market.

CASE NO. 1, TABLE 18, CORN

In most of the cases where gains appear in column 12 of the tables, losses will appear in column 21, and vice versa. There are a number of exceptions, however. Some cases show gains both on the cash transactions and on the futures transactions. Case No. 1 is in point.

This case shows a gain of 6½ cents on the cash and 8½ cents on the futures transaction, resulting in a net profit of 14½ cents per bushel. This resulted in spite of a 1-cent loss due to basis change. The explanation is found in column 33. The cash grain was bought on the basis of 7½ cents under Chicago, and when sold it was sold on the

basis of $8\frac{1}{2}$ cents over Chicago. As previously suggested, some of the large variations from Chicago prices may be due to errors in dates or in prices reported by the elevator company.

CASE NO. 20, TABLE 18, CORN

Case No. 20 shows a change in relationship between cash and futures operating against the hedger to the extent of $17\frac{1}{2}$ cents (column 30). This is another case where explanation is found in the fact of hedging old-crop corn in August in the May future, which is a new-crop future. It is not known why an elevator should carry old-crop corn from August 8 until December 20. It made a net profit on the transaction of $1\frac{1}{2}$ cents (column 22) only because of having bought the corn at a large discount under the Chicago price in the first place.

CASE NO. 27, TABLE 18, CORN

Case No. 27 shows a loss of 12 cents through failure of cash prices to move with futures prices. However, this involves a No. 4 grade of corn purchased on December 6 and hedged in the May future when the May was $10\frac{1}{2}$ cents over the Chicago average price for No. 4 corn (column 25). By January 30 when the cash corn was sold and the hedge removed, No. 4 corn had gone to a discount of $22\frac{1}{2}$ cents under the May future. This case furnishes a striking example of loss through change in relationship between the cash and the futures. Despite this situation the elevator in case No. 27 made a net profit of $5\frac{7}{8}$ cents. Seventeen cents was made on the cash grain and $11\frac{1}{2}$ cents lost on the futures. The reason that it did not suffer a loss, however, is indicated in column 33. It appears that it bought the grain on the basis of $7\frac{1}{2}$ cents under the Chicago average and sold it on the basis of $9\frac{1}{2}$ cents over. Apparently this company found a better market for No. 4 corn than existed at Chicago at the time, or else some error occurred in the reporting of either prices or dates.

CASES NOS. 48, 49, AND 50, TABLE 18, CORN

Cases Nos. 48, 49, and 50 show large losses as the result of failure of cash prices and futures to move together. These cases involve No. 4 corn purchased on September 9, 1924, and sold in January or February of 1925. Notwithstanding that net losses were small, extremely bad judgment was used in not disposing of the cash corn at a time when it bore a more favorable relationship to the future. The elevator was saved from larger losses only by virtue of the fact that corn was bought at a wide discount under the Chicago average price.

CASE NO. 44, TABLE 18, CORN

Case 44 is one involving speculation rather than hedging and is included merely to show how the futures market is used sometimes for purposes that have no proper connection with the cash grain business.

The elevator in this case bought 4,000 bushels of No. 4 yellow corn on March 3, 1925 at \$1.05 per bushel. On April 28 the corn was sold for $87\frac{1}{2}$ cents net at country point, the elevator thereby sustaining a loss of $17\frac{1}{2}$ cents. Believing, apparently, that the market would advance the elevator bought 2,000 bushels of the July future at \$1.07 per bushel. This was carried until June 25, when it was sold at 1.00% per

bushel, and 2,000 bushels of September corn were bought at \$1.02 per bushel. The latter was closed out on July 30, 1925 at \$1.05 per bushel. The elevator was in the futures market from April 28, 1925, to July 30, 1925, in an effort to recoup, through the purchase of 2,000 bushels of futures, what it had lost in handling 4,000 bushels of cash grain. Instead of profiting in the futures market, however, the elevator lost on 2,000 bushels an amount equal to $1\frac{1}{2}$ cents per bushel on the 4,000 bushels, making a total net loss on this particular lot of grain of 19 cents per bushel.

Since the purchase of the futures in this case antedates the sale, the figures in columns 23 to 30, inclusive, bear no relationship to the cash corn involved, but merely indicate the state of the market at the time the futures were bought and at the time they were sold. Between April 28 and July 30, 1925, cash corn of No. 4 yellow grade gained relative to the futures $5\frac{1}{2}$ cents, which in this case really amounted to a carrying charge covering the period from April 28 to July 30, and paid by the elevator company instead of being earned by it. In so far as this particular case is concerned the analysis columns of Table 18 may be disregarded. They have little or no application.

DISCUSSION OF CASES IN WHICH PURPOSE OF HEDGE IS TO EARN CARRYING CHARGE

The tables previously discussed relate to hedges where the purpose has been to secure protection of country purchases against price declines occurring between the time of purchase and time of sale. Another use of the futures market is open to elevators that have ample storage space and are in position to carry a considerable quantity of grain in the elevator during periods when a profitable carrying charge can be earned.

To carry grain from the fall months of the year until early spring involves certain costs including storage, interest, insurance, and shrinkage. Theoretically, at least, these costs should be reflected in the price differences between the near futures and the deferred futures of the same crop year. The May oat future, for example, should sell over the December oat future. Under these circumstances elevators with considerable storage space available may take advantage of the futures market in such a way as to earn these differences.

The possibility of earning carrying charges through the sale of futures against cash grain carried in the elevator is a matter to be judged wholly and solely with reference, (1) to existing relationship between cash and futures, and (2) to probable change in such relationship later. If the May oat future in the month of December is selling at, say, 8 cents over the price of No. 3 white oats, No. 3 white oats being deliverable on May contracts at $1\frac{1}{2}$ cents per bushel discount, it may be assumed that $6\frac{1}{2}$ cents per bushel can be made by selling the May future and carrying No. 3 white oats in the elevator until some time in May. If this is a profitable carrying charge, in view of interest, insurance, etc., the elevator may fill its bins with oats and hold them until such time as the spread between No. 3 white oats and the May future has narrowed to what is considered a normal difference.

The 15 cases presented in Table 19 are cases where the hedge purpose was said to be that of earning carrying charges. In these cases

country elevators in
 decimal indicates eighths of a

Relationship between			Sales methods compared (prices are basis Chicago)						Approximate number of days hedges were carried
State of the market			Actual hedge result		Result if not hedged		Result if sold "to arrive" based on Chicago bid on day futures were sold		
futures sold		W.							
high-low	Cash over (+) or under (-) futures	Average	Price realized 7	Profit (+) or loss (-)	Price	Profit (+) or loss (-)	Price	Profit (+) or loss (-)	
futures		Cash							
(24)	(25)	(26)	(41)	(42)	(43)	(44)	(45)	(46)	(47)
Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	
45.2	-1.3	46.3	48.6	+4.3	47.3	+3.0	43.3	-1.0	85
36.7	+3.5	47.4	45.7	+11.4	53.7	+19.4	34.3	0	246
36.7	+3.5	47.3	46.1	+11.6	53.7	+19.4	34.3	0	246
47.1	+9.7	43.3	55.7	+11.4	45.7	+1.4	56.7	+12.4	260
47.0	+10.5	46.3	55.7	+11.4	47.3	+3.0	56.4	+12.1	245
48.3	+11.0	43.3	59.5	+14.2	44.7	-.4	57.1	+11.6	260
49.1	+2.1	44.3	58.4	+12.1	45.1	-1.2	50.1	+3.6	263
61.1	-7.2	50.3	60.3	+11.7	54.1	+5.5	52.0	+3.4	137
61.1		50.3							
56.5		49.3							
56.7		49.3							
63.4		50.3							
59.7		50.3							
56.4	-5.7	58.3	55.4	+.7	58.1	+3.4	52.3	-2.2	58
62.0		58.3							
59.2		58.3							
59.2	-13.2	38.3	56.2	+7.7	39.3	-9.0			185
63.2	-5.4	48.3	64.0	+6.4	52.0	-5.4	57.0	-.4	84
63.1									
63.1									
63.5	-6.1	50.3	63.7	+15.4	54.3	+6.0	58.3	+10.0	52
66.0	-5.4	42.3	69.7	+14.4	44.7	-10.4	59.7	+4.4	110
63.4	-4.3	53.3	54.7	+3.3	49.3	-2.1	57.4	+6.0	30
59.6		50.3							
63.4		47.3							
62.2		50.3							
50.7	+6.6	44.3	59.3	+15.6	55.5	+12.0	56.4	+12.7	239

ces between columns 15 and 16 or loss on futures.
 ce between plus and minus

TABLE 19.—Actual cases showing experiences of country elevators in hedging oats when intention was to earn a carrying charge

[Figure after the decimal indicates eighths of a cent, i. e., 58.3 is 83 1/8 cents]

[†] Price received (column 3i) adjusted by amount of profit or loss on futures.

Grade designations: 3 W=No. 3 White; 4 W=No. 4 White; 8G=Sample grade

the real object of the elevator was to profit by a basis gain, i. e., a gain in cash prices relative to the futures. Column 30 shows these results.

CASE NO. 2, TABLE 19, OATS

Case No. 2 shows a loss of two-eighths of a cent from basis change in carrying oats from July 28, 1923, until April 4, 1924. In this case the elevator actually made 19½ cents on the cash oats and lost 8 cents on the future, resulting in a net gain of 11½ cents. However, this was not occasioned by change in relationship between cash and futures.

This case like the next following case shows differences between country prices and Chicago prices accounting for 12½ cents profit. The oats were bought on the basis of 6½ cents under Chicago spot and sold at 6½ cents over Chicago spot. When the elevator bought the oats for 30 cents per bushel, No. 3 White oats were selling in Chicago at 40½ cents which with freight and commission off (4½ cents) would leave the elevator a margin of 6½ cents. This may seem large. However, the best Chicago "to arrive" bid at the time was only 34½ cents and would leave the elevator no profit whatever. Now it may be that bids better than Chicago were available. At any rate when the oats were sold on April 4 the elevator realized a price higher than the Chicago average by 6½ cents. But assuming that the Chicago bid was the bid which the elevator had on which to base its price to the country, it will be seen how this hedge enabled the elevator not only to pay a better price to the farmer than it otherwise could but also afforded it opportunity to take advantage of bids higher than the Chicago spot price when they later became available. As stated previously, errors in dates and prices as reported by the elevators in this collection of cases are easily possible. Prices reported as paid on a certain date when hedges were placed will represent in some cases the cost price of a certain lot of grain which has been in process of accumulation and may not be the prices paid by the elevator on that particular date. If the market for cash grain has advanced or declined during the process of accumulation and before the hedge is placed, the difference between the Chicago price and the country price paid will reflect some speculative loss or gain.

CASE NO. 4, TABLE 19, OATS

Case No. 4 shows a basis loss of 4 cents in carrying oats from June 30, 1924, to March 20, 1925. This basis loss was not a real loss, however, since it arose wholly and solely out of comparison between a Chicago cash price of 57 cents on June 30, representing old-crop oats, as against 47½ cents for the September future. In other words, old-crop oats were on that date selling for 9½ cents over the new-crop futures, whereas at the time the hedge was removed on March 20, 1925, cash oats were under the future by 1½ cents. This was not the same future, since the hedge was transferred successively from the September to the December and to the May. It will be seen that the oats when bought were actually purchased on the basis of the September future rather than on the basis of the prevailing cash prices.

Discussion of other cases in Table 19 are unnecessary. They will be found to typify conditions which have been discussed and explained in connection with other cases.

DISCUSSION OF CASES IN WHICH PURPOSE OF HEDGE IS TO PROTECT CUSTOMERS' STORED GRAIN SHIPPED AND SOLD

In Table 20 are presented 13 cases each of corn and oats which illustrate the use of the futures market in attempting to replace customers' stored grain shipped and sold. This table is similar to Tables 18 and 19, except that the bought and sold columns appear in reverse order. It will be seen also that the change in relationship between cash prices and futures prices as derived from columns 25 and 28, is interpreted to show profit and loss results in column 29 directly opposite from those shown in the same column of the other tables. In this type of hedging a basis gain in cash prices relative to futures results in loss to the elevator, whereas in the types of hedging illustrated by other tables such a basis gain results in profit.

The cases presented are not sufficient in number to indicate fully the unsatisfactory results which are regarded as following this type of hedging practice. Other data presented in this bulletin wherein it is shown that cash prices tend normally to gain relative to futures offer ample reason why this use of the futures market for hedging purposes is not one to be encouraged.

CASE NO. 1, TABLE 20, CORN

Case No. 1 in Table 20 shows a sale of 10,000 bushels of No. 4 corn made on March 5, 1924, at a price net at country point of 64½ cents (column 7). On the same date there was purchased 10,000 bushels of the September future at 81½ cents (column 15). The cash corn was not actually purchased until September 2, 1924, and was purchased at that time at a cost of \$1 per bushel (column 11), resulting in a loss on the cash transaction of 35½ cents (column 12). The September future was sold, 5,000 bushels on August 25, 1924, and 5,000 bushels on September 9, 1924. The average price at which the future was sold was \$1.15½ and gave the elevator a net gain on the future transaction of 34 cents (column 21) and a net loss on cash and futures amounting to 1½ cents. By referring to column 30 it will be seen that cash-corn prices gained relative to futures prices 7½ cents, which in this class of cases works against the elevator instead of in its favor.

When the cash grain was sold on March 5 and the futures bought, No. 4 corn was selling at an average of 7½ cents under the future (column 25), whereas at the time the hedge was removed cash prices averaged only three-eighths of a cent under the future (column 28). When it is considered that this No. 4 corn was carried approximately 173 days (column 47), such a change in relationship is not unreasonable. Indeed, it would hardly be sufficient to cover the cost of carrying the actual grain in storage. Had the elevator in question charged storage at the rate of only a cent per bushel per month, the net loss of 1½ cents per bushel could have been converted into a net gain of nearly 5 cents. This case is typical of what may be expected when it is attempted to replace stored grain by purchases of futures.

CASE NO. 5, TABLE 20, CORN

Case No. 5 shows a gain in cash prices relative to the future of 19½ cents between January 28, 1925, and June 26, 1925. In this case the elevator sold No. 4 yellow corn at \$1.09½ per bushel net at country

48.6	52.7	-4.1	-1.6	49.0	+1.6	47.2	0	48.5	+1.3	33
49.4	56.7	-7.3	-4.2	51.4	+4.2	48.2	+1.0	49.4	+2.2	2
54.7	58.7	-6.0	-2.4	29.6	-22.4	48.5	-3.5	-----	-----	133
51.0	58.5									
57.1	63.1									
47.7	51.1									
52.3	58.3									
49.6	52.5	-2.7	-1.0	47.7	+1.0	52.1	+5.2	46.2	- .5	104
50.6	53.3	-2.5	-3.0	42.3	-3.0	54.3	+9.0	50.4	+5.1	57
44.6	47.4	-2.6	- .3	45.0	- .3	49.3	+4.0	42.4	-2.7	40
42.6	42.4	+ .2	-2.3	42.0	+2.3	44.3	+4.6	41.0	+1.3	43
42.6	42.4	+1.5	-5.3	51.6	+5.3	49.3	+3.0	41.2	-5.1	49
43.4	40.4									
43.1	41.4									
44.6	45.0	- .2	+ .2	43.2	+ .2	48.1	+5.1	43.6	+ .6	35
44.6	45.0									
44.6	45.0									
41.2	43.1	-1.7	-1.3	55.6	+1.3	46.3	-8.0	41.3	-13.0	47
39.4	41.5	+ .6	-4.1	51.7	-4.1	46.4	-9.4	45.1	-10.7	45
45.0	44.3									
46.7	44.3									
44.2	43.4									
41.1	41.5	- .4	+10.6	54.7	+10.6	50.0	+5.7	39.5	-4.4	33
41.1	41.5									
41.1	41.5									
49.6	50.4	- .6	-7.1	34.0	-7.1	42.1	+1.0	49.2	+8.1	49

differences between columns profit or loss on futures.
 difference between plus and

TABLE 20.—Actual cases showing experiences of country elevators in hedging corn and oats when intention was to protect customer's stored grain shipped and sold

(Figure after the decimal) indicates eighths of a cent, i. e., 88.3 is 88 $\frac{3}{8}$ cents)

CORN

Grade designations for corn: 2 Y=No. 2 Yellow; 3 Y=No. 3 Yellow; 4 Y=No. 4 Yellow; 5 Y=No. 5 Yellow; 6 Y=No. 6 Yellow; 4=Nb. 4 mixed

OATS

Grade designations for oats: 3 W=No. 3 White; 4 W=No. 4 White.

³ From columns 23 and 26.
⁴ Derived from columns 31 and 32.

⁶ Difference between plus and minus items in columns 34, 36, 37, and 38. Also same as column 22.

¹ Price received (column 31) adjusted by amount of profit or loss on futures.



point, which with Chicago freight added would be equivalent to \$1.22% (column 31). The average of the high and the low for No. 4 corn at Chicago on January 28 was only \$1.15%. At that time, however, No. 4 corn was selling in Chicago at an average of 18 cents a bushel under the July futures (column 25), whereas, when the hedge was removed June 26, 1925, No. 4 yellow corn was selling at an average of 1½ cents over the July future. In this case, as in others of similar character, extremely bad judgment was exercised on the part of the elevator in attempting to store No. 4 corn for farmers at a time when it was at such a large discount under the future and when ordinary discretion should have told the elevator that a narrowing of the discount was inevitable as the season progressed. The elevator in this case made 16½ cents per bushel on the cash transaction and lost 31% cents on the futures. The net loss of 14½ cents in this case could have been foreseen to a large extent at the time the cash grain was sold.

CASES NOS. 3 AND 10, TABLE NO. 20, CORN

Case No. 3 shows a slight gain resulting from basis change operating in favor of the hedger. On November 21, when the future was bought as a hedge, the average Chicago cash price for No. 3 yellow corn was 6% cents under the May future, whereas by February 13, 1925, when the future was sold, it was 10% cents under the Chicago May. The basis change of 3½ cents in this case resulted in profit to the elevator (case No. 10 also shows a gain of 1% cents resulting from a basis change), but such cases are unusual and do not occur with sufficient frequency to lend any encouragement to this use of the futures market.

TABLE 21.—*Wheat: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned wheat (hedged and unhedged) arriving on market a week later*

[Figure following decimal indicates eighths of a cent; i. e., 253.7 is 253¾ cents]

Date ¹	Wheat futures		Cash wheat			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel ²	Grade	Quota-ble spot price per bushel ²	"To arrive" price per bushel ³	Unhedged	Hedged ⁴	Amount unhedged price is over (+) or under (−) spot price per bushel	Amount hedged price is over (+) or under (−) spot price per bushel ⁴
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1920		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
July 19	December	253.7	No. 2 Hard Winter.	277.4	270.0	279.4	283.6	+2.0	+6.2
26	do	249.5	do	279.4	268.0	221.4	260.3	−58.0	−19.1
Aug. 2	do	210.6	do	221.4	211.0	244.6	221.7	+23.2	+3
9	do	233.5	do	244.6	241.0	254.0	250.1	+9.2	+5.3
16	do	237.4	do	254.0	248.4	245.4	253.7	−8.4	−1
23	do	229.1	do	245.4	240.0	254.5	248.7	+9.1	+3.3
30	do	234.7	do	254.5	249.0	251.2	246.3	−3.3	−8.2
Sept. 7	do	239.6	do	251.2	249.0	257.2	248.3	+6.0	−2.7
13	do	248.5	do	257.2	255.0	251.0	260.5	−6.2	+3.3
20	do	239.0	do	251.0	245.6	232.2	251.2	−18.6	+2
27	do	220.0	do	232.2	229.4	212.3	232.1	−19.7	−1

¹ Monday of each week is used whenever prices are available; otherwise the next business day.

² Average of high-low.

³ Best bids available without regard to time of shipment, unless premium is on long-deferred shipment. Prices for the most part are for 5 to 10 day shipment. Prices include commission and are therefore directly comparable with spot prices.

⁴ Figures in columns 8 and 10 are computed without allowance for commissions on futures. To make hedged results more nearly comparable with other price possibilities one-fourth of a cent per bushel should be deducted from hedged price. (Deduct from plus items in column 10; add to minus items.)

TABLE 21.—Wheat: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned wheat (hedged and unhedged) arriving on market a week later—Continued

Date	Wheat futures		Cash wheat			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Quota-ble spot price per bushel	"To-arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (-) spot price per bushel	Amount hedged price is over (+) or under (-) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1920		Cents		Cents	Cents	Cents	Cents	Cents	Cents
Oct. 4	December..	200.2	No. 2 Hard Winter	212.3	201.0	214.0	209.6	+1.5	-2.5
11	do.	204.4	do.	214.0	209.4	218.6	212.4	+4.6	-1.4
18	do.	210.6	do.	218.6	213.0	205.5	216.6	-13.1	-2.0
25	do.	199.5	do.	205.5	201.4	215.7	206.5	+10.2	+1.0
Nov. 1	do.	208.7	do.	215.7	211.4	190.5	213.5	-25.2	-2.2
8	do.	185.7	do.	190.5	186.4	185.7	189.7	-4.6	-6
15	do.	181.7	do.	185.7	185.6	168.4	186.3	-17.3	+4
22	do.	164.0	do.	168.4	162.0	167.0	172.0	-1.4	+3.4
29	do.	159.0	do.	167.0	159.4	186.4	169.4	+19.4	+2.4
	{March..	155.2	do.	167.0	159.4	186.4	169.4	+19.4	+2.4
Dec. 6	do.	172.2	do.	186.4	182.0	176.1	188.5	-10.3	+2.1
13	do.	159.6	do.	176.1	171.6	175.4	172.5	-5	-3.4
20	do.	162.5	do.	175.4	173.4	175.4	174.0	0	-1.4
27	do.	164.1	do.	175.4	172.0	184.0	175.5	+8.4	+1
1921									
Jan. 3	do.	172.4	do.	184.0	185.2	187.6	185.4	+3.6	+1.4
10	do.	174.6	do.	187.6	183.0	181.7	181.6	-5.7	-6.0
17	do.	174.7	do.	181.7	183.0	170.0	180.7	-11.7	-1.0
24	do.	164.0	do.	170.0	166.2	168.4	170.0	-1.4	0
31	do.	162.4	do.	168.4	161.4	163.5	170.0	-4.7	+1.4
Feb. 7	do.	156.1	do.	163.5	155.4	175.6	165.1	+12.1	+1.4
14	do.	166.6	do.	175.6	171.2	177.3	171.6	+1.5	-4.0
21	do.	172.3	do.	177.3	172.6	172.1	176.7	-5.2	-4
28	do.	167.5	do.	172.1	168.4	170.7	167.1	-1.2	-5.0
	{May..	156.7	do.	172.1	168.4	170.7	167.1	-1.2	-5.0
Mar. 7	do.	160.5	do.	170.7	169.0	164.6	170.4	-6.1	-3
14	do.	154.7	do.	164.6	163.6	154.6	166.0	-10.0	+1.2
21	do.	143.5	do.	154.6	154.6	156.6	156.6	+2.0	+1.5
28	do.	144.0	do.	156.6	126.0	148.6	155.4	-8.0	-1.2
Apr. 4	do.	137.2	do.	148.6	148.6	141.2	147.2	-7.4	-1.4
11	do.	131.2	do.	141.2	141.2	139.1	143.2	-2.1	+2.0
18	do.	127.1	do.	139.1	139.1	138.5	137.5	-4	-1.4
25	do.	128.1	do.	138.5	138.5	148.0	144.5	+9.3	+6.0
	{July..	106.0	do.	138.5	138.5	148.0	144.5	+9.3	+6.0
May 2	do.	109.3	do.	148.0	148.0	146.7	142.3	-1.1	-5.5
9	do.	113.7	do.	146.7	153.4	155.2	153.4	+8.3	+6.5
16	do.	115.5	do.	155.2	155.2	168.0	154.4	+12.6	-6
23	do.	129.1	do.	168.0	168.0	177.0	176.2	+9.0	+8.2
31	do.	129.7	do.	177.0	177.0	158.7	158.7	-18.1	-18.1
June 6	do.	129.7	do.	158.7	158.7	160.0	148.7	+1.1	-10.0
13	do.	141.0	do.	160.0	160.0	139.0	153.4	-21.0	-6.4
20	do.	126.4	do.	139.0	134.6	142.6	140.0	+3.6	+1.0
27	do.	129.2	do.	142.6	128.0	124.4	131.5	-18.2	-11.1
	{September..	124.5	do.	142.6	128.0	124.4	131.5	-18.2	-11.1
July 5	do.	117.4	do.	124.4	124.4	124.4	124.4	0	0
Average, crop year 1920-21		173.7	do.	189.0	183.4	186.0	187.7	-3.0	-1.1
July 5	September..	117.4	do.	124.4	117.0	119.3	118.6	-5.1	-5.6
11	do.	118.1	do.	119.3	117.6	124.7	114.0	+5.4	-5.3
18	do.	129.0	do.	124.7	124.4	122.3	129.3	-2.4	+4.4
25	do.	122.0	do.	122.3	122.0	122.2	120.6	-1	-1.5
Aug. 1	do.	123.4	do.	122.2	122.4	122.3	124.4	+1	+2.2
8	do.	121.3	do.	122.3	121.2	127.5	124.5	+5.2	+2.2
15	do.	124.3	do.	127.5	126.0	117.2	126.5	-10.3	-1.0
22	do.	115.0	do.	117.2	118.2	120.2	113.4	+3.0	-3.6
29	do.	121.6	do.	120.2	124.0	130.1	123.0	+9.7	+2.6
	{December..	123.4	do.	120.2	124.0	130.1	123.0	+9.7	+2.6

³ Averages for columns 3 and 5 include only 1 price for each day. These items are excluded.

⁶ "To arrive" bids not available during period Mar. 21 to June 13, hence column average has been adjusted so what figure would be assuming the same average difference between spot and "to arrive" prices to continue during the missing period.

TABLE 21.—Wheat: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned wheat (hedged and unhedged) arriving on market a week later—Continued

Date	Wheat futures		Cash wheat			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Quota-ble spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (−) spot price per bushel	Amount hedged price is over (+) or under (−) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1920		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Sept. 6	December..	130.5	No. 2 Hard Winter.	130.1	128.0	128.7	128.5	-1.2	-1.4
12	do.	130.7	do.	128.7	126.4	125.5	129.2	-3.2	+3
19	do.	127.2	do.	125.5	125.4	123.0	124.0	-2.5	-1.5
26	do.	126.2	do.	123.0	121.2	119.1	126.7	-3.7	+3.7
Oct. 3	do.	118.4	do.	119.1	113.6	110.5	119.1	-8.4	0
10	do.	110.0	do.	110.5	107.0	110.5	108.4	0	-2.1
17	do.	112.1	do.	110.5	106.6	106.0	111.1	-4.5	+4
24	do.	107.0	do.	106.0	104.2	107.4	106.4	+1.4	+4
31	do.	108.0	do.	107.4	104.2	101.6	107.6	-5.6	+2
Nov. 7	do.	102.0	do.	101.6	103.0	108.6	103.0	+7.0	+1.2
14	do.	107.6	do.	108.6	105.5	111.1	109.2	+2.3	+4
21	do.	109.5	do.	111.1	109.0	115.4	111.4	+4.3	+3
28	do.	113.5	do.	115.4	115.0	114.2	114.7	-1.2	-5
Dec. 5	do.	116.7	do.	114.2	113.0	112.0	114.1	-2.2	-1
12	do.	114.1	do.	112.0	110.6	109.5	110.2	-2.3	-1.6
19	do.	113.4	do.	109.5	110.1	115.5	112.1	+6.0	+2.4
27	do.	117.0	do.	115.5	113.0	106.6	112.4	-8.7	-3.1
1922									
Jan. 5	do.	111.2	do.	106.6	106.7	108.6	107.6	+2.0	+1.0
9	do.	112.2	do.	108.6	107.5	109.0	110.2	+2	+1.4
16	do.	111.0	do.	109.0	107.3	114.4	109.0	+5.4	0
23	do.	116.4	do.	114.4	111.5	118.2	115.6	+3.6	+1.2
30	do.	119.0	do.	118.2	116.6	123.6	115.6	+5.4	-2.4
Feb. 6	do.	127.0	do.	123.6	123.3	132.6	121.2	+9.0	-2.4
17	do.	138.4	do.	132.6	130.4	138.2	132.4	+5.4	-2
20	do.	144.2	do.	138.2	140.0	142.5	138.4	+4.3	+2
27	do.	148.3	do.	142.5	140.0	136.5	143.3	-6.0	+6
Mar. 6	do.	141.5	do.	136.5	137.4	131.6	138.3	-4.7	+1.6
13	do.	135.0	do.	131.6	126.2	135.5	132.6	+3.7	+1.0
20	do.	137.7	do.	135.5	135.3	130.4	137.5	-5.1	+2.0
27	do.	130.6	do.	130.4	130.7	133.7	131.2	+3.3	+6
Apr. 3	do.	133.3	do.	133.7	131.1	134.7	134.3	+1.0	+4
10	do.	133.7	do.	134.7	133.1	141.3	132.7	+6.4	-2.0
17	do.	142.3	do.	141.3	140.0	145.2	140.7	+3.7	-4
24	do.	146.6	do.	145.2	144.6	141.2	142.5	-4.0	-2.5
May 1	do.	128.6	do.	141.2	140.4	136.4	140.1	-4.6	-1.1
8	do.	127.3	do.	136.4	136.6	142.1	141.0	+5.5	+4.4
15	do.	124.7	do.	142.1	142.7	133.6	135.5	-8.3	-6.4
22	do.	123.0	do.	133.6	132.4	123.3	125.2	-10.3	-8.4
29	do.	121.1	do.	123.3	117.6	115.1	122.6	-8.2	-5
June 5	do.	113.4	do.	115.1	113.0	114.4	116.0	-5	+7
12	do.	112.0	do.	114.4	109.3	113.0	114.4	-1.4	0
19	do.	110.4	do.	113.0	110.2	113.4	111.6	+4	-1.2
26	do.	112.2	do.	113.4	111.7	118.3	114.5	+4.7	+1.1
July 3	do.	117.2	do.	118.3					
Average crop year, 1921-22		122.0		122.4	120.7	122.3	122.1	-1	-3
July 3	September..	117.2	No. 2 Haad Winter.	118.3	116.3	116.4	122.5	-1.7	+4.2
10	do.	111.1	do.	116.4	113.0	118.1	116.0	+1.5	-4
17	do.	113.2	do.	118.1	115.5	111.1	117.1	-7.0	-1.0
24	do.	107.2	do.	111.1	110.2	109.2	110.4	-1.7	-5
31	do.	106.0	do.	109.2	108.2	109.2	109.2	0	0
Aug. 7	do.	106.0	do.	109.2	109.1	106.5	110.0	-2.5	+6
14	do.	102.5	do.	106.5	104.4	102.6	106.0	-3.7	-5
21	do.	99.3	do.	102.6	103.3	107.0	103.1	+4.2	+3
28	do.	103.2	do.	107.0	105.7	100.2	103.2	-6.6	-3.6

§ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 21.—Wheat: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned wheat (hedged and unhedged) arriving on market a week later—Continued

Date	Wheat futures		Cash wheat			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Quota-ble spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (-) spot price per bushel	Amount hedged price is over (+) or under (-) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1922		Cents		Cents	Cents	Cents	Cents	Cents	Cents
Sept. 5	December..	101.2	No. 2 Hard Winter.	100.2	101.4	103.3	102.3	+3.1	+2.1
11	do	102.2	do	103.3	102.0	107.4	104.7	+4.1	+1.4
18	do	104.7	do	107.4	106.3	110.3	109.6	+2.7	+2.2
28	do	105.4	do	110.3	105.3	106.7	108.0	-3.4	-2.3
Oct. 2	do	104.3	do	106.7	106.0	110.0	107.0	+3.1	+1
9	do	107.3	do	110.0	108.6	116.7	111.2	+6.7	+1.2
16	do	113.0	do	116.7	114.2	115.2	117.5	-1.5	+6
23	do	110.5	do	115.2	113.2	119.1	115.1	+3.7	-1
30	do	114.5	do	119.1	117.0	118.2	117.2	-7	-1.7
Nov. 6	do	115.5	do	118.2	117.0	119.0	118.7	+6	+5
13	do	115.6	do	119.0	117.2	121.5	117.1	+2.5	-1.7
20	do	120.2	do	121.5	119.6	117.1	122.0	-4.4	+3
27	do	115.3	do	117.1	116.1	119.4	118.1	+2.3	+1.0
Dec. 4	(May) do	114.3	do	117.1	116.1	119.4	118.1	+2.3	+1.0
11	do	115.6	do	119.4	118.5	124.1	119.5	+4.5	+1
18	do	120.2	do	124.1	122.4	128.0	123.7	+3.7	-2
26	do	124.3	do	128.0	127.3	126.0	125.5	-2.0	-2.3
	do	124.6	do	126.0	125.4	118.7	123.2	-7.1	-2.6
1923									
Jan. 2	do	120.3	do	118.7	115.4	118.5	121.1	-2	+2.2
8	do	117.7	do	118.5	116.6	120.7	119.6	+2.2	+1.1
15	do	119.0	do	120.7	118.0	116.0	118.0	-4.7	-2.7
22	do	117.0	do	116.0	113.3	114.5	115.4	-1.3	-4
29	do	116.1	do	114.5	113.5	118.1	115.1	+3.4	+4
Feb. 5	do	119.1	do	118.1	116.7	122.6	118.2	+4.5	+1
13	do	123.5	do	122.6	120.3	119.5	123.5	-3.1	+7
19	do	119.5	do	119.5	117.2	117.6	120.3	-1.7	+6
26	do	117.0	do	117.6	114.2	117.6	117.0	0	-6
Mar. 5	do	117.6	do	117.6	115.6	119.5	117.5	+1.7	-1
12	do	119.6	do	119.5	118.2	122.6	120.4	+3.1	+7
19	do	122.0	do	122.6	121.0	120.1	123.0	-2.5	+2
26	do	119.1	do	120.1	119.3	122.4	120.4	+2.3	+3
Apr. 2	do	121.1	do	122.4	121.4	124.7	122.4	+2.3	0
9	do	123.4	do	124.7	124.6	126.5	124.7	+1.6	0
16	do	125.2	do	126.5	125.1	125.2	126.3	-1.3	-2
23	do	124.1	do	125.2	124.6	124.7	125.6	-3	+4
30	do	123.2	do	124.7	123.0	119.1	124.2	-5.6	-5
May 7	do	122.0	do	124.7	123.0	119.1	124.2	-5.6	-5
14	do	116.7	do	119.1	116.7	119.2	121.4	+1	+2.3
21	do	114.5	do	119.2	118.3	120.2	118.7	+1.0	-3
28	do	116.0	do	120.2	118.2	118.0	120.2	-2.2	0
June 4	do	113.6	do	118.0	116.0	111.7	116.2	-6.1	-1.6
11	do	109.3	do	111.7	108.7	113.4	111.1	+1.5	-6
18	do	111.6	do	113.4	111.5	109.1	113.0	-4.3	-4
25	do	107.7	do	109.1	107.4	106.7	110.3	-2.2	+1.2
July 2	do	104.3	do	106.7	105.2	104.7	105.6	-2.0	-1.1
	do	103.3	do	104.7	105.2	104.7	105.6	-2.0	-1.1
Average crop year, 1922-23.		114.2		116.3	114.6	116.1	116.3	-2	0
July 2	September..	103.3	No. 2 Hard Winter.	104.7	103.4	104.5	104.7	-2	0
9	do	103.1	do	104.5	104.0	98.7	104.7	-5.6	+2
16	do	97.1	do	98.7	98.0	101.1	99.2	+2.2	+3
23	do	99.0	do	101.1	100.5	97.3	99.6	-3.6	-1.3
30	do	96.5	do	97.3	97.2	98.2	97.5	+7	+2
Aug. 6	do	97.2	do	98.2	97.4	102.2	99.1	+4.0	+7
13	do	100.3	do	102.2	102.0	102.2	102.7	0	+5
20	do	99.6	do	102.2	102.1	105.6	102.4	+3.4	+2
27	do	103.0	do	105.6	104.0	105.4	103.7	-2	+1.1
	(December) do	107.3	do	105.6	104.0	105.4	103.7	-2	+1.1

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 21.—Wheat: Comparison of Chicago futures, spot, and "to arrive" price with the probable realized price of consigned wheat (hedged and unhedged) arriving on market a week later—Continued

Date	Wheat futures		Cash wheat			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Quota-ble spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (−) spot price per bushel	Amount hedged price is over (+) or under (−) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1923		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Sept. 4	December	106.0	No. 2 Hard Winter.	105.4	103.4	107.6	107.4	+2.2	+2.0
10	do	106.2	do	107.6	105.4	104.3	108.6	−3.3	+1.0
17	do	101.7	do	104.3	103.0	106.2	104.4	+1.7	+1
24	do	103.5	do	106.2	105.3	109.4	107.1	+3.2	+7
Oct. 1	do	106.0	do	109.4	107.5	112.3	108.2	+2.7	−1.2
8	do	110.1	do	112.3	111.0	110.4	112.4	−1.7	+1
15	do	108.1	do	110.4	109.0	108.2	111.1	−2.2	+5
22	do	105.2	do	108.2	106.3	108.3	107.4	+1	−6
29	do	106.1	do	108.3	106.6	108.0	107.5	−3	−6
Nov. 5	do	106.4	do	108.0	107.1	104.6	108.6	−3.2	+6
12	do	102.4	do	104.6	103.4	104.6	105.4	0	+6
19	do	101.6	do	104.6	103.5	106.1	105.0	+1.3	+2
26	do	102.7	do	106.1	103.5	107.6	106.1	+1.5	0
Dec. 3	May	108.3	do	107.6	106.3	106.7	107.6	−7	0
10	do	109.1	do	106.7	105.0	108.4	108.6	+1.5	+1.7
17	do	108.7	do	108.4	106.5	104.3	107.0	−4.1	−1.4
26	do	106.2	do	104.3	103.3	105.1	104.1	+6	−2
29	do	107.2	do	105.1	103.7	107.3	105.7	+2.2	+6
1924									
Jan. 7	do	108.6	do	107.3	105.5	110.1	109.6	+2.6	+2.3
14	do	109.1	do	110.1	105.6	108.7	109.7	−1.2	−2
21	do	108.1	do	108.7	107.0	110.3	109.5	+1.4	+6
28	do	108.7	do	110.3	108.2	112.7	109.3	+2.4	−1.0
Feb. 4	do	112.3	do	112.7	111.3	112.3	112.3	−4	−4
11	do	112.3	do	112.3	109.6	110.7	112.7	−1.4	+4
18	do	110.3	do	110.7	107.7	111.0	110.7	+1	0
25	do	110.4	do	111.0	108.7	113.4	112.4	+2.4	+1.4
Mar. 3	do	111.4	do	113.4	110.0	111.3	112.4	−2.1	−1.0
10	do	110.3	do	111.3	108.7	108.0	112.3	−3.3	+1.0
17	do	106.0	do	108.0	105.4	106.4	108.4	−1.4	+4
24	do	104.0	do	106.4	102.3	104.1	106.4	−2.3	0
31	do	101.5	do	104.1	102.2	105.4	104.5	+1.3	+4
Apr. 7	do	102.4	do	105.4	103.3	104.6	105.2	−6	−2
14	do	102.0	do	104.6	102.5	107.7	105.4	+3.1	+6
21	do	104.3	do	107.7	104.7	104.0	105.3	−3.7	−2.4
28	do	103.0	do	104.0	103.7	107.7	106.5	+3.7	+2.5
May 5	July	105.1	do	107.7	105.0	108.1	109.3	+2	+1.4
12	do	105.1	do	108.1	105.0	108.6	107.3	+5	−6
19	do	106.4	do	108.6	105.4	109.6	107.7	+1.0	−7
26	do	108.3	do	109.6	107.2	107.6	111.3	−2.0	+1.5
June 2	do	104.6	do	107.6	103.5	106.5	107.2	−1.1	−4
9	do	104.1	do	106.5	104.2	117.0	107.1	+10.3	+4
16	do	114.0	do	117.0	114.4	115.2	116.4	−1.6	−4
23	do	112.6	do	115.2	113.6	118.1	115.6	+2.7	+4
30	do	115.1	do	118.1	115.6	117.1	119.3	−1.0	+1.2
July 7	September	116.6	do	117.1					
	do	114.4	do						
Average crop year 1923-24.		106.1		107.3	105.4	107.5	107.6	+2	+3
July 7	September	114.4	No. 2 Hard Winter.	117.1	113.6	125.1	118.1	+8.0	+1.0
14	do	121.4	do	125.1	123.6	130.4	126.0	+5.3	+7
21	do	126.0	do	130.4	127.4	137.1	129.5	+6.5	−7
28	do	133.4	do	137.1	135.1	132.2	133.6	−4.7	−3.3
Aug. 4	do	132.0	do	132.2	131.4	128.4	133.1	−3.6	+7
11	do	127.3	do	128.4	127.0	132.1	127.5	+3.5	−7
18	do	131.7	do	132.1	130.6	123.7	132.5	−8.2	+4
25	do	123.1	do						
	December	128.0	do	123.7	124.6	125.5	124.6	+1.6	+7

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 21.—Wheat: Comparison of Chicago futures, spot, and "to arrive" price with the probable realized price of consigned wheat (hedged and unhedged) arriving on market a week later—Continued

Date	Wheat futures		Cash wheat			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Quota-ble spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (−) spot price per bushel	Amount hedged price is over (+) or under (−) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1924		Cents		Cents	Cents	Cents	Cents	Cents	Cents
Sept. 2	December...	128.7	No. 2 Hard Winter.	125.5	124.0	124.2	125.7	-1.3	+0.2
9	do.....	127.2	do.....	124.2	123.6	129.7	123.5	+5.5	-.5
15	do.....	133.4	do.....	129.7	128.4	131.1	132.4	+1.2	+2.5
22	do.....	132.1	do.....	131.1	129.1	141.1	133.3	+10.0	+2.2
29	do.....	139.7	do.....	141.1	139.3	151.0	140.1	+9.7	-1.0
Oct. 6	do.....	150.6	do.....	151.0	148.4	145.7	150.4	-5.1	-.4
14	do.....	146.1	do.....	145.7	145.6	146.0	144.5	+1.1	-1.2
20	do.....	147.4	do.....	146.0	143.4	141.6	145.3	-4.2	-.5
27	do.....	143.7	do.....	141.6	142.7	137.1	141.5	-4.5	-.1
Nov. 3	do.....	139.3	do.....	137.1	138.2	153.2	139.1	+16.1	+2.0
10	do.....	153.4	do.....	153.2	152.1	154.0	153.4	+6	+2
17	do.....	154.0	do.....	154.0	153.0	156.1	154.7	+2.1	+7
24	do.....	155.2	do.....	155.2	155.2	156.1	156.5	0	+4
Dec. 1	May.....	163.0	do.....	156.1	152.7	160.4	158.7	+4.3	+2.6
8	do.....	162.4	do.....	156.1	152.7	160.4	158.7	+4.3	+2.6
15	do.....	164.1	do.....	160.4	158.2	165.5	162.1	+5.1	+1.5
22	do.....	167.5	do.....	165.5	163.3	171.7	165.5	+6.2	0
29	do.....	173.7	do.....	171.7	169.0	177.4	171.5	+5.5	-.2
	do.....	179.6	do.....	177.4	175.6	174.3	178.6	-3.1	+1.2
1925									
Jan. 5	do.....	175.3	do.....	174.3	171.0	182.3	175.1	+8.0	+6
12	do.....	182.5	do.....	182.3	181.6	189.1	182.1	+6.6	-.2
19	do.....	189.5	do.....	189.1	187.1	193.6	187.5	+4.5	-1.4
26	do.....	195.6	do.....	193.6	193.3	195.5	192.0	+1.7	-1.6
Feb. 4	do.....	199.3	do.....	195.5	193.0	188.4	195.7	-7.1	+2
9	do.....	192.0	do.....	188.4	184.5	182.2	189.0	-6.2	+4
16	do.....	185.2	do.....	182.2	178.4	186.0	182.6	+3.6	+4
24	do.....	188.4	do.....	186.0	181.4	198.4	187.6	+12.4	+1.6
Mar. 2	do.....	199.2	do.....	198.4	190.5	181.3	197.2	-17.1	-1.2
9	do.....	183.3	do.....	181.3	178.6	167.5	182.3	-13.6	+1.0
16	do.....	168.5	do.....	167.5	159.4	169.0	169.5	+1.3	+2.0
23	do.....	168.0	do.....	169.0	167.4	153.0	169.4	-16.0	+4
30	do.....	151.4	do.....	153.0	144.4	147.1	153.4	-5.7	+4
Apr. 6	do.....	145.1	do.....	147.1	144.2	161.3	147.1	+14.2	0
13	do.....	159.3	do.....	161.3	156.4	150.3	162.7	-11.0	+1.4
20	do.....	146.7	do.....	150.3	150.2	150.2	150.7	-.1	+4
27	do.....	146.2	do.....	150.2	144.4	165.3	149.3	+15.1	-.7
May 4	July.....	136.3	do.....	150.2	144.4	165.3	149.3	+15.1	-.7
11	do.....	152.3	do.....	165.3	161.4	166.4	168.0	+1.1	+2.5
18	do.....	150.7	do.....	166.4	160.4	172.3	169.7	+5.7	+3.3
25	do.....	153.3	do.....	172.3	169.6	171.4	165.6	-.7	-6.5
June 1	do.....	159.1	do.....	171.4	171.6	165.0	161.1	-6.4	-10.3
8	do.....	163.0	do.....	165.0	162.6	172.3	168.4	+7.3	+3.4
15	do.....	166.7	do.....	172.3	167.5	165.3	176.7	-7.0	+4.4
22	do.....	155.3	do.....	165.3	154.6	160.7	162.7	-4.4	-2.4
29	do.....	153.3	do.....	160.7	156.2	150.1	157.3	-10.6	-3.4
July 6	do.....	146.1	do.....	150.1	147.6	145.5	148.4	-4.4	-1.5
	do.....	140.4	do.....	145.5	145.5	145.5	145.5	0	0
Average crop year 1924-25.		155.4		156.7	154.2	157.3	156.7	+4	.0

⁵ Average for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 22.—Corn: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned corn (hedged and unhedged) arriving on market one week later

[Figure following decimal indicates eighths of a cent; i. e., 84.7 is 84 $\frac{7}{8}$ cents]

Date ¹	Corn futures		Cash corn			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel ²	Grade	Car-lot spot price per bushel ²	"To arrive" price per bushel ³	Unhedged	Hedged ⁴	Amount unhedged price is over (+) or under (-) spot price per bushel	Amount hedged price is over (+) or under (-) spot price per bushel ⁴
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1920		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Nov. 1	December	84.7	No. 2 Yellow	91.2	89.0	91.2	95.1	0.0	+3.7
8	do	81.0	do	91.2	79.3	81.0	88.1	-5.2	+1.7
15	do	73.7	No. 3 Yellow	86.2	73.5	67.4	77.1	-13.4	-3.7
22	do	64.2	do	81.0	64.5	73.0	70.1	+5.4	+2.5
29	do	67.1	do	67.4	73.0	79.4	75.7	+6.4	+2.7
	May	74.1	do	73.0	68.1	79.4	75.7	+6.4	+2.7
Dec. 6	do	77.6	do	79.4	78.0	73.7	79.6	-5.5	+2
13	do	71.7	do	73.7	72.1	70.7	69.2	-3.0	-4.5
20	do	73.4	do	70.7	72.2	70.4	70.3	-.3	-.4
27	do	73.5	do	70.4	68.1	70.0	68.2	-.4	-2.2
1921									
Jan. 3	do	75.3	do	70.0	71.2	69.5	71.3	-.3	+1.3
10	do	74.3	do	69.5	69.3	65.3	68.7	-4.2	-.6
17	do	70.7	do	65.3	64.3	62.6	64.6	-2.5	-.5
24	do	68.7	do	62.6	63.1	60.2	63.6	-2.4	+1.0
31	do	65.3	do	60.2	58.4	60.1	59.4	-.1	-.6
Feb. 7	do	66.0	do	60.1	58.7	65.4	62.3	+5.3	+2.2
14	do	69.1	do	65.4	65.3	67.1	64.5	+1.5	-.7
21	do	71.5	do	67.1	66.5	63.6	66.5	-3.3	-.4
28	do	68.6	do	63.6	63.0	66.5	64.2	+2.7	+.4
Mar. 7	do	71.1	do	66.5	64.7	63.0	65.3	-3.5	-1.2
14	do	68.6	do	63.0	61.5	61.5	63.6	-1.3	+.6
21	do	66.5	do	61.5	59.6	58.6	61.5	-2.7	0
28	do	63.6	do	58.6	58.1	55.0	58.7	-3.6	+.1
Apr. 4	do	59.7	do	55.0	54.7	57.1	57.7	+2.1	+2.7
11	do	59.1	do	57.1	53.4	56.0	57.6	-1.1	+.5
18	do	57.3	do	56.0	54.5	59.6	56.7	+3.6	+.7
25	do	60.2	do	59.6	57.6	59.0	59.4	-.6	-.2
	July	62.4	do	59.6	57.5	59.6	59.6	+.6	+.6
May 2	do	62.0	do	59.0	58.7	60.5	60.2	+.7	+.4
9	do	62.0	do	59.6	58.7	60.5	60.2	+.7	+.4
16	do	62.3	No. 2 Yellow	60.5	60.6	61.4	62.0	-.1	+.3
23	do	61.7	do	61.4	60.5	65.4	61.7	+4.0	+.3
31	do	65.4	do	65.4	64.2	64.7	65.5	-.5	+.1
June 6	do	64.6	do	64.7	64.7	64.4	64.3	-.3	-.4
13	do	64.7	do	64.4	63.1	62.4	64.2	-2.0	-.2
20	do	62.0	do	62.4	62.0	61.4	62.5	-1.0	+.1
27	do	63.1	do	61.4	60.1	58.3	61.0	-3.1	-.4
	September	62.4	do	61.4	60.1	58.3	61.0	-3.1	-.4
July 5	do	59.7	do	58.3	58.7	60.7	61.0	+2.4	+2.5
11	do	59.6	do	60.7	60.7	64.0	60.5	+3.1	-.2
18	do	63.1	do	64.0	61.7	63.0	64.7	-1.0	+.7
25	do	61.2	do	63.0	62.4	61.2	62.7	-1.6	-.1
Aug. 1	do	59.5	do	61.2	60.0	58.4	61.0	-2.6	-.2
8	do	57.1	do	58.4	58.4	58.4	59.0	0	+.4
15	do	56.5	do	58.4	58.4	53.5	57.3	-4.7	-1.1
22	do	52.7	do	53.5	54.5	56.1	54.4	+2.4	+.7
29	do	54.4	do	56.1	55.5	55.7	55.7	-.2	-.2
	December	54.4	do	56.1	55.5	55.7	55.7	-.2	-.2
Sept. 6	do	54.4	do	55.7	54.5	55.6	55.4	-.1	-.3
12	do	54.6	do	55.6	55.2	53.5	55.6	-2.1	0
19	do	52.5	do	53.5	53.1	52.5	53.1	-1.0	-.4
26	do	52.1	do	52.5	52.0	46.6	49.5	-5.7	-3.0

¹ Monday of each week is used whenever prices are available; otherwise the next business day.² A average of high—low.³ Best bids available without regard to time of shipment, unless premium is on long deferred shipment. Prices for the most part are for 5 to 10 day shipment. Prices include commission and are therefore directly comparable with spot prices.⁴ Figures in columns 8 and 10 are computed without allowance for commissions on futures. To make hedged results more nearly comparable with other price possibilities one-fourth of a cent per bushel should be deducted from hedged price. (Deduct from plus items in column 10; add to minus items.)⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 22.—*Corn: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned corn (hedged and unhedged) arriving on market one week later—Continued*

Date	Corn futures		Cash corn			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car-lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (-) spot price per bushel	Amount hedged price is over (+) or under (-) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1921		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Oct. 3	December	49.2	No. 2 Yellow	46.6	47.5	45.2	47.3	-1.4	+0.5
10	do.	47.1	do.	45.2	44.4	45.7	46.4	+ .5	+1.2
17	do.	46.4	do.	45.7	45.0	46.7	46.0	+1.0	+1.1
24	do.	47.3	do.	46.7	47.1	48.5	48.0	+1.6	+1.1
31	do.	48.0	do.	48.5	48.0	46.6	48.5	-1.7	0
Nov. 7	do.	46.1	do.	46.6					
Average crop year 1920-21		63.3		62.2	61.1	61.4	62.4	- .6	+ .2
Nov. 7	December	46.1	No. 2 Yellow	46.6	46.3	48.6	48.0	+2.0	+1.2
14	do.	46.7	do.	48.6	47.1	51.3	49.1	+2.5	+ .3
21	do.	49.1	No. 3 Yellow	51.3	47.0	49.2	49.4	- .5	- .3
28	do.	48.7		49.7					
	May	54.6	do.	49.2	47.4	48.4	48.7	- .6	- .3
Dec. 5	do.	54.3	do.	48.4	47.0	48.0	48.6	- .4	+ .2
12	do.	53.5	do.	48.0	47.0	45.1	45.6	-2.7	-2.2
19	do.	53.0	do.	45.1	45.6	49.0	47.0	+3.7	+1.7
27	do.	55.0	do.	49.0	46.5	45.5	48.0	-3.3	-1.0
1922									
Jan. 3	do.	52.5	do.	45.5	43.4	47.3	46.5	+1.6	+1.0
9	do.	53.3	do.	47.3	47.1	47.4	48.1	+ .1	+ .6
16	do.	52.6	do.	47.4	46.7	48.4	47.4	+1.0	0
23	do.	53.6	do.	48.4	48.0	48.5	48.1	+ .1	- .3
30	do.	54.2	do.	48.5	48.1	51.7	48.6	+3.2	+ .1
Feb. 6	do.	57.3	do.	51.7	52.1	53.2	50.3	+1.3	-1.4
14	do.	60.2	do.	53.2	53.3	56.4	53.2	+3.2	0
20	do.	63.4	do.	56.4	56.4	62.2	56.7	+5.6	+ .3
27	do.	68.7	do.	62.2	60.6	56.1	61.4	-6.1	- .6
Mar. 6	do.	63.4	do.	56.1	57.0	56.4	58.0	+ .3	+1.7
13	do.	62.0	do.	56.4	54.6	58.1	58.5	+1.5	+2.1
20	do.	61.4	do.	58.1	58.3	54.0	57.5	-4.1	- .4
27	do.	57.7	do.	54.0	54.5	56.0	55.5	+2.0	+1.5
Apr. 3	do.	58.2	do.	56.0	55.3	57.4	56.1	+1.4	+ .1
10	do.	59.5	do.	57.4	56.5	59.5	58.1	+2.1	+ .5
17	do.	61.1	do.	59.5	58.2	61.4	61.0	+1.7	+1.3
24	do.	61.5	do.	61.4	60.0	62.6	63.1	+1.2	+1.5
	July	65.5							
May 1	do.	65.2	do.	62.6	60.7	61.6	62.5	-1.0	- .1
8	do.	64.3	do.	61.6	61.2	61.5	61.6	- .1	0
15	do.	64.2	do.	61.5	61.1	61.1	61.5	- .4	0
22	do.	63.6	do.	61.1	61.0	60.0	61.4	-1.1	+ .3
29	do.	62.2	do.	60.0	59.1	58.4	60.4	-1.4	+ .4
June 5	do.	60.2	do.	58.4	57.6	60.2	58.7	+1.6	+ .3
12	do.	61.5	do.	60.2	59.2	60.3	60.5	+ .1	+ .3
19	do.	61.3	do.	60.3	60.4	61.3	60.6	+1.0	+ .3
26	do.	62.0	do.	61.3	60.6	63.6	62.6	+2.3	+1.3
	September	65.5							
July 3	do.	66.5	do.	63.6	63.6	62.6	65.3	-1.0	+1.5
10	do.	64.0	do.	62.6	62.0	64.7	64.2	+2.1	+1.4
17	do.	64.5	do.	64.7	63.1	64.0	65.7	- .7	+1.0
24	do.	62.6	do.	64.0	63.1	63.4	64.7	- .4	+ .7
31	do.	61.3	do.	63.4	61.5	62.4	63.2	-1.0	- .2
Aug. 7	do.	60.5	do.	62.4	61.1	62.1	64.4	- .3	+2.0
14	do.	58.2	do.	62.1	58.2	61.3	60.6	- .6	-1.3
21	do.	58.7	do.	61.3	60.0	62.5	61.0	+1.2	- .3
28	do.	60.4	do.	62.5	61.2	62.2	61.0	- .3	-1.5
	December	55.2							
Sept. 5	do.	56.4	do.	62.2	61.4	64.0	62.7	+1.6	+ .5
11	do.	57.5	do.	64.0	62.5	63.2	62.6	- .6	-1.2
18	do.	58.1	do.	63.2	63.1	62.5	62.3	- .5	- .7
25	do.	58.3	No. 2 Yellow	62.5	63.4	64.7	63.7	+1.4	+ .4
	do.	58.3		63.3					
Oct. 2	do.	59.3	do.	64.7	64.4	67.0	64.3	+2.1	- .4
9	do.	62.0	do.	67.0	66.3	72.1	67.7	+5.1	+ .7
16	do.	66.2	do.	72.1	70.0	71.0	71.1	-1.1	-1.0

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 22.—Corn: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned corn (hedged and unhedged) arriving on market one week later—Continued

Date	Corn futures		Cash corn			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car-lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (−) spot price per bushel	Amount hedged price is over (+) or under (−) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1922		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Oct. 23	December	66.1	No. 2 Yellow	71.0	69.7	69.4	68.7	−1.4	−2.1
30	do	66.6	do	69.4	69.3	70.5	68.6	+1.1	−.6
Nov. 6	do	68.5	do	70.5					
Average crop year 1921-22		59.4		58.0	57.1	58.4	58.2	+ .4	+ .2
Nov. 6	December	68.5	No. 2 Yellow	70.5	70.6	70.1	70.4	−.4	−.1
13	do	68.2	{ do	70.1	67.5	71.5	69.0	+2.5	0
20	do	70.7	{ No. 3 Yellow	69.0					
27	do	69.3	do	71.5	70.3	70.7	72.4	−.6	+ .7
Dec. 4	May	68.7	do	70.7	69.1	71.0	70.4	+ .1	−.3
11	do	69.3	do	71.0	69.6	73.5	71.5	+2.5	+ .5
18	do	71.3	do	73.5	72.4	75.7	72.4	+2.2	−1.1
26	do	74.6	do	75.7	74.6	70.6	73.3	−5.1	−2.4
	do	72.1	do	70.6	70.0	70.6	72.0	0	+1.2
1923									
Jan. 2	do	70.7	do	70.6	67.5	69.4	69.7	−1.2	−.7
8	do	70.4	do	69.4	68.6	70.5	68.2	+1.1	−1.2
15	do	72.7	do	70.5	69.7	69.5	70.4	−1.0	−.1
22	do	72.0	do	69.5	68.4	69.0	68.7	−.5	−.6
29	do	72.1	do	69.0	68.5	72.2	69.2	+3.2	+ .2
Feb. 5	do	75.1	do	72.2	73.3	73.7	72.5	+1.5	+ .3
13	do	76.3	do	73.7	73.6	73.3	74.4	−.4	+ .5
19	do	75.2	do	73.3	73.3	70.4	72.3	−2.7	−1.0
26	do	73.3	do	70.4	71.4	71.6	70.5	+1.2	+ .1
Mar. 5	do	74.4	do	71.6	73.1	72.6	72.5	+1.0	+ .7
12	do	74.5	do	72.6	72.6	74.1	73.6	+1.3	+1.0
19	do	75.0	do	74.1	73.0	73.1	74.7	−1.0	+ .6
26	do	73.2	do	73.1	72.1	75.0	74.0	+1.7	+ .7
Apr. 2	do	74.2	do	75.0	73.6	79.0	75.3	+4.0	+ .3
9	do	77.7	do	79.0	80.2	80.7	78.7	+1.7	−.1
16	do	79.7	do	80.7	79.4	79.6	81.2	−1.1	+ .3
23	do	78.3	do	79.6	79.3	82.0	80.7	+2.2	+1.1
30	{ do	79.4	{ do	82.0	80.6	80.0	83.3	−2.0	+1.3
May 7	July	81.3	do	80.0	78.2	80.5	80.3	+ .5	+ .3
14	do	78.0	do	80.0	79.1	82.2	81.3	+1.5	+ .6
21	do	79.1	do	82.2	80.4	78.4	81.1	−3.6	−1.1
28	do	76.4	{ do	78.4	77.7	83.4	79.6	+4.3	+ .5
June 4	do	80.2	{ No. 2 Yellow	83.4	82.3	83.5	82.4	+ .1	−1.0
11	do	81.3	do	83.5	83.2	84.6	84.7	+1.1	+1.2
18	do	81.2	do	84.6	83.0	85.2	83.6	+ .4	−1.0
25	{ do	82.6	{ do	85.2	85.1	82.3	86.4	−2.7	+1.2
July 2	September	79.1	do	85.2	83.6	89.2	88.7	+ .5	+ .1
9	do	75.0	do	82.3	80.5	86.3	85.2	+4.0	+2.7
16	do	76.1	do	86.3	85.4	86.5	88.3	+ .2	+2.0
23	do	74.3	do	86.5	85.3	89.2	86.6	+2.5	+ .1
30	do	76.7	do	89.2	81.6	87.7	88.4	−1.3	−.6
Aug. 6	do	76.2	do	87.7	83.4	87.1	86.7	−.6	−1.0
13	do	76.4	do	87.1	84.7	88.3	88.1	+1.2	+1.0
20	do	76.6	do	88.3	87.4	90.1	85.5	+1.6	−2.6
27	do	81.2	do	90.1	84.6	88.6	87.2	−1.3	−2.7
Sept. 4	do	82.6	do	88.6	83.6	89.2	88.7	+ .4	+ .1
10	do	67.5	do	83.6	87.1	90.1	89.7	+ .7	+ .5
17	do	68.0	do	89.2	87.4	86.7	88.6	−3.2	−1.3
24	do	66.3	do	90.1	87.4	86.7	87.0	+3.0	+ .1
Oct. 1	do	69.2	do	86.7	85.2	89.7	87.0	+3.0	−.6
8	do	73.0	do	89.7	90.3	92.7	89.1	+3.0	+ .1
15	do	76.1	do	92.7	92.3	104.4	101.3	+11.5	+8.4
22	do	77.7	do	104.4	103.4	109.2	109.4	+4.6	+5.0
29	do	75.7	do	109.2	109.0	107.2	108.3	−2.0	−.7
Nov. 5	do	74.6	{ do	107.2	84.3	102.3	104.4	−4.1	−2.0
	do	72.5	{ No. 3 Yellow	106.4	78.1	85.6	84.3	−16.5	−18.0
	do	74.0	do	102.3					
Average crop year 1922-23		74.3		81.1	79.0	81.3	81.0	+ .2	−.1

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 22.—*Corn: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned corn (hedged and unhedged) arriving on market one week later—Continued*

Date	Corn futures		Cash corn			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car-lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (-) spot price per bushel	Amount hedged price is over (+) or under (-) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1923		Cents		Cents	Cents	Cents	Cents	Cents	Cents
Nov. 5	December	74.0	No. 3 Yellow	85.6	81.1	94.4	92.3	+8.6	+6.5
12	do	76.1	do	94.4	87.3	86.4	89.1	-8.0	-5.3
19	do	73.4	do	86.4	74.5	77.4	79.1	-9.0	-7.3
26	May	\$ 71.7	do	77.4	69.6	74.2	73.0	-3.2	-4.4
Dec. 3	do	72.6	do	74.2	73.1	73.0	72.6	-1.2	-1.4
10	do	74.2	do	73.0	72.4	70.2	71.4	-2.6	-1.4
17	do	73.0	do	70.2	69.7	68.1	68.2	-2.1	-2.0
26	do	72.7	do	68.1	67.3	70.7	69.4	+2.6	+1.3
31	do	74.2	do	70.7	69.0	74.0	72.0	+3.1	+1.1
1924									
Jan. 7	do	76.2	do	74.0	72.5	76.5	74.6	+2.5	+6
14	do	78.1	do	76.5	74.4	77.1	76.6	+4	+1
21	do	78.4	do	77.1	75.4	78.0	77.1	+7	0
28	do	79.3	do	78.0	77.3	78.2	77.1	+2	-7
Feb. 4	do	80.4	do	78.2	77.5	80.0	79.2	+1.6	+1.0
11	do	81.2	do	80.0	78.3	77.6	79.3	-2.2	-5
18	do	79.5	do	77.6	75.6	78.3	77.3	+5	-3
25	do	80.5	do	78.3	77.4	78.6	78.0	+3	-3
Mar. 3	do	81.3	do	78.6	78.0	79.3	79.7	+5	+1.1
10	do	80.7	do	79.3	78.2	76.6	79.5	-2.5	+2
17	do	78.0	do	76.6	76.5	78.0	77.5	+1.2	+7
24	do	78.3	do	78.0	75.4	76.7	79.0	-1.1	+1.0
31	do	76.2	do	76.7	76.0	79.0	77.1	+2.1	+2
Apr. 7	do	78.1	do	79.0	77.2	77.3	78.2	-1.5	-6
14	do	77.2	do	77.3	76.1	79.0	78.1	+1.5	+6
21	do	78.1	do	79.0	76.4	76.7	78.3	-2.1	-5
28	July	\$ 76.5	do	76.7	75.7	77.6	77.2	+7	+3
May 5	do	78.0	do	77.6	77.0	76.7	79.3	-7	+1.5
12	do	78.4	do	77.6	74.6	78.4	78.1	+1.5	+1.2
19	do	76.3	do	78.4	77.7	78.1	77.1	-3	-1.1
26	do	77.1	do	78.1	77.5	76.3	77.1	-1.6	-1.0
June 2	do	76.3	do	76.3	76.0	79.3	77.3	+3.0	+1.0
9	do	78.3	do	79.3	78.6	83.5	79.6	+4.2	+3
16	do	82.2	do	83.5	83.2	88.6	84.1	+5.1	+4
23	do	86.7	do	88.6	88.4	99.2	88.7	+10.4	+1
July 1	September	\$ 97.2	do	98.6	96.4	99.4	100.7	+6	+2.1
7	do	94.7	do	99.4	98.0	110.6	100.7	+11.2	+1.3
14	do	93.4	do	\$ 110.6	112.0	110.4	110.0	-1.6	-2.2
21	do	103.3	No. 2 Yellow	112.2	109.4	111.0	107.2	+4	-3.2
28	do	103.7	do	110.4	110.4	117.2	109.6	+6.2	-1.2
Aug. 4	do	107.5	do	111.0	110.4	117.2	109.6	+6.2	-1.2
11	do	115.1	do	117.2	113.7	115.3	116.2	-1.7	-1.0
18	do	114.2	do	115.3	114.2	123.3	115.1	+8.0	-2
25	do	122.4	do	123.3	122.6	115.6	126.5	-7.5	+3.2
Sept. 2	December	\$ 111.5	do	115.6	113.0	121.3	112.0	+5.5	-3.6
8	do	104.5	do	112.3	118.4	120.3	122.0	-1.0	+5
15	do	114.0	do	121.3	119.0	120.3	119.2	0	-1.1
22	do	112.3	do	120.3	120.1	113.6	122.1	-6.5	+1.6
29	do	105.1	do	113.6	112.2	112.4	107.4	-1.2	-6.2
Oct. 6	do	110.1	do	112.4	113.4	114.6	113.0	+2.2	+4
14	do	111.7	do	114.6	112.3	114.2	113.7	-4	-7
20	do	112.2	do	114.2	114.3	110.2	115.1	-4.0	+7
27	do	107.3	do	110.2	109.0	104.5	108.5	-5.5	-1.5
Nov. 3	do	103.3	do	104.5	104.3	106.0	104.3	+1.3	-2
	do	\$ 105.0	do	\$ 106.0					
Average crop year 1923-24		88.2		90.3	88.5	90.6	90.0	+3	-3

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 22.—Corn: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned corn (hedged and unhedged) arriving on market one week later—Continued

Date	Corn futures		Cash corn			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car-lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (−) spot price per bushel	Amount hedged price is over (+) or under (−) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1924		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Nov. 3	December	105.0	No. 2 Yellow	106.0	105.2	112.4	106.3	+6.4	+0.3
10	do	111.1	do	112.4	111.0	116.6	114.1	+4.2	+1.5
17	do	113.6	do	116.6	114.0	116.0	115.4	−.6	−1.2
24	do	⁵ 114.2	do	116.0	114.0	117.2	116.3	+1.2	+3
	May	121.1	do	117.2					
Dec. 1	do	122.0	No. 3 Yellow	114.2	113.0	119.6	115.6	+5.4	+1.4
8	do	126.0	do	119.6	119.0	124.0	120.0	+4.2	+2
15	do	130.0	do	124.0	123.3	123.3	126.0	−.5	+2.0
22	do	127.3	do	123.3	119.7	126.1	122.7	+2.6	−.4
29	do	130.5	do	126.1	124.3	121.5	125.6	−4.4	−.3
1925									
Jan. 5	do	126.4	do	121.5	118.4	121.4	118.7	−.1	−2.6
12	do	129.1	do	121.4	120.7	130.6	123.6	+9.2	+2.2
19	do	136.1	do	130.6	128.5	120.6	125.6	−10.0	−5.0
26	do	131.1	do	⁵ 120.6					
	do		No. 4 Yellow	116.4	114.4	118.2	114.2	+1.6	−2.2
Feb. 2	do	135.1	do	118.2	119.2	119.5	120.2	+1.3	+2.0
9	do	134.4	do	119.5	117.1	113.4	120.3	−6.1	+6
16	do	127.5	do	113.4	111.6	114.4	112.3	+1.0	−1.1
24	do	129.6	do	114.4	113.5	118.4	112.6	+4.0	−1.6
Mar. 2	do	135.4	do	118.4	119.0	111.5	118.4	−6.7	0
9	do	128.5	do	111.5	112.1	112.2	120.0	+5	+8.3
16	do	120.7	do	112.2	101.7	109.5	116.7	−2.5	+4.5
23	do	113.5	do	109.5	106.2	101.6	107.1	−7.7	−2.4
30	do	108.2	do	101.6	101.3	91.6	101.6	−10.0	0
Apr. 6	do	98.2	do	91.6	94.6	106.6	95.6	+15.0	+4.0
13	do	109.2	do	106.6	102.4	105.4	106.6	−1.2	0
20	do	108.0	do	⁵ 105.4					
	do		No. 3 Yellow	110.6	109.2	102.2	107.2	−8.4	−3.4
27	do	⁵ 103.0	do	102.2	100.0	105.4	102.2	+3.2	0
	July	106.3	do						
May 4	do	109.5	do	105.4	103.5	114.4	108.5	+9.0	+3.1
11	do	115.4	do	114.4	109.6	114.2	113.7	−.2	−.5
18	do	115.7	do	114.2	110.0	116.6	114.3	+2.4	+1
25	do	118.2	do	116.6	117.5	117.0	118.1	+2	+1.3
June 1	do	117.1	do	117.0	114.5	114.4	116.4	−2.4	−.4
8	do	115.1	do	114.4	114.3	112.2	116.2	−2.2	+1.6
15	do	111.1	do	112.2	109.2	106.6	111.7	−5.4	−.3
22	do	106.0	do	106.6	104.4	100.6	107.6	−6.0	+1.0
29	do	⁵ 99.0	do						
	September	100.7	do	100.6	99.7	101.2	101.3	+4	+5
July 6	do	100.6	do	101.2	99.1	109.3	101.4	+8.1	+2
13	do	108.5	do	109.3	109.3	110.2	113.6	+7	+4.3
20	do	105.1	do	110.2	104.6	107.0	108.6	−3.2	−1.4
27	do	103.3	do	107.0	104.2	109.4	107.0	+2.4	0
Aug. 3	do	105.7	do	109.4	105.2	107.7	108.6	−1.5	−.6
10	do	105.0	do	107.7	104.2	105.2	106.1	−2.5	−1.6
17	do	104.1	do	105.2	103.6	102.1	104.4	−3.1	−.6
24	do	101.6	do	⁵ 102.1					
	do		No. 2 Yellow	103.3	101.2	94.3	103.7	−9.0	+4
31	do	92.2	do	⁵ 94.3					
	do		No. 3 Yellow	93.4	92.4	98.2	92.4	+4.6	−1.0
Sept. 8	do	⁵ 98.0	do	98.2	91.0	96.5	99.1	−1.5	+7
	December	86.4	do						
14	do	84.0	do	⁵ 96.5					
	do		No. 2 Yellow	97.5	96.7	88.4	91.5	−9.1	−6.0
21	do	80.7	do	88.4	88.0	79.1	83.0	−9.3	−6.4
28	do	77.0	do	⁵ 79.1					
	do		No. 3 Yellow	78.3	77.4	81.2	80.7	+2.7	+2.4
Oct. 5	do	77.3	do	81.2	77.3	82.5	83.6	+1.3	+2.4
13	do	76.2	do	82.5	80.6	84.3	84.7	+1.6	+2.2
19	do	75.6	do	84.3	80.6	80.6	83.2	−3.5	−1.1
26	do	73.2	do	80.6	78.1	78.4	78.1	−2.2	−2.5
Nov. 2	do	⁵ 73.5	do	⁵ 78.4					
Average crop year 1924-25		110.2		108.1	106.0	107.5	108.2	−.4	+1

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 23.—Oats: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned oats (hedged and unhedged) arriving on market one week later

[Figure following decimal indicates eighths of a cent; i. e., 68.3 is 68 $\frac{3}{8}$ cents]

Date ¹	Oats futures		Cash oats			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel ²	Grade	Car-lot spot price per bushel ²	"To arrive" price per bushel ³	Unhedged	Hedged ⁴	Amount unhedged price is over (+) or under (—) spot price per bushel	Amount hedged price is over (+) or under (—) spot price per bushel ⁴
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1920		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Aug. 2	September	68.3	No. 3 White..	69.3	70.6	73.6	69.5	+4.3	+0.2
9	do.	72.4	do.	73.6	71.6	71.5	74.3	-2.1	+5
16	do.	69.6	do.	71.5	70.7	68.1	71.6	-3.4	+1
23	do.	66.1	do.	68.1	67.6	68.0	67.2	-1	-7
30	do.	⁵ 66.7	do.	68.0	66.1	64.0	66.1	-4.0	-1.7
	December	67.0	do.						
Sept. 7	do.	64.7	do.	64.0	62.4	64.2	63.2	+2	-6
13	do.	65.7	do.	64.2	63.4	59.7	63.7	-4.3	-3
20	do.	61.7	do.	59.7	59.0	55.6	59.4	-4.1	-3
27	do.	58.1	do.	55.6	54.3	52.7	55.6	-2.7	0
Oct. 4	do.	55.2	do.	52.7	52.3	54.5	53.4	+1.6	+5
11	do.	56.3	do.	54.5	53.7	54.4	54.7	-1	+2
18	do.	56.0	do.	54.4	53.7	52.1	54.6	-2.3	+2
25	do.	53.3	do.	52.1	52.7	54.2	52.5	+2.1	+4
Nov. 1	do.	55.0	do.	54.2	53.7	52.3	55.4	-1.7	+1.2
8	do.	51.7	do.	52.3	52.0	50.2	54.7	-2.1	+2.4
15	do.	47.2	do.	50.2	48.6	44.5	48.4	-5.5	-1.6
22	do.	43.3	do.	44.5	44.3	47.6	45.4	+3.1	+7
27	do.	⁵ 45.5	do.	47.6	47.0	50.5	47.2	+2.7	-4
	May	49.4	do.						
Dec. 6	do.	52.7	do.	50.5	50.5	48.5	52.0	-2.0	+1.3
13	do.	49.4	do.	48.5	47.7	47.6	48.0	-7	-5
20	do.	49.2	do.	47.6	47.4	46.5	46.7	-1.1	-7
27	do.	49.0	do.	46.5	46.3	47.4	46.7	+7	+2
1921									
Jan. 3	do.	49.5	do.	47.4	47.0	45.6	46.6	-1.6	-6
10	do.	48.5	do.	45.6	45.4	43.0	45.7	-2.6	+1
17	do.	45.6	do.	43.0	42.6	41.5	42.7	-1.3	-1
24	do.	44.4	do.	41.5	41.3	37.6	40.4	-3.7	-1.1
31	do.	41.6	do.	37.6	40.3	40.2	39.3	+2.4	+1.5
Feb. 7	do.	42.5	do.	40.2	38.2	43.2	41.0	+3.0	+6
14	do.	44.7	do.	43.2	43.3	45.5	44.3	+2.3	+1.1
21	do.	46.1	do.	45.5	44.0	43.2	44.7	-2.3	-6
28	do.	44.4	do.	43.2	43.0	45.1	43.6	+1.7	+4
Mar. 7	do.	45.7	do.	45.1	44.3	42.2	45.4	-2.7	+3
14	do.	42.5	do.	42.2	41.2	41.1	42.6	-1.1	+4
21	do.	41.0	do.	41.1	39.5	38.0	38.4	-3.1	-2.5
28	do.	40.4	do.	38.0	39.6	36.0	39.5	-2.0	+1.5
Apr. 4	do.	36.7	do.	36.0	36.2	38.5	38.0	+2.5	+2.0
11	do.	37.4	do.	38.5	35.7	37.2	37.5	-1.3	-1.0
18	do.	37.1	do.	37.2	35.6	37.7	37.6	+5	+4
25	do.	⁵ 37.2	do.	37.7	36.3	36.1	36.4	-1.6	-1.3
	July	38.4	do.						
May 2	do.	38.1	do.	36.1	35.3	37.2	37.1	+1.1	+1.0
9	do.	38.2	do.	37.2	36.1	38.4	37.4	+1.2	+2
16	do.	39.2	do.	38.4	37.1	40.3	38.4	+1.7	0
23	do.	41.1	do.	40.3	38.7	40.1	40.0	-2	-3
31	do.	41.2	do.	40.1	40.6	38.4	40.1	-1.5	0
June 6	do.	39.5	do.	38.4	38.4	38.0	38.2	-4	-2
13	do.	39.3	do.	38.0	37.5	36.4	37.7	-1.4	-1
20	do.	38.0	do.	36.4	36.4	36.7	37.0	+3	+4
27	do.	⁵ 37.7	do.	36.7	36.0	33.3	36.0	-3.4	-7
	Sept.	39.6	do.						

¹ Monday of each week is used whenever prices are available; otherwise the next business day.² For No. 3 white grade. Average of high-low.³ Best bids available without regard to time of shipment, unless premium is on long-deferred shipment. Prices for the most part are for 5 to 10-day shipment. Prices include commission and are therefore directly comparable with spot prices.⁴ Figures in columns 8 and 10 are computed without allowance for commissions on futures. To make hedged results more nearly comparable with other price possibilities one-fourth of a cent per bushel should be deducted from hedged price. (Deduct from plus items in column 10; add to minus items.)⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 23.—Oats: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned oats (hedged and unhedged) arriving on market one week later—Continued

Date	Oats futures		Cash oats			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car-lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (—) spot price per bushel	Amount hedged price is over (+) or under (—) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1921		Cents		Cents	Cents	Cents	Cents	Cents	Cents
July 5	September	37.1	No. 3 White	33.3	34.6	33.6	32.7	+ .3	—0.4
11	do	38.0	do	33.6	35.4	38.0	33.7	+4.2	+ .1
18	do	42.1	do	38.0	38.4	35.2	37.5	—2.6	— .3
25	do	39.6	do	35.2	35.2	33.0	34.7	—2.2	— .3
Aug. 1	do	37.7	do	33.0					
Average, crop year 1920-21		48.1		46.7	46.3	46.1	46.7	— .6	0
Aug. 1	September	37.7	No. 3 White	33.0	33.1	33.0	34.2	0	+1.2
8	do	36.5	do	33.0	32.7	32.0	33.5	—1.0	+ .5
15	do	35.0	do	32.0	31.4	30.0	31.2	—2.0	— .6
22	do	33.6	do	30.0	31.4	34.2	33.1	+4.2	+3.1
29	do	34.7							
	December	38.2	do	34.2	32.5	35.4	34.6	+1.2	+ .4
Sept. 6	do	39.0	do	35.4	34.4	36.5	35.4	+1.1	0
12	do	40.1	do	36.5	35.7	35.5	37.4	—1.0	+ .7
19	do	38.2	do	35.5	35.2	35.0	35.5	— .5	0
26	do	37.5	do	35.0	33.6	33.3	34.6	—1.5	— .2
Oct. 3	do	36.2	do	33.3	33.2	31.2	34.3	—2.1	+1.0
10	do	33.1	do	31.2	30.3	31.1	31.2	— .1	0
17	do	33.0	do	31.1	29.4	31.3	31.3	+ .2	+ .2
24	do	33.0	do	31.3	30.1	31.1	31.1	— .2	— .2
31	do	33.0	do	31.1	30.5	31.1	32.3	0	+1.2
Nov. 7	do	31.6	do	31.1	30.2	33.2	32.2	+2.1	+1.1
14	do	32.6	do	33.2	31.3	34.0	33.5	+ .6	+ .3
21	do	33.1	do	34.0	33.2	34.0	34.0	0	0
28	do	33.1							
	May	38.3	do	34.0	33.0	34.5	34.5	+ .5	+ .5
Dec. 5	do	38.3	do	34.5	32.5	34.2	34.5	— .3	0
12	do	38.0	do	34.2	32.6	34.5	34.4	+ .3	+ .2
19	do	38.1	do	34.5	33.5	34.6	33.6	+ .1	— .7
27	do	39.1	do	34.6	34.4	33.2	34.5	—1.4	— .1
1922									
Jan. 3	do	37.6	do	33.2	32.2	35.2	34.1	+2.0	+ .7
9	do	38.7	do	35.2	33.6	34.2	35.0	—1.0	— .2
16	do	38.1	do	34.2	33.6	35.2	34.0	+1.0	— .2
23	do	39.3	do	35.2	34.6	34.7	34.7	— .3	— .3
30	do	39.3	do	34.7	34.3	35.6	35.0	+ .7	+ .1
Feb. 6	do	40.1	do	35.6	35.4	36.4	35.5	+ .6	— .1
14	do	41.0	do	36.4	36.3	36.7	36.2	+ .3	0
20	do	41.5	do	36.7	35.7	38.7	36.7	+2.0	— .2
27	do	43.5	do	38.7	37.3	37.2	39.7	—1.5	+1.0
Mar. 6	do	41.0	do	37.2	36.3	37.2	39.4	.0	+2.2
13	do	38.6	do	37.2	34.4	37.2	37.5	.0	+ .3
20	do	38.3	do	37.2	35.3	34.7	34.5	—2.3	—2.5
27	do	38.5	do	34.7	34.7	36.2	38.2	+1.3	+3.3
Apr. 3	do	36.5	do	36.2	35.0	37.4	36.7	+1.2	+ .5
10	do	37.2	do	37.4	36.0	38.6	37.5	+1.2	+ .1
17	do	38.3	do	38.6	37.2	39.0	39.2	+ .2	+ .4
24	do	38.1							
	July	40.7	do	39.0	37.3	39.2	40.1	+ .2	+1.1
May 1	do	40.0	do	39.2	36.7	39.3	39.3	+ .1	+ .5
8	do	39.4	do	39.3	37.3	39.3	39.3	0	0
15	do	39.4	do	39.3	38.2	38.7	38.7	— .4	— .4
22	do	38.4	do	38.7	37.6	37.3	37.7	—1.4	—1.0
29	do	38.0	do	37.3	36.2	37.1	38.4	— .2	+1.1
June 5	do	36.5	do	37.1	35.2	36.2	36.7	— .7	— .2
12	do	36.0	do	36.2	36.2	34.1	36.2	—2.1	0
19	do	33.7	do	34.1	35.2	36.6	34.0	+2.5	— .1
26	do	36.5							
	September	39.0	do	36.6	38.0	37.5	37.7	+ .7	+1.1
July 3	do	38.6	do	37.5	37.4	35.6	37.5	—1.7	0
10	do	36.7	do	35.6	35.5	36.6	37.0	+1.0	+1.2
17	do	36.5	do	36.6	34.6	33.6	37.0	—3.0	+ .2

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 23.—Oats: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned oats (hedged and unhedged) arriving on market one week later—Continued

Date	Oats futures		Cash oats			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car-lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (-) spot price per bushel	Amount hedged price is over (+) or under (-) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1922		<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
24 September		33.3	No. 3 White	33.6	32.5	34.4	34.2	+6	+0.4
31 do		33.5	do	34.4	32.2	33.2	34.3	-1.2	-1
Aug. 7 do		32.4	do	33.2					
Average, Crop year 1921-22		37.4		35.2	34.3	35.2	35.5	0	+3
Aug. 7 September		32.4	No. 3 White	33.2	31.2	31.1	33.1	-2.1	-1
14 do		30.4	do	31.1	29.7	31.0	30.6	-1	-3
21 do		30.6	do	31.0	31.1	33.5	32.3	+2.5	+1.3
25 do		32.0							
25 December		34.0	do	33.5	32.3	35.1	34.6	+1.4	+1.1
Sept. 5 do		34.3	do	35.1	34.6	36.2	35.3	+1.1	+2
11 do		35.2	do	36.2	35.2	38.6	37.6	+2.4	+1.4
18 do		36.2	do	38.6	37.1	39.3	39.2	+5	+4
25 do		36.3	do	39.3	37.5	39.5	38.6	+2	-5
Oct. 2 do		37.2	do	39.5	39.2	39.4	38.1	-1	-1.4
9 do		38.5	do	39.4	39.2	43.7	40.4	+4.3	+1.0
16 do		42.0	do	43.7	41.7	42.5	43.6	-1.2	-1
23 do		40.7	do	42.5	41.5	42.4	41.6	-1	-7
30 do		41.5	do	42.4	42.0	42.6	42.0	+2	-4
Nov. 6 do		42.3	do	42.6	42.6	42.5	42.6	-1	0
13 do		42.2	do	42.5	42.3	43.5	42.0	+1.0	-5
20 do		43.7	do	43.5	43.5	42.7	44.5	-6	+1.0
27 do		42.1							
May do		41.7	do	42.7	42.4	42.7	42.3	0	-4
Dec. 4 do		42.3	do	42.7	42.2	45.5	43.3	+2.6	+4
11 do		44.5	do	45.5	46.4	45.5	42.7	0	-2.6
18 do		47.3	do	45.5	46.0	45.2	46.7	-3	+1.2
26 do		45.6	do	45.2	43.2	42.1	44.0	-3.1	-1.2
1923									
Jan. 2 do		43.7	do	42.1	41.0	43.1	43.1	+1.0	+1.0
8 do		43.7	do	43.1	42.1	44.0	43.1	+7	0
15 do		44.6	do	44.0	43.3	43.3	44.0	-5	0
22 do		44.1	do	43.3	42.0	43.2	43.2	-1	-1
29 do		44.1	do	43.2	42.3	43.7	42.6	+5	-4
Feb. 5 do		45.2	do	43.7	44.0	45.1	43.6	+1.2	-1
13 do		46.5	do	45.1	44.7	45.6	46.1	+5	+1.0
19 do		46.2	do	45.6	45.1	43.3	45.6	-2.3	0
26 do		43.7	do	43.3	43.0	44.3	43.5	+1.0	+2
Mar. 5 do		44.5	do	44.3	44.0	44.6	44.3	+3	0
12 do		45.0	do	44.6	44.3	45.4	45.1	+6	+3
19 do		45.3	do	45.4	44.4	44.2	45.1	-1.2	-3
26 do		44.4	do	44.2	43.7	44.7	44.3	+5	+1
Apr. 2 do		45.0	do	44.7	44.2	46.0	45.0	+1.1	+1
9 do		46.0	do	46.0	45.5	46.3	46.6	+3	+6
16 do		45.3	do	46.3	45.7	45.4	46.4	-7	+1
23 do		44.5	do	45.4	45.0	46.0	46.5	+4	+1.1
30 do		44.0							
July do		45.4	do	46.0	44.5	45.4	47.2	-4	+1.2
May 7 do		43.6	do	45.4	43.4	42.4	44.1	-3.0	-1.3
14 do		42.1	do	42.4	42.6	44.0	44.1	+1.4	+1.5
21 do		42.0	do	44.0	43.5	43.2	44.6	-6	+6
28 do		40.4	do	43.2	42.3	43.2	43.1	0	-1
June 4 do		40.5	do	43.2	42.0	44.2	42.6	+1.0	-4
11 do		42.1	do	44.2	43.0	42.0	43.1	-2.2	-1.1
18 do		41.0	do	42.0	41.4	43.2	43.1	+1.2	+1.1
25 do		41.1							
September do		37.6	do	43.2	41.7	41.5	43.1	-1.5	-1
July 2 do		36.2	do	41.5	35.3	40.2	41.2	-1.3	-3
9 do		35.2	do	40.2	39.3	39.7	41.1	-3	+7
16 do		34.0	do	39.7	35.4	42.6	41.3	+2.7	+1.4
23 do		35.3	do	42.6	40.1	38.6	39.4	-4.0	-3.2
30 do		34.5	do	38.6	34.2	37.0	36.3	-1.6	-2.3
Aug. 6 do		35.2	do	37.0					
Average, Crop year 1922-23		41.0		42.1	41.1	42.2	42.1	+1	0

Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 23.—Oats: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned oats (hedged and unhedged) arriving on market one week later—Continued

Date	Oats futures		Cash oats			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car-lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (−) spot price per bushel	Amount hedged price is over (+) or under (−) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1923		Cents		Cents	Cents	Cents	Cents	Cents	Cents
Aug. 6	September	35.2	No. 3 White...	37.0	34.4	36.7	36.2	−0.1	−.06
13	do	35.7	do	36.7	36.0	38.4	37.1	+1.5	+ .2
20	do	37.2	do	38.4	37.5	39.1	38.1	+ .5	− .3
27	do	⁵ 38.2	do	39.1	38.1	38.2	38.5	− .7	− .4
	{December	40.0							
Sept. 4	do	39.5	do	38.2	37.1	38.6	38.6	+ .4	+ .4
10	do	39.5	do	38.6	37.4	39.5	39.7	+ .7	+1.1
17	do	39.3	do	39.5	38.4	40.5	39.6	+1.0	+ .1
24	do	40.2	do	40.5	40.1	42.5	39.7	+2.0	− .6
Oct. 1	do	43.0	do	42.5	42.4	43.6	43.1	+1.1	+ .4
8	do	43.5	do	43.6	42.1	43.4	44.1	− .2	+ .3
15	do	43.0	do	43.4	42.4	41.7	42.6	−1.5	− .6
22	do	42.1	do	41.7	40.7	42.5	43.1	+ .6	+1.2
29	do	41.5	do	42.5	40.6	42.5	42.4	0	− .1
Nov. 5	do	41.6	do	42.5	41.3	42.0	42.0	− .5	− .5
12	do	41.6	do	42.0	41.5	43.2	43.1	+1.2	+1.1
19	do	41.7	do	43.2	41.6	44.1	43.2	+ .7	0
26	do	⁵ 42.6	do	44.1	42.7	44.0	43.6	− .1	− .3
	{May	44.6							
Dec. 3	do	45.0	do	44.0	43.6	44.0	43.2	0	− .6
10	do	45.6	do	44.0	43.0	42.6	43.1	−1.2	− .7
17	do	45.3	do	42.6	42.1	42.4	43.3	− .2	+ .5
26	do	44.4	do	42.4	42.2	44.1	43.2	+1.5	+ .6
31	do	45.3	do	44.1	43.4	45.2	45.0	+1.1	+ .7
1924									
Jan. 7	do	45.5	do	45.2	44.4	46.3	45.1	+1.1	− .1
14	do	46.7	do	46.3	45.4	46.3	46.4	0	+ .1
21	do	46.6	do	46.3	46.1	47.6	46.2	+1.3	− .1
28	do	48.2	do	47.6	48.0	48.7	48.0	+1.1	+ .2
Feb. 4	do	49.1	do	48.7	48.6	49.3	49.4	+ .4	+ .5
11	do	49.0	do	49.3	48.1	47.4	48.5	−1.7	− .6
18	do	47.7	do	47.4	47.3	48.3	47.3	+ .7	− .1
25	do	48.7	do	48.3	48.1	48.1	48.3	− .2	0
Mar. 3	do	48.5	do	48.1	47.7	47.1	48.2	−1.0	+ .1
10	do	47.4	do	47.1	46.5	45.5	46.3	−1.4	− .6
17	do	46.6	do	45.5	46.3	48.0	47.2	+2.3	+1.5
24	do	47.4	do	48.0	47.0	46.0	48.2	−2.0	+ .2
31	do	45.2	do	46.0	46.4	47.7	47.0	+1.7	+1.0
Apr. 7	do	46.1	do	47.7	47.1	48.4	47.5	+ .5	− .2
14	do	47.0	do	48.4	47.7	47.7	48.0	− .5	− .4
21	do	46.7	do	47.7	47.5	48.0	48.2	+ .1	+ .3
28	do	⁵ 46.5	do	48.0	47.0	48.0	48.1	0	+ .1
	{July	44.2							
May 5	do	44.1	do	48.0	47.1	47.6	48.0	− .2	0
12	do	43.7	do	47.6	47.1	48.1	47.7	+ .3	+ .1
19	do	44.1	do	48.1	48.3	47.5	47.3	− .4	− .6
26	do	44.3	do	47.5	46.2	46.3	46.7	−1.2	− .6
June 2	do	43.7	do	46.3	44.5	50.1	48.0	+3.6	+1.5
9	do	46.0	do	50.1	49.1	49.3	48.5	− .6	−1.4
16	do	46.6	do	49.3	48.5	49.3	49.5	0	+ .2
23	do	46.4	do	49.3	48.6	58.4	51.0	+9.1	+1.5
30	do	⁵ 54.0	do	58.4	56.7	53.0	56.2	−5.4	−2.2
	{September	47.1							
July 7	do	43.7	do	53.0	51.1	57.5	54.4	+4.5	+1.4
14	do	47.0	do	57.5	56.4	53.1	53.1	−4.4	−4.4
21	do	47.0	do	53.1	52.4	53.2	50.0	+ .1	−3.1
28	do	50.2	do	53.2	50.4	53.4	53.2	+ .2	0
Aug. 4	do	⁵ 50.4	do	⁵ 53.4					
Average, crop year 1923-24		44.4	do	45.6	45.0	46.1	45.6	+ .3	0

⁵ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

TABLE 23.—Oats: Comparison of Chicago futures, spot, and "to arrive" prices with the probable realized price of consigned oats (hedged and unhedged) arriving on market one week later—Continued

Date	Oats futures		Cash oats			Realized price per bushel if consigned arriving one week later		Price difference	
	Delivery month	Price per bushel	Grade	Car lot spot price per bushel	"To arrive" price per bushel	Unhedged	Hedged	Amount unhedged price is over (+) or under (-) spot price per bushel	Amount hedged price is over (+) or under (-) spot price per bushel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1924		Cents		Cents	Cents	Cents	Cents	Cents	Cents
Aug. 4	September	50.4	No. 3 White	53.4	49.6	50.7	52.1	-2.5	-1.3
11	do.	49.2	do.	50.7	49.2	54.1	48.5	+3.2	-2.2
18	do.	54.6	do.	54.1	42.6	45.4	53.1	-8.5	-1.0
25	do.	³ 47.1	do.	45.4	46.4	47.2	45.3	+1.6	-1
	December	50.2	do.	47.2	46.2	47.0	47.4	-2	+2
Sept. 2	do.	52.1	do.	47.0	46.7	48.1	46.7	+1.1	-1
8	do.	51.5	do.	48.1	48.2	47.3	48.7	-6	+6
15	do.	52.7	do.	47.3	47.2	49.0	47.7	+1.5	+4
22	do.	51.3	do.	49.0	49.1	54.4	49.3	+5.4	+3
29	do.	52.4	do.	54.4	53.6	51.1	54.5	-3.3	+1
Oct. 6	do.	57.5	do.	51.1	51.0	50.3	51.4	-6	+3
14	do.	54.1	do.	50.3	48.7	45.7	49.4	-4.4	-7
20	do.	53.0	do.	45.7	46.3	44.3	45.4	-1.4	-3
27	do.	49.3	do.	44.3	44.5	50.3	46.1	+6.0	+1.6
Nov. 3	do.	48.2	do.	50.3	49.7	51.6	50.6	+1.3	+3
10	do.	52.4	do.	51.6	51.4	51.4	51.4	-2	-2
17	do.	53.4	do.	51.4	52.0	51.5	52.0	+1	+4
24	do.	³ 53.4	do.	51.5	50.4	57.0	53.2	+3.3	+1.5
Dec. 1	do.	59.0	do.	57.0	56.7	58.6	56.4	+1.6	-4
8	do.	62.3	do.	58.6	58.5	57.7	59.3	-7	+5
15	do.	64.5	do.	57.7	56.7	59.6	57.6	+1.7	-1
22	do.	63.1	do.	59.6	59.0	56.3	60.3	-3.3	+5
29	do.	65.1	do.						
1925									
Jan. 5	do.	61.1	do.	56.3	55.4	58.6	57.7	+2.3	+1.4
12	do.	62.0	do.	58.6	58.3	59.7	58.3	+1.1	-3
19	do.	63.4	do.	59.7	59.3	55.6	59.0	-4.1	-7
26	do.	60.2	do.	55.6	55.2	57.2	53.7	+1.4	-1.7
Feb. 2	do.	63.5	do.	57.2	57.2	56.0	58.7	-1.2	+1.5
9	do.	60.6	do.	56.0	54.3	50.6	57.0	-5.2	+1.0
16	do.	54.4	do.	50.6	49.5	50.3	51.4	-3	+6
24	do.	53.3	do.	50.3	50.4	55.0	53.4	+4.5	+3.1
Mar. 2	do.	54.7	do.	55.0	52.0	49.0	52.6	-6.0	-2.2
12	do.	51.1	do.	49.0	47.5	45.2	50.2	-3.6	+1.2
16	do.	46.1	do.	45.2	42.3	46.2	47.6	+1.0	+2.4
23	do.	44.5	do.	46.2	44.5	43.1	45.2	-3.1	-1.0
30	do.	42.4	do.	43.1	40.3	42.0	45.2	-1.1	+2.1
Apr. 6	do.	39.2	do.	42.0	39.5	43.0	40.7	+1.0	-1.1
13	do.	41.3	do.	43.0	41.4	40.7	41.1	-2.1	-1.7
20	do.	41.1	do.	40.7	42.0	40.6	41.7	-1	+1.0
27	do.	³ 40.0	do.	40.6	38.7	43.2	41.6	+2.4	+1.0
	July	41.6	do.	43.2	42.4	45.0	43.6	+1.6	+4
May 4	do.	43.2	do.	45.0	44.3	45.5	45.6	+5	+6
11	do.	44.4	do.	45.5	44.1	46.2	44.0	+5	-1.5
18	do.	44.3	do.	46.2	46.0	48.4	46.4	+2.2	+2
25	do.	46.5	do.	48.4	46.5	51.4	47.2	+3.0	-1.2
June 1	do.	48.5	do.	51.4	52.1	49.6	52.2	-1.6	+6
8	do.	52.7	do.	49.6	48.5	47.5	49.5	-2.1	-1
15	do.	50.3	do.	47.5	46.6	43.7	48.4	-3.6	+7
22	do.	48.3	do.	43.7	42.0	44.3	44.1	+4	+2
29	do.	³ 43.6	do.	44.3	44.2	46.4	44.3	+2.1	0
	September	45.0	do.	46.4	46.3	44.2	46.2	-2.2	-2
July 6	do.	45.2	do.	44.2	43.5	42.2	43.7	-2.0	-3
13	do.	47.3	do.	42.2	42.0	41.4	43.1	-6	+7
20	do.	45.3	do.						
27	do.	43.6	do.						
Aug. 3	do.	³ 42.1	do.	³ 41.4					
Average, crop year 1924-25		51.6		49.4	48.6	49.3	49.6	-1	+2

³ Averages for columns 3 and 5 include only one price for each day. These items are excluded.

PRICE RESULTS UNDER DIFFERENT METHODS OF SALE

In Tables 21, 22, and 23 will be found Chicago prices (futures, spot, and "to arrive") for wheat, corn, and oats covering a period of five years. These prices form the basis for a series of calculations intended in a general way to measure the results of hedging and to make possible comparisons between different methods of marketing. The treatment is not altogether satisfactory from every standpoint but does present for the first time, it is believed, a record of Chicago "to arrive" bids in a way to permit of fair comparison between these bids and spot prices over a considerable period of time.

DESCRIPTION OF PRICE DATA

Prices are for Monday of each week wherever possible; otherwise they are for the next business day for which futures, spot and "to-arrive" prices all are available. Monday was selected for the reason that receipts of cash grain are larger as a rule on Monday and thus provide a larger sample of sales out of which to construct an average price. This is especially desirable during periods of light movement.

Referring to Tables 21, 22, and 23, days for which prices are taken are indicated by dates in column 1, followed by the delivery month (column 2) to which apply the futures prices given in column 3. Column 5 shows spot prices.¹⁰ Spot prices and futures prices both are represented by a simple average of the high and the low for the day.

Column 6 shows the "to arrive" bids. These bids are the best bids available at the close of the market for early shipment. Bids, for the most part, are for shipment within from 5 to 10 days.

No. 2 Hard Winter wheat, No. 3 Yellow corn, and No. 3 White oats are the grades selected for study. These are the more commonly sold grades on the Chicago market, and, therefore, furnish the largest number of cases and the fullest continuing record. In the case of wheat and oats, the spot and "to arrive" prices are based exclusively upon the grades indicated. In the case of corn, certain periods were encountered when either a price record was lacking for No. 3 Yellow, or a better record was available for No. 2 Yellow or No. 4 Yellow.

Column 7 is a repetition of column 5, except for a 1-week difference in time. Column 5 shows the spot price for the date indicated, while column 7 shows the spot price one week later. The latter is set up as a possible obtainable price for consigned shipments assuming a transit period of one week.

Column 8 shows the computed result of an assumed purchase of cash grain and a concurrent sale of futures as of Monday of one week and a sale of the cash and a purchase back of the futures as of the following Monday. It furnishes a week-to-week record of the probable realized price results in the case of a continuous hedging policy ideally applied to cash grain, assuming a hedging period of one week. These results then may be compared with the prices obtainable either as the result of accepting the Chicago "to arrive" bid or by consigning the grain for sale unhedged.

¹⁰ In the case of wheat "quotable" spot prices were used because of furnishing a more complete series, whereas for corn and oats actual car-lot sales prices were used.

Column 9 shows the difference between the spot price of one Monday and the next and represents the amount of loss or gain incurred by carrying grain unhedged from one Monday until the next.

Column 10 shows the difference between spot prices in column 5 and the computed hedge results in column 8, and represents the amount by which spot and futures fail to move together from one Monday to the next. A perfect hedge would be indicated by zero. In this connection it may be noted that in comparing the average of the daily high and low of the futures with the average of the high and low of cash prices some allowance must be made for high points and low points being made in the futures not necessarily reflected in cash prices. For this reason the differences shown in column 10 of the tables are believed to be somewhat larger than differences would be in the case of actual offsetting purchases and sales of cash grain and of futures simultaneously made.

An explanation of the first line of figures reading across the page of Table 21 will suffice for all and may serve to make more clear the foregoing column description. The first item in the first line shows that on July 19, 1920, the December wheat future was \$2.53% (column 3), being the average of the high and the low of that day's quotations. The spot price based on the average of the high and the low of the actual sales of No. 2 Hard Winter wheat in Chicago was \$2.77% (column 5), and the best Chicago "to arrive" bid that day for No. 2 Hard Winter wheat was \$2.70 (column 6). Assuming that a car of No. 2 Hard Winter wheat was started to Chicago on July 19 and arrived one week later, selling at the spot price of \$2.79% on July 26, the realized price not hedged would be \$2.79% (first amount column 7, second amount column 5) or 2 cents (column 9) over the spot price at the time of shipment.

Assuming that at the time of shipment (July 19) the December future was sold at \$2.53% as a hedge, and one week later (July 26) was bought back at \$2.49%, the spot price available on July 26 (\$2.79%) would be augmented by the gain of 4% cents made possible on the future. Thus the actual realized price as the result of hedging would be \$2.83% (column 8) or 6% cents (column 10) over the spot prices obtainable at the time of shipment July 19.

HEDGING RESULTS COMPARED WITH RESULTS OF OTHER METHODS

During years when the price trend is upward unhedged sales naturally will show the best results. When the price trend is downward hedged sales will tend to show an advantage over unhedged sales. Taken over a long period of time, therefore, the results obtained under one method will tend to equal those obtained under the other method. The advantages of hedging, which may be very marked during certain periods, disappear altogether in averages based on longer periods of time. Although hedged sales are not expected to show any greater profit than unhedged sales over a long period of time this is not the same as saying that hedging is of no value. The value of hedging lies in its utility for stabilizing profits on individual transactions and in providing protection against unusual single losses.

In Table 24 are presented in summary form certain column averages of the price figures contained in Tables Nos. 21, 22, and 23. It will be noted that as between spot prices and hedged and unhedged results, there is very little difference in the 5-year averages for either wheat,

corn, or oats. Hedged results appear to show a slight advantage over unhedged, but this disappears entirely if commissions on the futures transactions are considered. There is, however, a distinct difference as between hedged results and results obtained from selling "to arrive."

TABLE 24.—Price results to be had under different methods of marketing as derived from price data contained in Tables 21, 22, and 23. Periods of overlapping old crop spot prices and new crop futures included

[Figure following decimal indicates eighths of a cent, i. e., 183.7 is 183 $\frac{7}{8}$ cents]

Grain	Period	Number of Cases	Average price per bushel ¹				Price difference		
			Spot	Hedged ²	Not hedged	"To arrive"	Hedged over or under spot price (+) (-)	Hedged over or under unhedged price (+) (-)	Hedged over or under "to arrive" price (+) (-)
Wheat (Table 21)-----	(July 19, 1920, to June 27, 1921)-----	50	189.0	187.7	186.0	183.4	-1.1	+1.7	+4.3
	July 5, 1921, to June 26, 1922-----	52	122.4	122.1	122.3	120.7	-3	-2	+1.2
	July 3, 1922, to June 25, 1923-----	52	116.3	116.3	116.1	114.6	0	+2	+1.5
	July 2, 1923, to June 30, 1924-----	53	107.3	107.6	107.5	105.4	+3	+1	+2.2
	July 7, 1924, to June 29, 1925-----	52	156.7	156.7	157.3	154.2	0	-4	+2.5
	Total or average-----	259	137.7	137.5	137.3	135.2	-2	+2	+2.3
Corn (Table 22)-----	(Nov. 1, 1920, to Oct. 31, 1921)-----	53	62.2	62.4	61.4	61.1	+2	+1.0	+1.3
	Nov. 7, 1921, to Oct. 30, 1922-----	52	58.0	58.2	58.4	57.1	+2	-2	+1.1
	Nov. 6, 1922, to Oct. 29, 1923-----	52	81.1	81.0	81.3	79.0	-1	+3	+2.0
	Nov. 5, 1923, to Oct. 27, 1924-----	52	90.3	90.0	90.6	88.5	-3	-6	+1.3
	Nov. 3, 1924, to Oct. 26, 1925-----	52	108.1	108.2	107.5	106.0	+1	+5	+2.2
	Total or average-----	261	80.0	80.0	79.7	78.3	0	+1	+1.5
Oats (Table 23)-----	(Aug. 2, 1920, to July 25, 1921)-----	52	46.7	46.7	46.1	46.3	0	+6	+4
	Aug. 1, 1921, to July 31, 1922-----	53	35.2	35.5	35.2	34.3	+3	+3	+1.2
	Aug. 7, 1922, to July 30, 1923-----	52	42.1	42.1	42.2	41.1	0	-1	+1.0
	Aug. 6, 1923, to July 28, 1924-----	52	45.6	45.6	46.1	45.0	0	-3	+6
	Aug. 4, 1924, to July 27, 1925-----	52	49.4	49.6	49.3	48.6	+2	+3	+1.0
	Total or average-----	261	43.7	44.0	43.6	43.1	+1	+2	+7

¹ Prices for periods indicated are averages of prices for one day each week.

² No allowance made for cost of hedging.

It will be noted that in calculating hedge results in Tables 21, 22, and 23 the near future has been selected arbitrarily as the one in which to carry the hypothetical hedges. By near future is meant the nearest of the four principal delivery months. The near future is used to about the 15th of the month preceding maturity. That is to say, during the period from July 15 to August 15 the September corn future is used and thereafter and until November 15 the December future is used. This means that during the latter part of September and all of October, while the spot sales are made up of old-crop corn, the hedged results are predicated on the assumed hedging of old-crop corn in a new-crop future, something which can not be done safely unless the new-crop futures are on price equality with old-crop corn. For example, old-crop corn in September and October may be selling at a considerable premium over the December future which is based on new-crop corn. This premium tends to disappear with the advent of new-crop receipts. Obviously, in actual buying practice allowance must be made for such an adjustment.

By eliminating from consideration, as far as possible, those periods in each year when old-crop spot prices and new-crop futures prices overlap, averages are obtained as per Table 25. It will be observed that average differences based on the 5-year period do not vary greatly from the 5-year differences shown in Table 24, although results for single years do vary considerably.

TABLE 25.—Price results to be had under different methods of marketing, as derived from price data contained in Tables 21, 22, and 23, periods of overlapping old-crop spot prices and new-crop futures excluded

[Figure following decimal indicates eighths of a cent, i. e., 195.2 is 195 $\frac{1}{4}$ cents]

Grain	Period	Number of Cases	Average price per bushell				Price difference		
			Spot	Hedged ²	Not hedged	"To arrive"	Hedged over (+) or under (-) spot price	Hedged over (+) or under (-) unhedged price	Hedged over (+) or under (-) "to arrive" price
Wheat-----	{Aug. 2, 1920, to Apr. 18, 1921....	38	Cents 193.6	Cents 193.3	Cents 191.4	Cents 188.5	-0.3	+1.7	+4.6
	{Aug. 1, 1921, to Apr. 17, 1922....	38	121.0	121.1	121.5	119.5	+1	-4	+1.4
	{Aug. 7, 1922, to Apr. 23, 1923....	38	116.6	116.6	117.1	115.2	0	-3	+1.4
	{Aug. 6, 1923, to Apr. 21, 1924....	38	107.4	107.6	107.4	105.4	+2	+2	+2.2
	{Aug. 4, 1924, to Apr. 20, 1925....	38	158.0	158.4	158.4	155.7	+4	0	+2.5
	Total or average.....	190	139.3	139.4	139.2	137.0	+1	+1	+2.4
Corn-----	{Dec. 6, 1920, to Aug. 22, 1921....	38	63.0	63.1	62.3	62.2	+1	+6	+7
	{Dec. 5, 1921, to Aug. 21, 1922....	38	57.0	57.3	56.1	56.1	+3	0	+1.2
	{Dec. 4, 1922, to Aug. 20, 1923....	38	78.3	78.3	78.6	77.1	0	-3	+1.2
	{Dec. 3, 1923, to Aug. 18, 1924....	38	84.3	84.3	85.3	83.2	0	-1.0	+1.1
	{Dec. 1, 1924, to Aug. 17, 1925....	38	112.5	113.0	112.3	110.5	+3	+5	+2.3
	Total or average.....	190	79.1	79.2	79.2	77.7	+1	0	+1.3
Oats-----	{Aug. 2, 1920, to Apr. 18, 1921....	38	50.4	50.5	49.5	49.7	+1	+1.0	+6
	{Aug. 1, 1921, to Apr. 17, 1922....	38	34.5	35.0	34.6	33.5	+3	+2	+1.3
	{Aug. 7, 1922, to Apr. 23, 1923....	38	41.7	42.0	42.2	41.2	+1	-2	+6
	{Aug. 6, 1923, to Apr. 21, 1924....	38	44.0	44.0	44.2	43.2	+1	-1	+7
	{Aug. 4, 1924, to Apr. 20, 1925....	38	51.0	51.1	50.5	50.1	+1	+4	+1.0
	Total or average.....	190	44.03	44.4	44.3	43.5	+1	+1	+7

¹ Prices for periods indicated are averages of prices for one day each week.

² No allowance made for cost of hedging.

Another point to be noted is that while in these studies one week has been assumed as the period intervening between time of purchase and time of sale of cash grain, country elevators as a rule may experience somewhat longer hedging periods. As previously indicated, a 1-week period is hardly long enough to permit carrying charges (cash prices gaining relative to futures) to be reflected in measurable amounts, nor is it long enough to show the larger relative measure of protection which hedging affords during periods when the general price trend is markedly downward. It is probable that by using hedging periods of longer duration a more favorable showing would result for the hedge method of disposal. An indication that this is true may be seen in Table 26, where, using the same price data presented in Tables 21, 22 and 23, the hedge results have been computed on an assumed hedging period of approximately four months. This treatment of the data sheds some light also on the possibilities of profit to be derived where the purpose of the hedge is to earn carrying charges, although these are presented to better advantage in succeeding tables.

TABLE 26.—Price results under different methods of marketing, as derived from price data in Tables 21, 22, and 23, when hedging period extends over approximately four months

[Figure following decimal indicates eighths of a cent; i. e., 173.4 is 173 $\frac{4}{8}$ cents]

Grain	State of the market on date futures are assumed to be sold				State of the market on date futures are assumed to be bought				Realized price if spot grain was hedged and carried in storage	Results of hedging			
	Date	Price per bushel			Spot price over (+) or under (−) May future	Date	Price per bushel			Basis gain (+) or loss (−) of spot price relative to future	Amount realized price is over (+) or under (−)	Un-hedged price	
		Chicago "to arrive" bid	Average of high-low				Chicago spot price	Chicago May future					
			Chicago spot price	Chicago May future									
Wheat.....	{Dec. 20, 1920 -	Cents 173.4	Cents 175.4	Cents 158.7	Cents +16.5	Apr. 11, 1921 -	Cents 141.2	Cents 131.2	Cents +10.0	Cents −6.5	Cents 168.7	Cents −6.5	Cents +27.5
	{Dec. 5, 1921 -	Cents 113.0	Cents 114.2	Cents 116.2	Cents −2.0	{Apr. 10, 1922 -	Cents 134.7	Cents 123.7	Cents +1.0	Cents +3.0	Cents 117.2	Cents +4.2	Cents −17.5
	{Dec. 4, 1922 -	Cents 118.5	Cents 119.4	Cents 115.6	Cents +3.6	{Apr. 16, 1923 -	Cents 126.5	Cents 125.2	Cents +1.3	Cents −2.3	Cents 117.1	Cents −1.4	Cents −9.4
	{Dec. 3, 1923 -	Cents 106.3	Cents 107.6	Cents 110.0	Cents −2.2	{Apr. 14, 1924 -	Cents 104.6	Cents 102.0	Cents +2.6	Cents +5.0	Cents 112.6	Cents +6.3	Cents +8.0
	{Dec. 1, 1924 -	Cents 152.7	Cents 156.1	Cents 162.4	Cents −6.3	{Apr. 13, 1925 -	Cents 161.3	Cents 159.3	Cents +2.0	Cents +8.3	Cents 164.4	Cents +8.3	Cents +3.1
Corn.....	{Dec. 6, 1920 -	Cents 78.0	Cents 79.4	Cents 77.6	Cents +1.6	Apr. 11, 1921 -	Cents 57.1	Cents 59.1	Cents −2.0	Cents −3.6	Cents 75.6	Cents −3.6	Cents +18.5
	{Dec. 5, 1921 -	Cents 47.0	Cents 48.4	Cents 54.3	Cents −5.7	{Apr. 10, 1922 -	Cents 57.4	Cents 59.5	Cents −2.1	Cents +3.6	Cents 52.2	Cents +5.2	Cents −5.2
	{Dec. 4, 1922 -	Cents 69.6	Cents 71.0	Cents 69.3	Cents +1.5	{Apr. 16, 1923 -	Cents 80.7	Cents 79.7	Cents +1.0	Cents −.5	Cents 70.3	Cents +5.2	Cents −10.4
	{Dec. 3, 1923 -	Cents 73.1	Cents 74.2	Cents 74.0	Cents +.2	{Apr. 14, 1924 -	Cents 77.3	Cents 77.2	Cents +.1	Cents −.1	Cents 74.1	Cents −1.0	Cents −3.2
	{Dec. 1, 1924 -	Cents 113.0	Cents 114.2	Cents 122.0	Cents −7.6	{Apr. 20, 1925 -	Cents 110.6	Cents 108.0	Cents +2.6	Cents +10.4	Cents 124.6	Cents +10.4	Cents +14.0
Oats.....	{Dec. 6, 1920 -	Cents 50.5	Cents 50.5	Cents 52.7	Cents −2.2	Apr. 11, 1921 -	Cents 38.5	Cents 37.4	Cents +1.1	Cents +3.3	Cents 54.0	Cents +3.3	Cents +15.3
	{Dec. 5, 1921 -	Cents 32.5	Cents 34.5	Cents 38.3	Cents −3.6	{Apr. 10, 1922 -	Cents 37.4	Cents 37.2	Cents +.2	Cents +4.0	Cents 38.5	Cents +6.0	Cents +1.1
	{Dec. 4, 1922 -	Cents 42.2	Cents 42.7	Cents 42.3	Cents +.4	{Apr. 16, 1923 -	Cents 46.3	Cents 45.5	Cents +.6	Cents +2.2	Cents 43.1	Cents +.7	Cents −3.2
	{Dec. 3, 1923 -	Cents 43.6	Cents 44.0	Cents 45.0	Cents −1.0	{Apr. 14, 1924 -	Cents 48.4	Cents 47.0	Cents −1.4	Cents +2.4	Cents 46.4	Cents +2.4	Cents −2.0
	{Dec. 1, 1924 -	Cents 50.4	Cents 51.5	Cents 58.5	Cents −7.0	{Apr. 13, 1925 -	Cents 43.0	Cents 41.3	Cents +1.5	Cents +8.5	Cents 60.2	Cents +8.5	Cents +17.2

HEDGING RESULTS COMPARED WITH PRICE OBJECTIVES

Certain grades of grain are best disposed of by direct sale to mills and industries. Others can be sold to best advantage on the cash-grain tables of the grain exchanges where competing buyers may examine actual car samples and bid accordingly. In order to receive the benefit of this kind of competition, however, grain must be shipped on consignment, sometimes to a distant market. Under these conditions there is always some uncertainty regarding price changes taking place before the grain arrives and can be sold. In hedging to protect these risks, the country-elevator operator is interested primarily in being able to "peg" the market at a certain price point. His object in selling futures against cash grain purchased and consigned is to obtain a result equal to then-existing prices in the market to which he consigns.

Just how closely actual hedging results approximate the desired object is an interesting question, and one which can not be answered very satisfactorily in general terms. On the basis of the figures in Tables 21, 22, and 23, the results given in Table 27 are obtained.

TABLE 27.—*Hedging losses or gains as derived from data contained in Tables 21, 22, and 23, classified according to amount*

Amount of loss or gain per bushel	Wheat						Corn						Oats					
	Crop year						Crop year						Crop year					
	1920-21	1921-22	1922-23	1923-24	1924-25	Total	1920-21	1921-22	1922-23	1923-24	1924-25	Total	1920-21	1921-22	1922-23	1923-24	1924-25	Total
Even.....	1	3	4	5	2	15	3	4	1	1	5	14	3	9	5	4	1	22
Less than ½ cent.....	6	6	12	10	6	40	14	15	13	10	7	59	17	18	15	18	16	84
½ to 1 cent.....	4	10	16	21	18	69	19	12	14	12	9	66	18	12	12	18	14	74
1 to 2 cents.....	13	14	10	13	12	62	7	17	15	18	12	69	11	10	17	9	16	63
2 to 3 cents.....	7	10	8	4	7	36	6	4	6	3	10	29	3	2	2	1	4	12
3 to 4 cents.....	4	3	1	---	4	12	3	---	---	3	2	8	---	2	1	1	1	5
4 to 6 cents.....	4	4	1	---	1	10	1	---	1	2	4	8	---	---	---	1	---	1
6 to 8 cents.....	5	1	---	---	1	7	---	---	---	3	2	5	---	---	---	---	---	---
8 to 10 cents.....	2	1	---	---	---	3	---	---	1	---	1	2	---	---	---	---	---	---
10 cents or more.....	4	---	---	---	1	5	---	---	1	---	---	1	---	---	---	---	---	---
Total.....	50	52	52	53	52	259	53	52	52	52	52	261	52	53	52	52	52	261
Loss.....	27	23	23	16	20	109	22	19	22	25	22	110	23	16	23	23	22	107
Gain.....	22	26	25	32	30	135	28	29	29	26	25	137	26	28	24	25	29	132

For wheat, taking prices for one day each week for 259 weeks and assuming a hedge placed on Monday of one week and closed the next, there were 15 instances of a perfect hedge, i. e., when the loss or gain on cash was exactly offset by a counter gain or loss on futures. In 109 cases failure of futures to move parallel with the cash resulted in a loss, and in 135 cases it resulted in a gain.

For corn, out of 261 cases, there were 14 instances of a perfect hedge, 110 instances of loss, and 137 instances of gain.

For oats, out of 261 cases, there were 22 instances of a perfect hedge, 107 instances of loss, and 132 instances of gain.

Combining the figures for wheat, corn, and oats, out of 781 cases there are 51 instances of neither loss nor gain, 326 instances of loss, and 404 instances of gain. The number of instances which showed a gain exceeded the number resulting in loss by about 24 per cent.

Further analysis of the figures show the losses and gains per bushel.

In the case of wheat, 16.4 per cent were less than one-half cent, 44.7 per cent were less than 1 cent, and 89.7 per cent were less than 4 cents.

In the case of corn, 23.9 per cent were less than one-half cent, 50.6 per cent were less than 1 cent, and 93.5 per cent were less than 4 cents.

In the case of oats, 35.1 per cent were less than one-half cents, 66.1 per cent were less than 1 cent, and 99.6 per cent were less than 4 cents.

As stated previously, these results are derived from a purely theoretical study of price relationships between cash prices and futures at Chicago, in which, whenever possible, No. 2 Hard Winter wheat, No. 3 Yellow corn and No. 3. White oats were used as the grade. They are believed to be fairly representative although judged by the reports received from country elevators they would appear to approach the ideal somewhat more closely than do the actual experiences of these elevators. However, the study of a number of actual cases disclosed the fact that many of the largest losses growing out of hedging transactions are not chargeable to the failure of futures and cash grain to move together but are the result largely of carelessness or poor judgment in the matter of placing and removing hedges. Some of them grew out of attempts to recoup in the futures market losses already incurred on cash grain.

BASIS CHANGE AS A FACTOR IN HEDGING RESULTS

It has been shown that in order to have a fully satisfactory hedging market, cash prices and futures prices must move up and down together. They do move together in a general way, and any substantial price change in one is likely to be reflected in the other. But they do not always move at the same rate nor in exact parallel relation. This gives rise to basis loss or basis gain, the term "basis" being employed to designate the difference or spread between spot prices and futures prices.

Cash wheat of a particular grade may be selling at one time at 5 cents over the price of the May future, and at a later date at 3 cents over the May future. In such a change of relationship there is said to be a basis loss of 2 cents, by which it is meant that the cash wheat has either failed to advance as rapidly as the future by 2 cents or has declined more than the future by that amount. Obviously, a sale of futures against cash grain purchased is not under such conditions a fully protective hedge. The hedger in that case fails to obtain his desired hedge result by 2 cents.

If there has been no change in price other than a narrowing of the spread between cash-wheat prices and futures prices the hedge has been worse than valueless. It has in fact imposed a loss greater than the market change it was intended to protect. On the other hand, if the market has suffered a general market decline of, say, 10 cents per bushel, the hedge has been effective in letting the hedger off with a 2-cent loss instead of a 10-cent loss. But, if the market has advanced 10 cents, the hedger still loses 2 cents on his transaction besides what he might have gained had he stood unprotected in the market and participated in the 10-cent advance.

The examples given have related to hedging sales, i. e., sales of futures against purchases of cash grain. Hedge purchases, i. e., the purchase of futures, for instance, against the cash grain of custo-

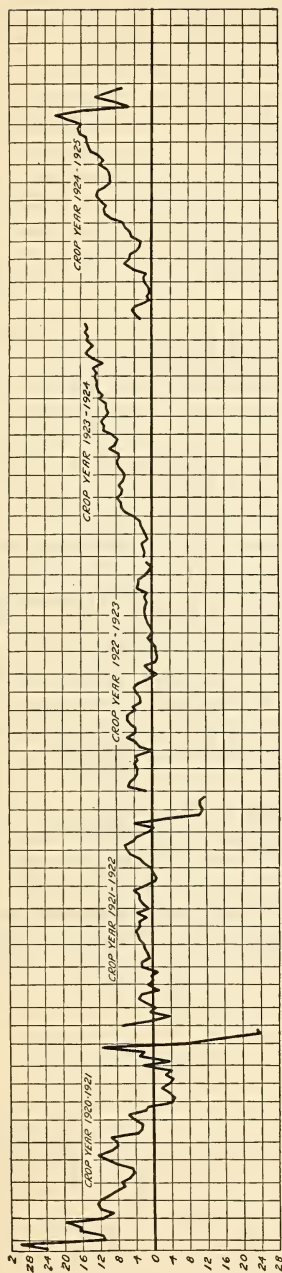
mers which has been shipped and sold, would result in an exactly reverse order of loss and gain. In this case a basis loss works out in favor of the hedger and a basis gain works against him. It will be seen then how important it is to understand the reasons for changes in relationship between cash and futures and to be able to form a sound opinion concerning probable developments.

During certain periods and with respect to certain futures, cash prices show a tendency to gain relative to the futures and at other times and with respect to other futures they show a tendency to lose. During normal carrying charge periods cash prices should advance relative to futures, resulting in what is known as basis gain. Cash prices of either wheat, corn, or oats, in May, for example, should be higher relative to the May future than they are in December. In this change of spreads between cash and futures is reflected a perfectly natural and legitimate economic factor, namely, that to carry grain in store from December to May costs money, and whoever expects a contract grade of grain to be carried for him and delivered to him in May must expect to pay a higher price than if it were delivered in December.

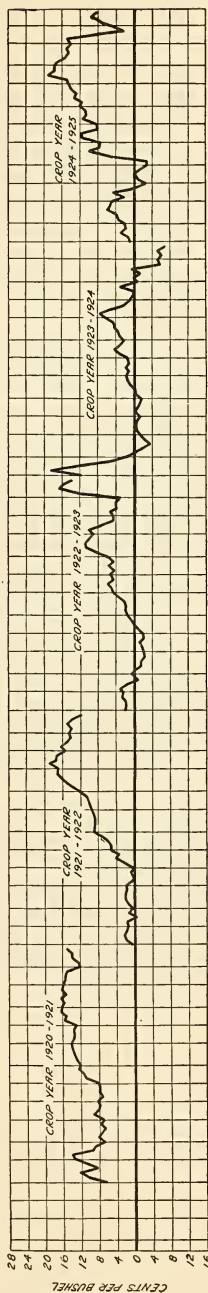
With respect to new-crop futures and old-crop spot grain there is likely to come a time when spot prices tend to lose relative to the futures. New-crop futures may relate to grain of a crop not yet harvested, and no carrying charges are involved. The purchase of December corn in June, for example, involves no storage cost to any one, since the corn will not be ready for market until practically delivery time. If, therefore, prospects for a large crop of new corn available for delivery in December cause prices of the December future to fall below the price of the September future, that being the last of the old-crop futures, there is reason to suppose that the old-corn premiums will disappear as the movement of new corn draws near. Hence, hedging sales of December futures against old corn bought in September or October should be made with due allowance for the conditions described. Purchases of old corn under such conditions might better be made on the basis of bids "to arrive" or on a basis somewhat near the new-crop prices. These facts should not be difficult to grasp; but simple as they are, a great many hedging losses and many complaints that futures and cash prices do not move together are based upon the failure of country elevators to take them into account.

Figure 10 shows in charted form the basis loss or gain in cash prices relative to the near future accumulated from week to week during five crop years as derived from Tables 21, 22, and 23. It will be seen that periods when cash prices are gaining relative to futures prices are especially well marked in the case of oats. The sharply falling cash curves which appear at the end of many of the crop years, especially in wheat and corn, mark periods when old-crop spot prices are being measured against new-crop futures. In this connection it must be remembered that for the purposes of this study, hedges are considered as being transferred from one future to the next practically 45 days in advance of the expiration of the delivery month and that where this involves transfer from an old-crop future into a new-crop future the effect may be to cut off a continued basis gain as between old-crop cash grain and old-crop futures. Similarly, of course, it tends to extend and emphasize basis loss as between old-

WHEAT



CORN



OATS

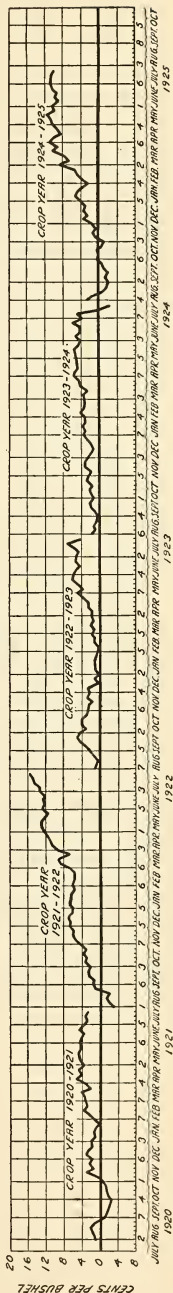


FIGURE 10.—Basis gain or loss in spot prices relative to futures, at Chicago, based on cumulative change from one week to the next, as derived from Tables 21, 22, and 23

crop spot and new-crop futures. While at the commencement of each crop-year period the spot loss or gain curve (Fig. 10) starts at a point over or under the base line representing the then-existing difference between cash and futures, the difference between cash and futures does not continue to be represented by the relation of the curve line to the base line. In the assumed change of hedges from one future to the next the spot loss or gain curve is not adjusted to the new true spot and future relationship but continues to reflect the cumulating basis loss or gain as the case may be, from one week to the next. By means of this treatment it is possible to determine what the gain or loss might be in carrying hedged grain from one date during the crop year to another, assuming a hedge placed in the near future and transferred to the next future about the 15th of the month preceding maturity.

That carrying charges do not always result in cash prices gaining relative to the futures can be seen in the cash-wheat curves for crop years 1920-21, 1921-22, and 1922-23 in Figure 10. During this period spot wheat prices were nearly always equal to or higher than the futures, and the distant futures were nearly always lower than the near-by futures (of the same crop year). Although the Chicago December and May wheat futures pertain to the same crop grain, the price of May futures in December may reflect speculative opinion that prices are to be lower in May because of large crop prospects in other countries and of ample supplies being available before the following May. This opinion can not affect greatly prices born of immediate domestic need or even of world need for United States wheat arising prior to the time when other countries become a factor. So, while carrying costs should make for a cash price gradually rising relative to the futures of the same crop year, nevertheless, there are times when conditions just as natural and just as legitimate in every way bring about situations under which cash prices lose relative to the future.

In connection with the question of change in relationship between cash-grain prices and futures prices, especially as it affects the possibility of earning carrying charges, it will be of interest to compare over a period of years price differences between certain grades of cash grain and the May future as of an early date in December and a late date in April. This gives a carrying period of approximately five months. The figures presented in Table 28, furnish such a comparison since 1885.

TABLE 28.—Price relationship between usual contract grades of cash wheat, corn and oats and the May future at Chicago, by years, since 1885, with change in relationship when carrying period is approximately five months

[Figure following decimal indicates eighths of a cent; i. e. 84.5 is 84 $\frac{5}{8}$]

WHEAT

Grade ¹	Date	Chicago price per bushel (average of high-low)		Cash price over (+) or under (-) future	Date	Chicago price per bushel (average of high-low)		Cash price over (+) or under (-) future	Basis gain(+) or loss(-) of cash price relative to future
		Cash grain	May future			Cash grain	May future		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
No. 2 Spring	Dec. 1, 1885	84.5	91.6	-7.1	Apr. 29, 1886	77.6	78.3	-0.5	+6.4
	Dec. 1, 1886	76.1	83.5	-7.4	Apr. 30, 1887	80.3	81.2	-0.7	+6.5
	Dec. 1, 1887	77.3	84.5	-7.2	Apr. 30, 1888	81.5	81.0	+0.5	+7.7
	Dec. 1, 1888	103.4	110.1	-6.5	Apr. 27, 1889	80.6	81.1	-0.3	+6.2
	Dec. 2, 1889	78.6	84.1	-5.3	Apr. 30, 1890	89.1	88.7	+0.2	+5.5
	Nov. 29, 1890	92.4	100.6	-8.2	Apr. 30, 1891	105.3	106.1	-0.6	+7.4
	Dec. 1, 1891	91.2	98.4	-7.2	Apr. 30, 1892	80.6	80.6	0	+7.2
	Dec. 1, 1892	71.4	78.7	-7.3	Apr. 29, 1893	71.0	71.0	0	+7.3
	Dec. 1, 1893	62.6	69.2	-6.4	Apr. 30, 1894	58.1	57.7	+0.2	+6.6
	Dec. 1, 1894	55.3	60.4	-5.1	Apr. 30, 1895	62.1	62.6	-0.5	+4.4
	Dec. 2, 1895	56.4	61.0	-4.4	Apr. 30, 1896	61.6	61.6	0	+4.4
	Dec. 1, 1896	81.2	84.0	-2.6	Apr. 30, 1897	71.4	71.1	+0.3	+3.1
No. 2 cash	Dec. 1, 1897	90.4	91.0	-0.4	Apr. 30, 1898	120.2	120.1	+0.1	+0.5
	Dec. 1, 1898	65.5	66.5	-1.0	Apr. 29, 1899	71.6	71.4	+0.2	+1.2
	Dec. 1, 1899	65.4	69.3	-3.7	Apr. 30, 1900	65.4	65.4	0	+3.7
	Dec. 1, 1900	69.7	73.4	-3.5	Apr. 30, 1901	72.1	72.1	0	+3.5
Regular	Dec. 2, 1901	74.0	77.5	-3.5	Apr. 30, 1902	74.3	74.4	-0.1	+3.4
	Dec. 1, 1902	73.2	75.2	-2.0	Apr. 30, 1903	77.0	77.0	0	+2.0
	Dec. 1, 1903	84.1	80.4	+3.5	Apr. 30, 1904	101.0	89.3	+11.5	+8.0
	Dec. 1, 1904	111.7	109.6	+2.1	Apr. 29, 1905	88.2	87.6	+0.4	+1.5
No. 2 Red ²	Dec. 1, 1905	86.4	88.2	-1.6	Apr. 30, 1906	88.5	79.1	+9.4	+11.2
	Dec. 1, 1906	72.7	78.1	-5.2	Apr. 30, 1907	79.0	78.6	+0.2	+5.4
	Dec. 2, 1907	96.2	103.0	-6.6	Apr. 30, 1908	99.0	99.0	0	+6.6
	Dec. 1, 1908	105.1	109.1	-4.0	Apr. 30, 1909	143.2	124.2	+19.0	+23.0
	Dec. 1, 1909	117.1	105.6	+11.3	Apr. 30, 1910	109.4	108.0	+1.4	-9.7
	Dec. 1, 1910	92.0	96.5	-4.5	Apr. 29, 1911	90.7	90.5	+0.2	+4.7
	Dec. 1, 1911	94.4	99.1	-4.5	Apr. 30, 1912	114.2	113.6	+0.4	+5.1
	Dec. 2, 1912	101.0	89.3	+11.5	Apr. 30, 1913	105.0	92.0	+13.0	+1.3
	Dec. 1, 1913	94.5	90.1	+4.4	Apr. 30, 1914	93.7	91.5	+2.2	-2.2
	Dec. 1, 1914	114.7	120.2	-5.3	Apr. 30, 1915	162.6	162.4	+0.2	+5.5
No. 2 Hard	Dec. 13, 1915	115.0	115.6	-0.6	Apr. 29, 1916	115.1	113.7	+1.2	+2.0
	Dec. 1, 1916	175.6	176.4	-0.6	Apr. 30, 1917	287.5	274.0	+13.5	+14.3
	³ 1917-1919								
No. 2 Yellow, Hard, and better	Dec. 15, 1920	173.6	155.4	+18.2	Apr. 30, 1921	147.0	130.3	+16.5	-1.5
	Dec. 1, 1921	115.6	117.6	-2.0	Apr. 29, 1922	142.1	141.3	+0.6	+2.6
	Dec. 1, 1922	122.1	117.2	+4.7	Apr. 30, 1923	125.0	123.2	+1.6	-3.1
	Dec. 1, 1923	107.0	109.2	-2.2	Apr. 30, 1924	108.4	103.2	+5.2	+7.4
	Dec. 1, 1924	158.2	162.4	-4.2	Apr. 30, 1925	159.6	152.4	+7.2	+11.4
	Dec. 1, 1925	173.4	162.7	+10.5	Apr. 30, 1926	168.2	160.0	+8.2	-2.3
	Dec. 1, 1926	140.2	138.4	+1.6	Apr. 30, 1927	140.0	136.5	+3.3	+1.5
	Dec. 1, 1927	131.4	134.3	-2.7	Apr. 30, 1928	174.6	169.0	+5.6	+8.5
	Dec. 5, 1928	122.1	122.5	-0.4	Apr. 29, 1929	113.0	112.0	+1.0	+1.4
	Average	99.3	101.0	-1.5		106.2	103.2	+3.0	+4.5
	Average excluding period from Dec. 1, 1914, to Apr. 30, 1920	96.4	98.1	-1.5		99.6	97.0	+2.6	+4.3

¹ Grades and prices are from Yearbooks of Chicago Board of Trade.² Price in column 3 is for regular wheat, including No. 2 Red, while price in column 7 is for No. 2 Red only.³ No trading in futures.

TABLE 28.—Price relationship between usual contract grades of cash wheat, corn, and oats and the May future at Chicago, by years, since 1885, with change in relationship when carrying period is approximately five months—Continued

CORN

Grade	Date	Chicago price per bushel (average of high-low)		Cash price over (+) or under (—) future	Date	Chicago price per bushel (average of high-low)		Cash price over (+) or under (—) future	Basis gain(+) or loss(—) of cash price relative to future
		Cash grain	May future			Cash grain	May future		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
No. 2 cash-----		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
	Dec. 1, 1885	40.7	39.5	+1.2	Apr. 30, 1886	36.0	36.2	-.2	-1.4
	Dec. 1, 1886	37.3	43.0	-5.5	Apr. 30, 1887	37.1	37.5	-.4	+5.1
	Dec. 1, 1887	47.2	52.6	-5.4	Apr. 30, 1888	55.5	55.2	+.3	+5.7
	Dec. 1, 1888	35.5	38.1	-2.4	Apr. 26, 1889	33.4	34.2	-.6	+1.6
	Dec. 2, 1889	31.4	33.2	-1.6	Apr. 30, 1890	32.2	32.1	+.1	+1.7
	Nov. 29, 1890	50.5	53.3	-2.6	Apr. 29, 1891	67.2	66.3	+.7	+3.5
	Dec. 1, 1891	47.1	42.7	+4.2	Apr. 30, 1892	40.1	40.5	-.4	-4.6
	Dec. 1, 1892	42.2	47.6	-5.4	Apr. 29, 1893	41.2	41.3	-.1	+5.3
	Dec. 1, 1893	35.1	40.0	-4.7	Apr. 30, 1894	37.5	37.5	0	+4.7
	Dec. 1, 1894	47.0	49.1	-2.1	Apr. 30, 1895	47.1	47.2	-.1	+2.0
	Dec. 2, 1895	26.0	29.0	-3.0	Apr. 30, 1896	28.6	28.5	+.1	+3.1
	Dec. 1, 1896	23.2	26.6	-3.4	Apr. 30, 1897	24.4	24.0	+.4	+4.0
	Dec. 1, 1897	26.0	29.2	-3.2	Apr. 30, 1898	34.2	33.5	+.5	+3.7
	Dec. 1, 1898	34.0	34.4	-.4	Apr. 29, 1899	34.4	34.0	+.4	+1.0
	Dec. 1, 1899	30.3	32.4	-2.1	Apr. 30, 1900	39.7	39.6	+.1	+2.2
	Dec. 3, 1900	36.1	36.2	-.1	Apr. 30, 1901	47.6	48.0	-.2	-1.5
	Dec. 2, 1901	63.1	64.6	-1.5	Apr. 30, 1902	62.1	62.1	0	+1.5
	Dec. 1, 1902	53.0	42.4	+10.4	Apr. 30, 1903	44.0	44.1	-.1	-10.5
	Dec. 1, 1903	42.2	42.1	+.1	Apr. 30, 1904	48.1	46.2	+1.7	+1.6
	Dec. 1, 1904	49.0	45.5	+3.3	Apr. 29, 1905	46.4	46.0	+.4	-2.7
	Dec. 1, 1905	46.2	44.4	+1.6	Apr. 30, 1906	47.4	46.6	+.6	-1.0
	Dec. 1, 1906	44.6	43.4	+1.2	Apr. 30, 1907	49.6	49.5	+.1	-1.1
	Dec. 2, 1907	59.1	56.0	+3.1	Apr. 30, 1908	67.7	67.2	+.5	-2.4
	Dec. 1, 1908	61.5	62.7	-1.2	Apr. 30, 1909	71.6	71.0	+.6	+2.0
	Dec. 1, 1909	63.2	61.2	+2.0	Apr. 30, 1910	59.0	58.1	+.7	-1.1
Contract-----	Dec. 1, 1910	48.6	47.3	+1.3	Apr. 29, 1911	52.7	52.1	+.6	-.5
	Dec. 1, 1911	69.0	64.3	+4.5	Apr. 30, 1912	80.2	80.0	+.2	-4.3
	Dec. 2, 1912	50.4	48.1	+2.3	Apr. 30, 1913	56.5	55.2	+1.3	-1.0
	Dec. 1, 1913	73.2	70.1	+3.1	Apr. 30, 1914	65.6	63.3	+2.3	-.6
	Dec. 1, 1914	63.7	68.7	-5.0	Apr. 30, 1915	77.7	77.1	+.6	+5.6
	Dec. 1, 1915	69.5	69.1	+.4	Apr. 29, 1916	77.5	76.3	+1.2	+.6
	Dec. 1, 1916	90.2	91.2	-1.0	Apr. 30, 1917	158.4	149.6	+8.6	+9.6
	Dec. 1, 1917	181.0	117.7	+63.1	Apr. 30, 1918	162.4	127.3	+35.1	-28.0
	Dec. 7, 1918	142.4	129.0	+13.4	Apr. 30, 1919	157.4	157.0	+.4	-13.0
	Dec. 1, 1919	155.0	132.3	+22.5	Apr. 30, 1920	179.0	175.1	+3.7	-18.6
	Dec. 1, 1920	77.0	73.0	+4.0	Apr. 30, 1921	58.0	56.3	+1.5	-2.3
	Dec. 1, 1921	50.0	54.4	-4.4	Apr. 29, 1922	63.1	61.2	+1.7	+6.3
	Dec. 1, 1922	74.2	70.7	+3.3	Apr. 30, 1923	82.5	79.4	+3.1	-.2
	Dec. 1, 1923	80.4	74.1	+6.3	Apr. 30, 1924	78.0	76.5	+1.3	-5.0
	Dec. 1, 1924	116.1	122.0	-5.7	Apr. 30, 1925	107.6	104.4	+3.2	+9.1
No. 2 mixed and better.	Dec. 1, 1925	80.4	79.3	+1.1	Apr. 30, 1926	73.2	71.3	+1.7	+.6
	Dec. 1, 1926	75.6	80.7	-5.1	Apr. 28, 1927	75.4	70.7	+4.5	+9.6
	Dec. 1, 1927	91.4	95.7	-4.3	Apr. 30, 1928	112.6	109.1	+3.5	+8.0
	Dec. 3, 1928	86.6	91.0	-4.2	Apr. 29, 1929	90.0	90.0	0	+4.2
	Average-----	62.4	60.6	+1.6	-----	66.7	65.0	+1.7	+.1
Average excluding period from Dec. 1, 1914, to Apr. 30, 1920.-----		53.7	54.2	-.3	-----	56.0	55.2	+.6	+1.1

TABLE 28.—Price relationship between usual contract grades of cash wheat, corn, and oats and the May future at Chicago, by years, since 1885, with change in relationship when carrying period is approximately five months—Continued

OATS

Grade	Date	Chicago price per bushel (average of high-low)		Cash price over (+) or under (−) future	Date	Chicago price per bushel (average of high-low)		Cash price over (+) or under (−) future	Basis gain(+) or loss(−) of cash price relative to future
		Cash grain	May future			Cash grain	May future		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>		<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
No. 2-----	Dec. 1, 1885	29.3	31.6	−2.3	Apr. 30, 1886	28.5	29.1	−.4	+1.7
	Dec. 1, 1886	26.7	31.2	−4.3	Apr. 30, 1887	26.1	26.1	0	+4.3
	Dec. 1, 1887	28.6	32.7	−4.1	Apr. 4, 1888	30.6	30.7	−.1	+4.0
	Dec. 1, 1888	26.1	30.2	−4.1	Apr. 29, 1889	22.5	22.1	+4	+4.5
	Dec. 2, 1889	20.3	22.5	−2.2	Apr. 30, 1890	24.5	24.3	+2	+2.4
	Nov. 29, 1890	43.0	45.3	−2.3	Apr. 30, 1891	52.4	52.5	−.1	+2.2
	Dec. 1, 1891	32.1	32.7	−.6	Apr. 30, 1892	28.3	28.3	0	+6
	Dec. 1, 1892	31.0	36.1	−5.1	Apr. 29, 1893	28.6	29.0	−.2	+4.7
	Dec. 1, 1893	28.3	31.3	−3.0	Apr. 30, 1894	32.7	33.1	−.2	+2.6
	Dec. 1, 1894	29.0	32.3	−3.3	Apr. 30, 1895	27.4	28.0	−.4	+2.7
	Dec. 2, 1895	17.2	20.3	−3.1	Apr. 30, 1896	18.3	18.0	+3	+3.4
	Dec. 1, 1896	18.2	21.6	−3.4	Apr. 30, 1897	17.1	16.6	+3	+3.7
	Dec. 1, 1897	21.4	22.1	−.5	Apr. 30, 1898	31.3	31.2	+1	+6
	Dec. 1, 1898	27.5	26.7	+6	Apr. 29, 1899	26.4	26.5	−.1	−7
	Dec. 1, 1899	22.6	23.7	−1.1	Apr. 30, 1900	23.0	22.3	+5	+1.6
	Dec. 3, 1900	21.6	23.6	−2.0	Apr. 30, 1901	27.0	26.5	+3	+2.3
	Dec. 2, 1901	43.0	43.2	−.2	Apr. 30, 1902	42.1	42.0	+1	+3
	Dec. 1, 1902	31.0	32.1	−1.1	Apr. 30, 1903	35.0	33.2	−.2	+7
	Dec. 1, 1903	35.5	35.7	−.2	Apr. 30, 1904	41.0	40.4	+4	+6
	Dec. 1, 1904	30.2	31.2	−1.0	Apr. 29, 1905	28.3	28.4	−.1	+7
Contract-----	Dec. 1, 1905	29.7	32.0	−2.1	Apr. 30, 1906	42.4	32.3	+1	+2.2
	Dec. 1, 1906	33.0	34.7	−1.7	Apr. 30, 1907	35.4	45.0	+4	+2.3
	Dec. 2, 1907	46.4	51.2	−4.6	Apr. 30, 1908	52.7	53.0	−.1	+4.5
	Dec. 1, 1908	48.3	51.0	−2.5	Apr. 30, 1909	55.7	56.1	−.2	+2.3
	Dec. 1, 1909	40.0	42.0	−2.0	Apr. 30, 1910	41.4	41.2	+2	+2.2
	Dec. 2, 1910	32.0	34.5	−2.5	Apr. 29, 1911	31.5	31.2	+3	+3.0
	Dec. 1, 1911	47.1	49.5	−2.4	Apr. 30, 1912	56.7	56.6	+1	+2.5
	Dec. 2, 1912	31.4	32.5	−1.1	Apr. 30, 1913	35.5	35.1	+4	+1.5
	Dec. 1, 1913	37.5	41.2	−3.5	Apr. 30, 1914	37.3	36.5	+6	+4.3
	Dec. 1, 1914	48.1	52.3	−4.2	Apr. 30, 1915	54.2	54.7	−.5	+3.5
	Dec. 1, 1915	42.2	44.3	−2.1	Apr. 29, 1916	45.5	44.4	+1.1	+3.2
	Dec. 1, 1916	51.7	57.2	−5.3	Apr. 30, 1917	69.3	69.0	+3	+5.6
	Dec. 1, 1917	70.2	68.5	+1.5	Apr. 30, 1918	80.6	80.0	+6	−7
	Dec. 7, 1918	72.6	71.5	+1.1	Apr. 30, 1919	70.4	68.3	+2.1	+1.0
	Dec. 1, 1919	80.3	77.3	+3.0	Apr. 30, 1920	111.2	100.3	+10.7	+7.7
	Dec. 1, 1920	48.7	48.7	0	Apr. 30, 1921	36.3	35.0	+1.3	+1.3
	Dec. 1, 1921	37.0	38.4	−1.4	Apr. 29, 1922	41.7	37.0	+4.7	+6.3
	Dec. 1, 1922	46.4	43.4	+3.0	Apr. 30, 1923	46.6	44.0	+2.6	−2
	Dec. 1, 1923	45.5	44.7	+6	Apr. 30, 1924	48.2	45.7	+2.3	+1.5
No. 2 white and better---	Dec. 1, 1924	54.1	58.5	−4.4	Apr. 30, 1925	44.7	40.0	+4.7	+9.3
	Dec. 1, 1925	41.3	43.3	−2.0	Apr. 30, 1926	42.1	40.3	+1.6	+3.6
	Dec. 1, 1926	46.2	46.2	0	Apr. 30, 1927	49.1	45.5	+3.4	+3.4
	Dec. 1, 1927	54.2	54.4	−.2	Apr. 30, 1928	71.2	64.6	+6.4	+6.6
	Dec. 1, 1928	49.2	48.1	+1.1	Apr. 29, 1929	48.4	47.1	+1.3	+2.2
	Average-----	38.5	40.3	−1.6	-----	41.7	40.6	+1.1	+2.7
	Average excluding period from Dec. 1, 1914, to Apr. 30, 1920-----	35.1	37.0	−1.7	-----	37.1	36.2	+7	+2.6

Column 5 in this table shows the amount by which cash prices were over or under the May future on an early date in December of each year. Column 9 shows the amount by which cash prices were over or under the May future on a late date in April. The net change in relationship is carried into column 10, the plus items indicating the years during which cash prices have gained relative to the future and the minus items indicating years when cash prices have lost relative to the May future.

In the case of wheat, cash prices gained relative to the future in 35 out of 41 years. Excluding the war years there will be found 32 years out of 38 during which cash prices gained relative to the future. The average basis gain for all of the years is $4\frac{5}{8}$ cents per bushel. Excluding the war years, the basis gain is $4\frac{3}{8}$ cents. These averages are affected to a considerable extent by three figures which are unusually large. The period from December 1, 1905, to April 30, 1906, shows a basis gain of $11\frac{1}{2}$ cents, the period from December 1, 1908, to April 30, 1909, shows a basis gain of 23 cents, and the period from December 1, 1924, to April 30, 1925, shows a basis gain of $11\frac{1}{2}$ cents. If these three years, together with the war years, are eliminated from consideration, the average basis gain as between the usual contract grade of cash wheat and the May future during a period of 35 years will be reduced to $3\frac{1}{8}$ cents per bushel.

Cash prices at Chicago for the usual contract grade of corn gained relative to the future between about December 1 and April 30 in 25 years out of 44 and lost relative to the future in 19 years. Excluding the war period, the results are 22 years gain, 16 years loss. The average basis gain for the period since 1885, excluding the war years, amounts to $1\frac{1}{2}$ cents per bushel. It is apparent from this table that the matter of earning carrying charges on corn during the 5 months period is less certain over a period of years than in the case of either wheat or oats.

In the case of oats, based on Chicago prices, the cash price gained relative to the future in 41 years out of 44. Excluding the war years, basis gain is shown in 36 years, and basis loss in 2 years.

In Figure 10 is shown the cumulated basis gain, or loss, and spot prices relative to futures at Chicago by weeks for certain periods. These charts show that even during years when there is a considerable basis gain as between some early date and some late date in crop year, this basis gain is by no means regular and constant. Dates may be selected in nearly every year between which a carrying charge might have been taken out of the futures market, but to determine in advance just what particular period would be the most profitable for carrying grain with futures sold against it does not seem to be an easy problem.

The problem becomes even more complicated when it comes to determining what kinds of wheat, for example, may be more profitably carried. Figure 11 shows the relationship between the usual contract grades of wheat and the May futures at four markets. The May future for all markets is represented by a straight line indicated as zero. The curved lines show the price relationship progressively of No. 2 Hard Winter wheat at Chicago to the Chicago May future, Minneapolis No. 1 Southern Spring to the Minneapolis May future, Kansas City No. 2 Hard Winter to Kansas City May future and St. Louis No. 2 Red Winter to the St. Louis May future. The difference between cash prices and futures is derived from averaging the daily weighted cash prices during half-month periods and averaging the closing prices of the May futures on those days for which sales of cash wheat are recorded. It will be observed that in general when cash prices are gaining relative to the future at Chicago, cash prices are gaining relative to the future in other markets. There is considerable difference, however, in the curves for different years. During the life of the 1925 May future, for example, No. 2 Red Winter

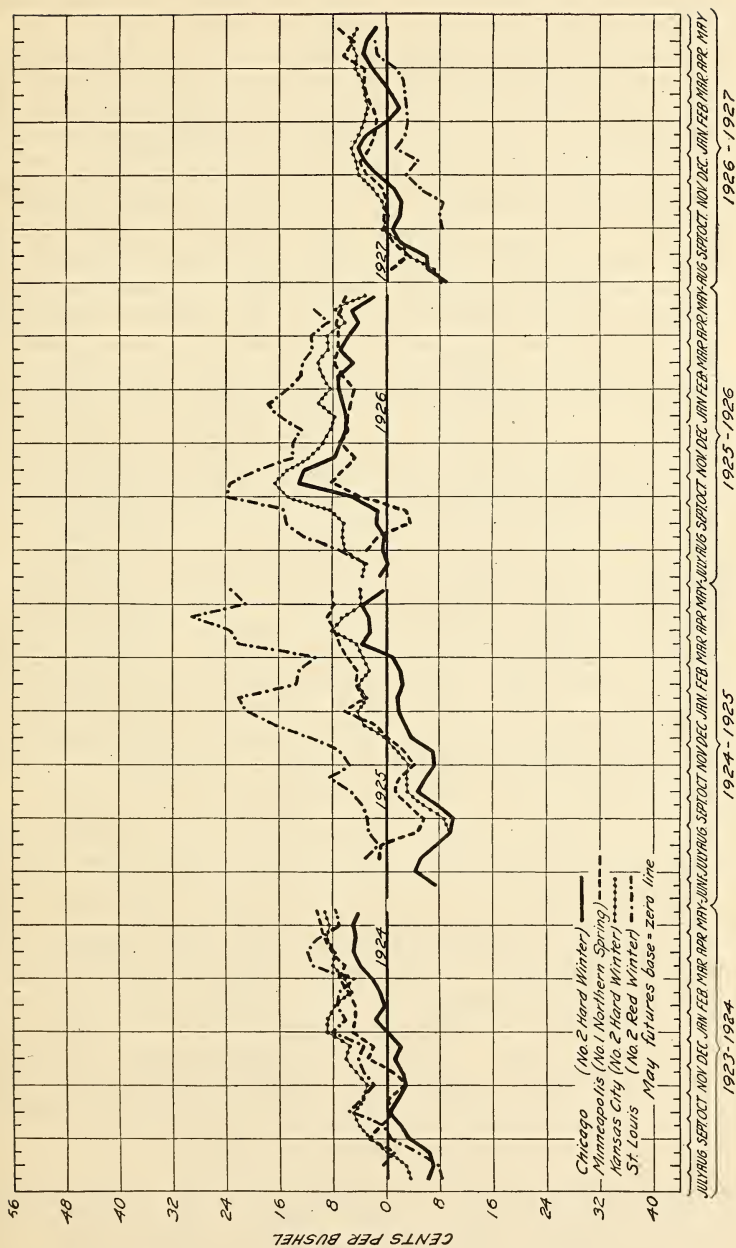


FIG. 11.—Relation of cash-wheat prices to the May futures at four markets

wheat at St. Louis was consistently higher relative to the May future than the other grades at other markets. During the life of the 1927 May future, on the other hand, No. 2 Red Winter wheat at St. Louis was lower relative to the May future than any other grain at any other market.

These curves show also that while periods may be selected during each one of the years when a profit could be made by selling the May future and carrying the cash wheat, the rise of cash prices relative to the future is by no means constant throughout the life of the future. The hedger has no very sure means to guide him in his use of the futures market for the purpose of earning carrying charges, and the practice is by no means free from the speculative element.

As has been previously suggested, the hedging of grain for the purpose of earning carrying charges is in itself a form of speculation wherein the purpose is to profit through change in relationship between cash-grain prices and futures prices. If a grade of cash grain is had which can be delivered on a futures contract without discount, or at a fair discount, and this grain is found selling sometime at a discount under the future which will enable it to be carried with profit from the time of purchase until it can be delivered on the futures contract, the future may be sold with a fair degree of assurance. It is not safe to assume, however, that the theory of a carrying charge will force cash prices to sell higher relative to the future during the delivery month than at some previous date during the life of the future.

By reference to Figure 11, it will be seen that contract grades of cash wheat in all of the markets sold lower relative to the May futures during May, 1926, than they did during several previous months. In fact, during October, 1925, No. 2 Hard Winter wheat at Chicago sold as high as 13 cents over the 1926 May future. Obviously, cash wheat bought on this basis could not be carried and delivered on May contracts, except at a large loss. On the other hand, in November, 1924, No. 2 Hard Winter wheat at Chicago sold at 7 cents under the May future and offered a rather sure chance of earning 7 cents per bushel by carrying wheat in store for delivery on May future.

A situation developed in the fall of 1925 which was somewhat unusual in that during August and September the Chicago May future was selling at from 4 to 5 cents per bushel over the December future, whereas during November and December the spread was reversed, Chicago May wheat selling at from 4 to 5 cents under the December. Under these circumstances hedging sales placed in the May future would have produced entirely different results from those placed in the December future. The cash market for wheat developed strength in November and December which apparently had little effect on the May future. These are situations which can not be foreseen always but which suggest the necessity for operators being constantly on the alert to note signs and indications of changing spreads.

COMMENTS AND SUGGESTIONS

Is hedging a desirable practice for country elevators? This question does not lend itself to a "yes" or "no" answer. There has not been discovered any general formula for hedging all kinds of grain successfully at all times under all conditions. Personal judgment and knowledge of conditions must be determining factors in hedging ventures as they are in every managerial problem.

To the operator who hedges consistently on a large scale, it seems impossible that anyone should try to conduct a grain business without hedging. On the other hand, to the small country elevator so situated that grain may be shipped to market overnight, or may be sold satisfactorily at all times on instantly available bids, the business of hedging will appear to be an unnecessary waste of time and money. To elevators thus situated any hedging protection which is less than perfect at all times would have very little appeal, while to the larger operator, or to country elevators far removed from market, a form of protection which lifts even a part of the risk of price changes may be looked upon as a very necessary adjunct to the business.

The large elevator operators in the terminal markets have certain advantages over the average country elevator in the conduct of hedging operations. Practically all of them have membership representation on one or more of the important grain exchanges, whereas most country elevators must pay the full nonmember's rate of commission on all trades in grain futures. The commission amounts to only about one-fourth of a cent per bushel, but even this makes a material difference if hedges are to be switched freely from one future to another as the need arises.

Another matter which concerns the country elevator is the trading unit governing future contracts. The usual unit is 5,000 bushels, although units of 1,000 bushels, known as job lots, may be executed usually at some disadvantage in price compared to the 5,000-bushel unit.

An open position in the market of 500 bushels, or even 2,500 bushels, is of little importance to the large operator, but to country elevators that buy in lots of 500 bushels or less, there is presented a different situation. If by reason of the larger trading units in futures they are able to cover their risks only partially at best, the question of risk becomes merely a question of size. Unless operators can have rather fixed policies governing the coverage of grain purchases, either by hedges in the futures market or by the acceptance of bids, they are likely to drift into a state of mind where speculative risks are not only looked upon as a necessary part of the grain business but as opportunities to make profits in addition to the expected handling charge.

A number of country elevators in returning the questionnaires mailed in connection with this study commented on the fact that the present trading unit was of a size not convenient for their hedging needs. Whether country elevators would hedge to a greater extent if the trading unit were 500 bushels instead of the present size is difficult to say. Undoubtedly such a unit would tend to increase the number of small speculative accounts and possibly encourage trading to an undesirable extent on the part of persons of small means and inability to assume risks of this kind.

While no specific rules have been suggested herein for the guidance of country hedgers, the following summation of points is offered as being of possible value in determining a proper hedging policy:

(1) Hedging, as the term is used in the grain trade, is to offset an ownership or contractual risk, arising in connection with the growing or the handling or utilization of actual grain, by the assumption in the futures market of an opposite kind of risk as nearly as possible, the expected effect being that any price change in the cash grain market producing one result will be offset and compensated for by a change of equal size made in the futures market producing a directly opposite result.

(2) Hedging theory is founded on the assumption that actual commodity prices and the prices of certain futures move up or down together and that a price movement in the spot market affecting a certain kind of wheat will be duplicated in the wheat-futures market.

(3) The hedging utility of the futures market depends upon its furnishing a constantly available opportunity for hedgers to assume either a buyer's position or a seller's position in any reasonable amount. To that end trading in wheat futures, for example, can not always be confined to a single specific grade, or to too few grades. Sellers must have a fair opportunity to fill their contracts by the kinds and grades of wheat ordinarily available.

(4) Sellers, having a choice in kinds and grades of wheat that can be delivered on futures contracts, naturally will seek to deliver those grades which are deliverable at the most favorable price difference compared with differences based on actual commercial values. Hence, futures prices tend to reflect the price of whatever grades in view of commercial values are most likely to be delivered, and can not at the same time reflect values for kinds and grades of wheat which have relatively higher commercial values. Since commercial values for different grades show considerable independence in price movement owing to greater demand for some grades than for others, spot prices for each of many different grades can not be expected to maintain a uniform price relationship to the price of the futures at all times. Changes in spreads between cash prices and futures prices modify and sometimes impair to a great extent the hedging utility of the futures market for certain grades.

(5) The element of time is the very essence of a futures contract. Hence, a price established by contracts that are not to mature for a period of six months, or longer, will bear a different relationship or spread to current cash prices than will the same kind of contracts to be fulfilled within 30 days. This introduces another kind of spread factor between cash prices and futures prices. A spread at one time may reflect carrying costs as between one future delivery month and another. At some other time this spread may reflect speculative opinion operating differently on different delivery months.

(6) The business of hedging successfully resolves itself largely into a study of existing and probable price relationships between the grade of grain to be hedged and some definite future delivery month.

(7) The protective possibilities of the futures market are by no means certain and definite at all times as applied to all kinds and grades of grain, but under normal conditions are present to such an extent that country elevator operators as well as those engaged in any phase of the grain business may well afford to give the subject attention and study.

(8) The source of many of the unfortunate experiences of country elevators in trying to hedge is found in the improper selection of futures; in trying to recoup in the futures market losses already incurred on cash grain, and in failing to distinguish between practices which are of hedging character and those that are purely speculative.

(9) The keeping of some form of permanent record showing accurately at all times the elevator's exact market position long or short in the various grains is important for all elevators but is an imperative necessity for those that hope to maintain a policy of full coverage by hedging.

APPENDIX

Excerpts from the Rules and Regulations of the Board of Trade of the City of Chicago in effect October 18, 1928

NOTE.—These rules have been modified.

Rule No.

- 203 EXECUTION OF ORDERS.**—All future delivery orders received by members must be executed on Change in the open market. A member receiving such an order is prohibited from taking such order, directly or indirectly, for his own account, except in case of error, when it shall be compulsory to make a report of such error to the Office of the Secretary in writing and submit the name of the clearing member in the transaction.
- 204 CORPORATIONS AS CUSTOMERS.**—A member receiving future delivery orders from a nonmember corporation must be furnished with a certified copy of a resolution of the board of directors of such corporation authorizing some designated representative of such corporation to place such orders for its account, and naming some other representative of such corporation to receive confirmations of all trades made for its account. Confirmations of all such trades shall be made in accordance with such resolution. In opening new accounts, a reasonable time shall be allowed to secure a copy of the authorizing resolution. If a corporation files with the Secretary a general authorization as above provided, such authorization shall be deemed to have been filed with all members. The provisions of this rule shall not apply to corporations organized outside of the United States.
- 205 TRADES OF NONCLEARING MEMBERS.**—A nonclearing member must trade in the name of a clearing member who, in such case acts as commission merchant. A clearing member may authorize a nonclearing member to make trades on Change in the name of the clearing member. Such authorization may be written or verbal. Thereafter, the clearing member shall be liable upon all trades made by the nonclearing member until such authorization has been revoked and until a written notice of revocation has been filed with the Secretary and posted on the bulletin board.
- 206 TRADING FOR EMPLOYEES.**—No member shall accept orders or clear trades for an employee of another member when the name of the employer appears in the transaction.
- 207 DUTIES OF AGENT.**—No member shall act as principal and agent in the same transaction, either in cash or futures, and no member shall divulge any order or any information concerning any order he may have in his possession prior to the execution of the same.
- 208 EMPLOYEES OF MEMBERS, BANKS, OR TRUST COMPANIES.**—No member shall accept orders or clear trades upon behalf of a nonmember employee of another member or for bank or trust company employee other than President or Vice President, unless the written consent of the employer be first obtained.
- 209 CONFIRMATIONS TO CUSTOMERS.**—A commission merchant who makes a future delivery trade for a member or nonmember customer shall confirm the trade to the customer upon the same day. Such confirmation shall be in writing and shall show the commodity bought or sold, the delivery month, the amount, the price, and the name of the other party to the contract. A nonresident member may give to his customer the name of his resident commission merchant in lieu of the name of the other party to the contract, subject to the right of the customer to receive the name of the other party to the contract upon request.

Where a trade is made by a branch office of a resident member, such branch office being outside of Illinois, the branch office may confirm the trade to the customer without giving the name of the other party to the contract, provided the confirmation has prominently printed or stamped thereon the words "Name of other party to contract furnished on request."

- 211 **DEPOSITS BY CUSTOMERS.**—A member acting as commission merchant for a customer (member or nonmember) may require from such customer, as indemnity against liability, a deposit of 15 per cent of the contract price of the commodity bought or sold for the customer's account, and subsequent deposits to the extent of any adverse fluctuations in the market price. Such deposits must be made with the commission merchant within a reasonable time after demand, and, in the absence of unusual circumstances, one hour shall be deemed a reasonable time. The failure of the customer to make such deposit within such time shall entitle (but shall not obligate) the commission merchant to close out the trades of the defaulting customer. If the commission merchant is unable to effect personal contact with the customer, a written demand left at the office of the customer during business hours shall be deemed sufficient.
- 223 **COMMISSIONS—NONMEMBERS' RATES—FUTURE TRADING.**—The rates of commission chargeable to nonmembers for the purchase or sale of commodities for future delivery are as follows:
- a. For the purchase, or for the sale, or for the purchase and sale, by grade alone, of wheat, corn, oats, rye, barley, or flaxseed, to be delivered in store, either for immediate or for future delivery, one-quarter of one cent per bushel, in lots of 5,000 bushels and 1,000 bushels, and multiples thereof.
 - b. Foreign rates (exclusive of Canada) for the above transactions shall be three-eighths of a cent per bushel to nonmembers and one-quarter of a cent per bushel to members.
 - c. For the purchase, or for the sale, or for the purchase and sale, of lard; forty cents per 1,000 pounds.
 - d. For the purchase, or for the sale, or for the purchase and sale, of D. S. short ribs, D. S. extra short clears, or D. S. clear bellies, forty cents per 1,000 pounds.
 - e. For the purchase, or for the sale, of cotton for future delivery, \$6.25 for each 50 bales, when the price of such transaction does not exceed 25 cents per pound, and when the price of such transaction exceeds 25 cents per pound, an additional \$1.25 for each five cents or portion of five cents of such excess in price. For any person residing outside the United States or Canada, whether or not a member of the Board of Trade, there shall be an additional charge of \$2.50 per hundred bales or fractional part thereof. When cost of reporting executions is in excess of the \$2.50 additional commission required on foreign business, such extra cost shall be charged in addition to the prescribed commission.
- 240 **CONTRACTS SUBJECT TO RULES.**—All exchange contracts, and all contracts between members and nonmembers which contemplate the purchase or sale of commodities on Change, are subject to the Charter, Rules and Regulations of the Association as amended from time to time, and all such contracts shall be subject to all rules or regulations subsequently adopted, where such rules or regulations are expressly made applicable to existing contracts. Contracts made "subject to the rules" of the Association shall be subject to the Charter, Rules, and Regulations as above specified.
- 241 **HOURS FOR TRADING.**—Hours for regular trading for future delivery in commodities other than cotton shall be from 9.30 a. m. to 1.15 p. m., except on Saturday, when the hours shall be from 9.30 a. m. to noon. No such trading shall take place except in the Exchange Hall during regular hours.
- 242 **PRICE BASIS.**—Future delivery contracts for the sale of grain shall be in multiples of one-eighth of a cent per bushel, provided that one-half of the amount contracted for may be sold at a specified price, and the other half at one-eighth of a cent per bushel higher or lower than such specified price.
- 243 **BIDS AND OFFERS SUBJECT TO FIRST ACCEPTANCE.**—Any offer made on Change to buy or sell any commodity for future delivery is subject to immediate acceptance by any other member. All such offers shall be general offers and shall not be specified for acceptance by particular members.
- 244 **BIDS AND OFFERS SUBJECT TO PARTIAL ACCEPTANCE.**—If an offer is made on Change to buy or sell any specified quantity of any commodity for future delivery, such offer shall be deemed an offer to buy or sell all or any part of such specified quantity, and, if not immediately accepted for

the entire quantity, it may be accepted for a quantity less than specified. Offers to buy or sell a specified quantity or none shall not be allowed.

245 **SUNDAYS OR HOLIDAYS.**—When a contract matures on Sunday, or on a holiday, performance thereof shall be made on the preceding business day.

280 **SCOPE OF CHAPTER.**—Commodities bought or sold for future delivery under exchange contracts shall be delivered in accordance with the provisions of this chapter.

281 **DELIVERY BY WAREHOUSE RECEIPTS.**—Except as otherwise provided, deliveries shall be made by the delivery of registered warehouse receipts issued by warehouses which have been declared regular by the Board. The Board by regulation may prescribe the conditions upon which warehouses may be declared regular, and also conditions upon which warehouse receipts issued by regular warehouses shall be deliverable.

282 **GRAIN IN CARS.**—During the last three business days of any month, and in case of emergency, during such other days of the month as the Board may designate, railroad receipts representing grain in cars shall be deliverable on exchange contracts, subject to the following:

(a) Cars must be within the Chicago District or in some railroad yard where samples are taken by the Illinois Grain Inspection Department.

(b) Cars must be consigned or ordered to a regular warehouse, unless all regular storage space is filled or otherwise unobtainable.

(c) The railroad receipt or bill of lading must be so endorsed as to transfer title to the grain.

(d) The grain must have been inspected during such three day period by the Illinois Grain Inspection Department and a certificate issued.

(e) The grain, if loaded from private elevators within the Chicago District, must also have been inspected and approved during the same period by the Grain Sampling Department of the Association.

(f) The grain must have been weighed by the Weighing Department of the Association and a certificate issued, otherwise the represented weight shall be warranted by the seller to the buyer. Excess grain delivered shall be settled for at the market price, when the amount thereof is known to both parties. For any deficit, there shall be a settlement based on the delivery price on the date of delivery.

(g) When consigned or ordered to a regular warehouse under paragraph b, delivery shall not be complete, unless the buyer elects otherwise, until the grain is unloaded, and warehouse receipts are issued therefor. In the meantime, title remains in the seller, the purchase price is not payable, and the seller remains liable for any change in grade. The buyer, however, if he make payment in advance, may order the cars unloaded at any other place where they will be weighed by the Weighing Department of the Association.

(h) Delivery under this rule shall be made in the regular way by delivery notices describing the railroad receipts to be delivered and their essential features.

284 **DATE OF DELIVERY.**—Unless the contract otherwise provides, where any commodity is sold for delivery in a specified month, delivery of such commodity must be made by the seller upon such business day of the specified month as the seller may select. If not previously delivered, delivery shall be made upon the last business day of the month.

285 **DELIVERY NOTICE.**—A seller obligated to make delivery shall issue and deliver to the Clearing House a signed delivery notice which shall contain the name and business address of the issuer; it shall also describe the warehouse receipts to be delivered and the packer's brand in case of provisions; it shall state the contract price on which delivery is to be made, and also the delivery price of the commodity, which shall be the price previously posted by the Secretary or Clearing House for that purpose. Before issuing such notices, sellers shall report to the Secretary the kinds and quantities of commodities which they propose to deliver on that day.

286 **METHOD OF DELIVERY.**—Delivery notices must be delivered to the Clearing House which shall pass the notices, in the order in which they are received, to the buyers obligated by the oldest contracts to take delivery of the same amounts of the same commodities. A buyer receiving such a notice from the Clearing House shall present the same at the office of the seller by whom it was issued, and delivery and payment shall follow.

- 287 **TIME OF DELIVERY.**—The exact hours for delivering and passing delivery notices, and for making delivery and payment, shall be fixed by regulations to be adopted by the Board.
- 288 **PAYMENT.**—Payment shall be made by certified check on a Chicago bank. The amount payable shall be the delivery price named in the delivery notice. Adjustments with the Clearing House shall be made on the basis of the respective contract prices. Accumulated storage charges shall be assumed by the buyer, but the seller shall allow the buyer a credit of one-twentieth of 1 cent per bushel for each day in excess of five days during which the grain has been in store.
- 289 **CONTRACTS NOT CLEARED.**—Delivery upon a contract which has not been cleared shall be made pursuant to a delivery notice delivered by the seller directly to the buyer at the time specified for the delivery of a like notice to the Clearing House. Delivery and payment shall follow as above provided.
- 290 **DUTIES OF MEMBERS.**—Members shall not issue delivery notices unless they have in their possession or control the warehouse receipts described therein. Members issuing delivery notices describing certain warehouse receipts shall deliver such warehouse receipts pursuant to such notices as provided by the rules and shall make no other disposition thereof. A member who makes a false endorsement on a delivery notice, or who alters the same in any manner, shall be guilty of fraud.
- 291 **LOTS.**—On future delivery contracts calling for the following amounts of the following commodities or multiples thereof, delivery shall be made in lots equal to the minimum quantity hereafter specified: 5,000 bushels of grain, 50,000 pounds of lard (contained in 136 tierces) and 50,000 pounds of meats. On future delivery contracts calling for odd lots of grain, delivery shall be in lots of 1,000 bushels. Each lot of grain delivered must be described on the delivery notice, and may be made up of various amounts of grain of the various authorized grades situated in various warehouses, provided that no lot shall contain less than 1,000 bushels of any one grade in any one warehouse. On the last business day of the month only, members having grain bought in 1,000 bushel lots and sold in 5,000 bushel lots may deliver five 1,000 bushel lots on a 5,000 bushel lot contract by attaching the five notices firmly together and endorsing the last notice.
- 292 **DIFFERENTIALS.**—Unless otherwise specified, contracts for the sale of wheat, corn, oats, rye, and barley shall be deemed to call for "contract" wheat, corn, oats, rye, and barley, respectively. Upon such contracts, sellers, at their option, may deliver all or part of the following grades at the following price differentials, provided that lots of grain of any one grade must conform to the minimum lot requirements of Rule 291:

WHEAT DIFFERENTIALS

No. 1 Hard Spring Wheat.....	at 2 cents per bushel over contract price.
No. 1 Dark Hard Winter Wheat.....	at 1½ cents per bushel over contract price.
No. 1 Dark Northern Spring Wheat....	at 1 cent per bushel over contract price.
No. 2 Dark Hard Winter Wheat.....	at ½ cent per bushel over contract price.
No. 1 Hard Winter Wheat.....	} at contract price.
No. 2 Hard Winter Wheat.....	
No. 1 Yellow Hard Winter Wheat.....	
No. 2 Yellow Hard Winter Wheat.....	
No. 1 Red Winter Wheat.....	
No. 2 Red Winter Wheat.....	} at 2 cents per bushel under contract price.
No. 1 Northern Spring Wheat.....	
No. 2 Dark Northern Spring Wheat....	at 2 cents per bushel under contract price.
No. 2 Northern Spring Wheat.....	at 3 cents per bushel under contract price.
No. 3 Dark Hard Winter Wheat.....	} at 5 cents per bushel under contract price.
No. 3 Hard Winter Wheat.....	
No. 3 Yellow Hard Winter Wheat.....	
No. 3 Red Winter wheat.....	

CORN DIFFERENTIALS

Effective May 1, 1927

No. 1 White Corn-----	} at ½ cent per bushel over contract price.
No. 2 White Corn-----	
No. 1 Yellow Corn-----	
No. 2 Yellow Corn-----	} at contract price.
No. 1 (Mixed) Corn-----	
No. 2 (Mixed) Corn-----	
No. 3 White Corn-----	} at 2 cents per bushel under contract price.
No. 3 Yellow Corn-----	
No. 3 (Mixed) Corn, at 2½ cents per bushel under contract price.	

OATS DIFFERENTIALS

Effective September 1, 1928

- No. 1 White Oats, at ½ cent per bushel over contract price.
 No. 2 White Oats, at contract price.
 No. 3 White Oats, at 1½ cents per bushel under contract price.

RYE DIFFERENTIALS

- No. 1 Rye-----} at contract price.
 No. 2 Rye-----}
 No. 3 Rye, at 5 cents per bushel under contract price.

BARLEY DIFFERENTIALS

- No. 1 Barley, at 2c per bushel over contract price.
 Special No. 2 Barley, at contract price.
 Effective August 24, 1926.

- 292-A OLD STYLE CONTRACTS.—The differentials established by Rule 292 shall not apply to old style wheat contracts made before June 1, 1926. The differentials formerly in effect shall apply to such contracts.
- 293 VARIATION ALLOWED.—Deliveries of grain may vary not more than 1 per cent from the quantity contracted for.
- 294 INSURANCE.—Grain tendered for delivery must be insured against loss by fire by the Underwriters Grain Association of Chicago for at least 85 per cent of its value, to cover the buyer until noon of the business day following delivery. If the buyer is unable within that time to effect other insurance in that amount, the seller, upon request of the buyer, shall cancel any excessive insurance held by him, so as to enable the buyer to obtain insurance. The Secretary may require members at any time to furnish a list of their holdings and policies.
- 295 GRADES.—A contract for the sale of grain by grade shall be performed on the basis of the grades established by the rules of the Illinois Grain Inspection Department in force at the time of the execution of the contract.
- 296 FAILURE TO DELIVER.—Where a seller who is obligated to deliver any commodity on a future delivery contract fails to deliver at maturity, and by reason of such default, the Clearing House fails to deliver to some buyer, both seller and buyer shall adjust their trades with the Clearing House to the closing price of the last business day of the month, pursuant to the by-laws of the Clearing House. Thereupon, the President, with the approval of the Board, shall appoint a Committee of three from the membership at large, who shall determine the true commercial value of such commodity at the time of the default. The true commercial value of such commodity shall be determined in the light of its value in this and other established markets, its value for manufacturing purposes, together with such other facts as may properly be considered. The Committee shall also assess, as liquidated damages against the defaulting seller, from one to ten per cent of such true commercial value. The true commercial value as found by the Committee, plus such award of damages, shall constitute the basis of adjustment on such defaults. Thereupon, there shall be an immediate readjustment to such basis between the defaulting seller and the Clearing House, and also between the Clearing House and the buyer to whom the Clearing House defaulted.

When such readjustments have been made, the default of the seller to the Clearing House, and also the default of the Clearing House to the buyer, shall be deemed fully settled and adjusted.

- 297 **FAILURE TO ACCEPT DELIVERY.**—Where a buyer who receives a delivery notice fails to present the same and to take delivery and make payment when payment is due, the issuer of the notice shall promptly sell the commodity on the open market for the account of the delinquent. He shall then immediately notify the Clearing House of the default, the contract price, and the resale price, and the Clearing House shall immediately serve a like notice upon the delinquent. Thereupon the delinquent shall be obligated to pay to the seller, through the Clearing House, the difference between the contract price and the resale price.
- 310 **SETTLEMENT BY CLEARANCE.**—All future delivery contracts, including contracts made by members upon behalf of nonmembers, shall be subject to clearance through the Clearing House, and all such contracts shall be subject to the Charter, By-Laws, and Clearing Regulations of the Clearing House.
- 311 **SUBSTITUTION.**—Where a future delivery contract is cleared through the Clearing House, the Clearing House shall be deemed substituted as seller to the buyer, and shall also be deemed substituted as buyer to the seller, and thereupon the Clearing House shall have all of the rights and be subject to all of the liabilities of the original parties with respect to such contract.
- 312 **OFFSETS.**—Where a member buys and sells the same commodity for the same delivery, and such contracts are cleared through the Clearing House, the purchases and sales shall be offset to the extent of their equality, and the member shall be deemed a buyer from the Clearing House to the extent that his purchases exceed his sales, or a seller to the Clearing House to the extent that his sales exceed his purchases.
- 313 **TRADES FOR CUSTOMERS.**—Where a member makes a trade for a customer (member or nonmember) and the trade is cleared through the Clearing House, the Clearing House becomes the principal who is liable to the customer and to whom the customer is liable, subject to the following: (a) The trade shall remain subject to the Charter, By-Laws, and Regulations of the Clearing House; (b) the trade may be offset against other trades of the clearing member as provided in Rule 312; (c) if the trade is not offset, and the member, being a seller, tenders a delivery notice to the Clearing House, the member to whom such notice is passed, under Rules 286 and 287, shall thereupon be substituted as buyer in lieu of the Clearing House; (d) if the trade is not offset, and the member, being a buyer, receives a delivery notice, under Rules 286 and 287, the issuer of such notice shall thereupon be substituted as seller in lieu of the Clearing House; (e) if the trade is offset, the Clearing House shall be discharged, and the member himself shall be substituted for the Clearing House as principal. For the purpose of this rule, the first trades made shall be deemed the first trades offset.
- 603 **GRAIN FUTURES ACT.**—Members are required to comply with all lawful provisions of the Grain Futures Act and regulations thereunder lawfully promulgated by the Secretary of Agriculture. These rules shall be construed to conform thereto. The Board may adopt such regulations as may be necessary to make such act effective.
- 1716 **HOURS OF DELIVERY.**—For current deliveries of grain and provisions during the month, delivery notices may be delivered to the Clearing House during the afternoon preceding the day of delivery or may be delivered by 8.30 a. m. on the day of delivery. The Clearing House shall pass such notices promptly to buyers who must take delivery and make payment by 11 a. m. on the same day. During the month, except on Saturday and except on the last business day of the month, delivery notices may also be delivered to the Clearing House between the hours of 11 a. m. and 12 m. The Clearing House shall pass such notices promptly to buyers who must take delivery and make payment by 1.30 p. m. of the same day. On Saturdays during the month, excluding any Saturday which falls on the last business day of the month, delivery notices may also be delivered to the Clearing House between 10.30 a. m. and 11 a. m. The Clearing House shall pass such notices promptly to buyers who must take delivery and make payment by 11.30

a. m. on the same day. On the last business day of the month only, there may be an additional afternoon delivery as follows: Delivery notices must be delivered to the Clearing House by 2.30 p. m., except on Saturday when such notices must be delivered by 1.30 p. m. The Clearing House shall pass such notices promptly to buyers who must take delivery and make payment by 11 a. m. on the following business day.

On last business day of the month, the Clearing House Manager, in his discretion, may extend the time for filing original delivery notices for the sole purpose of permitting deliveries on straddles between round and job lots.

1717 Delivery notices under Rule 285 shall be in the following form:

This notice is deliverable on contracts in accordance with the Rules of the Board of Trade of the City of Chicago.

No. -----

DELIVERY NOTICE

Office of

Chicago ----- 19-----

We have on hand ready for delivery the following described Warehouse Receipts, or B/L receipts for car lots, and hereby make tender to you of the same, in fulfillment of contract of sale to you of -----
 BUSHELS CONTRACT ----- at -----

Date ware- house receipt or in- spection	Ware- house in or order- ed to	No. of ware- house receipt or car	Initial	Rail- road	Date or- dered	Grade	Quantity		Stor- age rate	Amount
							Bushels	Pounds		

E. & O. E.

Per -----

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE WHEN THIS PUBLICATION WAS LAST PRINTED

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