MINNESOTA
farm business NOTES

NO. 405 INSTITUTE OF AGRICULTURE, UNIVERSITY OF MINNESOTA March-April 1959

Speculation Helps the Onion Grower

Roger Gray

The contribution that the speculator in commodity futures makes toward efficient marketing is not always fully appreciated. The producer of the commodity is one of the leading beneficiaries of speculation and may be particularly interested in understanding this contribution.

The onion futures market is of comparatively recent origin. It has flourished only since 1949. The recent growth in this market affords an opportunity to demonstrate the contribution it has made toward reducing seasonal price variability. An additional aid is the recently published U.S. Department of Agriculture's index of seasonal variability in onion prices. This index covers a long period prior to the opening of the onion futures market. This allows a comparison of seasonal variability before and after the futures market began to function.

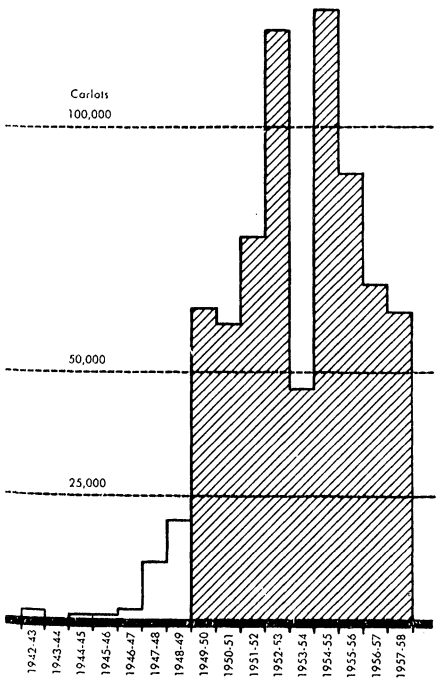

Fig. 1. Volume of trading in onion futures; September-March inclusive, 1942-58.

The influence of the futures market upon the onion price pattern throughout the marketing season (September-March) is determined in the following steps:

1. The original USDA series of index numbers of seasonal variation is used to show the marketing season price pattern for the period 1922-41.

2. An index of seasonal variation is computed for the next 7½ years, during which futures trading had not yet begun to flourish. This index is computed in exactly the same way as was the original USDA index, so as to permit direct comparison. This shows whether or not the seasonal price pattern changed in recent years **without the influence of futures trading.**

3. An index of seasonal variation is computed to cover an additional 9 years during which futures trading flourished. Again, the computation is done by the same method as before. This shows whether or not the seasonal price pattern changed in recent years **under the influence of futures trading.**

Figure 1 shows the basis for choosing the periods used in steps (2) and (3). Futures trading in onions began in September 1942, but for a number of years thereafter was an insignificant factor in the marketing of onions. Beginning with the 1949-50 marketing season, however, futures trading volume rose to a new high level which has since been sustained. The period represented by the patterned area in the chart is taken as the period when futures trading was large enough to have been important.

Figure 2 shows the marketing season price patterns for the three periods. This pattern did not change appreciably between the earlier 20-year period and the subsequent 7½-year period.

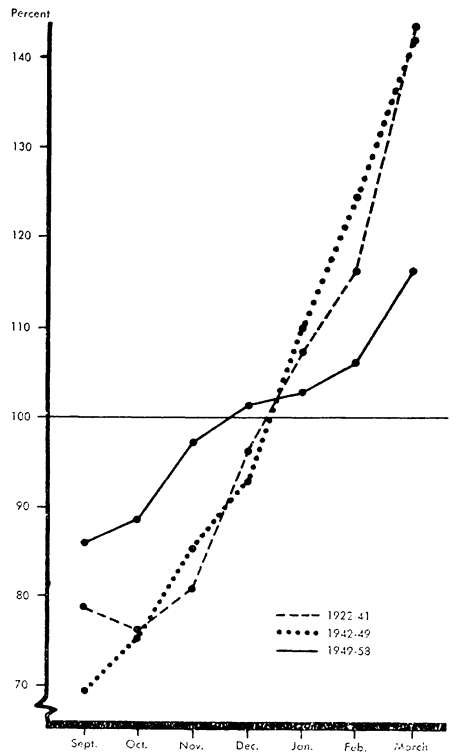

Fig. 2. Index numbers of marketing season prices received by farmers for onions; selected periods.

But a pronounced diminution in the seasonal price range is clearly indicated for the 9-year futures trading period.

The average price throughout the marketing season is represented by 100 on figure 2. This shows that the lowest prices occur during harvest months and the highest prices occur at the end of the storage period. During the two earlier periods, the September price was approximately 74 percent of the marketing season average price and the March price was approximately 142 percent of the marketing season average price. For the most recent period, the September price averaged approximately 86 percent and the March price ap-

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Government Programs Influence Wheat Futures Trading

Reynold Dahl and Rollo Ehrich

In the northwest, the spring wheat crop is harvested during one or two months of the year. However, flour milled from this wheat is produced and consumed at a fairly constant rate throughout the year. Consequently, wheat must be stored from harvest until it is consumed.

Between the times of harvest and consumption, wheat must be owned by someone. Many risks go with ownership—one is the risk of price changes. This risk can be minimized through a system of futures trading in wheat. The futures market also assists in efficiently allocating seasonal production throughout the year.

Two of the factors which have a bearing upon the level of business in wheat futures markets are discussed in this article: the government loan program and the export program. These have been two substantial influences, although there are many other factors and other ways in which government programs influence wheat futures trading.

In view of some concern in recent months over the level of business in wheat futures trading at the Minneapolis market, it is of particular interest to note that each of these influences has been stronger at **markets other than Minneapolis.**

Loan Program Reduces Hedging

The first and most pronounced influence was the loan program. In recent years the wheat loan program has taken a large share of each crop out of regular market channels. In 1958, for example, the United States wheat crop totaled 1,462 million bushels. As of January 31 of this year, farmers had placed nearly 569 million bushels or 40 percent of the crop under loans.

Thus, the marketing system is called upon to carry smaller amounts of wheat in private storage. Since the Commodity Credit Corporation carries wheat stocks unhedged, the effect of the loan program has been to reduce the aggregate need for hedging.

An important role of the wheat futures market is to facilitate the carrying of the seasonal surplus of wheat at harvest to the time of consumption. The mechanism by which the market gets stocks carried this way operates through cash-futures price relationships.

Before the loan programs started, a considerable volume of futures trading was generated by grain warehousemen who hedged to "earn the carrying charge." Such a hedge can be profitably placed only when the future price is above the cash price by approximately the cost of storing the wheat until the delivery month.

Such opportunities occurred frequently before 1940. As the wheat crop came to market after harvest in those years, the cash price was often depressed below the price of futures. Thus, private warehousemen in storing their own wheat would be induced to buy cash wheat, hedge it by selling a future, and place the wheat in storage. Since the cash and future prices equalize during the delivery month, the warehouseman would be assured a return for his storage, in the amount by which the future price exceeded the cash price at the time of purchase.

In recent years, however, the need for this type of hedging has virtually disappeared. The loan program has siphoned off large quantities of wheat out of each crop. This in turn is reflected into the market as a scarcity of free stocks. Hence, it has been typical for the cash price to sell at a premium over the near future and the near future to sell at a premium over deferred futures.

On January 8, 1959, for example, the cash price of ordinary wheat of contract grade was quoted in Minneapolis at 1 cent over the May future which was the near future at the time. The July future (the deferred) was 4 cents under the May future.

Average Cash-Future Price Spreads Near Future, Minneapolis, 1947-57*

Year	Sept.	Dec.	May	July
		Average spread		
1947-48	—23.7	—7.3	—8.3	—8.5
1948-49	—0.7	—1.1	—10.7	—15.2
1949-50	—10.6	—1.6	—3.5	—3.4
1950-51	—0.9	+4.2	—0.1	+0.5
1951-52	+0.6	+1.7	—2.1	—4.8
1952-53	+0.1	+1.1	—0.8	—6.8
1953-54	—6.9	—9.2	—7.5	—8.5
1954-55	—1.9	—7.1	—9.6	—16.0
1955-56	—6.9	—5.4	—3.1	—3.1
1956-57	—2.4	+3.3	—0.8	—5.0

* Spreads were calculated by subtracting the Friday closing price of No. 1NS ordinary from the Friday closing price of the near future. These weekly spreads were averaged over the period in which each future was the near future. For example, the September figures represent average weekly price spreads for the months of July and August.

As shown in the table, inverse carrying charges have been predominant at the Minneapolis market in the last 10 years. During the months in which the July future was traded in 1956-57, for example, its price averaged 5 cents lower than the price of cash wheat of contract grade—ordinary protein. The market inversions shown in the table reflect a chronic current shortage of spring wheat or a tight market.

As indicated above, the most important factor which determines the cash-futures price spread is the relative size of the free stocks. Studies have shown that a close positive relationship exists between the size of free stocks and the carrying charge. Large free stocks are associated with futures prices being over the cash price (positive carrying charges) and small free stocks are associated with the cash price being above the futures price (negative carrying charges).

Although the Minneapolis and Kansas City markets received substantial business from carrying charge hedging prior to the loan program, the bulk of this business went to Chicago. It was to be expected then that Chicago should absorb the largest decline in business wrought by the loan program.

Average month end open contracts in wheat futures at Chicago declined from 95 million bushels in the period 1935-40 to 43 million bushels in 1940-44. Open contracts at Kansas City declined from 17 to 13 million bushels while Minneapolis actually showed an increase from 10 to 13 million bushels during the same period. The increase at Minneapolis was probably a reflection of flour mill hedging. It may owe to some shifting of flour mill business from Kansas City to Minneapolis resulting from a change in the Kansas City contract which made it less attractive to millers.

The major impact of the loan program then was to reduce the amounts of carrying charge hedging done in wheat futures, particularly at Chicago. Studies have shown that the amount of business a futures market gets varies directly with the amount of hedging that it attracts. If the volume of hedging declines, the volume of futures trading declines.

Other types of hedging which are relatively more important at the Minneapolis and Kansas City markets were not appreciably reduced by the loan program. One type is the short term

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Prepared by the Department of Agricultural Economics and Agricultural Extension Service.

Published by the University of Minnesota Agricultural Extension Service, Institute of Agriculture, St. Paul 1, Minnesota.

hedge which results from grain merchandising operations. Grain merchants typically buy country run grain, mix it to meet requirements of processors, and hope to profit from the operations. Profits in grain merchandising are also obtained from premiums. When grain merchants purchase cash grain they usually sell a future to protect themselves against major adverse price fluctuations.

Another type of hedging is typically practiced by flour mills. It is a common practice for millers to sell large quantities of flour for future delivery. Thus, a miller might sell a certain quantity of flour today at a specific price for delivery next May. Since the mill probably does not own the wheat necessary to mill this flour, it purchases wheat futures as a temporary substitute for wheat to be bought later.

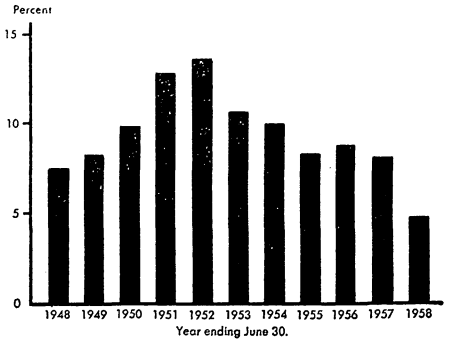
Export Programs Increase Hedging

A later and opposite influence on wheat futures trading was the wheat export program. In the periods 1947-49 and 1956-58, wheat exports were large and the mechanics of the program favored the use of futures markets. Thus it provided a stimulus to futures trading.

In the 1947-49 period the CCC made large purchases of wheat for future delivery from the private trade. These forward sales to the CCC were hedged in futures markets.

In the 1956-58 period the subsidy-in-kind program became operative. Under this program exporters are encouraged to purchase grain for export in the regular markets rather than from CCC stocks at fixed prices. This resulted in increased hedging by exporters.

Most of the increase in futures trading associated with government export programs has gone to Kansas City and Chicago because the largest share of exports has been of hard red winter wheat. In the 1947-49 period, hard red winter exports averaged 345 million bushels to only 54 million bushels for



Annual average of month-end open contracts at Minneapolis as a percent of total for all markets, wheat, 1947-58.

hard red spring. Exports of the two classes in 1956-58 averaged 227 and 36 million bushels, respectively. As shown in the figure, the Minneapolis market had lower open contracts in wheat futures relative to Kansas City and Chicago in these two periods than at any time in the postwar period.

The general market tightness (shortage of free stocks) induced by the wheat loan program has varied from time to time. In all of the three major markets the volume of futures trading increased during the Korean war period as demand carried prices above the loan price and carrying charges returned. All have subsequently declined, but the level of business at both Chicago and Kansas City has increased since 1956 because of the subsidy-in-kind export program.

As data on the level of business in the three major wheat futures markets are placed in perspective, it is difficult to justify any alarm about the level of business at Minneapolis. It has been less hampered by the loan program than Chicago, not because tightness in spring wheat has been less for it has actually been greater, but because it had less to lose from this program. A large proportion of its futures trading operations comes from mill hedging of forward flour sales which has not been affected to any marked degree by the loan program. On the other hand, it has been affected less or not at all from the export program hedging.

There are two elements of irony in the impact of government wheat programs upon futures markets. One is that Chicago, the largest and strongest of the markets, suffered the greatest decline owing to the loan program. A second is that the subsidy-in-kind export program, which was devised in Minneapolis, has been the greatest benefit to Chicago, at least so far as futures trading is concerned.

Speculation—

(Continued from page 1)

proximately 117 percent of the marketing season average price.

The grower gets two advantages as a result of futures trading which can be shown in this setting.

The first, which is shown directly in the contrasting seasonal price patterns, is that competition to assume the price risk on stored onions is greater. Speculators are buyers at harvest time, and the broadened opportunity for speculation which futures trading provides results in better prices for the grower selling at harvest time.

The second advantage, which is not directly shown, is that the grower who wishes to store onions for later sale may avoid the price risk which this entails **if he so chooses** by selling futures. Of course he may speculate in physical onions if he prefers or even in onion futures contracts. It is important to note that if he stores onions unsold he **is speculating.**

The several other benefits of futures markets, from the grower's standpoint, are not demonstrated in this analysis of marketing season price patterns. The perishability of onions, together with the fact that consumers are not responsive to onion price changes, causes greater marketing season price fluctuations in onion prices than in most other farm product prices. Hence, the contribution that futures trading makes in reducing this price fluctuation is especially important.

The 64-Cent Question

A bill to prohibit futures trading in onions became law last September (Public Law 85-839). This law is in the process of being tested in the courts. Meanwhile, futures trading in onions continues under a preliminary injunction granted in United States District Court in Illinois.

If the law prohibiting onion futures trading is permitted to stand, a serious question is raised for onion growers. In terms of the present analysis it may be illustrated as a 64-cent question. Abolition of futures trading may be expected to allow the seasonal price pattern to revert back to the more extreme pattern shown in figure 2. If a marketing season average price of $1.50 per sack is chosen for illustration, the difference between the seasonal range shown under futures trading and the range which prevailed before futures trading is 64 cents per sack. The question for the onion grower is: **Who will get the 64 cents?**

The Outlook Corner — VEGETABLE OILS

Oilseeds are important crops in Minnesota and in the United States.

The annual production of all vegetable oils (oil equivalent of exported oilseeds included) rose from 2.6 billion pounds in the 1937-41 period to around 9 billion in recent years. Soybeans account for over three-fourths of this increase as its oil production equivalent rose from ½ billion pounds to 5.9 billion. The production of all animal fats and oils only increased from 6.1 billion pounds to 7.6 billion.

Other significant changes in the fats and oil situation of the past 20 years are: (1) annual butter production is now a third less than for the 1937-41 period, (2) more than twice as much soybean oil is now produced as butter and lard combined, (3) production of tall oil, a secondary product from manufacturing chemical wood pulp and used in soap, rose from 30 million pounds to a half billion—about equal to current linseed oil production, (4) the commercial production of castor and tung oils have become important since 1950, (5) safflower and sesame oils attained commercial status in recent years, and (6) some synthetic products are now competing with vegetable drying oils.

Annual per capita consumption of food fats and oils has remained quite constant at from 42 to 45 pounds. Consumption increased for vegetable oils but decreased for animal fats; a large part of this was a shift from butter to margarine. Annual per capita disappearance for the total nonfood use group, however, varies more from year to year than does the food group. Extremes range from a low of 17.8 pounds in 1932 to a high of 29.8 in 1941. The trend since 1950 has been downward to around 19 pounds.

Net annual exports of all fats and oils increased fairly consistantly from 1.1 billion pounds in 1952 to nearly 3 billion in recent years. Exports of animal fats during these years ranged from a low of 494 million pounds in 1952 to a high of 777 million pounds in 1954. Edible oils, therefore, accounted for most of the variation in exports from year to year.

Last year's total export movement of edible oils under P.L. 480 programs amounted to 690 million pounds. This shows the important role assumed by such programs. For the current marketing year, the amount is expected to be even larger.

Production of fats and oils from domestic materials and oil equivalent of exported domestic oilseeds, year beginning October, with comparisons

Item	Average 1937-41	Average 1952-56*	1957*	Forecast 1958
	million pounds			
Edible animal fats†	4,540	4,385	4,300	4,605
Edible vegetable oils				
Corn	173	265	275	280
Cottonseed	1,456	1,838	1,440	1,575
Peanut	87	77	68	140
Soybean	531	3,450	4,750	5,900
Total	2,247	5,630	6,533	7,895
Soap fats and oils‡	1,526	3,023	2,850	2,960
Drying oils				
Linseed	363	723	561	615
Tung and castor	1	31	35	65
Tall	30	469	570	570
Total	394	1,223	1,140	1,215
Other fats and oils§	12	41	41	55
Grand total	8,719	14,303	14,864	16,730

* Partly estimated.
† 49 percent butter in 1937-41 but reduced to 33.6 percent in 1958.
‡ Predominantly tallow.
§ Cod and fish liver oils, safflower, sesame, and others not separately reported.

The future trend in the production and marketing of vegetable oils in the U. S. undoubtedly will depend upon (1) competition among the domestically produced fats and oils, especially those used as human food, (2) success in selling in the world market, and (3) trends in developing synthetic substitutes, new uses, and new sources of competitive oils. In regard to the world market, U.S. supplies of fats and edible oils available for such outlets have been increasing in recent years. This situation is not expected to change much. Aggressive merchandising will be required along with the continued help of programs such as P.L. 480 currently used to help finance exports to certain countries.

Minnesota farm price information which was previously carried on this page is no longer published in *Minnesota Farm Business Notes*. However, state price information is available in another publication, the *Minnesota Farm Price Report*. Monthly issues of that report may be obtained by mailing a post card to:

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Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Service and United States Department of Agriculture Cooperating, Skuli Rutford, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.

FREE—Cooperative Agricultural Extension Work, Acts of May 8 and June 30, 1914.