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FACTORS AFFECTING THE TIMING OF WHEAT PRICE  
MOVEMENTS<sup>1</sup>

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THE application of the results of price analysis to the problem of sales policy to be followed in marketing wheat, necessitates knowing something of the time when wheat price changes are likely to come as well as knowing their general trend and average level. When there is any financial interest involved, it is psychologically impossible to ignore the lapse of time involved in the so-called longer time price changes that appear to be impending. Furthermore, financial obligations of the farmer, his current farm and living expenses, besides the worry due to delayed marketing, all operate to confine his marketing policies within rather restricted time limits. As the so-called fundamental price making factors work themselves out through the psychology of buyers and sellers, the time when wheat price changes come is to some extent affected by this psychology.

## THE EFFECTS OF REDUCED CROP PROSPECTS

The long time tendency toward a higher level of prices induced by a promise of smaller supplies affects the direction of price trend from week to week and month to month. Or, to put the matter in the order of occurrence instead of in terms of trend line influence on its component parts, the effects of a promise of reduced supplies work themselves out only through changes in the weekly and monthly price trends from what they formerly were; a trend toward higher prices can materialize only as prices from week to week and month to month begin to assume a different trend with reference to each other.

A study of these short time price relationships for the past indicates that the changes are not at a uniform rate. Reduced crop prospects do not result in a straight line trend upward in prices. After a low point in wheat prices has been reached, the principal subsequent advance is most frequently in the last three to six months of an 18 to 24 month period of prices above the low point.

<sup>1</sup> Contribution No. 62 from the Department of Agricultural Economics, Kansas Agricultural Experiment Station.

It is frequently two-thirds to three-fourths of the way through an advancing wheat price period before the sharpest and most pro-

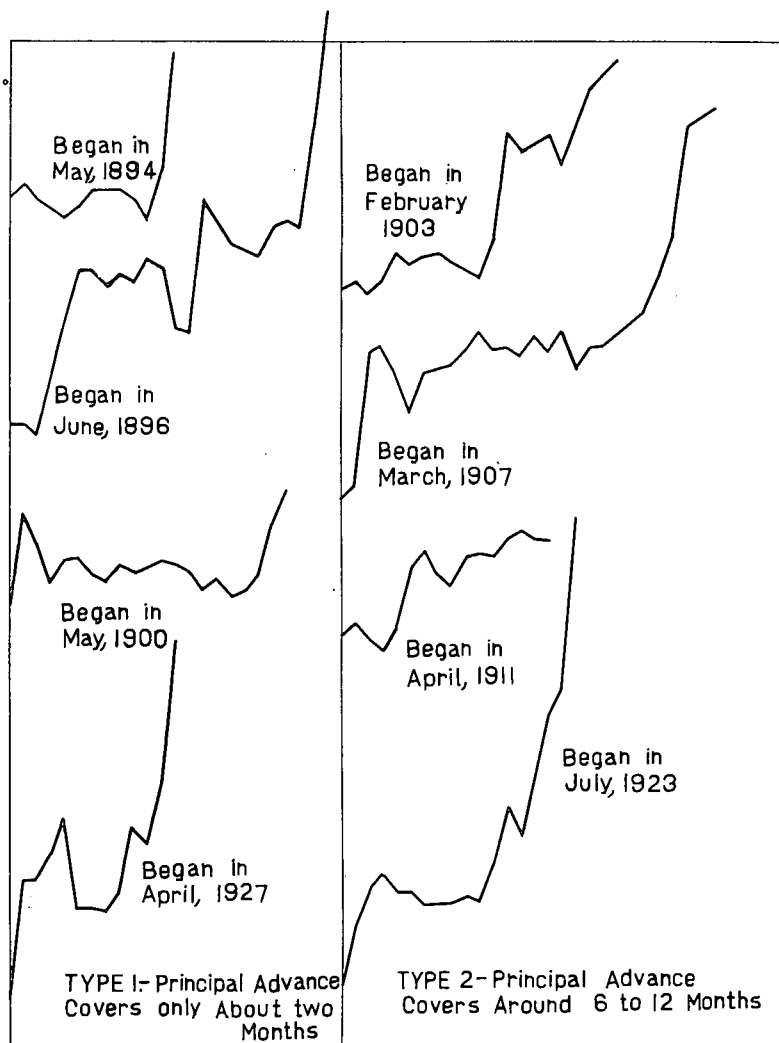


FIGURE 1. TYPES OF ADVANCING PRICE PERIODS IN WHEAT  
*Kansas City No. 2 Hard Winter Wheat*

nounced price advances take place. There appear to be at least two rather distinctive types of advancing price periods. In one type, as from the low point in April, 1927 to the high point in

April, 1928, most of the period above the low point is marked by a sidewise trend in prices, with a sudden pronounced advance of a month or two at the end of the period. In the other type of price advance, as from July, 1923 to January, 1925, the trend upward in price begins a little earlier and gradually develops over a longer period (figure 1).

While it might prove possible and practical to identify still other types of price advances, these two types alone suggest that either the place, kind, or manner of reduced supplies affects the way price reacts or that buyers and sellers react differently to a given reduction in supplies from one time to another, or what is even more probable, that both change in supplies and change in psychology of traders with the lapse of time affect the nature and timing of the price change.

#### THE EFFECTS OF PROSPECTS OF INCREASED SUPPLIES

Like a decrease in supplies, any increase is looked upon as a fundamental price making factor. The tendency toward lower prices induced by prospects of larger supplies works itself out through week to week and month to month prices successively changing their relationships to each other. As in the case of advancing price periods, there appear to be at least two types of declining periods. In one case, there is a quick drastic reduction in prices and turn downward starting at a season when the influence of the on-coming new crop is added to the influence of various other factors that have initiated the decline as in April, 1928. In the other case, factors initiate the recession in price sometime ahead of the influence of new crop conditions as in January, 1925. Under such conditions prices work downward in a somewhat different fashion (figure 2). It also seems probable that the character of future trading during the uptrend in price affects the shape of the downtrend.

#### FUTURE TRADING INFLUENCES

The reports and records of the United States Grain Futures Administration reflect better than any other available material the psychology of a large body of traders. A study of volume of future trading, open interest, and trading by different classes during different phases of the wheat price cycle indicates the varying

reactions of traders to changing price relationships, changes in fundamental supply and demand factors and other price making factors.

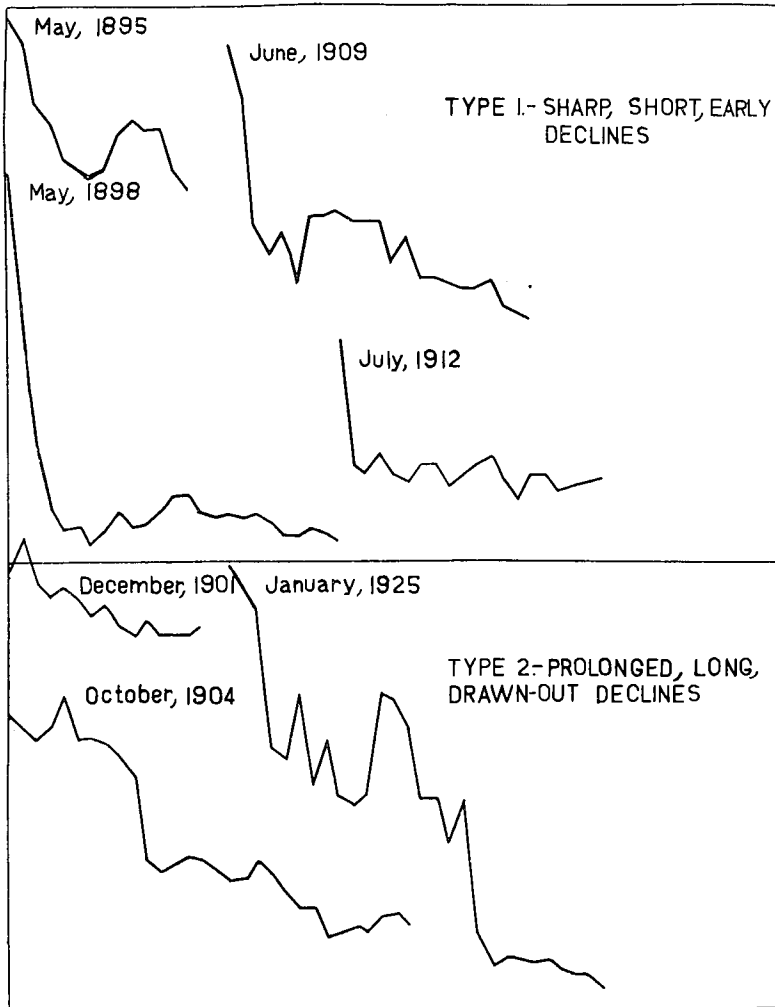


FIGURE 2. TYPES OF DECLINING PRICE PERIODS IN WHEAT  
*Kansas City No. 2 Hard Winter Wheat*

A study of future trading data with reference to the phase of the wheat price cycle within which they fall assumes that only data falling in the same phase of the price cycle are subject to enough

of the same price making influences to constitute a statistical universe for the statistical treatment given them.

In the time allotted, only a few suggestions revealed by a preliminary study of the problem can be given.

In the first place, the particular month during which the effect of increased visible supply and carryover weighs heavily, is affected by the periodic nature of the open interest in the May future.

Millions of  
bushels

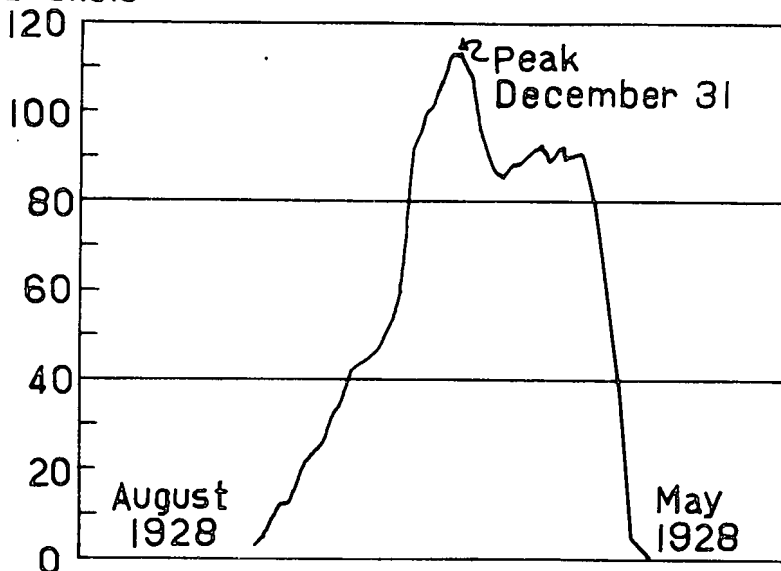


FIGURE 3. OPEN INTEREST IN THE MAY, 1929, FUTURE FROM BEGINNING OF TRADING TO EXPIRATION OF THE FUTURE

Trading in the May future ordinarily begins sometime in the previous July. Open interest reaches its maximum in December or January or in approximately the delivery month preceding the May future (figure 3). Generally the maximum point in the open interest is within 15 days of the same time year after year. The constructive period for the May future, that is the time during which the open interest is being built up, extends from July to December or January. The liquidation period, or the time dur-

ing which the May open interest must be closed out is from December or January to the last of May.

With large visible supplies and carryovers of old wheat, there is every urge for longs to liquidate holdings from January to May and little urge to hurry the shorts to cover unless there is a scare on the growing crop. As a result of the tendency on the part of longs to withhold liquidation under adverse circumstances as long as possible, April and May are heavy liquidation months. An effect of this situation on the Kansas City cash market has been that whereas top May cash price three decades ago rose over the April price five times in 10 years, and two decades ago rose above the April price six times in 10 years; in the last decade May price has been higher than the April price only four times. The influence of visible supply and carryover is especially potent in the case of May prices.

In the next place the relationship between the volume of future trading daily and the total open interest daily is indicative of whether market activity is such as is likely to support higher prices or lower prices. Cyclical peaks and sometimes seasonal peaks are marked by a daily volume of trading equal to 90 to 100 per cent or more of the open interest. When prices are on a high level, and the volume of trading in a single day is equal to the whole open interest, a turn downward is probably near. On the other hand, if volume of trading is less than 50 per cent of open interest, the market is in a weak or quiescent state. The trouble at the bottom of the cycle is that as yet no method has been discovered that will give any indication of how long the quiescent state of the market may last once it is reached, or just where the bottom is. The relationship between volume of trading and open interest is, therefore, more useful during the uptrend and at the peak of a wheat price cycle than it is in other phases of the cycle.

The existing price level, often measured with reference to some former base period, has long been considered a significant price making factor. The relationship of prices during the constructive or accumulative phase of open interest in a given future compared with the price level during the liquidation phase of the open interest exerts a short term influence on prices and is instrumental in timing changes. This is because the comparative level of prices during the two phases of the open interest affects trading pro-



fits and consequently the orderliness with which liquidation takes place.

In the phase of the wheat price cycle when prices are tending up from a low point, there is some tendency for volume of trading and prices to move up and down together. In the first half of the period the predominating tendency is for volume and price to move down together. The market has gone through a period of liquidation during the previous downtrend period so that trading is largely professional. Any further drop in volume from time to time is most frequently accompanied by a decline in price. In the latter half of a rising price period, volume of trading and price tend to move up together. Especially is this the case in the last quarter of the period. Increased volume during this period indicates to a large degree the participation of new buying and is frequently accompanied by a rise in price. Volume of trading and price in this latter period, therefore, most frequently move upward together though in both the first and last half of the rising price period there is to a lesser extent an inverse movement between volume of trading and price.

In a rising price period there is less tendency on the whole for open interest and price to move together than there is for volume of trading and price to move together. The early part of an uptrend period is apparently dominated by short selling and short covering. Short selling operates to increase open interest and decrease price thus tending to establish an inverse relationship. Short covering, on the other hand, operates to decrease open interest and increase prices, again tending to establish an inverse relationship. It is mainly in the last quarter of a rising price period that open interest and price tend to move together. This period being dominated by new buying, open interest, along with volume of trading and price, tends to move upward.

In the downtrend phase of the wheat price cycle, there is less of a tendency for volume of future trading and price to move together than is the case in an uptrend period. With prices at a peak at the beginning of this phase of the cycle, a decrease in volume of trading may indicate less public absorption of the supplies that longs are anxious to liquidate and may, therefore, be associated with a decline in prices. Alternating short sales, tending to increase volume of trading from time to time and decrease price, act as an offset to the first situation.

Decreasing volume of trading and declining prices due to less general interest in furnishing a market in which longs can liquidate, alternating with increased volume of trading and lower prices due to dominant short selling are chief characteristics of a downtrend period. Early in the period new buying now and then to support a too rapid decline in price tends to increase volume of trading and advance the price. Later in the period, however, when volume of trading is low, short covering may tend to raise price even though volume of trading is smaller and more professional. These alternating situations in a price declining period tend to destroy any correlation between volume of trading and price for the period as a whole.

Long liquidation and short selling are dominating features of the downtrend phase of the wheat price cycle. The former tends to decrease open interest and lower the price; the latter tends to increase open interest and lower the price. To a lesser extent new buying early in the period tends to increase open interest and raise price while in the latter part of the period short covering tends to decrease open interest and increase price. Thus, for the downtrend period as a whole open interest and price movements show little correlation. This is because the downtrend period, with reference to the relationship between open interest and price, is not homogeneous throughout its extent but varies from one end to the other.

The preliminary study herein reported upon, must be considered as tentative. It suggests, however, the following factors as of supplementary value to studies of fundamental supply and demand factors in that they affect the timing of wheat price movements.

- (1) The particular phase of the wheat price cycle that is current affects the changing relationships between short-time prices.
- (2) The incidence of the effects of certain fundamental supply factors such as visible supply and carryover, is modified by certain technique of the trading organization through which important buying and selling is done.
- (3) Total trading relative to market position reflects to a degree the slowness or quickness of response to current fundamental market situations.
- (4) The price level during the liquidation phase of the open interest in a given future relative to the price level that existed

during the constructive or accumulative phase of the open interest exerts a short time influence on prices.

(5) The particular phase of the wheat price cycle that is current affects the relationships between volume of future trading and prices and between open interest and prices.

The thesis being maintained in this study is, first, that month to month or seasonal price changes differ characteristically in different phases of the wheat price cycle, because the longer time cyclical influence can only work itself out through shorter time price relationships changing characteristically from what they have been. Second, trader psychology is so essentially different in different phases of the wheat price cycle that only data from the same phase of the price cycle are sufficiently homogeneous to constitute a statistical universe for a study of short-time price changes.