COST OF PRODUCTION AND PRICE
Prepared by G. A. Pond

It is a matter of common observation that the prices of farm products are frequently out of line with production costs. The prices of certain products may remain so for considerable periods of time. This has led to various proposals for fixing farm prices on the basis of cost of production by legislative enactment. An understanding of some of the fundamental characteristics of farm costs indicates why these costs may be out of line with prices even for considerable periods of time and also points to some of the difficulties involved in the fixing of prices on a cost basis.

Farm costs contain a large proportion of indirect or non-cash elements. A large proportion of the elements of cost in most lines of farm production does not involve direct cash outlay. This is illustrated in the following table showing data on the cost of producing wheat on a farm in Stevens County. These costs

Cost of Producing an Acre of Wheat, 1932

	Total costs	Direct costs
Man labor, 8½ hr. @ 15¢	$1.27	$.30
Horse work, 23½ hr. @ 7¢	1.65	(.65)
Seed, 1 bu. @ 72¢	.72	(.72)
Twine, 3.2 lb. @ 7½¢	.24	.24
Threshing, 17½ bu. @ 4¢	.70	.70
Manure	1.60	(.29)
Machinery	.95	.05
Land charge	2.50	.91
Total	9.63	3.86
Yield per acre, bu.	17.5	17.5
Cost per bu.	$.55	$.22

have been divided into two groups--"total costs" and "direct costs". In the first column is shown the value of the cost elements at current market rates. In the second column are shown only those items which represent either direct cash outlay or the sacrifice of possible direct cash income. The latter items are enclosed in parentheses. For example, the total labor charge is shown in the first column. Only two hours of this labor were actually hired. The balance was performed by the farmer himself. The cost of the two hours of hired labor is

shown in the second column. Likewise, in case of horse work, the only portion of the total charge shown in the second column is the market value of salable feed used by horses. This represents a sacrifice of income rather than a direct cash outlay and hence is included in parentheses. In case of the land charge, the only direct cash cost was the tax payment. Threshing and twine, on the other hand, represented direct cash outlay. Only 40 per cent of the total costs as computed were either direct outlays or the sacrifice of direct income.

The larger proportion of the farm labor supply is furnished by the farmer and his family. In most cases, he supplies a considerable portion of the capital used in production. When prices fall and the income from a particular crop is insufficient to yield the usual market return to this labor and capital, the farmer has three alternatives--(1) he may shift his labor and capital to the production of some other crop that promises a more adequate return, (2) he may continue to produce the same crop as long as the price is sufficient to pay any-thing more than the direct costs, or (3) he may discontinue production. If there are other more profitable crops to which he can shift readily, he may wisely choose the first alternative. If not, he is usually better off financially to choose the second. Seldom can he afford to elect the third unless he can find profitable employment for his labor and capital outside of agriculture.

To discontinue production merely robs the farmer and his family of a job and a use for his land, equipment, and livestock. The manufacturer, on the other hand, whose largest items of cost are wages, salaries, and raw materials is much more likely to curtail production in periods of declining prices. He will reduce or discontinue the purchase of raw materials, lay off employes, pass up dividends, and await higher prices before resuming normal production. The farmer cannot discharge himself and his family nor can he allow his capital to remain idle as long as it can be made to earn even a meager return. This is a fundamental and significant difference between the responses of the farmer and the manufacturer to price declines.

There is a large proportion of fixed investments in farming. Most of the farmer's capital is tied up in relatively fixed investments, many of which have little alternative use. Regardless of what may be the cost of these in-vestments, once they are made their value is determined largely by what they can be made to earn in agricultural production. The factory may be shifted from the production of wagons to automobiles and trucks at a comparatively small cost. The livery stable can be converted into a garage. The same office building may serve equally well a wide variety of industries and professions. Only a limited amount of farm land can be shifted to golf courses, recreation fields, and other non-farming uses. Once a substantial farm building is erected, it can be used for little else than farm production. Its salvage value is small. Its original cost bears little direct relation to the price of the products to which it con-tributes. Other farmers may be discouraged by low prices from erecting similar buildings and thus eventually production will be curtailed sufficiently to en-hance price. But this is a slow process. Many farm buildings last fifty years--more than the working life of one generation of farmers. Most items of farm machinery last from ten to fifteen years and their resale values are usually low. The cost of machinery, therefore, has only a limited relation to price.

The biological nature of farm production prevents quick shifts in re-sponse to price. Farm production deals with living processes and the production cycle may involve a considerable period of time. In the illustration of wheat costs, the price of wheat at seeding time was 55 cents. This coincides exactly

with the cost as computed. By harvest time, the price had fallen to 39 cents. The production process could not be stopped at this point as might be the case with the assembly line in an automobile plant. The cost of harvesting the crops was 14 cents per bushel, only 7 cents of which represented cash outlay. The individual farmer's loss would be less if he could get anything more than 14 cents or even more than 7 cents than if he abandoned the crop because it would not pay cost of production.

The dairy farmer in the fall of 1929, when the price of butterfat started to drop, had on hand not only his milking herd but also heifer calves, yearlings, and two-year olds. He could not turn a switch and stop production at this point. He had no alternative but to feed out these heifers, breed them, and add them to the milking herd. His loss was less than what he would have incurred had he sold them. It takes years of selection and breeding to develop a high producing herd and to sacrifice the progress of these years of effort would only be justified on the assumption that dairy production would continue unprofitable for years to come. Even in that case, he would have to find alternative use for his labor and his capital invested in buildings and equipment or he would incur further loss.

A large proportion of farm costs are relatively fixed charges. A large proportion of the cash outlays in farming are for relatively fixed items such as taxes, interest and principal payments, and insurance. These call for a definite cash payment each year. When prices fall, the farmer is forced to produce more goods in order to have sufficient income to meet these payments. These charges vary little with the volume of production and respond slowly, if at all, to changes in the general price level. This fact alone accounts for much of the farmer's inability to curtail production in response to declining prices.

Farm costs are highly variable. The cost of producing farm products varies widely among different producers even in the same locality where weather, soil and price conditions are fairly uniform. Some crop cost figures obtained from a group of 24 farms in Stevens County in 1932 illustrate this point. These farms are all in the same county and fairly similar in soil type. Crop costs varied as follows: wheat, $.36 to $1.02 per bushel; corn, $.22 to $.86 per bushel; oats, $.12 to $.33 per bushel; barley, $.20 to $.73 per bushel; flax, $.57 to $2.94 per bushel; alfalfa hay, $3.90 to $16.44 per ton; and corn silage, $1.34 to $3.68 per ton.* Similar differences are found in all farm cost studies. Some of these variations are due to differences in the physical environment but a considerable proportion are due to variations in the degree of success with which different farmers combine the cost elements. This variability of farm costs is one of the reasons that farmers do not respond uniformly to price changes.

The uncertainty as to the future retards adjustments to cost-of-production-price relationships. Much of the lag in the farmer's response to price is due to his lack of information as to future price changes. Even with the outlook information now available, it is impossible to judge the future accurately. Uncertainty as to future prices both of farm products and of production goods causes the farmer to make major adjustment slowly and cautiously. At times, he will continue to produce even tho the price of the product is insufficient to cover the direct costs in the hope that the situation is merely a temporary one.

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*Sallee, G.A., Pond, G.A., and Loreaux, R.H. Preliminary Report No. 56. Div. of Agr. Econ., Minn. Agr. Expt. Sta.

<u>The joint nature of most farm costs makes it difficult to compute exact</u> <u>costs and retards adjustments to price.</u> Most of the factors of production in farming contribute to more than one line of production. The same labor force may be distributed over all lines of production. The tillage machinery such as plows and harrows is used to prepare the seedbed for all crops. The same harvesting machinery serves all the grain crops. The same hauling equipment is used for moving all farm products. The same power supply contributes to the production of all crops and livestock. A variety of crops are grown on the same land. One crop may contribute to the production of another. Livestock may convert into marketable products certain crops that would not otherwise be salable. To drop one of these crops or one class of livestock might handicap the production of some other. The farm business is so complicated that to disturb one element might reflect unfavorably on the returns from all others.

Furthermore, the joint nature of farm costs makes it difficult to compute exact significant costs for each farm product. For example, if costs are allocated to the corn and oat crops on the basis of time and materials used for each charged at the same rates, the corn crop may appear profitable and the oat crop unprofitable. On the other hand, all the machinery used in preparing the seedbed for corn would be needed even if no oats were grown. Furthermore, the acreage of corn is limited by the amount of power and labor available. The work on oats may be done at a time when corn does not need attention and hence provides fuller employment for this labor at little or no extra expense. The maintenance of corn yields may necessitate a rotation including a legume hay or pasture crop. Furthermore, these legumes may be needed to supplement the corn in a feeding system that offers the most profitable utilization for the corn crop. Oats may be seeded with the legume as a companion crop and thus bring in some additional return from the land the year the legume is seeded. Even tho a uniform allocation of costs may show that the cost of oat production exceeds the price, the net income of the farm as a whole may be enhanced by including some oats in the rotation. It is, of course, possible that some crops such as barley or flax might be substituted for the oats and add more to the income of the farm than would oats. These joint costs are characteristic of farm production. They are exceedingly hard to measure and make it especially difficult to compute production costs that may be used safely in cost-price comparisons.

This enumeration of the characteristics of farm costs and the problems involved in their computation is by no means complete. It should, however, be sufficient to explain why farm production responds so slowly to cost-of-production-price relationships. Costs affect prices only as they affect the supply put on the market. In case of farm products, the effect of unprofitable prices on supply makes itself felt slowly because the nature of most of the elements of farm cost is such that adjustments can not be made quickly. Furthermore, the output of the average farm is too small to have any appreciable effect on the market. Hence, the individual farmer lacks the incentive had by many large manufacturers to curtail production in order to maintain prices. This discussion also indicates some of the difficulties involved in attempting to arrive at a cost figure that would serve satisfactorily as a basis for price fixing.

MINNESOTA FARM PRICES FOR FEBRUARY 1933
Prepared by Adena E. Erickson

The index number of Minnesota farm prices for the month of February 1933 was 34.8. When the average of farm prices of the three Februarys 1924-25-26 is represented by 100, the indexes for February of each year from 1924 to date are as follows:

February	1924 -	88.2		February	1929 -	106.5
"	1925 -	99.5		"	1930 -	101.8
"	1926 -	115.2		"	1931 -	69.3
"	1927 -	113.4		"	1932 -	46.3*
"	1928 -	100.7		"	1933 -	34.8*	*Preliminary

The price index of 34.8 for the past month is the net result of increases and decreases in the prices of farm products in February 1933 over the average of February 1924-25-26 weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, February 15, 1933, with Comparisons*

	Feb.15, 1933	Jan.15, 1933	Feb.15, 1932	Av. Feb. 1924-25-26	% Feb.15, 1933 is of Jan. 15, 1933	% Feb.15, 1933 is of Feb. 15, 1932	% Feb.15, 1933 is of Feb. 15, 1924-25-26
Wheat	$.34	$.35	$.56	$1.41	97	61	24
Corn	.13	.14	.34	.64	93	38	20
Oats	.10	.10	.21	.39	100	48	26
Barley	.16	.17	.35	.61	94	46	26
Rye	.20	.21	.33	.82	95	61	24
Flax	.92	.96	1.19	2.57	96	77	36
Potatoes	.23	.23	.31	.80	100	74	29
Hogs	2.80	2.45	3.20	8.88	114	88	31
Cattle	3.35	3.20	3.80	5.54	105	88	60
Calves	4.80	3.50	5.50	8.50	137	87	56
Lambs-sheep	4.34	4.19	4.58	11.63	103	95	37
Chickens	.075	.070	.106	.167	107	71	45
Eggs	.10	.185	.11	.30	54	91	33
Butterfat	.17	.20	.21	.45	85	81	38
Hay	5.84	5.68	8.30	11.41	103	70	51
Milk	.92	1.02	1.23	2.19	90	75	42

*Except for milk, these are the average prices for Minnesota as reported by the United States Department of Agriculture.

Indexes and Ratios of Minnesota Agriculture

	Feb. 1933	Jan. 1933	Feb. 1932	Av.Feb. 1924-26
Minn. farm price index	34.8	34.6	46.3	100
Minn. purchasing power of farm products	52.7	51.6	62.6	100
Minn. corn-hog ratio	21.5	17.5	9.4	13.7
Minn. egg-feed ratio	.526	.950	.297	.370
Minn. butterfat-feed ratio (one month previous)	.426	.478	.279	.319