An analysis of changes in sweet potato prices

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AN ANALYSIS OF CHANGES IN SWEET POTATO PRICES

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This report presents an analysis of how and why the farm price of sweet potatoes in Louisiana has changed in the past, and provides a basis for determining what changes might be expected under similar conditions in the future.

Commercial sweet potato growers, shippers, and agricultural workers are interested in several types of changes in sweet potato prices. First, they are concerned with long-time price changes, which indicate trends in the industry. The long-time price outlook is significant in deciding whether to build a storage house, and in making other decisions where fixed investments are involved.

Second, there are year-to-year price changes, which largely determine the profitableness of individual crops. The sweet potato price outlook for a year ahead is important in deciding whether to increase or decrease sweet potato acreage, and in making other plans for the current year's operations.

A third type of change is the movement of prices during the marketing season. These changes have an important bearing on when to dig the crop, when to sell and what price to accept, and whether to store sweet potatoes and for how long.

Long-Time Price Changes

Sweet potato prices have fluctuated widely during the past 38 years, ranging from $1.80 per bushel in 1924 to a low of 42 cents in 1932 (Figure 1). There have been three periods of very high prices, namely, World War I, the middle 1920's, and World War II. During periods of war all prices rise, and sweet potatoes followed this movement during both wars. Sweet potato prices were high in 1923 to 1925 primarily because of short crops. During the 1930's sweet potatoes averaged 65 cents per bushel, compared with $1.28 from 1940 to 1946.

These large changes in price over a period of years are closely associated with changes in the general level of prices of all farm com-

1 Farm price of sweet potatoes is used in this analysis because of its availability from U.S.D.A. publications. Farm price is the price received by growers at the farm or at the first point of sale, and is based on all grades sold, including No. 1's, 2's, etc.
modities. Figure 2 shows the movements in sweet potato prices and the index of prices of all farm products in the United States for the period 1930-46. Both the price level and sweet potato prices fell to low levels in the early 1930's, recovered by 1936, declined with the 1937 business recession, then began a sharp upward trend as the war approached.

![Graph showing price movements of sweet potatoes and all farm products in the United States from 1909 to 1946.](image)

**Fig. 1 — Farm Price of Louisiana Sweet Potatoes, 1909-46**

*(October to March monthly average)*

The farm price of sweet potatoes averaged 93 cents a bushel during the 38-year period 1909-46. Prices varied widely from year to year, reaching high levels in World Wars I and II and in the middle 1920's. The price during the 1930's averaged 65 cents compared with $1.28 from 1940 to 1946. The post-war adjustments that took place after World War I have not yet occurred after World War II, although there were indications in the spring of 1947 that these expected adjustments had begun.

Sweet potato prices are also affected by factors other than changes in consumer purchasing power, such as the size of the sweet potato crop; therefore prices change oftener and sometimes more drastically than consumer purchasing power.

In the future it can be expected that sweet potato prices will continue to follow the general movements of the prices of all farm commodities, which reflect changes in consumer purchasing power. If the all-farm-commodity price level declines during the next few years,

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2 The period beginning with 1930 is used in this analysis because it is a period of great price changes and a time when the commercial sweet potato industry in Louisiana had become a large business. The index of prices of all farm products in the U. S. is used here to represent consumer purchasing power because when consumer purchasing power rises or falls the general level of farm commodity prices generally moves in the same direction. Individual products, such as sweet potatoes, usually follow these over-all price movements.
as is generally predicted, sweet potato prices also are likely to fall from the present high levels. A return to the 60- to 70-cent level of pre-war years would not be an unreasonable expectation.

![Graph showing the relation of Louisiana Farm Price of Sweet Potatoes to Index of Prices of Farm Commodities in U.S., 1930-46.](image)

**Fig. 2 — Relation of Louisiana Farm Price of Sweet Potatoes to Index of Prices of Farm Commodities in U.S., 1930-46**

Sweet potato prices have followed the general movements of all farm commodity prices, but often fluctuate more from year to year. Both sweet potato and all commodity prices rose rapidly during the war period beginning in 1941. In 1946 commodity prices continued sharply upward while sweet potatoes did not change greatly. A decline in commodity prices is expected by most economists. Sweet potato prices are likely to move downward also. Sweet potato price movements in the spring of 1947 indicate that this period of post-war readjustment may have begun.

**Year-to-Year Price Changes**

As pointed out above, changes in the purchasing power of consumers, which affects all prices, is the most important factor affecting the level of sweet potato prices over a period of years. Prices for any one season may vary widely from this long-time level. Changes in the size of the crop are largely responsible for these year-to-year variations.
In Figure 3 is shown the year-to-year relationship between sweet potato production and sweet potato prices after adjustment has been made for the influence of changes in consumer purchasing power on price. Normally an increase in the size of the crop over the previous year resulted in a lower purchasing power price. Conversely, a decrease in production was accompanied by an increase in the purchasing power price. From 1943 to 1945 this relationship did not hold true. Apparently, the abnormal wartime demand for sweet potatoes changed the normal supply-price relationship.

![Diagram showing production and adjusted farm price of sweet potatoes in Louisiana, 1930-46.](image)

**Fig. 3 — Production and Adjusted Farm Price of Sweet Potatoes in Louisiana, 1930-46**

(“Adjusted price” is actual price with the effect of changes in the general price level removed.)

Price normally varies inversely with the size of the crop. Since 1942 this relationship has not existed, mainly because of abnormal economic conditions caused by wartime maladjustments.

According to the average relationship between changes in production and adjusted prices during the period 1930-42, when production increased 10 per cent over the previous year, price (after adjustment for price level) decreased 7 per cent (Figure 4). And when production decreased 10 per cent, prices increased 9 per cent. Stated another way, on the basis of an average crop of 6.6 million bushels and an average price of 71 cents a bushel during the period 1930-42, an increase of 1 million bushels from the previous year was accompanied by a price increase of 7 cents. 

*The influence of changes in consumer purchasing power on sweet potato prices is removed by dividing the actual sweet potato price by the index of farm commodity prices in the U. S. The result is an “adjusted” or “purchasing power” price of sweet potatoes.*
decrease of about 7 cents a bushel, but a crop decrease of 1 million bushels was accompanied by a price increase of 10 cents a bushel. This suggests that larger-than-average crops are more valuable to the industry than below-average crops because increases in production are not fully offset by price decreases, whereas reductions in the crop are not fully compensated for by price increases. Crops 20 per cent above average during the 1930-42 period had a purchasing power value 102 per cent of average, while crops 20 per cent below average had a value of less than 94 per cent of average.

While the line in Figure 4 shows the average relationship between production and price changes, it does not represent some of the years accurately, as evidenced by the scatter of individual years about the

Percent change in price from preceding year

![Graph](image)

Fig. 4 — Relation of Changes in Adjusted Farm Price of Sweet Potatoes to Changes in Production, Louisiana, 1930-46

(Line is based on 1930-42 period. Price adjusted for general price level conditions. Numbers opposite dots designate the crop year. For example, the 1940 dot indicates a crop 34 per cent smaller and a price 20 per cent larger than in 1939.)

According to the line of average relationship, an increase of 10 per cent in the size of the crop has been accompanied by a 7 per cent decrease in price, and a 10 per cent decrease in crop by a 9 per cent increase in price. This indicates that large crops tend to be more valuable to the industry than small crops. The war years do not conform to the pre-war pattern of relationship, and any predictions of future sweet potato prices based on size of crop and general commodity price level are likely to be unreliable so long as the present abnormal conditions continue.
The crops of 1943, 1944, and 1945 do not conform at all to the normal relationship for the 1930-42 period. In 1943 a crop 76 per cent greater than the previous year sold for a price 42 per cent greater than the previous year. In 1945 a somewhat similar situation occurred. But in 1944 a smaller crop sold for considerably less than the general supply-price relationship would indicate.

It is expected that the pre-war relationship between production and price changes will again prevail after adjustments from abnormal wartime economic conditions have taken place.

Comparison of Actual and Estimated Sweet Potato Prices

As shown previously, the price received by Louisiana sweet potato growers is largely determined in normal years by two factors, namely, the size of the Louisiana sweet potato crop and the price level of all

Prices received by growers tend to be lower when crops are large, but the relationship is not consistent. Other factors, mainly consumer purchasing power, obscure the normal supply-price relationship; therefore price cannot be estimated accurately from production alone.
farm commodities (consumer purchasing power). The extent to which annual price changes are explained by these two factors is shown in Figures 5, 6, and 7. Estimated prices are based on production and price level changes for the 1930-42 period. The war years are shown to indicate their wide variance from the pre-war normal relationships, but are not included in the analysis.

In Figure 5, the sloping line represents the relationship between sweet potato production and actual prices received by growers. An estimate of price for any year based on production alone would likely be considerably in error. For instance, a crop of about 6 million bushels in 1942 sold for 35 cents more than the line would indicate, while a crop of similar size in 1931 sold for nearly 20 cents less than estimated from

Amount estimated price
differed from actual
price in Fig. 5
(Cents a bu.)

![Graph](image)

**Fig. 6. — Relation of Farm Product Price Level to Differences Between Actual Sweet Potato Prices and Estimated Prices Based on Size of Crop, 1930-42**

(Index of farm prices in U. S. is used here to represent consumer purchasing power. Numbers opposite dots designate the crop year. Differences between actual and estimated prices are from Figure 5. For example in 1942 the actual price of sweet potatoes was $1.12, but the estimated price based on the line of average relationship in Figure 5 was 76 cents, 36 cents lower. This difference is plotted against the U. S. index of farm prices in the figure above.)

When the index of farm product prices is low, there is a tendency for sweet potato price estimates which are based on production alone to be higher than actual sweet potato prices.

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the line of average relationship. Obviously, factors other than the size of the crop caused these variations.

To determine the influence of the general farm price level on sweet potato prices, the differences between actual prices shown by the dots in Figure 5 and the price estimated from the sloping line were tabulated. For example, in Figure 5, a crop of 7.3 million bushels in 1932 sold for an average price of 42 cents per bushel, but according to the line of average relationship a crop of this size should have brought 63 cents a bushel, a difference between actual and estimated price of 21 cents. These differences were plotted against the index of prices of all farm commodities in the U. S. The differences, which are shown by the dots in Figure 6, are grouped along the line of relationship. In other words, changes in the price level of all farm commodities explains, or is associated with, most of the errors in price estimates based on sweet potato production alone. Therefore, sweet potato production in Louisiana and the general level of consumer purchasing power (represented here by the all-farm-commodity price index) accounted for practically all of the year-to-year changes in the prices received by Louisiana sweet potato growers during the 1930-42 period.

The closeness of price estimates based on these two factors to
actual average prices received by growers is shown in Figure 7. Over the 13-year period, the average of the estimated prices was exactly the same as the average of the actual prices. In most of these years errors in estimate amounted to less than 5 cents a bushel. The greatest difference occurred in 1941, a year of rapidly rising consumer incomes and a relatively small crop, when sweet potato prices declined instead of rising as would normally be expected under such conditions. Price estimates based on production and price level have not been accurate during the unusual economic conditions existing since 1942. With a return to economic normalcy these two factors are again likely to be the main factors causing sweet potato prices to change from one crop season to the next.

Other Factors Affecting Long-Time and Year-to-Year Changes in Sweet Potato Prices

Factors other than size of crop and price level no doubt have some effect on the level and movement of sweet potato prices. For example, the industry-wide advertising program in Louisiana has done much to bring Louisiana sweet potatoes to the attention of consumers in the large markets of the country. The promotional activities of progressive shippers in developing new markets and expanding established ones likewise has stimulated demand for Louisiana sweet potatoes and affected prices received by growers. The true effect of advertising and promotional work on prices is difficult to measure. One indication of the effect of these factors is the fact that commercial sweet potato production in Louisiana has increased greatly during the past 20 years and there has been no noticeable downward trend in prices.

In recent years, important new areas in the state have begun to produce large quantities of sweet potatoes for market. It is entirely possible that production will reach higher levels in the future than was attained in prewar years, unless sweet potato acreage declines in those areas having heaviest weevil infestation. Prevalence of weevil, quarantine restrictions, lower sweet potato prices in 1946-47, and a favorable cotton-price outlook for 1947 may result in reduction in sweet potato acreage and production in some areas of South Louisiana.

Another factor that may have some effect on Louisiana sweet potato prices from year to year is the size of the sweet potato crop in other producing areas, such as the New Jersey-Delaware-Maryland area. But judging from the accuracy with which Louisiana prices could be determined in the 1930-42 period by considering only Louisiana production and the general price level of farm commodities, the importance of the
size of the crop in competing areas on prices received by Louisiana growers apparently is not very great. If commercial production of the moist-type sweet potato in other states increases to any great extent, it may become an important factor affecting Louisiana prices.

Some observers are of the opinion that Irish potatoes compete with sweet potatoes for the consumer's food dollar, and the size of the Irish potato crop is a very important factor causing sweet potato prices to change from year to year.4 When the unexplained differences between actual and estimated sweet potato prices shown in Figure 7 were plotted against Irish potato production, no consistent relationship appeared, suggesting that Irish potatoes do not compete directly with sweet potatoes, at least not to such an extent that sweet potato prices are affected noticeably in years of large or small Irish potato crops. Abrahamsen, in a study of consumer preferences for sweet potatoes, found that about two-thirds of the consumers interviewed thought that sweet potatoes replaced other items of food, but of the foods replaced, Irish potatoes ranked lower than bread.5

![Graph](image)

**Fig. 8. — Seasonal Increase in Farm Price of Louisiana Sweet Potatoes, 1931-44**

(Nov. price = 100 per cent)

June prices averaged 41 per cent higher than November prices during the 14-year period. The increase from month to month was fairly uniform, with greatest changes from January to February and from April to May.

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Seasonal Price Changes

Seasonal price movements are important to growers in deciding whether to sell their sweet potatoes at digging time or to store part or all of their crop, and how long to store before selling. During the 14-year period 1931-44, prices reached a peak 21 per cent above the season average in August, when supplies were very scarce, then declined as the new crop came in. November was the month of heaviest sales and lowest prices. Prices rose 41 per cent from November to June, an average of about 6 per cent a month (Figure 8). The average change from month to month was fairly uniform, with increases from January to February and from April to May greater than in other months.

The average seasonal price pattern for years of small crops differed somewhat from the pattern in years of large crops (Figure 9). In the six years of smallest crops during the 1931-44 period, prices increased 23 per cent from November to February, compared with an average of 17 per cent during the same months in 8 years of larger-than-average crops. However, for the entire season, November to June, prices rose more in large crop years. Seasonal price changes are closely related.

Fig. 9. — Seasonal Increase in Farm Price of Louisiana Sweet Potatoes During Years of Large and Small Crops, 1931-44

( average of 100 per cent)

Prices rose more from November to June in years of large crops than in years of small crops. Prices in small crop years rose more until March.

*This analysis of seasonal price movements points out what has happened in past years, but does not fully cover the reasons for the differences in seasonal price patterns from year to year. A subsequent report will present a more complete analysis of these seasonal price changes. One limiting factor in analyzing seasonal prices and predicting future trends is the lack of data on storage holdings in Louisiana and other states. Such data are available for Irish potato holdings and are valuable in appraising future supply and price conditions for Irish potatoes.
to changes in the volume of sweet potatoes marketed. For example, in years of relatively large crops, the price increased only slightly from November to December because of the longer time necessary to move the large crop into market channels. Since smaller crops move faster, the price increase from November to December was greater in short crop years. After March, the size of the crop harvested the previous fall apparently is normally not reflected in the seasonal price pattern, because price increases from March to June in large crop years exceeded increases during years of small crops. One factor that may account for this difference is the higher proportion of the crop shipped late in the season in short-crop years. For example, in 6 years of relatively small crops 18 per cent of the season’s shipments were made in April, May, and June, while in 8 years of relatively large crops only 13 per cent of the shipments were made in these months. These figures indicate that there was a tendency for those growers and shippers who store sweet potatoes to place about the same quantity in storage each year for late season sale, regardless of whether the crop was large or small.

Average seasonal price changes lose much of their meaning when individual years are compared with the average. For example, while

Fig. 10. — Seasonal Increase in Farm Price of Louisiana Sweet Potatoes During 6 Years of Small Crops
(Oct. price = 100 per cent)

The variations from year to year in the seasonal price pattern are so wide that the average price change can only be used as a rough indication of what may occur during any particular season.
the average increase from November to February in large crop years was 17 per cent, the increase in some years was as much as 39 per cent, and in others there was no increase at all. In years of small crops there was a tendency for individual years to conform more closely to the average seasonal price movement, but even in these years the variations were often large (Figure 10). Because of these wide differences from season to season, the average seasonal increase over a period of years is not a very reliable guide in predicting the price trend in any particular season.

It appears from the experience of those storing sweet potatoes that over a period of years seasonal price increases have been sufficiently large to more than cover storage costs. Therefore, a grower would likely profit in the long run by storing his crop, but he could reasonably expect heavy losses in some years. Growers who do not have the financial resources to weather these unfavorable years should exercise caution in building expensive storage houses or storing a large proportion of their crop. Many growers hedge against possible heavy losses by selling a portion of their crop at digging time and storing the remainder in hopes of more favorable prices later in the season.

Summary, Conclusions, and Outlook

Long-time trends in sweet potato prices are important in making decisions where long-time investments, such as building a storage house, or major changes in the farm or business organization are concerned.

Since 1909 sweet potato prices in Louisiana have ranged from a high of $1.80 per bushel in 1924 to a low of 42 cents in 1932. The 38-year average is 93 cents. Periods of high prices were during World Wars I and II and the middle 1920's. The 1930's were years of below-average prices.

Sweet potato prices follow the general movements of all farm commodity prices because sweet potato prices, like the prices of other products, are affected by changes in the level of consumer purchasing power. If anticipated farm commodity price declines materialize, it is reasonable to expect lower sweet potato prices.

While the purchasing power of consumers (reflected in the price level of all farm commodities) will largely determine the general level of sweet potato prices, the long-time market position of Louisiana sweet potatoes, and consequently their price, can be improved by the continued efforts of the industry to increase consumer demand for Lou-

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7 Storage costs include both direct and indirect costs, such as fixed charges on the storage house, interest, and losses due to spoilage and shrinkage.
isiana sweet potatoes, and to provide consumers with the type and quality of product which they desire and are willing to pay for. An increased consumer demand will permit the marketing of more sweet potatoes at favorable prices.

The relationship between size of crop and farm price has been such in the past that large sweet potato crops have been of greater total value to the industry than small crops.

**Year-to-year changes** in sweet potato prices are largely the result of changes in the size of the crop, after allowance has been made for general farm commodity price level conditions. The usual relationship between production and price of pre-World War II years has not existed since 1942 because of abnormal economic conditions. It is not expected that 1942-46 conditions will prevail very much longer.

Other factors, such as the size of the Irish potato crop, apparently have little direct effect on year-to-year changes in sweet potato prices.

**Seasonal Price Changes** — The seasonal increase in sweet potato prices averaged 25 per cent from November to March, and 41 per cent from November to June, during the 14-year period 1931-44. Prices increased somewhat uniformly at an average rate of 6 per cent a month. However, the variations from year to year are so great that average increases over a period of years cannot be used as a reliable guide in predicting the movement for any particular season.

Over a period of years it appears that seasonal price increases more than offset storage costs, but this may not hold true in any given year. Consequently, storing sweet potatoes is somewhat of a speculation, and growers who are not financially able to stand occasional heavy losses should weigh with caution decisions regarding storage of their crop.

**Sources of Data**

Data on sweet potato prices and production and Irish potato production are from releases of the U. S. D. A. Crop Reporting Service and from "Agricultural Statistics." The index of prices of all farm commodities in the U. S. is from the "Monthly Labor Review," published by the U. S. Bureau of Labor Statistics.