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Potato Price Trends (1910-1925)
Michigan State University Extension Service
J.T. Horner
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Extension Bulletin No. 46

March, 1926

POTATO PRICE TRENDS

(1910-1925)

MICHIGAN STATE COLLEGE
Of Agriculture and Applied Science

EXTENSION DIVISION

R. J. BALDWIN, Director

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This bulletin is a contribution from the
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This is the first extension bulletin dealing with prices and methods of measuring price changes. From time to time, others will appear dealing with different commodities and economic problems of the farmer.

A vast amount of reliable data is gathered and analyzed by different bureaus and departments of the United States government, state departments, and state colleges and universities. It is proposed in this series of bulletins to gather from these various sources information which is of immediate interest to Michigan farmers.

POTATO PRICE TRENDS

J. T. HORNER

One of the characteristics of prices of most products, especially raw materials and unbranded goods, is that of change. Prices of potatoes, beef, milk, silk, cotton goods, shoes, furniture, hats, and the thousands of other articles which enter into the channels of trade change from day to day, month to month, or year to year.

The cause of price changes is one of the most troublesome questions of our economic life. If prices could be controlled or kept within certain limits, many of our economic ills could be prevented. Sudden price changes cause many hardships which must be borne alike by producers and consumers.

Economists today are concerned with the causes of and extent of price changes and methods by which they may be controlled. The causes for price changes are numerous and it is not always easy to determine just to what extent the various factors influence prices. Much has been done during the past twenty-five years to study causes of price changes in a statistical way.

HOW PRICE CHANGES ARE MEASURED

The extent of price changes can be measured in a definite manner. The device by which price changes are measured is called a PRICE INDEX NUMBER. The changes in the price of butter, or wool, or wheat, or fluid milk, or hay, or beans, or potatoes can be very readily followed by simply comparing the prices of any one of these at one date with those of another date. But if we want to know about price trends for a group of agricultural products, such as, dairy products, grains, livestock, fruits and vegetables, or all agricultural products taken together we cannot compare these different price series in the simple way shown above for it is impossible to compare correctly prices of pounds, tons, gallons, bushels, and hundred-weights. Whenever price trends for several products are desired, therefore it is necessary to reduce prices to percentages. These percentages are called index numbers.

Prices for the period with which comparison is to be made are called 100 per cent and prices of future periods expressed in percentages of these basic prices. The period which is used to make comparisons with is called the base period. The world war brought about great changes in industry and agriculture. We are always thinking about the present conditions of business in relationship to what it was before the war. In order to make these comparisons, price index series have been constructed using pre-war prices as the base. The U. S. Bureau of Labor Statistics uses the prices of 1913 as the base, and expresses subsequent prices in percentages of these 1913 prices. For reasons which seem justifiable the U. S. Department of Agriculture

uses the average prices for the period August, 1909, to July, 1914, as the base. All the figures given in this bulletin follow those of the U. S. Department of Agriculture.

Agriculture has gone through some trying times during the past few years. We have heard much about the farmers' thirty cent dollar and have been told of the deplorable situation in which the country man found himself. During the more recent months the general impression has been abroad that the agricultural problem was solved and nothing further needed to be done about the pressing problems which seemed so urgent a year or two ago.

We can usually get a clearer concept of things some time after they have occurred than at close range. Trends in business conditions are not indicative of just what is going to happen. A temporary upswing in price might be mistaken for a turn for permanent betterment. Sufficient time has elapsed since the war for us to view the trends in industry and agriculture in their true light and come to some conclusions about them.

PURPOSE OF THIS BULLETIN

This bulletin is one of the several to be written for the purpose of providing the farmers of Michigan with a brief history of price trends during the past fifteen years and to make a comparison of the present condition of agriculture with that of the beginning of the second decade of the century. All the data here shown are taken from reports of the Bureau of Agricultural Economics, U. S. Department of Agriculture. The figures, together with comments, are presented for the special benefit of Michigan farmers with the belief that in the form of this bulletin they will receive wider circulation and be more readily understandable than in their original form.

In studying the prices of any particular product it should be remembered that price trends must be considered in relation to what they were at some previous time. It is impossible to say that potato prices are high or low upon any certain day. They must be high or low in comparison to what they were at some previous time. We cannot say properly that the price level of agricultural products is in general above or below that of all commodities or of any other group of commodities. But what we can say is that this price level bears a higher or lower relationship to these other price levels than it did at some previous time.

This previous period upon which price comparisons are made is called the **BASE PERIOD**. The base period used in this treatise is the five-year period,—August, 1909, to July, 1914. All comparisons which are made refer back to the average of prices during this five-year period.

It is not sufficient to know that the price of a particular product is higher or lower than it was at some prior time. If we desire to know the relative prosperity of this product we must know how the price level which it shows compares with the price level of other things which the producer buys. The potato farmer would be in a worse relative position than he was before if the things he purchased increased in price more than was the increase in price of potatoes. In order to get at the relative condition of prosperity then, it is necessary to know not only the price of the product which a farmer has to sell but also the prices of the things he has to buy.

Quite unfortunately we do not have index numbers for the retail prices of any products other than food and fuel. In making comparisons, then, it

is necessary to use wholesale price index numbers. These cannot be used absolutely to indicate the gains or losses of the farmer through price shifts because he buys mostly on retail rather than on wholesale markets.

NO SECTIONAL PRICE INDEX NUMBERS

The price index numbers which we have are not for any particular sections of the country or for individual farmers; but for all farmers throughout the United States. These index numbers for non-agricultural commodities further show price trends for all kinds of commodities rather than for those which any individual farmer might be buying. The farm products index number might increase during a certain monthly period because of the increase in the price of a certain product—cotton, for example—; but the financial position of the Michigan farmer would not improve because he would have no cotton to sell. To arrive at the relative increase or decrease in the price level for a particular farmer or section, prices of those products which are sold by this farmer or in this section during that period must be considered. Likewise a decrease in the price of lumber and house furnishing goods might cause the non-agricultural price index number to decrease; but this would have no significance if the farmer did not purchase any of these products. Therefore, in analyzing the trends of prices shown by index numbers and in making comparisons of the purchasing power of farm products, it must be remembered that these items are shown for the country at large and not for any particular farmer or group of farmers. *It is a mistake to use price index numbers to arrive at the degree of prosperity of any certain farmer or community. These devices are for the purpose of showing general trends only.*

POTATO PRICES

The figures which are presented in the following tables indicate the trends of prices for potatoes, for fruits and vegetables, for all farm products and for all non-agricultural products in the United States from 1910 to 1925.

The potato farmer is interested in knowing:

1. The trend of potato prices.
2. The purchasing power of potatoes.
3. The trend of prices and purchasing power of other products which he might grow.

PRICE INDEX NUMBERS—1910-1925

Table A shows the price trends for potatoes, for fruits and vegetables, for all agricultural commodities, for all non-agricultural commodities and for all commodities since January, 1910. Average prices for the first five-year period, August, 1909, to July, 1914, are taken as a base and equal 100. Columns of these kinds do not show actual prices of course but merely percentages of the average price for the base period.

The quantity of potatoes which would have sold on the average for \$1.00 during this base period 1909-1914 would have brought 80 cents in January, 1910, 79 cents in February, 1910, and so on as indicated in column 1. In May, 1920, this same quantity of potatoes would have sold for \$5.85 and \$1.58 in December of the same year. By December, 1922, the price for this same quantity of potatoes had dropped to 84 cents. Seasonal fluctuations, too, are shown through the fact that in May, 1925, the price index number for potatoes was 101 which means that the potato price was one per cent higher than the average price during the base period. But after May potato prices took their usual seasonal upswing. They dropped in September when the new crop began to come onto the market.

The other columns in table A show the relative prices of groups of commodities. Chart No. 1 shows graphically the relative prices of potatoes, fruits and vegetables, all agricultural products, and all non-agricultural products during the period of time under study. It will be noted that potato prices fluctuate very much more than others—reaching both the highest and the lowest points. From a study of these prices and price trends the potato farmer will learn that he is engaged in a very uncertain business; a business in which he may expect great profits or great losses depending upon market and upon productive conditions.

PURCHASING POWER OF POTATOES

The relative purchasing power of a product is determined by comparing the price level of the product with the price level of that for which it is to be exchanged. For example, if on a certain date the price of wheat equaled that of corn, one bushel of corn would buy one bushel of wheat; but if during the next year the price of wheat doubled and the price of corn remained the same, corn would buy only one-half as much wheat as it would at the previous time. It could be said, then, that the purchasing power of wheat in terms of corn had doubled and that the purchasing power of corn in terms of wheat was only 50 per cent of what it was formerly.

Referring again to table A it will be noted that the price index number for potatoes in January, 1915, was 72 while the price index number for all non-agricultural products was 95.6. The purchasing power of potatoes in January, 1915, in exchange for non-agricultural products would be determined by dividing the price index number of potatoes by the price index number of non-agricultural products. The result is 75. This means that a bushel of potatoes would buy only 75 per cent or three-quarters of the quantity of non-agricultural products in January, 1915; that it would on an average during the period from August, 1909, to July, 1914.

The relative purchasing power of potatoes, fruits and vegetables, and all agricultural products in exchange for non-agricultural products is shown in table B. This is also shown graphically in Chart 2. By examining this chart it will be noted that the relative purchasing power of potatoes fluctuates quite widely. The high points on this chart indicate the periods of relative prosperity for the mass of the potato farmers. The very profitable prices for the crop of 1919 were followed by a low price for the 1920 late crop. There was a partial recovery for the 1921 crop. Since early 1922 the purchasing power of late potatoes never reached its relative position of the five-year (Aug., 1909-July, 1914) period until the fall of 1925. A study of

the conditions tends to show that there is more of a tendency for high production and low prices than a shortage with the consequent high prices.

By examining table B it will be noted that the relative purchasing power of potatoes, in September, 1925, was 107 as compared with the five-year base period while that for all fruits and vegetables was only 87 and for all agricultural commodities was only 88. This means that, generally speaking, the potato farmer was relatively better off in that month than the average farmer.

RECENT PRICE INCREASES

Since September of this year, 1925, there has been a rapid rise in the potato price. Table C shows the movement of prices of Michigan potatoes on the Pittsburgh market. It will be noted that the high point was reached the early part of November and was followed by a moderate decline. This price increase has been greatly to the advantage of the potato grower provided he had his potatoes harvested and could place them on the market. This price increase was due to the shortage in the crop and the weather damage to potatoes still in the field which threatened the unharvested supply. While the 1925 fall price was very good it must not be forgotten that income depends upon something other than price. The increased price was of no benefit to the farmer who had his potatoes in the field. Volume of production has a great influence on price, and without a doubt the quantity of marketable potatoes during a season is the most important price influencing factor. From a study of the statistics of potato production and marketing it appears that whenever the annual production is materially above $3\frac{1}{2}$ bushels per capita a low price will prevail and a lower production will be followed by relatively good prices. Unusual conditions such as prevailed during the war will, of course, have their influence.

General industrial conditions have an influence on the prices of potatoes; but the most important factor is the quantity which is available for market. This quantity depends upon the acreage planted, the yield per acre, and the loss in storage and handling.

CONCLUSIONS

The farmer who grows potatoes must not forget that he is engaged in a very speculative business and should overcome the temptation to plunge. It is too early to tell just what the price trend will be for the balance of this marketing season. It is very probable, however, that prevailing prices will tend to encourage too large a 1926 acreage for profitable operations for the average farmer.

There is a lot more to the profit element of agriculture than price. The farmer who gives strict attention to his costs and the production of quality will be able to make a little profit each year, or at least keep losses very low, and when high price years come will be able to secure a handsome profit. The farmer who can make a profit growing potatoes only in those years when high prices prevail had better go out of the business, for his losses at other times will offset the gain of the unusual profitable seasons.

TABLE "A"
Price index numbers

Year	Potatoes	Fruit and vegetables	All Agr'l commodities	All non-Agr'l commodities	All commodities
1910.....	77	91	103	102.2	102.7
1911.....	114	106	95	95.5	94.7
1912.....	123	110	99	100.3	100.9
1913.....	87	92	100	104.5	101.8
1914.....	98	100	102	97.4	99.9
1915.....	76	83	100	101.1	102.6
1916.....	153	123	117	138.4	129.0
1917.....	271	202	176	182.1	180.3
1918.....	166	162	200	187.6	197.7
1919.....	203	189	209	199.0	210.1
1920—January.....	284	226	219	235.6	237.2
February.....	331	252	221	243.5	236.5
March.....	387	279	222	247.4	238.6
April.....	494	323	230	254.4	249.0
May.....	585	373	235	254.4	251.1
June.....	579	366	234	250.4	247.6
July.....	494	314	224	250.8	245.0
August.....	350	239	200	248.8	235.6
September.....	229	180	194	246.1	230.3
October.....	182	150	178	237.2	215.1
November.....	167	141	158	221.0	199.9
December.....	158	144	140	208.1	182.4
Year.....	353	249	205	241.0	230.2
1921—January.....	144	136	135	196.3	172.9
February.....	129	127	128	185.3	163.0
March.....	116	125	123	176.7	158.2
April.....	105	124	115	170.9	150.5
May.....	97	132	112	168.2	148.1
June.....	98	140	110	163.8	144.1
July.....	148	156	111	158.6	143.6
August.....	219	178	116	155.5	144.0
September.....	220	171	118	156.1	144.0
October.....	187	162	120	158.9	144.1
November.....	168	162	116	161.0	143.3
December.....	157	165	115	160.8	142.3
Year.....	149	148	116	167.4	149.6
1922—January.....	161	159	114	158.4	140.7
February.....	167	173	118	156.1	143.9
March.....	166	181	123	155.1	144.8
April.....	156	190	123	156.1	145.2
May.....	149	206	127	163.8	150.3
June.....	149	197	128	168.2	152.3
July.....	156	174	126	176.6	157.6
August.....	145	129	120	182.1	157.8
September.....	113	109	119	178.6	156.1
October.....	95	101	123	176.4	156.9
November.....	87	101	126	175.2	158.3
December.....	84	104	131	174.8	159.0
Year.....	136	152	124	168.0	151.5
1923—January.....	89	117	134	176.6	158.6
February.....	92	132	136	177.7	159.5
March.....	98	130	136	179.4	161.4
April.....	111	146	137	180.4	161.6

POTATO PRICE TRENDS

Table "A" Concluded

Year	Potatoes	Fruit and vegetables	All Agr'l commodities	All non-Agr'l commodities	All commodities
1923—Concluded.					
May.....	113	157	135	176.1	159.0
June.....	114	161	133	172.4	156.2
July.....	148	165	130	168.8	153.3
August.....	173	151	128	166.7	152.8
September.....	157	131	132	166.9	156.5
October.....	131	123	134	165.0	155.8
November.....	118	114	136	163.2	154.8
December.....	117	114	137	162.0	153.7
Year.....	122	136	135	171.3	156.5
1924—					
January.....	124	118	137	163.7	153.9
February.....	126	123	136	166.3	154.4
March.....	126	123	131	165.8	152.6
April.....	131	128	130	163.7	151.0
May.....	131	132	129	161.8	149.6
June.....	144	146	130	159.3	147.1
July.....	156	142	132	158.4	149.7
August.....	160	138	139	158.9	152.4
September.....	116	113	132	158.2	151.8
October.....	99	109	138	158.1	154.6
November.....	92	108	137	160.2	155.4
December.....	92	110	139	162.8	159.8
Year.....	125	124	134	161.6	152.4
1925—					
January.....	101	122	146	164.7	162.9
February.....	104	131	146	167.3	163.5
March.....	102	138	151	165.4	163.9
April.....	101	146	147	162.3	159.0
May.....	101	162	146	161	158.
June.....	121	184	148	163.	160.
July.....	180	178	149	164.	163.
August.....	223	178	152	164.	163.
September.....	174	142	144	163.	163.
October.....	180	152	143	164.	160.
November.....	285	194	144	166.	160.
December.....	289	194	143	165.	159.

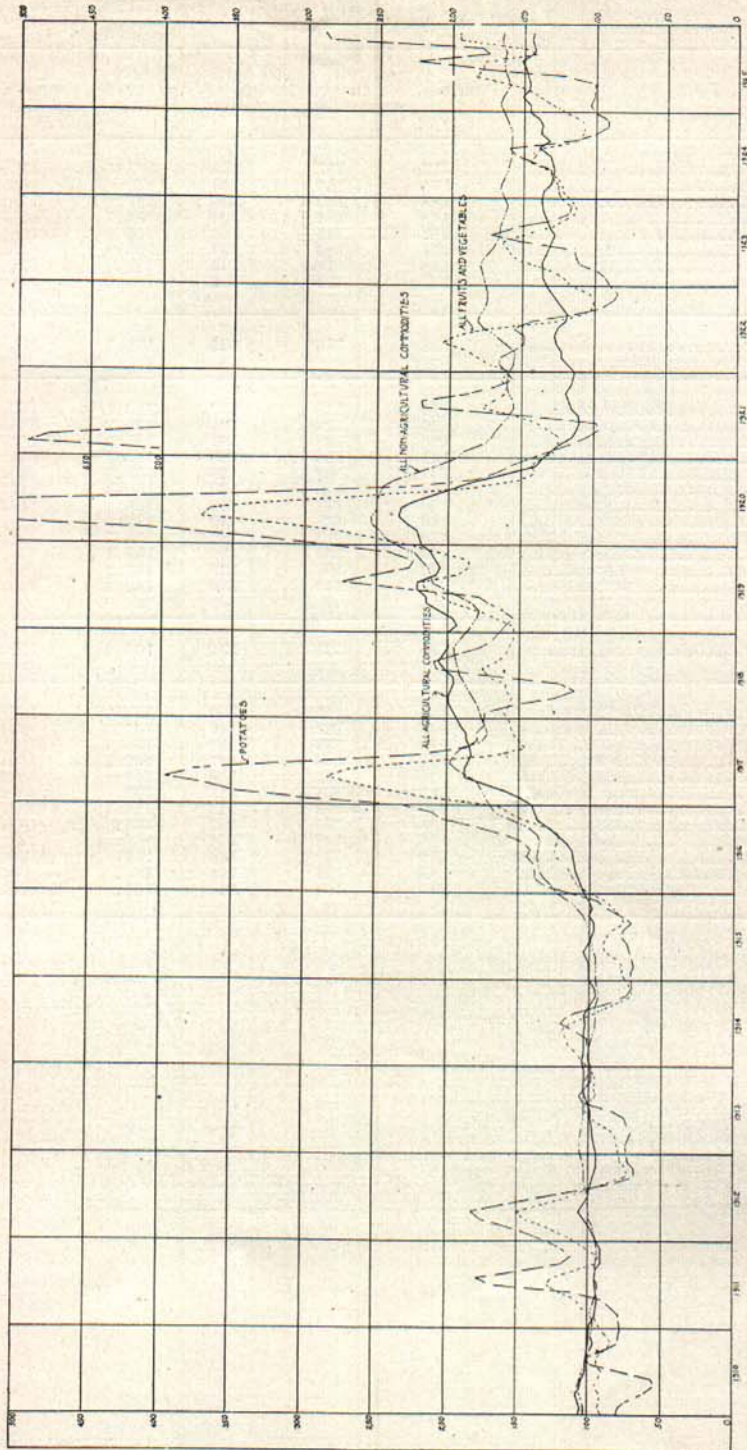


CHART 1.

Index price numbers of potatoes, fruits and vegetables, all agricultural commodities, and all non-agricultural commodities. 1910-1925. (The price index series for potatoes is the average farm price in the U. S. The other series are wholesale prices for the U. S.) (The data from which this chart is made are contained in Table A. of this bulletin, and were taken from "Agricultural Situation," published by the Bureau of Agricultural Economics, U. S. D. of A., Washington, D. C.)

POTATO PRICE TRENDS

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TABLE "B"

Relative purchasing power in exchange for non-agricultural products
August 1909—July 1914=100.

Year	Potatoes	Fruits and vegetables	All Agr'l Com- modities
1910.....	76	89	101
1911.....	119	111	99
1912.....	123	109	99
1913.....	83	88	95
1914.....	101	102	105
1915.....	76	82	99
1916.....	111	89	85
1917.....	149	111	97
1918.....	88	86	107
1919.....	102	95	105
<hr/>			
1920—January.....	121	96	93
February.....	136	103	91
March.....	156	113	90
April.....	194	127	90
May.....	230	147	92
June.....	231	146	93
July.....	197	125	90
August.....	141	96	84
September.....	93	73	79
October.....	77	63	75
November.....	76	64	72
December.....	76	69	67
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Year.....	147	103	85
<hr/>			
1921—January.....	74	69	69
February.....	70	68	69
March.....	66	71	70
April.....	61	73	67
May.....	58	79	66
June.....	60	85	67
July.....	94	98	70
August.....	141	114	74
September.....	141	109	75
October.....	118	102	75
November.....	104	101	72
December.....	98	102	72
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Year.....	89	88	69
<hr/>			
1922—January.....	102	100	72
February.....	107	111	76
March.....	107	117	79
April.....	100	122	79
May.....	91	126	78
June.....	88	117	76
July.....	89	99	71
August.....	80	71	66
September.....	63	61	66
October.....	54	57	70
November.....	50	58	72
December.....	48	60	75
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Year.....	81	90	74
<hr/>			
1923—January.....	50	66	76
February.....	52	69	76

Table "B" Concluded

Year	Potatoes	Fruits and vegetables	All Agr'l Commodities
1923— <i>Concluded.</i>			
March.....	55	72	76
April.....	62	81	76
May.....	64	89	77
June.....	66	94	77
July.....	87	98	77
August.....	104	91	77
September.....	94	79	79
October.....	80	74	82
November.....	72	70	83
December.....	72	70	85
Year.....	71	79	79
1924—January.....	76	72	84
February.....	76	74	82
March.....	76	74	79
April.....	80	78	80
May.....	81	82	80
June.....	91	92	82
July.....	99	90	83
August.....	100	87	87
September.....	74	71	83
October.....	62	69	87
November.....	57	67	86
December.....	56	68	85
Year.....	77	77	83
1925—January.....	61	74	88
February.....	62	78	88
March.....	62	84	91
April.....	62	90	90
May.....	63	100	90
June.....	74	113	91
July.....	110	108	91
August.....	133	109	93
September.....	107	87	88
October.....	112	92	87
November.....	177	117	87
December.....	182	118	87

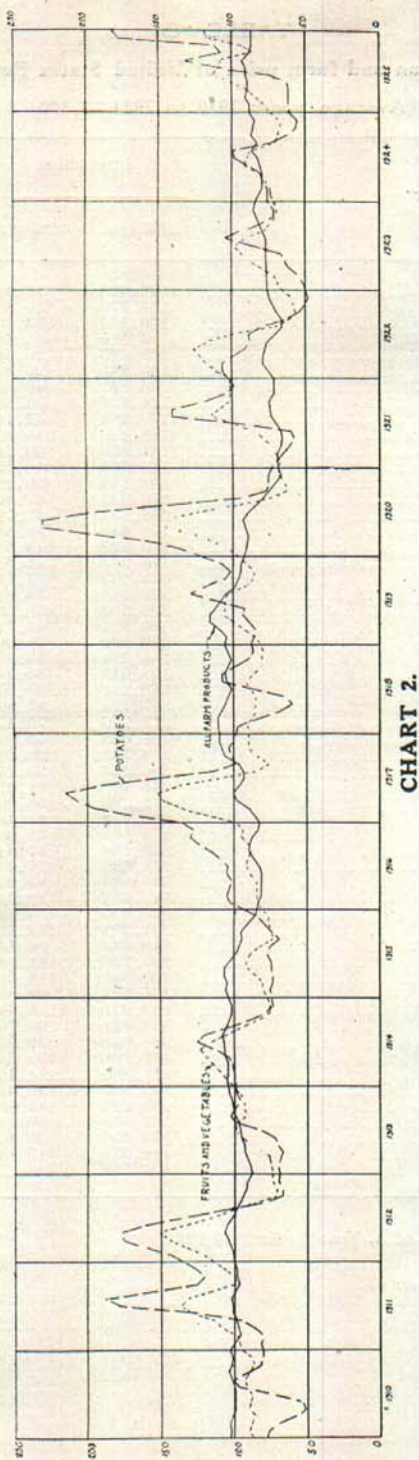


CHART 2.

Purchasing power of potatoes, fruits and vegetables, and all farm products, 1910-1925. (The data from which this chart is made are contained in Table B of this bulletin, and were taken from "Agricultural Situation", published by the Bureau of Agricultural Economics, U. S. D. of A., Washington, D. C.

TABLE "C"
 Production and farm price of United States Potatoes.
 (Average, years 1910 to 1924 = 100)

Year	Production		December farm price	
	1000 bus.	Index	Cents	Index
1869	133,886	37.11	42.9	70.67
1870	114,775	31.8	65.0	107.08
1871	120,462	33.39	53.9	88.79
1872	113,516	31.46	53.5	88.13
1873	106,089	29.40	65.2	107.41
1874	105,981	29.37	61.5	101.31
1875	166,877	46.25	34.4	56.67
1876	124,827	34.60	61.9	101.97
1877	170,092	47.14	43.7	71.99
1878	124,127	34.40	58.7	96.70
1879	181,626	50.34	43.6	71.82
1880	167,660	46.47	48.3	79.57
1881	109,145	30.25	91.0	149.91
1882	170,973	47.40	55.7	91.76
1883	208,164	57.70	42.2	69.52
1884	190,642	52.84	39.6	65.23
1885	175,029	48.51	44.7	73.64
1886	168,051	46.58	46.7	76.93
1887	134,103	37.17	68.2	112.35
1888	202,365	56.09	40.2	66.22
1889	201,200	55.76	35.4	58.31
1890	150,494	41.71	75.3	124.05
1891	256,122	71.00	35.6	58.64
1892	164,516	45.60	65.5	107.90
1893	195,040	54.06	58.4	96.21
1894	183,841	50.95	52.9	87.14
1895	317,114	87.89	26.2	43.16
1896	217,769	75.32	29.0	47.77
1897	191,025	52.94	54.2	89.29
1898	218,772	60.63	41.5	68.36
1899	260,257	72.13	39.7	65.40
1900	247,759	68.67	42.3	69.68
1901	198,626	55.05	76.3	120.26
1902	293,918	81.46	46.9	77.26
1903	262,053	72.63	60.9	100.32
1904	352,268	97.64	44.8	73.80
1905	278,885	77.30	61.1	100.65
1906	331,685	91.93	50.6	83.36
1907	322,954	89.51	61.3	100.98
1908	302,000	83.70	69.7	114.82
1909	394,553	109.36	54.2	89.29
1910	349,032	96.74	55.7	91.76
1911	292,737	81.14	79.9	131.63
1912	420,647	116.59	50.5	83.19
1913	331,525	91.89	68.7	113.17
1914	409,921	113.62	48.7	80.23
1915	359,721	99.70	61.7	101.64
1916	286,953	79.53	146.1	240.69
1917	442,108	122.54	122.8	202.30
1918	411,860	114.16	119.3	196.54
1919	322,867	89.49	159.5	262.76
1920	403,296	111.78	114.5	188.63
1921	361,659	100.24	110.1	181.40
1922	453,396	125.67	58.1	95.71
1923	416,392	115.41	78.1	128.66
1924	454,784	126.05	*64.3	105.93

*Preliminary estimate.
 (Data taken from U. S. D. of A. Year Books 1923-1924.)

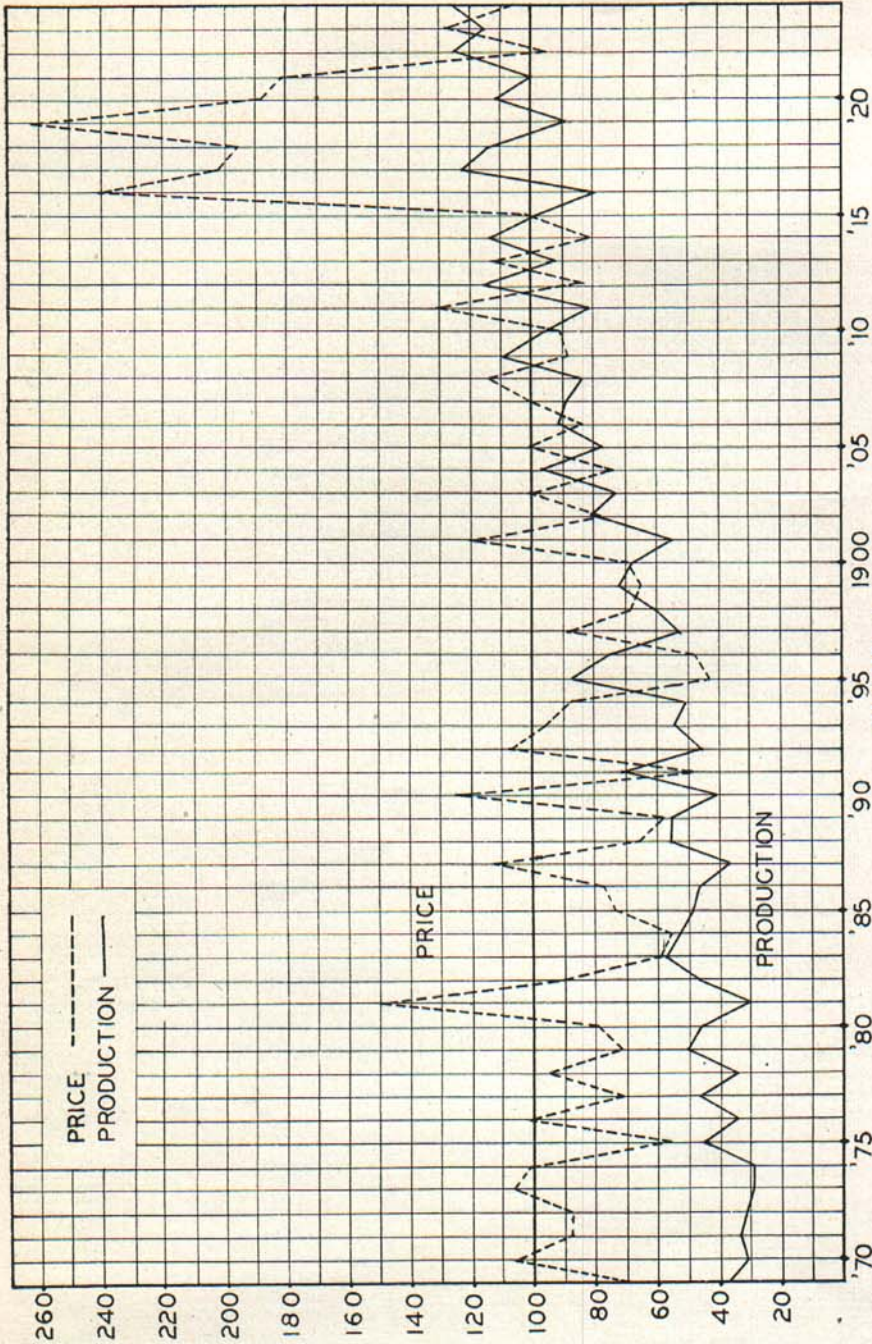


CHART 3.

This chart and Table "C" show the variation in the production and price of potatoes by years from 1869 to 1924. Average, years 1910-1914 = 100.

