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# Wheat Price Programs:

## EFFECTS AND IMPLICATIONS FOR OHIO

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# WHEAT PRICE PROGRAMS: EFFECTS AND IMPLICATIONS FOR OHIO

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## CONCLUSIONS

Significant conclusions are summarized as follows:

1. Federal Government price support and production control programs have limited wheat production in Ohio.

2. The legislative provision which permits farmers with allotments of fifteen acres or less to grow this many acres without penalty limits effective production control.

3. Many farmers do not understand objectives of Government price support and production control programs.

4. Farmers value freedom to make production decisions more than they value high incomes.

5. Total and per capita demand for soft red winter wheat is increasing and is likely to continue to increase while the same factors for all wheats are declining and will likely continue.

6. Soft red winter wheat production is declining relative to total U. S. wheat production.

7. If the Federal Government is to continue supporting wheat prices consideration needs to be given to varying the program for the soft red type.

Wheat production in Ohio has been limited by the program as was shown by the fact that 59 percent of the farmers surveyed indicated they would increase acreage the following year even if they knew the resulting price would be as much as 10 percent less with a larger acreage. In central and western Ohio, the important wheat producing area of the state, three-fourths of those interviewed indicated they would increase acreage. Approximately one-third of those planned to increase acreage from 30 to 60 percent. Some authorities believe that reduced acreages are associated with improved management practices, the end result of

which is less reduction in production than indicated by acreage reduction. Although there perhaps may be some truth in this thought, the survey did not substantiate it.

The provision in the law which permits farmers having allotments of 15 acres or less of wheat to grow up to 15 acres without penalty, limits effective total production control. Sixty-eight percent of the farmers interviewed had one or more allotments of less than 15 acres. A total of 58 percent of this group overplanted their allotment. Although there was also some underplanting of allotments, the overplanting exceeded underplanting by an amount equal to 4 percent of the total wheat acreage in the sample. Some believe this to be a small and unimportant figure but when it is associated with a commodity with an inelastic demand (such as wheat), the price consequences may be quite substantial. If effective production control is a desired objective, consideration needs to be given to tightening this provision in the legislation.

Many farmers do not understand objectives of price support and production control programs. Many apparently are unaware of the fact that the demand for wheat is inelastic and that one method to increase income is to restrict overall production and supply. Some seem to believe there is some ulterior motive on the part of the Government in promoting production control programs. This indicates a need for a strong educational program to accompany future price support and production control programs.

Farmers value freedom to make production decisions more than they value high incomes. When asked what type of Government program they preferred, a majority indicated a preference for "no government program, price determined by supply and demand." When questioned further about how low wheat prices could fall before they would accept marketing quotas, approximately two-thirds of this group indicated they would be unwilling to accept them at any level.

Both total and per capita demand for soft red winter wheat is increasing and is likely to continue to increase while both total and per capita demand for all wheats is declining and will likely continue to decline. Per capita consumption of all wheat flour declined from 155 pounds in 1942 to 127 pounds in 1955. Projecting this trend indicates a figure of 105 pounds in 1965. If we assume a minimum rate of population growth, total consumption of all wheat will likely decline approximately 36 million bushels to a total of about 459 million by 1965. If on the other hand, a maximum rate of population growth is assumed, total consumption will likely decline approximately 18 million bushels. The picture for soft red winter wheat is quite different. Even if a minimum rate of population growth is assumed, total consumption

of this type of wheat will increase about 34 million bushels during the ten year period. If a maximum rate of population growth is assumed, the increase from 1955 will be about 40 million bushels making a total of 136 million bushels.

Soft red winter wheat production is declining relatively in the U. S. During the decade of the1930's, production of this type wheat accounted for approximately 25 percent of total wheat production. During the first half of the decade of the 1950's, it accounted for less than 18 percent of total production.

If the Federal Government is to continue supporting wheat prices, consideration needs to be given to varying the program for the soft red type. A program designed to restrict production of a product for which the demand is declining does not seem to be entirely suitable for a product for which the demand is apparently increasing. One suggestion which might be worthy of consideration is a program encompassing less restrictive acreage restrictions in the soft red winter wheat area. This and the other conclusions are based on the assumption that further study indicates findings in this study are essentially correct. They are also based on the assumptions that the degree to which other wheats may be substituted for soft red will not change greatly and that geographic areas of production will remain relatively constant. Present technology permits only limited substitution in usage.

## PAST GOVERNMENT PRICE PROGRAMS (1)

Ohio farmers and farmers throughout the United States have been participating in various Federal Government farm price programs in recent years. Actually the government began to come into the farm picture in an important way during World War I. At that time two farm commodities, wheat and hogs, were supported at minimum prices. The objective then was to encourage farmers to increase production to "help win the war and win the peace."

During the depression years of the 1930's, Government activity in agriculture increased. In this period, however, the objective was not to encourage production but to limit production as a means of stabilizing and raising farm prices.

World War II was a period in which government activity in agriculture continued to increase and the policy objective reverted to the one in effect during World War I, namely increasing production to win the war and win the peace. During the war, United States farmers greatly increased production of almost all commodities including wheat. After

the war, this increased production was the incentive for government programs to again revert to a policy designed to stabilize and raise farm prices by means of production adjustment. Basically this same policy is in effect today.

## ECONOMICS OF PRICE SUPPORT PROGRAMS

Price support programs including the wheat program have been centered around the idea that if farmers limit production and the government guarantees minimum prices, total income to farmers will be greater than if there is unlimited production and no price guarantees. From an economic viewpoint, this idea is logical because the demand for wheat is considered to be relatively inelastic. An inelastic demand means that when supply is increased or decreased a certain percentage, the resulting percentage price change will be greater than the percentage change in supply (most believe the elasticity of demand for wheat is approximately 0.2 although this figure would vary for individual classes). Assuming the above figure is correct, it indicates that for each one percent change in the supply of wheat, the price of wheat will change 5 percent in the opposite direction in a given demand situation.

As an example of inelasticity, when the supply of wheat in the United States is one billion bushels and the price to farmers is $1.80 per bushel the resulting total gross income to wheat producers is 1.8 billion dollars. For purposes of analysis, assume the supply of wheat changes to 1.1 billion bushels. This represents a 10 percent change in supply. The resulting price change would then be 50 percent ($5 \times 10$) or a price of $ .90 per bushel. A price of $ .90 per bushel and a supply of 1.1 billion bushels would result in a total gross income to wheat producers of 990 million dollars (1.1 billion bushel times $ .90 per bushel). This represents 810 million fewer dollars for United States wheat producers associated with a 10 percent increase in supply.

The preceding figures are hypothetical and they assume both a constant demand for wheat and the elasticity to be the same at all price levels. Although they are hypothetical they should not be considered exorbitant. They typify one important reason why there is a farm price and income problem. The fact that the demand for most farm products, and especially wheat, is inelastic represents the economic logic back of all government price support programs designed to raise farm prices and income by means of production controls. Specific programs are briefly described below.

## FEDERAL FARM BOARD, 1929

The Federal Farm Board was established under provisions of the Agricultural Marketing Act of 1929 and the board was given 500 million dollars with which to work. The act provided that the board enter the price support field by guaranteeing minimum prices for certain farm commodities including wheat. Purpose of these activities was to stabilize and perhaps raise wheat prices through storage programs. The thought was that wheat could be purchased on the open market and stored, thus reducing the supply of wheat and as a result raising the price. At some later date, stored wheat could be sold on the open market.

To wheat farmers, activities of the Federal Farm Board represented a minimum guaranteed price for their wheat, and as a result they responded in a rational manner and increased their production of wheat. This action on the part of United States wheat farmers soon resulted in a loss of most of the 500 million dollars. Hindsight tells us that the economic lesson to be learned from Federal Farm Board activities is that some attempt should have been made to control production if prices were to be guaranteed at a minimum level. When production is not controlled, farmers increase production to take advantage of the guaranteed price, thus making the price support program costly to the government.

## AGRICULTURAL ADJUSTMENT ACT OF 1933

This act was the first major piece of farm legislation passed during the early days of the "New Deal" program. Legislators, having learned a lesson from Federal Farm Board activities, the Act of 1933, provided for having the Federal Government pay farmers to limit production of certain animals and crops including wheat. Methods used for limiting production were rather crude and, specifically in the case of wheat, they involved plowing it under. Thus, the idea again was to limit production and thereby increase prices and income to wheat producers. This was to be accomplished in two ways. The direct payment from the Government for plowing under the wheat would raise income to the farmer in the amount of the payment. Also, since wheat production (theoretically at least) would be limited because of acreage plowed under, the supply would be decreased and as a result wheat prices would increase. Payments to farmers were made from money collected through a processing tax which was levied against the first handlers of wheat. The government had not yet started dipping into the Federal Treasury to get money with which to pay farmers for controlling production.

The parity price idea was discussed in this statute but no specific statement was made regarding the exact level at which wheat prices should be supported. Instead the act stated that farmers should generally be guaranteed prices which were "fair and just" in relation to a base period. The base period included August, 1909 to July, 1914.

This act, commonly known as the AAA of 1933, was in effect until January, 1936. At this time, the Supreme Court declared the act to be unconstitutional because it said this legislation represented an attempt to control farm production. The Court indicated that since the Constitution did not specifically provide for the Federal Government to control agricultural production, this power, by implication, remained in the hands of the various state governments.

## SOIL CONSERVATION AND DOMESTIC ALLOTMENT ACT OF 1936

This act was passed in February, 1936, only one month after the AAA of 1933 had been declared uncontitutional by the Supreme Court. Its stated purpose was "to promote the conservation and profitable use of agricultural land resources by temporary Federal aid to farmers and by providing for a permanent policy of Federal aid to states for such purposes." Actually, this act provided for paying farmers to shift land from soil depleting to soil conserving practices. It was only incidental that the soil depleting crops were those which were also in surplus at the time. Most authorities agree that the intended purpose of this act was no different than the intended purpose of the Act of 1933. It was necessary, however, to change methods because of the Supreme Court decision.

The difference in method concerned the fact that farmers under this act were paid to reduce acreages of those crops which were in surplus and increase acreages of soil conserving crops (wheat, being a soil depleting crop was included). This technique raised individual farm income in the amount of the payment. Indirectly, this adjustment also reduced acreages of land used for crops in surplus and as a result, at least theoretically, should have had a price increasing effect for these particular crops. Thus, the intent of this act was apparently the same as the act mentioned above, namely to increase farm prices and farm income.

Under provisions of this Act the processing tax was discontinued and the Federal Treasury was used for the first time as a source of funds for supporting farm prices.

## AGRICULTURAL ADJUSTMENT ACT OF 1938 AND AMENDMENTS

Many of the provisions of this act are still in effect and for this reason it is one of the more important pieces of farm legislation which has been passed during the past half-century. Among other things, it provided that wheat prices be supported at specific percentages of parity. For example, wheat prices were supported at 52 to 57 percent of parity in 1938-40, 85 percent in 1941-43, 90 percent in 1944-54, 82.5 percent in 1955, 82.6 percent in 1956-57, 75 percent in 1958 and 76 percent in 1959. Support has been chiefly through Government Non-Recourse Commodity Loans to producers and purchase agreements.

The Commodity Credit Corporation, to carry out the price-support operations, was created by an executive order of the President in 1933. It was made a part of U.S.D.A. in 1939.

The AAA of 1938 provided for controlling production of wheat by acreage allotments and marketing quotas. Each of these is described below.

**Acreage Allotments**—A National Wheat Acreage Allotment is proclaimed each year by the Secretary of Agriculture. The formula for arriving at the number of acres to be produced takes into account supply of and expected demand for wheat. At the present time, legislation prohibits an allotment of less than 55 million acres for the United States. When the National Allotment is established it is divided among the states on the basis of acreages produced during the previous 10 year period. Likewise state allotments are divided among the counties on the basis of production during the previous 10 years. At the county level, the county allotment is divided among wheat farmers in the county on the basis of production and other considerations during the previous three year period. Producers who stay within their alloted acreages are eligible for price support loans.

**Marketing Quotas**—Quotas are proclaimed only if the total indicated supply of wheat exceeds estimated normal requirements by 20 percent or more. They become effective only if two-thirds or more of the wheat producers vote in favor of quotas in a National Referendum called by the Secretary of Agriculture. In the commercial wheat areas, a farmer's marketing quota is the normal or actual production on alloted acres, which ever is larger.

Farmers who grow 15 acres or less of wheat are partially exempt from marketing quota provisions. Those who stay within their alloted acreage are given Marketing Certificates which permit them to market

their entire crop of wheat. Producers who harvest in excess of their allotment (and who harvest more than 15 acres) are required either to pay a penalty equal to 45 percent of parity on all excess wheat or to store it under seal. (Thirty acres are the limit if it is all fed.)

Marketing quotas have been proclaimed and voted for the crop years, 1941 to 1943 and 1954 to 1960. Quotas for the 1942 and 1943 crops were terminated because of the war emergencies and farmers were permitted to market all excess wheat without penalty.

**Commodity Credit Corporation**—As indicated previously, the Commodity Credit Corporation was created by executive order of the President in 1933 and became an official part of the United States Department of Agriculture in 1939. It is the price supporting agency of the U. S. Government. It carries out its price support operations by one or both of the following methods. They are Non-recourse Loans, and Purchase Agreements.

**Non-recourse Loans:** This is a loan made by the Commodity Credit Corporation to a farmer in the amount of the support price per bushel multiplied by the number of bushels of wheat produced on his acreage allotment. The farmer has the privilege of repaying his loan with a nominal amount of interest by a certain date. He is also permitted to sell his wheat on the open market if the open market price is higher than the government support price. A loan of this type also gives him the privilege of permitting the government to acquire title to the wheat if the loan price of wheat is higher than the open market price. The word "non-recourse" means that the government cannot hold the farmer responsible for any difference between the support price and a lower price in the open market and that the government has no recourse but to take over ownership of wheat at the support price.

**Purchase Agreements:** A purchase agreement is an agreement between the Commodity Credit Corporation and a farmer in which the CCC agrees to purchase a stated quantity of wheat at the guaranteed price at some future date. This method of supporting prices is used less extensively than the method mentioned above. It is, however, used by some farmers who for one reason or another are unable to obtain acceptable storage facilities or by those farmers who do not have an immediate need for cash for their wheat and do not wish to be obligated to pay interest as would be required by acceptance of a non-recourse loan. Also, it is used occasionally by farmers who prefer to postpone their income tax payment from one year to the next.

**TABLE 1.—Support Prices of Wheat, Quantity Pledged for Loan, Controls in Effect, and Exports under International Wheat Agreement and Commodity Credit Corporation Act, United States, 1938-58**

| Year beginning July 1 | Support Price | | Pledged for loan* | Controls in Effect | | CCC Wheat Exported Under IWA and Act† | |
|---|---|---|---|---|---|---|---|
| | Season average | Percentage of parity | | Acreage allotment | Marketing quota | Quantity | Subsidy per bushel |
| | Dollars | Percent | Mil. bushels | Mil. acres | | Mil. bushels | Cents |
| 1938 | 0.59 | 52 | 86 | 62.5 | No | 93 | 28.2 |
| 1939 | .63 | 56 | 168 | 55 | No | 36 | 29.0 |
| 1940 | .64 | 57 | 278 | 62 | No | 22 | 20.5 |
| 1941 | .98 | 85 | 366 | 62 | Yes | 20 | 21.6 |
| 1942 | 1.14 | 85 | 408 | 55 | Yes‡ | 20 | 33.2 |
| 1943 | 1.23 | 90 | 130 | 55‡ | Yes‡ | 2 | 60.4 |
| 1944 | 1.35 | 90 | 180 | § | No | 19 | 28.8 |
| 1945 | 1.38 | 90 | 60 | § | No | 67 | 5.6 |
| 1946 | 1.49 | 90 | 22 | § | No | ---- | ---- |
| 1947 | 1.84 | 90 | 31 | § | No | ---- | ---- |
| 1948 | 2.00 | 90 | 366 | § | No | ---- | ---- |
| 1949 | 1.95 | 90 | 381 | § | No | 141 | 55.1 |
| 1950 | 1.99 | 90 | 197 | 72.8 | No | 266 | 67.0 |
| 1951 | 2.18 | 90 | 213 | 72.8§ | No | 255 | 65.5 |
| 1952 | 2.20 | 90 | 460 | § | No | 242 | 55.5 |
| 1953 | 2.21 | 90 | 557 | § | No | 180 | 47.1 |
| 1954 | 2.24 | 90 | 431 | 62.8 | Yes | 199 | 79.5 |
| 1955 | 2.08 | 82.5 | 321 | 55.8 | Yes | 130 | 73.7 |
| 1956 | 2.00 | 82.6 | 253 | 55 | Yes | 123 | 87.0 |
| 1957 | 2.00 | 82.6 | 256 | 55 | Yes | 128 | ---- |
| 1958 | 1.82 | 75 | 609 | 55 | Yes | 129 | ---- |
| 1959 | 1.81 | 76 | ---- | 55 | Yes | ---- | ---- |
| 1960 | 1.77‖ | 75 | ---- | ---- | Yes | ---- | ---- |

*Includes loans made directly by CCC, loans made by banks and other lending agencies under CCC obligations to purchase, and wheat put under purchase agreement during the crop year. Excludes renewals and extensions of loans on wheat from other crop years.

†Includes exports under the International Wheat Agreement Act since 1949 and Commodity Credit Corporation Act but does not include wheat exported under special financial arrangements and government aid programs.

‡Marketing quotas and acreage allotments were terminated because of emergencies after the winter wheat was planted.

§Secretary of Agriculture, under emergency powers, did not proclaim allotments.

‖Preliminary.

Source: U. S. Agr. Marketing Service. The Wheat Situation, U. S. Prod. and Mktg. Admin. CCC Price Support Statistical Handbook.

## AGRICULTURAL ACT OF 1949

This Act provided for a system of specific flexible price supports. Such a system implies that the support level is decreased as the supply of wheat increases and the support level is increased as the supply of wheat decreases. This act provided for the following schedule of support prices (2).

| Support Level (% of parity) | Supply as a Percentage of Normal | |
|---|---|---|
| | Over | Not over |
| 90 | ---- | 102 |
| 89 | 102 | 104 |
| 88 | 104 | 106 |
| 87 | 106 | 108 |
| 86 | 108 | 110 |
| 85 | 110 | 112 |
| 84 | 112 | 114 |
| 83 | 114 | 116 |
| 82 | 116 | 118 |
| 81 | 118 | 120 |
| 80 | 120 | 122 |
| 79 | 122 | 124 |
| 78 | 124 | 126 |
| 77 | 126 | 128 |
| 76 | 128 | 130 |
| 75 | 130 | ---- |

The above schedule of support prices is designed to discourage wheat production as the total supply of wheat in the U. S. becomes larger. Contrariwise, it is intended to encourage production of wheat as the supply becomes smaller. This assumes price to be a regulator of production in that it encourages farmers to produce more at high prices than at low prices. Of course, it may be that even these lower support prices are high enough above the free price that production is encouraged and not discouraged.

## AGRICULTURAL ACT, 1956, "SOIL BANK"

This Act consisted of two parts, the Acreage Reserve and the Conservation Reserve. The Acreage Reserve provided for producers to enter into formal contracts with the Government in which the farmer agreed to reduce the acreage of wheat by a specified amount. Farmers also agreed not to use the land for any other crop. In return for such agreements, the government reimbursed the farmer for taking land out of production. The rate of payment averaged slightly more than $20 per acre. In some respects, provisions of this act were similar to those

provided by the Soil Conservation and Domestic Allotment Act of 1936. Under provisions of the 1936 Act, the land taken out of wheat production could be used for producing other crops. Under provisions of the Soil Bank Act, it is necessary to take land completely out of production.

The Conservation Reserve Program of the Soil Bank in its original form was designed to reduce production on non-allotment crops. Inasmuch as wheat doesn't fall in this category, it was not included in the Conservation Reserve of 1956 and 1957. Some changes were made in this program in 1958, and beginning in 1959, acreages formerly used for wheat may be placed in the Conservation Reserve. Rate of payment per acre beginning in 1959 is somewhat higher than rates paid in previous years.

## WHEAT SUPPLY AND UTILIZATION TRENDS

The total supply of wheat in the U. S. has been increasing in recent years. Total supply is defined as production, plus carryover from one year to the next, plus imports. During the past 15 years, total production has exceeded one billion bushels in most of the years, and in those when it did not exceed this figure, it was in excess of 900 million bushels. Carryover from one year to the next has also been increasing very rapidly in recent years. Prior to 1940, it was unusual for carryover to exceed 350 million bushels but in 1957 and 1958 it was approximately 900 million bushels and in 1955 and 1956 it exceeded one billion bushels in each year as is true in 1960. Imports of wheat into the U. S. have been almost negligible.

Disappearance describes the purposes for which wheat is used. These uses include food, seed, industrial, feed, military procurement, exports and shipments. The use which shows most variation from year to year is exports. In some years, exports have accounted for over 50 percent of the wheat produced. Since 1945, it has been unusual if exports have not exceeded one-third of the wheat produced. Between 1930 and 1945, only a relatively small proportion of total wheat production was exported.

Although total population in the U. S. has been increasing, the total amount of wheat used for food has been declining gradually. The amount used for this purpose amounts to something less than 500 million bushels each year and in recent years has accounted for less than one-half of the wheat produced.

The specific amounts used for these and other purposes are shown in Table 2. This table shows the overall picture concerning total supply of wheat in the U. S. together with a general picture of how

## TABLE 2.—Supply and Disappearance of Wheat, United States, 1930-58 (3)

| Year beginning July | Supply | | | | Disappearance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Continental United States | | | | | Military procurement | Exports | Shipments | Total |
| | Carryover | Production | Imports | Total | Food | Seed | Industrial | Feed | Total | | | | |
| | Mil. bu. | Mil. bu. | Mil. bp. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. |
| 1930 | 291 | 887 | (1) | 1,178 | 500 | 81 | ____ | 178 | 759 | ____ | 103 | 3 | 865 |
| 1931 | 313 | 942 | (1) | 1,254 | 498 | 80 | ____ | 180 | 758 | ____ | 118 | 3 | 879 |
| 1932 | 375 | 756 | (1) | 1,132 | 508 | 84 | ____ | 131 | 723 | ____ | 28 | 3 | 754 |
| 1933 | 378 | 552 | (1) | 930 | 465 | 78 | (1) | 90 | 633 | ____ | 21 | 3 | 657 |
| 1934 | 273 | 526 | 14 | 813 | 475 | 83 | (1) | 101 | 659 | ____ | 6 | 3 | 667 |
| 1935 | 146 | 628 | 35 | 809 | 490 | 87 | (1) | 83 | 661 | ____ | 4 | 3 | 668 |
| 1936 | 140 | 630 | 34 | 805 | 493 | 96 | (1) | 100 | 689 | ____ | 10 | 3 | 702 |
| 1937 | 83 | 874 | 1 | 958 | 489 | 93 | (1) | 115 | 697 | ____ | 104 | 3 | 805 |
| 1938 | 153 | 920 | (1) | 1,073 | 496 | 74 | (1) | 142 | 712 | ____ | 108 | 3 | 823 |
| 1939 | 250 | 741 | (1) | 991 | 489 | 73 | (1) | 101 | 663 | ____ | 45 | 3 | 712 |
| 1940 | 280 | 815 | 4 | 1,098 | 489 | 74 | (1) | 112 | 676 | ____ | 34 | 3 | 713 |
| 1941 | 385 | 942 | 4 | 1,330 | 473 | 62 | 2 | 114 | 652 | 16 | 28 | 4 | 700 |
| 1942 | 631 | 969 | 1 | 1,601 | 495 | 65 | 54 | 306 | 921 | 25 | 31 | 5 | 982 |
| 1943 | 619 | 844 | 136 | 1,599 | 477 | 77 | 108 | 511 | 1,174 | 63 | 43 | 3 | 1,283 |
| 1944 | 317 | 1,060 | 42 | 1,419 | 474 | 80 | 83 | 300 | 937 | 150 | 49 | 4 | 1,140 |
| 1945 | 279 | 1,108 | 2 | 1,389 | 473 | 82 | 21 | 297 | 874 | 91 | 320 | 4 | 1,289 |

## TABLE 2.—Supply and Disappearance of Wheat, United States, 1930-58 (3)—Continued

| Year beginning July | Supply | | | | Disappearance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Continental United States | | | | | | | | |
| | Carry-over | Production | Imports | Total | Food | Seed | Industrial | Feed | Total | Military procurement | Exports | Shipments | Total |
| | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. | Mil. bu. |
| 1946 | 100 | 1,152 | (1) | 1,252 | 479 | 87 | (1) | 178 | 744 | 92 | 328 | 4 | 1,168 |
| 1947 | 84 | 1,359 | (1) | 1,443 | 484 | 91 | 1 | 179 | 754 | 149 | 340 | 4 | 1,247 |
| 1948 | 196 | 1,295 | 2 | 1,492 | 471 | 95 | (1) | 106 | 672 | 182 | 328 | 4 | 1,185 |
| 1949 | 307 | 1,098 | 2 | 1,408 | 484 | 81 | (1) | 111 | 676 | 124 | 179 | 4 | 983 |
| 1950 | 425 | 1,019 | 12 | 1,456 | 479 | 88 | (1) | 109 | 676 | 41 | 335 | 4 | 1,056 |
| 1951 | 400 | 988 | 32 | 1,419 | 481 | 88 | 1 | 102 | 672 | 17 | 470 | 4 | 1,164 |
| 1952 | 256 | 1,306 | 22 | 1,584 | 474 | 89 | (1) | 82 | 645 | 14 | 315 | 4 | 978 |
| 1953 | 605 | 1,173 | 6 | 1,784 | 473 | 69 | (1) | 77 | 619 | 12 | 216 | 4 | 851 |
| 1954 | 933 | 984 | 4 | 1,921 | 473 | 65 | (1) | 60 | 598 | 10 | 273 | 4 | 885 |
| 1955 | 1,036 | 935 | 10 | 1,981 | 469 | 68 | 1 | 52 | 589 | 8 | 346 | 4 | 947 |
| 1956 | 1,033 | 997 | 8 | 2,038 | 467 | 57 | (1) | 50 | 574 | 9 | 547 | 4 | 1,134 |
| 1957 | 909 | 951 | 11 | 1,871 | 473 | 64 | (1) | 40 | 576 | 8 | 403 | 4 | 991 |
| 1958 | 881 | 1,462 | | | | | | | | | | | |

(1) Less than 0.5 million bushels.

Source: The Wheat Situation. Agricultural Marketing Service, U.S.D.A., February, 1959.

wheat is utilized. Since in this publication the concern is mainly with the production of soft red winter wheat, the following section is concerned with this problem.

## SOFT RED WINTER WHEAT PRODUCTION (4)

In recent years, soft red winter wheat production in the U. S. has accounted for between 10 and 20 percent of all wheat production. As a percentage of total production, it has declined during the past half century. This does not mean, however, that the total production of this type of wheat has declined. Actually, total production in the 1950's has not been greatly different from the total quantity produced in the 1910-14 period.

Between 95 and 100 percent of all wheat produced in Ohio is of the soft red winter type. This, together with the fact that Ohio is a relatively important state in the production of wheat, makes it the leading producer of soft red winter wheat. Certain other states have a higher percentage of their total wheat production in soft red winter but they are minor producers of wheat.

During the period 1944-53, Ohio produced approximately 27 percent of all soft red winter wheat produced in the United States. Ohio together with Indiana, Illinois, Pennsylvania, Missouri, Virginia and North Carolina produced 80 percent of all of this type of wheat.

**TABLE 3.—Total Wheat Production, Soft Red Winter Wheat Production and Soft Red as Percent of Total Wheat Production by Five Year Average, United States, 1910-1954**

| Year | Total soft red winter wheat production in the United States (in million bu.) | Total wheat produced in United States (in million bu.) | Soft red winter wheat as percent of total wheat in the United States |
|---|---|---|---|
| 1910-1914 | 206.1 | 724.4 | 28.45 |
| 1915-1919 | 243.7 | 823.8 | 29.58 |
| 1920-1924 | 204.6 | 822.0 | 24.89 |
| 1925-1929 | 155.6 | 822.9 | 18.91 |
| 1930-1934 | 176.7 | 732.5 | 24.12 |
| 1935-1939 | 204.4 | 758.6 | 26.94 |
| 1940-1944 | 158.3 | 926.0 | 17.10 |
| 1945-1949 | 203.0 | 1,202.4 | 16.88 |
| 1950-1954 | 191.0 | 1,086.0 | 17.59 |

An examination of both average wheat yields and acreages of wheat harvested in both the U. S. and Ohio is of interest at this point. Table 5 indicates that since the late 1920's average wheat yield in the U. S. has increased from slightly less than 15 bushels to almost 21.5 bushels per acre during the period 1954-58. During the same time period, average yields in Ohio have increased from approximately 17 bushels per acre to slightly in excess of 27 bushels per acre. During the same period, acreages in both the U. S. and Ohio have increased and then because of production controls have declined in recent years.

**TABLE 4.—States Ranked According to Production of Soft Red Winter Wheat, United States, 1955**

| State | Total wheat production (1,000 bu.) | Percent of soft red winter wheat of total wheat produced | Production of soft red winter wheat (1,000 bu.) |
|---|---|---|---|
| Ohio | 43,993 | 96 | 42,233 |
| Indiana | 33,988 | 96 | 32,629 |
| Illinois | 51,220 | 58 | 29,708 |
| Missouri | 49,632 | 52 | 25,809 |
| Pennsylvania | 16,536 | 95 | 15,709 |
| North Carolina | 7,172 | 100 | 7,172 |
| Virginia | 6,502 | 100 | 6,502 |
| Maryland | 4,744 | 100 | 4,744 |
| Kentucky | 4,020 | 98 | 3,940 |
| Tennessee | 3,417 | 100 | 3,417 |
| Michigan | 28,914 | 11 | 3,181 |
| South Carolina | 2,978 | 100 | 2,978 |
| Minnesota | 12,015 | 16 | 1,922 |
| Georgia | 1,520 | 100 | 1,520 |
| New Jersey | 1,530 | 98 | 1,499 |
| Arkansas | 1,404 | 100 | 1,404 |
| Kansas | 128,385 | 1 | 1,284 |
| Washington | 55,240 | 2 | 1,105 |
| Wisconsin | 1,298 | 85 | 1,103 |
| Alabama | 1,007 | 100 | 1,007 |
| West Virginia | 874 | 100 | 874 |
| Delaware | 858 | 99 | 849 |
| Texas | 13,464 | 6 | 808 |
| Idaho | 37,388 | 1 | 374 |
| Mississippi | 286 | 100 | 286 |
| Oregon | 21,899 | 1 | 219 |
| New York | 10,400 | 2 | 208 |
| New Mexico | 1,770 | 1 | 17 |

**TABLE 5.—Wheat Yields and Acreages by Five Year Periods, U. S. and Ohio, 1924-1958 (5)**

| Year | Yield | | Acreage (thousand) | | Production (thousand bu.) | |
|---|---|---|---|---|---|---|
| | U. S. | Ohio | U. S. | Ohio | U. S. | Ohio |
| 1924-28 | 14.7 | 17 1 | 56,075 | 1,514 | 824,302 | 25,889 |
| 1934-38 | 12 8 | 19 5 | 55,429 | 2,216 | 709,491 | 43,212 |
| 1944-48 | 17.7 | 24 6 | 67,870 | 2,082 | 1,201,299 | 51,217 |
| 1954-58 | 21.4 | 27.1 | 49,234 | 1,559 | 1,064,307 | 42,248 |

In summary, it may be stated that since 1935, total wheat production in the U. S. and in Ohio has increased in spite of a decrease in the number of acres of wheat harvested. This is due to increased yields as a result of using improved varieties of wheat, increased fertilization and other technological improvements.

## EFFECT OF GOVERNMENT WHEAT PRICE PROGRAMS (6 & 7)

In an attempt to obtain information about this topic, personnel in the Department of Agricultural Economics and Rural Sociology conducted a personal contact survey of Ohio wheat farmers during March and April, 1956. Farmers interviewed were selected by means of a randomly selected area sample. A total of 158 farmers representing approximately 0.1 percent of the 147,032 farmers having wheat allotments in Ohio were interviewed. For purposes of the study, Ohio was divided into three districts, Northwest, Central and East. Farmers were interviewed in Williams, Mercer and Wyandot Counties in the Northwest area. In the Central area, counties included were Lorain, Fairfield and Clinton. In the Eastern area, interviews were made in Ashtabula, Carroll and Scioto Counties.

Inasmuch as the survey was limited to farmers who were either growing wheat in 1956 or who had grown wheat during the previous three years and were temporarily not raising wheat, the sample does not represent a true cross-section of all Ohio farmers. It does, however, represent those farmers who were raising wheat.

## EFFECT ON PRODUCTION

**Acreage:** Wheat growers interviewed were questioned to determine to what extent production restrictions were preventing the growing of wheat on what was usually considered a normal or preferred wheat acreage on their farm. Specifically, each farmer was asked how many acres he would seed for the next season's harvest if all production restrictions were removed and a price of approximately $1.80 per bushel could be expected at harvest time. (The twelve month average price of wheat to Ohio farmers in 1955 was $1.91 per bushel and in 1956 was $2.04 per bushel.)

Information in Table 6 indicates that in the Eastern area of the state, 67 percent of the farmers would seed the same acreage of wheat as in 1956 if allotments were discontinued. In the Northwestern area, the figure was 20 percent and in the Central area, 23 percent.

**TABLE 6.—Expected Change in Wheat Acreage over 1956 Acreage with Production Controls Removed and an Anticipated Market Price of $1.80 per Bushel, 151 Ohio Wheat Producers, 1956**

| Area | Less | Same | More | | | | Total responses |
|---|---|---|---|---|---|---|---|
| | | | Percent increase over 1956 | | | | |
| | | | 0-29 | 30-59 | 60-89 | 90-119 | |
| | (Pct.) | (Pct.) | (Pct.) | (Pct.) | (Pct ) | (Pct.) | |
| Northwest | 2 | 20 | 27 | 35 | 10 | 6 | 49 |
| Central | 2 | 23 | 21 | 29 | 15 | 10 | 48 |
| East | 4 | 67 | 6 | 11 | 6 | 6 | 54 |
| Total and average | 3 | 38 | 17 | 25 | 10 | 7 | 151 |

Average size of allotment in eastern Ohio was 5.3 acres and 21 acres in each of the other two areas. Inasmuch as farmers having allotments under 15 acres are permitted to over plant their allotment providing they do not exceed 15 acres, the present program does not necessitate a reduction in wheat acreage. In contrast, farmers with allotments of over 15 acres are required to restrict their wheat acreage if they wish to take advantage of price support programs. This apparently accounts for the fact that in eastern Ohio a smaller proportion of farmers have indicated a desire to raise acreages if acreage allotments were discontinued. Many have been free to do this because of the 15 acre limitation.

## COMPLIANCE WITH ACREAGE ALLOTMENTS

During the period covered by this study, farmers had voted for a program of marketing quotas. This precluded, almost without exception, any farmer exceeding his allotment if it was more than 15 acres. This means that from a practical standpoint, a study concerned with allotment compliance must be limited to farmers having allotments of 15 acres or less.

Many farm operators in Ohio operate more than one farm. Since each farm has its own wheat allotment, many farmers have more than one allotment. It is thus possible for an operator to exceed his small allotment on each of the farms and at the same time avoid a penalty. A total of 68 percent of all farmers interviewed had one or more allotments of less than 15 acres.

Table 7 indicates that of farmers having 1956 allotments of 15 acres or less, 41 percent complied with the allotment and 56 percent did not comply. In the Eastern area of the state, the compliance figure was 55 percent compared to 36 percent in the Northwest and 28 percent in the Central area.

**TABLE 7.—Compliance with Wheat Allotments of Less Than 15 Acres, by Areas, 107 Ohio Wheat Producers, 1955 and 1956**

| Compliance | 1956 | | | | 1955 | | | |
|---|---|---|---|---|---|---|---|---|
| | North-west | Central | East | Ohio | North-west | Central | East | Ohio |
| | % | % | % | % | % | % | % | % |
| Did | 36 | 28 | 55 | 41 | 44 | 48 | 64 | 53 |
| Did not | 64 | 69 | 41 | 56 | 53 | 45 | 36 | 44 |
| Both | 0 | 3 | 4 | 3 | 3 | 7 | 0 | 3 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

An analysis of Table 8 indicates that only 24 percent of those farmers having less than a 15 acre allotment stayed within their allotment because they wished to be eligible to receive a government price support loan. A larger proportion, 39 percent, indicated they complied with their alloted figure because it happened to fit the rotation planned for that particular year. Approximately 9 percent indicated the allotment fitted the size of field which was seeded to wheat. It thus appears that compliance with allotments of less than 15 acres is not influenced to any great extent by the opportunity to obtain a loan or purchase agreement.

**TABLE 8.—Reasons for Complying or Not Complying with Wheat Allotments of Less Than 15 Acres**

| Reasons for complying | Percent |
|---|---|
| Allotment coincided with rotation | 39 |
| To obtain advantage of loan | 24 |
| Allotment coincided with field size | 9 |
| To cooperate with policy makers | 5 |
| Other | 18 |
| Don't know | 5 |
| Total | 100 |

| Reasons for not complying | Percent |
|---|---|
| Allotment did not fit rotation | 29 |
| Did not want to split fields | 24 |
| Feed wheat, not interested in loan | 18 |
| Need wheat as a nurse crop | 15 |
| Allotment too small to bother with loan | 9 |
| Satisfied with market price | 5 |
| Total | 100 |

A practical rotation or field size is apparently an important reason for lack of compliance of those with allotments of less than 15 acres. Twenty-nine percent indicated they would not comply because the allotment would not fit their rotation. Likewise, 24 percent said the allotment was smaller than the field in which they raised wheat and they did not wish to split the field. A total of 15 percent indicated they exceeded their allotment in order to seed a legume or a grass in a particular field.

Some farmers fed most or all of the wheat grown and gave this reason as having no interest in obtaining a loan. The percentage in this category amounted to 18. In addition, 9 percent said their allotment was too small to warrant obtaining a loan and 5 percent stated they believed the market price was too near the loan price for a loan to be worthwhile.

## EFFECT ON TOTAL PRODUCTION OF NON-COMPLIANCE BY FARMERS WITH ALLOTMENTS OF LESS THAN 15 ACRES

It was indicated previously that two-thirds of the wheat farmers interviewed had one or more allotments of less than 15 acres. Since it was possible for this group to exceed their allotment without penalty, an analysis of the effects of planted acreages over alloted acreage is of interest.

A total of 55 percent of those with allotments of less than 15 acres exceeded their allotment. The acreage over planted was equal to approximately 8 percent of the total 1956 wheat acreage of all farmers interviewed. In other words, if none of these farmers had exceeded their allotments, total wheat acreage of all growers would have been decreased by 8 percent.

In addition to over planting on the part of some farmers, others under planted their alloted acreage. Under planting amounted to about one-half the acreage over planted by the group who exceeded their allotment. Some would say that the effects of those who over plant will be counter-balanced by those who under plant. The results of this analysis indicate this is not necessarily true. In this study, farmers with allotments of less than 15 acres exceeded their allotments as a group by a net of 4 percent. This implies that enforcement of all acreage allotments would probably reduce total wheat acreage.

## EFFECT OF PRICE SUPPORTS AND PRODUCTION CONTROLS ON WHEAT PRICES

Farmers in this study were asked what they believed would happen to the market price of wheat by harvest time of the next growing season if government price supports and production restrictions were removed. They were asked to assume that the present government owned surpluses would not be dumped on the market. Table 9 shows a summary of answers received. It indicates there was a difference of opinion concerning prospective wheat prices at harvest time of the following year. A majority believed prices would be lower without a government program. Answers differed somewhat according to the type of government wheat program preferred, as indicated in Table 10.

**TABLE 9.—Expected Change in Wheat Price by July, 1957, Following Removal of Government Price Support Restrictions, 151 Ohio Wheat Producers, 1956**

| Price change expected | Percent |
|---|---|
| Higher | 4 |
| Same | 15 |
| Lower | 69 |
| Don't know | 12 |
| Total | 100 |

Information in Table 10 indicates that the most pessimism was shown by the group who preferred a program of marketing quotas accompanied by a relatively high price support program ($1.80). The next most pessimistic group was the group favoring allotments with a relatively lower support price ($1.20) and the least pessimistic group was the one favoring no government program. Most farmers did not expect any program to raise prices.

**TABLE 10.—Anticipated Effect of Removal of Government Price Supports and Production Controls on Wheat Prices, by Type of Government Wheat Program Preferred, 138 Ohio Wheat Producers, 1956**

| Program preferred | Anticipated effect | | | | Total responses |
|---|---|---|---|---|---|
| | Higher | Same | Lower | Don't know | |
| | % | % | % | % | |
| Quotas, $1.80 support price | 3 | 3 | 89 | 5 | 40 |
| Allotments, $1.20 support price | 0 | 9 | 82 | 9 | 11 |
| No government program | 6 | 20 | 57 | 17 | 87 |
| Total | | | | | 138 |

## EXTENT OF FARMER PARTICIPATION IN NON-RECOURSE LOAN AND PURCHASE AGREEMENT PROGRAMS

Although all farmers who did not exceed their acreage allotments were eligible to receive loans or purchase agreements, only 17 percent of the entire group obtained them. Farmers in the Northwest and Central area of the state accounted for most of the loans and purchase agreements. Only a relatively few in the Eastern area of the state availed themselves of the opportunity to obtain a guaranteed price. Average size of allotments for those who obtained a non-recourse loan or purchase agreement on their wheat was 34.8 acres and the average for those who did not obtain a loan was 15.2 acres.

Ohio wheat prices following wheat harvest in 1955 averaged $1.75 per bushel in July, $1.71 in August and $1.75 in September. The approximate net loan received for wheat stored on the farm was $2.12 per bushel. Following the harvest period, wheat prices on the open market continued to advance until April when the average price was $2.15, a figure slightly higher than the one which could have been obtained by a non-recourse loan. It should be pointed out, however,

**TABLE 11.—Producers Obtaining a Loan or Purchase Agreement on 1955 Wheat Crop by Geographic Areas, 150 Ohio Wheat Producers, 1956**

| Area of state | Obtained a loan | | Number responses |
|---|---|---|---|
| | Yes | No | |
| | % | % | |
| Northwest | 28 | 72 | 47 |
| Central | 22 | 74 | 49 |
| East | 2 | 98 | 54 |
| Total and average | 17 | 83 | 150 |

that the final date for 1955 wheat to be placed under loan was January 31. Ohio wheat prices averaged $1.94 for the month of January, a figure $ .18 less than the loan rate.

Since there seemingly would have been a price advantage for those who obtained a non-recourse loan and since so few farmers obtained such a loan, a question was asked concerning reasons for not obtaining a loan or purchase agreement. A summary of answers about this question is summarized in Table 12.

**TABLE 12.—Reasons for Not Obtaining Government Non-recourse Loan or Purchase Agreement on 1955 Wheat Crop, 68 Eligible Ohio Wheat Producers, 1956**

| Reason | Percent |
|---|---|
| Feed wheat, not interested in loan | 23 |
| Bother ' of getting loan | 21 |
| Disapprove of loan program | 13 |
| Don't ' need ' loan | 15 |
| Satisfied with market price | 5 |
| No convenient storage available | 14 |
| Custom—have never taken loan | 8 |
| Don't know | 1 |
| Total | 100 |

Table 12 shows that 23 percent of the wheat growers interviewed who were eligible for a loan did not obtain one because they fed most or all of the wheat grown. The 21 percent who said it was too much bother objected to the "red tape" and necessity of storing and handling

the wheat according to government directives. Thirteen percent did not approve of the government loan program. The 15 percent who said they did not "need" the loan implied they would probably obtain a loan if their financial situation required the additional income obtainable by means of a loan. Five percent were satisfied with the market price and believed that a loan would not be worth the administrative and storage requirements.

The 8 percent who said they had "never taken a loan" have probably not done so because they either objected to the program, disliked the procedure necessary to obtain a loan or didn't feel it returned sufficient additional returns over the market price. It is difficult to determine the basic reasoning of this group who has, as a custom, refrained from obtaining loans. Fourteen percent indicated that the lack of convenient storage either on the farm or in custom storage was the primary reason for not getting a loan. However, when members of this group were later asked if more wheat would have been placed under loan if adequate storage were available, one-third of the group gave a negative reply. Six percent of all wheat growers interviewed indicated plans to acquire additional small grain storage on the farm within the next two or three years.

## EFFECT OF GOVERNMENT PROGRAMS ON FARM INCOME

Increased farm income has been one objective of all former government farm price support programs. An analysis of farmer opinion concerning the effects of such programs is of interest.

Table 13 indicates that 30 percent of the wheat growers interviewed believed the government program had increased their income during the previous two years. Slightly more than one-fourth believed their incomes had been reduced and almost one-fifth believed their incomes had not been changed by government programs.

**TABLE 13.—Effect of Government Programs of Past Three Years on Personal Farm Income, 152 Ohio Wheat Producers, 1956**

| Effect of government programs | Percent of farmers |
|---|---|
| Has reduced income | 26 |
| Little or no effect | 19 |
| Has increased income | 30 |
| Don t know | 25 |
| Total | 100 |

An analysis of these opinions was made concerning effect of government programs on farm income by tenure, size of farm and age and membership in various farm organizations, but there was no significant difference within any of these groups.

## TYPE OF PROGRAM PREFERRED

Wheat growers interviewed were questioned about their personal preferences regarding alternative programs through which the government would or would not support wheat prices and control wheat production. Further inquiry was designed to determine upon what criteria, economic or otherwise, preferences were based.

Three possible types of programs were offered by the interviewer for the respondent's consideration. They were: (1) forced compliance of acreage allotments through the use of marketing quotas, with the price of wheat supported at a level where the farmer would receive a net[1] of $1.80 per bushel; (2) without marketing quotas but with acreage allotments and with a net support price of $1.20 and (3) no government program with market price determined by "supply and demand."

To the wheat grower, the possible price supporting benefits vary inversely with the degree of production controls imposed. The higher price supports require more production restrictions.

**TABLE 14.—Farmer's Choice of Three Alternative Government Wheat Programs, 148 Ohio Wheat Producers, March-April, 1956**

| Government program preferred | Percent of farmers |
|---|---|
| Marketing quotas, acreage allotments, net support price $1.80 per bushel | 28 |
| Acreage allotments, net support price $1.20 per bushel | 7 |
| No government program—price determined by "supply and demand" | 59 |
| Don't know | 6 |
| Total | 100 |

In the analysis of this question in Table 14, 59 percent of the wheat growers interviewed stated a preference for a wheat market free of federal government price supporting and production limiting activities. Twenty-eight percent favored a program almost identical to the one in

[1]Net support price is that received by the producer after administration costs of loan have been deducted.

effect at the time of the survey. This included marketing quotas and support prices at a relatively high level. Seven percent expressed a preference for a program of unenforced acreage allotments (except loss of the privilege of obtaining a loan or purchase agreement) and a net support price of $1.20 per bushel.

Table 15 indicates the possible effect of price upon wheat grower's willingness to accept or reject marketing quotas.

**TABLE 15.—Role of Wheat Price in Determining Type of Government Wheat Program Preferred, 114 Ohio Wheat Producers, March-April, 1956**

| Type of government program preferred | Effect of price on decision | | | Total responses |
|---|---|---|---|---|
| | No effect | Decision affected by price | Don't know | Number |
| | % | % | % | |
| Quotas, allotments, $1.80 support | 5 | 81 | 14 | 37 |
| Allotments, $1.20 support price | 16 | 34 | 50 | 6 |
| No production restrictions or price supports | 64 | 22 | 14 | 71 |
| Average and total | 42 | 42 | 16 | 114 |

The data in Table 15 were obtained by asking those expressing a preference for a non-quota type of program what the market price of wheat would have to be for them to be willing to accept quotas. Sixty-four percent indicated they would not be in favor of marketing quotas regardless of how low prices might be. Twenty-two percent said they would favor quotas if the price declined below some minimum desired level. The average of the prices stated at which quotas would be acceptable to this group of farmers was $1.60 per bushel.

Producers indicating a preference for a program which included allotments and quotas were asked what the wheat price would have to be before they would favor eliminating marketing quotas. The average given by 81 percent of this group who stated a price was $1.86. It should be noted that this price is compared to an average open market price of $1.90 (Table 16) per bushel for the period from the beginning of wheat harvest in July, 1955, to the time of the survey.

Results of this survey indicate there is a difference in age of the groups favoring the different government programs. Table 17 shows that farmers preferring a government wheat program of quotas, acreage

**TABLE 16.—Average Price Received by Farmers for All Grades of Wheat Marketed, Ohio, by Months, July, 1955—April, 1956**

| Year | Month | Price per bushel |
|---|---|---|
| 1955 | July | $1.79 |
| | August | 1.71 |
| | September | 1.75 |
| | October | 1.83 |
| | November | 1.86 |
| | December | 1.94 |
| 1956 | January | 1.94 |
| | February | 1.98 |
| | March | 2.02 |
| | April | 2.15 |
| Average—10 months | | 1.90 |

allotments and a net support price of about $1.80 had an average age of 46.2 years and were younger than those favoring no government program, whose average age was 50.9 years. The 8.4 percent of the 131 selecting a program who chose a system of acreage allotments and a net support price of $1.20 but without quotas, were considerably younger with an average age of 35.5 years. The average age for the entire group stating a preference for a specific program was 48.2 years.

**TABLE 17.—Preference for Government Wheat Programs, Average Age, 131 Ohio Wheat Producers, 1956**

| Program | Average age | Total responses |
|---|---|---|
| Quotas, $1.80 | 46.2 years | 40 |
| Allotments, $1.20 | 35.5 years | 11 |
| No government program | 50.9 years | 80 |
| Total and average | 48.2 years | 131 |

Although the age difference between the first two groups in Table 17 is not great, it is of some interest. It indicates that the older farmers are more likely to favor no government assistance. Most might agree that the older farmers are somewhat more independent financially inasmuch as they have had a longer time to pay off indebtedness, educate their families and accumulate savings.

## CHARACTERISTICS OF SOFT RED WINTER WHEAT (8)

Generally there are four groups interested in the characteristics of wheat. These groups are: (1) the farmer, (2) the exporter, (3) the miller and (4) the consumer. Each uses wheat for a different purpose and because of this fact each judges quality on a slightly different basis.

The farmer is interested in a variety of wheat which is adaptable to the weather and soil conditions characteristic of his farm. He judges quality of a class of wheat primarily on the basis of yield. Maximum yields of soft red winter wheat are obtained in geographic areas where rainfall exceeds 30 inches annually and soils are high in organic matter and respond well to heavy applications of fertilizer. As a result, this type of wheat is grown in the eastern portion of the United States. It is not adapted to areas having low rainfall and severe winters because it is not exceptionally resistant to drought and it is somewhat susceptible to winter killing. Soft red winter wheat has a rather stiff straw and this characteristic tends to prevent lodging.

The exporter evaluates wheat in terms of its acceptability and intended use by the importing country. Wheat to be exported must be comparable to the wheat grown in the importing country or it must fill some other need which wheat grown in the importing country cannot fill. Most of the soft red winter wheat exports since World War II have gone to European countries. Northwestern European countries were important producers of this class of wheat in the prewar years, but shortages in that area of the world have increased the demand for U. S. soft red winter wheat since the war.

The miller is interested in the basic characteristics and the chemical composition of the wheat kernel. Basically, he wants a wheat that will mill easily and provide the relative proportion of protein and starch that the baker demands. Wheat flour to be used for making bread requires both high protein content and a high quality of protein. If the intended use for flour is other than bread, a lower content of protein is usually desired. Soft wheats usually have a lower protein content and this makes them desirable for flours used for other than bread baking purposes.

The consumer, perhaps without realizing it, is influential in shaping the actions of the three groups mentioned in the preceding paragraphs. Consumers may know little about the methods of production and baking but their tastes must be satisfied if they are to buy a specific product. Thus, the baker must adapt his methods and products to the tastes of consumers.

It is possible to divide the baker's methods into two general classes based on the type of leavening agent used. In one case, the baker uses a flour of relatively high protein content to obtain a product in which yeast is used as the leavening agent. In the second case, the baker uses a lower protein flour to obtain a product in which baking powder is the leavening agent. The bulk of yeast leavened goods are bread, bread type rolls and some pastries. For these products the baker uses a high protein wheat to obtain a high quality product. In terms of classes of wheat, this is either hard red spring or hard red winter.

The quality and quantity of protein in these wheats is such that gas retention during the leavening process is maximized. When gas retention is maximized, the cell walls are spread very thin. This maximizes the surface area in the loaf and gives a fine textured loaf of the desired volume. The protein in the flour also concerns the rate of water absorption in the dough. A high quality protein will give a high rate of water absorption and this characteristic is much desired because loaf volume is increased.

Soft wheat flours do not rate very well in either volume or texture of the loaf produced. In addition, the water absorption rate and protein content of soft red winter wheat is slightly lower than that of the hard winter classes. These are the major factors which give soft red winter wheat inferior bread baking qualities.

Although the soft red winter wheats are not well adapted to bread making, they are superior for use in baking products which require baking powder as a leavening agent. Products which use chemical leavening are crackers, cakes, pre-mixed flour, doughnuts, ice cream cones, self-rising flours, cookies, biscuits, pretzels and some pastry goods. Soft red winter wheat is used in all of these products to some extent, however, its primary use is in crackers, cakes, pre-mixed flours, doughnuts, self-rising flours and pastries. Some soft white wheats are used in the production of cookies and breakfast cereals. Some of this class is also used in other chemically leavened products because it is a close substitute for soft red winter wheat.

Soft red winter wheat flour is especially well adapted for use in bakery products because the gluten is delicate and readily forms gas cells with very thin and tender walls. Usually the flour has less coloring matter and contains smaller proportions of bran than the hard wheats. This characteristic makes the flour very white. It is the delicate texture and light color which consumers desire in a pastry product.

## DEMAND FOR ALL CLASSES OF WHEAT AND FOR SOFT RED WINTER WHEAT FOR HUMAN CONSUMPTION (8)

Basic data used for this part of the study were obtained from food consumption surveys conducted by the U.S.D.A. in 1942 and 1955. Data obtained in these two surveys included information concerning consumption of flour products during a given week in the spring of both years. From these data, it was possible to calculate the flour content of the products consumed. In making these calculations, it was assumed that the flour content in bread and in other bread type products amounted to 64 percent of total weight. A 50 percent content in other baked goods and 100 percent of all-purpose flours and prepared flour mixes was assumed.

The next steps were to expand the weekly household consumption to an annual basis and to estimate the amount of baked goods eaten away from home. Because data for consumption of food away from home are not readily available, estimates were made on the basis that flour products consumed away from home were consumed in the same proportion as home consumption. The percentage of food consumed away from home was then calculated as 9.8 percent of home consumption. This is the figure which represents the cost of food eaten away from home.

The next step involved was to convert household consumption of flour to a per capita basis. This gave per capita consumption by type of flour product. This total for these products then equaled the total consumption of flour products. To obtain per capita consumption of soft red winter wheat, it was necessary to obtain information on the percentage of soft red winter wheat used in the various flour products. These percentages were then applied to the flour consumption by product to obtain per capita consumption of soft red winter wheat.

In order to obtain data concerning per capita consumption in the future, a linear trend was fitted to the two levels of consumption (those in 1942 and 1955). The expected level of per capita consumption was then expanded by the Bureau of Census population estimates to obtain the level of per capita consumption of soft red winter wheat and all wheat in 1965.

## PER CAPITA CONSUMPTION OF ALL WHEAT FLOUR PRODUCTS

In the two major household food consumption studies mentioned previously, flour and pastry products were divided into eight groups. Levels of per capita consumption for each product group and for total per capita consumption are shown in Table 18 along with projected consumption per capita in 1965. Information in Table 19 indicates that per capita consumption of flour decreased from 155 pounds in 1942 to approximately 127 pounds in 1955. This was a total decrease of 28 pounds and an annual decrease of slightly more than two pounds. Projection of the trend at this rate of decline indicates that per capita consumption of all wheat flour will be approximately 105 pounds in 1965. The total decrease would thus amount to approximately 51 pounds per capita over the 23 year period.

**TABLE 18.—Per Capita Consumption of Wheat Flour and Baked Goods in 1942 and 1955 and Projected per Capita Consumption in 1965**

**(Pounds of flour)**

| Product | 1942 | 1955 | 1965 |
|---|---|---|---|
| Flour other than mixes | 82.04 | 44.27 | 15.22 |
| Prepared flour mixes | .33 | 9.99 | 17.42 |
| Breakfast cereals | 2.76 | 2.25 | 1.86 |
| Macaroni and spaghetti | 3.77 | 3.50 | 3.29 |
| Bread | 52.90 | 50.17 | 48.07 |
| Crackers | 3.85 | 3.83 | 3.81 |
| Cakes | 4.10 | 3.00 | 2.15 |
| Other baked goods* | 5.61 | 9.82 | 13.06 |
| Total | 155.36 | 126.83 | 104.88 |

*Includes doughnuts, sweet buns, rolls, cookies, biscuits, coffee cake, and other pastries.

Table 19 indicates that only two of the eight product groups were consumed in larger quantities in 1955 than in 1942. These two product groups are flour mixes and other baked goods.

Per capita consumption of prepared flour mixes increased from less than one pound in 1942 to 10 pounds in 1955. Projection of this trend indicates that per capita consumption of prepared flour mixes will be more than 17 pounds by 1965. As a percentage of total consumption, prepared flour mixes will have increased from .2 percent in 1942 to 16.6 percent in 1965. (The above figures are shown in Table 19.)

**TABLE 19.—Percentage Distribution of the per Capita Consumption of Flour by Product, United States, 1942, 1955 and 1965**

| Product | 1942 | 1955 | 1965 |
|---|---|---|---|
| Flour | 52.81 | 34.90 | 14.52 |
| Prepared flour mixes | .20 | 7.88 | 16.61 |
| Breakfast cereals | 1.78 | 1.77 | 1.77 |
| Macaronia and spaghetti | 2.43 | 2.76 | 3.14 |
| Bread | 34.05 | 39.56 | 45.83 |
| Crackers | 2.48 | 3.02 | 3.63 |
| Cakes | 2.64 | 2.37 | 2.05 |
| Other baked goods* | 3.61 | 7.74 | 12.45 |
| Total | 100.00 | 100.00 | 100.00 |

*Includes doughnuts, cookies, sweet buns, rolls, biscuits, coffee cake, and other pastries.

Between 1942 and 1955, consumption of other baked goods increased from 5.6 pounds to 9.8 pounds. Projection of the trend indicates that per capita consumption of this product group will exceed 13 pounds by 1965. During the same period, this group of other baked goods will have increased from 3.6 to 12.5 percent of total flour consumption.

As mentioned previously, per capita consumption of all products except prepared flour mixes and other baked goods decreased between 1942 and 1955. The consumption of flour other than mixes decreased considerably more than any of the other products. It decreased from 82 pounds to slightly more than 44 pounds. Projection of this trend indicates that per capita consumption of flour other than mixes will decrease to approximately 15 pounds by 1965. This means that fourteen and one-half percent of all flour consumption would be in this product group in 1965 as compared to 52.8 percent in 1942.

The decline in per capita consumption of the other product groups has not been as significant as that of all-purpose flours. It is true, however, that changes in per capita consumption which have occurred and which will likely occur, change the relative importance of the various products. For example, the total decrease in per capita consumption of bread over the entire period will be approximately 4.8 pounds but bread will account for almost 46 percent of total consumption as compared to 34 percent in 1942.

## PER CAPITA CONSUMPTION OF SOFT RED WINTER WHEAT PRODUCTS

Per capita consumption of soft red winter wheat has been calculated from data in Table 18. In making these calculations the percentage of soft red winter wheat in each product group in 1955 was applied to the consumption data in 1965. Percentages were based on the type of leavening agent used and on information obtained by talking with bakers and millers working with soft red winter wheat.

It appears that consumption of soft red winter wheat is increasing rather than decreasing as is the case with per capita consumption of all wheat. Information in the following table indicates that per capita consumption of this type of wheat will be approximately 30 pounds per person in 1965 as compared with slightly less than 25 pounds per person in 1955. According to these projections, per capita consumption of self-rising flours and cakes will decline between 1955 and 1965. Contrariwise, per capita consumption of soft red winter wheat flour used in prepared flour mixes will increase considerably during the period. The indicated increase amounts to more than 7 pounds per person and accounts for more than the total increase indicated for all soft red winter wheat flour.

**TABLE 20.—Per Capita Consumption of Soft Red Winter Wheat Flour in 1955 by Product and Projection of the per Capita Consumption to 1965**

| Product | 1955 (lbs.) | 1965 (lbs.) |
|---|---|---|
| Self-rising flours | 4.61 | 1.59 |
| Prepared flour mixes | 9 99 | 17 42 |
| Crackers | 2.30 | 2.29 |
| Cakes | 3.00 | 2.15 |
| Other baked goods | 4.91 | 6 53 |
| Total | 24.81 | 29.98 |

The percentage distribution of the products comprising per capita consumption of soft red winter wheat shown in Table 21 indicates the changing relative importance of the various products.

**TABLE 21.—Percentage Distribution of the per Capita Consumption of Soft Red Winter Wheat by Product, United States, 1955 and 1965**

| Product | 1955 | 1965 |
|---|---|---|
| Self-rising flours | 18 58 | 5.30 |
| Prepared flour mixes | 40 27 | 58.11 |
| Crackers | 9.27 | 7.64 |
| Cakes | 12 09 | 7.17 |
| Other baked goods | 19.79 | 21.78 |
| Total | 100.00 | 100.00 |

Projected data in the above table shows that flour mixes accounted for about 40 percent of the per capita consumption of soft red winter wheat flour in 1955. This percentage is expected to increase to 58 percent by 1965. Self-rising flour shows the greatest decrease in per capita consumption during the period. It will likely decline from slightly more than 18 percent in 1955 to approximately 5 percent in 1965.

## TOTAL CONSUMPTION OF SOFT RED WINTER WHEAT AND ALL WHEAT

The previous discussion has been concerned with per capita consumption of soft red winter wheat and of all wheat for human food. In this section we examine prospective total consumption. To do this we need to make certain estimates concerning possible future population growth.

Information in the following tables was derived on the basis of prospective per capita consumption of flour and projected population growth. Both minimum and maximum population estimates were used to derive the range into which total consumption will likely fall. Total flour consumption was converted to bushels of wheat by using the milling ratio of 2.36 bushels of wheat per 100 pounds of flour.

Data in Tables 22 and 23 indicate that total consumption of all wheat will decline during the next 10 years. Even with expected maximum rates of population growth, population will not increase enough to offset the decrease in per capita consumption. If population should increase at the maximum rate, total consumption of all wheat would decrease to 476,706,000 bushels, giving a total decrease of 17,834,000 bushels. On the other hand, if the minimum rate of population growth is used the consumption of all wheat will decrease to 458,796,000 bushels by 1965. This is a total decrease of 35,744,000 bushels from the 1955 figure.

**TABLE 22.—Consumption of Soft Red Winter Wheat and All Wheat in 1955 and Estimated Consumption in 1965 Assuming a Minimum Rate of Population Growth**

| Population and consumption | All wheat | | Soft red winter wheat | |
|---|---|---|---|---|
| | 1955 | 1965 | 1955 | 1965 |
| Per capita flour consumption, lbs. | 126.81 | 104 88 | 24 81 | 29.98 |
| Population (000) | 165,248 | 185,359 | 165,248 | 185,359 |
| Total flour consumption (000 of cwts.) | 209,551 | 194,405 | 40,998 | 55,571 |
| Bushels of wheat consumed (000) | 494,540 | 458,796 | 96,755 | 131,148 |

Total consumption data for soft red winter wheat indicate a situation which is quite different. At expected minimum rates of population growth, total consumption of soft red winter wheat will be increased to 131,148,000 bushels by 1965 compared with 96,755,000 bushels in 1955. This is a total increase of more than 34,000,000 bushels in the 10 year period. At a maximum rate of population growth 136,266,000 bushels will be consumed in 1965. This is a total increase of more than 39,000,000 bushels during the period.

By 1965, soft red winter wheat consumption will account for approximately 28.5 percent of total wheat consumption as compared to approximately 20 percent in 1955.

**TABLE 23.—Consumption of Soft Red Winter Wheat and All Wheat in 1955 and Estimated Consumption in 1965 Assuming a Maximum Rate of Population Growth**

| Population and consumption | All wheat | | Soft red winter wheat | |
|---|---|---|---|---|
| | 1955 | 1965 | 1955 | 1965 |
| Per capita flour consumption, lbs. | 126.81 | 104 88 | 24.81 | 29.98 |
| Population (000) | 165,248 | 192,595 | 165,248 | 192,595 |
| Total flour consumption (000 of cwts.) | 209,551 | 201,994 | 40,998 | 57,740 |
| Bushels of wheat consumed (000) | 494,450 | 476,706 | 96,755 | 136,266 |

Changes in the consumption patterns of wheat between 1942 and 1955 were associated with changes in levels of real income. During this period, levels of income increased and as incomes increased, consumers increased purchases of the more expensive food items and decreased purchases of the less expensive items. Thus, they purchase less bread and all-purpose flour and more prepared flour mixes and similar products as incomes rise. Wheat consumption figures projected to 1965 assume incomes will increase during the period at about the same rate as between 1942 and 1955. In the long run, many authorities would probably expect incomes to increase at a faster rate than was true for the 1942-1955 period.

## BIBLIOGRAPHY


1. **Wheat Production,** Agricultural Information Bulletin No. 179, United States Department of Agriculture, March, 1958.

2. **Agricultural Policy of the United States,** Harold G. Halcrow, Prentice-Hall, Inc., New York, 1953.

3. **The Wheat Situation,** Agricultural Marketing Service, United States Department of Agriculture, February, 1959.

4. **An Analysis of Factors Influencing Soft Red Winter Wheat Production,** by Heung Heun Oh, Ph. D. Dissertation at Ohio State University, 1957.

5. **Crop Production, Annual Summaries,** United States Department of Agriculture.

6. **An Analysis of Ohio Farmers' Views and Responses to the Wheat Price Support and Control Program,** by Mervin G. Smith, Francis B. McCormick and Donald D. Steward, Ohio Agricultural Experiment Station mimeograph bulletin No. 258, October, 1955.

7. **An Analysis of Ohio Wheat Growers' Views and Responses in 1956 to Federal Agricultural Policies,** by Mervin G. Smith, Francis B. McCormick and Robert J. McCoy, Ohio Agricultural Experiment Station mimeograph bulletin No. 270, December, 1956.

8. **An Analysis of the Demand for Soft Red Winter Wheat and All Wheat, Some Factors Influencing Demand and Their Implications for Wheat Price Policy,** by Lawrence D. Welsh, Master of Science Thesis at Ohio State University, 1958.