Wheat Price Policy in the United States

By George Montgomery[1]

Policy denotes a course of action. Agricultural policy refers to actions of the federal government affecting the agricultural industry. Policy may be divided into two phases: direct price-income programs and general resource programs. This discussion deals with one phase of agricultural policy; namely, price policy. Consideration is limited to one major commodity, wheat.

Appraisal of policy requires analysis of:

1. What we have; the situation or statement of the problem.
2. What we want; objectives or goals.
3. How to get what we want; means or programs.

Discussion of wheat price policy will be developed under these three headings.

THE PAST

A historical review of the development of the wheat industry may contribute to fuller understanding of the conditions creating the wheat surplus as it has existed during the last generation. Opening of the western Mississippi Valley after the Civil War provided opportunity for wheat to be pushed westward into the Great Plains. Expansion of wheat farming in this area was encouraged by:

1. Availability of large areas of fertile land.
2. The perfection of the binder and improved tillage equipment.
3. Railroads which provided access to world markets through the terminals of Chicago, Minneapolis, Omaha, and Kansas City.
4. Development of future trading and warehousing which provided a continuous though not always satisfactory market.
5. Introduction of hard winter wheat and improved milling practices.

Available markets both at home and abroad existed for the wheat produced as a result of these favorable factors. The population of the United States expanded rapidly during the latter part of the last century and the early years of the current century as a result of immigration and a high domestic birth rate. Manufacturing and industrial progress stimulated the growth of cities. Migration of farm population to urban areas increased the market demand for food. Bread was an important element in the diet of a growing active population. European countries were active buyers of United States wheat. Dollars were available from the principal and interest payments on loans made for industrial and commercial development of America. The United States had not as yet become "100 percent self sufficient." It was natural to exchange wheat for equipment and goods from other countries. Even after Canada and Argentina entered the world market in the early part of this century, we sold 20 to 25 percent of our wheat crop into the world market. Annual exports of wheat, including flour, were in excess of 100 million bushels prior to the outbreak of World War I. Exports for the period 1914 through 1922 exceeded 200 million bushels per year with the exception of 1917, a year of crop failure.

This golden era reached a climax with the end of World War I. The crop failure of 1917 coincided with the period of acute demand for food by the Allies, and wheat prices soared to $3.00 per bushel. During the war a guaranteed price of $2.20 per bushel was established. This became in effect a fixed price. This guaranteed and favorable price encouraged the turning of native sod in the semi-arid areas in the western Great Plains into wheat fields during and immediately following the war. The guaranteed price was withdrawn prior to the harvest of 1920, and during the summer of that year wheat prices declined approximately 50 percent. However, new land continued to be brought into production in the Great Plains. Mechanization, consisting of the rapid introduction of combines, tractors, and trucks was an important factor, but improved varieties, early plowing, better tillage practices, and summer fallow also contributed to lower per bushel cost of production.

After early 1920 demand factors were less favorable to wheat farmers. The export market shrank after the United States became a creditor nation and dollars became scarce to European

buyers. Industrial expansion had progressed rapidly during and after World War I, and American consumers preferred to buy domestically produced goods. Later, particularly during the depression period, many of our former customers, especially Germany and Italy, attempted to encourage production of wheat within their own countries by restricting imports and by guaranteeing their farmers prices well above the free market price of wheat. Canada and Argentina became more aggressive competitors in the world market. Canada was an effective competitor not only in number of bushels exported but also in terms of quality of wheat.

Exports were no longer able to take up the slack of domestic surplus. Per capita consumption had declined during World War I and continued to move downward. As prices declined, agitation for solution to the surplus problem resulted in numerous proposals of price supporting schemes. The Agricultural Marketing Act of 1929 created the Federal Farm Board with a revolving fund of a half billion dollars for the purpose of stabilizing prices of farm products. However, the onset of world-wide depression and abundant production in 1931 made these efforts futile. After 1933 the surplus stocks accumulated during the early thirties were removed by successive crop failures. Acreages remained large, and burdensome stocks accumulated again prior to the outbreak of World War II. These stocks were utilized in the early war years for livestock feed and for industrial alcohol (Table 1).

THE PROBLEM

The wheat problem of the United States is one of surplus production. Wheat is basically a cereal crop or bread grain. The quantity of wheat produced averages substantially more than the domestic consumption as human food. In several recent years, the annual production has been almost two and a half times the quantity consumed for food. Outlet for the surplus or excess output is to be found only in the demand for food in foreign countries or in secondary uses such as livestock feed or industrial uses in the United States.

Production of wheat fluctuates widely from year to year as a result of weather influences and variations in acreage seeded. Seeded acreage for the major wheat producing regions is shown in Table 2. In 1933 United States production was 552 million

bushels. In 1947 the crop was 1,359 million bushels or two and a half times the 1933 production (Table 3).

The demand for wheat is highly inelastic. Under free market conditions a small increase in quantity produced or offered for sale causes a substantial decline in price. Conversely, a temporary scarcity resulting from crop failure causes sharp price increases. Such price increases, even though of relatively short duration, may stimulate income expectations among farmers which are not justified on the basis of long-run demand and supply relationships. Farmers' expectations, or hopes for prosperity, are stimulated also by periodic emergency conditions, such as in the last ten years when outlets at satisfactory prices were provided for the output from expanded acreages. This, along with the variations in yield resulting from weather influences, has complicated the problem of adjusting resources devoted to wheat production, either in line with domestic requirements or in line with domestic requirements plus normal or subsidized exports.

The conditions under which wheat is produced and the nature of the demand curve result in wide variations in income to wheat farmers, individually and by regions. Basically the request of wheat farmers for assistance from the federal government arises from the desire for or need of protection from drastic variations in income. Since income to individual farmers is highly variable, the stakes or rewards are large for those who have reserves or who can "weather" adversity during periods of low yields and low prices. This explains the large individual incomes in the specialized wheat regions during the last ten years. It also makes the adjustment of resources devoted to wheat production difficult. Wheat farmers who lived through the thirties to enjoy the rewards of the forties may be reluctant to reduce acreage by 30 or 40 percent. Capitalization of income of the last ten years into land prices and increased investment in equipment add to the complexity of the problem.

Use of Resources—The Supply Problem

The wheat problem is primarily one of resource allocation on the supply side and inelasticity of demand on the income side. These two phases of the problem will be examined in more detail. Allocation of resources devoted to wheat production is influenced by production uncertainty, price uncertainty, tech-

nological change, the competitive situation prevailing in the production and marketing of wheat, and the fluctuations in the size of reserve stocks or carry-over from year to year.

Production uncertainty is a major risk for most wheat farmers, especially in the Great Plains states. The farmer has little assurance about his crop until the combine has made the first round. Unlike the manufacturer he cannot decide to produce a given number of units. Total wheat production is a function of yield and acreage seeded. Yield reflects the influence of a number of factors, including natural phenomena (weather, insects, and disease) over which the farmer has little control, and production practices (fallow, tillage, fertilizer, and variety) over which he has control. Natural phenomena cause wide fluctuations in abandonment (Tables 4 and 5), which is reflected in yield per seeded acre. Acreage seeded is influenced by a number of factors, such as price expectation and anticipation for normal or above average yields for the future. Price expectations are assumed to be related to past prices. In recent years they have been influenced by announced levels of price supports. In areas where moisture is the limiting factor, rainfall or soil moisture at seeding time affects anticipation or hope for normal yields.

In only one year prior to 1943 did we produce more than a billion bushels of wheat. In only one year since 1943 have we failed to produce a billion bushels, and in that year the billion bushel mark was missed by only 19 million bushels. For the four years of 1933, 1934, 1935, and 1936 the average total production in the United States was 584 million bushels, on a seeded acreage of 69 million acres. The largest production in this period was 630 million bushels produced from 74 million seeded acres. The average yield for the four years was slightly less than 8.5 bushels per seeded acre. If we contrast these years with the four "best" years, we find the average annual production for the period 1945 through 1948 was 1,228 million bushels or more than twice as large as the output for the four years of small crops. Seedings in these years of large crops averaged about 74 million acres and the yield per seeded acre was 16.5 bushels. The largest output was 1,358 million bushels in 1947 from 78.3 million acres seeded.

Acreage seeded to wheat has ranged from 53 million acres for the 1942 crop to 84 million acres for the 1949 crop. Plantings for the 1953 crop were 78.6 million acres. On the basis of

straight line trends, the rate of increase has been essentially the same for all regions since 1940. Prior to that differences were evident.

In recent years variations in seeding of hard winter wheat have ranged from 23.2 million acres for the 1942 crop to 39.3 million acres planted for the 1949 crop. Seedings in the fall of 1952 were 34.3 million acres. Seeding of spring wheat has varied from 14.7 million to 22.7 million acres with current seedings estimated at 21.5 millions. Acreages of soft wheat varied from 8.2 million to 11.1 million acres. Plantings for the current season are 10.6 million acres. The Pacific Northwest has increased plantings from 3.5 million acres in 1942 to 6 million acres for the current season (Table 2).

Farmer decision in regard to acreage to be seeded is an important factor in the wheat problem. It is difficult to demonstrate statistically the factors entering into farmers' decisions. Past prices and expectation of prices for the next season are assumed to be major factors in the decision-making process. However, if acreage seeded is plotted with price the preceding season, for the period 1910 to date, evidence of association is not conclusive. There was an upward trend of acreage in the Great Plains states during the twenties as mechanization progressed, and acreages remained large in spite of low prices and low yields during the depression period. However, if the period since the depression is analyzed, there does appear to be consistent association between acreage seeded and price (deflated) for the preceding season.[2]

Because of the importance of this question to the wheat surplus problem, study was given to the degree of association for the period 1936 to 1951. Correlation analyses of acreage seeded and the price the preceding season were made by regions for this period (Table 6). The coefficient of correlation for these areas was highly significant for the hard winter wheat area and the Pacific Northwest, and significant for the spring wheat area. The correlation of acreage seeded and price the preceding season (deflated) is highest in the hard red winter wheat area. For

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[2]It is recognized that the period considered was one of generally rising prices. While it appears that rising prices were accompanied by increasing acreage, it does not necessarily follow that declines in prices will be associated with similar decreases in acreage in the short run. High fixed costs incurred in a period of expansion, and possibly other considerations, may tend to induce farmers to maintain production in periods of declining prices.

the period 1936 to date, a 10 cent change in the deflated price of wheat is associated with a change in plantings of 1.7 million acres (equals 5.4 percent of average acreage). In the Pacific Northwest, the relationship is about the same as in the hard red winter wheat area. For the period 1936 to date, a 10 cent change in the deflated price appears to be associated with a change in plantings of 280 thousand acres, or 5.7 percent of average acreage. Percentage-wise the response is about the same in both regions. In the spring wheat area the degree of relationship is less pronounced, and the amount of change is less than in either the hard winter wheat area or the Pacific Northwest. There are two periods of acreage increases—1936, 1937, and 1938; and 1949 and 1951—which were not associated with prices the preceding season. In the soft red winter wheat area there appears to be little relationship between seeded acreage and price the preceding year for the period 1936-51 as a whole. However, from 1942 to 1951 the data indicate that higher prices were associated with increases in acreage.

Plantings of wheat are influenced also by price for longer periods than the preceding season. The relationship of the price (deflated) for the second season preceding is similar to that of the preceding season. This suggests that a prolonged period of favorable prices tends to have an accumulative influence on acreage planted.

In Ford County, Kansas, a 10 cent change in price (deflated) the preceding season appears to be associated with a change in acreage seeded of 17,230 acres or 4.6 percent of the average acreage.[3] However, in this county acreages planted for the 1936, 1937, and 1938 crops increased more than would have been expected on the basis of price the preceding season. This may be explained in part by previous crop failures and the urgent need for cash income during that period. Comparable data were not available for a similar period for a county in the soft wheat area.

Annual yield is one of the two major factors determining income of wheat farmers. Yields and selling price determine gross income. Net income, of course, is influenced by operating costs.

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[3]In Ford County $r = +.578$, which is significant. The coefficient of regression was $+1.723$. This means that a change in price of one cent was associated with a change, in the same direction, of 1.723 thousand seeded acres. Therefore, a change in price of 10 cents was associated with a change of 17,230 seeded acres. A change of 17,230 acres is 4.6 percent of the average acreage seeded to wheat.

To a large degree, operating costs other than harvesting costs are incurred even though yields are zero. The variability of yield, especially in the Great Plains area is large. Complete crop failure, or zero yields are not uncommon. During the drouth of the thirties many areas had crop failures for three years in succession.

The hard winter wheat area has lower average yields than the other regions and larger variations in yield. Table 7 shows the mean and standard deviation of yield for the four regions for the period 1938 to 1953.

Abandonment is a factor of uncertainty affecting yield per seeded acre. Abandonment is large and highly variable in the hard winter wheat area. In this area there have been only two years since 1919 when abandonment was less than 5 percent, and 11 years when abandonment exceeded 20 percent (Tables 4 and 5). There have been three years when more than one-third of the seeded acreage was not harvested. In the spring wheat area, abandonment generally has been less than 10 percent, though there have been five years when abandonment exceeded 20 percent. Abandonment has been slightly higher in the Pacific Northwest. In the soft wheat area abandonment generally is less than 10 percent and about one-third of the time it has been less than 5 percent. However, there was one year, 1928, when abandonment was 44 percent in this region due to winterkilling.

Barber [4] calculated average yields and coefficients of variation of yield by counties in the United States for the period 1926 to 1948. The coefficients of variation of yield for Indiana counties with one exception were in a range of 23 to 35.[5] In Kansas, 19 counties had coefficients of variation ranging from 50 to 75, and 17 counties had coefficients in excess of 74. Wallace County had a coefficient of variation of yield of 93. These data indicate the variability of yield and consequently the variability of income in

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[4] E. Lloyd Barber, "Variability of Wheat Yields by Counties, in the United States," U. S. Department of Agriculture, Bureau of Agricultural Economics, September 1951 (mimeo).

[5] The coefficient of variation is a means of indicating the degree of variability in a series of data. It expresses the standard deviation of the annual-yield series as a percentage of the arithmetic average of the series. It may be used to compare the relative yield variability among counties in which the average yields are quite different and provides also an indication of the way in which yearly yields are distributed about their average.

Ford County (Kansas) has a coefficient of variation of 70 percent. This is interpreted to mean that two-thrids of the annual yields would fall within a range of $(100 - 70) \times 10.5$ (the average yield) and $(100 + 70) \times 10.5$, or within the range 3.15 bushels to 17.85 bushels per acre.

areas of the hard winter wheat area, where risk and uncertainty are great.

Price uncertainty is another risk over which farmers individually have little or no control. Fluctuations in wheat prices are sudden and substantial. Ironically, for the last twenty years low prices appear to have been associated with low yields, and high prices with high yields. The period 1934 through 1936 was a period of low yields in the Great Plains area. During this twenty-year period prices were highest in 1947, a year of record production. In that year production was more than two and a half times the average production of 1934, 1935, and 1936. The price was four times as high.

Variability of production and inelastic demand cause drastic fluctuations in wheat prices from season to season. Immediately prior to World War I the season's average farm price of wheat ranged from 80 cents to one dollar. During and immediately following World War I, the farm price exceeded or was near $2.00 per bushel. For the 1922 and 1923 seasons, the farm price was 92 cents and 96 cents. For the next four seasons, it averaged from $1.20 to $1.40. For the 1931 and 1932 seasons, the average farm price was 38 cents. After three crop failures in the Great Plains area, the season's average price reached $1.02 in 1936, but declined to 55 cents in 1938. For the last seven seasons, the average farm price has been near or exceeded $2.00 per bushel. The highest average was for the season of 1947 with a price of $2.29. During part of the recent period, the price has been held up by the loan, but in other periods, as in 1947 and 1948, export demand pushed prices above support levels.

In addition to substantial fluctuations in average seasonal prices, wheat prices are subject to sudden and sharp fluctuations within seasons. Frequently these fluctuations, in farmers' minds at least, cannot be associated with identifiable causes, i.e., they cannot be explained by changes in the supply or demand situation. For example, wheat prices advanced sharply when World War II began in September 1939, yet when the war spread as Germany moved into the low countries in May 1940, wheat prices declined sharply. There was no significant change in the actual supply situation, but psychological appraisals of the situation changed sharply. Prior to the bank holiday cash wheat prices at Kansas City were less than 50 cents. On July 19, 1933,

No. 2 hard wheat at Kansas City was $1.18. Five days later, the top price was 89.5 cents. For long periods farmers have been unhappy about having their major source of income influenced in this manner.

Examination of variation in annual income from wheat by regions, by states, or by smaller areas indicates the magnitude of the income problem to wheat farmers. Table 8 shows the annual income from wheat in the hard red winter wheat region, deflated by an index of prices farmers pay (including interest, taxes, and wages) for the period 1920 to 1952 inclusive. Table 9 shows similar information for three major soft red winter wheat producing states (i.e., Ohio, Indiana, and Illinois) and the soft red winter wheat region as a whole.

Technological changes during the last generation have had significant influences on the quantity of wheat produced. Technological advances have lowered unit costs of production. In all of the major wheat producing areas mechanical power has replaced horse power and horse drawn equipment. The use of tractors, combines, and trucks is universal. This has reduced per bushel costs, increased the scale of operation, and has made possible tillage practices which previously were not feasible. Summer fallow, improved varieties, and fertilizer have increased yields and encouraged the expansion of acreage in areas previously beyond the margin of cultivation.

The influence of technological changes are summarized by Johnson in data he presented on trends of man-hours per acre, yield, and man-hours per 100 bushels produced[6] (Table 10). These data show that in the 1945-48 period, man-hours of labor per 100 bushels were one-third those required in the 1910-14 period. The effects of the higher efficiency are a factor in the wheat surplus problem. Changes of this kind are not adequately reflected in the formula used for calculating parity prices for wheat.

The competitive situation under which wheat is produced and marketed is a part of the wheat surplus problem. The individual producer cannot gain by restricting output as can manu-

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[6]Sherman E. Johnson, "Changes in American Farming," U. S. Department of Agriculture, Miscellaneous Publication No. 707, December 1949.

facturers operating under conditions of imperfect competition. Wheat farmers are motivated to increase output until estimated per bushel cost of production equals the anticipated selling price.

The production and sale of wheat from the viewpoint of the individual farmer approaches the conditions characterized as pure competition. The individual wheat farmer has a perfectly elastic demand for his output. His demand curve is horizontal. With only minor exceptions his product is undifferentiated. Individually he has no influence on price, regardless of quantity sold, and no bargaining power. He accepts the price and terms of sale established by others. Data in Table 11 indicate the wide fluctuations in prices experienced by farmers. By collective or cooperative action farmers have influenced handling margins and conditions of sale at the local shipping point. Regional cooperatives have influenced handling, warehousing, and sale of cash grain in terminal markets and have made substantial savings to farmers, but their contribution to the solution of the total problem is minor.

Demand—The Income Problem

Turning to the demand for wheat we find two types of outlet influence disappearance or utilization of wheat in the United States: the consumption of wheat as human food, and the utilization for secondary or nonfood uses. Two facts about the utilization of wheat stand out above all others: the extreme stability in the quantity used as human food and the wide variations in the quantity taken for nonfood uses and exports.

The quantity of wheat processed annually for human food during the last twenty years has been slightly less than 500 million bushels. The smallest quantity used annually for human food was 473 million bushels in 1941 and the largest quantity was 500 million bushels in 1943. In the period since the end of World War II the annual variation in the quantity of wheat used for human food in the United States has fluctuated within a range of 1 percent. Prior to World War I per capita consumption of wheat as flour exceeded 200 pounds annually (Table 12). During and immediately after World War I annual per capita consumption declined sharply and remained at a level of about 175 pounds during the twenties. Further declines occurred during the early years of the depression. During most of the thirties and

the early part of the forties annual per capita consumption ranged from 158 to 162 pounds. Further declines occurred after World War II and the recent annual average has been about 135 pounds. The decrease in per capita consumption has been offset approximately by increases in population, which explains the highly stable total consumption of wheat as food (Table 13).

The quantity used for industrial needs, feed for livestock, and exports fluctuates widely. Prior to the beginning of World War II the quantity of wheat used for livestock feed averaged about 100 million bushels annually. With a scarcity of corn and other feed grains and the difficulty of obtaining supplies, the use of wheat for livestock feed increased sharply in 1942 and 1943. During World War II the annual use of wheat for livestock feed averaged approximately 400 million bushels and in one year, 1943, exceeded 500 million bushels. This quantity was larger than the quantity used for food. Use of wheat for the manufacture of industrial alcohol was large during World War II. In 1943 more than 100 million bushels were used for this purpose. Exports from the United States in the last twenty years have ranged from 4.5 million bushels in 1935 to 470 million bushels in 1951.

The wide fluctuations in exports and livestock feed have resulted in large fluctuations in the total disappearance in the United States in spite of the highly stable use for human food. Total disappearance in the last twenty years has ranged from 668 million bushels in 1935 to 1,288 million bushels in 1945. With a single exception, 1949, total disappearance of wheat has exceeded a billion bushels in each season since 1943.

Henry Schultz[7] developed a technique for measuring the demand for wheat in the United States. His most reliable estimate is for the period 1921-34. His estimate of elasticity of demand is — .2143. This means that a 1 percent increase in quantity would be accompanied by approximately a 5 percent decrease in price.

This highly inelastic demand for wheat suggests that schemes for expanding outlets for wheat by increasing human consumption are unrealistic. Wheat producers have often held the hope that advertising might expand the outlets for wheat, as it has done for many manufactured foods and some special crops such

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[7] *The Theory and Measurement of Demand,* University of Chicago Press, 1938.

as citrus fruits. The income elasticity of wheat as food is low also. Level of personal income has relatively little, if any, effect on per capita consumption. In fact there is some evidence that per capita consumption of wheat declines as level of income and level of living improve. The availability of other foods and the increased consumption of fresh fruits, vegetables, and luxury foods as income increases apparently have limited the per capita consumption of cereals, especially wheat.

The rapid shifts in utilization resulting in temporary demand for wheat for secondary uses adds to the complexity of the wheat income problem. Concern over the wheat surplus problem after World War I arose from the fact that production was expanded during and immediately after World War I in response to the abnormal demand arising from military and postwar needs for food. The disappearance of this demand and the decline of the export demand in the thirties were responsible for continuation of the wheat surplus problem. Similar expansion in nonfood demands occurred during World War II as a result of efforts to expand livestock production. This demand was replaced later by the need for food for relief in Europe. This was followed by subsidized exports with emphasis upon the use of wheat for obtaining the cooperation of various areas of the world.

Wheat is an excellent livestock feed and can be readily substituted for other grains in the rations for many kinds of livestock. Outlets might be found for substantial quantities of wheat as feed for livestock in the United States if the level of livestock production is expanded as population increases and per capita consumption of meat and livestock products is maintained. However, to be competitive in price with other feed grains, wheat apparently would need to be priced substantially below the current level of 90 percent of parity. Data on cost of production in the low-cost areas of the Great Plains (Table 14) indicate that wheat might be priced competitively with feed grains and still yield a reasonable return to labor and investment in these areas.

Variations in production, such as occurred in the forties as contrasted to the thirties, and extreme variations in the nonfood uses and exports of wheat have resulted in alternate periods of scarcity and abundance of stocks. A carry-over of nearly 400 million bushels was on hand July 1, 1933. By 1936 we were importing wheat, and at the end of that season carry-over reached

a record low of about 80 million bushels. On July 1, 1942, reserve stocks exceeded 600 million bushels. This was a valuable reserve for the war emergency, but it was soon used up and by 1947, in spite of record crops, we were short of wheat in relation to need for food relief overseas. Now we have near record reserve stocks again. These facts indicate the fluctuating production and utilization of wheat. They should provide the basis for the development of a consistent, well-planned, long-range program of reserve stocks to accompany and undergird price policy relating to wheat.

GOALS OF WHEAT PRICE POLICY

Goals are the criteria or standards against which actions implementing policy may be appraised. It is not feasible to evaluate or appraise programs except in terms of the goals which such programs are set up to achieve. It is not the economist's function to establish goals of price policy, but rather to determine whether or not given actions will achieve the goals which have been established.

Goals of General Economic Policy

Price policy is one phase of agricultural policy, and agricultural policy is only one part of general economic policy. However, it is essential to evaluate specific price programs in terms of the goals of general economic policy. Some of the goals of general economic policy which appear to be widely desired are:

1. Consumer sovereignty. This means that consumers should be free to express their preferences through a system of relative prices.

2. Freedom of resource ownership and use. Private property and individual freedom to assume risk and to make production decisions are basic institutions of our economy.

3. Economic progress. This refers to an increase in real per capita income through time, arising from technological advances and changing consumption habits.

4. High-level production and employment.

5. Expanded world trade. The belief is that trade will foster economic progress in underdeveloped areas while allow-

ing the principle of comparative advantage to operate at home and abroad.

6. Efficient use of resources. This ideal involves the greatest degree of consumer satisfaction consistent with the existing supply of resources and the state of technology.

7. Equitable distribution of income.

8. Economic security. This idea refers to expectations regarding future economic welfare.

It is recognized that there is conflict or inconsistency among these goals. For example, consumer sovereignty at times may conflict with the goal of high-level production and employment. Likewise, freedom of resource use may not promote full production and employment. The determination of priorities in cases of conflicting goals is achieved by political processes. The existence of conflicts in goals and the necessity of determining priorities tempts the economist to make recommendations which appropriately are the sphere of those engaged in political activities.

Specific Goals for Agricultural Policy

Agricultural programs and actions implementing agricultural policy need to be consistent with the goals of general economic policy, but such actions are also designed to achieve certain objectives or goals that are desired by persons engaged in agriculture. It is essential to have an understanding of the specific goals or objectives of agricultural policy if an attempt is made to determine whether given actions achieve the results which farmers desire.

The more specific goals which farmers appear to desire for their industry are:

1. Maintenance of a farming industry capable of producing food and fiber to provide a high level of domestic living in peace and war, and to export when profitable and for some political reasons.

2. Protection of agricultural producers' incomes from:
   a. Low prices resulting from depression.
   b. Low prices resulting from large crops due to unusually favorable weather.
   c. Unfair foreign competition, i.e., dumping.

3. Protection of farmers from monopoly in:
   a. The manufacture and sale of goods for production and for living.
   b. The marketing of farm products.
4. Agricultural research and education for training agricultural scientists, adult leaders, and rural youth.

The list, of course, is not comprehensive. Others may set forth other goals or give variation of emphasis, but the above goals are a set of objectives against which wheat price policy may be appraised.

ANALYSIS OF ALTERNATIVE POLICIES

It should be the function of extension economists to assist farm leaders to determine whether or not given actions or programs will achieve the goals or objectives which they desire. An effective means of doing this is to evaluate or appraise specific programs in terms of general economic goals and specific goals for agriculture. This process consists of examining and evaluating past and existing programs and then comparing them with possible alternative programs which might be adopted in the future.

The Traditional Approach: The Free Market

The traditional approach or means of achieving economic objectives in this country has been the "free market." Until World War I and also quite generally until the depression of the thirties agriculture operated under conditions characteristic of the free market. While many modifications influencing prices and other economic mechanisms have been introduced in the last twenty years, the philosophy of the free market still prevails quite generally in agriculture. It is assumed that farmers still hold the free market system in high regard even though they have asked for many modifications of the system.

The free market is one way to organize economic activity. This organization is based on the belief that land and capital should be private property and controlled by individuals who are free to use them as they choose. It also involves the belief that consumers should be free to choose among the various products in the market and buy whatever they choose. Thus responsibility for setting the pattern of demand is left to consumers.

Producers assume the responsibility of predicting which products in what quantities consumers will demand. The main basis on which producers can predict future demand is past prices. Outlook information attempts to improve this decision-making process. It is assumed that prices will direct resources into their most valuable use.

It is further assumed that the economy will achieve full employment when organized along the principles of the free market. Another assumption is that the value of the total product will be distributed among producers in accordance with the value of their contribution, i.e., that everyone will get the value of his product and that this is "just" and "fair." In practice we have not had a free market which satisfies all these assumptions. Some sectors of the economy have adjusted output to regulate prices. In the short run farmers are unable to control output and influence prices. This puts them at a disadvantage compared with industry.

Experience has shown that the kind of free market we have attained in fact has not brought consistently high employment. Also, we have not been pleased with the distribution of income resulting from the kind of free market we have experienced. In addition, especially for wheat farmers, differences between planned production and actual production due to natural causes and the nature of the demand for bread and cereals have resulted in year to year price fluctuations which are not adequate guides to future needs of consumers.

For these and other reasons, we have had legislation designed to modify the price structure and the pattern of income distribution in agriculture from what the free market would give.

The free market has many great merits. It also has some shortcomings.

The Existing Program: Rigid Price Supports at 90 Percent of Parity

The existing farm program consists of a number of separate programs, many of which do not bear directly on price but which have numerous indirect price implications. In this category are agricultural credit, soil conservation, crop insurance, rural electrification, cooperative marketing, and similar programs. In addition, the current program includes specific actions

relating to prices, reserve stocks, and disposal of surpluses. These phases of the agricultural program may be described briefly as a program of price support for basic commodities, including wheat, at 90 percent of parity through a system of non-recourse loans and purchase agreements to producers. Accompanying this price-support program is provision for acreage allotments and a system of marketing quotas to be implemented when approved by two-thirds of the voting producers. Stocks of storable commodities, such as wheat, acquired under this program are held as reserves by the Commodity Credit Corporation or utilized as determined by administrative decision. In the past, stocks of wheat so accumulated have been used primarily as feed for livestock to increase the production of meat and livestock products during the war emergency, as raw material for the production of industrial alcohol, for the manufacture of synthetic rubber during the war, and for food relief overseas in the postwar period. More recently excess stocks have been moved into the world market by subsidy from treasury funds.

Since the existing program of price support is based upon parity, a few comments concerning the parity concept are appropriate in appraisal of the existing program. The term "parity" was chosen to represent prices on a "par" with other prices. The term implies a "fair" price. The idea of defining farm products in terms of their fairness is an effort to do something to combat all the forces which from time to time have contributed to relatively low farm prices. Some of the forces which have caused these low prices are:

1. General depression.
2. Loss of export market.
3. Overproduction of farm products.

The idea that the agricultural producing industry should receive some particular fraction of the national income is another goal which parity prices were intended to achieve.

In terms of economic analysis, the function of relative prices is to guide production and distribute income. Viewed in these terms, it is unreasonable to apply the moral test of "fairness" to a price. It is reasonable, however, to investigate the causes of instability and low farm prices. Such investigations reveal that legislated prices fail to correct the underlying economic causes

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of low prices and eventually even tend to accentuate some of the causes. This is why economists generally argue that the parity concept is not an appropriate means of solving the problem of agricultural income.

Full parity price for any farm product meant, until 1950, a price in dollars that would buy the same amount of goods that farmers spend their money for in both production and family consumption plus taxes and interest, as a bushel or pound of that product bought in 1910-14.

The Agricultural Act of 1948 provided that in 1950 a modernized parity be calculated by moving the base period to the most recent ten-year period. For 1953 the base period is 1943-52. The effect of modernized parity was in general to raise the parity price of livestock and livestock products but to lower the parity price of crops. Before the 1948 Act went into effect, the Act of 1949 was passed. It provided that the parity price of any basic commodity—corn, cotton, wheat, peanuts, rice, and tobacco— as of any date during the four-year period beginning January 1, 1950, shall not be less than its parity price computed in the manner used prior to the enactment of the Agricultural Act of 1949. In other words, the basic commodities were to be supported on the basis of the old or new parity, whichever was higher. It further provided for "transitional parity prices" for nonbasic commodities. The idea was to limit the reduction in the level of support for such commodities to 5 percentage points a year as the transition from old to new parity was made for commodities having lower parity prices when calculated by the new method.

It is possible to mention many limitations on the use of parity as the mechanism for providing price assurance to agriculture. It is a backward-looking rather than a forward-looking relationship. For many commodities, but especially for wheat, one may question the extent to which the economic relationships involved in parity apply to the current situation. Does it account adequately for technological changes and desirable shifts in production? For wheat, does it reflect adequately the basic supply and demand relationships which underlie the wheat surplus problem? Has use of the parity concept aggravated rather than alleviated the wheat surplus problem? Does the use of parity, even in the modernized form, encourage the production adjustments between wheat and livestock products which consumers desire? These

and many similar questions may be raised concerning the use of parity for establishing rigid price supports for wheat.

The existing program has given wheat farmers assurance of prices at which they may dispose of their products not only within a given marketing season, but it also has provided a price benchmark or basis for planning future operations and the number of acres to be planted. Relating supported prices to a fixed percentage of parity stabilizes prices received by farmers relative to prices paid for commodities used in production and living, but it does not stabilize income. The program, except for a short time during the drouth period, has given consumers assurance of adequate supplies of wheat although consumers may contend that the price has been higher than necessary to call forth an output adequate to meet the needs for human food. The program has protected wheat farmers from major loss of income resulting from seasonal and sharp fluctuations in price arising from large crops and transportation and storage gluts. The relatively favorable level of price support and the assurance of protection from loss have helped to maintain a high level of wheat production during periods of above average needs, such as during World War II and in the postwar period.

The program has produced some results which are not in harmony with either the general economic goals or the economic goals of farmers. It has encouraged the use of land for producing wheat when wheat already was in surplus supply. It has resulted in expansion of wheat acreages which are not justified in terms of the long-run supply and demand relationships. It has contributed to increases in land prices, especially in areas such as western Kansas, where the cost of production in years of favorable yields is low relative to the supported price of wheat. Land prices in the United States are approximately two and a half times 1940 prices. In the western third of Kansas land prices are more than four times as high as in 1940. It is recognized that increases in land values since 1940 were due largely to capitalization of increased income, which was a reflection of both price and yield, and that yield during the forties was influenced in large part by favorable weather. However, the rigid support program tended to maintain wheat prices and thereby contributed to higher land values. In one type of farming area, in which wheat is the major source of income, land prices were about $20 per acre in 1941.

It is estimated that land prices averaged more than $100 per acre in this area on March 1, 1953. In another area, land prices averaged $11 per acre in 1941. Prices in that area averaged $86 per acre on March 1 of this year. These facts are evidence that a substantial portion of the financial benefits of price support at 90 percent of parity has accrued to owners of land.

The program has contributed to additional investment in machinery and equipment, which will tend to result in "excess capacity" for many wheat farmers if they are required to reduce acreage substantially. Wheat price supports at 90 percent of parity have been of greatest benefit to those owning most resources. In effect, the amount of financial benefit is tied to the scale of operations and the volume of production. Furthermore, the financial advantage tends to be largest in those years of large crops when additional income is least needed by wheat farmers.

Owing to the fact that acreage allotments and marketing quotas have been imposed for only relatively short periods of time, there has been relatively little loss of freedom of decision in planning production. However, with the establishment of acreage allotments and with the imposition of marketing quotas there will be substantial restriction of freedom of individual decision with respect to resource use. Resistance to this loss of freedom will create many administrative headaches when marketing quotas are imposed. Observation indicates that the favorable situation under which wheat farmers have operated during the past ten years in regard to guaranteed prices and freedom to produce a maximum amount has dulled their vision with respect to the "cost" of supported prices in terms of loss of freedom of action.

The system of price supports which has been established for wheat has not resulted in output being obtained from lowest cost producers. Some estimates of the per bushel cost of production based on 1941-50 yields and 1926-47 yields for selected areas in Kansas, northern Indiana, and southern Michigan were made at the Kansas Station. These calculations show an estimated cost of less than 80 cents a bushel in southwestern Kansas through the use of summer fallow as compared with costs ranging from $1.50 to $1.75 in eastern Kansas and northern Indiana. This indicates wide variations of costs among the various areas producing wheat. These estimates indicate also that the level of

supports prevailing at present is well above the level necessary to call forth a volume of wheat production to meet adequately the domestic needs for human food.

Supports at 90 percent of parity have held domestic wheat prices substantially above the world level of wheat prices and above the prices specified in the International Wheat Agreement. Sale under the International Wheat Agreement and movement of additional reserve stocks into export have required substantial amounts of public funds for disposing of stocks of wheat not needed for domestic requirements. More than one-half billion dollars has been paid to subsidize the exports of wheat during the last four years. In spite of this substantial subsidy excess stocks have continued to accumulate and on June 30 of the current year were 559 million bushels. This is near an all-time record. Consumers have questioned the program of rigid price supports to producers, especially on commodities such as potatoes and eggs, where prices received by farmers make up a substantial portion of the price paid by consumers. Consumers of bread and cereals have not been particularly critical of the wheat price-support program primarily because the price which farmers receive for wheat used in these products is a relatively small proportion of the retail price which the housewife pays for bread and cereals.

Flexible Price Supports

The Agricultural Act of 1949 provides for a system of flexible price supports for basic commodities. The scale of supports established in the Act ranges from 75 to 90 percent of parity, varying inversely with changes in total stocks of the commodity.

The purpose of a system of flexible price supports related to total stocks is an attempt to adjust the support price to the inelasticity of the demand curve. In practical testing of flexible supports for a commodity such as wheat it is essential to consider the degree to which the scale of flexible supports takes into account the elasticity of the demand curve. The hypothesis to be tested is that the demand for wheat in the domestic market is more inelastic than the scheduled demand established in the Agricultural Act of 1949 under the flexible price-support provision. If estimates of these two schedules could be developed, one should be able to make some estimate of the quantity of wheat which would go into storage for crops of various sizes correspond-

ing to any given level of price support which might be provided. Reference has already been made to the demand curve developed by Henry Schultz for wheat which has a coefficient of elasticity of demand of —.2143.

Using Schultz' procedure a multiple regression was computed for data in the United States for the years 1935-51 excluding the years 1943, 1944, and 1945. These years were excluded on the grounds that per capita utilization was unusually high as a result of subsidized feeding and commercial use of wheat. The price series used was the season average farm price given in Agricultural Statistics deflated by an index of wholesale prices, 1913= 100. The calculated elasticity was found to be —.1209, which is very low. This calculation involves the assumption that the elasticity of demand is constant throughout the demand schedule, which is possibly unrealistic at lower prices where wheat would become competitive as a feed grain. Estimates on the price elasticity of demand for corn range from —.4 to —.5. This means that the demand for wheat would have a similar elasticity at the range of prices in which wheat would be substituted for corn.

Estimates of the amount of wheat that would be carried over under various levels of price supports are shown in Table 15. The estimates on carry-over were calculated on the assumption that 300 million bushels could be sold in the export market.

A system of flexible price supports varying inversely with stocks would retain a substantial degree of the price assurance features of the system of rigid support prices but should modify substantially the quantity of surplus stocks accumulated. The amount of funds required for subsidy should be smaller. The effects of flexible supports on farm income and resource use would be in the same direction as the effects of rigid high-level supports, but the degree of effect would be modified.

Flexible price supports would not solve all of the wheat surplus problem.

Wheat surpluses would be modified but not avoided.

Production controls on wheat would be required in some situations but not as frequently as with rigid supports.

Flexible loan rates would tend to stabilize total income for groups of producers as compared with income under a system of rigid supports.

Flexible supports varying in the opposite direction from total stocks would promote the exporting of wheat and would encourage feeding of wheat to livestock.

The idea has been advanced that stocks of all grains might be combined to serve as a composite basis for supporting prices of grains. Stocks of wheat and stocks of the four feed grains might be combined in establishing the basis for support. This idea has not been analyzed adequately to determine the effects on farm income, influence on the substitution of wheat and feed grains, and the prospective cost of such a program compared to the current system of price supports.

Two-Price Systems

Two-price systems have long been suggested as solutions to the wheat problem. The McNary-Haugen plan, which was advocated in the twenties, and the various export subsidy schemes belong to this category. The United States has had a two-price system for wheat during the last four years. This program has cost approximately one-half billion dollars in export subsidies.

A two-price or multiple-price system is a form of price discrimination. Price discrimination is a term (used in the simplest sense) applied to the practice of charging different buyers different prices for the same product. Successful price discrimination rests upon the following conditions:

1. Monopoly or collusion among sellers. Otherwise individual sellers could always profit by selling their output in the higher priced market. Monopoly implies control of production.

2. The total market must be capable of subdivision into separate markets such that reaction of buyers to price changes varies from one market to another.

3. The cost of preventing persons who buy in the lower-priced market from reselling in the higher-priced market must be less than the gain to be derived from price discrimination.

Where these conditions can be met, a particular group, such as wheat growers, can increase the average price of its product above that which would prevail in a freely competitive market and thereby gain an advantage relative to other groups in the economy, provided production is strictly controlled.

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Chronic surpluses are taken to be evidence of too many resources engaged in production of agricultural products. This is considered to be an agricultural problem. If the average price under a two-price system were less than that received under present support programs with no reduction in price uncertainty, then such price discrimination would tend to discourage the use of some resources in agriculture and thereby tend to alleviate this problem. On the other hand, if the average price were increased under a two-price system, resources would be attracted to agriculture. This would tend to worsen the already existing problem unless production were strictly controlled.

A disparity of agricultural producers' incomes compared to that of producers in other sectors of the national economy is also considered to be a problem. If, as stated above, the average price under a two-price system were less than present support prices, farmers' net income would drop in the short run because receipts would drop more rapidly than costs. In the long run, farmers' net income for particular groups could be maintained above the level possible in a free market operation as long as production was rigidly controlled. With production controls a market probably would spring up in production rights (such as acreage allotments or quotas). The value of these rights would be capitalized into value of land and other factors of production.

Price discrimination might assist in easing the shock of lower farm incomes that result from temporary overproduction. There are, however, alternative ways of dealing with this problem, which might prove superior to price discrimination. Weather fluctuations are another agricultural problem.

Self Regulation by Producer Groups

Wheat farmers have long had the desire for greater control over the movement into market channels and the pricing of their commodity. The efforts of The United Grain Growers following World War I, the state wheat pools, and the international wheat pool conferences of the early thirties were actions growing out of this fundamental desire. The establishment by the Federal Farm Board of a national sales agency for wheat known as the Farmers National Grain Corporation was a response to the demand on the part of farmers to have governmental assistance in achieving greater control over the marketing and pricing of wheat. In

Canada the provincial and dominion wheat pools with a central selling agency and a system of orderly marketing during the twenties was the outgrowth of a similar desire among Canadian farmers. These unsuccessful attempts in the decade following World War I raise the question whether this approach ever can be successful for a basic food commodity, such as wheat, produced over wide geographical areas and under widely divergent circumstances. However, unsuccessful attempts in the past are not an indication that this approach may not be attempted again at some time in the future.

Some commodity groups, such as the citrus fruit producers and walnut growers, have achieved a substantial degree of control over output and price through cooperative action or marketing agreements. Fluid milk producers have influenced prices and quantity marketed by collective bargaining.

Group action in the control of wheat output would be difficult to achieve because of the number of producers and the diverse geographical areas involved. In the past, producer groups have not been successful in influencing prices for substantial periods of time when large numbers and large areas were involved. However, Canadian wheat farmers gained substantial control over the marketing of their crop prior to the depression period, and labor unions have been successful in maintaining collective action involving large numbers of individuals.

Self regulation would give wheat farmers the opportunity to decide for themselves by democratic action how much wheat they wished to market and the price at which it would be moved into marketing channels. Such action, unless supported by effective state or federal legislation, would involve undesirable policing activities such as have been characteristic of collective bargaining of labor and the collective bargaining of milk prices.

The possibility of self regulation is mentioned here because of fundamental desires of farmers. They seek a minimum of government regulation and a maximum of freedom to make their own decisions. They also seek equality of bargaining power in the market place. Cooperative or collective action would give wheat farmers a degree of independence and a feeling of status which will not prevail under marketing quotas and government established support prices. Independence, equality, and bargaining

power have been traditional desires among farmers. It is conceivable that they might be willing to sacrifice some economic advantage to gain these goals. This approach, of course, raises the question of monopoly control.

The Canadian System of Price Support

In the major wheat producing areas of Canada the marketing of wheat is under government control. There is only one agency to which farmers can sell their wheat. This is the Canadian Wheat Board which sets prices paid to farmers and prices at which wheat is sold on the domestic market. The initial payment to farmers is a conservative estimate of what the Board considers may be the price at which it will later resell the wheat. The amount of the forthcoming initial payment is announced prior to seeding time. This is a guaranteed minimum.

If the price at which the Board resells the wheat turns out to be greater than estimated or if the estimate was too conservative, and returns accrue to the Wheat Board, these returns may be distributed subsequently to farmers as participating payments.

Export prices obviously cannot be dictated by the Wheat Board. With the exception of International Wheat Agreement commitments, export wheat is sold at prevailing world prices.

In Canada there is no direct control of acreage seeded. Farmers are free to plant as much or as little as they please. There is no provision in the current legislation for acreage control. However, in 1941 and 1942 such controls were in effect. There are controls on the marketing of wheat. Farmers market their wheat under a delivery quota system which is based upon seeded acreage. Ordinarily the first delivery quota for a given crop is about five bushels per seeded acre. Later deliveries are geared to the availability of storage and transportation. Farmers are responsible for the maintenance of quality as long as the wheat is on the farm. No payments are received by farmers until delivery is made, and delivery cannot be made until authorized by the Wheat Board.

Grain marketing facilities are owned and operated by private and cooperative interests. However, margins for handling grain are fixed by the Board so that dealers are in effect little more than government agents.

The Canadian program relies on the judgment of the Wheat Board for the initial payment and to a certain extent on the discretion of government for participating payments. Farmers are never entirely sure about the final price until long after they have disposed of their wheat. In some instances participating payments have been made retroactive for several years. A possibility exists that timely distribution of these payments may be used to exert political influence on wheat farmers.

It might be noted that in comparison to free market operations the Canadian marketing program is under almost complete governmental control. There are conflicting reports on the program's reception in Canada. Unofficially, it is reported that the private grain trade is almost unanimously opposed to the program. On the same basis it is reported that many farmers approve and endorse it.

In comparing the Canadian program with that of the United States, it appears that attention should be directed to the difference in objectives of the two programs. The major objective in Canada apparently is to "stabilize the market." There is no explicit reference to parity or redistribution of national income in favor of agriculture. In the United States the objectives include both stability of income and a concept of establishing farm income on a parity with other segments of the economy.

Even if it were granted that the centralized program is working with a reasonable degree of satisfaction in Canada, that would not necessarily insure an equal degree of success in the United States. Unless the objectives or goals were the same and unless United States citizens held value judgments regarding the ordering or weighing of goals that were similar to those held by Canadians, there would be no assurance of similar results. Furthermore, the relative importance of the agricultural sector to the total national economy is substantially different in Canada than it is in the United States. In Canada, agriculture is relatively more important than the industrial sector. Under such circumstances, even though incomes in the industrial sector might be greater than in agriculture, an attempt to obtain parity by subsidizing agriculture from public funds would to a large extent be asking agriculture to lift itself by its own boot straps. The base of the industrial sector from which agriculture might be subsidized simply is too small to be effective. This also is tied up with

the fact that Canadian wheat prices are dominated to a large extent by export prices. This means that the well-being of Canadian wheat farmers is determined largely by world wheat prices and the remainder of the Canadian economy is not of sufficient relative importance to carry agriculture, so to speak. This is not true to the same extent in the United States, although in principle the situation is similar and eventually the same forces might prevail.

The Canadian program is primarily a pricing and marketing system to assist Canadian farmers to move their production into the world market in an orderly manner at stable prices. It is doubtful if United States wheat producers would be willing to accept a price which would permit our surplus production to move into the world market without subsidy.

In examining governmental programs to assist farmers, mention should be made of the British agricultural program. The British program was improvised piecemeal to meet specific emergencies but an attempt was made in the Agricultural Act of 1947 to systematize the plan into a coordinated scheme. Two primary features of the program are guaranteed fixed prices and various forms of direct and indirect subsidies.

The objective of the program is to establish stability of net farm income for British agriculture as a whole. The Act does not specify the level at which net income is to be stabilized. However, the government's policy is stated to be the promotion of a "stable and efficient agricultural industry capable of producing such part of the nation's food and other agricultural produce as in the national interest it is desirable to produce in the United Kingdom, and of producing it at minimum prices consistent with proper remuneration and living conditions for farmers and workers in agriculture and an adequate return on capital invested in the industry."

The Act provides that the government fix prices for stated periods ahead for all the main farm products. Some are announced for as much as four years in advance. These prices are reviewed once a year. Thus, prices are fixed for the year immediately following the review. Guaranteed prices beyond the immediate year are in effect minimum prices. Subsequent reviews may increase them. In a few cases maximum prices are also announced. In the case of wheat, prices are fixed in February for

the crop to be harvested the year following that in which the review is held.

Before determining the annual price schedules the government is under obligation to consider, in consultation with representatives of the farmers, "the general economic conditions and prospects of the agricultural industry." In effect, the outcome is a negotiated price. However, the ultimate price is the responsibility of the government alone and it is not essential that the review should result in agreed prices. Nevertheless, great importance is attached to these consultations between the government and farmers' representatives.

The British system was designed to give producers not only a guaranteed fixed price but an assured market for their output at that price. This is accomplished through a system of central purchase by the government either directly (as for livestock) or through accredited agents (as for cereals, sugar beets, milk, and eggs). The Act of 1947 provides the right to fix quantitive limits but so far this has not been used. Thus, there are no direct production controls. The price mechanism is used by the government to direct the use of resources into what is believed to be the most desirable uses from the standpoint of national economy.

Forward Prices

Forward pricing is a system of pricing that might be adapted to wheat. Forward prices are employed in the British agricultural program. Wheat is a commodity that has characterstics of production and use which lend themselves to a specified or guaranteed price for given production periods. As indicated earlier, one of the major problems of the wheat industry is the large fluctuation in price from season to season resulting from variations in natural influences, such as weather. Forward pricing would reduce price uncertainty to wheat farmers by improving estimates of demand. Guaranteed prices for a production period would reduce price uncertainty for wheat farmers by transferring responsibility for market demand from wheat farmers to consumers of flour and cereal products. This method of pricing would reduce the effects of fluctuations in production (from surplus to shortages) and would improve the welfare of consumers by giving them protection from shortages and high prices. This would be accomplished by charging deficiency payments

and storage costs (if they exceeded gains) to the general treasury. It can be argued that the cost transferred to consumers of wheat is a type of insurance premium against shortages and attendant high prices. To operate effectively a system of forward pricing would need to be accompanied by a storage program or a program of adequate reserve stocks. The physical characteristics of wheat lend themselves to storage and economical transportation.

Forward pricing would provide opportunity to continue the freedom of individual farmers to own and control resources used in the production of wheat. A board of competent technicians having access to information on utilization, export outlets, and production costs and techniques in various areas should be able to set forward prices which would result in fewer mistakes in adjusting production to utilization than have characterized the free market as a mechanism for controlling resources applied to wheat production.

Forward pricing would not cure all the economic ills of the wheat industry. The system would not compensate for extremes of weather or unemployment. There could be political pressure on the price setting board, and there would be error in the predicted prices.

Socialized Wheat Production

The traditional approach for pricing of farm commodities in the United States has been the free market operating through competitive prices. At the other end of the range of possibilities is centralized planning with all production, pricing, and use decisions being vested in a central board or commission having authority to say how much should be produced, who should produce, and the price at which the product should be delivered. Use of this system in varying degree has been attempted by totalitarian countries. Experiences of Germany and Italy in providing food for their populations and the current food situation in the once productive agricultural regions of eastern Europe indicate that this system is not effective for a substantial period of time. The basic economic institutions of private property, freedom of contract, and personal liberty plus the traditional independence and the democratic philosophy of this country indicate that such a system would have little acceptance or effectiveness

in the United States. However, the nature of the surplus problem in wheat and the need for food in other areas of the world suggest centralized planning as a possible approach.

CONCLUDING APPRAISAL

When attempting a summary appraisal of suggested or possible schemes for implementing price policy for a commodity such as wheat, one is confronted with conflict or inconsistencies among the general economic goals and the specific goals of agricultural policy. If primary consideration is given to consumer sovereignty, freedom of resource ownership, and efficiency of resource use, the traditional approach of the free market with competitive prices has first priority. On the other hand, if economic security and protection of farmers' incomes from low prices and monopoly influence are given primary consideration, rigid high-level supports appear to give the best prospect of achieving these goals. The ranking or priority given to the various means is determined primarily by the relative emphasis or importance given to economic goals.

In the choice of means, considerations other than those of economic goals also enter the picture. Political feasibility, consumer reaction, and financial cost to taxpayers are important considerations. Considering the political strength of agriculture, the political influence of wheat farmers, the importance of wheat in the economy of the country, and the importance of wheat in terms of defense and political strategy, it is assumed that the wheat industry will continue to receive consideration as price policies and programs are modified or replaced. On the other hand, when consideration is directed to the magnitude of the wheat surplus problem, the relatively minor progress toward achieving real solutions, and financial costs to taxpayers, it is questionable if transfers of income comparable to those of the last four years will continue to be approved for the wheat industry. There is reason to believe that the substantial transfers of income to wheat farmers through subsidies from the treasury during the last ten years of excellent yield and full employment may have jeopardized the farmer's position with taxpayers and consumers. There may be subsequent periods of low yields and low prices similar to those of the thirties when the good will and assistance of taxpayers and consumers generally will be needed more urgently than during recent years.

If an attempt is made to compromise or harmonize basic goals, such as freedom of resource ownership and efficiency of resource use, with other goals, such as economic security and price assurance, and if possible programs are appraised in terms of political feasibility and taxpayer tolerance, it appears that some modification of the existing scheme of price supports, such as flexible supports, are probable. The high degree of inelasticity of demand for wheat, the large quantities of resources available for wheat production, the recent response of acreage to increases in prices, and the price uncertainty characteristic of the competitive market appear to rule out a return to the free market for wheat which prevailed prior to the depression period.

On the other hand, emphasis upon freedom of decision, democracy in political actions, and the traditional independence of farmers appear to preclude the development of any program of highly regimented actions such as centralized planning, or even programs similar or comparable to the Canadian or British plans. A two-price or multiple-price system falls within the realm of political feasibility and taxpayer tolerance, but economic analysis of such schemes leaves much to be desired in terms of long-run contributions to real solution of basic problems. In the longer run as a possible successor to a system of flexible prices, a scheme of forward pricing offers substantial possibilities. Forward pricing has some of the advantages, in terms of stability of income and price assurance, characteristic of the system of pricing of the products of industry and the system of wage determination. At the same time it provides opportunity for flexibility of adjustment from season to season to take into account the variability of yield resulting from natural influences and the variability in utilization arising from fluctuations in nonfood uses of wheat.

Modifications over time or changing emphasis on economic goals may reduce the inconsistency or conflicts in goals. This may make it easier to develop and plan action programs in the future. The current generation of citizens apparently gives less emphasis or priority to freedom of ownership and resource use and relatively more emphasis to economic security and price assurance than did the generation of our fathers and grandfathers. This indicates that understanding and acceptance of basic goals may make it easier to determine the means or method of implementing goals in the future.

In an opening paragraph of this paper, it was recognized that actions implementing agricultural policy may be designated as direct price-income programs and general programs affecting use of resources. When consideration is given to the long-run interests of agriculture and the social welfare, one may contend that an undue emphasis has been given to price policy during the last twenty years with relatively insufficient emphasis and consideration to programs relating to resource use. When the contribution of agricultural research and agricultural education, including the efforts of extension workers, is considered, one is inclined to conclude that more long-run benefits might have been obtained for agriculture if a portion of the half billion dollars used to subsidize exports of wheat had been directed toward expansion of fundamental research and adult education. This is not intended to minimize past accomplishments. Rather it is a tribute to scientists and educators who have contributed to the sound and efficient use of agricultural resources in America. It is through these means rather than through direct financial assistance that real improvement in the welfare of wheat farmers is to be achieved. The real solution to the wheat surplus problem lies in this direction. This road is long and progress may not be spectacular.

TABLE 1. WHEAT: SUPPLY AND DISAPPEARANCE, UNITED STATES, 1935-52[1]

Year Begin- ning July	Supply			Disappearance							
	Carry- over[2]	Production	Total	Continental United States					Military procure- ment[3]	Exports[4]	Total
				Processed for Food	Seed	Industrial	Feed	Total			
				Thousands of Bushels							
1935	145,889	628,227	808,733	483,750	87,479	55	89,687	660,971		4,440	668,300
1936	140,433	629,880	804,768	489,474	95,896	59	103,917	689,346		9,584	701,926
1937	83,167	873,914	957,715	485,433	93,060	69	118,836	697,398		103,889	804,608
1938	153,107	919,913	1,073,291	495,855	74,225	103	142,122	712,305		108,083	823,276
1939	250,015	741,210	991,488	490,415	72,946	89	99,588	663,038		45,258	711,767
1940	279,721	814,646	1,097,890	491,845	74,351	100	109,510	675,806		33,867	713,157
1941	384,733	941,970	1,330,365	473,266	62,490	1,676	114,081	651,513	16,133	27,880	699,590
1942	630,775	969,381	1,601,210	499,986	65,487	54,437	300,725	920,635	25,244	30,872	982,313
1943	618,897	843,813	1,599,069	481,876	77,351	108,125	506,576	1,173,928	62,759	42,811	1,282,514
1944	316,555	1,060,111	1,419,014	471,923	80,463	83,132	301,017	936,535	150,146	49,106	1,139,834
1945	279,180	1,107,623	1,388,784	473,127	82,006	21,302	297,346	873,781	90,884	320,025	1,288,698
1946	100,086	1,152,118	1,252,261	483,343	86,823	58	173,546	743,770	92,452	328,209	1,168,424
1947	83,837	1,358,911	1,442,878	488,385	91,094	693	174,008	754,180	148,616	340,223	1,246,935
1948	195,943	1,294,911	1,492,354	479,392	95,015	193	97,491	672,091	181,518	327,826	1,185,069
1949	307,285	1,098,415	1,407,890	483,754	80,815	192	111,847	676,608	123,526	179,213	983,176
1950	424,714	1,019,389	1,455,929	481,708	87,427	192	112,083	681,410	40,080	334,513	1,059,695
1951[5]	396,234	980,810	1,408,549	481,165	83,208	930	94,304	664,607	14,151	470,347	1,152,955
1952[5]	255,594	1,291,447									

[1]Includes flour and products in terms of wheat.

[2]Prior to 1937 some new wheat included; beginning with 1937 only old-crop wheat is shown in all stocks positions. The figure for July 1, 1937, including the new wheat, is 102.8 million bushels, which is used as year-end carry-over in the 1936-37 marketing year.

[3]Includes procurement for both civilian relief feeding and for military food use; military takings for civilian feeding in occupied areas measured at time of procurement, not at time of shipment overseas.

[4]Exports as here used, in addition to commercial exports, include USDA flour procurement rather than deliveries for export. Beginning with 1941-42, deliveries for export (actual exports, including those for civilian feeding in occupied areas) of wheat, flour, and other products, in millions of bushels, were as follows: 27.9, 27.8, 42.6, 42.6, 144.4, 390.6, 397.4, 485.9, 504.0, 299.1; 366.1; and for 1951-52, 475.2.

[5]Preliminary.

Source: Wheat Situation, USDA, Bureau of Agricultural Economics.

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TABLE 2. WHEAT: SEEDED ACREAGE IN SPECIFIED WHEAT GROWING REGIONS, UNITED STATES, 1919-53

Year	Hard Winter Wheat[1]	Spring Wheat[2]	Soft Winter Wheat[3]	Pacific Northwest[4]
	Thousands of Acres			
Average 1929-33	27,636	20,416	10,568	5,202
1919	24,727	21,706	20,660	4,774
1920	22,066	19,905	17,106	4,817
1921	23,830	20,526	15,481	4,288
1922	25,478	18,065	15,404	4,268
1923	23,910	17,533	15,439	3,974
1924	20,177	16,006	12,414	3,958
1925	22,893	18,295	11,945	5,436
1926	23,935	18,056	11,264	4,256
1927	26,537	19,487	11,681	4,612
1928	27,204	21,130	14,498	4,699
1929	27,234	20,687	10,623	5,186
1930	28,327	19,959	10,609	5,361
1931	28,434	19,116	10,787	4,662
1932	27,109	20,783	10,065	4,853
1933	27,078	21,535	10,755	5,946
1934	26,615	17,718	11,745	4,293
1935	28,145	20,605	12,608	4,365
1936	29,931	21,806	13,042	5,117
1937	34,933	20,086	15,733	5,349
1938	35,356	20,904	13,620	4,805
1939	28,028	15,929	11,392	3,941
1940	26,112	17,248	10,658	4,171
1941	27,508	16,762	10,736	4,129
1942	23,280	14,737	8,339	3,502
1943	23,525	17,083	8,238	4,205
1944	28,961	19,193	9,978	4,602
1945	31,952	18,616	10,294	4,793
1946	33,837	20,037	9,034	5,143
1947	37,553	20,648	10,289	5,373
1948	36,509	20,244	11,156	5,582
1949	39,385	22,693	11,165	5,950
1950	32,890	18,967	9,967	5,168
1951	35,436	22,091	10,128	5,848
1952[5]	34,780	22,060	10,115	5,825
1953[6]	34,316	21,325	10,635	5,995

[1]Kansas, Oklahoma, Texas, Nebraska, and Colorado.
[2]North Dakota, Montana, South Dakota, and Minnesota.
[3]Ohio, Missouri, Indiana, Illinois, Pennsylvania, North Carolina, Virginia, Kentucky, Tennessee, Maryland, South Carolina, Georgia, and West Virginia.
[4]Washington, Oregon, and Idaho.
[5]Preliminary.
[6]December 1952 winter estimate and March 1953 spring prospective plantings.

Source: Wheat Situation, USDA, Bureau of Agricultural Economics.

TABLE 3. WHEAT: SUPPLY AND DISTRIBUTION IN
CONTINENTAL UNITED STATES, 1909-53

Year Beginning July	Stocks July 1[1]	New Crop	Total Domestic Supply	Total Domestic Disappearance	Net Exports[2]	Stocks June 30[1]
			Millions of Bushels			
1909	55	684	739	538	91	110
1910	110	625	735	537	73	125
1911	125	618	743	552	81	110
1912	110	730	840	568	147	125
1913	125	751	876	612	149	115
1914	115	897	1,012	607	338	67
1915	67	1,009	1,076	609	242	225
1916	225	635	860	596	184	80
1917	80	620	700	555	105	40
1918	40	904	944	580	279	85
1919	85	952	1,037	647	220	170
1920	170	843	1,013	574	315	124
1921	124	819	943	579	268	96
1922	96	847	943	603	208	132
1923	132	759	891	620	134	137
1924	137	842	979	613	258	108
1925	108	669	777	584	96	97
1926	97	832	929	611	209	109
1927	109	875	984	677	194	113
1928	113	914	1,027	656	144	227
1929	227	824	1,051	622	138	291
1930	291	887	1,178	759	106	313
1931	313	942	1,255	760	120	375
1932	375	756	1,131	722	31	378
1933	378	552	930	633	24	273
1934	273	526	799	659	− 6[3]	146
1935	146	628	774	661	−27[3]	140
1936	140	630	770	689	−22[3]	103
1937	83[4]	874	957	701	103	153
1938	153	920	1,073	713	110	250
1939	250	741	991	663	48	280
1940	280	815	1,095	676	34	385
1941	385	942	1,327	668	28	631
1942	631	969	1,600	949	32	619
1943	619	844	1,463	1,237	−91[3]	317
1944	317	1,060	1,377	992	106	279
1945	279	1,108	1,387	894	393	100
1946	100	1,152	1,252	767	401	84
1947	84	1,359	1,443	757	490	196
1948	196	1,295	1,491	678	506	307
1949	307	1,098	1,405	679	301	425
1950	425	1,019	1,444	690	358	396
1951	396	981	1,377	673	448	256
1952[5]	256	1,291	1,547	672	316	559
1953	559	1,175	1,734			

[1]Stocks 1909-22 partly estimated to include same positions as currently reported.
[2]Includes products in terms of wheat and includes shipments to territories of the United States, which currently total about 4 million bushels.
[3]Net imports.
[4]1909-36, some new wheat included in commercial and merchant mill stocks; 1937 to date, only old crop is shown in all stocks positions.
[5]Preliminary.
Source: Wheat Situation, USDA, Bureau of Agricultural Economics.

TABLE 4. PERCENTAGE OF WHEAT ACREAGE ABANDONMENT,
MAJOR REGIONS, 1919-52

For Crop of:	Hard Winter	Soft Winter	Spring	Pacific Northwest
	Percent			
1919	1	1	14	2
1920	11	9	4	7
1921	6	2	5	2
1922	18	3	1	4
1923	23	6	6	3
1924	5	9	1	13
1925	20	8	5	28
1926	9	4	7	3
1927	19	5	1	3
1928	16	44	3	4
1929	7	5	4	8
1930	8	8	4	19
1931	5	2	34	10
1932	9	5	4	9
1933	43	3	24	33
1934	33	4	59	15
1935	45	3	21	12
1936	32	7	61	16
1937	25	7	29	16
1938	16	6	19	7
1939	26	7	15	8
1940	26	3	6	4
1941	17	10	3	5
1942	7	8	2	5
1943	8	11	6	15
1944	15	7	5	6
1945	7	6	4	5
1946	8	5	4	5
1947	4	5	5	6
1948	11	4	7	12
1949	13	4	7	11
1950	22	8	4	5
1951	38	12	4	9
1952	12	6	6	5

TABLE 5. FREQUENCY DISTRIBUTION OF PERCENTAGE OF WHEAT ACREAGE ABANDONED, MAJOR WHEAT REGIONS, UNITED STATES, 1919-52

Percentage of Abandonment	Region			
	Hard Winter	Soft Winter	Spring	Pacific Northwest
	Number of Years			
0- 4	2	11	14	8
5- 9	11	19	11	14
10-14	4	3	1	5
15-19	6		2	5
20-24	3		2	
25-29	3		1	1
30-34	2		1	1
35-39	1			
40-44	1	1		
45-49	1			
50-54				
55-59			1	
60 and more			1	
Total	34	34	34	34

TABLE 6. COEFFICIENTS OF CORRELATION AS CALCULATED FOR THE FOUR MAJOR WHEAT PRODUCING REGIONS

Region	r	Degree of Significance of r[1]
Hard Red Winter	+.75	Highly significant, i.e., 1% level
Pacific Northwest	+.73	Highly significant, i.e., 1% level
Spring	+.59	Significant, i.e., 5% level
Soft Red Winter	—.13	Nonsignificant

[1]The degree of significance is based upon probability estimates. Its meaning may be expressed as follows, using the coefficient of correlation of the hard red winter area as an example: If there actually is no relationship between two variates of a population, the chances of getting a sample r as large as .75 (with 15 degrees of freedom) are less than one in one hundred. Therefore, it may be concluded that there is a relationship between the variates in question.

No adjustments have been made for possible effects of trend. The calculations were based on data for years, 1936 to 1951. It is likely that trend effect in that period would be negligible as the wheat industry was well established and no major innovations were introduced.

TABLE 7. MEAN AND STANDARD DEVIATION, YIELD PER SEEDED ACRE, MAJOR WHEAT REGIONS, UNITED STATES, 1938-53

	Region			
	Hard Red Winter	Soft Red Winter	Spring	Pacific Northwest
	Bushels per Acre			
Mean	12.7	18.2	14.4	24.7
Standard deviation	3.3	2.5	3.6	2.3

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TABLE 8. INCOME (VALUE OF PRODUCTION) FROM WHEAT,
HARD RED WINTER WHEAT REGION (KANSAS, OKLAHOMA,
TEXAS, NEBRASKA, COLORADO), 1920-52

For Crop of:	Deflated[1] Income
	Millions
1920	$250
1921	189
1922	152
1923	107
1924	221
1925	148
1926	241
1927	202
1928	215
1929	198
1930	150
1931	120
1932	70
1933	96
1934	118
1935	109
1936	184
1937	248
1938	146
1939	137
1940	137
1941	223
1942	296
1943	249
1944	314
1945	348
1946	444
1947	615
1948	409
1949	344
1950	290
1951	211
1952	437

[1]Deflated by index of prices paid by farmers, interest, taxes, and wages, 1910-14 = 100.

Source: 1920-44, Wheat Production, Farm Disposition and Value, 1904-44, USDA, Bureau of Agricultural Economics, March 1948; 1945-51, Agricultural Statistics, USDA (production times average season's price received by farmers); 1952, calculated.

TABLE 9. INCOME (VALUE OF PRODUCTION) FROM WHEAT, OHIO, INDIANA, AND ILLINOIS, 1920-52

For Crop of:	Deflated[1] Income			
	Ohio	Indiana	Illinois	Total of Three States
	Millions			
1920	$30	$23	$44	$97
1921	20	19	33	72
1922	23	20	38	81
1923	24	22	36	82
1924	31	25	30	86
1925	23	25	33	81
1926	30	28	34	92
1927	23	23	28	74
1928	8	8	17	33
1929	22	22	18	62
1930	15	14	19	48
1931	19	14	15	48
1932	14	9	10	33
1933	30	18	24	72
1934	27	22	26	75
1935	30	19	20	69
1936	34	26	30	90
1937	36	26	35	97
1938	23	14	20	57
1939	23	14	23	60
1940	27	17	22	66
1941	38	26	26	90
1942	28	11	10	49
1943	23	13	15	51
1944	35	21	20	76
1945	48	29	21	98
1946	48	28	18	94
1947	48	34	28	110
1948	46	30	34	110
1949	72	28	34	134
1950	37	20	23	80
1951	26	23	26	75
1952	39	25	30	94

[1]Deflated by index of prices paid by farmers, interest, taxes, and wages, 1910-14 =100.

Source: 1920-44, Wheat Production, Farm Disposition and Value, 1904-44, USDA, Bureau of Agricultural Economics, March 1948; 1945-51, Agricultural Statistics, USDA (production times average season's price received by farmers); 1952, calculated.

TABLE 10. AVERAGE HOURS OF LABOR USED PER ACRE, AND PER UNIT OF PRODUCTION AND YIELD PER ACRE OF WHEAT FOR SELECTED PERIODS, 1910-48

	1910-14	1925-29	1935-39	1940-44	1945-48
Man-hours per acre	15	11	9	7	6
Yield, bushels	14.4	14.1	13.2	17.1	17.7
Man-hours per 100 bushels	106	74	67	43	34

TABLE 11. WHEAT: ANNUAL AVERAGE PRICE PER BUSHEL

Year Beginning July	Received by Farmers United States	No. 2 Hard Winter Kansas City	No. 2 Red St. Louis
		Cents	
1909	98.6	107.0	113
1910	90.6	98.0	99
1911	86.5	97.0	94
1912	79.8	88.0	105
1913	78.9	84.0	89
1914	97.1	105.0	110
1915	95.6	119.0	120
1916	143.0	171.0	163
1917	204.0	252.0	223
1918	205.0	219.0	223
1919	216.0	242.0	230
1920	182.0	183.1	213
1921	103.0	119.6	127
1922	96.1	112.6	121
1923	92.3	104.9	107
1924	124.0	135.4	159
1925	143.0	162.7	169
1926	121.0	135.3	138
1927	118.0	135.1	149
1928	98.8	112.4	139
1929	103.0	119.6	130
1930	66.3	75.5	83
1931	38.2	46.9	52
1932	37.5	50.9	55
1933	73.6	88.5	94
1934	83.9	98.1	94
1935	82.7	105.1	95
1936	102.0	121.4	111
1937	95.9	110.8	113
1938	55.6	69.5	70
1939	68.6	74.1	75
1940	67.4	81.9	82
1941	93.9	112.0	110
1942	109.0	126.3	134
1943	135.0	144.8	167
1944	141.0	155.6	158
1945	149.0	160.2	168
1946	190.0	208.8	216
1947	229.0	252.1	245
1948	198.0	218.8	219
1949	188.0	216.0	191
1950	200.0	228.0	220
1951	211.0	243.0	223

Source: Wheat Situation, USDA, Bureau of Agricultural Economics, July-August 1950, January-February 1950, and January-February-March 1953, and Agricultural Statistics, USDA, 1942 and 1952.

Year[1]	Wheat Flour	Cereal
	Pounds	
1909	209.4	3.0
1910	211.9	3.0
1911	206.8	3.0
1912	212.5	3.0
1913	206.6	3.0
1914	207.2	3.1
1915	200.0	3.1
1916	205.1	3.1
1917	198.4	3.2
1918	164.3	3.2
1919	196.8	3.2
1920	186.5	3.3
1921	177.7	3.4
1922	181.4	3.5
1923	176.3	3.5
1924	175.1	3.6
1925	176.9	3.6
1926	177.7	3.6
1927	173.5	3.6
1928	177.3	3.5
1929	174.0	3.5
1930	172.0	3.5
1931	167.0	3.5
1932	161.0	3.5
1933	158.0	3.5
1934	157.0	3.5
1935	157.0	3.6
1936	162.0	3.5
1937	158.0	3.6
1938	159.0	3.7
1939	157.0	3.9
1940	154.0	3.8
1941	155.0	3.8
1942	156.0	3.8
1943	162.0	3.8
1944	148.0	3.7
1945	160.0	3.7
1946	156.0	3.3
1947	138.0	3.3
1948	137.0	3.3
1949	135.0	3.3
1950	134.0	3.3

[1]Calendar year.

Source: Agricultural Statistics, USDA.

TABLE 13. WHEAT PROCESSED FOR FOOD, DOMESTIC DISAPPEARANCE,
AND NET EXPORTS, UNITED STATES

Year Beginning July	Processed for Food	Total Domestic Disappearance	Net Exports[1]
		Millions of Bushels	
1909		538	91
1910		537	73
1911		552	81
1912		568	147
1913		612	149
1914		607	338
1915		609	242
1916		596	184
1917		555	105
1918		580	279
1919		647	220
1920		574	315
1921		579	268
1922		603	208
1923		620	134
1924		613	258
1925		584	96
1926		611	209
1927		677	194
1928		656	144
1929		622	138
1930	500	759	106
1931	498	760	120
1932	508	722	31
1933	465	633	24
1934	475	659	− 6[2]
1935	484	661	−27[2]
1936	489	689	−22[2]
1937	485	701	103
1938	496	713	110
1939	490	663	48
1940	492	676	34
1941	473	668	28
1942	500	949	32
1943	482	1,237	−91[2]
1944	472	992	106
1945	473	894	393
1946	483	767	401
1947	488	757	490
1948	479	678	506
1949	484	679	301
1950	482	690	358
1951	481	673	448
1952		669[3]	298
1953		686[3]	

[1]Includes products in terms of wheat and includes shipments to territories of the United States, which currently total about 4 million bushels.
[2]Net imports.
[3]Preliminary.

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TABLE 14. ESTIMATED COST OF PRODUCING WHEAT ON RENTED LAND IN SEVERAL SECTIONS OF KANSAS AND IN NORTHERN INDIANA AND SOUTHERN MICHIGAN

Items of Cost	Kansas					Northern Indiana and Southern Michigan
	Northeastern	Eastern	South Central	Southwestern		
				Continuous	Fallow	
Seedbed preparation and seeding:						
Man labor	$ 1.80	$ 2.04	$ 1.59	$ .87	$ .99	$ 2.66
Machinery	1.19	1.42	1.08	.79	.79	1.28
Power	2.33	2.41	2.32	1.04	1.13	3.05
Preparation and moving machinery	.35	.38	.34	.18	.19	.43
Materials:						
Seed[1]	2.87	2.87	2.09	1.00	1.00	3.50
Fertilizer, lime, and other	2.29	3.77	.61			7.80
Cost of abandoned acres	.55	1.24	.46	.87	1.11	.71
Total	11.38	14.13	8.49	4.75	5.21	19.43
Harvesting:						
Man labor	1.24	1.22	.67	.73	.73	2.00
Machinery	3.08	2.53	2.60	2.08	2.24	3.85
Power	.89	.51	.28	.28	.28	2.50
Preparation and moving machinery	.40	.30	.29	.24	.25	.64
Total	5.61	4.56	3.84	3.33	3.50	8.99
Total, seedbed preparation and harvesting	16.99	18.69	12.33	8.08	8.71	28.42
Less landlord's contribution		1.34				10.15
Tenant's cost (exclusive of land)	16.99	17.35	12.33	8.08	8.71	18.27
Landlord's contribution plus land charge[2]	8.50	8.67	6.17	4.04	4.36	18.27
Grand total	25.49	26.02	18.50	12.12	13.07	36.54
Cost per bushel with 1941-50 yield	1.42	1.56	1.13	.90	.71	1.58
Cost per bushel with 1926-47 yield[3]	1.48	1.76	1.31	1.39	.79	1.77

[1] Both quantity and price vary from area to area.
[2] The land charge was taken as the tenant's cost of producing landlord's share.
[3] The 1929-50 average was used for Indiana.

TABLE 15. THE DEMAND FOR WHEAT

Support Price % of Parity	1953-54 Price per Bushel	Predicted Domestic Disappearance[1]	If Exports Are	Total Disappearance	Amount for Storage When Production Plus Carry-over (in Millions of Bushels) Is:					
					1,000	1,156[2]	1,200	1,400	1,600	1,800
Percent	*Dollars*	*Thousands of Bushels*			*Millions of Bushels*					
100	2.43	744,640	300,000	1,044,640	−44.6	111.4	155.4	355.4	555.4	755.4
90	2.19	754,176	300,000	1,054,176	−54.2	101.8	145.8	345.8	545.8	745.8
86	2.07	758,496	300,000	1,058,496	−58.5	97.5	141.5	341.5	541.5	741.5
75	1.82	770,976	300,000	1,070,976	−71.0	85.0	129.0	329.0	529.0	729.0
60	1.46	792,080	300,000	1,092,080	−92.1	63.9	107.9	307.9	507.9	707.9
50	1.21	809,760	300,000	1,109,760	−109.8	46.2	90.2	290.2	490.2	690.2

[1]Based on hypothesis that domestic disappearance is $Y = .94328 - .120917X_1 + .012597X_2 - .0021X_3$ where $Y = $ log of per capita consumption, $X_1 = $ log of deflated farm price in cents per bushel, $X_2 = Mt$, $X_3 = Mt^2$, $M = \log_{10}e$, and t for 1953 = 8.

[2]Average production for 1952-53.