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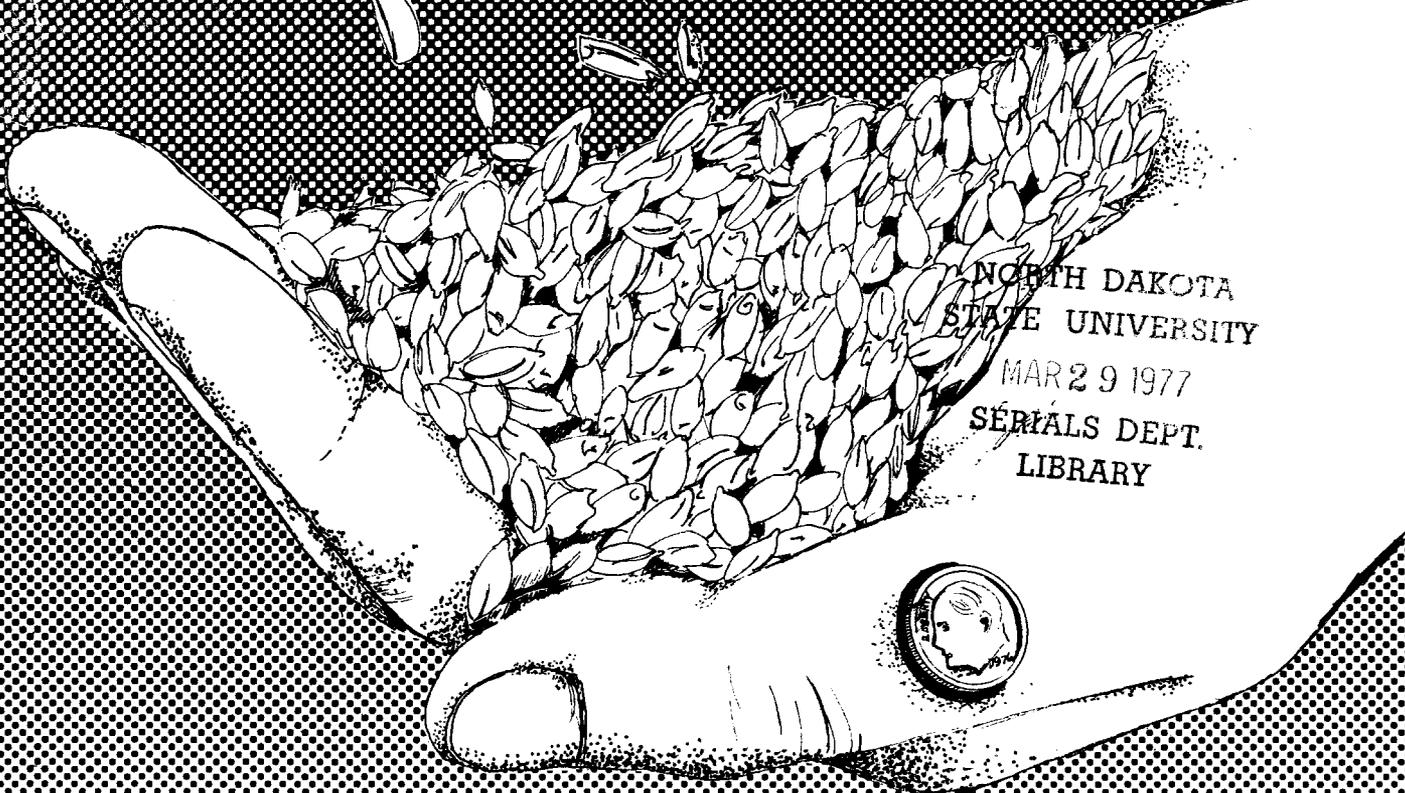
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Factors Affecting The Prices Of Hard Red Spring And Durum Wheats



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Overview of Economic Factors Determining Domestic and World Wheat Prices

Wheat is by far the most widely traded food internationally, with about one-fifth of world production moving into international trade in recent years. World trade currently provides the market for over half of the United States' annual production. Wheat provides about 20 percent of the total food calories consumed by the world's population. It is the national food staple in about 45 countries which account for 35 percent of the world's population.

With a large part of U. S. production moving into foreign markets, it is essential that both producers and those involved in marketing understand the economic forces which determine prices. The world wheat market is similar to our domestic market in that price is generally governed by the forces of supply and demand. However, it is unique in that trading between nations is sporadic and is often complicated by differences in abilities to pay, agreement on trade policy and political considerations.

In trade negotiations, price has been traditionally thought of as the focal point, whether in the domestic or foreign market. The basic purpose of price in any language is three-fold. First, it must guide and regulate production. Second, it must guide and regulate consumption. Third, it must guide and regulate the distribution of goods both over time and from place to place. The basis for price in a freely competitive economy is supply and demand.

World Wheat Production

Wheat accounts for about 30 percent of world grain production. World wheat production is increasing. In the five-year period 1958-59 to 1962-63, yearly average world production was 226.2 million metric tons. In the five-year period 1968-69 to 1972-73, average world production increased to 305.5 million metric tons. World wheat production has continued to increase, reaching 350.3 million metric tons in 1974-75 and almost 400 million metric tons in 1976-77.

Noticeable increases in wheat production are taking place in the "Green Revolution" countries like Mexico, India, West Pakistan, Turkey and Morocco where semi-dwarf wheat varieties have been introduced. However, over-shadowing production increases in these countries has been the tremendous increase in U. S. wheat production and very unstable wheat production in the USSR in recent years. Also offsetting the increased production of the "Green Revolution" is the rate of population growth in these countries.

Although world production data by class of wheat are limited, the major Hard Red Winter wheat producing countries are the U. S., USSR, Australia,¹

Mainland China, Europe, Central India and North Africa. Australia and Argentina grow a medium or hard wheat with 9-13 percent protein that falls between the hard and soft classes. Australian wheat is used for blending with other wheats. Hard Red Spring is the major wheat in Canada and Russia. Mainland China also grows sizable amounts of Hard Red Spring wheat.

Red and white soft wheat are grown in the U. S., Europe, Australia, Asia and Latin America. World soft wheat production, excluding that grown in the USSR and Mainland China, approximates the world output of hard wheat. The European Economic Community alone accounts for about 40 percent of the world's soft wheat production. The semi-dwarf varieties being introduced in the Green Revolution countries are of the soft class.

Major areas of Durum wheat production are in the U. S., Canada, Argentina, USSR, Northern Africa and Southern Europe.

World Supply and Demand

Supply response in the world is related to many factors such as product input prices, changes in technology, government programs, land and labor resources.

There being no worldwide production policy, each country develops its own policy based on its internal situation and the world wheat situation at the time of planning. Acreage is continually being adjusted to compensate for changes in carry-in stocks.¹ The stock variable is foremost in determining production policy in each of the major exporting countries. Wheat acreage tends to be increased following short world supply situations and reduced when world stocks begin accumulating. Independent adjustments in grain production levels collectively influence the world supply-demand situation. Worldwide cooperation in creating a world grain reserve as an alternative to independent country planning has been discussed for over 20 years, but to date there is no organized worldwide reserve system.

Annual world production of wheat is uncertain and highly fluctuating. Annual fluctuations are particularly noticeable in Australian, Canadian and Russian production. The erratic production patterns of these countries are more related to weather conditions than to production policies. Especially large changes in yearly production have occurred in Russia. During the last 10 years annual fluctuations in the USSR alone have been more than one billion bushels, an amount almost equal to all of the U. S. production for a given year in the mid-1960's.

¹Carry-in is defined as the old stocks on hand at the beginning of the new crop or marketing year. Carry-in and carryover can be used interchangeably.

Also, world carry-in stocks fluctuate greatly (Table 1). For example, on June 30, 1969, stocks in the major exporting nations were over 1,147 million bushels, a 50 percent increase from the year before. Such fluctuations make it difficult to maintain orderly export markets and also cause wide fluctuations in world wheat prices as well as in domestic prices.

The demand for wheat ranges from very low in Southeast Asia where less than 8.8 pounds are consumed per capita because rice is the region's major food grain to about 350 pounds in the Soviet Union.

The demand for wheat as food accounts for approximately four-fifths of world utilization. This percentage fluctuates somewhat as world prices change. With lower prices relative to feed grains, more wheat is fed to livestock.

Identification of countries with changing demand is important as this gives an indication of the types of wheat that may be most sought after in world wheat trade. In countries such as Russia and other European countries total demand has been increasing while at the same time per capita consumption of wheat as food is believed to be decreasing. The increase in demand is believed to be due primarily to building stocks which are at times depleted due to crop failures and a need for livestock feed. Wheat exports to countries that are expanding livestock production might be expected to be greater when world wheat prices are more competitive with feed grains.

Demand in the less developed countries is also increasing. Even though production has increased due to the Green Revolution, it has not kept pace with demand in most of these countries. These countries are large consumers of soft wheats.

Japan's per capita consumption increased rapidly in the last 10 years reflecting rising incomes and shifting consumption patterns from rice to wheat. The use of feed wheat is also increasing in response to increased livestock production in that country.

In most high-income wheat-producing countries, the per capita consumption of wheat declines as incomes rise. In contrast, the consumption of wheat increases as incomes rise in most low-income countries. With most of the less developed countries in this latter group, their future income growth will probably result in an increased demand for soft wheat. As their incomes rise, further changes in consumption patterns will probably result in a shift in demand from the use of soft wheats to some hard wheats.

The volume of world wheat exports ranged from 50 to 62 million metric tons from 1963-64 to 1971-72. In 1972-73 it was 72 million metric tons, reflecting large exports to Russia, Eastern European countries and Mainland China. Since 1972-73 world wheat exports have remained high relative to previous years. The approximate share of world exports by classes in recent years have been: hard winter, 26 percent; medium hard, 12 percent; hard spring, 29 percent; soft, 30 percent; and durum, 3 percent.

Table 1. Wheat Carry-in, U. S., by Major Class and Three Major Competitors, 1961-1975 (millions of bushels)

Marketing Year	Hard Red Winter	U. S. Carry-in by Major Class				Total U.S. Carry-in	Carry-in, Three Major Competing Exporting Countries ^a
		Hard Red Spring	Soft Red Winter	Durum	White		
1961	1,104 ^b	237	12	20	38	1,411	664
1962	1,085	187	24	5	21	1,322	422
1963	936	195	5	46	13	1,195	534
1964	668	182	4	41	6	901	572
1965	275	186	8	55	12	536	663
1966	267	186	8	54	20	535	445
1967	257	109	15	29	15	425	680
1968	328	129	30	24	28	539	764
1969	524	163	33	41	58	819	1,147
1970	574	178	23	80	30	885	1,303 ^c
1971	492	146	15	58	20	731	903
1972	471	275	18	69	30	863	660
1973	201	173	8	37	19	438	395
1974	126	66	9	28	18	247	481
1975 ^d	178	80	18	21	30	327	363

^aCanada, Australia, Argentina

^bRecord carryover of U. S. Hard Red Winter Wheat

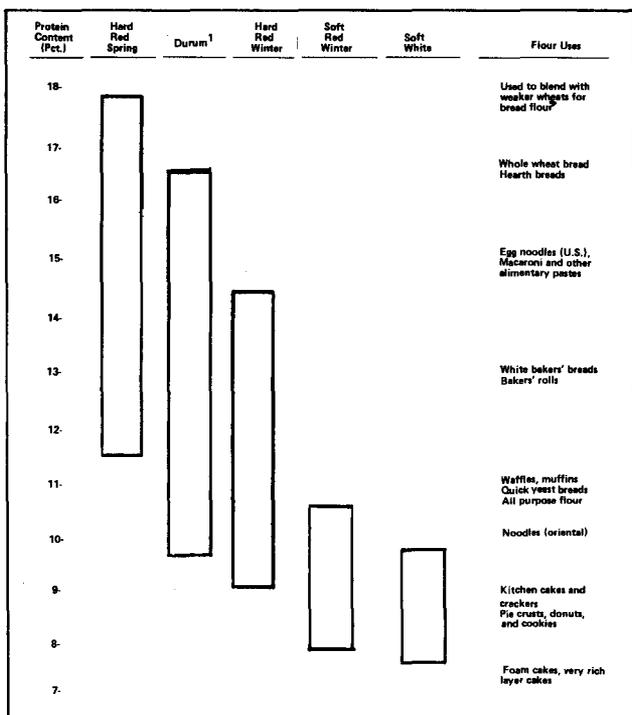
^cRecord Canadian carry-in

^dPreliminary

Forces of Demand and Supply

Demand is defined as the various quantities of a commodity that will be taken at all possible alternative prices in a given time period, other things being equal. Generally, more will be purchased at a lower price. Conversely, the higher the price the less will be taken.

The "demand for wheat" is a very general term. To be more specific and meaningful, we should be concerned with export demand or domestic demand or domestic demand for food, feed, seed and industrial purposes or, still more meaningful, the demand for certain classes of wheat. There are many demands and supplies of wheat. There are five predominant classes of wheat grown in the United States: Hard Red Winter, Hard Red Spring, Soft Red Winter, Durum and Soft White. In addition to being raised under a variety of conditions, each class of wheat has different flour-making characteristics and wide differences in protein content (Figure 1). In some cases one class of wheat may be substituted for another. For example, buyers may substitute low-protein hard wheats for soft wheats in times of relatively high-priced soft wheats. In years when high-protein wheat production is up, protein price premiums are not as great as in years when the supply of high-protein wheat production is short and vice versa.



Not traded on basis of protein content.

Figure 1. - Protein range and flour uses of major class of wheat

Supply is defined as the various quantities of a product that will be placed on the market at all possible alternative prices in a given time period, other things being equal. In general, as price declines, less will be placed on the market. Conversely, as prices rise, more will be placed on the market and production is increased.

In considering the supply, we need to look at planting intentions, acres seeded and carryover. Wheat is produced in every state in the United States (Figure 2). The total supply, however, may show little relation to production by class because carry-in is unevenly distributed among classes of wheat. Even though wheat programs do not distinguish between classes, producers must be concerned with carry-in by class because this is just as much a part of the total supply as is annual production. Also, in considering the supply we must look beyond the United States, since over half of our production must compete in the world market with the supplies of other countries. Wheat is harvested in one or more countries in every month of the year (Figure 3).

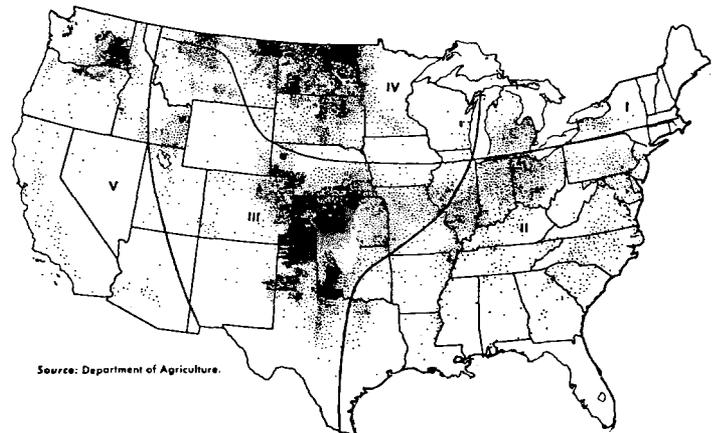


Figure 2. Approximate distribution of wheat acreage, by region (each dot represents 5,000 acres).

Predominant Class of Wheat Grown in Region:
 I - Soft White
 II - Soft Red Winter
 III - Hard Red Winter
 IV - Hard Red Spring
 V - Soft White

Figure 2. Approximate distribution of wheat acreage, by region (each dot represents 5,000 acres).

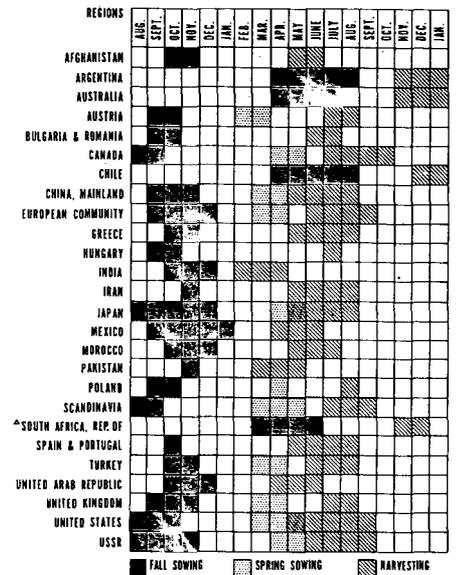


Figure 3. Wheat sowing and harvesting seasons.

Domestic and World Prices

Domestic prices are very sensitive to supply and demand and factors related to supply and demand such as transportation congestion and marketing strategies. They are also sensitive to general economic conditions. However, with a large percentage of the

U. S. wheat supply going into export channels, foremost in price determination is world wheat production and demand estimates. World estimates have never been totally satisfactory because few countries have as sophisticated an estimating and reporting system as the U. S. Hopefully, they will be improved in the future with the use of infrared photography and satellites and as marketing systems become more fully developed.

U. S. wheat prices are not set totally by free market conditions. For years, the U. S. has used domestic price support programs to circumscribe price response in times of excess wheat supplies.

Since World War II, the world wheat pricing system has been set, to a large extent, by international agreement. First it was regulated by the International Wheat Agreement, then by the International Grains Agreement and more recently by an International Wheat Trade Convention. An example of prices agreed upon at the international level are shown in

Table 2. Although these specific prices are no longer in effect, they are presented here as an example of the variation in wheat prices that might exist in the world at any given time. The common objective of international trade policies is price stabilization, just as it is for domestic policies.

Beginning in 1971, however, the member nations could not agree on the establishment of reference grades or the establishment of reference points and related price equivalents. There is now no fixed single reference schedule of wheat prices such as had been the case under the previous international agreements. The agreement in 1971 was signed by 52 nations. It was subsequently extended for one year in 1974 and 1975. A two-year extension was agreed upon in 1976. Durum wheat was excluded from the Wheat Trade Convention provisions relating to maximum prices.

Considerable confusion surrounds the concept of a "world wheat price" which implies some single price for wheat in world trade and that all prices are related

Table 2. Example of the Prices Incorporated in the 1968 Wheat Trade Convention*

Country and Type of Wheat	Price range, basis U. S. Gulf Ports	
	U. S. \$ per bushel	U. S. \$ per ton
Argentina:		
Plate wheat	1.73 -2.13	63.50-78.26
Australia:		
Fair average quality	1.68 -2.08	61.73-76.43
United States:		
Dark Northern Spring No. 1, 14 percent	1.83 -2.23	67.24-81.94
Hard Red Winter No. 2 (ordinary protein)	1.73 -2.13	63.57-78.26
Western White No. 1	1.68 -2.08	61.73-76.43
Soft Red Winter No. 1	1.60 -2.00	58.79-73.49
Canada:		
Manitoba No. 1	1.955-2.355	71.83-86.53
Manitoba No. 3	1.90 -2.30	69.81-84.51
Economic Community:		
Standard quality	1.50 -1.90	55.12-69.81
Sweden	1.50 -1.90	55.12-69.81
Greece	1.50 -1.90	55.12-69.81
Spain:		
Fine wheat	1.60 -2.00	58.79-73.49
Common wheat	1.50 -1.90	55.12-69.81
Mexico:		
Wheat on sample or description, f.o.b. Mexican Pacific Ports or at the Mexican Border	1.55 -1.95	56.95-71.65

*At the 1971 International Wheat Conference the member nations could not agree to the establishment of reference grades or the establishment of reference points and related price equivalents.

to this world price. What really exists is a "world trading price" which is merely the price that wheat of a certain class, grade and quality is being bought and sold for in international trade on a particular day. The price of wheat in most countries is not related to the world trading price. Most countries protect their internal prices from the world trading price. Currently, a major exception is the United States where domestic and world trading prices are closely related.

Domestic and world wheat prices cannot always be predicted by the use of economic models even if perfect knowledge about such variables as domestic food, feed, seed use, exports and ending stocks are known. Model solutions do not take into consideration unmeasurable intuitive knowledge such as people's behavior, trade barriers, bilateral agreements and internal allocation policies. A price predicting model represents only a tool designed to minimize uncertainties and to decrease the degree of intuitive estimating. Anyone who follows the futures markets is aware that wheat prices are very sensitive. The slightest bit of knowledge, however distantly related to wheat production and marketing and whether favorable or unfavorable, causes the price to change.

Exporting countries are usually trying to increase their exports while importing countries are continually hoping for self-sufficiency and restriction of imports. All major exporting and importing nations, except the U. S., consummate their trades through a state trading agency or board. State trading is essentially a monopsonistic (one buyer) situation. As a result, it is not always a friendly atmosphere in which U. S. private enterprise finds itself.

All major exporting countries have price support systems. Some have a two-price system—an initial grower payment or export price and a home consumption price. The Canadian Wheat Board, for example, sets prices and positions wheat at Canadian points for export. Both Canada and Australia have delivery quota systems whereby production above a certain level receives no support. Conversely, Japan, a major importing country, sets import quotas through its Japanese Food Agency. The Food Agency is the sole purchaser of imported grains which in turn resells it to Japanese processors at prices that may be above or below the world trading price, depending upon the relationship between the world trading price and their domestic prices. When the world trading price was low, the Food Agency sold wheat to processors at prices above the world trading price. More recently, with a high world trading price, the Food Agency has supplied processors at price levels below the world trading price.

An explanation of commodity pricing procedures of major exporting and importing countries as well as a comparison of price differentials between domestic and international markets is difficult. Even members of the grain trade and people in regulatory agencies

admit that they do not fully understand all the ramifications or motives for certain trading and pricing practices. However, some of the main factors limiting comparability of international wheat prices include:

1. Difficulty in comparing the value of national currencies.
2. Basic wheat quality differences.
3. Price quotations for different locations.
4. Lack of uniformity in grade classifications.
5. Differences in price support systems and the types of government payments to producers.

In addition to factors affecting the price of all wheat there are certain factors which affect the relative price of wheat in each class. These include end use value, the technology of substitution and distance (transportation) involved as well as the expected relative quantity and quality of each class. These factors are shown in Figure 4, along with other major factors affecting price. Hard Red Spring and Winter wheats may be rather freely substituted for one another depending on the available supply of each and their protein levels. Likewise, Hard Red Winter wheats may be substituted in the production of pasta products in surprisingly large portions in times of short Durum supplies and/or extremely high Durum prices. Although it may be argued that some of these practices occur as the result of price, they nevertheless are factors ultimately causing price changes.

As can be seen in Figure 4, there are a multitude of economic factors which determine domestic and world wheat prices. While human attempts are continually being made to bring supply and demand into balance, Mother Nature seems to pack the decisive punch which ultimately determines the general price level.

The Hard Red Spring and Durum Wheat Industry

Hard Red Spring wheat is grown in the Upper Great Plains area of the United States with production concentrated in North Dakota, South Dakota, Montana and Minnesota (see Figure 2). It has excellent milling and baking characteristics and is used extensively as a blending wheat to improve the overall baking quality of lower quality bread type wheats.

Durum wheat is also produced in this area. Production is concentrated in North Dakota where about 90 percent of the total U. S. crop is produced. Durum provides semolina for spaghetti, macaroni and other pasta products.

Hard Red Spring and Durum wheats are both divided into subclasses to more accurately reflect

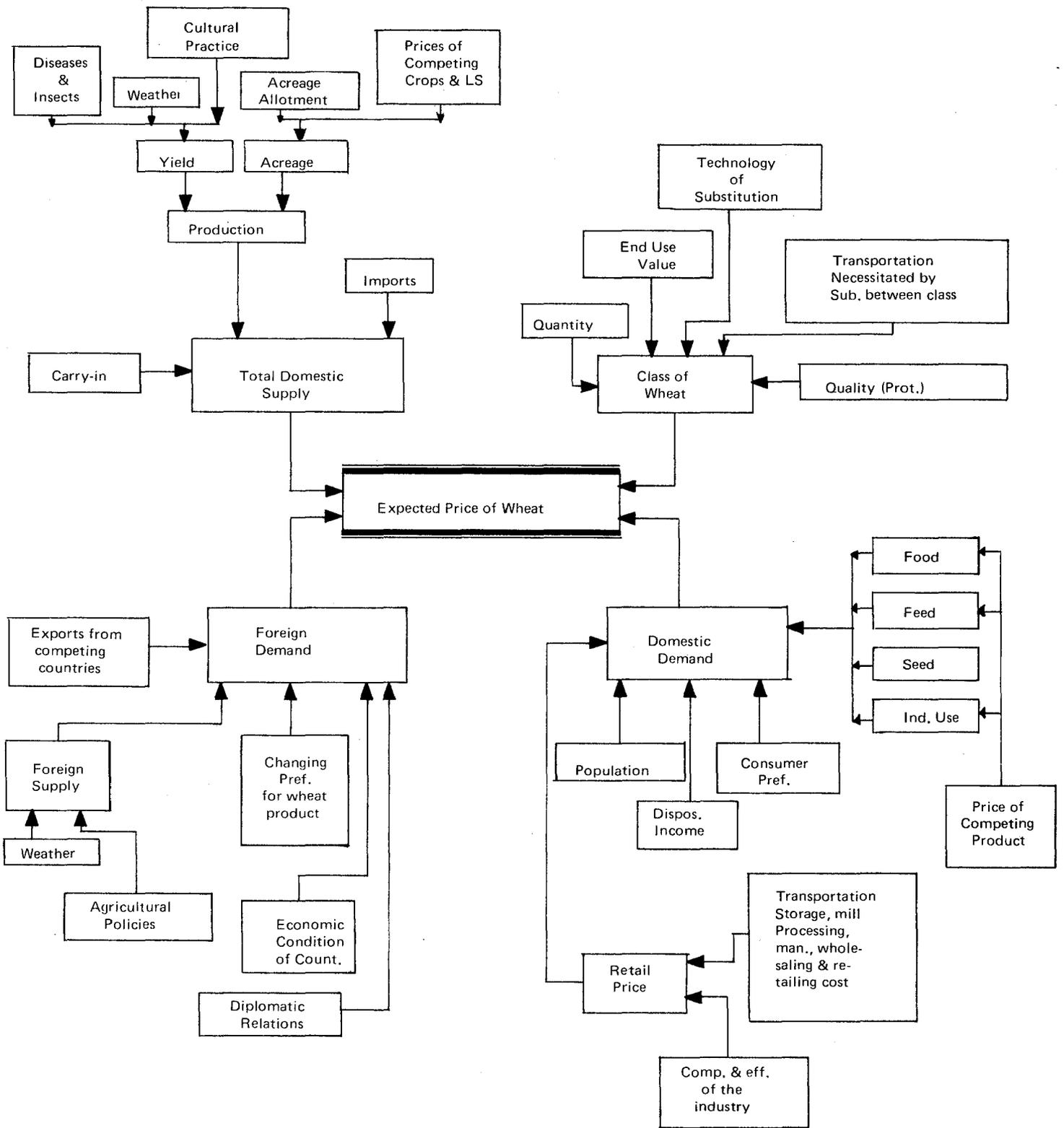


Figure 4. - Factors affecting the price of wheat

the key physical characteristics of the grain. Subclasses of Hard Red Spring wheat are Dark Northern Spring, Northern Spring and Red Spring. Durum subclasses are Hard Amber Durum, Amber Durum and Durum.

Virtually all of the Hard Red Spring and Durum wheat is marketed via traditional marketing channels. The country elevator, which may be privately owned or a farmer-owned cooperative, sells the wheat to a commission merchant, terminal operator, domestic processor or exporter. Many of the local elevators are associated with a commission firm, a regional cooperative or major grain company with offices in the major markets such as Minneapolis and Portland. The degree to which they are associated ranges from the larger firms serving as the local elevator's commission firm that handles their sales to complete management, financing and bookkeeping services to complete ownership. As a result of the numerous ways this relationship can exist, there are a multitude of factors that influence the movement of wheat from the country elevator to the terminal or processor location. The competition for control of grain as it moves from the country elevator is very intense. Country elevators may receive daily bids from as many as four or five grain buyers.

Historically, the domestic market was the major market for Hard Red Spring and Durum wheats. The major movement was to the major flour milling centers and to the heavily populated markets of the East and Northeast U. S. In recent years the export market has become as important or even more important than the domestic market. The major flow of Hard Red Spring into export markets has historically been through the Gulf and Great Lakes, but in 1973-74 more Hard Red Spring moved through Pacific Northwest ports than either the Gulf or Great Lakes. Only small amounts of Hard Red Spring are exported via the Atlantic Coast ports. The major share of Durum exports moves through the Great Lakes. Very little Durum is exported via the Pacific Northwest because the traditional markets supplied from there, such as Japan and the Phillipines, are not large Durum consuming markets. It is anticipated, however, that West Coast export movement of Durum will increase in the future as these markets grow and develop.

Hard Red Spring and Durum wheats are generally not used for feed unless they are of low quality that can compete in price with feed grains.

Supply and Demand Factors Affecting Hard Red Spring and Durum Wheat Prices

Hard Red Spring wheat cannot be looked at in isolation. It is a high quality bread type wheat used extensively for blending with lower quality wheats throughout the world. HRS is also used for specialty breads such as Kaiser rolls. What happens in bread

wheat markets and production areas around the world is of great importance to U. S. Hard Red Spring producers. Similarly, Durum cannot be looked at in isolation. The supply, demand and price of other classes of wheat are also important considerations for the Durum producer.

Factors that influence Hard Red Spring and Durum prices in the course of a marketing year are many and varied. The following discussion is not all inclusive but does include those factors that are key factors year in and year out. It is equally important to be able to put the proper weight on the various market factors to determine their effect on prices.

Supply Factors

Two important supply factors that will give a good idea of the general direction of price movements in any given year is size of crop and carry-in of old stocks.

1. **Size of Crop:** For the U. S. crop, producers begin to get a good idea of the size of the total U. S. crop with the release of the USDA winter wheat crop report in December and the planting intentions report in January and April each year. These two USDA reports are vital to making early estimates of the U. S. wheat crop. They are not always 100 percent accurate, but, historically, they have been reliable and the best available estimate of planted acreage. There are also several industry groups, organizations and individual firms such as state wheat grower associations, railroads and the Conrad Leslie Crop reports that make and publicize crop estimates. These reports are all eagerly awaited and compared to the USDA estimates. With any class of wheat, increased production estimates are associated with lower price expectations assuming there is no change in demand. Conversely, lower acreage and production estimates are associated with higher price expectations assuming no change in demand. Whenever production exceeds total demand, carryover stocks increase and downward pressure is exerted on prices. If production is less than projected demand, a strong market can be anticipated. It is not sufficient to know that estimated acreage is up or down and assume that prices will be up or down.

Because of the small geographic area that produces Durum in the U. S., the crop is probably more subject to the vagaries of the weather, disease, etc., than other classes of wheat. Historically, North Dakota produces 85 to 90 percent of the U. S. Durum crop and is a key state to watch in estimating the size of the Durum crop. More recently, California, Arizona and New Mexico have become important Durum producing states.

2. **Production of Other Classes of Wheat:** Hard Red Winter (HRW) wheat is the major bread type wheat produced in the U. S. Approximately one-half of all

HRW production will have a major impact on Hard Red Spring (HRS) prices.

Producers in the HRS and Durum production area have a considerable amount of freedom in deciding which class of wheat to raise because the traditional Durum area is also capable of producing high quality HRS and because yields and costs of production are similar. If the price relationship between Durum and HRS becomes too wide in favor of Durum, a shift toward Durum can be expected, and if Durum prices are close to or less than HRS prices we can expect a shift to HRS. Depending on the price relationship between the two classes and producers' expectations of the future price relationship, it is not unusual to see moderate shifts between HRS and Durum acreage from year to year. Acreage shifts can also occur between Hard Red Winter and Hard Red Spring wheat in parts of the HRS production area. As more winter-hardy winter wheat varieties are developed, the possibility of shifts from spring wheat to winter wheat in the traditional spring wheat area will be enhanced. Winter wheat has made substantial inroads in traditional spring wheat areas of Montana in the last 10 to 15 years because of improved winter hardiness in winter wheat varieties.

Often minor production adjustments in Durum can cause substantial adjustments in the price of Durum. One reason for this is that there is less substitutability between Durum and other classes of wheat than there is between the bread type wheats where substitution is more acceptable and easier.

3. Wheat Production in Other Parts of the World: High quality blending type wheats are raised in other parts of the world besides the U. S., principally Canada, Australia, Argentina and the USSR. Wheats from these countries compete with Hard Red Spring wheat from the U. S. Lower quality bread type wheats are widely produced all over the world. The quantity and quality of wheat crops in foreign countries can be a major factor in influencing Hard Red Spring wheat prices. Poor crops in several countries at the same time in 1972 and 1974 and a poor crop in the USSR in 1975 and the ensuing large export demand for U. S. wheat reminds us that what happens in other parts of the world may very well be more important than what happens in a neighboring state.

Major producers of Durum besides the U. S. are Canada, Argentina, USSR, and North African and Southern European countries. Major exporters besides the U. S. are Canada and Argentina.

4. Carryover of Old Stocks: Carryover stocks generally can be thought of as acting as a price stabilizer. They serve as a source of supply when production falls short of annual requirements. Many would argue that carryover stocks serve as a price depressant rather than a price stabilizer and serves

to keep producer prices at lower levels than would exist without them.

When carryover stocks are large or growing, we can generally expect downward pressure on prices. When stocks show indications of becoming smaller, they can trigger upward movement of prices.

Who controls the stocks and where they are located may be important marketing factors. Grain stocks may be privately held by farmers or elevators or by the government in conjunction with government price support programs such as those operated in the U. S. in one form or another since the 30's. Stocks are stored either on farms or off farms in the commercial elevator system.¹

When carryover stocks are added to current production, it gives an estimate of the total supply available for utilization in any particular marketing year. The larger total supply is in relation to anticipated demand for that year, the more downward pressure will be exerted on price and vice versa for years when total supplies are small in relation to total demand. Under surplus supply conditions, government programs that provide for large government purchases and stocks will tend to have a stabilizing influence on market prices.

Carryover stocks of Durum are generally much smaller in absolute terms than most other classes of wheat, but as a percentage of production or of demand, Durum carryover is often quite large.

The USDA issues regular quarterly reports of grain stocks, including wheat, that includes on-farm and off-farm stocks by states. These reports are important in that they give an estimate of remaining stocks and their location. They are useful to all segments of the industry as an aid in planning a marketing strategy in a particular marketing year. Their issuance is eagerly awaited each quarter by grain buyers and sellers.

5. Production of Other Grains: Total world food and feed grain production amounts to about one billion metric tons. World wheat production is approximately 35 percent of the total. There is a certain amount of substitutability between wheat and other grains. In many parts of the world, wheat is used as feed as well as for food and rice is a preferred food grain over wheat. Because of this substitutability, there is a price relationship between the various grains based on their relative values as a food or feed. Conditions that affect the production and supply of rice and feed grains also affect wheat. For example, a poor rice crop in Southeast Asia will most likely increase the demand for wheat, and a record U. S. corn crop that depresses corn prices will also have a tendency to have a depressing effect on the price of other feed grains and wheat in general which in turn has an impact on Hard Red Spring and Durum wheat prices.

¹During the very high inventory in the 1950's, government-owned CCC bins provided much needed storage space.

Demand Factors

1. **Domestic Demand:** Historically, domestic demand for HRS has been fairly stable in the 135-150 million bushel range. The sharp increase in domestic demand to 180-200 million bushels in the 1972-73 and 1973-74 marketing years should not be viewed as a permanent level of domestic demand. The unusual world situation of the 1972-73 and 1973-74 marketing years brought about a sharp deviation from the normal domestic consumption pattern by class of wheat. World wheat stocks were low and the world demand for calories overshadowed the demand for protein to the extent that protein premiums were very small. Because of the extraordinary large export demand for lower protein Hard Winter wheat to fill this caloric need, Hard Red Spring wheat was in more adequate supply and often relatively lower priced. Domestic flour millers substituted larger than normal amounts of HRS in their flour blends because of the relatively lower price and better supply of Hard Red Spring wheat and not necessarily because of a need for more Hard Red Spring in the flour blends. With a return to more normal production and marketing conditions, producers can expect more traditional price responses to wheat quality in any given crop year. In years when the Hard Red Winter wheat crop is low in protein, domestic flour millers generally purchase larger amounts of HRS for blending purposes. When this occurs, protein premiums for HRS can be quite high, particularly if supplies are not burdensome. In years when the quality of Hard Red Winter wheat is high, less HRS is demanded for blending and protein premiums are accordingly lower. In normal years protein premiums are generally sufficient to warrant their consideration when marketing wheat. It is often advantageous for producers to store and market their wheat by variety and protein content to take advantage of these premiums.

Domestic demand for Durum has grown gradually with the increasing popularity of pasta products. In the 1960-64 period, average Durum disappearance was 26 million bushels per year. In 1975 domestic disappearance had increased to about 44 million bushels. The domestic market is growing and is expected to continue a slow but steady growth rate in the near future.

A major factor affecting Durum price in the domestic market is the quality of the crop and the amount of high quality Durum available in any given marketing year. Adverse weather conditions that cause bleaching or discoloring may cause severe price discounts while high premiums may be offered for high quality Durum.

In periods of short supplies and high prices for Durum, hard wheats are often blended with Durum to reduce the cost of semolina. The cost is reduced but the quality of the end product is adversely affected. While there is some degree of substitutability between Durum and hard wheats, it is difficult to

know the exact amount. Industry sources confirm, however, that in years when Durum prices are sharply above hard wheat prices the blending of lower priced hard wheat increases. Durum, on the other hand, is not a suitable substitute for the bread wheats.

2. **Export Demand:** The export market for HRS is more unstable than the domestic market, but it is growing more rapidly than the domestic market. In 1964-65 exports of HRS were 25 million bushels. They trended upward to over 100 million bushels in 1971-72 before jumping to more than 200 million bushels in 1972-73 and 1973-74. This high rate probably won't be sustained but exports could remain above 100 million bushels in the future. In any case, the export market is the market to watch for growth prospects.

It is important in two ways. First, as in the domestic market, much of the export demand is derived from the quality characteristics that make Hard Red Spring wheat suitable for blending purposes to improve the quality of the end product. Many countries of the world produce low quality wheats that need a blend of HRS to make a suitable end product. In years when the quality of locally produced wheat in the importing country is lower than usual, demand for U. S. HRS increases. When the quantity and quality of the locally grown wheat increases, demand for U. S. HRS declines. Secondly, world wheat consumption shows a slight but steady upward trend. This can be attributed not only to increased world population but also to the increased consumer preference for bread type products in large areas of the world. In the longer run, the increasing world demand for wheat and bread products should be beneficial to Hard Red Spring wheat producers.

Export demand for Durum is more variable from year to year than domestic demand, but this market also appears to be showing a general growth trend. In 1960-64 exports averaged 13 million bushels per year. In 1965-69 Durum exports averaged 38 million bushels. Exports were 65 million bushels in 1972-73, then declined to about 49 million bushels in 1974-75. The long-run trend, however, is still upward. Durum products are good substitutes for corn, rice and other traditional cereals used in densely populated areas of the world. In the longer run, we should see continued growth in demand for Durum in these areas as they develop economically. Japan, for example, has been importing small quantities in recent years.

3. **Marketing Practices of Competing Countries.** The quantity and quality of wheat in competing countries and their marketing strategies have a direct bearing on U. S. Hard Red Spring and Durum prices. It is reasonably easy to estimate the quantity and quality of production in competing countries, but their marketing and pricing strategies are much more difficult to predict from year to year or from day to day. U. S. producers must be aware of competitive actions at all times. Knowledge of Canada's marketing practices, for example, is very important to the American HRS and Durum producer.

4. Feed, Seed and Industrial Use: The demand for HRS and Durum wheats as livestock feed or for industrial purposes is limited and not an important pricing factor. Occasionally when the quality of the crop is very low in a localized area, fairly large quantities will be fed. In these cases, price is determined by its feeding value in relation to feed grains. If HRS becomes surplus and price becomes competitive with other feed grains, then HRS could be used more extensively as a livestock feed. It is also expected that some of the low quality Durum produced in the Southwest will be used for feed.

The amount of HRS and Durum used as seed is directly related to planted acreage. Although acreages may vary considerably from year to year, the number of bushels for seed remains quite small and is not considered an important pricing factor in the commercial market.

Other Factors That Have an Impact on Price

1. New Technology: In any given year new technology probably has very little impact on wheat prices. In the longer run, however, new technology in the milling and baking industry, for example, can have an impact on the demand for high protein wheats just as adoption of new technology by producers can have an impact on the supply of wheat. Widespread adoption of present technology in less developed countries of the world to increase production would have a greater impact on U. S. wheat prices than the adoption of new technology by U. S. farmers.

2. Market Psychology: There is general agreement that psychological factors affect market prices in the short run. Psychological effects or factors are really nothing more than buyers and sellers reacting to marketing information. It could also be described as a general attitude that pervades the entire market at a particular time and biases the market one way or another.

A frequent tendency is for buyers and sellers (the market) to over react to marketing information. An example was in 1973 and 1974 when there was much concern about world food shortages. People were confronted with both facts and rumors. Headlines were made by the report that bread would be \$1 a loaf because the U. S. was exporting all its wheat. Many people and organizations wanted export controls to protect domestic supplies and keep down prices. Producers were concerned about export controls knowing they could depress prices.

All these factors had a psychological effect on the market and prices. Many buyers changed their grain purchasing patterns out of fear of shortages. Many sellers held grain for the same reasons hoping to benefit from higher prices. The common outcome of situations like this is one of over reaction. The shortage psychology remained as an important

factor in the wheat and feed grain market until the late fall of 1974 when it became obvious the world had survived or at least temporarily delayed the shortage crisis. The basic supply and demand relationships would not support continued high prices and prices declined.

Use of psychology by buyers or sellers for their own interest in the short run is a commonly accepted part of merchandising efforts. How effective psychology is in these cases depends on many things, but it is helpful if the position is supported by basic economic forces.

We most often hear about this type of market psychology when we hear expressions like "the longs are in command," "the shorts were forced to cover their positions," "the bulls forced prices to higher levels" or "the bears were in command with sellers outnumbering buyers." This is not a case of market manipulation. It is simply a case where a majority of the people in the market interpret available market information the same way and there is a preponderance of either buyers or sellers at a particular price level, some of whom want to be buyers or sellers because they think everyone else is buying or selling.

Another factor that affects trading psychology is the anticipatory nature of the market. An example is how the market anticipates the impact of government crop reports. Often when a report is released there is no price response because the price adjustment had taken place in anticipation of the release. If the report is different from what the market anticipated, it will often be reflected by a flurry of trading in the days immediately following the release as the market attempts to find a new equilibrium price. When the content of reports is uncertain, it is common for a similar air of uncertainty to pervade the entire market.

One of the greatest myths perpetuated about government crop related reports is that prices always decline after their release. A study of price movements proves that statement false. People who insist on perpetuating this myth are doing a disservice to the marketing system and especially to producers.

Psychological factors are often events or happenings that are far removed from the market itself. A few examples are war, inflation, depression, energy shortages or the death of a country's president.

3. Pricing Practices: There is more than a single cash price existing in the market. The two common cash prices are "spot" and "to arrive" prices. The difference between the two prices reflects time and location. "Spot" cash price is the price for grain for immediate sale. The grain is in a rail car ready for billing to the buyer. A representative sample of the grain is displayed in the cash market at the Grain Exchange by a commission firm representing the

seller. Buyers, often represented by a commission firm, inspect the sample. When buyer and seller agree on a price, the sale is made, recorded, and the machinery to transfer the grain from the seller to the buyer goes into action.

The "to arrive" cash price is the price today for grain of a specified quality to be delivered at a certain place within a certain period of time. The time of delivery on a "to arrive" sale may vary from immediate or 5 days up to 120 days with the most common being within 30 days.

Usually the spot price is higher than the to arrive price. Occasionally, the to arrive price will be higher than the spot price. Which one is higher depends on the competition for grain and the expectations of what spot prices and availability will be at the time the to arrive contract comes due.

Because of transportation limitations, many country elevators use the to arrive market exclusively. Others are able to ship both spot and to arrive. How they are able to sell has an impact on the way they buy from farmers.

4. Seasonality: The seasonal price movements of wheat are not of the magnitude of former years because of growth in on-farm storage capacity and the development of an export market that encourages year-round marketings and movements. On-farm storage gives producers more flexibility in marketing and minimizes the traditional harvest period glut.

5. Transportation: HRS and Durum wheat producers should be aware of the many ways that transportation can affect the price they receive for their grain. Rail car shortages, grain embargoes at terminal elevators, truck shortages, winter rail rates versus summer rail rates, the opening and closing of lake shipping at Duluth-Superior, the opening and closing of the barge season on the Mississippi and many other factors too numerous to mention have an impact on the price of wheat. There is very little producers can do about these factors except to be aware of the factors and plan a marketing strategy to avoid transportation-related problems whenever possible.

The price a producer receives for his wheat may be influenced by the cost of ocean freight in international trade. There is a market of ocean freight just as there is a market for commodities. The price is determined by the demand for and supply of cargo space. According to data supplied by the International Wheat Council, in July 1972 the freight rate for grain from the Great Lakes to Rotterdam was \$6.40 per metric ton. In June of 1973 the rate was \$17.25 per metric ton. This variation of \$10.85 per metric ton over a year's time amounts to almost 30 cents per bushel variation in ocean transport cost. How much of this cost is borne by the producer and how much

by the consumer will depend on the supplies available and the strength of demand.

6. Limited Number of Buyers: A factor that may have an important impact on Durum prices and particularly price stability is the relatively thin market that exists for Durum wheat. There are a limited number of domestic processors and exporters that are interested in the Durum market. With a small number of buyers, the market is likely to fluctuate over a wider range than if there were hundreds of buyers.

7. Value of U. S. Currency in International Trade: The relationship of the value of U. S. currency to that of other countries has an impact on the exportability of all U. S. commodities. If the dollar is valued high in relation to other currencies, then U. S. commodities are relatively expensive to foreign buyers. If the dollar is cheap in relation to foreign currencies, then U. S. commodities are relatively inexpensive to foreign buyers. This is a factor that influenced U. S. wheat exports and prices in 1973. When the U. S. devalued the dollar, it made U. S. wheat relatively inexpensive as compared to competing foreign suppliers. Many countries continued to buy U. S. wheat because it was more attractively priced in terms of their own currency.

8. Government Programs and Policies: Government programs have been a dominant factor affecting prices of farm commodities over the years. These programs have ranged from supply control farm programs with direct payments to farmers for not producing to surplus disposal-demand creating programs such as the school lunch program and P. L. 480 food aid programs for foreign countries. A minimum price or loan rate is a key feature of farm programs. If price declines to that minimum level, then government may become the owner of wheat. These programs also had a selling price for government-owned wheat at some figure above the loan rate that was established by a formula. In periods when stocks were large, this formula sales price tended to set a ceiling price for the market.

Since 1972, government price support type programs have been inoperative because market prices have been far above the minimum support levels. There is no assurance, however, that they will not become important price making factors again in the future. This factor is important to all producers and not just to HRS and Durum producers.

Government policies can have a direct impact on prices. The imposition of an export embargo on soybeans in 1973 and on wheat in 1975 had a depressing effect on prices. In 1974 the government policy of requiring prior approval of export sales also had a price depressing impact.

Sources of Marketing Information

There is a multitude of marketing information available to the producer, ranging from the daily newspaper to highly sophisticated analysis by independent market analysts who sell their information for a fee. Much of the important information is available to producers upon request from the USDA, other marketing agencies and organizations.

Selected list of marketing information publications and agencies:

1. **Wheat Situation, Economic Research Service, U. S. Department of Agriculture, Washington, D. C. 20250.**
2. **Feed Situation, Economic Research Service, U. S. Department of Agriculture, Washington, D. C. 20250.**
3. **Grain Market News, Agricultural Marketing Service, Grain Division, U. S. Department of Agriculture, 116 Federal Building, Minneapolis, Minnesota 55401.**
4. **Feed Market News, Agricultural Marketing Service, Grain Division, U. S. Department of Agriculture, 116 Federal Building, Minneapolis, Minnesota 55401.**
5. **Grain Market News, Weekly Summary and Statistics, Agricultural Marketing Service, Grain Division, U. S. Department of Agriculture, 301 West Lexington, Room 260, Independence, Missouri 64050.**
6. **Stocks of Grain in All Positions, Statistical Reporting Service, U. S. Department of Agriculture, Washington, D. C. 20250.**

7. **North Dakota Crop and Livestock Reporting Service, U. S. Department of Agriculture, P. O. Box 3166, Fargo, North Dakota 58102.**
8. **Wall Street Journal.**
9. **Milling and Baking News, 4800 Main Street, Kansas City, Missouri 64112 (subscription rate - \$12 per year).**
10. **Daily Market Record, 320 South Fourth Street, Minneapolis, Minnesota 55415 (subscription rate - \$28 per year).**
11. **State Cooperative Extension Services.**
12. **Trade Association newsletter.**
13. **Commodity brokerage firm newsletter.**

Summary

Wheat farmers are highly dependent on the marketplace for their income. In the past 40 years, government programs and policies made marketing decisions a relatively unimportant part of a producers decision-making process. The change to a radically different market climate since 1972 has left many farmers ill equipped to do an effective job of marketing wheat and other grains. Knowing the key factors affecting price, knowing where to obtain good marketing information and then knowing how to analyze and use the information is essential in making sound marketing decisions.

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