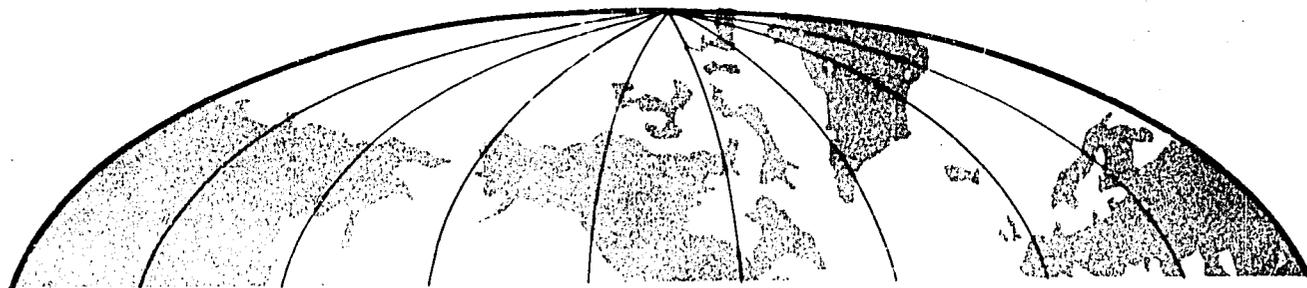


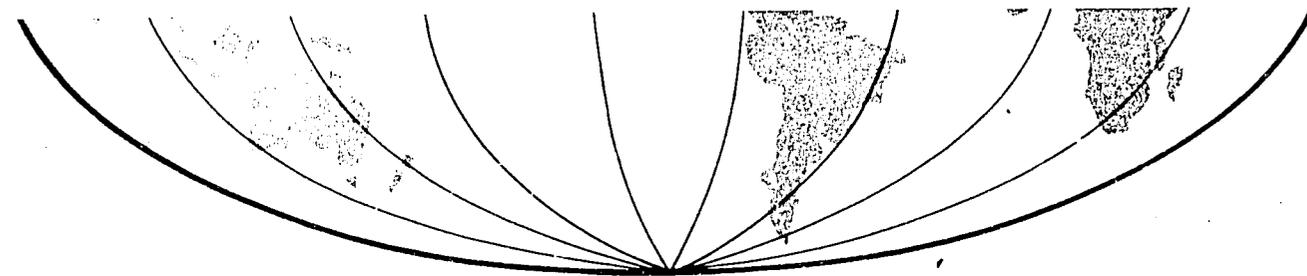
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world wheat facts and trends



REPORT ONE

*analysis of changes in production, consumption,
trade and prices over the last two decades.*

P R E F A C E

During 1979 and early 1980, CIMMYT staff and trustees developed a long-range plan which looked at, among other things, likely production, consumption, and trade trends for wheat and maize through the year 2000. In that process it became clear that, while a considerable quantity of data are available, it is generally dispersed through several publications from different sources. Further, much of the available data are not analyzed and presented in a digestible form for the busy policy maker, researcher, or administrator.

This publication is an attempt to fill this void with information and analysis about world wheat facts and trends. It has been assembled by Derek Byerlee, Edith Hesse de Polanco, and Pedro Santamaría of the CIMMYT Economics Program. It is planned that a second publication later this year will provide similar information about maize.

In future years, CIMMYT will update this publication, reporting on slightly different themes, such as national pricing policies in developing countries, factors affecting the growth in demand for grains, potential breakthroughs in biological technologies, and the role of wheat in the diet of low-income consumers.

Robert D. Havener
Director General

INTRODUCTION

CIMMYT's mandate covers two of the world's major cereal crops—maize and wheat. Wheat, the focus of this report, is important to more than three-fourths of the population in developing countries. Twenty-seven countries of the developing world have over 100,000 ha sown to wheat. In an additional 50 developing countries, wheat (usually imported) represents more than 10 percent of the caloric intake.

Part I of this report sets forth in summary form a number of important facts about wheat production, consumption, trade, and prices, and trends in these variables over the last two decades. Part II is a fact sheet of 31 variables relating to wheat for each developing country in which the wheat area exceeds 100,000 ha. For comparison, these variables are also reported for developed countries with over 1,000,000 ha of wheat.

To simplify the presentation of data we have divided the world into a number of producing regions. In the developing countries these consist of

Sub-Saharan Africa, Middle East Countries of Asia, North Africa, South Asia, South-East Asia, East Asia, and three regions of Latin America^{1/}. The developed countries are divided into the USSR and Eastern Europe, and the Developed Market Economies.

Unless stated otherwise, we have used data from the FAO computer tapes on production and trade and from the recently published FAO Food Balance Sheets that provide detailed supply and utilization data^{2/}. We are grateful to the staff of the FAO Basic Statistics Unit for their generous help in providing and interpreting these data. Nonetheless, we emphasize that FAO is continuously updating their data files on the basis of new information. In addition, we have drawn upon CIMMYT surveys of wheat-producing regions and farm prices. Trends over the last two decades have generally been calculated using 1961-65 as the base period and 1978-80 as the final period. However, because of the use of different data sources, we could not always be consistent.

PART I WHEAT FACTS AND TRENDS

Where the World's Wheat is Produced

Average world wheat production in the period 1978-80 totaled 440 million tons—almost equally divided among (a) the developed market economies, (b) the USSR and Eastern Europe, and (c) the developing countries (see Figure 1 and Table 1). Within the developing countries, the bulk of production occurs in East Asia, South Asia (mainly India and Pakistan), and in a group of countries in the Middle East and North Africa

(Figure 1). Latin America accounts for 10 percent of wheat production in developing countries; production in Sub-Saharan Africa is negligible.

When wheat production is examined as a proportion of total cereal production, the ranking of wheat in various regions is slightly different (Figure 2). Wheat emerges as most important in the traditional wheat belt of the USSR and Eastern Europe, and in the Middle East/North African

1/ Regional Disaggregation: Developing Country Regions—**Sub-Saharan Africa:** All countries except South Africa; **Middle East Countries of Asia:** Turkey to Afghanistan; **North Africa:** Morocco to Egypt; **South Asia:** India, Pakistan, Nepal, Bangladesh, Sri Lanka; **South East Asia and Pacific countries;** **East Asia:** China, Republic of Korea, Korea DPR, Mongolia; **Mexico, Central America, Caribbean;** **Andean Region:** Bolivia, Colombia, Ecuador, Peru, Venezuela; **Southern Cone:** Argentina, Brazil, Chile, Paraguay, Uruguay.

2/ Full sources are listed at the end of the report.

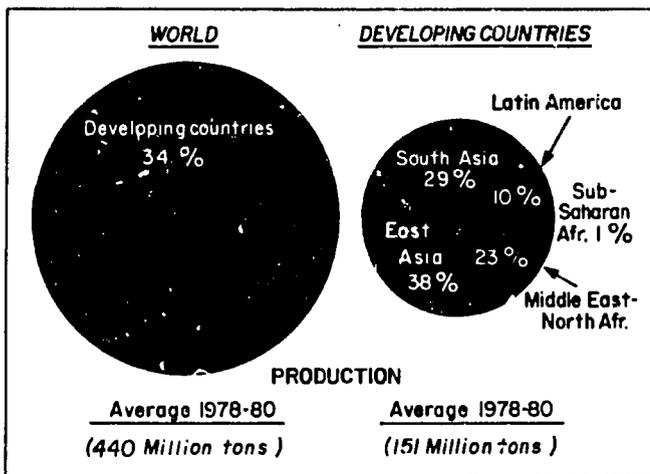


Figure 1. Where the world's wheat is produced.

Table 1. World wheat area, production, and yield by region, 1978-80

	Area (million ha)	Yield (ton/ha)	Production (million tons)	Percent of World Area	Prod.
Developing	105.1	1.4	150.9	44	34
Sub-Saharan Africa	1.1	1.1	1.3	0.4	0.2
Middle East Countries of Asia	20.1	1.4	28.6	8	7
North Africa	5.4	1.1	5.8	2	1
South Asia	29.3	1.5	43.7	12	10
East Asia	39.4	1.4	56.7	16	13
Mexico, Central America and Caribbean	0.8	3.4	2.6	0.3	0.5
Andean	0.2	1.0	0.2	0.1	0
Southern Cone L.A.	8.8	1.4	12.0	4	3
Developed	135.7	2.1	288.6	56	66
USSR and Eastern Europe	70.5	1.9	135.3	29	31
Developed Market Economies	65.2	2.4	153.3	27	35
World	240.8	1.8	439.5	100	100

countries. In these areas, wheat typically accounts for about half of total cereal production. In South Asia and East Asia, wheat is second to rice and accounts for about 20 percent of cereal production. In Latin America, wheat and rice compete for second position behind maize, with wheat accounting for 16 percent of total cereal production.

Major Wheat Types and Production Environments—Developing Countries

Through data provided by national wheat research programs, wheat area in the major producing countries of the developing world has been divided by wheat types (spring or winter habit bread wheat or durum wheat); and by moisture environment (irrigated, rainfed with generally adequate moisture, or semi-arid rainfed wheat). These data are summarized in Tables 2 and 3. Approximately sixty percent of the wheat area is planted to spring bread wheats (Table 2). The largest area of spring bread wheat is in South Asia—much of it under irrigated conditions (Table 3). Nearly all of Latin America wheat area is spring bread wheat produced under rainfed conditions—much of it semi-arid. Winter bread wheat accounts for some 30 percent of the wheat area, most of it in East Asia (China) and the Middle East (Turkey and Iran). Durum wheats are sown on only a little over 10 percent of the total area but are important in North Africa and the Middle East. A large part of the wheats in this region is produced under semi-arid conditions. Overall, the wheat area in developing countries is roughly equally distributed between irrigated wheat, rainfed wheat grown under generally adequate moisture, and wheat

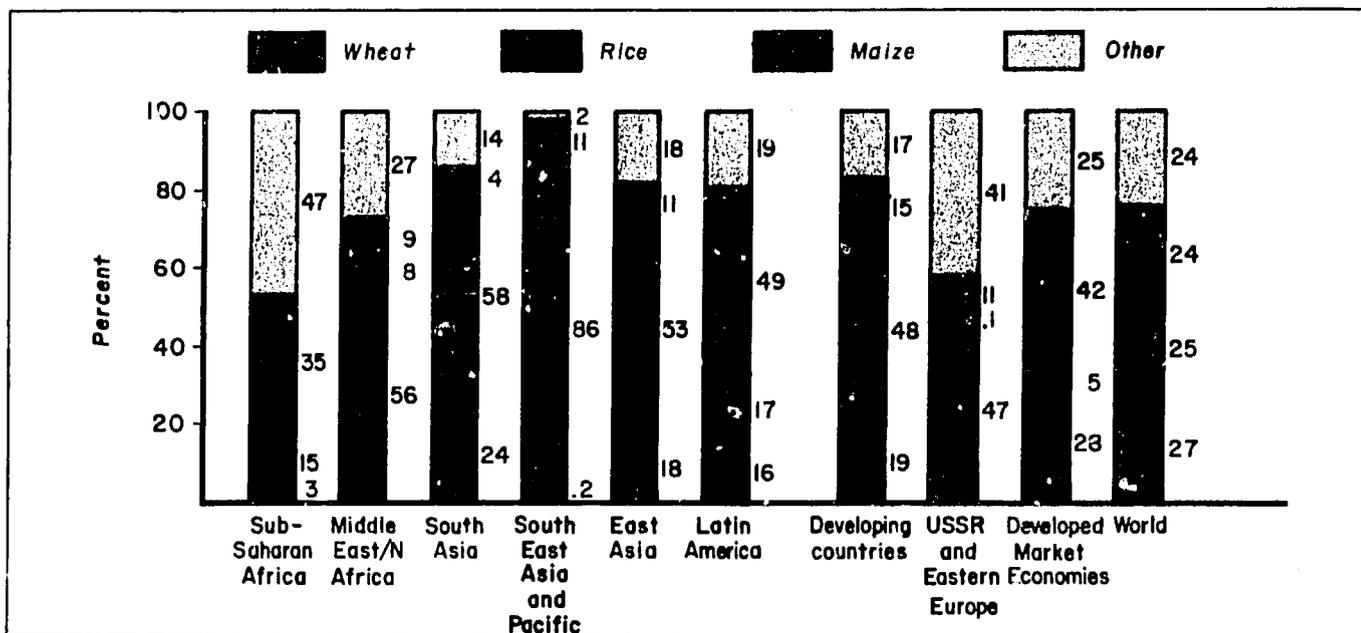


Figure 2. Wheat as a percent of total cereal production, 1977-79.

grown in semi-arid conditions where moisture is often limiting.

Increasing Importance of Wheat in Developing Countries

In the world as a whole, cereal production has expanded rapidly in the last two decades. Among cereals, wheat and maize production have increased at a rate of about 3.5 percent annually from 1961-65 to 1977-79, while rice has increased at 2.7 percent annually (Figure 3). Although wheat production is second to rice in developing countries as a whole, its share of total cereal production has increased markedly in the last two decades. From 1961-65 to 1978-80, wheat production in developing countries expanded at an average annual rate of 4.6 percent. That is, wheat production more than doubled in less than 20 years. By contrast, maize and rice increased at annual rates of 2.4 percent and 2.8 percent, respectively. Higher rates of yield increase largely explain the high growth rate of wheat output, relative to rice and maize, in developing countries.

During the 1960s, the rate of increase of yields in developing countries lagged behind developed countries. But in the last decade, yields increased more rapidly in developing countries while those in developed countries slowed (Figure 4). Largely due to reduced area in the USSR and in some European countries, the wheat area in the developed countries has remained steady over the last two decades. (Differences between production growth rates and yield increases represent changes in wheat area.) Nevertheless, yield increases have

Table 2. Approximate distribution of wheat types for major producing regions of the developing world.

Region	WHEAT TYPES		
	Spring Habit Bread	Winter Habit Bread	Durum
----- percent of wheat in region -----			
Middle East/North Africa	29	40	31
South Asia	95	0	5
East Asia	40	60	< 1
Latin America	95	1	4
All Developing Countries	59	30	11

Source: CIMMYT Survey of National Wheat Programs reported by Byerlee and Winkelmann (1980).

Table 3. Approximate distribution of wheat area by moisture environment in major producing regions of the developing world.

	MOISTURE ENVIRONMENT		
	Irrigated	Adequate Rainfed Moisture	Semi-Arid
----- percent of wheat in region -----			
Middle East/North Africa	14	34	51
South Asia	73	4	23
East Asia	25	39	37
Latin America	9	49	43
All Developing Countries	34	28	37

Source: CIMMYT Survey of National Wheat Programs reported by Byerlee and Winkelmann (1980).

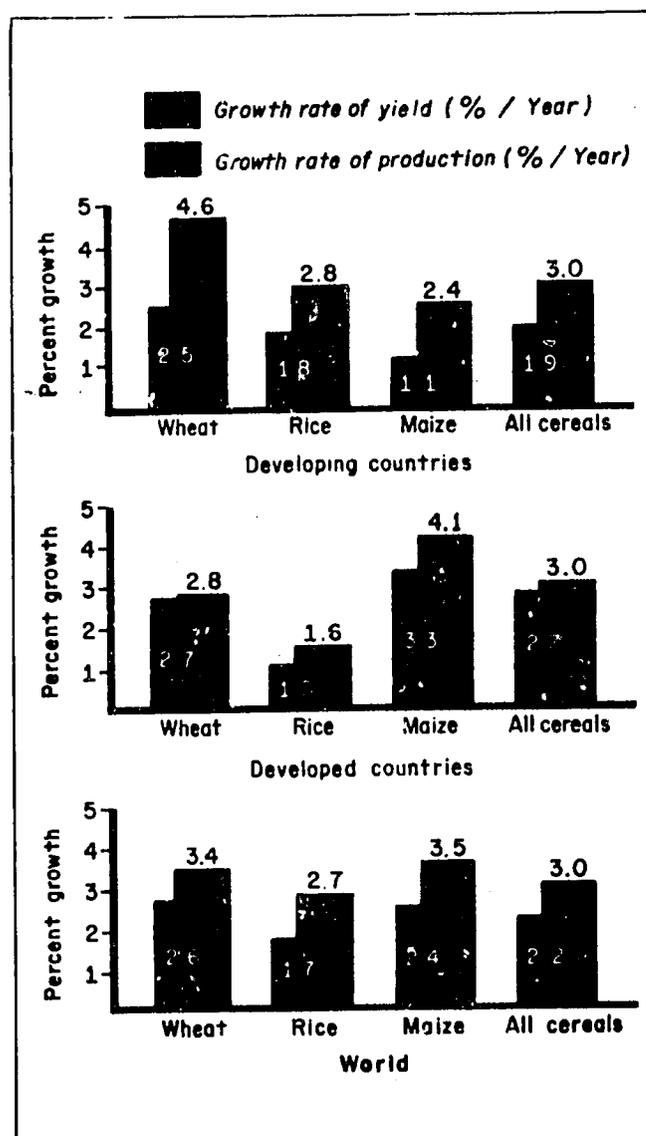


Figure 3. Growth rates of cereal yields and production, 1961-65 to 1977-79.

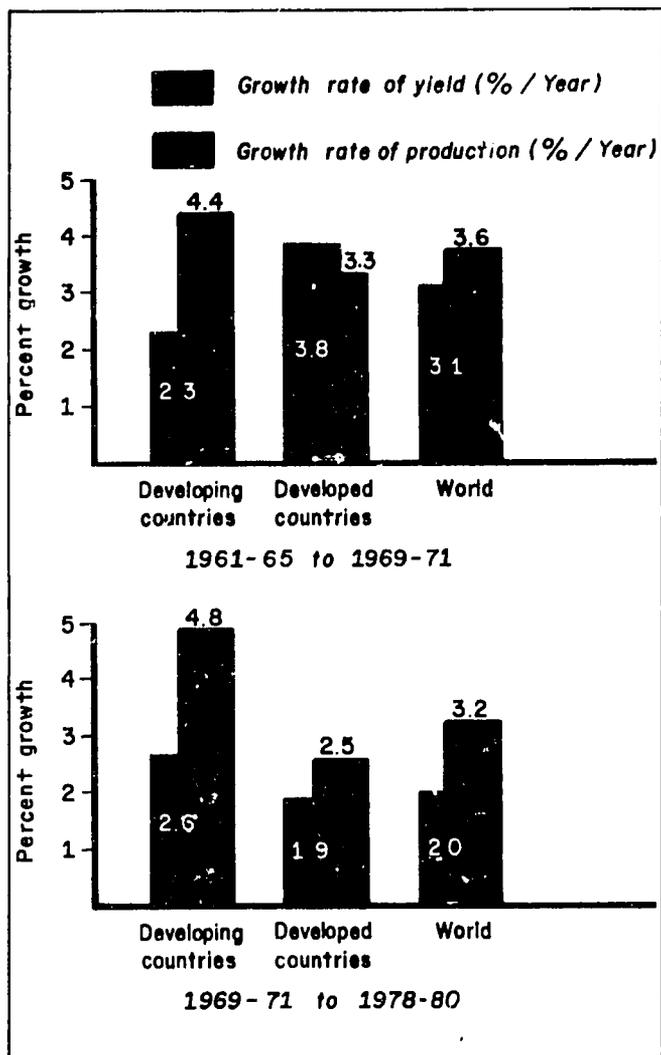


Figure 4. Growth rates of yield and production of wheat, 1961-65 to 1969-71 and 1969-71 to 1978-80.

pushed the production levels of developed countries steadily higher.

As a result of the relatively high growth rate, wheat increased its share of total cereal production in developing countries from 18 to 21 percent. At the same time, the share of world wheat that is produced in developing countries increased from 28 percent in 1961-65 to 34 percent in 1978-80.

The Variable Record of Production Increments in Developing Countries

Rapid aggregate increases in wheat production in the developing world mask substantial variability in performance among countries and within countries. This variability is evident in Figure 5. In South Asia and East Asia, major wheat producers have consistently experienced high rates of increase in yields and area of wheat over the last two decades. In India, for example, wheat production tripled from 1961-65 to 1978-80; and in Bangladesh, not traditionally a wheat producer, production has expanded almost twenty fold in this period. In this group of countries, yield increases have easily outstripped population growth. A large part of the yield increase is associated with the widespread adoption of high-yielding varieties, greater use of irrigation, and the increasing use of fertilizers.

In the traditional wheat areas of the Middle East and North Africa the pattern is more variable. Only Turkey has shown yield increases above the national population growth rate. Iran and Syria show moderate yield increases while the countries

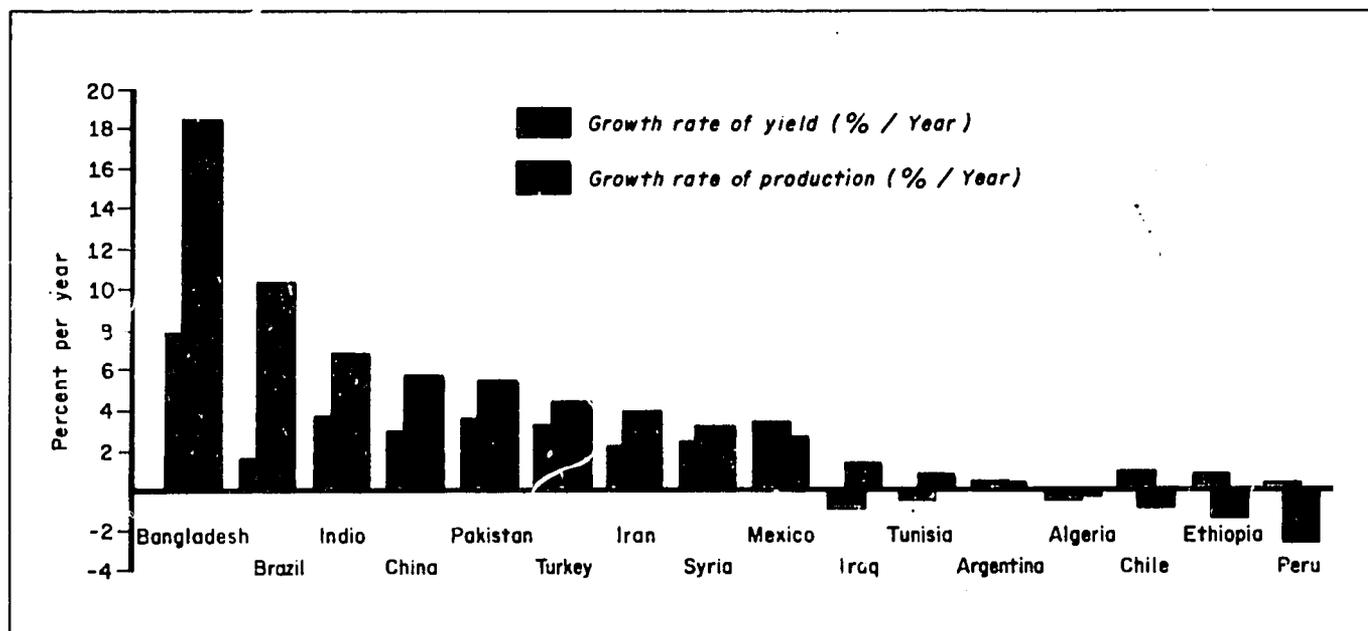


Figure 5. Growth rates of wheat yields and production in important producing countries, 1961-65 to 1978-80.

of North Africa have tended toward low yield increases and stagnation of production.

In Latin America, the pattern is again variable. Mexico has achieved a high rate of growth in wheat yields, accompanied by a decline in the total wheat area. Brazil, on the other hand, has substantially increased production through increased area. In Argentina, the major Latin American wheat producer, average yields and total area have slightly increased. The Andean countries, as represented by Peru, experienced declining wheat production over this period, due to reduced area and stagnation of yields.

Another way of showing this variability is to classify countries by performance in rate of growth of yield. Because of the achievements of China, India and Pakistan, over half the wheat area in developing countries has experienced average yield increases of 3 percent or more. At the same time, yield increases in over half of the developing countries—many in the Middle East and North Africa—have been less than one percent per year.

lower quality) as an animal feed has increased dramatically in Eastern Europe and the USSR since 1960 as these countries strive to increase the availability of livestock products for consumers. Close to half of the total wheat utilization in these countries is now destined for animals. Significant amounts of wheat are also fed to animals in Western Europe. However, feed use of wheat is negligible in developing countries. For the world as a whole, about 80 million tons of wheat (or 18 percent of total production) are consumed as animal feed. Industrial non-food uses of wheat are very small in almost all countries. In developing countries, grain saved for seed and waste account for about 12 percent of total utilization. The remainder is used directly for human consumption.

WHEAT CONSUMPTION

Uses of Wheat

The bulk of world wheat production (67 percent) is destined directly for human consumption. However, the use of wheat (usually of

The Role of Wheat in the Average Diet

Statistics on average calories supplied by wheat in a given country do not reflect the heterogeneity in diets due to such factors as income and local food preferences. Nonetheless, there are clear regional differences. In the Middle East and in North Africa, wheat provides nearly three-quarters of the calories from cereals and about half of all daily calories (Figure 6). Average per capita wheat consumption in these countries is about 140 kg/year. In India and China, per capita wheat consumption averages 40-50 kg/year and wheat accounts for 20 to 30 percent of calories supplied as cereals. In Latin America as a whole, wheat accounts for over a third of calories supplied as cereals and for almost all cereal calories in Argentina,

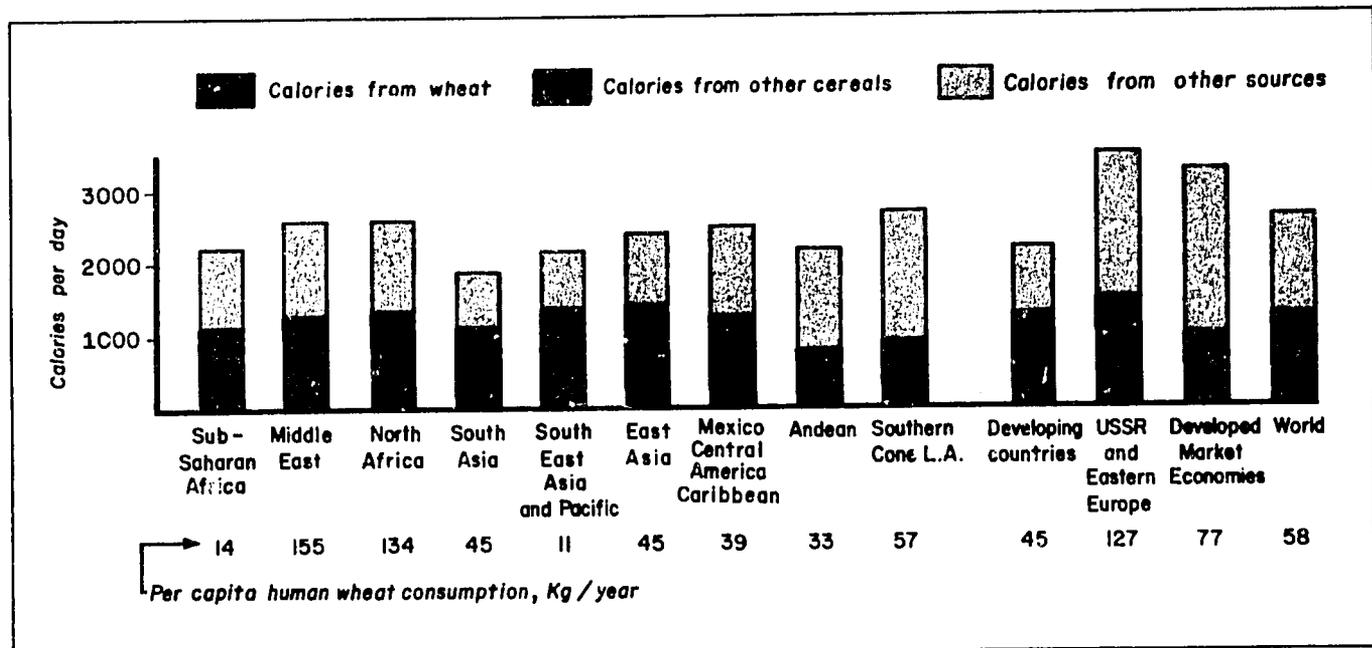


Figure 6. Role of wheat in the average diet in selected regions, 1975-77.

Chile and Uruguay. Finally, in countries of South East Asia and Sub-Saharan Africa, wheat is only consumed by a small part of the population.

For the developing world as a whole, cereals provide over half of total caloric intake, with wheat consumption of 45 kg per capita accounting for a quarter of the total calories provided by cereals. By contrast, cereals provide only about one-third of total calories in developed countries with most of this provided by wheat (Figure 6). As a result, overall per capita consumption of wheat in developed countries is around 100 kg/year, (77 kg/year in developed market economies and 127 kg/year in the USSR and Eastern Europe), somewhat below the figures for the Middle East and North Africa where wheat is the staple food source.

Trends in Total and Per Capita Wheat Utilization

Direct human consumption, by far the most important use of wheat, changes largely in response to population, income, prices, and tastes. Total wheat utilization (production + net imports) in the developing world has increased at an average rate of about 4.5 percent per year from 1961-65 to 1977-79, against a population growth rate of 2.4 percent. That is, per capita utilization has increased by about 2.1 percent per year. South East Asia and Sub-Saharan Africa show the highest rates of increase in total utilization, while Latin America has the lowest rate of increase (see Figure 7).

Changes in total utilization relative to population growth are only a crude measure of changing per capita consumption. A more precise measure is provided by the FAO Food Balance Sheets which take into account changes in stocks and other uses of wheat especially for animal feed in developed countries. In the developed countries and in some developing countries such as Argentina and Turkey with already high per capita wheat consumption and moderately high per capita incomes, per capita consumption of wheat is steady or falling as consumers with rising incomes switch from cereals to higher value vegetable and animal products. In most other developing countries where wheat is important, rising incomes and reduced real prices of wheat have resulted in increases in per capita consumption of 2 to 3 percent per annum (Figure 8). There are also many countries in South East Asia and Sub-Saharan Africa where wheat is not a traditional food. Here, increasing urbanization, changing food tastes, and government policies favoring imports of wheat over rice, have led to very rapid increases in wheat consumption in recent years.

In the developing world as a whole, the proportion of cereal calories provided by wheat increased from 21 percent to 27 percent in the relatively short period, 1961-65 to 1975-77. Per capita calories supplied by wheat increased by 2.3 percent per year compared to 0.4 percent for rice. Meanwhile, in developed countries per capita caloric intake from wheat has steadily fallen.

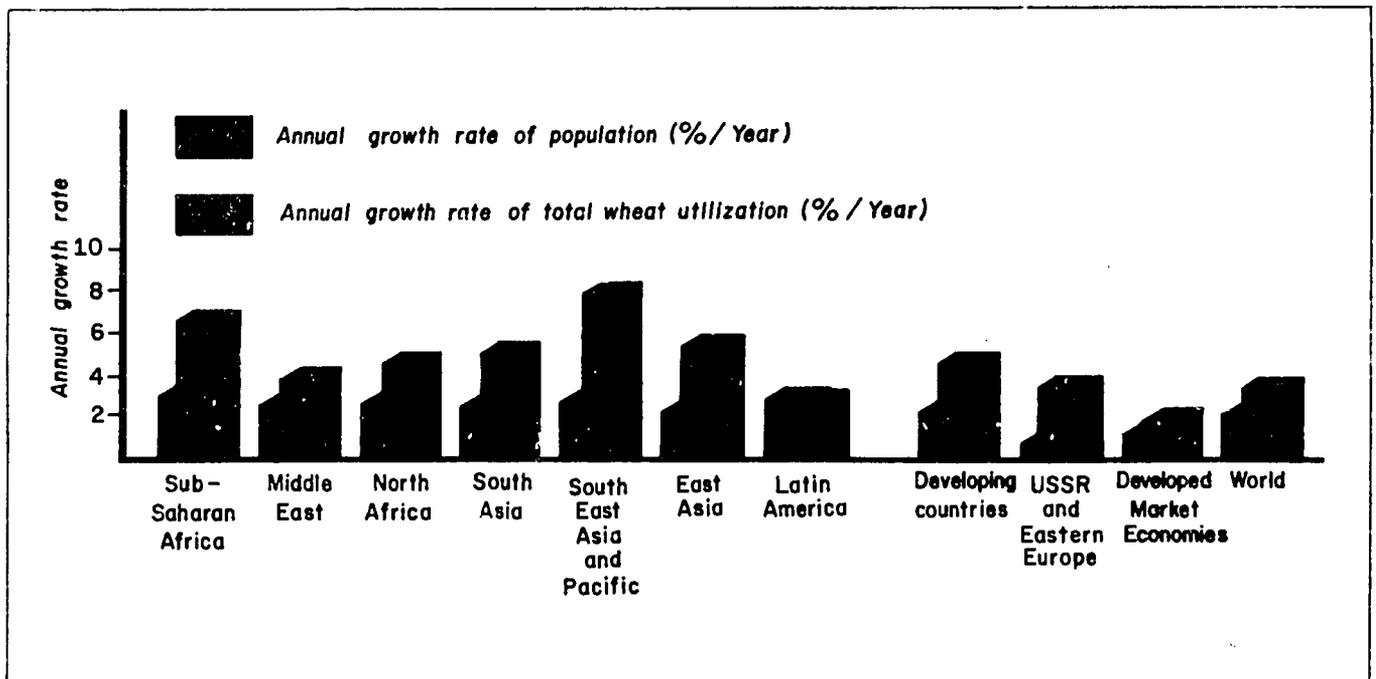


Figure 7. Regional growth rates of total wheat utilization, compared to population, 1961-65 to 1977-79.

WHEAT TRADE

Cereal Trade—A Comparison of Wheat and Maize

Over the last 20 years, world cereal trade has doubled from 90 million tons in 1961-65 to 183 million tons in 1977-79, with an average annual growth rate of 4.7 percent. Traditionally wheat has been the major cereal grain in international trade. In 1961-65, some 16 percent of world wheat production entered international markets, compared to 9 percent for maize and 4 percent for rice. Although wheat exports have grown substantially, from 50 million tons in 1961-65 to 80 million tons in 1977-79, their share in total cereal trade has dropped from 55 percent to 43 percent. This is due to the rapid increase in maize trade from 20 million tons in 1961-65 to 66 million tons in 1977-79 (Figure 9). Rice accounted for only a small percentage of traded cereals.

The pattern of expansion of the wheat and maize trade has been quite different as shown in Figure 10. The bulk of the increase in wheat imports of 29 million tons went to developing countries which increased their average share of total world wheat trade from 49 to 59 percent. Increased maize imports largely went to the developed countries including the USSR and Eastern European countries. In recent years, imports of maize to developing countries have averaged 16 percent of world maize trade.

The Wheat Exporters

Wheat exports have continued to be dominated by the USA with close to 40 percent of the share of the market, and by Canada and Australia with a collective share of about 30 percent (Figure 11). These countries export more than half of their total wheat production. The only major change in the share of wheat exports over the last two decades has been the increase in exports from Western Europe, largely France, where surplus production has been stimulated by domestic wheat price supports substantially above world prices. These countries now account for 16 percent of world wheat exports.

Developing countries play a small role in world wheat exports. Argentina is the only developing country that consistently exports wheat—its share of the market has been around 5 percent. Other developing countries, particularly Turkey and to a lesser extent, India, have exported small amounts in recent years.

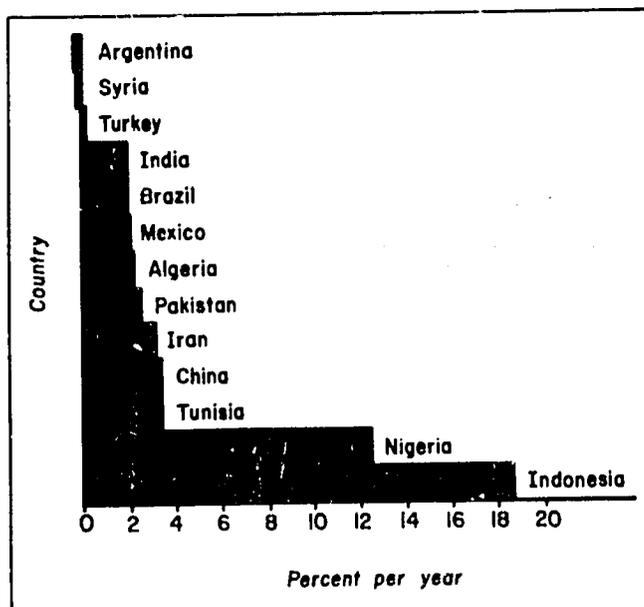


Figure 8. Growth rates of per capita caloric supply of wheat, 1961-65 to 1975-77.

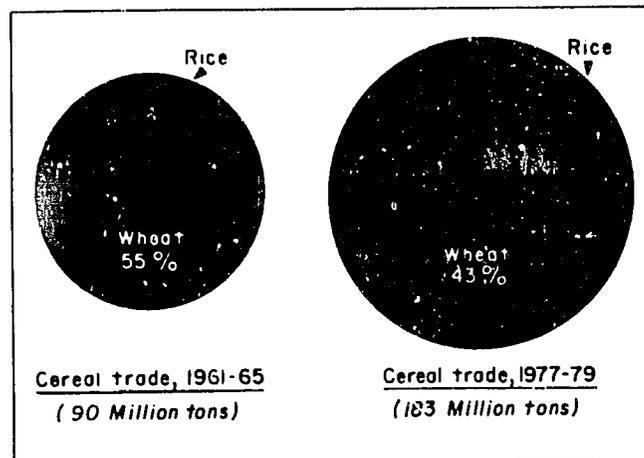


Figure 9. Changing share of wheat in world cereal trade.

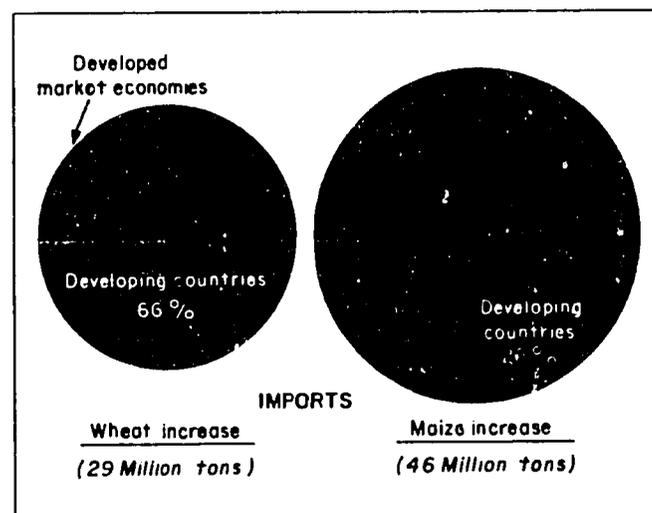


Figure 10. Destination of increases in wheat and maize imports, 1961-65 to 1977-79.

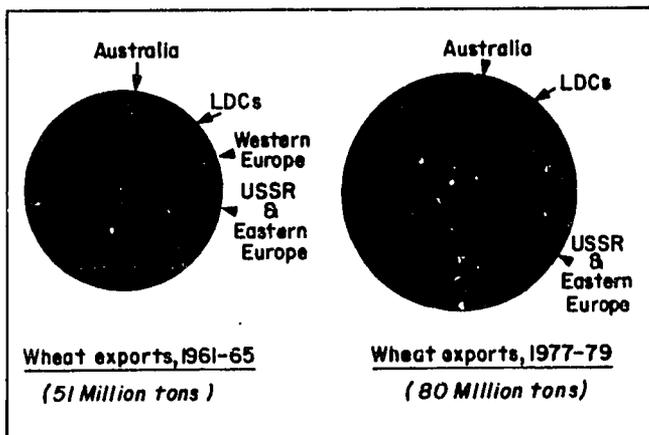


Figure 11. Producer shares in world wheat exports, 1961-65 and 1977-79.

Table 4. Wheat imports to developing country regions by selected regions in 1961-65 and 1977-79

	Imports (million tons)		Percent of Developing Countries	
	1961-65	1977-79	1961-65	1977-79
Developing Countries	24.0	45.9	100	100
Sub Saharan Africa	1.0	3.2	2	7
Middle East/North Africa	4.7	14.4	20	31
South Asia	6.3	3.7	26	8
South East Asia and Pacific	1.3	4.2	5	9
East Asia	5.7	10.6	24	23
Latin America	5	9.8	21	21

Changing Pattern of Wheat Imports by Developing Countries

The last two decades have seen important shifts in the direction of wheat imports within the developing world. In the early 1960s, imports by South Asia—mainly India, Pakistan, and Bangladesh—were 26 percent of all wheat imports to developing countries. In recent years this share has dropped to 8 percent and wheat imports to these countries are nearly half the levels in the 1960s (Table 4). The Middle East/North African countries are now the major wheat importers accounting for one third of wheat imports by developing countries. Over the last two decades, wheat imports by these countries have grown at 7 percent per year. Wheat imports to non-traditional wheat consumers of South East Asia and Sub-Saharan Africa have also grown rapidly and now make up 16 percent of the developing country market.

Self-Sufficiency in Wheat in the Developing World

Wheat production, consumption, and net imports in developing countries have all almost doubled over the period from 1961-65 to 1977-79. As a result, net imports as a proportion of total wheat utilization in developing countries have barely changed, from 22 percent in 1961-65 to 21 percent in 1977-79. However, the pattern of self-sufficiency among developing countries has changed markedly. As would be expected from the pattern of production and trade, dependence on wheat

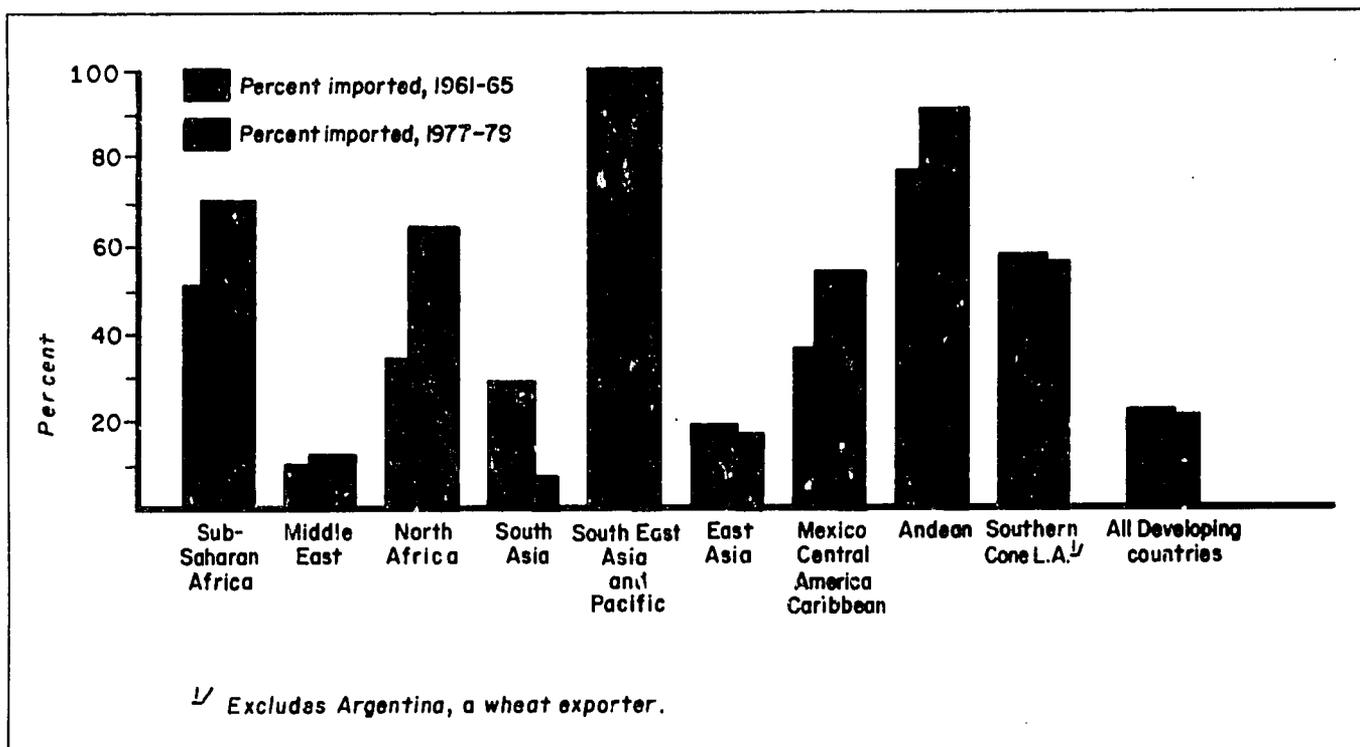


Figure 12. Net imports as a proportion of total wheat utilization.

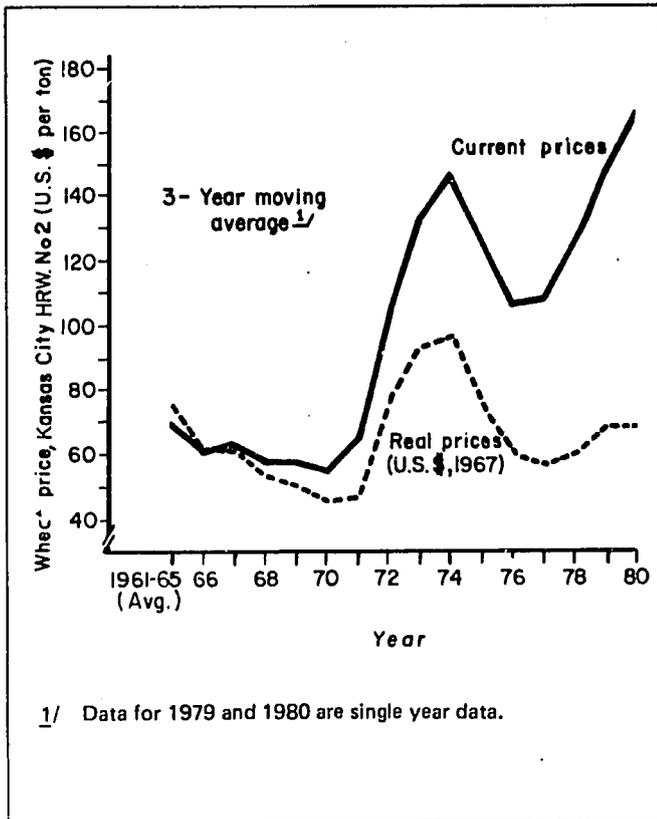


Figure 13. Current and real prices of wheat.

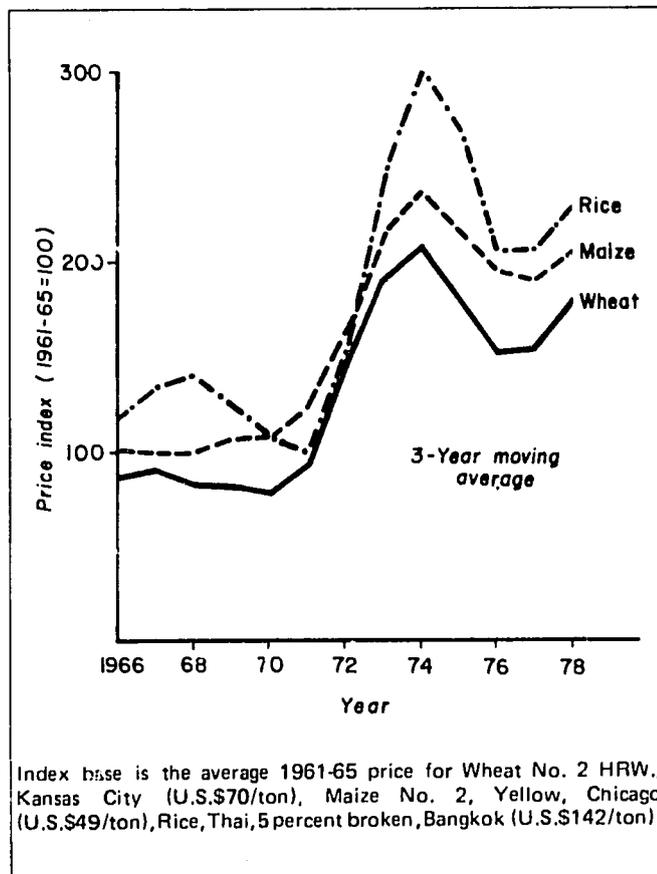


Figure 14. Indices of changes in wheat, maize and rice prices.

imports has been drastically reduced in South Asia and to a lesser extent in East Asia (Figure 12). Dependence on wheat imports in nearly all other regions has sharply increased. Moreover, the Middle East countries, excluding Turkey, now import 32 percent of their wheat needs. Likewise the Southern Cone countries, excluding Argentina, import 53 percent of their total wheat utilization.

WHEAT PRICES

Declining Wheat Prices in Real Terms

The marked fluctuations that have occurred in world wheat prices in response to changing supply and demand over the last two decades are evident in Figure 13. Although current wheat prices are over double the prices of the early 1960s, the real price, measured in 1967 US dollars, is actually *lower* now than in the early 1960s.

Wheat prices have also tended to fall relative to the price of other grains in the world market (Figure 14). In the period 1961-65, 100 kg of wheat would buy 144 kg of maize. But by the period 1975-79, only 120 kg of maize could be bought for 100 kg of wheat. Likewise, 100 kg of wheat bought 50 kg of rice in the early 1960s and 38 kg of rice in the late 1970s. This reflects the relatively rapid growth of world wheat production over the last two decades.

Relative Prices of Wheat, Nitrogen, and Ocean Freight

On the other side of the coin, the world price of nitrogen fertilizer, a key input in wheat production in many countries, increased sharply in the mid 1970s and then declined (Figure 15). The index of nitrogen prices has tended to follow the index of wheat prices so that prices of nitrogen relative to wheat have changed little compared to the early 1960s.

At the same time, ocean freight charges have become an important cost for developing countries that import wheat and fertilizer. Although, the index of ocean freight rates generally has followed the index of wheat prices, it has increased sharply above the wheat price index in recent years (Figure 15). Ocean freight rates for some key ports are shown in Table 5. A number of factors such as distance, lower trade volumes, and higher port handling costs contribute to the relatively high freight rates of grain to developing countries relative to developed countries. At current wheat

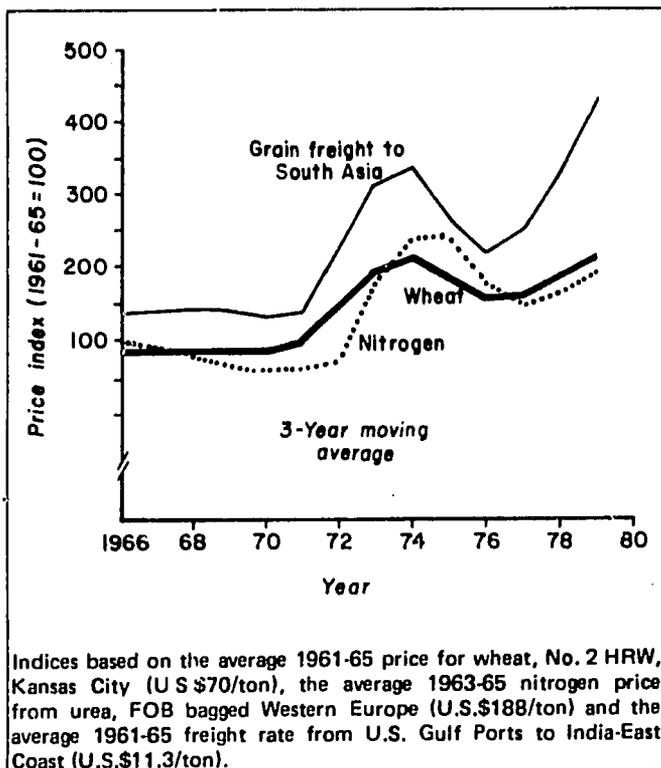


Figure 15. Indices of changes in freight rates, nitrogen fertilizer, and wheat prices, 1966-80

Table 5. Ocean freight rates for wheat

	Average, 1976	February, 1981
 U.S.\$/ton	
From U.S. Gulf Ports to:		
Rotterdam	5.67	20.00
USSR (Black Sea)	10.52	28.50
Egypt	16.66	40.75
Bangladesh	20.29	53.00
East Africa (Beira)	18.29	47.00

Table 6. Farm-level prices of wheat and nitrogen in some major wheat production areas, 1980 crop cycle

Country	Wheat Price (U.S.\$/ton)	N Price ^{1/} (U.S.\$/ton)	Price Ratio N/Wheat
Algeria	303	219	0.7
Argentina	157	980	6.3
Bangladesh	183	326	1.8
Chile	210	679	3.2
China	207	575	2.8
Ethiopia	293	985	3.4
India	151	447	2.9
Mexico	155	350	2.2
Nepal	172	457	2.7
Pakistan	132	278	2.2
Syria	221	436	2.0
Tunisia	171	415	2.4
U.S.A. (Urea)	140	520	3.7
U.S.A. (Anhydrous Ammonia)	140	290	2.1

^{1/} The price refers to nitrogen from urea except for Algeria and Syria where ammonium nitrate is the source.

prices and freight rates, it now costs about US\$ 240/ton to land wheat in South Asia compared to less than US\$ 90/ton at the beginning of the 1970s.

Wheat and Nitrogen Prices at the Country Level

CIMMYT's Economics Program has recently begun to collect farm-level prices of wheat and nitrogen fertilizers in major wheat-producing countries. Some results are shown in Table 6. Comparisons of absolute prices across countries are difficult to make because of overvaluation of exchange rates in many countries. Ignoring these complications, farmers in South Asia receive about the same or slightly higher prices as farmers in the major wheat-exporting countries (i.e., US\$ 130-160 /ton). Farmers in the Middle East and North Africa receive somewhat higher prices. Only in Algeria and Ethiopia is the domestic wheat price at the official exchange rate substantially above what it costs to import wheat in the international market.

Because of widely varying prices for wheat and policies affecting fertilizer imports and subsidies, the price of nitrogen relative to wheat varies substantially. The cost of nitrogen to developing country farmers usually compares favorably to the nitrogen-wheat price ratio of 2.1 to 3.7 in the USA, the major wheat exporter. The major exception is Argentina which has the highest relative cost of nitrogen of the countries reporting.

SUMMARY: PAST, PRESENT, and FUTURE TRENDS

The Highlights of the Last Two Decades of Wheat Expansion

The foregoing summary clearly indicates the variable situation in developing countries with respect to wheat. The wheat statistics of the developing world are dominated by the major wheat producers of South Asia and East Asia—principally India, Pakistan, and China—which produced two-thirds of the wheat. These countries have experienced rapid expansion in wheat production and an increased importance of wheat in the average diet. Increased production has been sufficient to keep pace with population growth rates, and indeed to substantially increase per capita wheat supplies to consumers while sharply reducing dependence on imports. Production increases have come from both yield and area expansion, with yield increases being the more important.

The Middle East and North African countries, with 8 percent of developing world population,

account for about one quarter of total developing world wheat consumption. Although supplies have generally increased to cover population growth and allow for increasing per capita consumption, production increases in these countries have lagged well behind population growth, except in a few cases, most notably, Turkey. Total wheat imports in this region have increased rapidly to meet consumption demands.

In Latin America, which produces 10 percent of the wheat in the developing world, the experience is more variable. Mexico, through yield expansion, and Brazil, through area expansion, have both experienced substantial increases in wheat production. Elsewhere, production has lagged or even declined. Although per capita consumption in Latin America has not increased as fast as in other regions, increasing dependence on imports is occurring to meet consumption needs.

In South East Asia and Sub-Saharan Africa, wheat consumption through imports has increased very rapidly from a negligible base in the early 1960s. This reflects urbanization and to some extent changing tastes, but also the substantial food deficits in those areas and the economic reality that it is much cheaper to import wheat than rice.

The overall expansion of wheat production, especially in developing countries, has helped keep real wheat prices from rising. Moreover, the price of wheat relative to maize and rice has tended to decline over the last two decades. But in the late 1970s, the real price of wheat was again tending to increase. Finally, the developing world continued to be dependent on exports from developed countries for over 20 percent of its wheat needs.

The Current Wheat Situation

World wheat production in 1980 was close to record levels. Production at 446 million tons was 6 million tons above the long-term trend line. Most of the increase over 1979 occurred in developed countries which produced 25 million tons more in 1980 than in 1979. Due largely to poorer harvests in China, wheat production in 1980 in developing countries was 5 million tons less than in 1979.

World wheat trade is expected to reach record levels of 92 million tons in 1980/81. The 1980 US embargo on expanded cereal trade to the USSR reduced trade prospects somewhat. However, the USSR finally purchased 3 million tons more wheat in 1980/81 than in 1979/80. Moreover, China has now entered the world wheat market on a large scale, increasing imports from

8.5 million tons in 1979/80 to 14 million tons in 1980/81. While some of this expansion is due to a reduced Chinese harvest last year, it is likely that imports will continue at a high level as part of its strategy to increase overall cereals consumption.

The increase in world wheat trade in 1980/81 is almost entirely destined to developing countries. As a result, developing country imports will make up 64 percent of total world wheat trade in 1980/81. Meanwhile, with poorer harvests in Australia and Canada, the USA increased its share of the export market to 46 percent.

Despite a good wheat production year in 1980, the increased demand for wheat, as reflected in record trade levels, and a sharp drop in maize production in the USA, have resulted in the highest wheat prices and lowest levels of stocks since the food crisis of 1974-75 (Figure 16). Wheat stocks at the end of the 1980/81 year will represent only 19 percent of the annual world wheat utilization, and total cereal stocks only 14 percent of annual world cereal utilization (Figure 17).

In the USA a record wheat harvest of 76.5 million tons is forecast for 1981—over 10 percent higher than in 1980 which was also a record harvest. In addition, favorable weather to date in the USSR indicates an improved harvest there. As a result, wheat prices, have fallen recently from a high of US\$182/ton (Kansas City, HRW No. 2) in November, 1980 to US\$161/ton in May, 1981. However, demand for wheat is expected to remain firm. Total grain imports to the USSR might increase in an effort to rebuild depleted stocks, and wheat imports to developing countries are likely to continue to increase. India is reported to be making major wheat purchases for the first time in many years. Overall world wheat production in 1981 is forecast to set a new record of between 460 and 480 million tons and should enable some replenishment of world grain stocks.

Future Trends

The rate of increase in wheat production in developing countries is unlikely to continue at the high level (4.6 percent per year) of the past two decades. FAO projects an expansion of wheat production over the period 1972-74 to 1985 of 3 percent per year in developing countries. Yield expansion at 2 percent per year as in the recent past is possible, especially if countries of the Middle East, North Africa, and Latin America, which showed little changes in yield over the past two decades, stage successful wheat production

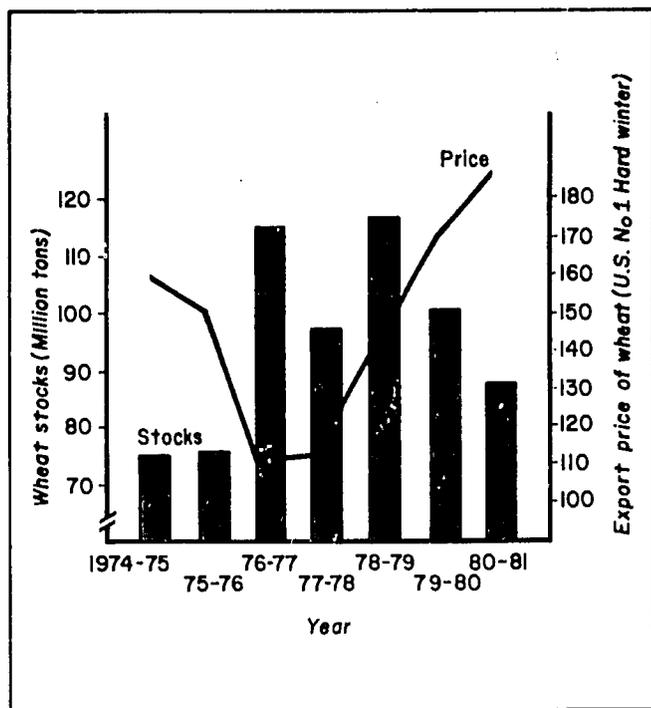


Figure 16. World wheat stocks and export prices, 1974-81.

programs. Area expansions, in South Asia and East Asia, important contributors to the high growth rates achieved from 1961 to 1980 are unlikely to continue at the previous rate of 2 percent per year.

At the same time, human wheat consumption may also increase more slowly. As we have seen, many countries of the Middle East, North Africa, and Latin America have reached very high levels of per capita wheat consumption, which are likely to taper off, and in some cases, decline. Rapid increases in per capita consumption in China, and especially in South East Asia and Sub-Saharan Africa may continue: the availability of foreign exchange and reductions in concessional wheat sales, however, will be an important constraint on importing wheat. FAO forecasts an increase in per capita wheat consumption in developing countries from 44 kg/year in 1972-74 to 49 kg/year in 1985. However, due to population growth alone, total demand will expand by 2 percent per year in developing countries.

In the developed countries, food use of wheat is unlikely to increase, since increased demand due to population growth is balanced by

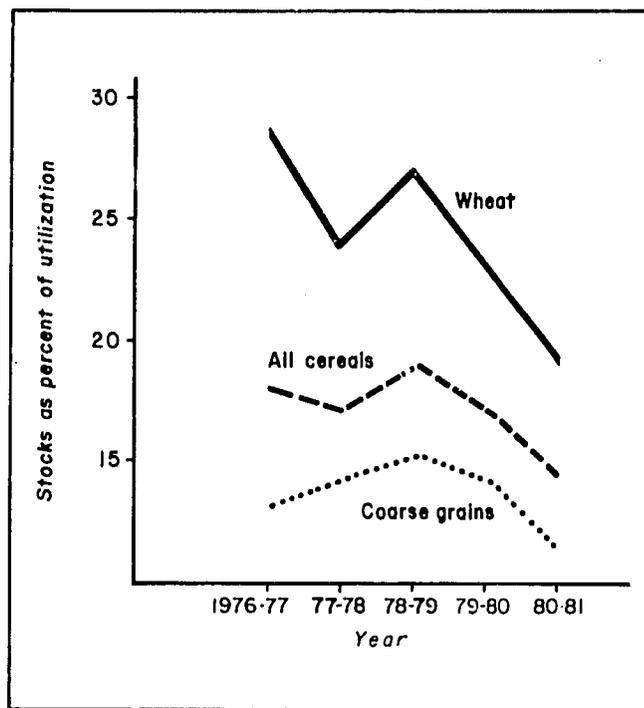


Figure 17. World cereal stocks as a proportion of total annual utilization.

decreasing per capita consumption. Use of wheat for feed is highly dependent on the price of wheat relative to other feed grains. Currently, the price of wheat relative to maize is lower than at any time since 1977. Moreover, the continuing high demand for maize generated by livestock feeding in Eastern Europe, the USSR, and some middle-income developing countries, and the prospects for using maize for industrial use, particularly gasohol, all suggest that the price of maize will continue to be strong. In the 1980s, we expect that wheat will increasingly be regarded as a substitute for maize and that wheat will increase its importance as a feed grain, especially in the developed countries.

Growth in international trade in wheat is more difficult to forecast. Although wheat production in developing countries has grown rapidly in the last two decades, world wheat trade has experienced unprecedented growth stimulated largely by increased demand from developing countries. Wheat remains the major food grain in international trade, and as more countries experience larger food deficits, wheat imports will increase to meet these deficits. We expect continued expansion of world wheat trade, although more slowly than that of the last three years.

PART II

WHEAT

STATISTICS FOR SELECTED COUNTRIES

The following are 31 statistics related to wheat production, consumption, trade, and prices for developing countries with over 100,000 ha of wheat. These countries are grouped by the major regions—Sub-Saharan Africa, North Africa, Middle East countries of Asia, South Asia, East Asia, and Latin America. For comparison we have also included 21 statistics for developed countries with over 1,000,000 ha of wheat. Explanatory notes are given below. Data sources are listed following the statistics.

NOTES ON VARIABLES INCLUDED IN PART II

Variables 1 and 2 and 10 to 13: Source—FAO Tape of Production Statistics.

Variables 3 to 8: Source—Byerlee and Winkelmann, 1980. Data generally refer to the period 1976-78. Semi-arid areas as distinct from well-watered areas are areas where moisture is usually a production-limiting factor. In Mediterranean climates they correspond largely to areas with less than 450 mm annual rainfall.

Variable 9: Source—Dalrymple, 1978. Data are generally for the period 1974-76.

Variables 14 to 16: Calculated from preceding variables as: $g = 100[\ln(x_t/x_{t_0})]/t$ where x_t is the average for the period t , 1978-80, x_{t_0} is the average for the period t_0 , 1961-65, and t is the number of years between the midpoints of the two periods (i.e. 16).

Variables 17 to 21: Source—FAO Food Balance Sheets, 1980. Data are averages for 1975-77. Total domestic supply includes all wheat available for domestic use, i.e., human consumption, animal feed, industrial uses, seed, and waste. It is the sum of production, net imports, and stock changes.

Variables 22 and 23: Source—World Development Report, 1980.

Variable 24: Calculated from total utilization (production plus net imports) using the same method as for variables 14 to 16, but with 1977-79 as the end period.

Variable 25: Source—FAO Food Balance Sheets, 1980. Based on change in per capita caloric supply from wheat from 1961-65 to 1975-77.

Variable 26: Source—FAO Tape of Trade Statistics.

Variables 27 and 28: Source—FAO Tapes of Production and Trade Statistics. Total utilization is production plus net imports. If the country is an exporter, the statistic refers to percent of total *production* exported and is denoted by a negative sign.

Variables 29 to 31: Source—CIMMYT Economics Survey of scientists who are in frequent contact with farmers. Data refer to the wheat crop cycle harvested in 1980^{1/} for a major wheat-producing region within the country. The wheat price is the post-harvest price received by farmers. Nitrogen price is the price paid by farmers for the most common nitrogen fertilizer—usually urea. Labor price is the price paid for unskilled labor for farm work per day. Currency conversions were made at the prevailing official exchange rate.

na.: Data not available.

^{1/} Except for Sudan for which 1981 data are reported and Egypt, for which 1979 data are reported.

WHEAT STATISTICS				SUBSAHARAN AFRICA			NORTH AFRICA			
				Ethiopia	Kenya	Sudan	Algeria	Egypt	Libya	Morocco
PRODUCTION	AREA	1. Average 1961-65 (1,000 ha)	690	103	27	1971	557	149	1794	800
		2. Average 1978-80 (1,000 ha)	507	119	246	1953	575	283	1693	941
		3. Percent area, irrigated	0	0	100	0	100	23	6	0
		4. Percent area, well-watered	75	100	0	49	0	77	68	52
		5. Percent area, semi-arid	25	0	0	51	0	0	27	48
		6. Percent area, spring bread	10	100	100	36	97	54	26	8
		7. Percent area, winter bread	0	0	0	0	0	0	0	0
		8. Percent area, durum	90	0	0	64	3	46	74	92
		9. Percent area, high-yielding varieties	na.	na.	na.	16	25	na.	12	22
	YIELD	10. Average 1961-65 (ton/ha);	0.8	1.2	1.3	0.6	2.6	0.2	0.8	0.9
		11. Average 1978-80 (ton/ha)	0.9	1.6	1.1	0.6	3.2	0.4	1.1	0.8
	PRODUCTION	12. Average 1961-65 (1,000 ton)	540	122	36	1254	1459	37	1516	680
		13. Average 1978-80 (1,000 ton)	449	189	271	1204	1865	117	1824	756
	GROWTH RATES	14. Area 1961-80 (o/o per year)	-1.9	0.9	13.8	-0.1	0.2	4.0	-0.4	1.0
		15. Yield 1961-80 (o/o per year)	0.8	1.8	-1.2	-0.2	1.3	3.2	1.5	-0.3
		16. Production 1961-80 (o/o per year)	-1.2	2.7	12.6	-0.3	1.5	7.2	1.1	0.7
CONSUMPTION	17. Per capita supply of wheat for food (kg/year)	22	15	23	169	110	192	145	175	
	18. Percent of total calories from cereals	69	56	56	63	67	41	67	55	
	19. Percent cereal calories from wheat	15	8	16	88	47	76	64	95	
	20. Per capita total domestic wheat supply (kg/year)	25	16	26	191	122	201	168	203	
	21. Percent used for animals	0	0	0	0	1	0	0	1	
	22. Population growth rate 1970-78 (o/o per year)	2.5	3.3	2.6	3.2	2.2	4.1	2.9	2.0	
	23. Per capita income growth rate 1960-78 (o/o per year)	1.5	2.2	0.1	2.3	3.3	6.2	2.5	4.8	
	24. Growth rate, total wheat utilization 1961-77 (o/o per year)	0.8	5.9	8.6	4.1	4.9	8.3	3.7	2.7	
	25. Growth rate, per capita wheat supply for food, 1961-77 (o/o per year)	0.1	2.7	6.1	2.2	0.4	1.6	1.9	3.4	
TRADE	26. Net imports, average 1977-79 (1 000 ton)	121	47	203	2005	4725	423	1492	575	
	27. Percent of total utilization, imported average 1961-65	2	-39	76	22	55	77	16	18	
	28. Percent of total utilization, imported average 1977-79	20	25	41	67	73	84	48	47	
PRICES	29. Farm price of wheat (US\$ per ton)	293	na.	525	303	91	na.	na.	171	
	30. Ratio of farm level nitrogen price to wheat price	3.4	na.	0.5	0.7	2.4	na.	na.	2.4	
	31. Farm wage rate in kg of wheat	3.2	na.	4.5	na.	17	na.	na.	20	

WHEAT STATISTICS		MIDDLE EAST COUNTRIES OF ASIA						
		Afghanistan	Iran	Iraq	Jordan	Syria	Turkey	
PRODUCTION	AREA	1. Average 1961-65 (1,000 ha)	2321	3580	1210	249	1396	7959
		2. Average 1978-80 (1,000 ha)	2382	4683	1682	141	1482	9397
		3. Percent area, irrigated	54	26	10	3	11	0
		4. Percent area, well-watered	9	20	22	12	28	42
		5. Percent area, semi-arid	36	54	68	85	61	58
		6. Percent area, spring bread	53	16	76	0	33	20
		7. Percent area, winter bread	37	84	0	0	0	55
		8. Percent area, durum	9	1	24	100	67	25
		9. Percent area, high-yielding varieties	33	3	53	10	24	24
YIELD		10. Average 1961-65 (ton/ha)	1.0	0.8	0.7	0.7	0.8	1.1
		11. Average 1978-80 (ton/ha)	1.1	1.1	0.6	0.5	1.2	1.8
PRODUCTION		12. Average 1961-65 (1,000 ton)	2207	2873	849	180	1093	8585
		13. Average 1978-80 (1,000 ton)	2725	5300	1030	73	1732	17263
GROWTH RATES		14. Area 1961-80 (% per year)	0.2	1.7	2.1	-3.5	0.4	1.0
		15. Yield 1961-80 (% per year)	1.1	2.1	-0.9	-2.1	2.5	3.3
		16. Production 1961-80 (% per year)	1.3	3.8	1.2	-5.6	2.9	4.4
CONSUMPTION		17. Per capita supply of wheat for food (kg/year)	131	174	134	138	222	182
		18. Percent of total calories from cereals	82	64	62	61	52	56
		19. Percent cereal calories from wheat	65	77	78	90	92	85
		20. Per capita total domestic wheat supply (kg/year)	143	205	156	153	263	391
		21. Percent used for animals	0	4	0	0	5	14
		22. Population growth rate 1970-78 (% per year)	2.2	2.9	3.3	3.3	3.2	2.5
		23. Per capita income growth rate 1960-78 (% per year)	0.4	7.9	4.1	1.8	3.8	4.0
		24. Growth rate, total wheat utilization 1961-79 (% per year)	1.3	4.9	4.7	0.3	3.1	3.7
	25. Growth rate, per capita wheat supply for food, 1961-77 (% per year)	-0.5	3.3	2.4	0.1	-0.4	0.1	
TRADE		26. Net imports, average 1977-79 (1,000 ton)	77	1087	1169	280	306	-1174
		27. Percent of total utilization, imported average 1961-65	3	8	15	44	-11	6
		28. Percent of total utilization, imported average 1977-79	3	17	59	88	19	-7
PRICES		29. Farm price of wheat (US\$ per ton)	na.	na.	na.	na.	221	na.
		30. Ratio of farm level nitrogen price to wheat price	na.	na.	na.	na.	2.0	na.
		31. Farm wage rate in kg of wheat	na.	na.	na.	na.	29.1	na.

WHEAT STATISTICS			EAST ASIA			SOUTH ASIA			
			China	Korea DPR	Mongolia	Bangla- desh	India	Nepal	Pakistan
PRODUCTION	AREA	1. Average 1951-65 (1,000 ha)	25180	105	331	60	13402	109	4984
		2. Average 1978-80 (1,000 ha)	38833	152	424	313	21880	361	6590
		3. Percent area, irrigated	25	na.	na.	33	73	67	75
		4. Percent area, well-watered	39	na.	na.	67	3	33	4
		5. Percent area, semi-arid	37	na.	na.	0	25	0	21
		6. Percent area, spring bread	40	na.	na.	100	93	100	100
		7. Percent area, winter bread	60	na.	na.	0	0	0	0
		8. Percent area, durum	1	na.	na.	0	7	0	0
		9. Percent area, high-yielding varieties	na.	na.	na.	80	71	71	72
	YIELD	10. Average 1961-65 (ton/ha)	0.9	1.7	0.8	0.6	0.8	1.2	0.8
		11. Average 1978-80 (ton/ha)	1.4	2.4	0.7	2.2	1.5	1.2	1.5
	PRODUCTION	12. Average 1961-65 (1,000 ton)	22400	176	261	37	11191	135	4153
		13. Average 1978-80 (1,000 ton)	56000	387	280	681	32765	422	9704
	GROWTH RATES	14. Area 1961-80 (% per year)	2.7	2.3	1.6	10.3	3.1	7.5	1.7
		15. Yield 1961-80 (% per year)	3.0	2.3	-1.1	7.9	3.6	-0.4	3.6
		16. Production 1961-80 (% per year)	5.7	4.6	0.4	18.2	6.7	7.1	5.3
CONSUMPTION	17. Per capita supply of wheat for food (kg/year)	49	51	218	20	39	22	123	
	18. Percent of total calories from cereals	66	69	50	85	65	84	63	
	19. Percent cereal calories from wheat	23	20	96	11	26	11	73	
	20. Per capita total domestic wheat supply (kg/year)	57	56	281	21	45	28	132	
	21. Percent used for animals	2	3	9	0	1	0	0	
	22. Population growth rate 1970-78 (% per year)	1.6	2.6	2.9	2.7	2.0	2.2	3.1	
	23. Per capita income growth rate 1960-78 (% per year)	3.7	4.5	1.5	-0.4	1.4	0.8	2.8	
	24. Growth rate, total wheat utilization 1961-79 (% per year)	5.3	5.9	2.4	6.9	4.7	7.2	4.7	
	25. Growth rate, per capita wheat supply for food, 1961-77 (% per year)	3.4	5.9	1.9	7.0	2.0	5.5	2.5	
TRADE	26. Net imports, average 1977-79 (1,000 ton)	7631	474	66	1026	7	2	1262	
	27. Percent of total utilization, imported average 1961-65	17	48	-22	93	29	0	19	
	28. Percent of total utilization, imported average 1977-79	13	58	19	74	0	1	12	
PRICES	29. Farm price of wheat (US\$ per ton)	207	na.	na.	183	151	172	132	
	30. Ratio of farm level nitrogen price to wheat price	2.8	na.	na.	1.8	2.9	2.7	2.2	
	31. Farm wage rate in kg of wheat	na.	na.	na.	3.6	10.2	4.1	11.5	

WHEAT STATISTICS		LATIN AMERICA						
		Mexico	Peru	Argentina	Brazil	Chile	Uruguay	
PRODUCTION	AREA	1. Average 1961-65 (1,000 ha)	802	153	4916	812	753	453
		2. Average 1978-80 (1,000 ha)	705	95	4702	3221	562	218
		3. Percent area, irrigated	80	0	0	0	29	0
		4. Percent area, well-watered	20	20	47	50	71	100
		5. Percent area, semi-arid	0	80	53	50	0	0
		6. Percent area, spring bread	95	60	95	100	86	100
		7. Percent area, winter bread	0	0	0	0	6	0
		8. Percent area, durum	6	40	5	0	8	0
		9. Percent area, high-yielding varieties	88	0	49	22	na.	na.
	YIELD	10. Average 1961-65 (ton/ha)	2.1	1.0	1.5	0.7	1.4	1.0
		11. Average 1978-80 (ton/ha)	3.6	1.1	1.7	0.9	1.7	1.2
	PRODUCTION	12. Average 1961-65 (1,000 ton)	1672	150	7541	574	1082	465
		13. Average 1978-80 (1,000 ton)	2523	101	7848	2924	951	251
	GROWTH RATES	14. Area 1961-80 (% per year)	-0.8	-3.0	-0.3	8.6	-1.8	-4.6
		15. Yield 1961-80 (% per year)	3.4	0.5	0.5	1.6	1.0	0.7
		16. Production 1961-80 (% per year)	2.6	-2.5	0.2	10.1	-0.8	-3.8
CONSUMPTION	17. Per capita supply of wheat for food (kg/year)	43	54	131	43	134	108	
	18. Percent of total calories from cereals	50	42	30	36	52	33	
	19. Percent cereal calories from wheat	23	43	81	33	88	82	
	20. Per capita total domestic wheat supply (kg/year)	52	56	185	47	177	134	
	21. Percent used for animals	9	0	12	0	5	4	
	22. Population growth rate 1970-78 (% per year)	3.3	2.7	1.3	2.8	1.7	0.3	
	23. Per capita income growth rate 1960-78 (% per year)	2.7	2.0	2.6	4.9	1.0	0.7	
	24. Growth rate, total wheat utilization 1961-79 (% per year)	5.2	3.4	-2.1	5.4	2.0	-2.6	
	25. Growth rate, per capita wheat supply for food, 1961-77 (% per year)	2.1	0.8	-0.6	2.0	0.4	0.2	
TRADE	26. Net imports average 1977-79 (1,000 ton)	692	808	-4045	3539	764	51	
	27. Percent of total utilization, imported average 1961-65	-16	73	-43	79	19	-6	
	28. Percent of total utilization, imported average 1977-79	22	88	-56	57	43	16	
PRICES	29. Farm price of wheat (US\$ per ton)	155	na.	157	na.	210	na.	
	30. Ratio of farm level nitrogen price to wheat price	2.2	na.	6.3	na.	3.2	na.	
	31. Farm wage rate in kg of wheat	41.7	na.	160.3	na.	24.4	na.	

WHEAT STATISTICS		DEVELOPED MARKET ECONOMIES										
		Austra- lia	Canada	France	Germany, Fed. Rep.	Italy	South Africa	Spain	United Kingdom	USA	Yugo- slavia	
PRODUCTION	AREA	1. Average 1961-65 (1,000 ha)	6726	11145	4265	1391	4398	1197	4161	870	19432	2006
		2. Average 1978-80 (1,000 ha)	10889	10723	4270	1635	3441	1771	2663	1356	25604	1585
		3. Percent area, irrigated	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		4. Percent area, well-watered	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		5. Percent area, semi-arid	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		6. Percent area, spring bread	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		7. Percent area, winter bread	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		8. Percent area, durum	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		9. Percent area, high-yielding varieties	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
YIELD		10. Average 1961-65 (ton/ha)	1.2	1.4	2.9	3.3	2.0	0.7	1.1	4.1	1.7	1.8
		11. Average 1978-80 (ton/ha)	1.4	1.8	5.0	5.0	2.7	1.0	1.9	5.4	2.2	3.1
PRODUCTION		12. Average 1961-65 (1,000 ton)	222	15364	12495	4607	8857	834	4365	3520	33040	3599
		13. Average 1978-80 (1,000 ton)	14972	19154	21330	8105	9254	1783	4942	7284	56965	4982
GROWTH RATES		14. Area 1961-80 (% per year)	3.0	-0.2	0	1.0	-1.5	2.4	-2.8	2.8	1.7	-1.5
		15. Yield 1961-80 (% per year)	0.7	1.6	3.3	2.5	1.8	2.3	3.6	1.8	1.7	3.5
		16. Production 1961-80 (% per year)	3.7	1.4	3.3	3.5	0.3	4.8	0.8	4.5	3.4	2.0
CONSUMPTION		17. Per capita supply of wheat for food (kg/year)	107	88	93	60	189	65	102	94	69	195
		18. Percent of total calories from cereals	25	21	22	19	38	54	25	21	17	48
		19. Percent cereal calories from wheat	91	85	94	70	93	33	91	91	78	88
		20. Per capita total domestic wheat supply (kg/year)	211	215	166	126	188	73	114	150	96	245
		21. Percent used for animals	26	39	36	44	3	2	1	34	16	8
		22. Population growth rate 1970-78 (% per year)	1.6	1.2	0.8	0.1	0.7	2.7	1.2	0.1	0.8	0.9
		23. Per capita income growth rate 1960-78 (% per year)	2.9	3.5	4.0	3.3	3.6	2.5	5.0	2.1	2.4	5.4
		24. Growth rate, total wheat utilization 1961-79 (% per year)	6.6	2.2	0.9	1.8	0.7	4.0	-0.6	1.0	3.5	1.1
	25. Growth rate, per capita wheat supply for food, 1961-77 (% per year)	-0.2	0.3	-1.8	-1.0	0.1	2.1	-1.7	-0.8	-0.4	-0.5	
TRADE		26. Net imports average 1977-79 (1,000 ton)	-8749	-14429	-7825	-45	2332	-141	69	2941	-31759	284
		27. Percent of total utilization, imported average 1961-65	-74	-77	-24	22	8	13	9	58	-60	22
		28. Percent of total utilization, imported average 1977-79	-60	-74	-42	-18	22	-8	2	32	-69	5
PRICES		29. Farm price of wheat (US\$ per ton)	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		30. Ratio of farm level nitrogen price to wheat price	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.
		31. Farm wage rate in kg of wheat	na.	na.	na.	na.	na.	na.	na.	na.	na.	na.

WHEAT STATISTICS			EASTERN EUROPE AND USSR				
			Czecho-slovakia	Hungary	Poland	Rumania	USSR
PRODUCTION	AREA	1. Average 1961-65 (1,000 ha)	735	1083	1516	2966	66622
		2. Average 1978-80 (1,000 ha)	1187	1261	1670	2163	60754
		3. Percent area, irrigated	na.	na.	na.	na.	na.
		4. Percent area, well-watered	na.	na.	na.	na.	na.
		5. Percent area, semi-arid	na.	na.	na.	na.	na.
		6. Percent area, spring bread	na.	na.	na.	na.	na.
		7. Percent area, winter bread	na.	na.	na.	na.	na.
		8. Percent area, durum	na.	na.	na.	na.	na.
		9. Percent area, high-yielding varieties	na.	na.	na.	na.	na.
YIELD	10. Average 1961-65 (ton/ha)	2.4	1.9	2.0	1.5	1.0	
	11. Average 1978-80 (ton/ha)	4.0	3.9	2.9	2.6	1.7	
PRODUCTION	12. Average 1961-65 (1,000 ton)	1779	2020	2988	4321	64207	
	13. Average 1978-80 (1,000 ton)	4779	4962	4872	5640	103045	
GROWTH RATES	14. Area 1961-80 (% per year)	3.0	1.0	0.6	-2.0	-0.6	
	15. Yield 1961-80 (% per year)	3.2	4.7	2.5	3.6	3.5	
	16. Production 1961-80 (% per year)	6.2	5.6	3.1	1.7	3.0	
CONSUMPTION	17. Per capita supply of wheat for food (kg/year)	111	156	100	158	150	
	18. Percent of total calories from cereals	30	34	33	50	40	
	19. Percent cereal calories from wheat	78	95	61	63	77	
	20. Per capita total domestic wheat supply (kg/year)	357	342	217	243	357	
	21. Percent used for animals	59	40	40	20	36	
	22. Population growth rate 1970-78 (% per year)	0.7	0.4	0.9	0.9	0.9	
	23. Per capita income growth rate 1960-78 (% per year)	4.3	5.0	5.9	8.6	4.3	
	24. Growth rate, total wheat utilization 1961-79 (% per year)	4.0	4.2	3.4	1.8	3.4	
	25. Growth rate, per capita wheat supply for food, 1961-77 (% per year)	-0.8	-0.5	0.2	0.2	-1.2	
TRADE	26. Net imports average 1977-79 (1,000 ton)	557	-639	2597	-375	6004	
	27. Percent of total utilization, imported average 1961-65	40	12	36	-6	0	
	28. Percent of total utilization, imported average 1977-79	10	-13	33	-16	6	
PRICES	29. Farm price of wheat (US\$ per ton)	na.	na.	na.	na.	na.	
	30. Ratio of farm level nitrogen price to wheat price	na.	na.	na.	na.	na.	
	31. Farm wage rate in kg of wheat	na.	na.	na.	na.	na.	

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