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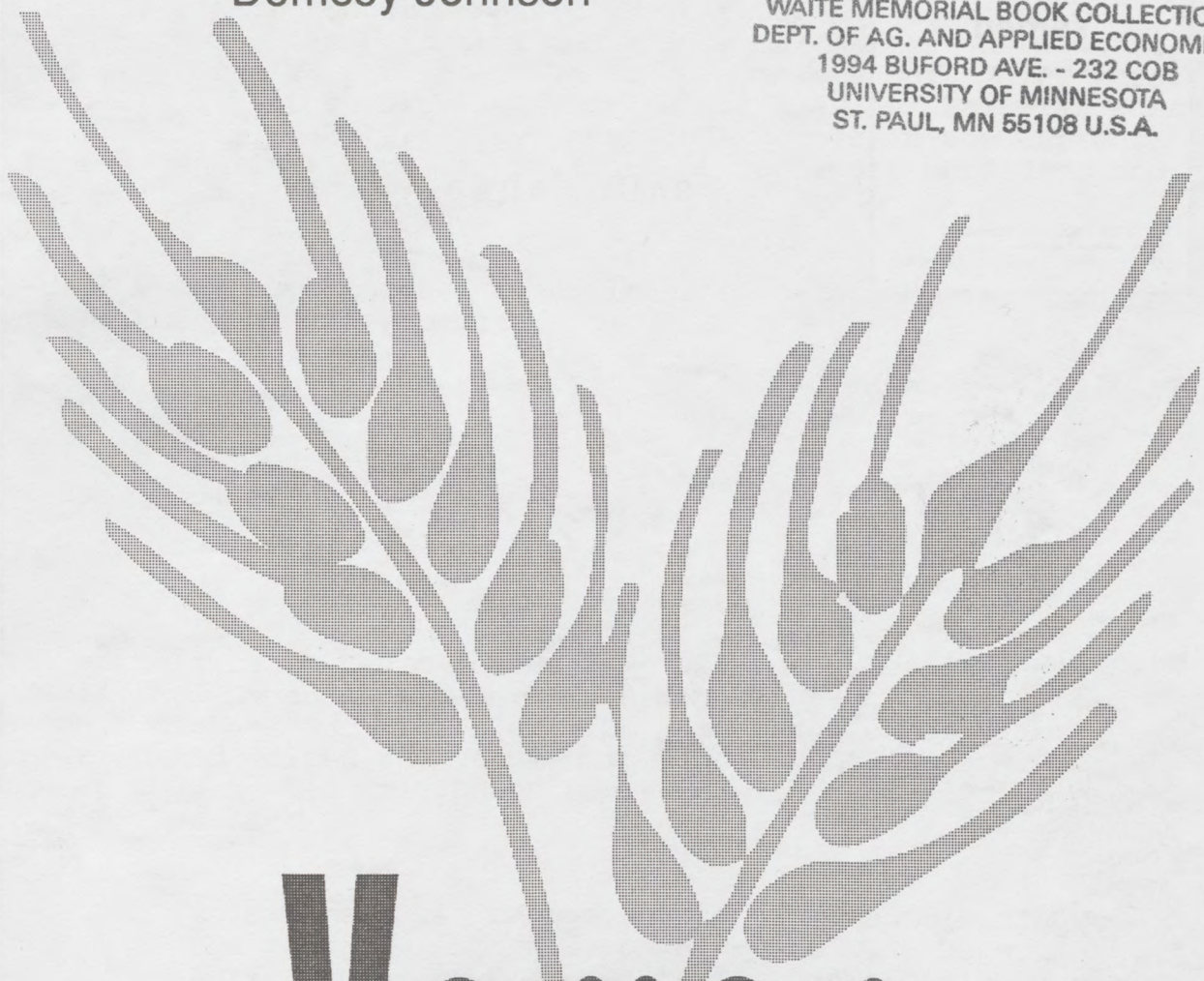
Agriculture and Trade Analysis Division

Commodity Economics Division

Determinants of Wheat Import Demand

John Parker
Demcey Johnson



Yemen


Yemen
International boundary
National capital
Railroad
Road
0 50 100 150 Kilometers
0 50 100 150 Miles
SAUDI ARABIA
OMAN
ETHIOPIA
DJIBOUTI
SOMALIA
Red Sea
Gulf of Aden
Arabian Sea
no defined boundary
Administrative Line
JAZĀ'IR FARASĀN
Abhā
Najrān
Ash Sharawrah
Sa'dah
Wuday'ah
Jīzān
Ḥaraḍ
Ḥūth
Al Ḥazm
Zamakh
Thamūd
Sanāw
Thamarīt
Ḥabarūt
Ṣadḥ
Salālah
Wādī Mashyaḥ
Wādī al Jir
Al Ghayḍah
Saywūn
Wādī Ḥaḍramawt
Ra's Fartak
Ḥajjah
Ṣalīf
Sanaa
Ma'rib
Ṣāfir
Shabwah
Sayḥūt
Ash Shiḥr
Al Ḥudaydah
Ḥarib
Dhamār
Niṣāb
'Ataq
Al Mukallā
Zabīd
Ḥabbān
Al Huwayrni
As Sufāl
Al Bayḍā'
Ibb
Ta'izz
Lawdar
Aḥwar
Al 'Irqah
Bēylul
Mocha
Shaqrā'
Āseb
At Turbah
Laḥij
Aden
Perim (YEMEN)
Bāb al Mandab
Qaysoh
Hadīboh
'Abd al Kūrī (YEMEN)
Socotra (YEMEN)
The Brothers (YEMEN)
Caluula
Gees
Gwardafuy
Tadjoura
Djibouti
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Maydh
Hurdiyo
Berbera
Boundary representation is not necessarily authoritative.
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Yemen: Determinants of Wheat Import Demand. By John Parker and Demcey Johnson. Agriculture and Trade Analysis Division, Economic Research Service, U.S. Department of Agriculture. Staff Report No. AGES 9406.

Abstract

Yemen is a rapidly growing importer of wheat and flour with 1992 combined imports of 1.7 million tons. The Yemen wheat market is comprised of three segments--a commercial market (20 percent), a market for imported or domestic wheat flour for home and restaurant use (52 percent), and a consumer market where wheat is sold as grain (28 percent). Yemen buys mainly soft white wheat. Australian wheat quality is preferred to U.S. and European wheat. Wheat quality, however, plays a secondary role in the current economic and institutional environment to export subsidies and the availability of credit.

Keywords: Wheat imports, flour imports, balady bread, supplier competition, quality, prices.

Acknowledgments

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Preface

This report is 1 of 17 reports covering 18 wheat-importing countries prepared by the Economic Research Service (ERS) in support of a comprehensive study of cleaning U.S. wheat destined for export. Similar reports are forthcoming for corn and soybeans.

The Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA) required the Federal Grain Inspection Service (FGIS) to establish or amend grain grades and standards to include, "...economically and commercially practical levels of cleanliness." The legislation required FGIS to determine if the benefits of cleaning exceeded the costs. FGIS subsequently asked ERS to conduct the study. The comprehensive study on wheat included two major components: 1) economic-engineering studies of the cost of wheat cleaning in the United States and estimates of domestic benefits from cleaning and 2) a series of in-country interviews of buyers in major wheat-importing countries to determine the effects of cleaner U.S. wheat on sales in these markets.

The results of this work have been prepared in a three-volume set:

"Economic Implications of Cleaning Wheat in the United States" (AER-669), by B.T. Hyberg, M. Ash, W. Lin, C. Lin, L. Aldrich, and D. Pace;

"The Role of Quality in Wheat Import Decisionmaking" (AER-670), by Stephanie Mercier; and

"The Costs and Benefits of U.S. Cleaning Wheat: Overview and Implications" (AER-675), by William Lin and Mack Leath.

The 18-country case studies form the foundation for the results of the international component of the wheat-cleaning study. The 18 countries studied accounted for 58 percent of world wheat imports and 63 percent of U.S. wheat sales in 1991. Each report has two components: background on the wheat-marketing policies, institutions, and distribution system in the wheat-importing country and results of interviews of wheat traders, processors, and government officials. All the interviews were completed during April-September 1992, and all followed a similar format. Each interview team consisted of both a commodity specialist and a country specialist. They attended a series of seminars on grain quality issues, data collection, and interview procedures before doing their interviews.

All the interviews followed a specific set of guidelines. An advisory panel of government officials, private traders and trade

association members helped develop the questions, which consisted of five topic areas:

- The most important factors in the choice of a supplier country;
- Quality factors most important to the importer's purchase decisions and the importer's perception of wheat purchased from their suppliers;
- Contract specifications the importer uses to communicate preferences;
- The level of dockage in the shipments the importer receives and the costs of removing it; and
- If U.S. wheat were cleaner, would the importer purchase more and/or be willing to pay more?

The background information on the wheat-importing country and the responses from the interviews provide a unique insight into the role of quality factors in the wheat purchase decisions of the major importers of U.S. wheat.

Alan J. Webb
Coordinator, Country Case Studies

Reports in the Series, "Determinants of Wheat Import Demand"

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Summary

Yemen is one of the world's fastest growing markets for imported wheat and flour, with combined wheat and flour imports in 1992 in the vicinity of 1.7 million tons. About 94 percent of the bread consumed in Yemen in 1992 came from imported wheat or flour. The growth in wheat import demand is tied closely to key structural and economic changes.

Prior to May 22, 1990, Yemen was represented by two countries--the former Yemen Arab Republic (YAR), or North Yemen, with its capital in Sanaa and the People's Democratic Republic (PDR), or South Yemen, with its capital in Aden. Since formal unification, the country's leadership has struggled to merge two unlike political and economic systems. National elections were held in April 1993 and 301 members of the National Assembly were elected; none of the three major parties won a majority.

Urbanization, rising incomes, and a shift away from subsistence farming have bolstered demand for consumer goods and processed food products and contributed to a sharp rise in wheat demand at the expense of sorghum bread. Much of the income growth in both Yemens over the past two decades has been fueled by remittances from Yemeni workers in nearby countries. The number of Yemeni workers in the oil-rich countries peaked at about 1 million in 1982 and trended downward since. Most of these workers, however, returned home in late 1990 because of the Gulf crisis. Although the ensuing decline in remittances has been largely offset by a rise in petroleum exports, the returning workers led to a sudden increase in the country's population.

In Yemen, wheat is marketed for three broad purposes. First, wealthier consumers and many urban residents buy bread and bakery products prepared in commercial facilities. Second, many consumers buy either imported or locally produced wheat flour to prepare bread at home or in restaurants and schools. Third, imported wheat is sold as grain in 50 kilogram bags. Consumers take this wheat to small village mills for conversion into whole wheat flour.

The amount of wheat going for each use fluctuates, but a steady shift to more ready-made wheat flour is occurring. In 1992, wheat flour accounted for about 72 percent of combined demand for wheat and flour (in wheat equivalent), compared with about half in 1990. The market for commercially prepared bread and bakery products is growing, but still accounts for only 20 percent of the total. Sales of imported and domestic wheat flour, retailed for household use, have increased sharply. Wheat marketed as whole grain accounts for the remaining share of demand, including most of the imported white wheat and all of the domestic supply.

The United States, the European Community (EC), and Australia are the major suppliers of Yemen's imports of wheat. The United States and EC compete for both wheat and flour, while Australia provides primarily wheat.

Yemen's wheat marketing system is characterized by a mixture of private trading and government control. Imports of wheat and flour are arranged and financed by private traders; however, imports are licensed by the Ministry of Supply and Trade (MST). The Ministry directs private traders to sell 70-90 percent of their wheat and flour imports to public agencies, which operate distribution channels at wholesale and retail levels. Domestic prices and marketing margins are subject to official guidelines. Thus, the role of private traders is circumscribed, with the government exercising substantial control over internal distribution and prices.

The Central Bank of Yemen plays a pivotal role in trade. Importers of wheat and flour are offered a favorable exchange rate, well below current market rates. The Bank frequently responds to a foreign exchange shortage by delaying payments. Because private banks within Yemen are unable to provide letters of credit, traders must utilize external funds to finance their imports; this has reduced the pool of traders active in the importation of wheat and flour. Rationing of foreign exchange by the Central Bank has also inhibited the ability of MST to coordinate imports. Yemen has sought to reduce its foreign exchange constraint by gaining expanded access to official credit guarantee programs of the United States and other wheat-exporting countries.

Yemen buys mainly soft white wheat, particularly suitable for making Arabic flat bread. Because many consumers buy wheat in grain form, they are sensitive to the physical appearance of wheat (and presence of dockage) which varies by origin. Among imported wheats, Australian wheat enjoys the best reputation for quality, followed by U.S. and EC wheat. Yemeni traders indicated that Australian wheat typically commands a premium to U.S. white wheat, which was about $2 per metric ton for white wheat in 1992. Export Enhancement Program (EEP) bonuses for U.S. wheat exports to Yemen averaged $41 per metric ton in FY 1992, less than half the EC wheat export subsidy.

One high-volume commercial milling facility, the Red Sea Flour Mill (RSFM), accounts for about 60 percent of Yemen's annual wheat imports. RSFM has purchased wheat from various sources in recent years and has utilized a variety of classes (including hard red spring and hard red winter under recent EEP initiatives) in its flour blends. RSFM has modern cleaning equipment and is able to process wheat with varying levels of dockage. Purchase decisions are largely dictated by relative import prices, rather than by differences in wheat quality across origins. Their effort to obtain lower prices has contributed to a shift from white wheat to HRS, HRW and soft red winter. RSFM sells all of its flour to an autonomous, military-owned corporation.

In the current economic and institutional environment, wheat quality factors play a secondary role in the determination of exporter market shares. Export subsidies and availability of credit are viewed as critical competitive factors in the Yemeni market.

Yemen

Determinants of Wheat Import Demand

John Parker
Demcey Johnson[1]

Overview of Economy and Recent Performance

In May 1990, the former Yemen Arab Republic (YAR) with its capital in Sanaa and the People's Democratic Republic (PDR) with its capital in Aden, joined to form a united Yemen (see map).[2] Since formal unification, the country's leadership has struggled to merge two unlike political and economic systems. The former YAR (population 9 million) combined a vibrant market economy with political and religious conservatism. In contrast, the former PDR (population 2 million) was characterized by state socialism and a secular political culture. A proliferation of political parties and a relatively free press marked the transition to unified government, which culminated in the election of 301 members of the National Assembly in April 1993. National political leadership remains in the hands of President Abdullah Salih who was elected in 1993 (former head of the YAR) and a Supreme Council.

The economies of both Yemens expanded rapidly in the 1970's and 1980's. Remittances from 1 million Yemeni workers in nearby countries contributed to rising incomes. In late 1990, most of the Yemeni workers in other Arabian Peninsula countries returned home because of the Gulf crisis. Despite the ensuing decline in worker remittances, the Yemeni economy is expanding on many

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[2] The Yemen Arab Republic was also called North Yemen, and sometimes North Yemen, Sanaa. The People's Democratic Republic of Yemen was also called South Yemen and sometimes South Yemen, Aden. Hereafter, we will refer to the former YAR as North Yemen and the former PDR as South Yemen.

fronts and becoming more diversified. A key to economic performance has been the rise in petroleum exports. American petroleum firms have been working for a decade in exploration and development of petroleum fields in Yemen. New discoveries by a Canadian firm in 1993 sharply increased estimates for Yemen's petroleum reserves and future exports.

Yemen became notably urbanized in the past decade as workers left rural areas and with the return of workers from neighboring countries. About one-third of the population is now urbanized. Urbanization, plus rising incomes and a shift from subsistence farming, has bolstered demand for consumer goods and processed food products. It has also contributed to a sharp rise in wheat demand and a shift from sorghum bread.

Yemen's economic growth depends on gains in crude oil exports, remittances, foreign and domestic investments, and bolstering productivity in a wide range of economic activities. Yemen's industrial progress has been primarily in the production of consumer goods, including soft drinks, shoes, textiles, furniture, and household items. The recent performance of Yemen's economy has been hampered by a severe foreign exchange shortage, with the Central Bank having to ration scarce official foreign exchange reserves.

Approximately half the revenue from petroleum exports is received by the Central Bank, with foreign firms holding oil concessions retaining the remainder. Rising petroleum revenues have not compensated for recent losses in worker remittances. The $400 million received in foreign exchange for petroleum exports was less than half the $1 billion drop in remittances between 1989 and 1991.

Prior to the Gulf War, Yemeni workers required only a pass to seek jobs in Saudi Arabia; now they must apply for a regular work permit, like citizens of other countries. As a result, there has been a sharp decline in the number of Yemenis seeking employment in Saudi Arabia. Some reversal is occurring but the number remains far below pre-Gulf War peaks.

Government policy is focused on investing petroleum revenue and worker remittances in Yemen. Loans from the World Bank and various development funds have helped Yemen improve its farming practices and construct roads and factories. Increased tourism, particularly from Europe, is providing much needed foreign exchange.

Ample capacity at the Aden refinery allowed South Yemen to import crude oil from Gulf and Iraq and to export over $350 million worth of petroleum products annually. Before petroleum revenues increased, North Yemen exported small amounts of agricultural commodities. Its total exports increased from only $8 million in 1985 to $693 million in 1989 and remained near that level through 1992 (table 1). Crude oil accounted for over 97 percent of total exports in 1992. Recorded imports declined from a peak of $1.9

Table 1--Yemen: Economic indicators, annual 1980-92*

Year	Real GDP ($) millions	CPI	Exchange official (local/$)	Exchange unofficial (local/$)	Merch. exports	Merch. imports	Balance of trade	Net services	Net transfers	Current account	Food imports	Foreign exchange reserve	Total outstanding debt
					U.S. million dollars								
1980	2,612.4	100.0	4.56	5.10	13	1,868	-1,855	-45	1,215	685	493	1,256	900
1981	2,875.2	105.0	4.56	5.25	10	1,725	-1,714	-51	1,110	655	549	947	1,117
1982	3,112.5	108.0	4.56	5.30	5	1,926	-1,921	-37	1,350	607	498	539	1,312
1983	3,151.1	114.0	4.58	5.40	10	1,766	-1,756	-47	1,244	559	459	351	1,574
1984	2,760.7	128.6	5.35	5.86	31	1,543	-1,393	-45	1,137	301	403	304	1,688
1985	2,374.5	163.70	5.86	8.10	13	1,650	-1,098	-56	850	-304	402	318	1,963
1986	1,788.5	224.30	8.10	12.25	8	1,399	-1,149	-73	740	-51	373	403	2,206
1987	1,870.0	232.40	9.63	12.60	49	1,260	-1,211	-56	670	-598	307	494	2,350
1988	1,945.0	244.00	10.34	12.00	312	1,530	-1,218	-45	575	-615	329	271	2,386
1989	2,076.0	253.00	9.77	13.00	450	1,560	-1,110	-61	595	-576	363	267	2,372
1990	2,190.0	267.00	9.76	16.00	607	1,600	-993	-76	500	-569	444	289	2,430
1991	1,889.0	275.00	12.00	21.00	778	1,677	-899	-65	429	-535	532	250	2,540
1992	1,921.0	279.00	12.00	38.00	887	1,632	-745	-61	375	-431	598	217	2,587

* Refers to former Yemen Arab Republic.
Sources: IMF and ERS estimates.

billion in 1982 to a low of $1.4 billion in 1986, and were $1.6 billion in 1992 (table 1). Wheat and flour imports account for about an eighth of total imports.

Annual per capita income is in the range of $600 to $700 and about $1,000 for the urban population. Since most people have very low housing costs, a large share of disposable income is available for food and clothing. In addition, most people have virtually no tax liabilities. The average rural family spends about 55 percent of its income for food, compared with 40 percent for urban residents.

Although Yemen maintained an official exchange rate of 12 Yemeni Rials to the U.S. dollar in 1991 and 1992, there was an active "parallel" market of uncertain legality, through November 1992, with the exchange rate about triple the official bank rate. Private firms and banks in Yemen are thought to retain large sums of foreign exchange outside the country despite official prohibitions. A law passed in December 1992 legalized money changers.

The Wheat Market

In recent years, Yemen's consumers have shifted from a reliance on bread made from other cereals to bread made from wheat. The sharp growth in per capita wheat consumption, from 62 kilograms in 1980 to nearly double that amount by 1992, was mostly supplied by imports. A combination of U.S. plus EC subsidies, and controlled consumer prices, contributed to the rise in dependence on imports from 87 percent in 1980 to 94 percent in 1992. Yemen has derived considerable benefit from lower world wheat and flour prices.

Yemen has three distinct wheat markets. Their relative size has recently fluctuated, but a steady shift toward wheat flour is occurring. The market for commercially prepared bread and bakery products is growing, yet still accounts for only 20 percent. Virtually all of this demand is satisfied with commercial flour supplies. Second, sales of imported and domestic wheat flour, sold for household use, now account for about half of total demand. Third, most of the imported white wheat, a small amount of some other classes of imported wheat, and all of the domestic supply, is marketed as grain. This market activity accounted for 55 percent of the total in the mid-1980's, but under a third by 1991 (Adhal, 1991).

Domestic prices are fixed to cover a basic cost to Hodeidah, the principal port of entry for U.S. and EC wheats, plus internal transportation costs and approved marketing margins. Aden is the point of entry for Australian wheat. Little U.S and EC wheat or flour go to the ports of Aden or Moccha. Private importers are required to deliver 70 to 90 percent of the wheat they import to public sector agencies; the remainder can be marketed on their own account. About half a dozen private traders account for over 90 percent of the wheat and flour imported by Yemen. Although

imports are arranged in the private sector, the role of traders is functionally limited. The government exerts control over imports through the granting of import licenses, internal price controls, and allocation of foreign exchange.

The Ministry of Supply and Trade (MST) exercises overall supervision over wheat and flour imports. Prior to 1990, MST awarded import licenses on the basis of regular tenders. This system was suspended in 1990 as a consequence of events surrounding the Gulf crisis. In its place, MST instituted a policy whereby traders could negotiate tentative deals with suppliers, then apply for MST approval. Import licenses have been awarded on a case by case basis. Among other criteria, MST has based its approval on price and (most recently) on the availability of external financing.

The Central Bank plays a pivotal role in the trading system by providing importers with access to foreign exchange at a favorable rate. In 1992, importers of wheat and flour were officially offered a rate of 16 Rials to the U.S. dollar--well below the market rate of 35-39 Rials to the dollar. This implicit subsidy, in conjunction with controls over marketing margins, allows the government to maintain low internal prices for wheat and flour.

The Red Sea Flour Mill (RSFM) near Hodeidah is Yemen's only high-volume commercial milling facility. Built about a decade ago, it is equipped with the latest technology. RSFM has the capacity to mill about 600,000 metric tons of wheat annually, with an extraction rate of 72 percent (Burleigh). RSFM also imports wheat flour; this provides additional flexibility to meet delivery schedules. RSFM has an exclusive marketing arrangement with the Yemen Economic Corporation (YECO), an autonomous military-owned corporation. All of RSFM's flour production is marketed through YECO, which operates distribution channels at wholesale and retail levels. National flour demand exceeds the existing commercial capacity, and imports of wheat flour are rising. Imports accounted for over half the total wheat flour distributed in 1992.

In 1992, Yemen's imports from Australia consisted entirely of soft white wheat, while about 60 percent of wheat imports from the United States were of this type. During the 1980's, U.S. white wheat was seldom marketed as grain because it was primarily used by the flour mill. However, when Australian deliveries declined in early 1992, the United States expanded its market share of white wheat for customers beyond RSFM. HRW and hard red spring (HRS) wheat account for the remainder of U.S. deliveries, with prices which are 7 to 9 percent below white wheat. Most sales of HRW and HRS have been to the Red Sea Flour Mill for use in blended flours.

Production Characteristics and Trends

Wheat is a minor crop in Yemen, accounting for only 3 percent of total agricultural output. Output in North Yemen was erratic but upward trending through the 1980's (fig. 1). Drought reduced harvests in 1991 and 1992. About half of the 1990 harvest of 143,000 tons came from Sanaa province, Dhamar, and Ibb. Other central highland provinces each accounted for about 15 percent of the harvest (Adhal). The provinces of the former South Yemen accounted for only a tenth of the 1990 harvest, with 7,000 tons harvested in Hadramout and 9,600 tons in Abyan Province. Favorable rainfall in autumn 1992 helped the 1993 harvest to reach 150,000 tons (FAO).

Prospects for expanding wheat production in the traditional highlands are limited. Yields from small terraced fields in the highlands depend on rainfall and efforts are underway to trap more water in small dams for irrigation (table 2). However, returns from other crops are greater than those for wheat, so that despite new irrigation, wheat area is unlikely to increase. The Tihama irrigated area has expanded commercial production of horticultural crops but very little wheat. Cultivation has been mechanized in only a few areas.

Quality Characteristics of Domestic Wheat

Virtually all domestic wheat is high-quality white wheat and is marketed with a minimum of dockage. Protein content is over 13 percent, higher than most imported wheat. Yemen's small farmers take great care to maintain the quality of their wheat. Small threshers are used to separate the straw and kernels. Inexpensive hand labor is used to pick foreign material from the wheat (Clevenger).

In 1990, the average producer price equaled $187 per ton, well above the $96 per ton season average price in the United States.

Consumer Preferences and Trends

White wheat is preferred by shoppers in village markets, where wheat is sold in 50-kilogram jute bags. The wheat is taken to small village mills for milling into flour. Increased purchases in rural areas and by families adversely affected by the loss of jobs in nearby countries have also contributed to demand growth.

The upward trend in the demand for wheat flour reflects a desire for convenience by urban consumers. Demand for flour to prepare western types of bread and bakery products is increasing. Because Yemen's only large flour mill (the Red Sea Flour Mill) is operating near capacity, much of the rising demand for wheat flour is being met by imports.

Market premiums are highest for domestic wheat but Australian and U.S. white wheat are considered to be high-quality alternatives. Consumers like the high proportion of large kernels in Australian wheat. Also, it has seldom been stored long and is unlikely to

Figure 1

Wheat Production In Yemen

1,000 Tons

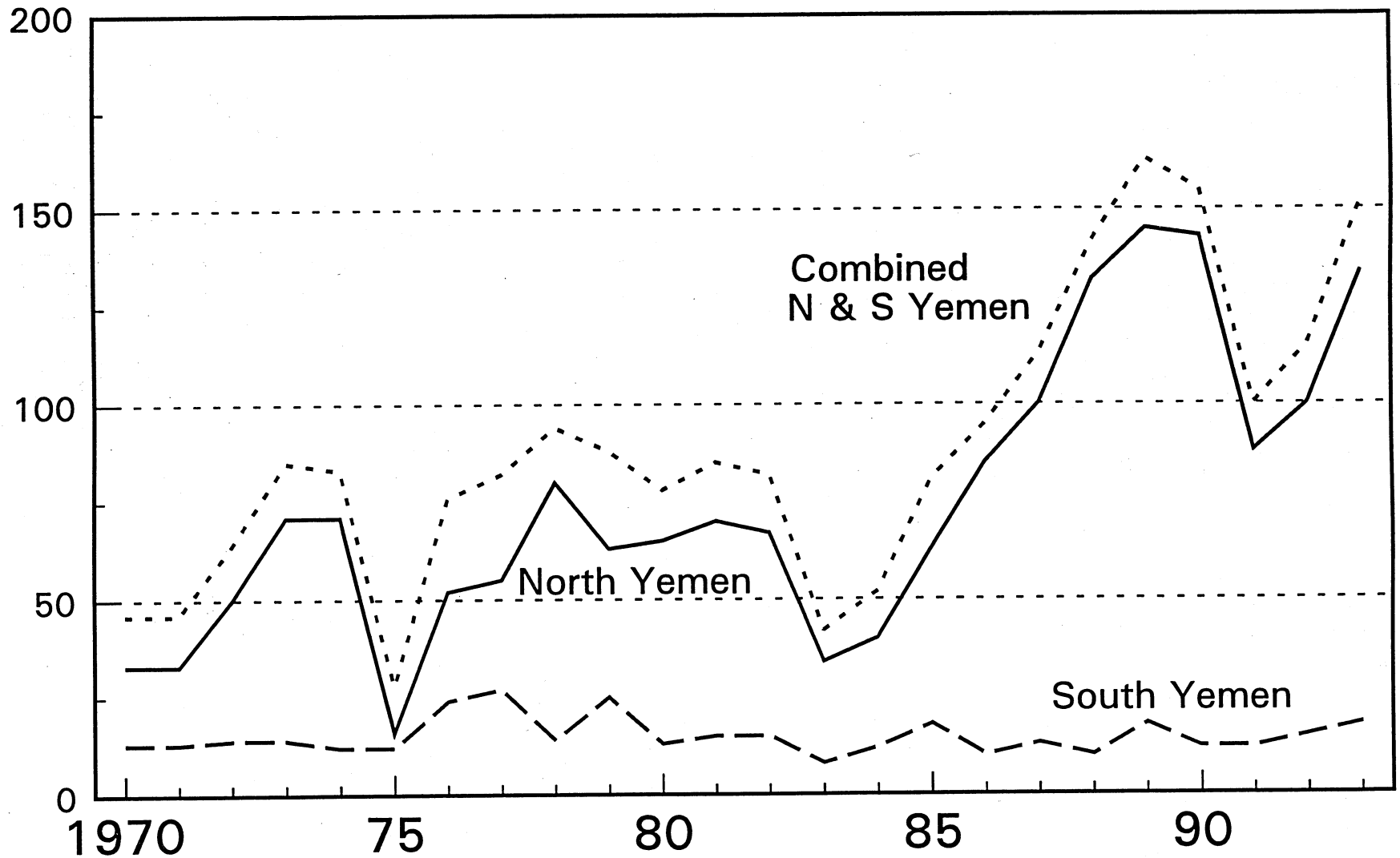


Table 2--Yemen: Supply and distribution of wheat, annual 1980-92

Year	Area	Production			Calc. yield	Beg. stocks	End stocks	Total imports	Total avail.	Feed use	Seed use	Waste	Non-food	Consumption	Prod. Price local/to
		Total	YAR	PDR Yemen											
	1,00 ha	1,000 MT			Ton/ha	1,000 MT									
1980	67	78	65	13	0.97	2	4	510	586	59	8	59	126	460	1711
1981	76	85	70	15	0.92	4	5	540	624	62	8	62	132	492	1745
1982	77	82	67	15	0.87	5	10	560	637	64	8	64	136	501	1785
1983	76	42	34	8	0.45	10	15	810	847	85	7	85	177	670	1825
1984	68	52	40	12	0.59	15	18	940	989	99	7	99	205	784	1836
1985	71	81	63	18	0.89	18	20	987	1066	107	7	107	221	845	1950
1986	71	95	85	10	1.20	20	21	1,140	1234	117	7	117	241	993	1910
1987	74	113	100	13	1.35	21	22	1,167	1279	128	8	128	264	1015	2023
1988	82	142	132	10	1.61	22	24	1,145	1285	129	9	129	267	1018	2076
1989	94	163	145	18	1.54	24	97	1,255	1345	135	10	135	280	1065	2150
1990	98	155	143	12	1.46	97	20	1,267	1499	139	10	139	288	1211	2992
1991	87	100	88	12	1.01	20	73	1,538	1585	159	9	159	327	1258	3978
1992	91	152	137	15	1.54	73	145	1,746	1826	183	9	183	375	1451	5985

Sources: Ministry of Agriculture, Sanaa, FAO, ATO Riyadh.

have pesticide residues. U.S. white wheat is considered close to the Australian quality, despite a higher amount of dockage.

Primary Uses of Wheat

Virtually all wheat is destined for human consumption and bran is sold for feed. Arabic bread accounts for about 60 percent of the flour use (Adhal). A shift to higher quality types of Arabic bread is underway, thus adding to demand for wheat flour. Tanour, the traditional Arabic flat bread, accounts for 25 percent of total flour use, while ragif, a bread similar to "pita" or pocket bread, accounts for about 15 percent. Large loaves of flat bread have become increasingly popular in restaurants. Roti, or small sized pan bread, is increasing in demand.

Use of wheat flour to prepare a wide range of nontraditional foods has expanded. European and American types of bread are made from about 5 percent of the flour supply.

While the main item consumed is Arabic flat bread, consumption of a wide range of other products is increasing. Commercial bakeries use about 5 percent of the wheat flour to prepare snack foods, cookies, and bakery products for hotels, restaurants, and catering firms. Flour is used to prepare batter for meat items and to mix with various Yemeni foods, including cooked vegetable dishes. Pizza and macaroni sales are rising rapidly in cities.

In urban areas, the preference for modern types of bread and bakery products is gaining, while traditional Arabic bread continues to dominate in rural areas. Roti and European types of bread are somewhat more popular in Aden and other southern towns than in the north (Burleigh).

Per capita use of wheat increased steadily from 77 kilograms in 1984 to 115 kilograms in 1992 (table 2). Per capita use of wheat is about a fifth greater in North Yemen than in South Yemen, where rice consumption is much greater (FAO).

Import Trends

Yemen's imports of wheat and flour have shown a sharp upward trend since 1980, as a result of dietary improvements, a shift to bread made from wheat, rapid population growth and urbanization, changing income distribution, and subsidized consumer prices. Wheat flour imports nearly doubled between 1990 and 1992, to more than 500,000 tons. Wheat imports increased at a slower pace, and surpassed 1 million tons in 1991 and in 1992. Most of the import gains are due to rising demand in northern Yemen.

In the early 1960s, North Yemen imported about half its wheat supply. Local production was flat, until demand rose sharply in the early 1970's due to remittance income from Saudi Arabia (Taha). Rising prices caused farmers to expand the area planted. Yet, wheat production gains have never been able to keep pace

Table 3--Yemen: Imports of wheat and flour combined

Country of origin	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
						Thousand metric tons							
United States	3	0	6	327	107	30	208	250	190	139	190	346	766
EC	159	194	229	260	256	312	123	166	256	391	468	455	512
Australia	359	389	433	167	379	579	715	521	415	552	470	581	270
Saudi Arabia	0	0	0	0	0	0	56	67	59	50	39	0	28
Other	13	78	49	4	131	85	11	163	225	123	100	156	170
Total	534	661	717	758	873	1,006	1,113	1,167	1,145	1,255	1,267	1,538	1,746

Source: FAO and UN trade runs and ERS estimates.

with demand. Yemen fell from 50 percent wheat self-sufficiency in the mid-1960's to 6.5 percent by 1992.

During the last 20 years, Yemen has been an importer of both wheat and wheat flour. Data for wheat flour imports are converted to a wheat equivalent for purposes of aggregation.[3] During 1970-74, imports of wheat and flour by North Yemen averaged 146,000 tons annually, compared with South Yemen's imports of 102,000 tons (fig. 2) (IWC). After this time, imports by the north grew much more rapidly because of increasing income and the sharp decline in output of other cereals.

For all Yemen, imports of wheat and flour rose steadily from 534,000 tons (wheat equivalent) in 1980 to 1 million tons by 1985, and then remained in the range of 1.1 to 1.3 million tons during 1986-90 (table 3). This flatness appears to be related to income from remittances, which declined when Saudi oil revenues and project expenditures were declining. When over 750,000 Yemenis returned as a result of the Gulf crisis, imports rose from 1.3 million tons in 1990 to 1.5 million tons in 1991 and 1.7 million for 1992 (table 4, fig. 3).

Total wheat imports increased markedly in the 1970's and early 1980's, but plateaued during 1986-89 (IWC). They increased to 1 million tons in 1991, when Australian supplies were abundant and prices were low (fig. 4).

Concerned that imports from Australia would decline because of drought, Yemen doubled its imports of U.S. wheat in 1992. EEP caused the delivered price for U.S. wheat to be one of the lowest offered and purchases increased to about a half million tons during FY 1992. Certain U.S. exporters developed a good working relationship with a number of Yemeni importers who had payment problems with EC exporters. Larger deliveries of U.S. wheat more than offset declines in imports of Australian wheat.

[3] The milling extraction rate for imported wheat flour is 72 percent. To adjust for the 28 percent loss in weight due to milling, imported wheat flour is multiplied by a factor of 1.389. The adjusted flour quantity is added to imported wheat to get combined wheat and flour imports, expressed in terms of wheat equivalent.

Figure 2

Wheat Imports by Yemen

1,000 Tons

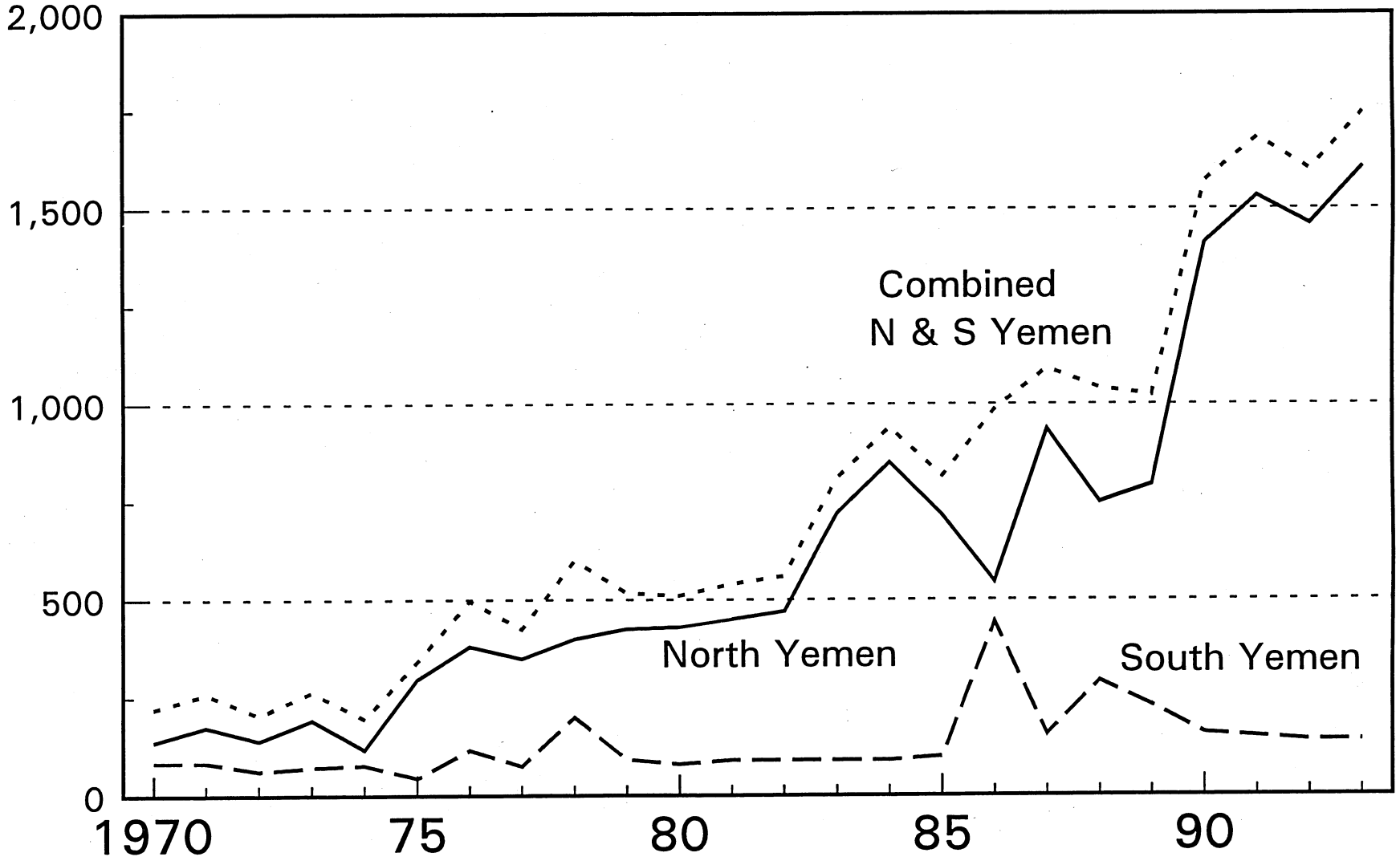


Table 4--Yemen: Wheat import data, 1987-92 1/

Country of origin	1987	1988	1989	1990	1991	1992	1987	1988	1989	1990	1991	1992
Wheat:												
United States	191,937	172,643	49,500	152,784	172,872	414,940	13,602	21,531	7,439	19,215	18,549	56,003
Australia	520,932	416,151	551,586	475,000	581,000	270,000	59,118	60,933	98,247	86,700	98,000	44,200
EC	2,601	106,955	141,721	160,900	111,584	224,083	558	13,248	22,431	27,200	12,520	26,101
Canada	1,500	3,198	0	0	0	2,000	234	668	0	0	0	300
Turkey	0	41,560	0	0	20,000	55,000	0	4,006	0	0	2,100	6,800
Yugoslavia	0	44,000	43,550	0	0	0	0	5,464	5,530	0	0	0
Other	113,000	62,000	82,000	94,000	116,000	66,507	16,500	7,400	9,200	10,650	14,400	8,300
Total	829,970	846,507	868,357	882,684	1,001,456	1,032,530	90,012	113,250	142,847	143,765	145,569	141,708
Wheat flour:												
United States	121,855	61,855	63,785	26,739	117,886	266,323	14,200	7,107	13,427	5,353	22,389	37,415
EC	118,353	107,253	179,484	220,352	247,100	207,237	14,785	16,244	39,714	54,700	44,800	37,000
Canada	1,625	1,499	19,399	21,000	9,900	17,000	332	625	5,425	5,700	2,100	3,800
Sweden	0	0	6,000	0	0	0	0	0	1,347	0	0	0
Other	1,290	44,595	9,182	8,400	11,200	23,000	260	9,400	2,450	2,300	2,900	4,650
Total	243,123	215,202	277,850	276,491	386,086	513,560	29,577	33,376	62,363	68,053	72,189	82,865
Wheat equivalent of flour imports:												
United States	169,257	85,917	88,597	37,140	163,744	369,923	14,200	7,107	13,427	5,353	22,389	37,415
EC	164,392	148,974	249,303	306,069	343,222	287,852	14,785	16,244	39,714	54,700	44,800	37,000
Other	4,049	64,025	48,033	40,837	29,308	55,560	592	10,025	9,222	8,000	5,000	8,450
Total	337,698	298,916	385,933	384,046	536,274	713,335	29,577	33,376	62,363	68,053	72,189	82,865
Combined wheat and flour in wheat equiv.												
United States	361,194	258,560	138,097	189,924	336,616	784,863	27,802	28,638	20,866	24,568	40,938	93,418
Australia	520,932	416,151	551,586	475,000	581,000	270,000	59,118	60,933	98,247	86,700	98,000	44,200
EC	166,993	255,929	391,024	466,969	454,806	511,935	15,343	29,492	62,145	81,900	57,320	63,105
Other	118,549	214,783	173,583	134,837	165,308	178,956	17,326	27,563	23,952	18,650	21,500	23,850
Total	1,167,668	1,145,423	1,254,290	1,266,730	1,537,730	1,745,865	119,589	146,626	205,210	211,818	217,758	224,573

1/ Calendar year.
Sources: FAO, UN trade runs, and ERS estimates.

Figure 3

Yemen's Imports of Wheat and Flour

Thousand Metric Tons

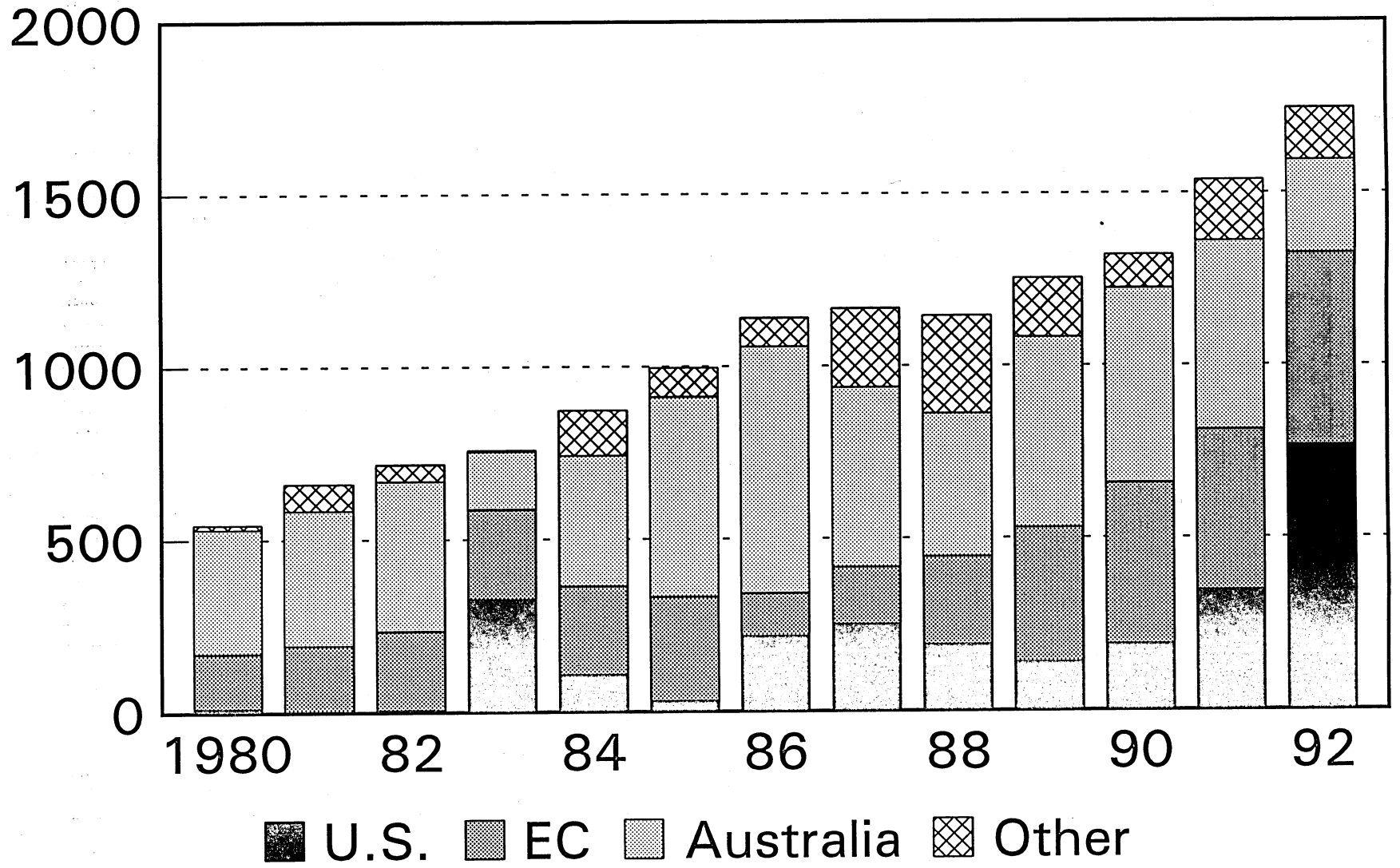
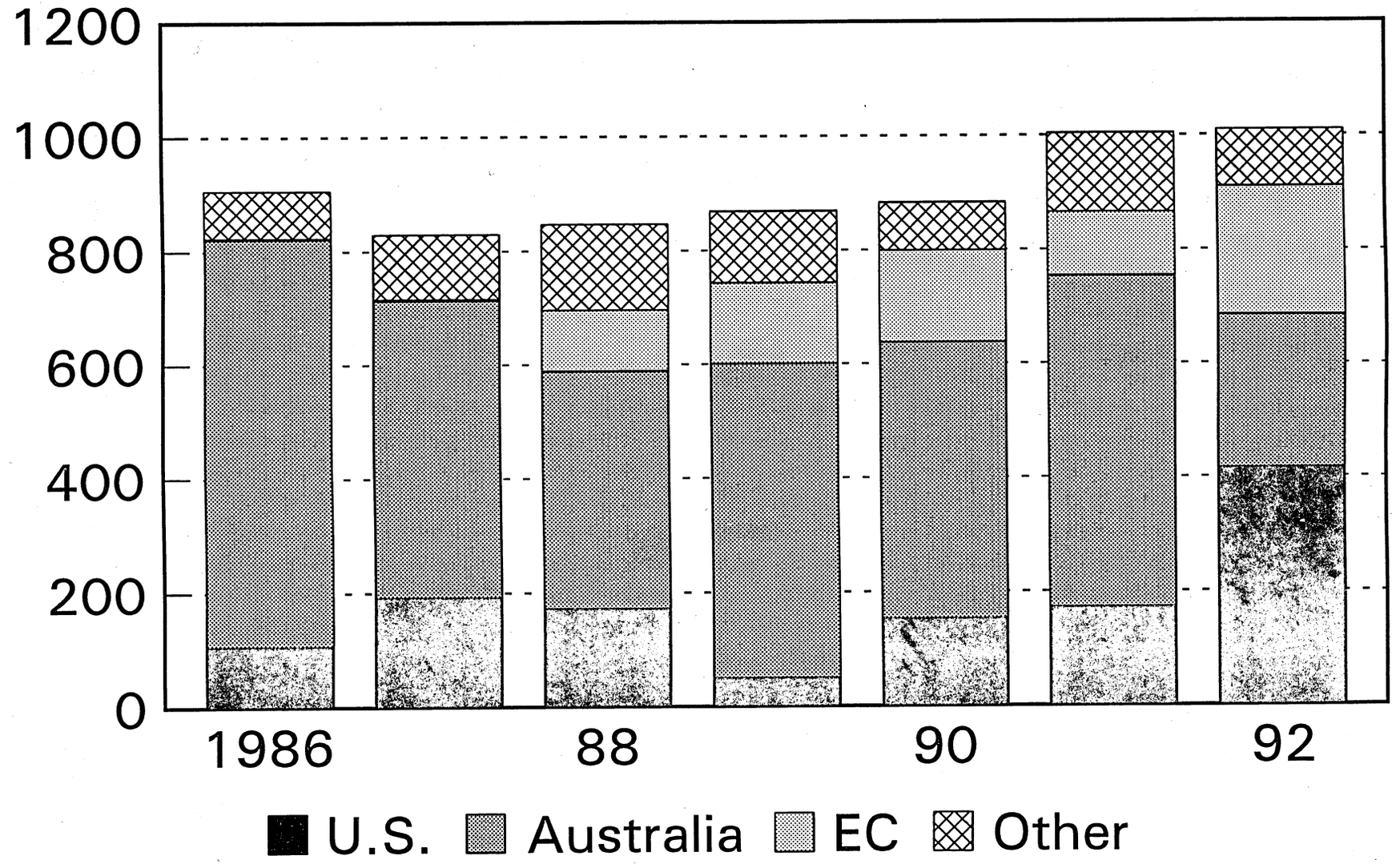


Figure 4

Yemen's Wheat Imports

Thousand Metric Tons



In recent years, wheat flour imports increased at a faster pace than wheat (table 4). This is because capacity for the only commercial flour mill is limited, while demand is rising rapidly. Flour imports rose from the 200,000-ton range during 1986-88 to 505,000 tons in 1992 (fig. 5). During 1989-91, EC flour deliveries were much larger than U.S. sales, but in 1992 U.S and EC flour shipments were nearly equal (IWC).

Unusually large wheat imports by southern Yemen in some years involved distribution through the port of Aden to consumers in northern provinces. However, the upward trend for imports through Aden has been at a slower pace than deliveries to Hodeidah. Truck transportation costs from Hodeidah to the major area of consumption (within 100 miles of Sanaa) are less than from Aden. Imported wheat usually arrives in bulk and is bagged at the port of Hodeidah.

Projection of Wheat Supply, Use, and Trade to 1996

In the foreseeable future, increases in domestic wheat output will have little impact on imports, given the size of domestic production (table 5). There may be some increase in cultivated area, with output rising to 190,000 tons by 1996, and a small yield increase. Most of the increase will be supplied by imports, which may rise to 2 million tons in 1994, and 100,000 tons annually, thereafter.

The magnitude of the shift from wheat flour imports to wheat forecast for the late 1990's will depend on the completion of new wheat flour mills now under consideration. If, and when, these mills are completed, Yemen is likely to reduce flour imports and increase imports of both U.S. and Australian wheat.

Table 5--Yemen: Projection of wheat supply and distribution to 1996

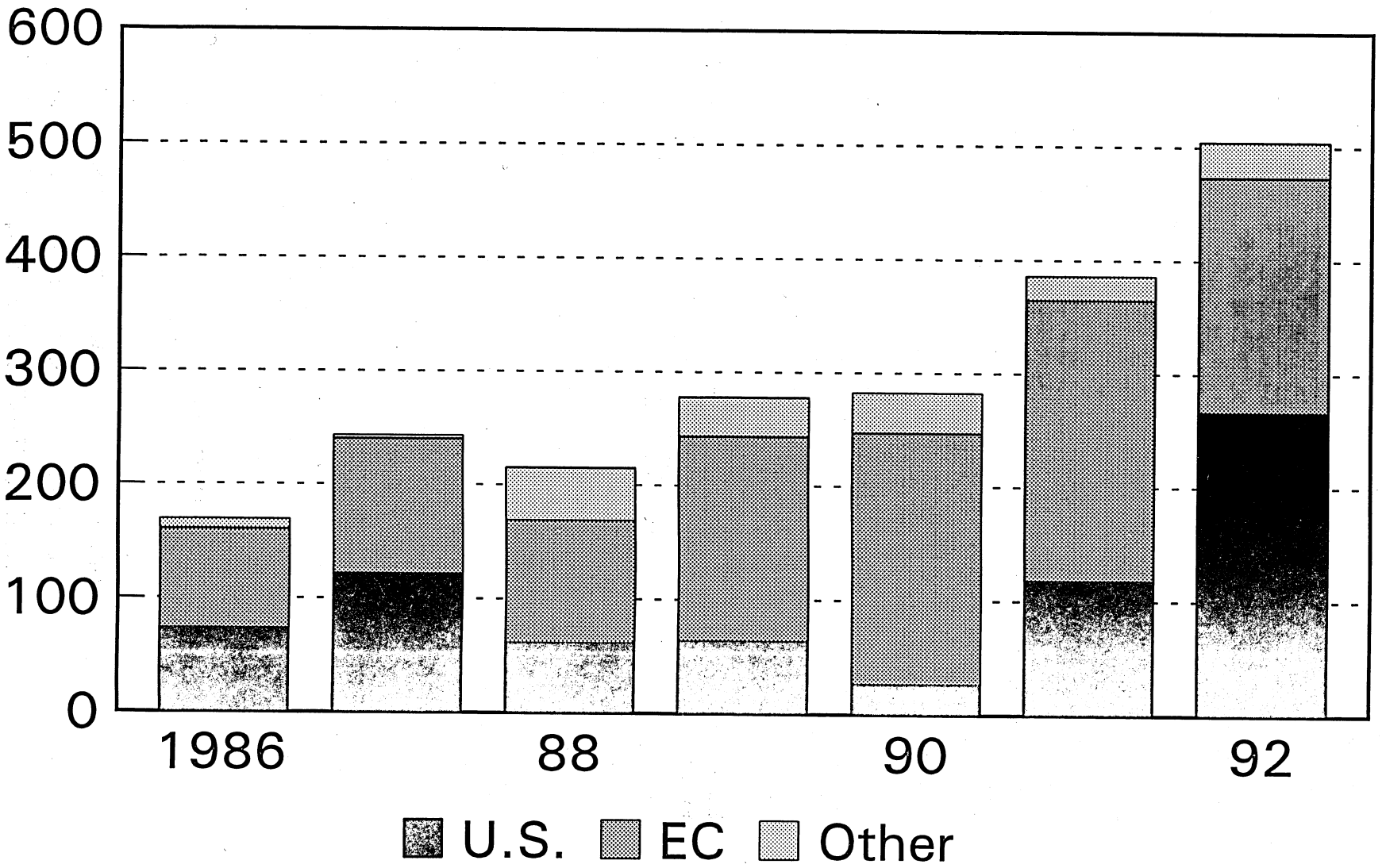
Item		1990	1991	1992	1993	1994	1995	1996
Area	1000 ha	98	87	91	97	99	103	105
Yield	Ton/ha	1.58	1.14	1.67	1.62	1.72	1.75	1.81
Production	1000 tons	155	99	152	157	170	180	190
Consumption	1000 tons	1,539	1,734	1,995	2,150	2,320	2,480	2,640
Imports	1000 tons	1,155	1,538	1,746	2,120	2,200	2,320	2,470
Food per capita	Kgs.	96	104	116	138	139	141	145
Feed	1000 tons	20	25	30	30	40	45	50
Ending Stocks	1000 tons	20	73	140	150	160	170	180
Key assumptions								
Real GDP growth	%	4	4	3	4	5	6	6
Population Growth	%	4	3	3	3	3	3	3
Real producer price	LCU/ton	2,992	3,978	5,985	6,800	9,200	11,000	11,900
Real consumer price	LCU/ton	2,750	4,580	5,500	6,600	8,990	10,800	11,700

Sources: American Embassy, Sanaa, and ERS estimates.

Figure 5

Yemen's Wheat Flour Imports

Thousand Metric Tons



Wheat and flour demand will be driven by population and rising incomes, a result of rising petroleum revenues and resumption of remittances. Until the mid-1990's, real GDP growth is forecast to be slightly higher than population growth, as higher export earnings are forecast. This will cause faster GDP growth and higher incomes. Per capita wheat consumption may increase about a third by the late 1990's, if expected petroleum export gains occur and foreign exchange constraints are eased.

U.S. and Competitor Programs

For some time, credit programs have been critical in determining export market shares. The Export Enhancement Program (EEP) is a major factor behind the increase in U.S. exports of wheat and flour to Yemen, because it reduced the actual price to importers (table 6). In recent years, EEP has reduced the price of Yemen's imports by 30 to 35 percent (table 7). In FY 1992, Yemen received and fully utilized allocations of $30 million under the GSM-102 program, and $5 million under the GSM-103 program. Yemen seeks much more GSM-102 credit, but delays in repayments have caused problems. Traders have encouraged the Central Bank to make prompt payments on previous loans to qualify for larger future credit lines. Small amounts of P.L. 480 assistance had been provided. A Title I, P.L. 480 agreement for $5 million of rice was reached in June 1993.

EC exports of wheat and flour to Yemen have involved sizable export restitution payments, ranging from $90 to $160 per ton (Haley). Compagnie Francaise des Assurances pour le Commerce a l'Exterieure (COFACE) credit has attracted Yemeni purchases to wheat and flour from France. In order to qualify for new credit, Yemen must fully repay loans with COFACE when they are due. Some credit for wheat flour purchases has been provided by Germany.

The Australian Wheat Board provides 3-year credit for wheat. Australia has made small grants of wheat in the past. Before the Gulf War, Saudi Arabia provided financing for wheat to Yemen

Table 6--U.S exports of wheat and flour to Yemen, marketing years 1989 to 1993

Type	1989/90	1990/91	1991/92	1992/93
	Thousand metric tons			
Soft red winter	25	0	0	25
White	49.5	241.8	173.8	261
Hard red winter	0	0	104	146.1
Hard red spring	0	0	71.6	95.1
Total	74.5	241.8	349.4	527.2
Wheat flour	84	79.1	188.3	251.1
Combined total	158.5	320.9	537.7	778.3

Sources: U.S. Export Sales, FAS, USDA.

Table 7--Yemen: U.S. and competitor programs for wheat and flour exports

Supplier	Price subsidies	Commercial credits	Concessional credits	Grants	Comments
United States	EEP bonus reduces the potential c.i.f. price for Yemen by about a third.	GSM 102 used in the past, but not available for full amount requested.	P.L. 480 for $15 million provided in FY 1992, with 40 years repayment at low interest rate.	Title III and relief shipments provided for Somali's refugees account for less than 2 percent of exports.	The current situation for the U.S. share of Yemen's imports is good, but the preference for white wheat, and Australia's lower transport cost could help its future sales.
Australia		3-year credit provided at favorable rates.	Credit for their agent who is an importer in Yemen.	Grants given on a case by case basis.	Australia will be favored supplier in the future when it has larger harvests and ample supplies for export.
EC	Export restitution payments reduce the c.i.f. price by about a third.	COFACE credit provided at LIBOR* rates or slightly above.	COFACE credit and credit produced by other EC members.	Grants of some flour by EC, and also by France.	Yemen's rapid rise in flour imports has enhanced the U.S. and EU market share.
Canada	Programs to reduce the c.i.f. price were used in mid-1980's and in 1992.	None	None	None	Occasional Canadian exports possible with reduced prices and shipping costs.
Saudi Arabia	Prices are decided by multinational firms handling exports for Saudi Arabia's public sector.	Islamic Bank and Saudi Fund have provided credits in the past.	None	Grants for some refugees occur through UN agencies.	Saudi wheat quality is excellent and has good consumer acceptance.

* London Interest Bank Overnight Rate.

Sources: American Embassy, Sanaa, ATO, Riyadh and ERS reports.

through the Islamic Development Bank. Yugoslavia had a trade agreement for wheat to Yemen in 1988 and 1989.

Trends and Factors in Market Shares

The upward trend in Yemen's imports of both wheat and flour continued in 1992, with gains for the United States accounting for most of the increase. U.S. exports of wheat and flour to Yemen in CY 1992 reached a record 785,000 tons in wheat equivalent (table 4; fig. 6). This included 266,000 tons of wheat flour (370,000 tons wheat equivalent) and 415,000 tons of wheat, mostly white wheat (fig. 7). The U.S. share of Yemen's wheat and flour imports peaked at 45 percent in 1992, from 23 percent in 1991 and 11 percent in 1989 (table 8). The U.S. gain was partly due to drought in Australia. Another reason, according to importers, was that delinquent payments to COFACE made it difficult to obtain extra credit from France. Wheat and flour account for over 80 percent of U.S. agricultural exports to Yemen (fig. 8).

The union of the Yemens has helped the U.S. share because virtually no U.S. wheat went to South Yemen during the 1980's. Australia provided over half the wheat imported by South Yemen, and the EC accounted for most of the flour deliveries. Since 1991, significant supplies of U.S. wheat flour and domestic flour made from U.S. wheat have been distributed in the Hodeidah area of the former South Yemen. A major reason was the shortage of Australian wheat in early 1992, as its share of total imports fell to 5 percent. Similarly, the decline for EC market share in the late 1980's was reversed in 1991 and 1992 because EC export subsidies and credit became attractive. The EC share of combined wheat and flour imports remained at 29 percent in both 1991 and 1992. Saudi Arabia, Turkey, and Canada have also been intermittent suppliers.

Table 8--Yemen: Share of wheat and flour imports from specified suppliers, annual 1986-92

Country of origin	1986	1987	1988	1989	1990	1991	1992
				Percent			
United States	18.2	21.4	16.6	11.1	15	22.5	43.9
EC	10.8	14.2	22.4	31.2	36.9	29.6	29.3
Australia	62.7	44.6	36.2	44.0	37.1	37.8	15.5
Saudi Arabia	4.9	5.7	5.2	4.0	3.1	0.0	1.6
Other	3.4	14.1	19.6	9.7	7.9	10.1	9.7
Total	100	100	100	100	100	100	100

Sources: FAO and UN trade runs, Bureau of the Census, Eurostat and ERS estimates.

Figure 6

U.S. Wheat and Flour Exports to Yemen

Thousand metric tons

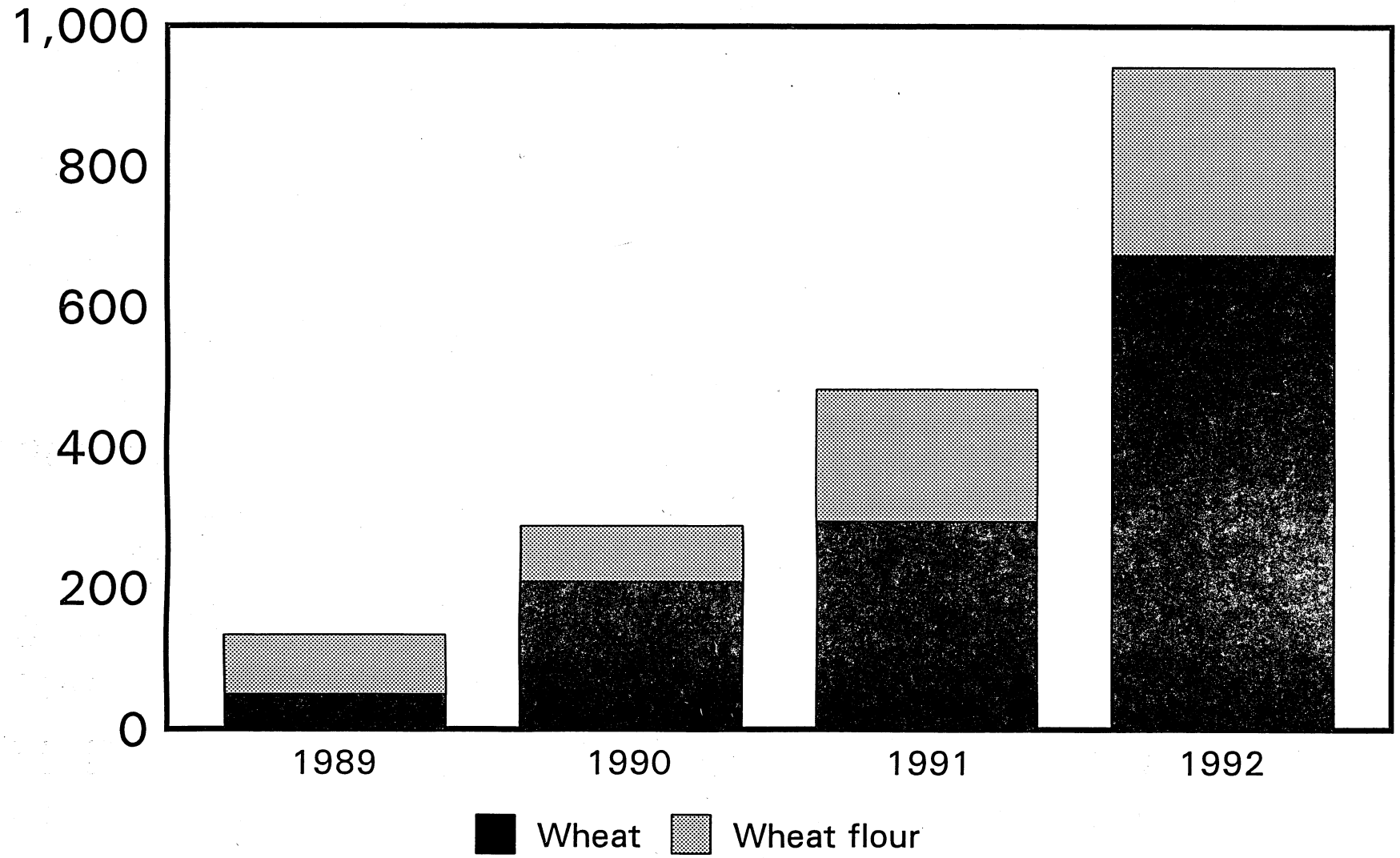


Figure 7

U.S. Wheat Exports to Yemen By Type

Thousand metric tons

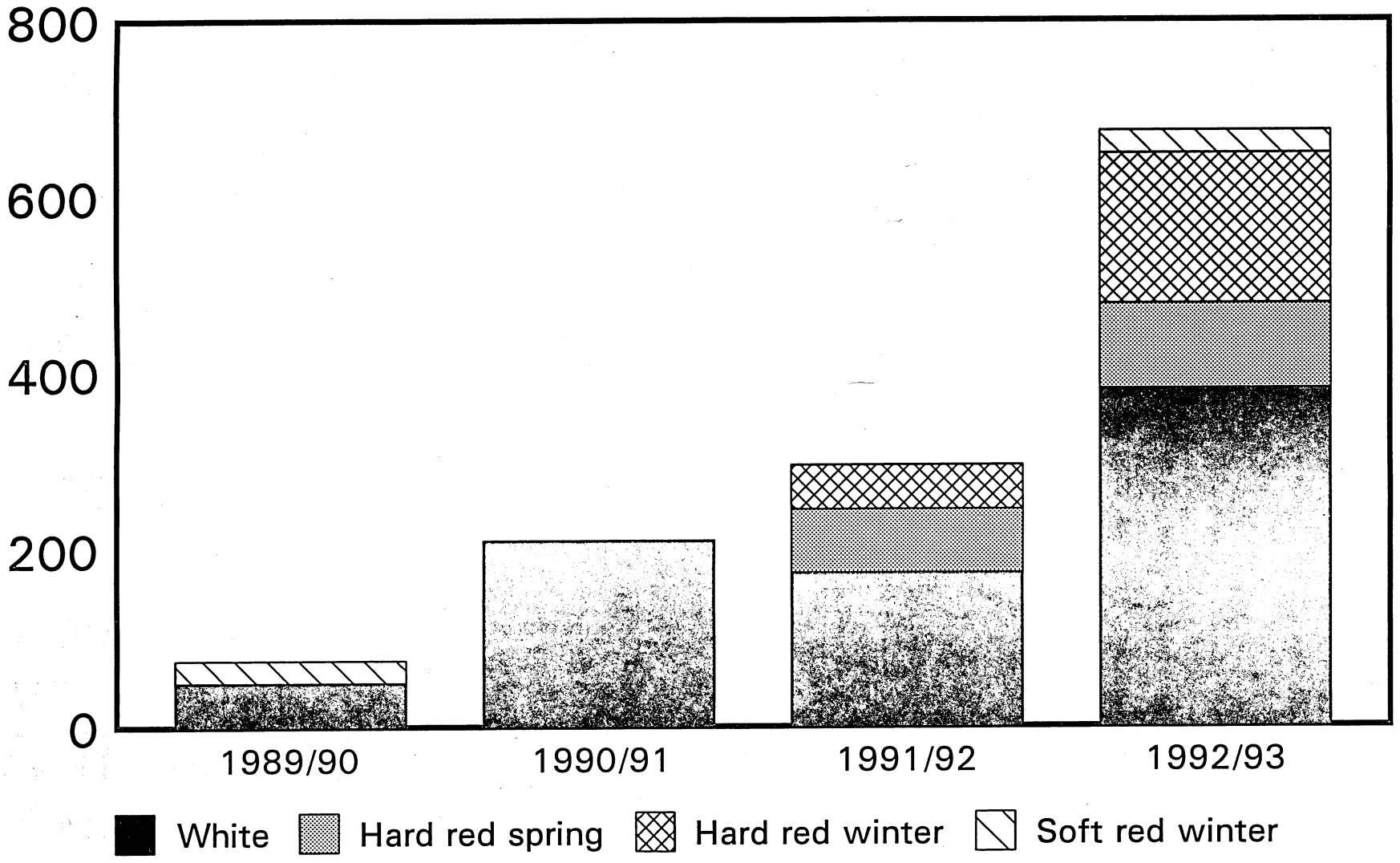


Figure 8

Yemen -- Share of Wheat and Flour Imports from Specified Suppliers, annual 1986, 1991 and 1992

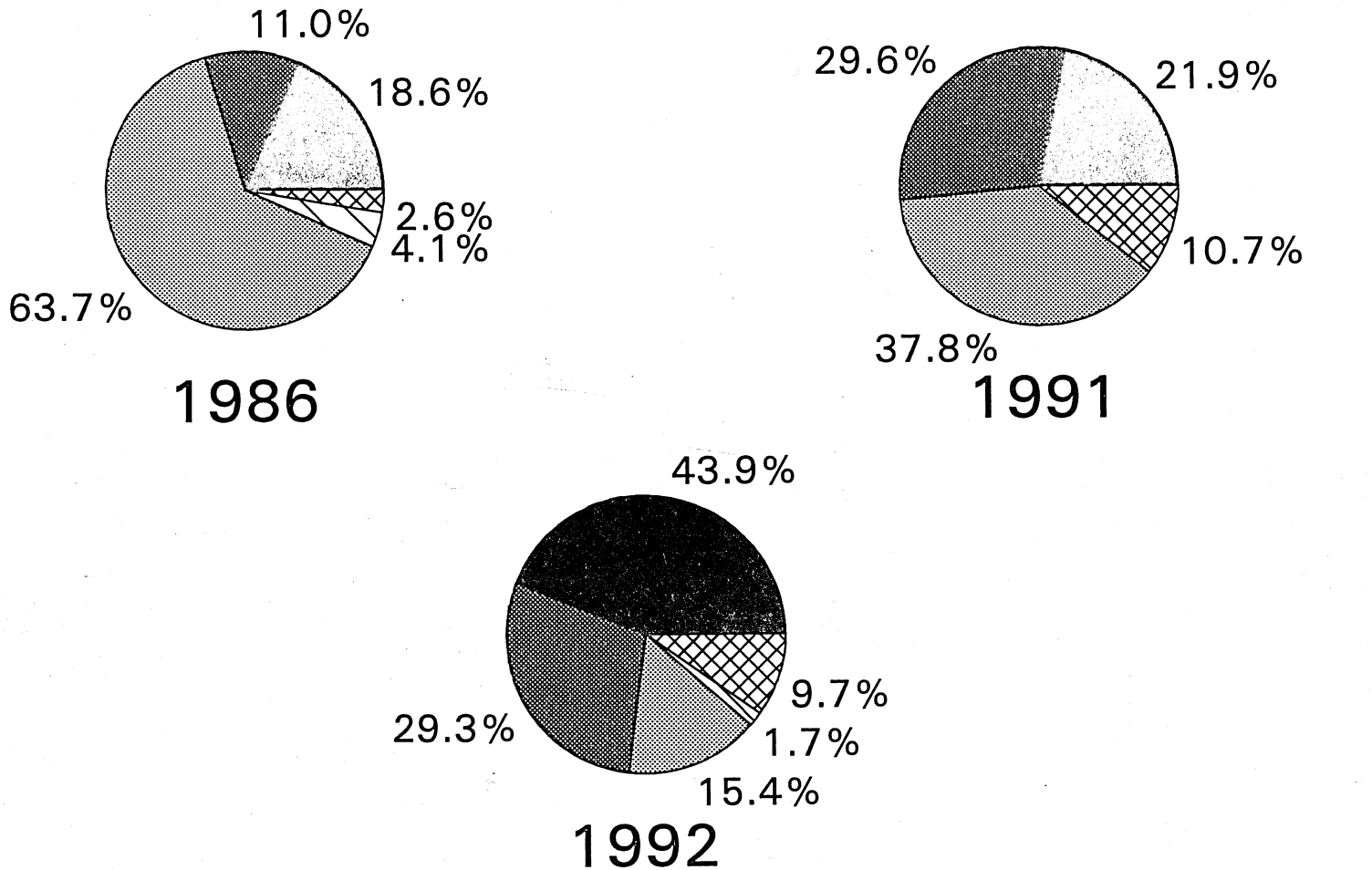


Table 9--Yemen: Estimated wheat and flour import prices, annual 1986-92

Country of origin	1986	1987	1988	1989	1990	1991	1992
Wheat price:				Dollars per metric ton			
United States	118.45	70.87	124.71	150.28	125.77	107.30	134.97
Australia	116.77	113.49	146.42	178.12	167.77	168.67	163.70
EC	257.00	214.53	123.87	158.28	169.05	112.20	116.50
Other	106.67	146.15	119.35	112.20	113.30	124.14	124.80
Total	117.14	108.37	134.01	166.48	153.07	145.36	137.24
Transport, insurance cost:							
United States	33	35	36	38	33	32	32
Australia	19	20	20	19	17	16	16
EC	23	24	26	25	24	23	23
Other	25	26	27	27	26	26	26
Total	25	26	28	24	23	24	27
Delivered price:							
United States	151.45	105.87	160.71	188.28	158.77	139.30	166.97
Australia	135.77	133.49	166.42	197.12	184.77	184.67	179.70
EC	280.00	238.53	149.87	183.28	193.05	135.20	141.50
Other	131.67	172.15	146.35	139.20	139.30	150.14	187.57
Total	142.14	134.37	162.01	190.48	176.07	169.36	164.24
Wheat flour purchase price:							
United States	153.88	116.53	114.90	210.50	200.19	189.92	140.49
EC	162.36	124.92	151.45	221.27	248.24	181.30	178.54
Canada	202.47	204.31	416.94	279.65	271.43	212.12	223.53
Other	222.22	201.55	210.79	266.83	273.81	258.93	202.17
Total	161.00	121.65	155.09	224.45	246.13	186.98	161.35
Transport and other costs:							
United States	42	42	42	42	42	39	38
EC	28	28	28	27	26	25	24
Canada	40	39	39	39	39	38	38
Other	31	30	29	32	33	33	34
Total	31	30	29	32	33	33	31
Delivered price:							
United States	195.88	158.53	156.90	252.50	242.19	228.92	178.49
EC	190.36	152.92	179.45	248.27	274.24	206.30	202.54
Canada	242.47	243.31	455.94	318.65	310.43	250.12	261.53
Other	253.22	231.55	239.79	298.83	306.81	291.93	236.17
Total	192.00	151.65	184.09	256.45	279.13	219.98	192.35

NA: Not applicable
Sources: Calculations derived from matrix table with quantity and value.

Import Costs

One of the aspects of wheat purchases by Yemen is shipping costs. Australian costs from Perth to Hodeidah are about $16 less than U.S. costs from U.S. Gulf ports, at about $32 per ton (table 9). Over the last 3 years, the use of larger carriers has reduced unit shipping costs for U.S. wheat. An analysis of f.o.b (free on board) export prices reported by major suppliers indicates that Australian wheat is usually more expensive than U.S. wheat, after the EEP subsidy is included.

The average f.o.b price for all types of U.S. wheat sales to Yemen rose from $107 per ton in 1991 to $135 in 1992. The f.o.b price for U.S. white wheat rose from $114 in 1991 to $146 in 1992, while the Australian white wheat f.o.b price declined from $169 per ton to $164 (table 9 and 13). While major exporter prices vary, the landed price of U.S. wheat to Yemen is less than that for Australian or Saudi wheat. Part of this relates to the shift to greater purchases of U.S. SRW wheat at prices which are about a sixth less than the delivered price for U.S. white wheat. All U.S. wheat exported to Yemen receives an EEP bonus. The 600,000-ton EEP allocation for 1992 was expended, and a new EEP announcement for another 600,000 tons was in effect in early 1993.

The EEP bonus for wheat declined from an average of about $47 in 1991 to about $41 in 1992, while the EC export subsidy declined 30 percent to $94. The delivered price for all types of wheat to Yemen in 1992 averaged $168 per ton, nearly the same as in 1991. Yemen's import cost for all types of U.S. wheat rose 19 percent to $167 per ton in 1992, with the delivered price for soft red winter averaging $155 per ton, or $23 less than U.S. white wheat. EEP was used for all purchases of U.S. wheat and flour, and the bonus varied by contract (table 10).

A comparison of EC and U.S. prices for wheat flour to Yemen shows the following: in 1990, EC shipments were 220,000 tons priced at $248 per ton. U.S. sales fell to 26,739 tons priced at $200 per ton. With an EEP initiative for 300,000 tons of flour granted in

Table 10--Yemen: EEP announcements from October 26-December 3, 1992

Date	Commodity	Quantity	EEP bonus
		Metric Tons	$/ton
10-26	White wheat	30,000	38.88
10-27	Soft red winter wheat	25,000	38.89
10-27	Wheat flour	15,000	95.75
11-6	Wheat flour	5,000	92.48
11-10	Wheat flour	20,000	93.49
11-23	Hard red spring wheat	30,000	42.11
12-2	Hard red winter wheat	57,640	39.81
12-3	Wheat flour	60,000	97.03
12-3	White wheat	60,000	35.52

Sources: FAS, USDA.

late 1990, U.S. sales rose to 118,000 tons in 1991, at an average $190 per ton. In 1992, foreign exchange constraints forced Yemeni traders to seek cheaper flour. As a result, sales from the United States doubled to 266,323 tons, at an average price of $140 per ton, well below the EC-f.a.s price of $179 per ton. EEP bonus awards for U.S. wheat flour to Yemen in 1992 ranged from $94 to $99 per ton, but EC subsidy payments were about double.

Wheat Sector Policies and Recent Developments

Since 1990, there have been a number of policy changes with important consequences for Yemen's private traders. Among these was the suspension of the official tendering system for wheat and flour imports. MST began to award import licenses to individual traders on a case by case basis, without requiring them to participate in formal tenders. In practice, MST has awarded licenses to traders who were able to arrange external financing that is, letters of credit drawn on banks outside Yemen (Adhal).

Since the suspension of import tenders, a small number of traders have gained special leverage with the government. They have been able to circumvent government regulations and go directly to the U.S. exporter, who then registers them for the EEP program. This represents a circumvention of the MST's traditional authority. The Ministry has little choice but to approve imports of heavily subsidized U.S. wheat and flour, particularly when the traders supply their own foreign exchange, from external bank accounts, primarily in Europe, Saudi Arabia, and the United States.

The share of imports that traders can market on their own account is somewhat fluid. In the past, MST usually ordered 90 percent of imported wheat to be delivered to public agencies, including the General Corporation for Foreign Trade and Grain (GCFTG), the Yemen Economic Corporation (YECO), and the Government Employees Association. In 1992, traders were able to retain up to 30 percent of the import volume for their private marketing (Adhal). This represents a step toward liberalization of the domestic wheat market. However, it may reflect the bargaining skills of individual traders (and changing demands of public agencies) more than a deliberate policy change.

MST officials are clearly uncomfortable with their reliance on a small group of traders and are now attempting to reinstate the tendering system. A major difficulty is the short supply of foreign exchange from official sources, which will continue to limit the pool of potential importers under a tendering system.

The Central Bank has rationed foreign exchange by often delaying payments to importers. One trader claimed that the Bank owed him more than $30 million for cargoes received. He expressed confidence that the Bank would ultimately reimburse him, but was not sure when. Delays by the Central Bank have interfered with some payments to foreign suppliers. In March 1992, an MST wheat tender awarded 150,000 metric tons to a Yemeni agent for

Australian wheat. However, only 25,000 tons were bought because of lack of payment.

In view of the current foreign exchange shortage, it is not surprising that the government attaches great importance to eligibility for official credit programs of exporting countries. A longer term issue concerns maintenance of an overvalued exchange rate. Until recently, the Central Bank has covered the foreign exchange requirements (at official exchange rates) for imports of wheat, flour, and sugar. Coverage for sugar and rice imports has already been suspended, and it is possible that coverage for wheat and flour will end at some future date. Of course, this would be extremely challenging politically, because the official exchange rate for wheat and flour provides a large indirect subsidy to consumers.

Producer Policy

In the near term, farmgate prices for wheat are expected to remain near $200 per ton. The high quality of domestic production helps to support producer prices. In contrast to imported wheat and flour, domestically produced wheat is free of any government price controls. The higher price also relates to transport costs and a lack of adequate supplies of imported wheat available in some mountain areas.

Local wheat is free of pesticides. Little commercial fertilizer is used, adding to its preference among Yemeni consumers. There are government programs to help farmers with improved seed and financing for grain storage. Irrigation and fertilizer subsidies also help wheat farmers in the former South Yemen. Despite this assistance, higher profits from qat and spices limit the prospects for expanding wheat area.

Consumer Policy

A major goal of the Yemeni government has been to maintain reasonable consumer prices for wheat, flour, and bread products. To accomplish this, the Central Bank finances imports at a favorable official exchange rate and the MST oversees internal distribution and pricing. Wheat and flour imports are distributed primarily through public sector agencies, but even the imports marketed by private traders are subject to official price guidelines (World Bank).

Official retail price guidelines have become less rigid as the value of the currency has eroded. Controlled prices contributed to rising per capita consumption (fig. 9).

Prices for the standard 50-kilogram bag of wheat rose sharply in 1992, moving from about 165 ($10) rials in the summer to nearly 200 ($12.50) rials by October. The government price guidelines were established when only white wheat was provided to village markets, and consumers are not offered lower prices for other types of wheat.

Figure 9

Yemen's Per Capita Wheat Consumption

Kilograms

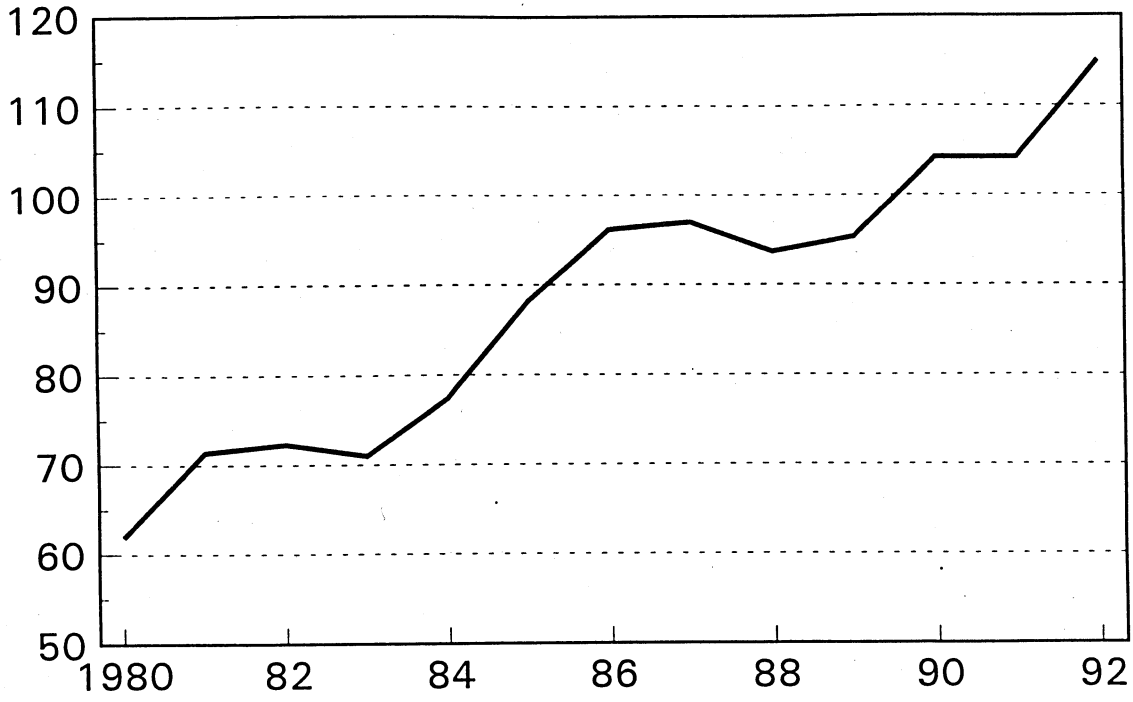
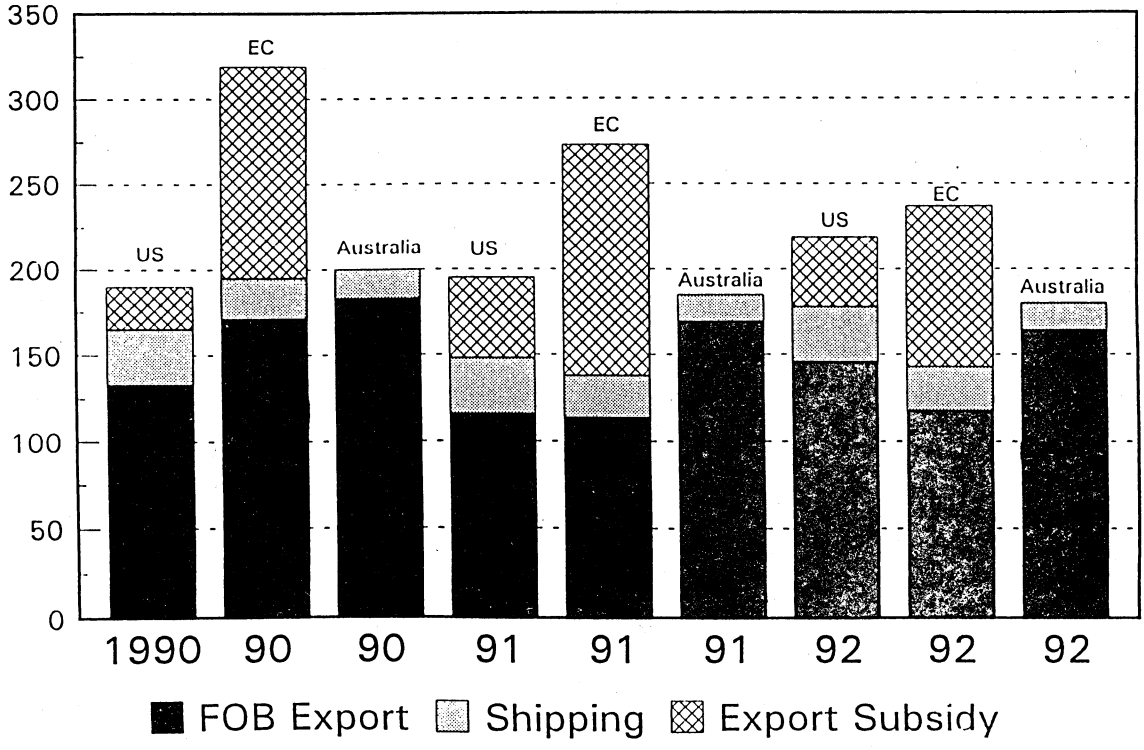


Figure 10

White Wheat Export Prices to Yemen Compared

Dollars Per Metric Ton



Imported wheat flour is marketed by various public sector agencies and private traders. Imports supplement the flour produced by the Red Sea Flour Mill, which (as noted above) is distributed entirely by YECO. YECO maintains marketing outlets throughout the country, and is involved in diverse trading activities. Although identified with the military, YECO serves as merchandiser for the general population (fig. 11).

Quality Criteria

In evaluating the significance of wheat quality factors to consumers, it is important to distinguish between market segments. In the village marketing system where wheat is sold in grain form, the physical appearance of wheat is potentially important. Differences in color, kernel size, and dockage levels are apparent to consumers, and play a role in preferences for wheat of different origins. These factors are less important for the Red Sea Flour Mill, which has shown considerable flexibility in its quality requirements and sourcing of imports. RSFM has modern cleaning equipment and can efficiently process wheat with varying levels of dockage. In addition, capacities for flour blending reduce the significance of color and other individual wheat attributes (table 11).

For wheat sold as grain, domestic wheat enjoys the best reputation for quality. Yemeni wheat has good appearance and high protein, and is favored by a small segment of the population despite a substantial price premium relative to imported wheat.

Among imported wheats, Australian white wheat is ranked highest for quality, followed by U.S. soft white wheat. In September 1992, at retail, Australian white wheat commanded a premium to U.S. wheat equal to less than $2 per metric ton at recent market exchange rates. Based on interviews with traders, dockage levels account for much of the perceived quality difference between Australian and U.S. wheat. Australian wheat is also favored because it is not subject to lengthy storage prior to export shipment, which means no pesticides have been used.

In general, consumers prefer soft white wheat to red types of wheat because of a preference for lighter-colored flour for traditional Arabic bread products. This gives the United States and Australia some advantage over France and Saudi Arabia--countries that primarily offer red wheat varieties for export. However, these preferences are not unconditional: Yemen has imported wheat from a number of sources, and consumers have been able to adapt to available supplies. Saudi wheat is perceived quite favorably; it is unusually hard, with low moisture content, and is considered to be fresh and without chemical residues. On the other hand, recent cargoes of Turkish white wheat were not well received, owing to insufficient gluten and high levels of dockage.

Figure 11

Yemen: Wheat/Flour Marketing and Distribution System, November 1991

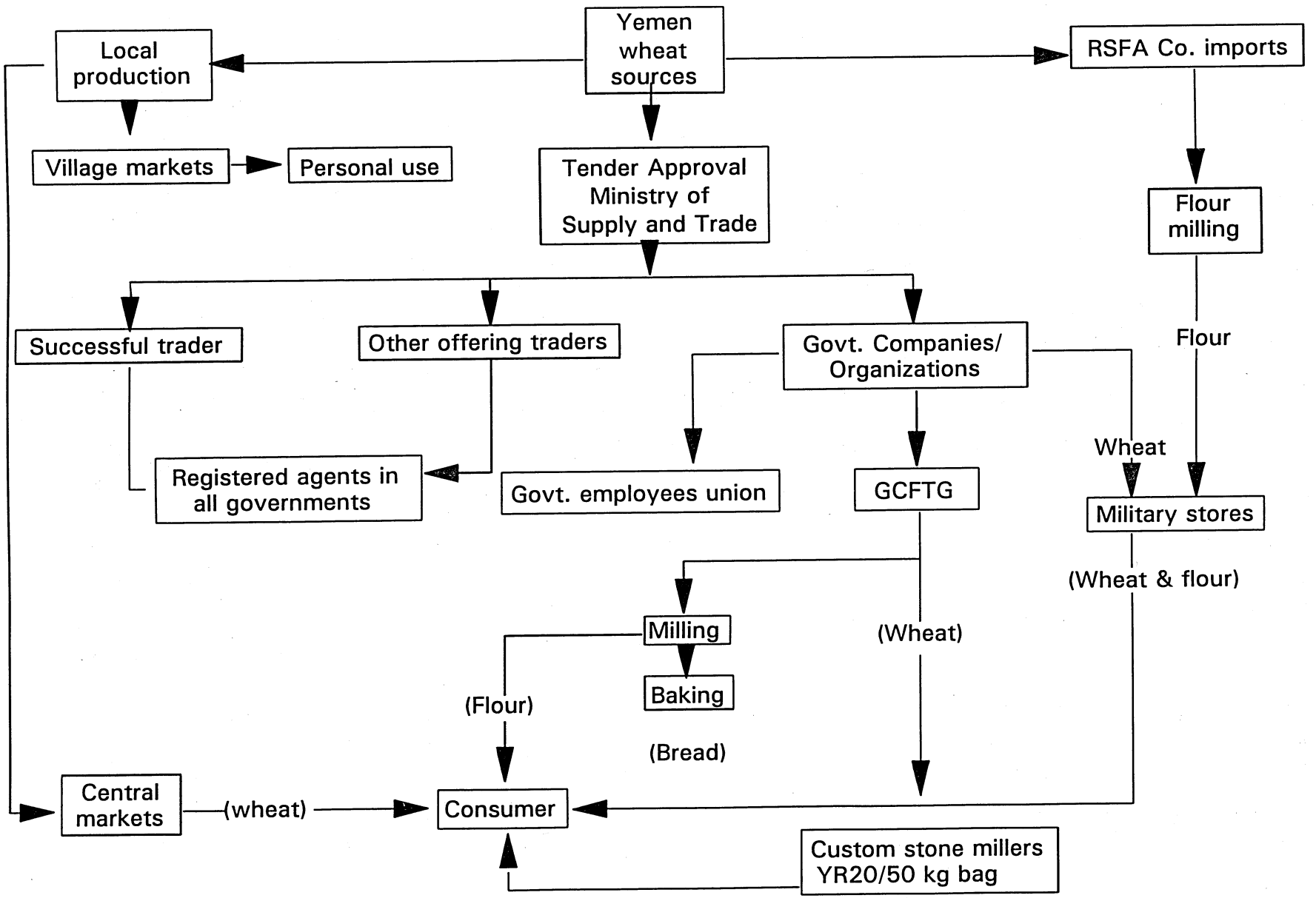


Table 11--Yemen: Summary of quality factors for wheat imports

Item	Explanation
Most important:	
Price	The delivered price of wheat is currently the major factor sought by traders. A premium ranging from 5 to 20 percent is paid for Australian quality wheat. Export Enhancement Program helps to reduce the price paid for U.S. wheat by roughly a third. Thus, the U.S. is gaining market share, and is viewed now as the best steady major supplier. Transportation affects the delivered price, and use of large ships helps to reduce the price, with a lower unit cost of shipping. This favors Australia, also.
EEP	EEP is very important because it allows Yemen to buy wheat and flour for less than the prevailing world market price, or about 33 percent less than the price would be without it.
Avalability of credit	Yemen received $30 million in GSM 102 in FY 1992 and used all the allocation. All the amount of GSM 102 allocated for FY 1993 of $25 million was used. Yemen usually seeks to obtain more GSM 102 credit than it obtains. Many factors affect Yemen's credit rating, which is inflenced by promptness of payments. Delays in repayments of COFACE credit often hamper new sales of French wheat and flour.
Quality	Grade 2 Australian white wheat is often good enough in reality to make Grade 1. Yet, only a limited supply can be obtained from Australia. Grade 2 wheat from the United States of a wide range of types of wheat is the next best quality. Hard red winter wheat from Saudi Arabia is a good Grade 2 wheat, but only limited quantities are available. EC soft red winter wheat has a medium quality. Wheat from Turkey and East Europe received the lowest rating for cleanliness.
Moderately important:	
Credit and importer services	New credit lines will be important for future wheat flour imports. GSM 102 credit from the United States will help private wheat flour importers to get started. Yemen's importers are seeking more contact with suppliers and appreciate help with problems concerning the shortage of foreign exchange. Traders who understand problems Yemen's importers faced by the Central Bank of Yemen may get a better consideration in future tenders.
Quality/ cleanliness	Yemen would like cleaner wheat for distribution to village markets, and would likely pay a higher price to get it. The concern about foreign material is primarily over conspicuous amounts of stems and trash in wheat destined for village markets. Wheat from Turkey received the lowest rating and was used primarily by the flour mill at Hodediah.
Shipping costs	Australia has relatively low transport costs of about $17 to $20 per ton from Perth to Aden or Hodediah, compared with $32 to $35 from U.S. ports.
Least important:	
Farm price	The price of wheat at the farm level in Yemen is not considered to be important for factors considered for imports, because it provides less than 7 percent of the supply.
Minor suppliers credit	Credit from a minor supplier like Turkey, Bulgaria, Hungary, or Sweden is of minor importance. They usually involve small purchases with a higher shipping cost per ton than is available on larger ships from major suppliers.

Managers of the RSFM have a sophisticated understanding of wheat quality attributes. This has facilitated their adaptation of nontraditional wheat classes in flour blends. RSFM has purchased HRS and HRW wheat from the United States under 1992/93 EEP initiatives. Hard wheats are blended to make flour suitable for roti bread, or used to supplement the protein of soft wheat in flours for Arabic bread. According to RSFM managers, such blending is dictated by availability of different wheats and changing relative import prices.

RSFM managers ranked protein, test weight, moisture, and dockage as their most important wheat quality factors. However, managers indicated a willingness to sacrifice quality for price or favorable terms of payment. In addition to the United States, Australia, France, and Italy, RSFM has purchased wheat from Turkey, Saudi Arabia, Argentina, and Zimbabwe.

Imported U.S. wheat flour is usually of excellent quality, although some purchases at very low prices have been for a medium quality flour. During 1984-90, the EC provided special export subsidies to Yemen as one of the 25 least-developed countries. This allowed Yemen to obtain good quality flour at lower prices than some other Mideast importers. This arrangement ended in early 1991 when other export enhancement instruments were used, causing EC wheat flour exports to reach a peak of 247,000 tons.

Supplier Performance

Australian wheat exporters are prompt in their deliveries. Past problems in running the gauntlet of financial hurdles and quality scrutiny have discouraged several U.S. firms from exporting to Yemen. Major European suppliers have also encountered difficulties related to Yemen's banking and regulatory system. In 1992, Saudi Arabia made deliveries of wheat by truck and may exploit its proximity and quality advantages to export more wheat to Yemen.

Demurrage charges are often levied for vessels delayed in Hodeidah. Delays have been caused by the failure of inspection authorities to clear cargoes for unloading (due to quality problems) and bunching of arrivals. Disputes over demurrage charges have sometimes embroiled foreign suppliers, as Yemeni importers and the Central Bank have both disclaimed responsibility and have resisted payment.

Quality Problems

Yemen has acquired a reputation as a difficult market among international wheat traders, in part because of periodic disputes concerning the quality of delivered cargoes. Major grain companies, including U.S. exporters and Yemeni importers, often contend that the problems are exterior to their activities. A recent example involved a shipment of U.S. wheat that became infested enroute to Yemen. Upon arrival at the port of Hodeidah, officials refused to allow the ship to unload. A deadlock ensued, with the Yemeni trader and government officials unable to

agree on the appropriate course of action or allocation of costs. Demurrage charges of $8,000 per day accumulated over the course of 3 months, and the final resolution (involving fumigation of the cargo and eventual discharge) came only after months of negotiation. The U.S. exporter reported that insect infestation of the wheat occurred while the ship was docked in Singapore, and provided documents from inspection when it left the U.S. port showing no insects. The Yemeni importer indicated that the demurrage bill was given to him, but subsequently presented the bill to the government, since he delivered 90 percent of the cargo to public sector agencies.

Other disputes (involving both U.S. and French cargoes) have concerned water damage. In general, Yemeni authorities have shown a tendency to reject cargoes that are damaged, or that do not fulfill all contractual terms, rather than to allow monetary compensation. Yemeni traders who are inconvenienced by official delays--or bear the costs of demurrage or refused shipments--are reluctant to register some quality complaints with their foreign suppliers. One trader who regularly imports wheat from the United States noted that dockage levels in U.S. cargoes typically exceed the maximum specified in officially approved contracts. He explained that he did not complain because he valued "good relations" with his U.S. supplier and wished to avoid providing a pretext for more official interference. It was usual for this trader to "negotiate" with authorities before they would allow discharge of cargoes with excess dockage. Traders may hesitate to complain about dockage to avoid risking excessive government intervention.

Several ministries are involved in the import inspection process. The Ministry of Industry operates grain grading equipment in Hodeidah, while the Ministries of Agriculture and Public Health participate in cargo sampling. A committee with representation from each of these ministries must approve cargoes for discharge. The diffusion of bureaucratic responsibility (and divergent interests of ministries) heightens the probability of quality disputes and makes them more difficult to resolve. The Ministry of Industry assumes responsibility for standard quality control for trade and industry.

Contract Specifications

Standard contracts are used by Yemen's importers, except for clauses concerning payment. Traders prefer to be able to delay payment to suppliers if their request for foreign exchange is delayed or denied by the Central Bank.

Quality specifications are not very exacting, to judge by a recent tender announcement (excerpted here) open to various wheat classes and origins.

A maximum dockage limit is specified for wheat of any origin. The practical significance of this limit is not clear, inasmuch as traders can choose (with concurrence of government officials) not to enforce it. In fact, according to one trader, most U.S.

shipments of wheat have reported dockage in the range of 0.8 to 0.9 percent.

Apart from limits for moisture and protein, all other quality specifications for U.S. wheat are embodied in the guidelines for U.S. Grade No. 2 wheat.

Trade Impact of Quality And Price Factors

Overall conclusions about the role of quality in exporter market shares must be qualified in several ways. First, there are several distinct market segments in Yemen with different degrees of sensitivity to individual quality factors. Second, although consumers may have preferences across wheat origins, the trading and marketing system (as currently organized) is not "consumer-driven," but substantially controlled by government authorities.

Third, Yemen's quality requirements and import behavior are fluid--particularly in the current economic environment, as the government seeks to minimize the foreign exchange costs of wheat and flour imports. This may change as rising oil revenues relax the foreign exchange constraint. Significant liberalization of the marketing system (suspension of controls over imports, prices, and distribution) would also alter the competitive picture for wheat and flour exporters.

The largest market segment is represented by wheat that is sold directly to consumers in grain form. This segment has been traditionally dominated by Australian white wheat. Consumers generally prefer soft white wheat over red, and Australian wheat is considered to be of superior quality, in part because of low dockage. Australian wheat also enjoys a substantial freight cost advantage over U.S. white wheat. Recent price comparisons indicate that, in the absence of EEP subsidies, the landed price of U.S. white wheat would be about $40 per metric ton higher than Australian. U.S. white wheat is considered to be of good quality, but EEP subsidies and the 1992 decline in Australian production appear to have played the predominant role in import decisions. Since the EC export subsidy is more than double the EEP bonus, the EC delivered price would be the very highest delivery price if all export subsidies were eliminated.

Despite an overall preference for white wheat, the government has introduced various types of red wheat (from France, Saudi Arabia, and the United States) into the village marketing system. This suggests a degree of price consciousness within MST, and also of public tolerance and adaptability. Saudi wheat, despite a deep red color and unusual hardness, has earned a favorable reputation for quality. Some smaller suppliers (Turkey) have met some consumer resistance. It is important to recognize that public expectations (and preferences) can be altered through exposure to nontraditional wheat varieties. At least, that belief seems to underlie recent experimentation by MST in the sourcing of imports.

The Red Sea Flour Mill represents a unique market segment as the only modern, large-scale flour mill in Yemen. RSFM managers are quality conscious, but extremely adaptable in their utilization of wheat from different origins. The sourcing of imports for RSFM has been highly variable. Hard wheats from the United States have been purchased under a recent EEP initiative and used to make a blended flour. U.S. wheat enjoys a good quality reputation with managers, but purchases are ultimately determined (under MST guidance) by prices of competing suppliers. As a result, the types and quality of flour produced by RSFM are variable, depending on the changing availability and quality attributes of different imported wheats. Possibly this would be of greater concern in a more competitive marketing environment; however, RSFM faces no major domestic competition, and is assured of a steady outlet for its flour production through an exclusive arrangement with YECO.

Excerpt from MST Tender Announcement

ALL CLASSES OF SOFT WHEAT INCLUDING AUSTRALIAN STANDARD WHITE WHEAT, U.S. SOFT RED AND SOFT WINTER WHEAT, CANADIAN SOFT WHEAT OR EUROPEAN SOFT WHITE OR SOFT RED WHEAT. SPECIFICATION MUST BE SUBMITTED AT TIME OF OFFER...
--AUSTRALIAN STANDARD WHITE WHEAT AS PER AUSTRALIAN WHEAT BOARD STANDARD

--U.S. NO (2) OR BETTER WESTERN WHITE WHEAT WITH MIN. 12% PROTEIN AND MAX. 12% MOISTURE

--MAX. DOCKAGE 0.5%

Flour imports are heavily influenced by relative prices, and specifically by export subsidies provided by the United States and other exporters. This market is likely to expand in the next few years as domestic milling capacity lags behind anticipated growth in demand.

Expansion of the U.S. market share is not primarily dependent on quality or dockage levels. The RSFM has state of the art equipment to clean wheat. For the consumer market, cleaning of wheat prior to export may reduce the perceived quality difference between U.S. and Australian wheat.

Table 12--Yemen: Wheat consumption by market sectors, annual 1986-92

Country of origin	1986	1987	1988	1989	1990	1991	1992
Wheat:				Metric tons			
U.S. white type	106,169	191,937	172,643	49,500	127,784	82,872	147,940
Australia	715,094	520,932	416,151	551,586	485,000	581,000	270,000
EC	2,000	2,601	106,955	141,721	160,900	101,584	184,000
Imported white	823,263	715,470	695,749	742,807	773,684	765,456	601,940
Other types:							
U.S. red types	0	0	0	0	25,000	90,000	267,000
EC soft red winter	0	0	0	0	0	0	40,000
Canadian red spring	0	1,500	3,198	0	0	10,000	2,400
Other	82,000	112,600	147,560	125,550	130,000	136,001	159,300
Imported white	823,263	715,470	695,749	742,807	773,684	765,456	601,940
Domestic white	95,000	113,000	142,000	163,000	155,000	100,000	115,000
Total wheat use	918,263	828,470	837,749	905,807	928,684	865,456	716,940
Wheat share:				Percent			
Total white	89.7	86.4	83.0	82.0	83.3	88.4	84.0
Imported white	89.7	86.4	83.0	82.0	83.3	88.4	84.0
Domestic white	10.3	13.6	17.0	18.0	16.7	11.6	16.0
Imported other	8.9	13.6	17.6	13.9	14.0	15.7	22.2
Total supply:				Metric tons			
Wheat equiv. flour	235,109	337,698	298,916	385,934	392,519	536,273	718,891
Domestic flour*	303,000	357,000	473,864	334,000	398,000	499,000	600,000
Total flour*	538,109	694,698	772,780	719,934	790,519	1,035,273	1,318,891
Wheat & flour*	1,234,000	1,279,000	1,285,000	1,344,000	1,499,000	1,588,000	1,819,000
Wheat grain market	695,891	584,302	512,220	624,066	708,481	552,727	500,109
				Percent			
Imported flour	20.4	29.0	26.3	29.9	29.7	38.3	50.1
Total flour	43.6	54.3	60.1	53.6	52.7	65.2	72.5
Wheat grain market	56.4	45.7	39.9	46.4	47.3	34.8	27.5

Sources: FAO, UN trade runs, Wheat Associates, Cairo, and American Embassy Sanaa.
* In wheat equivalent, obtained by multiplication of flour by 1.389.

Table 13--A comparison for U.S., EC, and Australian wheat prices for Yemen

Item	1989	1990	1991	1992
F.o.b. pric:	Dollars per metric ton			
U.S. white wheat	155	133	116	146
EC white	183	193	136	142
Australian white	178	183	169	164
Shipping cost:				
U.S. white wheat	38	32	32	32
EC white	25	24	24	24
Australian white	19	17	16	16
Delivered price paid by Yemeni importers:				
U.S. white wheat	193	165	148	178
EC white	208	217	160	166
Australian white	197	200	185	180
Export subsidy:				
U.S. white wheat	13	25	47	41
EC white	99	123	135	94
Australian white	0	0	0	0
Overall hypothetical cost:				
U.S. white wheat	206	190	195	219
EC white	307	340	295	260
Australian white	197	200	185	180

Sources: Wheat Situation, ERS, USDA, September 1993, and UN trade data.

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Glossary

Blending: The systematic combining of two or more lots or kinds of grains to obtain a uniform mixture to meet a desired specification.

C & f: Cost and freight to the designated delivery point, paid by the seller.

C.i.f.: Cost, insurance, and freight to the designated delivery point, paid by the seller.

Commodity Credit Corporation (CCC): An agency of the U.S. Department of Agriculture created in 1933 to carryout loan and storage operations as a means of supporting prices above the level that would have prevailed in a free market.

Cu-Sum: A set of rules established by FGIS, that exporters must follow when loading grain on ocean vessels. The rules control variability among sublots blended to meet contract grade limits.

Damaged grain: In U.S. grading standards, the term damage refers primarily to biological deterioration associated with discoloration. Physical damage (such as cut or broken kernels) is not included in U.S. grades but is included in the standards of some other countries.

Defects: Computed total amount of damaged kernels, foreign material, and shrunken and broken kernels.

Dockage: Nongrain material that can be readily removed by accepted screening devices.

Durum wheat: Very hard, high-protein wheat used in the production of semolina flour for pasta products.

Export Credit Guarantee Program (GSM-102): U.S. agricultural export promotion program that guarantees repayment of private, short-term credit for up to 3 years.

Export Enhancement Program (EEP): Program to help U.S. exporters meet competitors' prices in subsidized markets: Exporters are awarded cash payments, enabling them to sell certain commodities to specified countries at prices below the U.S. market price.

Extraction rate: The fraction of the wheat kernel that is converted into flour during the milling process.

Falling number test: A test used to measure sprout damage in wheat

F.a.s.: Free alongside ship specifies that the seller delivers goods to the port elevator or dock at a specified location and the buyer pays for loading the ship and ocean freight.

Federal Grain Inspection Service (FGIS): An agency of the U.S. Department of Agriculture that establishes grain standards and develops the technology to measure the factors contained in such standards. This agency also develops and publishes sampling and inspection procedures, evaluates and approves equipment, monitors inspection accuracy, and oversees mandatory export inspection of grain by agency or FGIS-licensed inspectors.

F.o.b.: Free on board specifies that the seller loads the ship or other conveyance at the specified delivery point with the buyer paying freight charges.

Foreign material: Nonwheat material of similar size and weight to wheat kernels.

Gluten: A tenacious, elastic protein substance found especially in wheat flour that gives cohesiveness to dough.

Grade: A number or letter designation assigned to grain based on an established set of criteria.

Grade factor or grade determining factor: Those characteristics of grain used to determine the numerical grade. The grade factor is based on quantitative limits (either maximums or minimums) placed on each factor for each grade.

Grain grades and standards: Specific standards of grain quality established to maintain uniformity of grains from different lots and permit the purchase of grain without the need for visual inspection and testing by the buyer.

Hard Red Spring wheat: Spring seeded; includes the following three subclasses: dark northern, northern, or red: This wheat is high in protein and has a vitreous endosperm, is used primarily to produce bread flour and is produced in the upper Great Plains.

Hard Red Winter wheat: Fall seeded: This wheat may be either dark hard, hard, or yellow hard, medium to high in protein, a vitreous endosperm, and used primarily to produce bread flour: It is produced in the lower Great Plains.

Hard wheat: A generic term applied to wheat with a vitreous endosperm suitable for making bread flour or semolina; yields coarse, gritty flour that is free-flowing and easily sifted; and flour consists primarily of regularly shaped particles of whole endosperm.

Impurities: Any nongrain material contained within a shipment that could hinder the processing of a grain or detract from its end value.

Intrinsic value or end-use value: Characteristics critical to the end-use of grain. These are nonvisual and can only be determined by analytical tests. For example, the intrinsic quality of wheat is determined by characteristics such as protein, ash, and gluten content.

Moisture content: The amount of water in grain; measured by the weight of water as a percentage of the total weight of the grain including water (wet basis) or total weight of the dry matter excluding water (dry basis).

Nongrade determining factor: Factors that influence the quality of grain but are not taken into account in the grading of grain. These factors must be reported as information whenever an official inspection is made.

Nonmillable material: All material that is not wheat, includes shrunken and broken kernels.

Physical quality: Grain characteristics associated with the outward appearance of the grain kernel, including kernel size, shape, color, moisture, damage, and density.

Premiums: Prices that exceed the base price offered for grains with higher quality characteristics than specified. Generally calculated for factors that increase the value of the grain in market channels.

Public Law 480 (PL-480): Common name for the Agricultural Trade Development Assistance Act of 1954, which seeks to expand foreign markets for U.S. agricultural products, combat hunger, and encourage economic development in developing countries.

Sanitary quality: Grain characteristics associated with cleanliness. They include the presence of foreign material that detracts from the overall value and appearance of the grain, including the presence of dust, broken grain, rodent excreta, insects, residues, fungal infection, and nonmillable matter.

Screenings: The material removed from grain by means of mechanical sizing devices; generally include broken grain as well as nongrain material removed on the basis of density or particle size with mechanical cleaners.

Semolina: A coarse separation of endosperm extracted from Durum wheat to make pasta.

Shrunken and broken kernels: All matter that passes through a 0.064 inch by 3/8 inch oblong-hole sieve.

Soft wheat: A general term describing wheat with a chalky endosperm suitable for making pastry flour; yields a very fine flour consisting of irregularly shaped fragments of endosperm cells that adhere and sift with difficulty.

Spring wheat: A general term for wheat that is grown in the spring and harvested in the summer or fall; It has a relatively high protein content and is used in bread flours.

Test weight: Weight per unit volume as measured in pounds per bushel as defined in the United States. Determined by weighing the quantity of grain required to fill a 1-quart container. The

international equivalent measure is kilograms per hectoliter (conversion factor 0.77)

Uniformity: Conformity within and between shipments for quality attributes; such as physical, milling, and baking performances.

Wheat middlings: Fine particles of the bran and the wheat kernel. Normally used for livestock feed.

White wheat: Fall or spring seeded; it includes four subclasses: hard, soft, club, western. It is soft or hard and low in protein and is used mainly for pastry flours and oriental noodles.

Winter wheat: A general category describing wheats that are sown in the fall, lie dormant in the winter, and are harvested the following spring or summer.

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