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The 1990's Global Grain Situation and its Impact on the Food Security of Selected Developing Countries

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Abstract

Between 1993 and 1996, two developments occurred in world grain markets which posed a potential threat to the food security of import-dependent developing countries. First, starting in late 1994, real grain prices increased, limiting the ability of less developed countries (LDCs) to import grain during production shortfalls. Second, and perhaps more importantly, after 1993 the world stock-to-use ratios in the major food grains fell to record lows. Grain stocks function as buffers against sudden price movements, and low stock levels can result in higher price volatility.

This paper describes the nature of the 1990's grain price increase, and contrasts it to the grain price crisis of the 1970s. The paper then consider 22 of the largest, poorest, and most import-dependent LDCs, selected on the basis of population size, magnitudes of grain imports, shares of imports to nationally available grain supplies, per capita incomes, and per capita food aid. The paper subsequently quantifies and evaluates the sample countries' response to increases in the world grain prices by computing the impact of the price rise on national grain import bills, an indicator of the countries' ability to maintain food security.

The paper concludes that the grain price increase of the 1990s is relatively mild — certainly relative to the grain price spike of the 1970s — and does not appear to be indicative of a trend; in fact, recently, grain prices have already begun to fall. This study suggests that there are some important lessons to be learned from the 1990s grain price increase:

- The world environment has changed. Increased globalization and openness resulted in the increased responsiveness to price signals by

both demanders and suppliers of grains.

- Major grain importers, like India, Pakistan and Morocco switched to becoming net exporters.
- LDCs did not respond uniformly to the price hike. They displayed a variety of price-responsive "coping mechanisms" to deal with increased grain prices, including substituting lower quality grain imports, increasing domestic supply, and shifting demand to new suppliers.
- Some developed countries continue to exhibit protectionist policies in agriculture. In particular, the European Union behaved counter-cyclically in order to maintain domestic price levels, taxing grain exports when world prices rose and subsidizing them when world prices fell.

The 1990's Global Grain Situation and its Impact on the Food Security of Selected Developing Countries

Introduction

Between 1993 and 1996, two developments occurred in world grain markets which could pose a threat to the food security of import-dependent developing countries. First, starting in late 1994, real grain prices increased, limiting the ability of less developed countries (LDCs) to import grain during production shortfalls. Second, and perhaps more importantly, after 1993 the world stock-to-use ratios in the major food grains fell to record lows. Grain stocks function as buffers against sudden price movements, and low stock levels can result in higher price volatility.

This paper describes, the nature of the 1990s grain price increases and estimates the potential impact that such price increases have had on the food security of low-income food-deficit countries.

We analyze, twenty-two countries, which were selected on the basis of their population, magnitude of grain imports, percentage of imports in total available grain, per capita income, and per capita food aid (where the largest, poorest, and most import-dependent were selected).

Table 1 gives a summary of the main indicators used as criteria for selecting the countries in the study. The countries, are drawn from Africa, Asia, Latin America, and the Middle East, and capture 54% of the world population. The group's average per capita GNP of $549 is about half of the world developing country average of $1,090 (World Bank, 1995), with the African and Asian countries falling below the whole group average. The Latin American and Middle Eastern groups, while better in terms of income, are the most dependent on imports for their grain consumption. They are

Table 1 – Country selection indicators, 1993

	Population	Grain imports	Share of imported grain in total grain utilization	Per capita GNP	Per capit food aid
	(millions)	(1000 MT)	(%)	(US $)	(kg)
Asia Selected Countries	**2,566.56**	**23,942**	**6.05**	**505**	**1.47**
Bangladesh	115.20	1,175	4.00	220	6.74
China	1,178.40	14,039	3.34	490	0.16
India	898.20	694	0.34	300	0.38
Indonesia	187.15	3,105	5.38	740	0.29
Pakistan	122.80	2,893	10.81	430	0.75
Philippines	64.80	2,036	12.44	850	0.53
Africa Selected Countries	**339.78**	**15,897**	**29.40**	**416**	**6.40**
Djibouti	0.56	43	100.00	780	8.92
Egypt	56.43	7,206	32.51	660	4.09
Ethiopia	51.86	1,047 (1)	12.90 (1)	100	13.72
Malawi	10.52	514	19.39	200	9.12
Morocco	25.95	3,652	55.48	1,040	4.67
Mozambique	15.10	507	39.83	90	24.03
Nigeria	105.26	1,584	10.22	300	0.00
Tanzania	13.20	215	5.26	90	2.45
Zaire	41.23	238	11.96	242 (2)	1.33
Zambia	8.94	353	16.73	380	1.24
Zimbabwe	10.74	538	19.11	520	0.83
Latin America Selected Countries	**34.06**	**2,343**	**29.58**	**863**	**19.41**
Bolivia	7.07	298	21.66	760	28.76
Nicaragua	4.11	125	18.09	340	12.12
Peru	22.89	1,920	49.00	1,490	17.36
Middle East Selected Countries	**32.12**	**3,439**	**81.79**	**1,190**	**30.14**
Jordan	4.10	1,596	94.49	1,190	52.91
Yemen	28.02	1,843	69.08	520 (3)	7.37
Total Selected Countries	**2,972.53**	**45,621**	**27.82**	**549**	**8.99**
without China	**1,794.13**	**31,582**	**28.98**	**552**	**9.41**
World	**5,501.00**				

Source: World Bank, "World Tables 1995 Updates", World Bank, Washington, DC., 1995 (computer disk), and Food and Agriculture Organization of the United Nations, "FAOStat -PC, Trade, 1995," Version 3.0, FAO, Rome, 1995 (computer disk).

Notes: (1) 1992 data.
(2) 1985-89 average.
(3) 1991 data.

also the largest recipients of food aid per capita.

In order to quantify the response of this group of 22 countries to increases in the world grain prices, data on production, net imports, world prices, and stocks of the major food grains (wheat, rice, and maize) were analyzed. These data were averaged over two periods, 1991-93 and 1994-96. We also considered the impact of the price rise on the developing countries' grains import bills, an indicator of their ability to preserve their food security. China, due to its increasing role in grain markets (especially as a growing importer of wheat), is given particular attention.

We should emphasize that our analysis remains at the national level. We do not consider the food security effects of increased grain prices on poor households within our sample countries. For a more in-depth discussion on how the most vulnerable groups are most likely to be affected by increased food prices, see Pinstrup-Andersen, 1985.

Overview and Trends

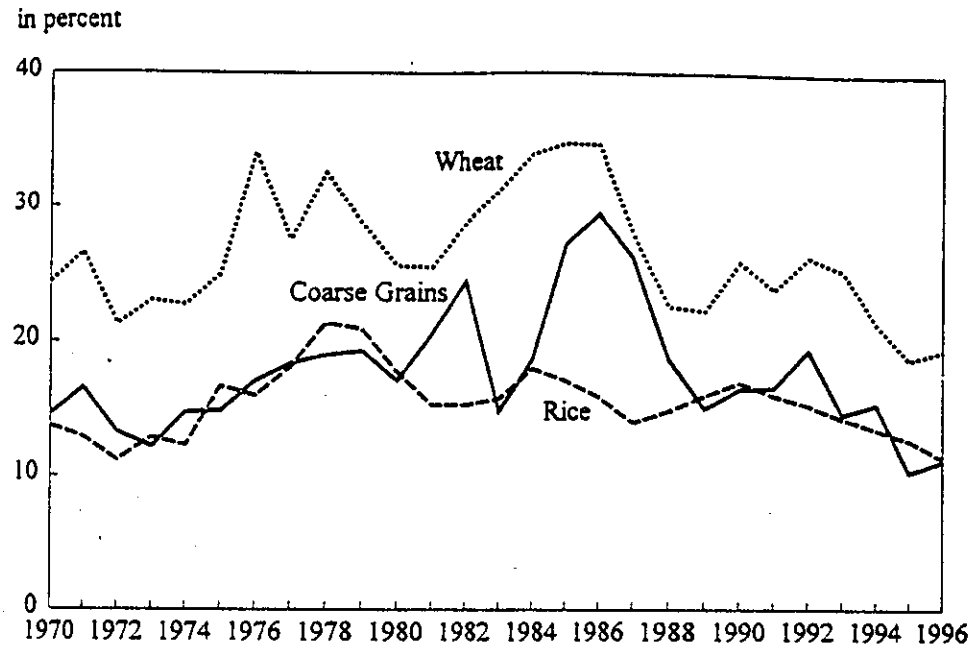
As in the 1970s, when world grain prices increased dramatically, the increase in world grain prices of the mid 1990s is part of a general commodity price boom following a long period of declining commodity prices. The World Bank price index for non-fuel commodities shows a decline of 49% between 1980 and 1993 (World Bank, various years). As a result, some developing countries came to depend on cheap imports of grains from the large exporter countries. Domestic producers of food grains, who cannot compete with these low world prices, became discouraged. Until recently, U.S. agricultural policies sought to limit supply (through the "set aside" program), driving production of grains to levels inadequate for current use. This diminished production capacity was aggravated by several short-term and long-term developments: increased fertilizer prices contributed to reduce

crop yields; poor weather conditions plagued major supplier countries (flood in the US Midwest in 1993, severe drought in Australia in 1994) ; and the introduction of GATT agricultural rules (DeRosa, 1995) aimed at eliminating agricultural subsidies in developed countries contributed to lower incentives for the main grain producers (US and EU countries) and indirectly eroded surplus stocks marked for food aid. As a result, the stock-to-use ratio for the major food grains reached an all-time low in the marketing year 1995/96 (Figure 1).

A major difference between the 1970s and 1990s commodity price booms is the current absence of heavy demands from food grain importers, which indicates that the 1995/96 price increase is supply driven. Rice is an exception, where unprecedented demand in Asia drove prices up, in spite of record production in major producing countries. The absence of heavy demands from food importers may partly explains why the 1970s' price spike dwarfs the present one. In particular, there has been a significant decline in import demand from Eastern Europe and the new countries of the former Soviet Union for wheat and coarse grains. These countries, major commodity importers in the 1970s, now lack the foreign exchange necessary to fund such large imports. Similarly, "low regional income levels have limited imports" by Sub-Saharan African countries (Umoren, 1994). Another deviation from the '70's crisis is the notable absence of an overriding policy response towards food grain self-sufficiency by the LDC's. Instead, many LDC's (particularly Asian LDC's) are attempting to stabilize or replenish stocks and stabilize prices by switching to less expensive, lower quality grain imports, while other LDC's, blessed with good weather and good timing, are emerging as new suppliers. These factors largely explain why the magnitude of the price rise has been modest relative to the spike of the 1970s (Figure 2).

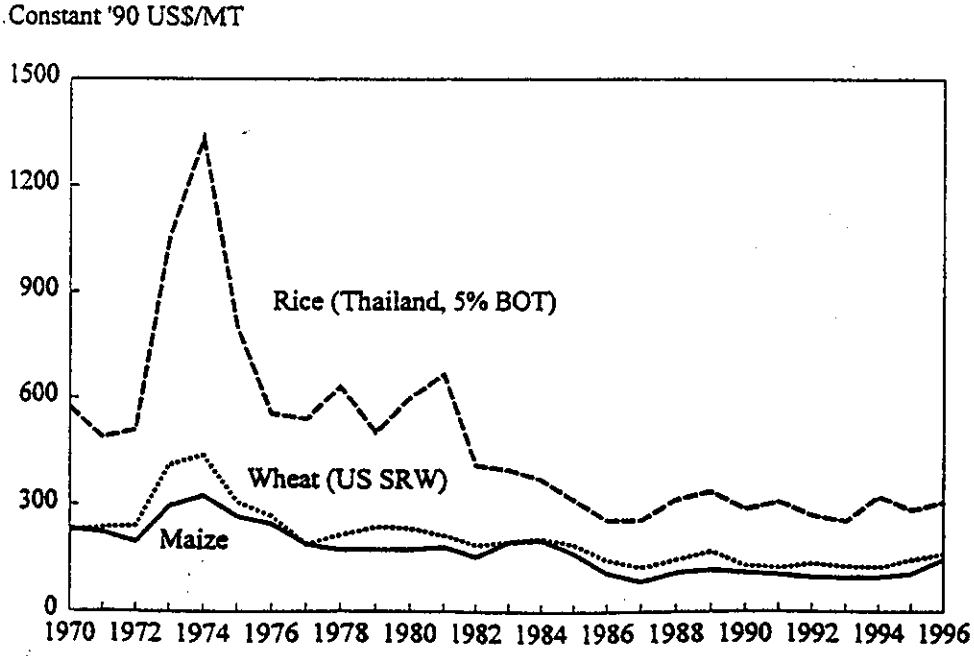
Although the price rise is relatively mild and does not appear to be

Figure 1--World grain stock-to-use ratios, 1970-1996



Source: Economic Research Service, U.S. Department of Agriculture, Grain: World markets and trade (July 1996)

Figure 2--World Grain Prices in constant 1990 US$, 1970-1996



Source: World Bank Commodity Price Data Sheets

indicative of a trend (and, in fact, prices have recently begun to fall), persisting low grain stock levels suggest that there may be increased price volatility in the future.

To evaluate the magnitude of the changes which occurred between the two periods, percentage changes of selected indicators for the 22 countries as a group and over the three major food grains are summarized in Table 2 (for individual country tables and graphs, see the Appendix). The increase in grain import demand partly reflects increases in population, growing income levels (or change in taste resulting from increase in income), and/or shortfalls in production.

Table 2-- Percentage change in indicators between 1991-93 and 1994-96 (in percent)

	Wheat	Rice	Maize	All
	(percentage change, 1991-93 to 1994-96)			
World Price [a]	23	20	30	23
Production				
(1) Total Selected Countries	7	4	11	6
(2) Selected Countries without China	14	7	13	9
Net Imports				
(1) Total Selected Countries	0	137	238	64
(2) Selected Countries without China	-3	-124	23	0
Food Import Bill				
(1) Total Selected Countries	22	143	276	96
(2) Selected Countries without China	18	-161	60	21
Memorandum				
Population (1993-94 growth rate)				
(1) Total Selected Countries	1.72			
(2) Selected Countries without China	2.17			

Sources: Author's computations.
Notes: [a] World prices are in current US$.

On average for the group, production of the major food grains has grown at a faster rate than population, and net imports have grown in spite of the rise in both price and domestic production in all three grains.

Most of the increase in grain imports seems to be coming from China as shown by comparing results from the two groups (1) and (2) in Table 2. A closer look at China's net grain imports supports these rough estimates: between the two periods, China switched from being a net exporter to a net importer in rice and maize, and increased its imports of wheat by 8%. A recent IFPRI study on China's food economy predicts that China's imports will continue to rise until the end of this decade, mainly due to accelerating demand for meat and feedgrains, as well as from the continued slowdown in production (Huang, Rozelle, and Rosegrant, 1997). In contrast, the other countries in the sample show decreases in net imports for two of the three grains: wheat and rice.

Increases in the import bill are due to a combination of increases in the world price and increases in net imports. Again China makes a difference in group average results. In the group including China, the increase in the import bill of 96 percent between 1991-93 and 1994-96 comes mostly from an increase in net imports of 64 percent. In the group excluding China, world prices and import bills increased by nearly the same magnitude: 23% and 21% respectively, suggesting that, except for China, these selected countries were able to manage their grain bills by maintaining their net grain imports and the world price increase dominated the impact on their import bill (Table 2). It should be emphasized, however, that these figures are unweighted averages and often mask substantial variations in individual country experiences, as we will show in subsequent sections of the paper.

Price Trends

One of the most impressive aspects of the '70's price shock was its

magnitude. In comparison, the recent rise in world grain prices seems minor in terms of both the rate and the level of the price increase.

In constant '90 US$, the world price of wheat rose by 15.6% between 1994 and 1995 and by another 11.4% in 1996; still, it peaked at only $162 per metric ton, less than half of its 1974 level of $438. The situation for maize was analogous, with a 9.9% price rise for 1994-95 and 37% for 1995-96, with the price level reaching a high of $154 per metric ton, a little less than half of its 1974 level of $325. Recent behavior of the world rice price has been mixed: a 27.6% increase during 1993-94 followed by a 12.2% decrease in 1994-95 and a 7.5% increase in 1995-96. In 1994, when the rice price reached its peak at $324 per metric ton, it was only one-fourth of the 1974 level at $1,332 (Table 3).[1]

Despite its severity, the price spike of the 1970's was a transitory spike, rather than a permanent change, in the trend of gradually decreasing grain prices of the last 20 years. The current price rise is largely supply driven, and production shortfalls are still possible. Unusual weather patterns continue to plague major supplier countries, while both developed and developing countries are still adjusting to the GATT rulings on agriculture. The low levels of world grain stocks may lead to sensitivity to supply shocks and greater price volatility. Notwithstanding the magnitude of the price rise or its life span, such price volatility may create difficulties for some developing countries trying to sustain food security. But as shown later in this paper, some of these countries were successful in coping with the increases in world grain prices and a few managed to become net exporters.

Stock and Utilization

The state of world grain stocks appears to be a pressing concern.

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[1] These increases, besides being much smaller than the '70's surges, are quite commonplace--increases of similar magnitudes were recorded during the period 1987-1989.

Table 3 -- Annual percentage change in constant 90 US$ World Grain Prices (1971-1996)

	Maize US yellow Gulf	Milled Rice Thailand (5% BOT)	Wheat U.S. SRW
		(%)	
1971	-4.90	-14.81	3.60
1972	-12.02	4.55	2.09
1973	50.86	105.25	70.67
1974	10.62	27.17	6.86
1975	-18.48	-39.73	-30.05
1976	-7.35	-30.90	-12.60
1977	-22.73	-2.53	-29.07
1978	-8.25	17.23	13.56
1979	1.24	-20.43	10.46
1980	-1.06	19.44	-1.80
1981	3.97	10.83	-8.51
1982	-15.17	-38.41	-12.93
1983	27.39	-3.21	6.01
1984	2.15	-6.93	4.38
1985	-18.13	-15.08	-8.97
1986	-33.80	-17.33	-22.00
1987	-21.29	-0.35	-13.76
1988	31.62	21.98	16.98
1989	5.02	6.96	15.43
1990	-7.20	-15.08	-24.23
1991	-3.88	7.08	-4.45
1992	-6.99	-12.37	10.31
1993	-1.73	-5.78	-6.83
1994	1.68	27.64	-0.80
1995	9.87	-12.18	15.62
1996	37.04	7.51	11.42

Source: Authors' computation, based on data from the World Bank Commodity Price Data Sheets (October 1996).

Table 4 – World Stock-to-Use ratios, 1970-1996

	Coarse Grains	Rice	Wheat
		(%)	
1970/71	14.6	13.7	24.4
1971/72	16.6	12.9	26.6
1972/73	13.3	11.2	21.3
1973/74	12.2	12.9	23.1
1974/75	14.8	12.3	22.8
1975/76	14.9	16.7	25.0
1976/77	17.1	16.0	34.1
1977/78	18.4	18.1	27.6
1978/79	19.0	21.4	32.6
1979/80	19.3	20.9	28.8
1980/81	17.1	17.7	25.6
1981/82	20.6	15.3	25.5
1982/83	24.5	15.3	28.8
1983/84	14.8	15.8	31.3
1984/85	18.7	18.0	34.0
1985/86	27.2	17.1	34.8
1986/87	29.5	15.9	34.7
1987/88	26.2	14.0	28.0
1988/89	18.7	14.9	22.6
1989/90	15.0	16.0	22.3
1990/91	16.5	17.0	25.9
1991/92	16.6	16.0	23.9
1992/93	19.4	15.3	26.3
1993/94	14.6	14.3	25.3
1994/95	15.4	13.5	21.4
1995/96	10.3	12.7	18.7
1996/97	11.2	11.4	19.4

Source: Economic Research Service, U.S. Department of Agriculture, Grain: World markets and trade (July 1996)

Stock levels are not much higher in absolute terms than they were during the '70's price shock, and stock-to-use ratios have plummeted to record lows (Table 4). During the 1995/96 marketing year, the wheat and coarse grain stock-to-use ratios reached historical lows of 18.7% and 10.3% respectively. For rice, however, the stock-to-use ratio continues to decline, reaching 11.4% in 1996/97, just 0.2% over its 1972/73 low. Such low levels for stocks have greatly reduced their ability to act as buffers against world price fluctuations, but relatively slow world trade may have reduced the pressure for further price increases (World Bank, various years). Lower world trade is especially evident for wheat, where the 1994-96 average yearly import volume slipped to 107,721 thousand MT after seven years at an average import volume of 117,563 thousand MT (ERS, various years). Nevertheless, price volatility is still a major concern. On one hand, high fertilizer prices may lead to lower crop yields and continued low stock levels; on the other hand, rapid economic growth in some Asian and Latin American countries are expected to increase the demand for meat and therefore grain based feed. In most of the sample countries, stocks of major food grains were at or approaching unacceptably low levels in 1995.

There were two major reasons for the low stock levels. First, some governments released stocks in 1994 and early 1995 to try to insulate domestic grain markets from world price increases and compensate for production shortfalls. For example, China released stocks in an attempt to head off inflation driven by soaring grain prices (Sindelar, 1995). Much more importantly, however, government procurement plans failed to meet their targets as farmers, anticipating large increases in global grain prices, refused to sell their grain at procurement prices. For example, in Pakistan and Egypt government agencies competed directly with private buyers for domestic grain. In Pakistan, procurement prices were held steady to prevent inflation, and the effect on rice stocks was devastating: for the first time in the twenty

years since the inception of the rice procurement program, not a single grain of the 1994/95 domestic IRRI rice crop was procured (Farrukh, 1995). Private exports soared until Pakistan raised rice procurement prices in December 1995. Egypt, on the other hand, announced its intention in December 1994 to import rice for the first time in an attempt to pressure farmers into selling their grain at the current procurement price (Mansour, 1994).

In order to rebuild their depleted stocks and strategic grain reserves (SGR's), some of the sample countries, particularly those experiencing production shortfalls, concentrated on increasing net grain imports--an act with important political ramifications for many countries. For example, China followed a course analogous to that of the EU, which introduced a grain export tax, by reducing the rebate on the VAT tax imposed on grain imports. Before 1995, the government had attempted to equal its wheat imports with maize exports, but as agricultural market reforms took hold, speculators drove domestic grain prices much higher than the rising 1995 world prices. Later, China imposed an outright ban on the export of maize. This ban symbolized the government's abandonment of a fundamental element of its ideology--self-sufficiency in food grains. Imports became the cheapest way to replenish stocks (Sindelar, 1995).

Political change also accompanied stock crises in the Philippines. Rice stocks were already tight by September 1994, but the government, under pressure from farmers' groups, delayed importing rice until after general elections. By July 1995, rice imports had finally been ordered, but, due to farmers' influence, in quantities far smaller than necessary. In August, a huge spike in the domestic price of rice (up to three times the world price) occurred as stocks bottomed out. Rice farmers saw their incomes balloon, but inflation rose from 7.8% to 11% and the National Food Authority (NFA), which was supposed to maintain domestic grain stocks, fell under harsh

criticism. The government's grain policy is now likely to be permanently changed: stock preservation will receive higher priority and farmers' lobbies, who previously managed to shut off rice and maize imports through the "Magna Carta for Small Farmers" laws, will lose political power. These policy steps may become a driving force towards the liberalization of Filipino grain markets (Wade, 1996).

Trade Patterns

The signals transmitted to developing countries by increasing global grain prices have not, as might be expected, resulted in large import reductions. LDC's are still importing enough grain to cover their production shortfalls as they occur, and some are even expanding imports to rebuild stocks. One general response that has emerged, however, has been the switch from high quality grain imports, usually supplied by the United States, Europe, Canada, and Thailand (rice only), to cheaper, lower quality imports.

Asian countries increased their net imports of all three grains, on average, by more than the other regions. Net imports of wheat have increased by amounts ranging from 8% to 42% in this group, dominated by Bangladesh and China (Table 5). Indonesia has increased its net imports of maize by threefold, and both China and the Philippines shifted from being net exporters to net importers of maize (Table 6). Except for India and Pakistan, all countries have increased their rice net imports, particularly Bangladesh and Indonesia. China went from being a net exporter in 1991-93 to a net importer in 1994-96. India, on the other hand, has emerged as a main supplier of both wheat and rice (Table 7).

Among the African group, Zambia and Zimbabwe experienced the larger increase in net imports of wheat due to production shortfalls but recovery of maize production in Zimbabwe, following the drought of 1992, has resulted in decreased net imports in 1994 and 1995. Morocco suffered

Table 5 – Wheat net imports, 1990-1996

	Average 1991-93	1994-96	Percentage change
	('000 MT)		(%)
Asia Selected Countries	**17,669**	**18,219**	**3**
Bangladesh	1,181	1,373	16
China	8,874	9,570	8
India	787	(593)	-175
Indonesia	2,633	3,750	42
Pakistan	2,212	2,069	-6
Philippines	1,981	2,050	4
Africa Selected Countries	**10,124**	**9,297**	**-8**
Djibouti	0	0	...
Egypt	5,892	5,950	1
Ethiopia	793	650	-18
Malawi	0	0	...
Morocco	2,255	1,522	-33
Mozambique	124	137	10
Nigeria	714	642	-10
Tanzania	105	100	-5
Zaire	161	170	5
Zambia	12	24	106
Zimbabwe	67	102	52
Latin America Selected Countries	**1,693**	**1,660**	**-2**
Bolivia	414	410	-1
Nicaragua	83	83	0
Peru	1,196	1,167	-2
Middle East Selected Countries	**2,446**	**2,668**	**9**
Jordan	671	693	3
Yemen	1,775	1,975	11
Total Selected Countries	**31,932**	**31,843**	**-0**
Selected Countries w/o China	**23,057**	**22,273**	**-3**

Source: Authors' computation based on ERS (Economic Research Service), World grain trade volume, ERS's TS VIEW database, Washington, D.C., November 1996

Note: Figures in parenthesis represent net exports.

Table 6 – Maize net imports, 1990-1996

	Average 1991-93	1994-96	Percentage change
	('000 MT)		(%)
Asia Selected Countries	**(11,062)**	**3,153**	**129**
Bangladesh	0	0	...
China	(11,464)	1,408	112
India	(20)	(1)	95
Indonesia	429	1,284	200
Pakistan	0	0	...
Philippines	(6)	462	7395
Africa Selected Countries	**3,907**	**3,684**	**-6**
Djibouti	0	0	...
Egypt	1,767	2,613	48
Ethiopia	0	1	...
Malawi	317	133	-58
Morocco	308	456	48
Mozambique	448	183	-59
Nigeria	5	0	-100
Tanzania	29	27	-7
Zaire	2	0	-100
Zambia	417	367	-12
Zimbabwe	614	(96)	-116
Latin America Selected Countries	**741**	**917**	**24**
Bolivia	0	2	...
Nicaragua	16	7	-59
Peru	725	908	25
Middle East Selected Countries	**479**	**453**	**-5**
Jordan	374	355	-5
Yemen	105	98	-7
Total Selected Countries	**(5,934)**	**8,207**	**238**
Selected Countries w/o China	**5,530**	**6,799**	**23**

Source: Authors' computation based on ERS (Economic Research Service), World grain trade volume, ERS's TS VIEW database, Washington, D.C., November 1996

Note: Figures in parenthesis represent net exports.

Table 7 -- Rice net imports, 1990-1996

	Average 1991-93	1994-96	Percentage change
	('000 MT)		(%)
Asia Selected Countries	**(2,339)**	**(611)**	**74**
Bangladesh	50	929	1770
China	(974)	1,089	212
India	(577)	(3,484)	-504
Indonesia	289	1,917	563
Pakistan	(1,190)	(1,487)	-25
Philippines	62	425	589
Africa Selected Countries	**448**	**565**	**26**
Djibouti	57	20	-65
Egypt	(201)	(100)	50
Ethiopia	0	0	...
Malawi	1	7	900
Morocco	1	3	233
Mozambique	123	47	-62
Nigeria	373	500	34
Tanzania	62	62	0
Zaire	32	26	-18
Zambia	1	0	-100
Zimbabwe	0	0	...
Latin America Selected Countries	**389**	**342**	**-12**
Bolivia	7	0	-100
Nicaragua	37	49	32
Peru	345	293	-15
Middle East Selected Countries	**251**	**169**	**-33**
Jordan	94	80	-15
Yemen	157	89	-43
Total Selected Countries	**(1,252)**	**465**	**137**
Selected Countries w/o China	**(278)**	**(624)**	**-124**

Source: Authors' computation based on ERS (Economic Research Service), World grain trade volume, ERS's TS VIEW database, Washington, D.C., November 1996

Note: Figures in parenthesis represent net exports.

a severe drought in 1994, which resulted in a decrease in wheat production in 1995 of 4 million tons, but 1996's wheat production were back at the same record high level of 1994. This recovery resulted in a 33% decrease in net imports (Table 5). On the other hand, both Egypt and Morocco have increased their maize imports by half, in spite of sustained production (Table 6). In the other regions, most countries were able to reduce net imports in at least two of the grains.

Some of the sample LDCs in this study managed to contain their food import bills while providing enough grain to avoid large reductions in per capita consumption. This in spite of declining assistance from the Compensatory and Contingency Financing Facility (CCFF) as shown in Table 8.[2]

Table 8-- CCFF obligations, 1994-1996

	1994	1995	1996(Jan-May)
		(in millions of SDR's)	
India	1007	639	171
Pakistan	122	97	51
Philippines	236	104	12
Zaire	32	31	28
Zambia	148	146	0

Source: IMF (International Monetary Fund), "International financial statistics", Washington, D.C., March 1994-96.

The emergence of major regional suppliers of low quality grains is

[2] The CCFF provides assistance to members experiencing balance of payments difficulties attributable to shortfalls in earnings from merchandise exports or produced by an excess in the cost of their cereal imports. The member countries in this study are India, Pakistan, the Philippines, Zaire, and Zambia.

illustrated by the situation in Bangladesh, where importers' reluctance to import Indian wheat due to its inferior quality and unreliable delivery resulted in a significant private import reduction in mid-1995 (Akhtaruzzaman, 1995a). The Bangladeshi government was still able to continue buying some U.S. wheat, but private millers found its price prohibitively high and turned to Indian wheat in late 1995, whose growing popularity resulted in rampant border smuggling to evade the 7.5% import tariff (Akhtaruzzaman, 1995b). Meanwhile, Indian port facilities were jammed as the country, which had historically been a net importer of wheat, looked forward to an estimated 2,175 thousand MT trade surplus in 1996. It should be noted that domestic wheat production, spurred by new demand and good growing conditions, experienced one of its largest single year increases ever, rising from 57,840 thousand MT in 1994 to 65,469 thousand MT in 1995. Pakistan, like India, has long been a net exporter of cheap rice, and the substitution towards cheaper rice (particularly by African nations) led to record exports in 1994 and 1995.

Impact on the Grain Import Bill of Selected Developing Countries

The higher cost of cereal imports due to higher grain prices is particularly damaging to net importers of food. The situation becomes serious if these countries lack the foreign exchange reserves to cover increases in their food import bill or if they are limited in their capacity to increase domestic production to make up for reductions in import quantities.

To investigate the behavior of the 22 sample developing countries during the recent rise in world grain prices, the increase in their grain import bills was computed following two scenarios.

In a first scenario, the food bill for 1994-96 was computed using the average grain import levels for the period 1991-93 and the higher world

prices of the last three years. The percentage change for the majority of countries is dominated by the average price rise of 23%. The inclusion of China does not change the results, because in this estimation, net imports in China have not changed from their pre-1993 levels. This estimation method abstracts from the possibility of import quantity and quality reductions. The calculation of import bills using a single world price for each grain (the price of a high quality variety, specially in the case of rice) ignores the option of substituting towards cheaper grain varieties which, was an option adopted by a few countries. This estimate represents a worst-case (best-case) scenario for grain importing (exporting) LDC's. The results are summarized in Table 9.

A second estimate of grain import bills was made calculating grain import bills for the period 1994-1996 using the actual net import quantities and world prices for this period. This last estimate, though it allows for import quantity reductions, does not take quality reductions into account, so many of the countries in this study are likely to have actual grain import bills lower than those given in Table 9.

For 13 of the 22 countries, import bills rose less than would have been the case if imports had continued through 1996 at their 1991-93 import levels, showing that many of the countries were able to adapt to the new world prices by reducing their grain import quantities. For some of the countries, namely Malawi, Mozambique, and Zimbabwe, the reduction is quite sizable. For Morocco, which imports more than half its grain consumption, it was especially important to control its grain import bills. India and Pakistan were particularly successful in taking advantage of heightened grain prices by significantly increasing their grain export revenues. India experienced the largest increase, on average, from 73 million US$ in 1991-93 to 1,329 million US$ in 1994-96; and Pakistan managed to increase its 1991-93 level more than threefold: from 48 to 176 million US$

Table 9 – Percentage change in the import bill between 1991-93 and 1994-96

	1991-93	Scenario I 1994-96		Scenario II 1994-96	
	(MLN US$)	(MLN US$)	(%)	(MLN US$)	(%)
Asia Selected Countries	**535**	**623**	**16**	**3,170**	**492**
Bangladesh	173	214	24	541	213
China	(307)	(417)	-36	2,107	787
India	(54)	(73)	-35	(1,329)	-2351
Indonesia	485	597	23	1,474	204
Pakistan	(46)	(48)	-4	(176)	-282
Philippines	284	350	23	553	94
Africa Selected Countries	**1,918**	**2,370**	**24**	**2,248**	**17**
Djibouti	17	20	20	7	-59
Egypt	924	1,150	24	1,315	42
Ethiopia	108	132	23	109	1
Malawi	34	43	28	20	-40
Morocco	342	417	22	313	-8
Mozambique	100	124	24	64	-36
Nigeria	206	250	21	284	38
Tanzania	35	43	23	42	20
Zaire	31	38	23	37	19
Zambia	46	59	29	52	14
Zimbabwe	76	94	23	5	-93
Latin America Selected Countries	**420**	**519**	**24**	**521**	**24**
Bolivia	58	72	24	68	17
Nicaragua	24	29	20	32	33
Peru	338	418	24	421	25
Middle East Selected Countries	**453**	**560**	**24**	**564**	**24**
Jordan	157	195	24	190	21
Yemen	296	365	23	374	26
Total Selected Countries	**3,326**	**4,072**	**22**	**6,503**	**96**
Selected Countries w/o China	**3,633**	**4,489**	**24**	**4,396**	**21**

Source: Authors' computations.

Notes: Scenario I assumes that grain imports for 1994-96 are held constant at 1991-93 levels.
Scenario II assumes actual grain imports for 1994-96.
Figures in parenthesis represent net exports.

between the same two periods. Other Asian countries, however, did not fare so well. Of the nine countries whose import bills rose when actual 1994-96 import quantities were used, four were in Asia. Of these, China stands out as the country least able to weather the price rise: it increased its wheat imports and became a major importer of maize and rice after years of being a net exporter of both grains. In contrast, almost all of the African countries in this study reduced net grain imports to restrain their rising grain import bills.

Production levels and geographical location, characterize countries' success in controlling import bills. Of the countries whose import bills for a given grain fell when import quantities were allowed to vary, 75% experienced a production increase in that grain in 1994-96. This finding should come as no surprise because elevated domestic production would be expected to ease or even nullify the fall in consumption associated with a net import reduction. No other single criterion (e.g. per capita income or transmission of world prices to domestic producers) correlated so well with countries' ability to reduce import bills. Among the grains themselves, wheat was the import whose quantity proved most difficult to reduce, with 12 of the 22 countries increasing their wheat import bills with respect to the first estimate.

Conclusion

At the World Food Summit, held this year in Rome at the Food and Agriculture Organization (FAO) of the United Nations [3], the recent price increase in food grains was seen as a consequence of short-term and reversible developments like bad weather in major supplier countries and cutbacks in area planted (FAO,1996). At the end of 1996, the price trend

[3] Significantly, the previous world food summit was held in 1974, in the midst of the previous large grain price increase.

for the major food grains shows signs of decline as the major supplier countries, spurred by higher prices, increase production. Stock levels are beginning to rise, but the stock-to-use ratios are still at record lows.

There is no doubt that the recent increase in grain prices was damaging for developing countries. The FAO estimated that the higher prices in food grains increased the annual cost of cereal imports to developing countries by $4 billion. Our estimates show that for the 22 selected countries the food bill increased by a total of $9.6 billion over the three-year period 1994-96, China, Bangladesh, and Indonesia being the most severely affected. On the other hand, India, Pakistan, and Morocco were able to take advantage of the price spike because of record crops in 1995 and 1996, becoming net exporters.

The recent price increase is a result of decreased supply by the developed countries who were responding to a long period of declining grain prices. Although all the sample countries were affected, they did not respond uniformly to the price hike. More than half of the sample countries were able to reduce their net imports by increasing supply, and a few even switched to becoming net exporters. Some countries switched to lower quality grains, which allowed them to maintain their level of imports and still manage to limit their food bill increases. This last option requires more attention in that substitution to cheaper but inferior quality grain could under certain circumstances negatively affect the nutrition and health of these countries's most vulnerable populations.

As the liberalization process generated by the Uruguay Round takes effect, the removal of production and export subsidies in OECD countries, would likely depress grain production, lower world stocks, and may increase price volatility. The countervailing trend in the developed countries in their policy reform may increase the responsiveness of farmers to changes in world market prices. If, simultaneously, LDCs liberalize their grain markets

as market reforms in developed countries take hold, they may provide an additional counterbalancing force to stabilize the erratic behavior of grain prices.

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Appendix: Tables and Graphs of Selected Countries

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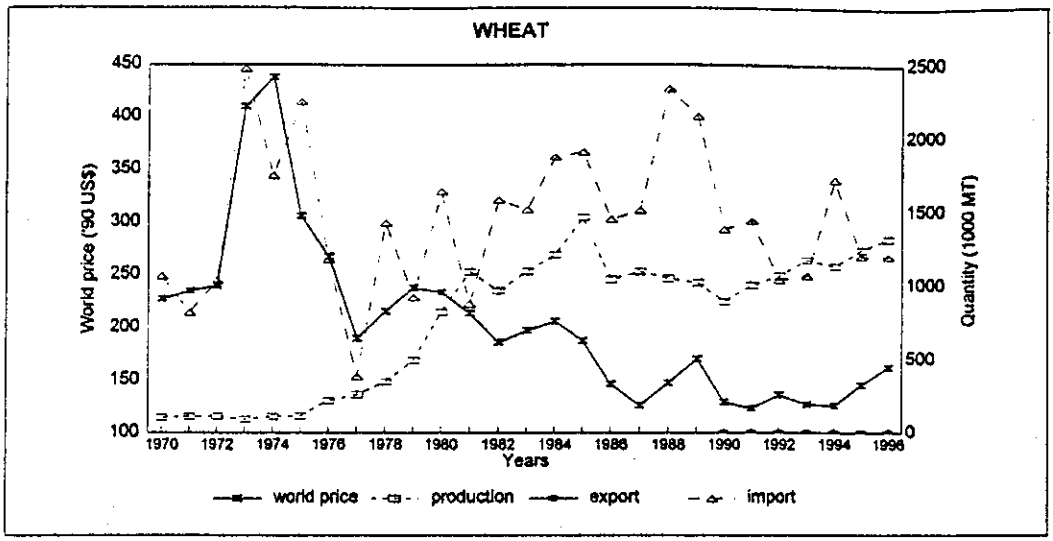
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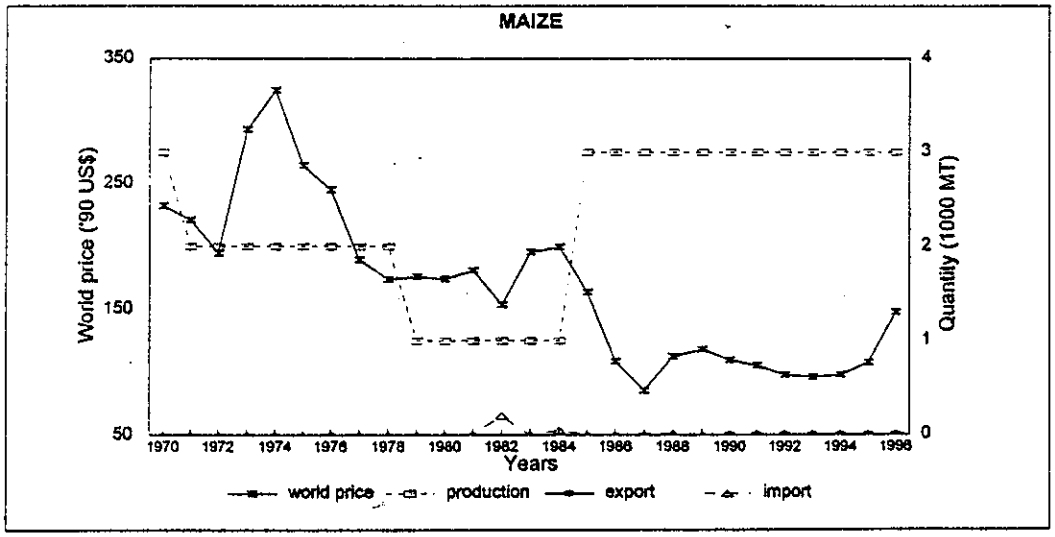
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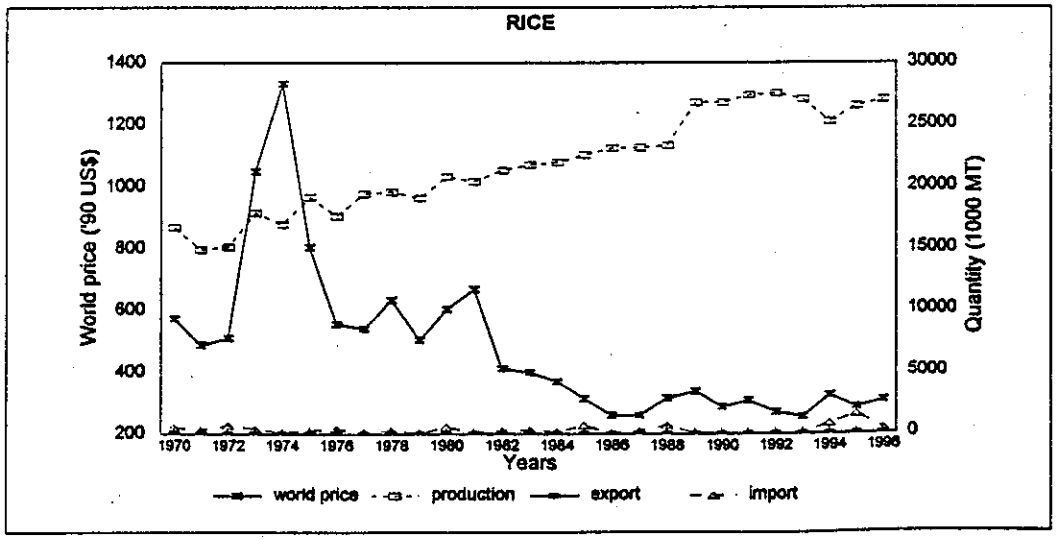
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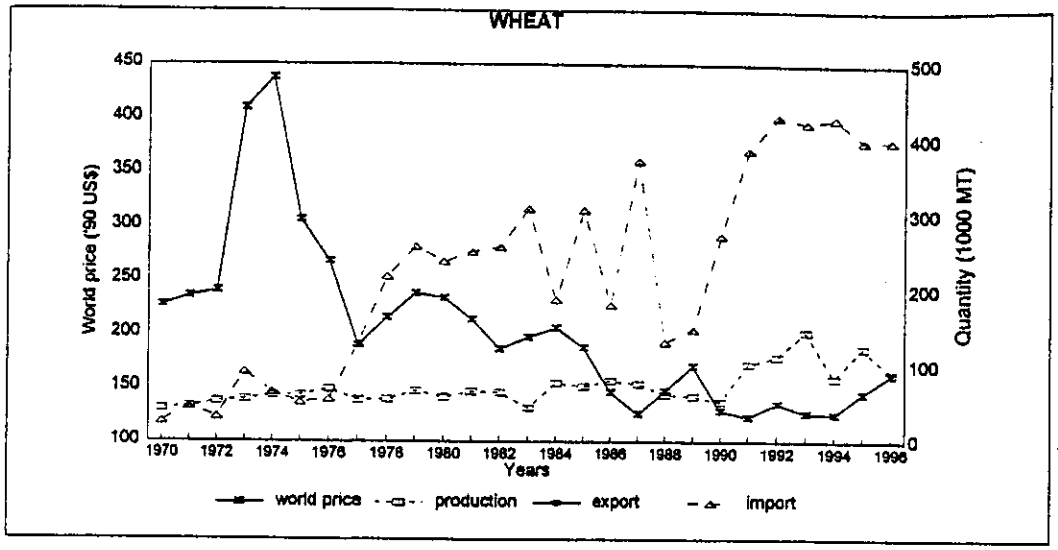
Bolivia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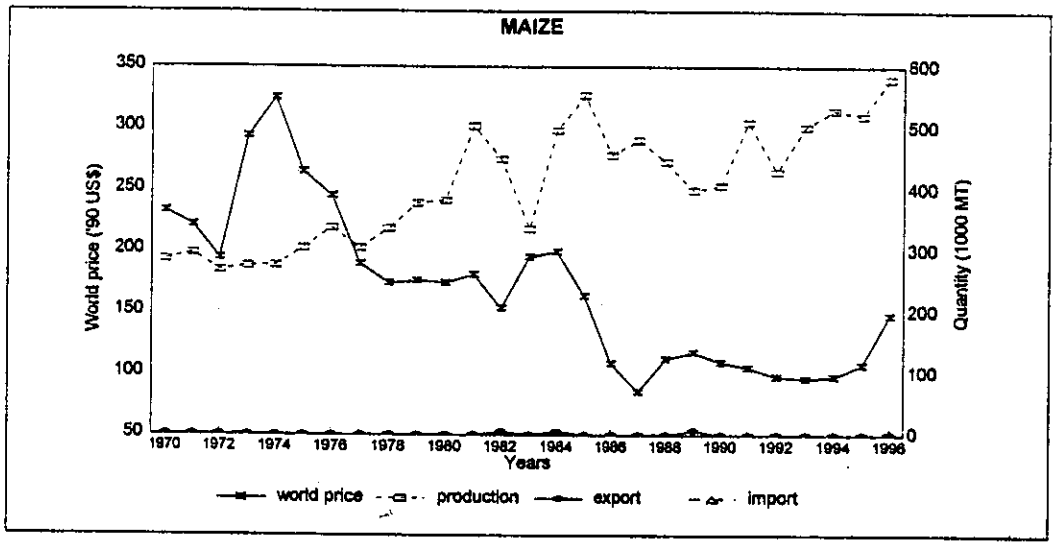
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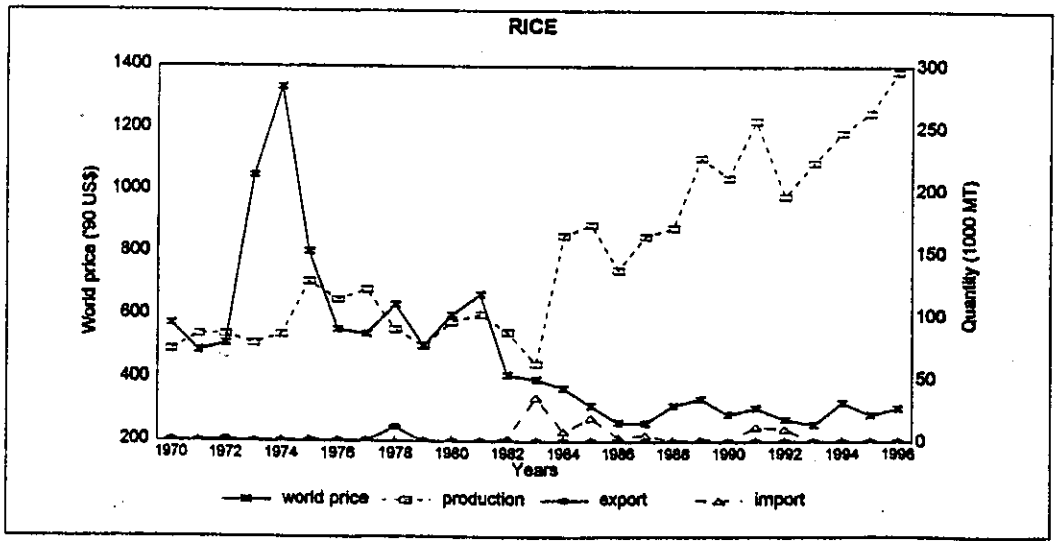
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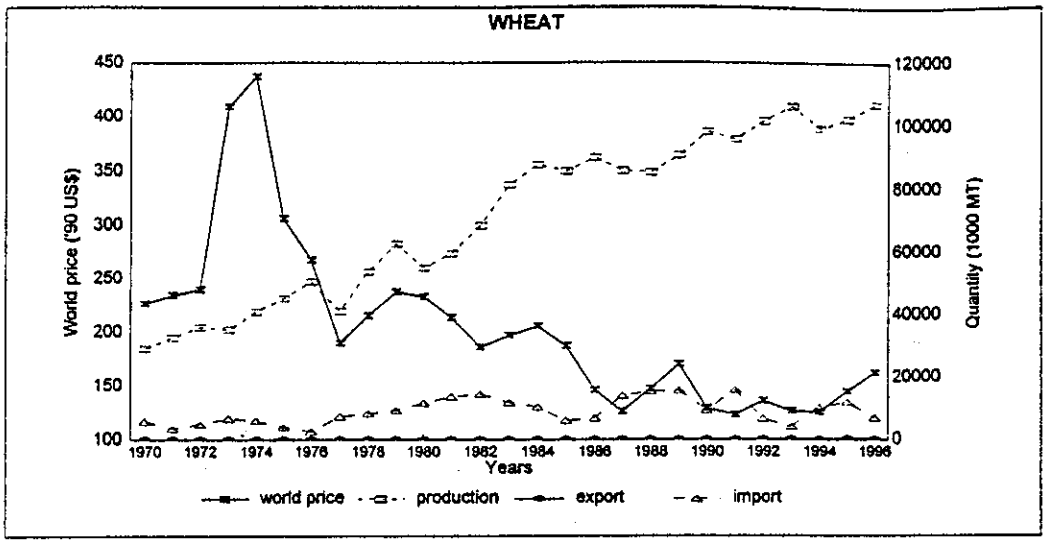
China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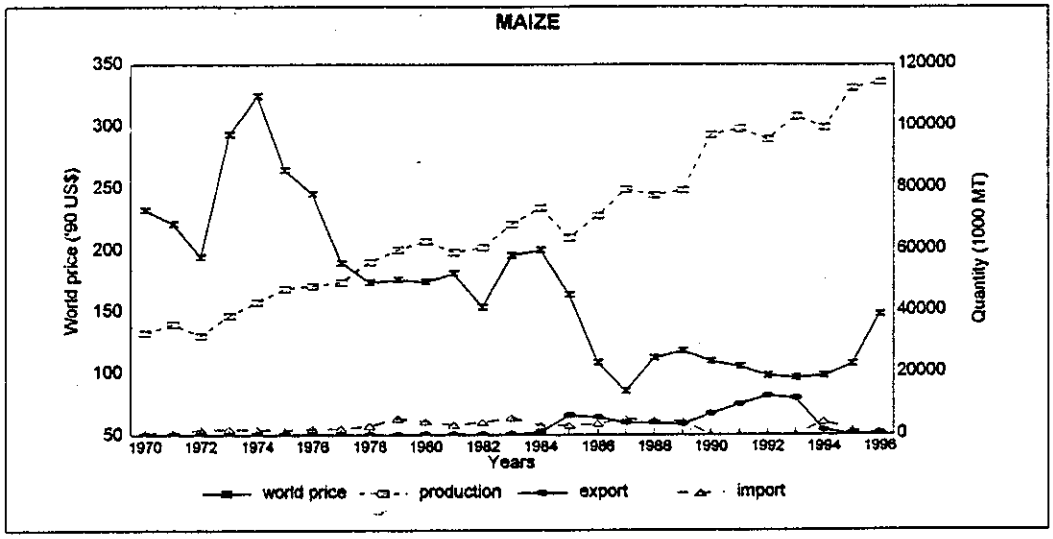
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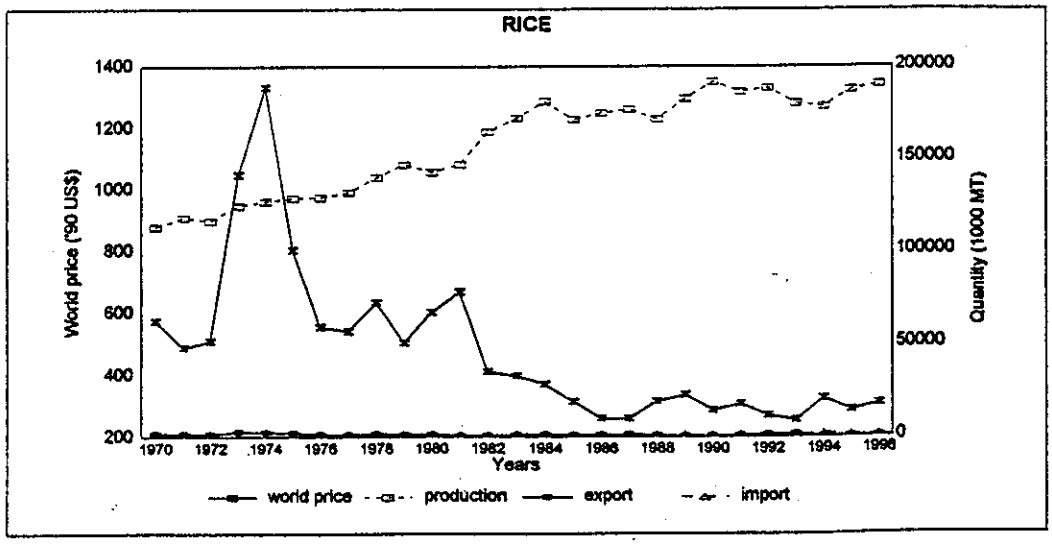
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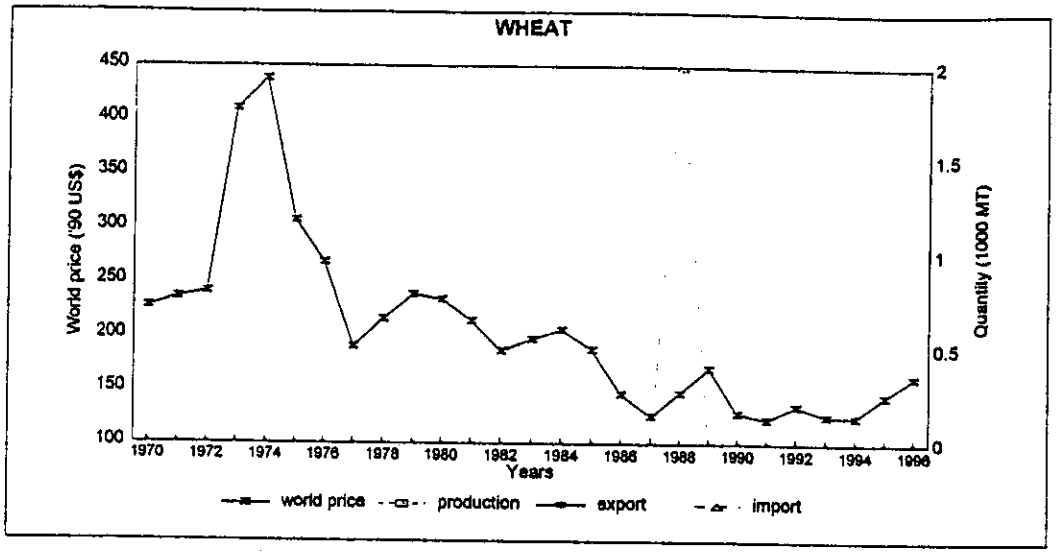
Djibouti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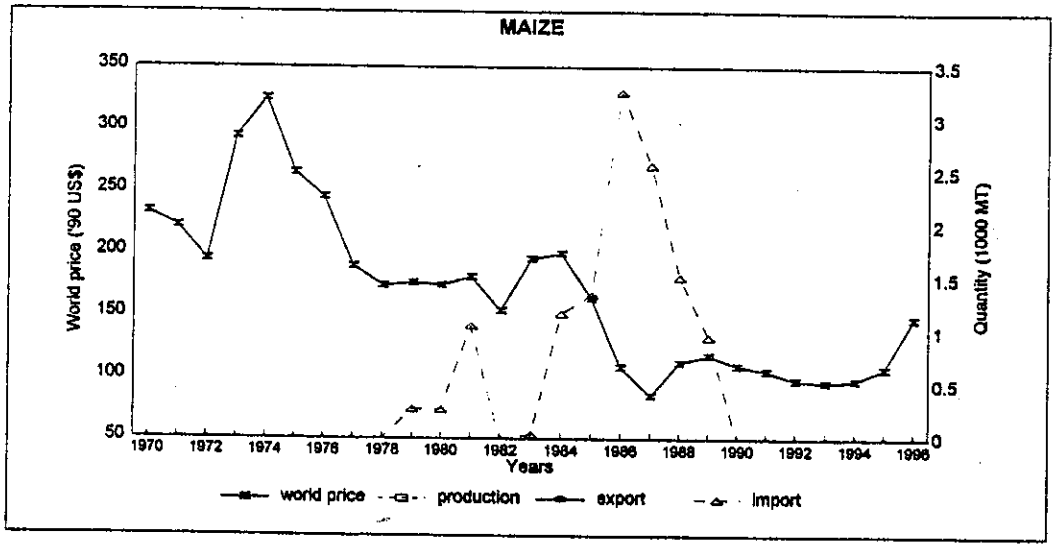
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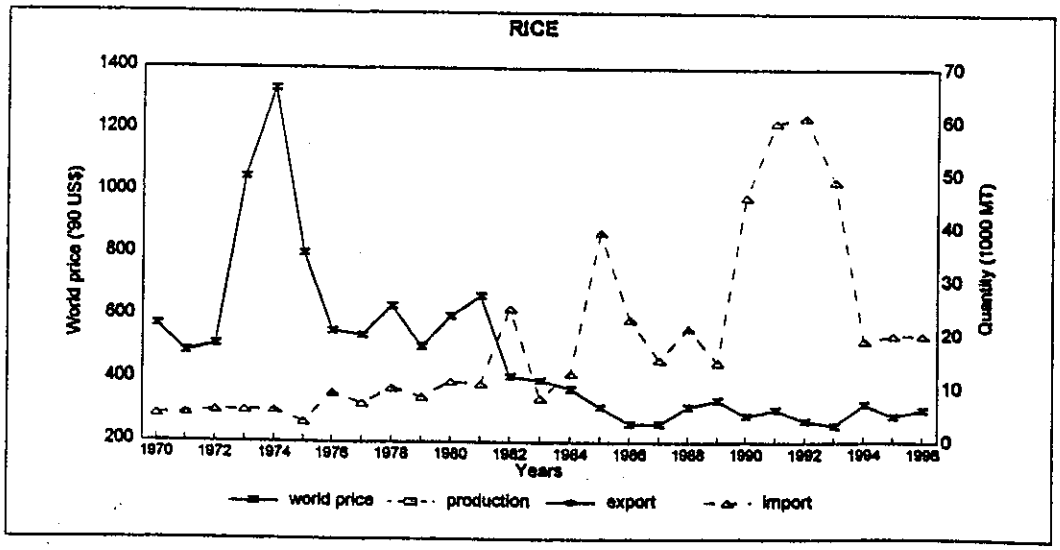
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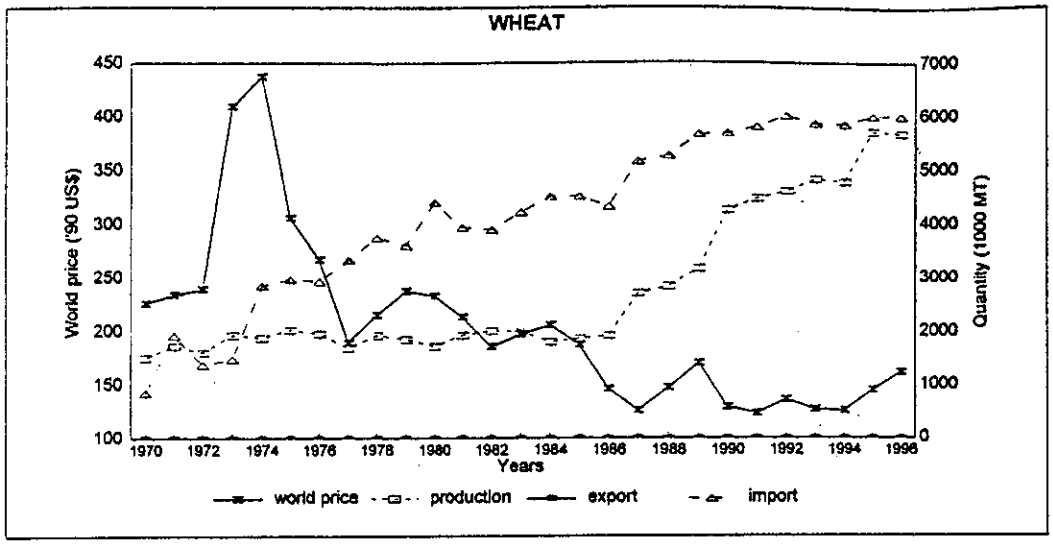
Egypt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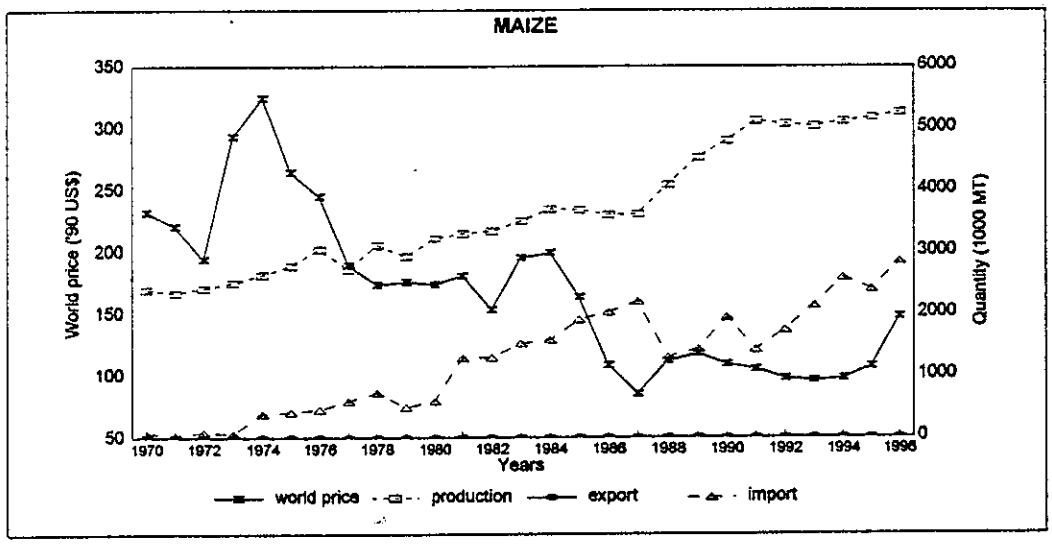
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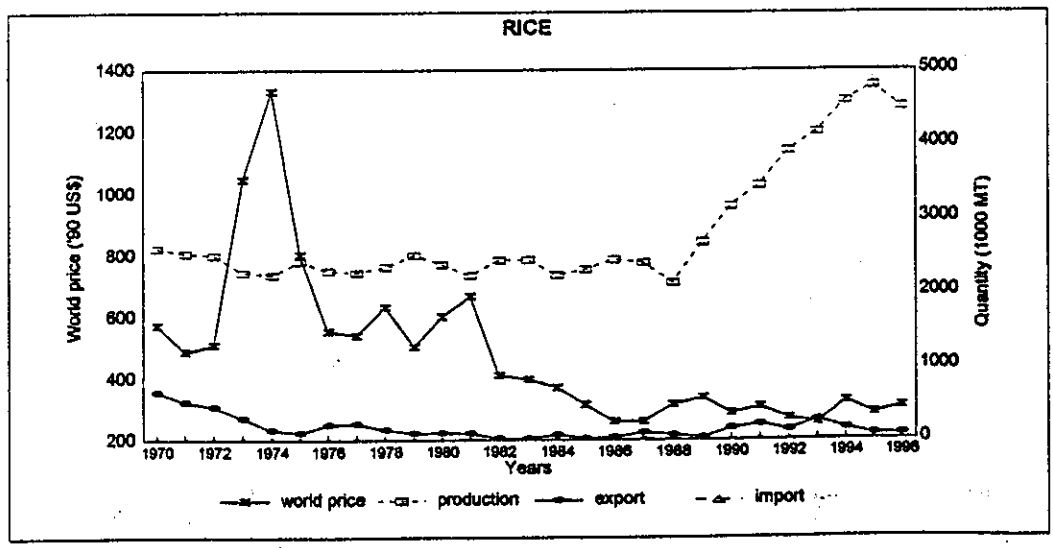
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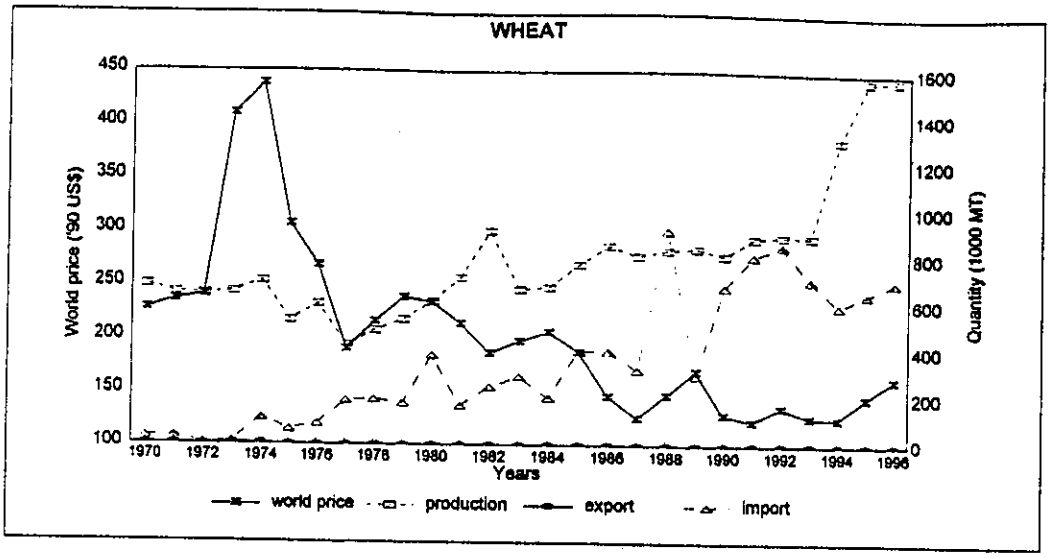
Ethiopia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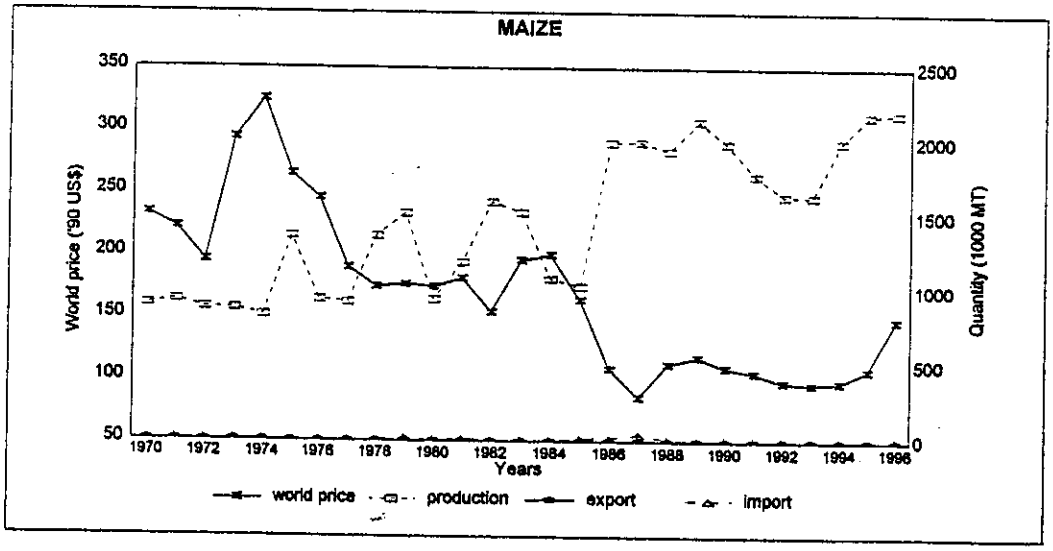
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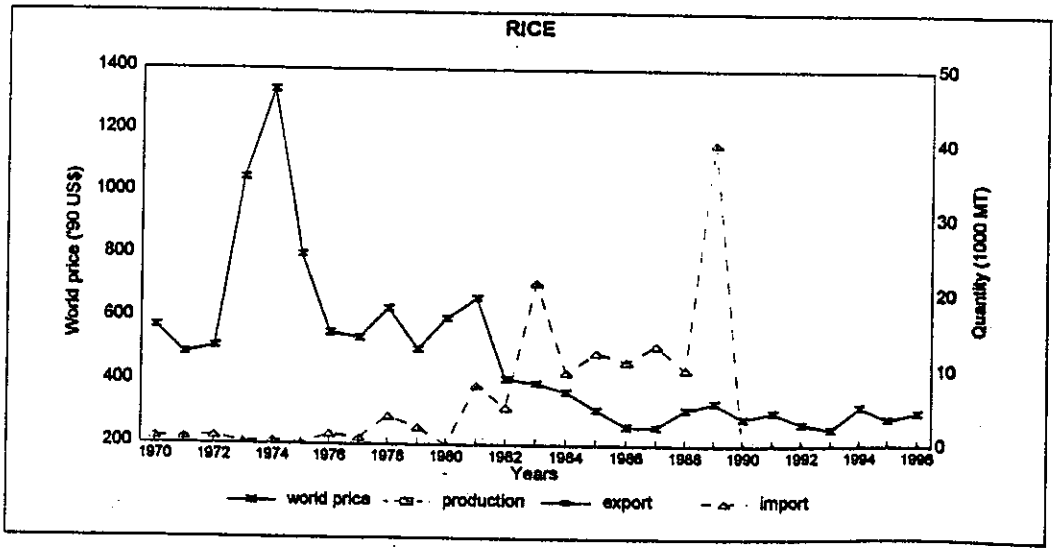
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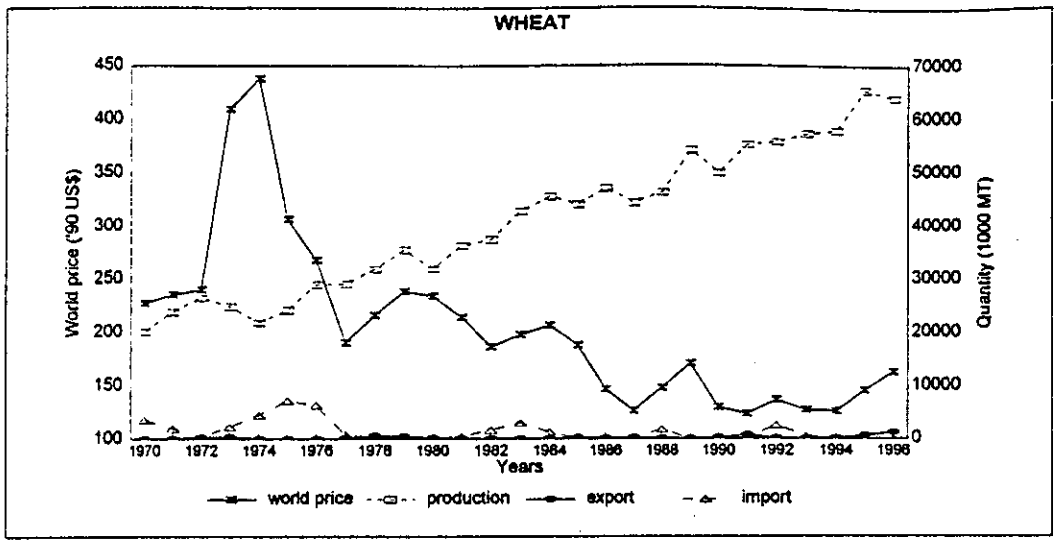
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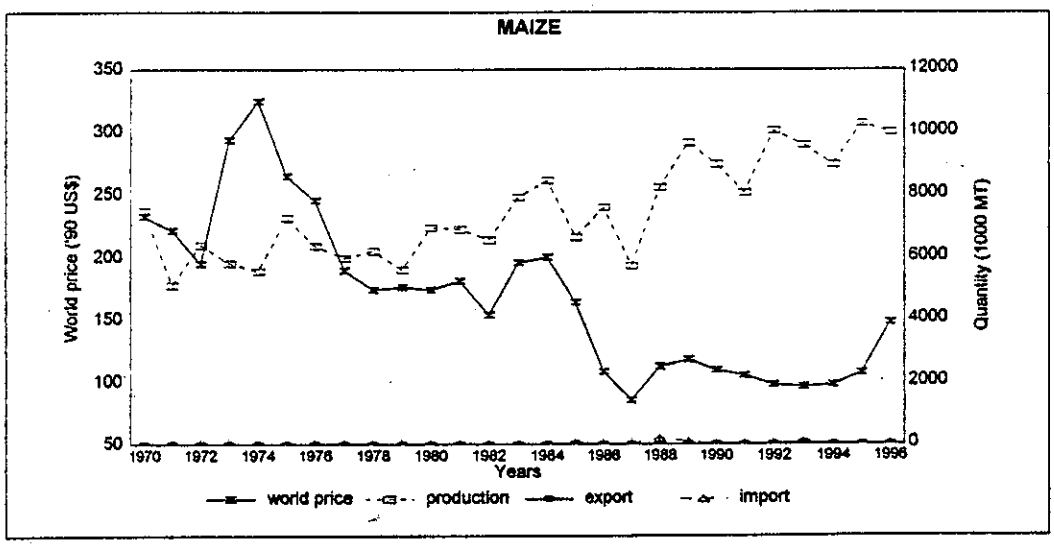
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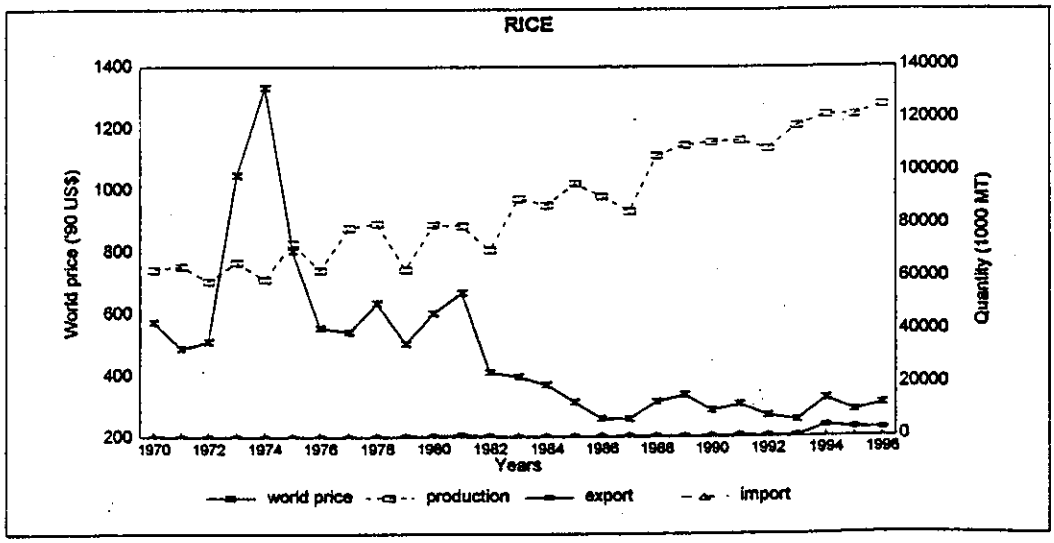
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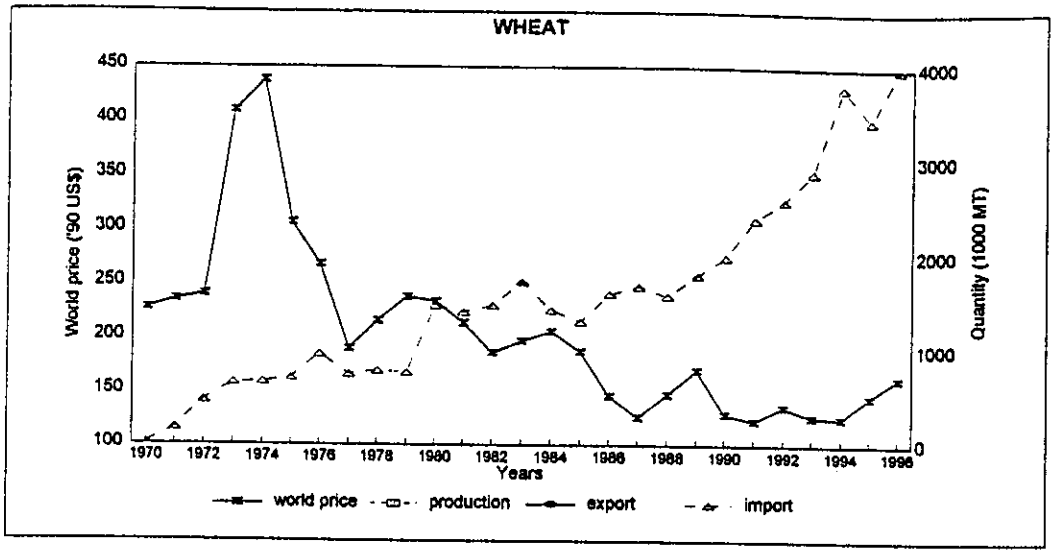
Indonesia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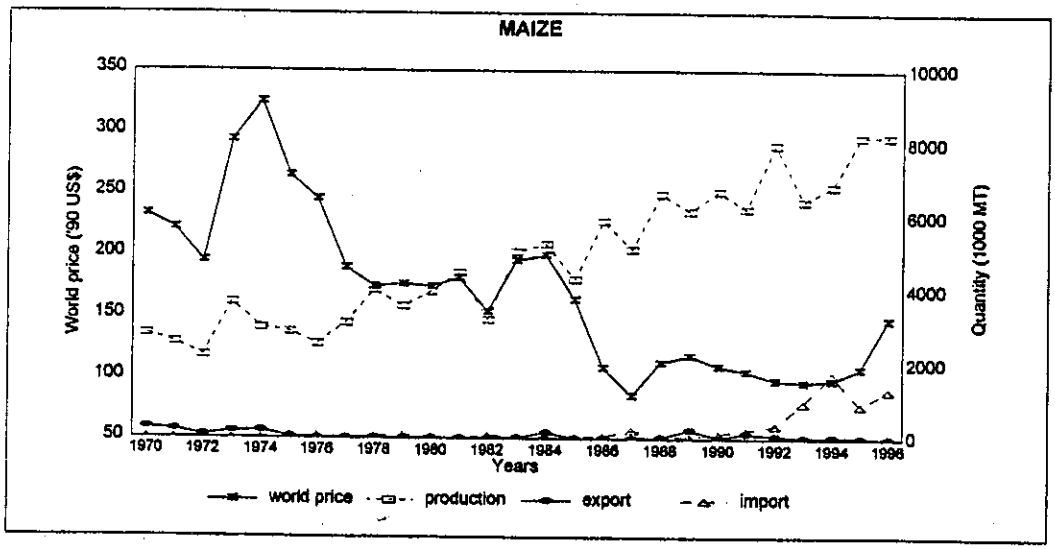
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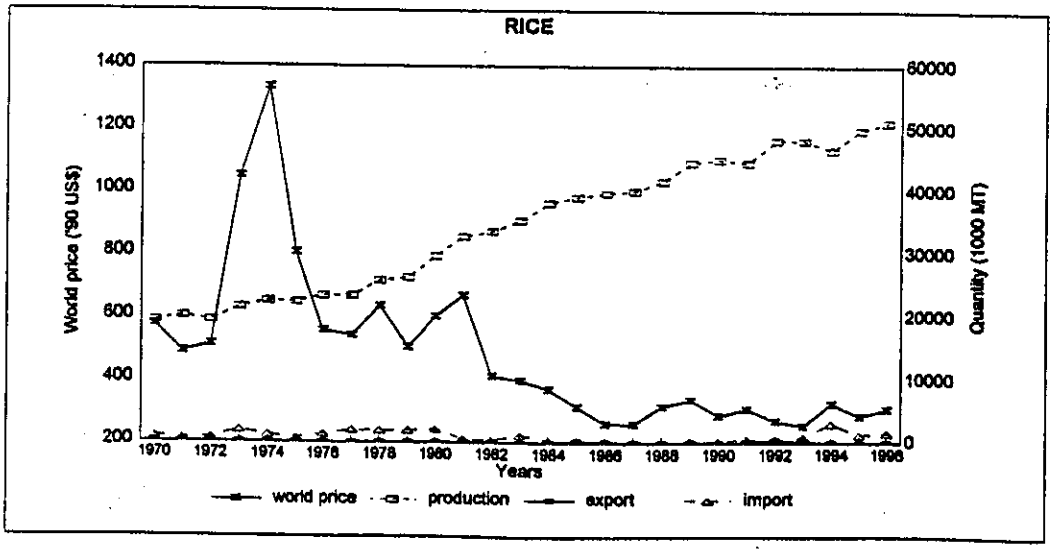
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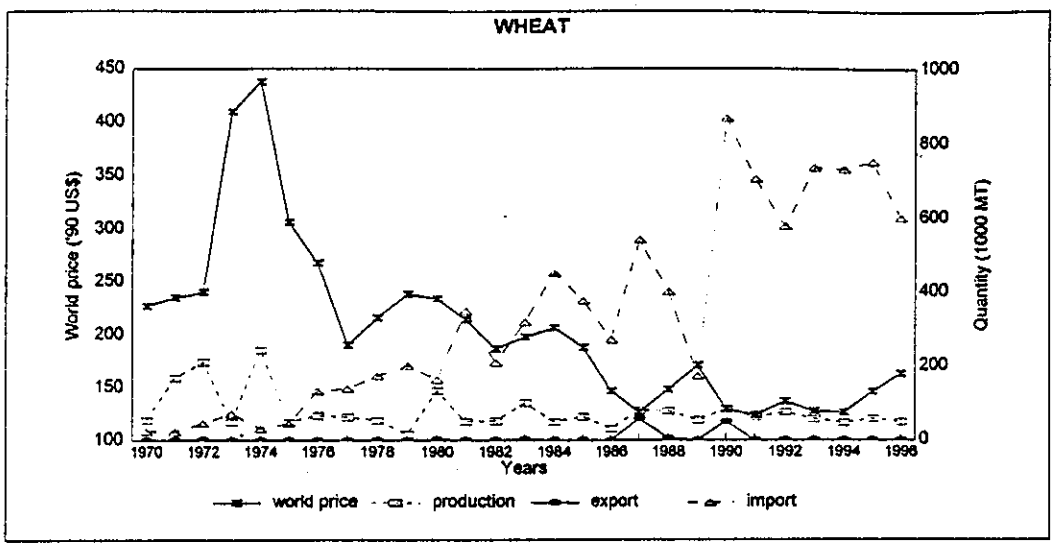
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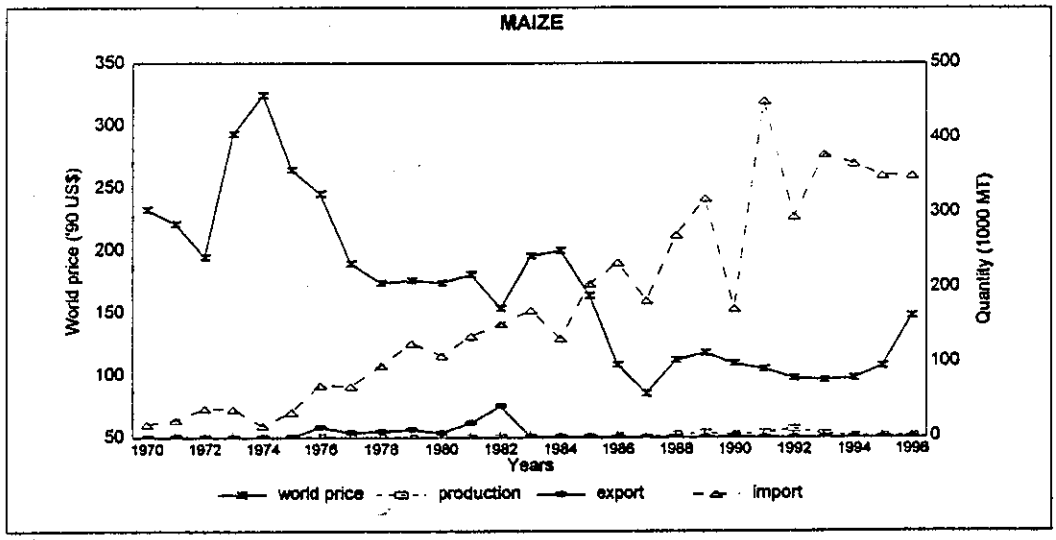
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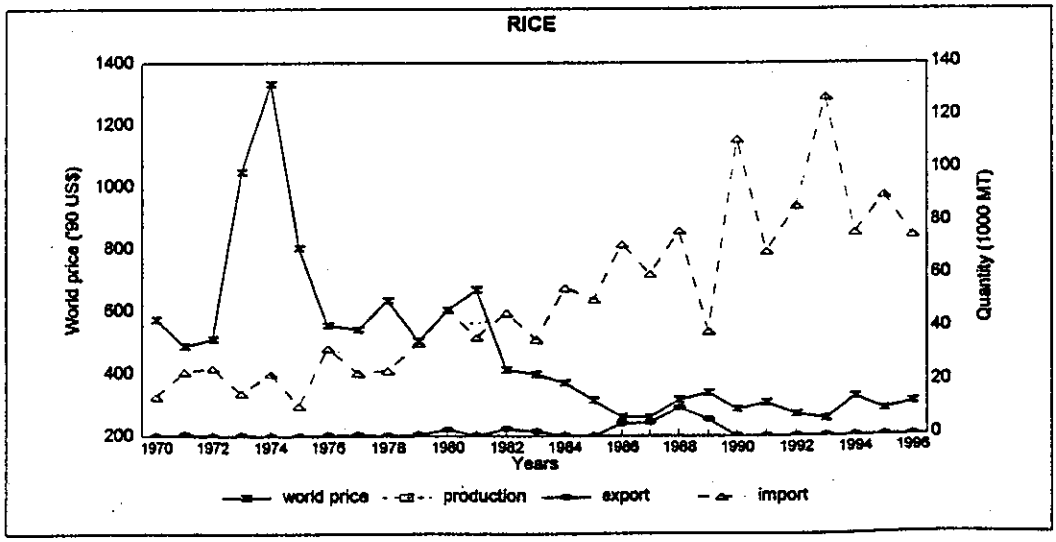
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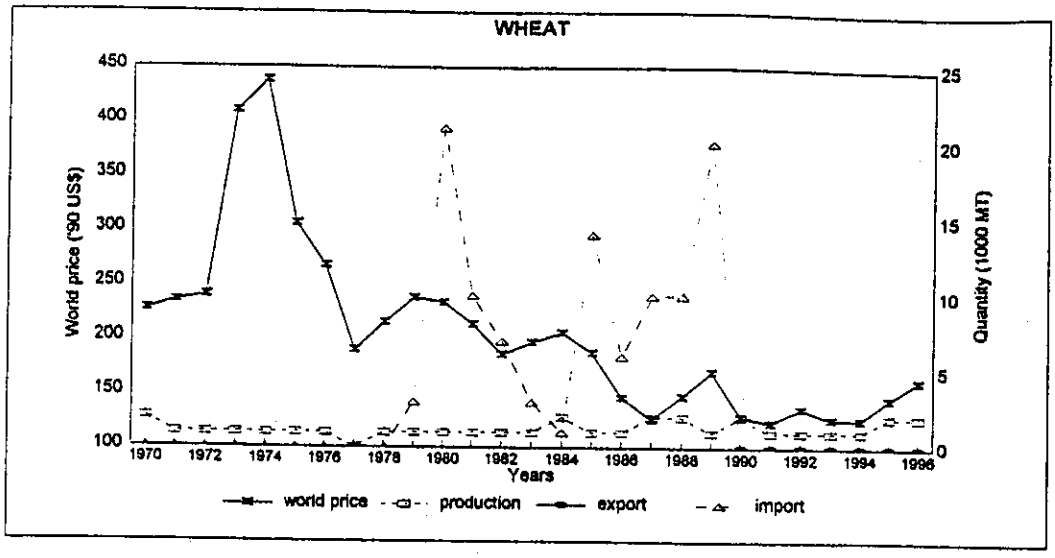
Malawi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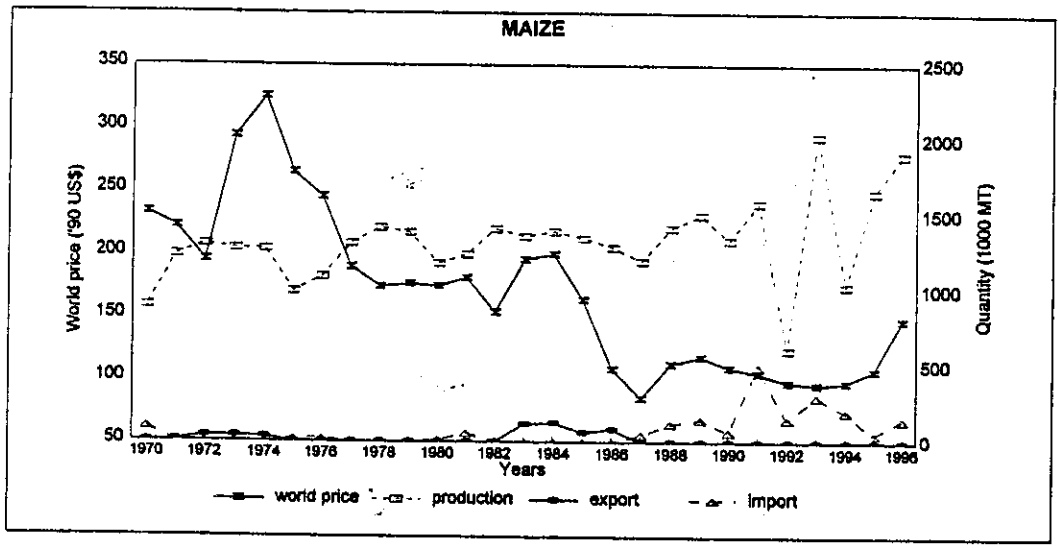
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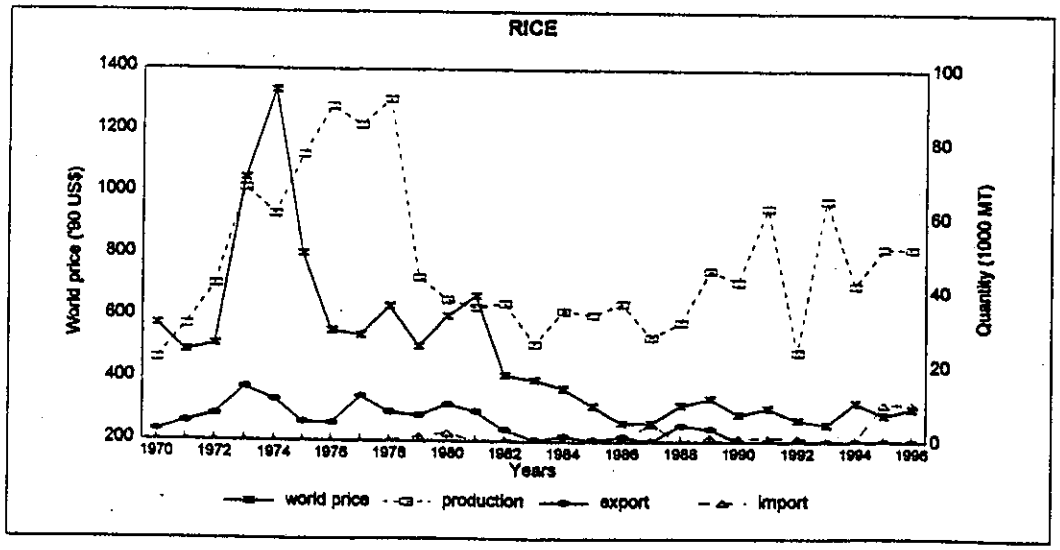
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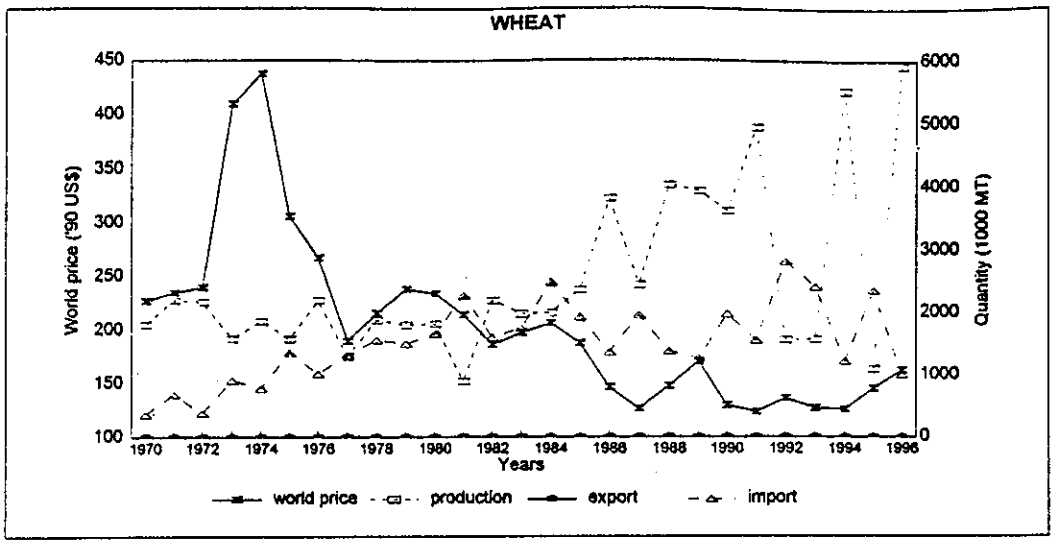
Morocco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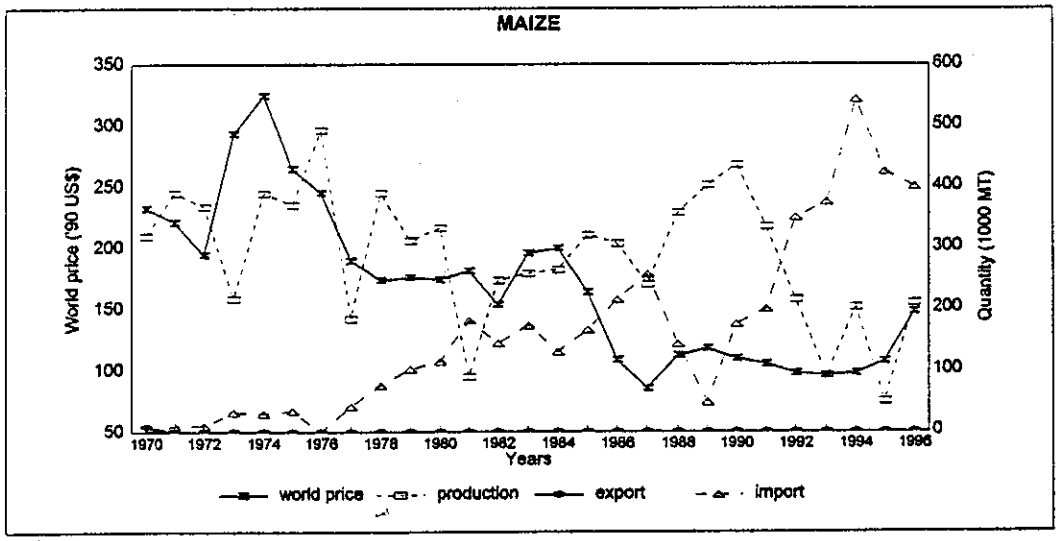
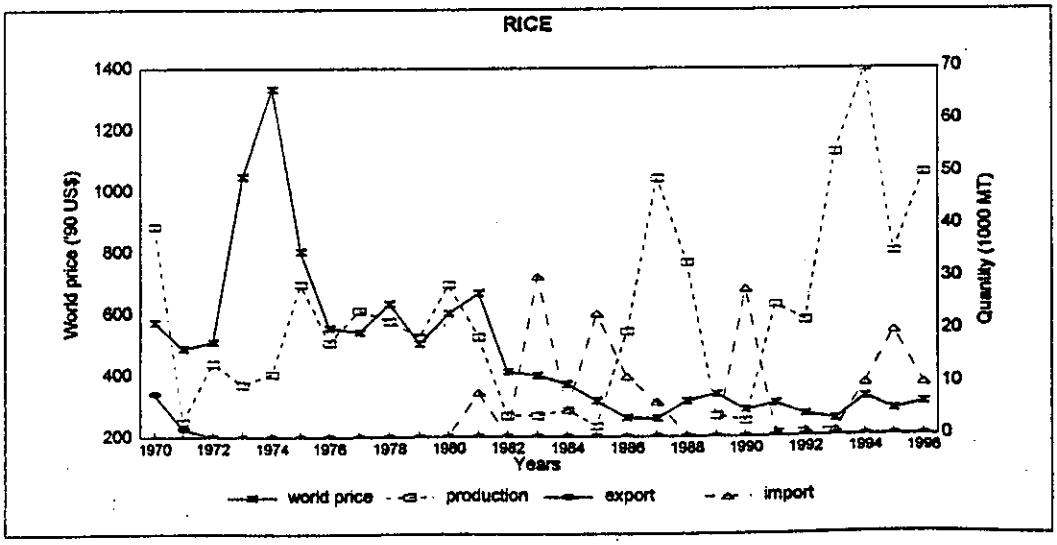

MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
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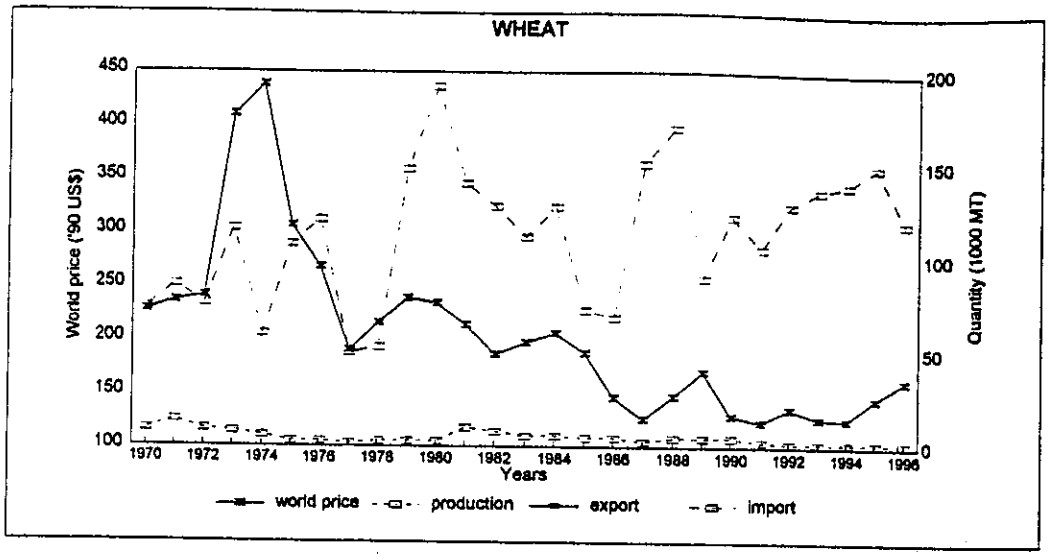
Quantity (1000 MT)
Years
world price
production
export
import

Mozambique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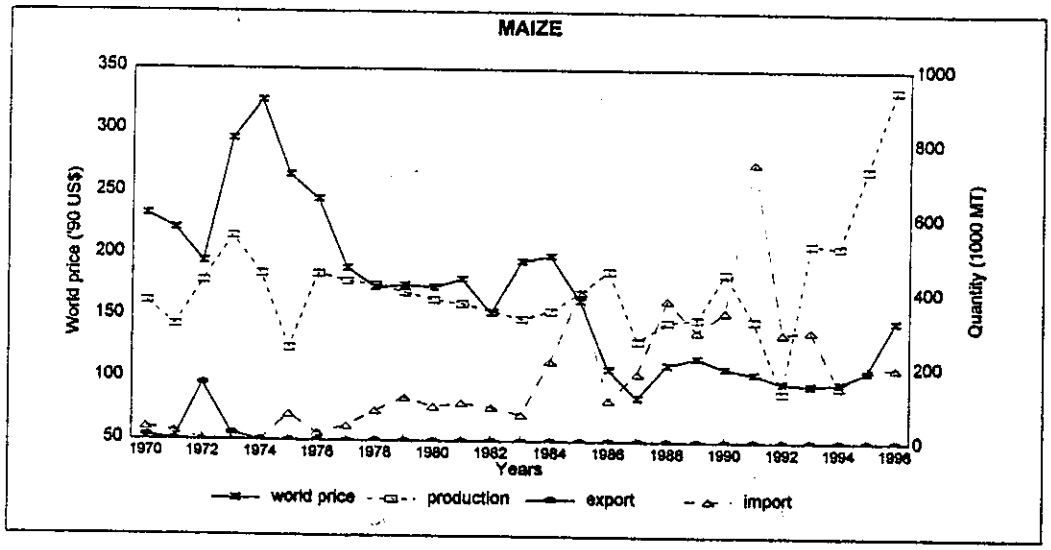
Quantity (1000 MT)
Years
world price
production
export
import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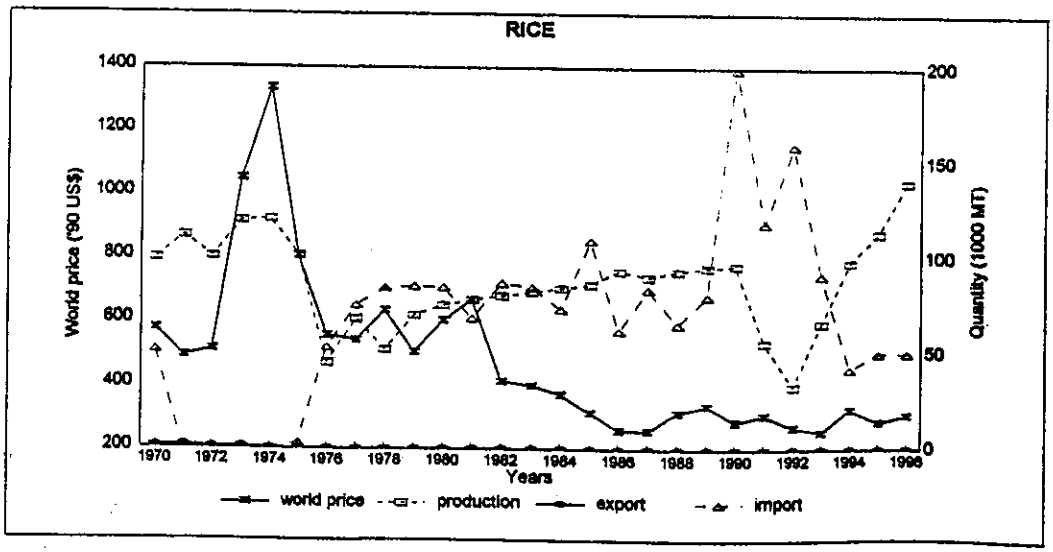
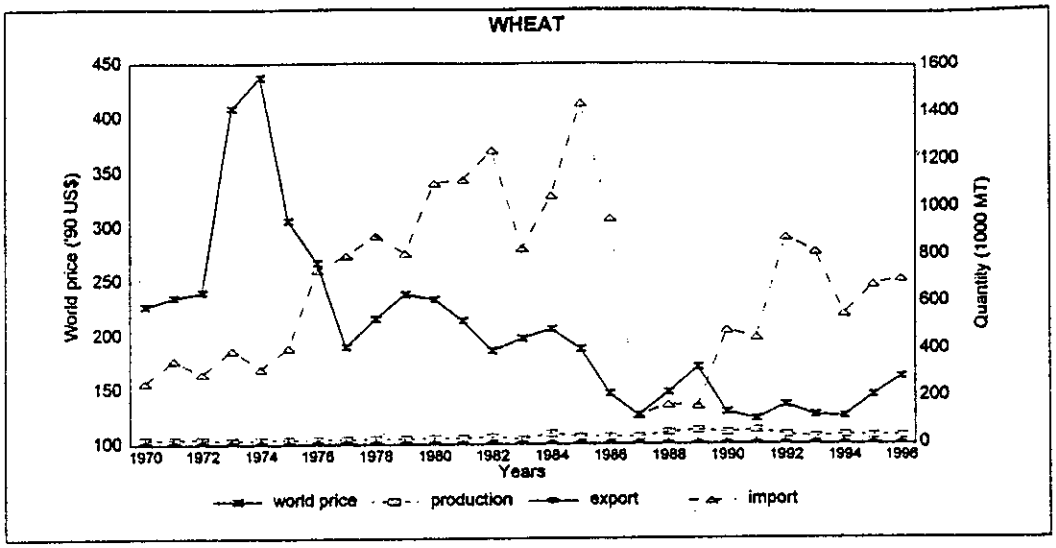
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

Nigeria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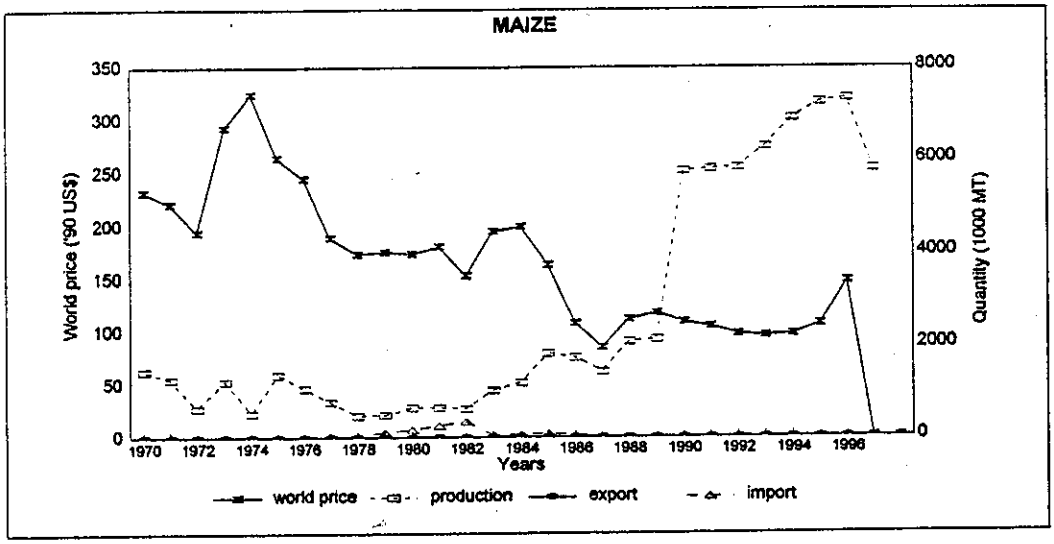
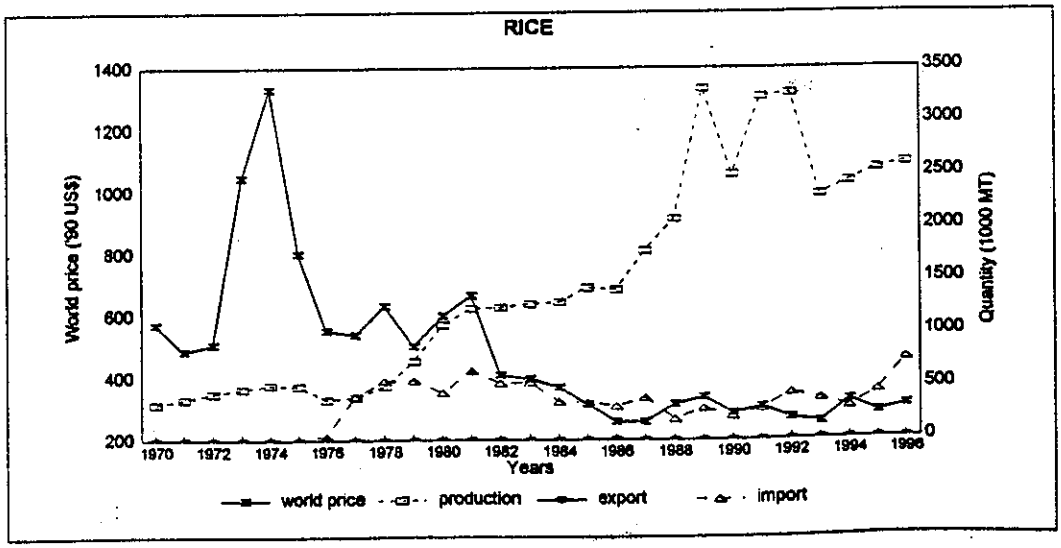
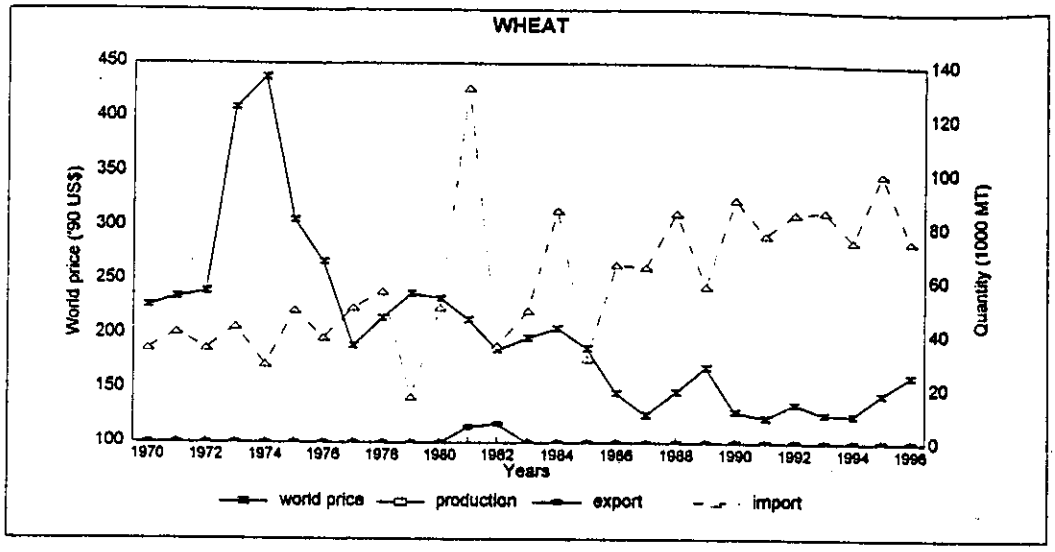
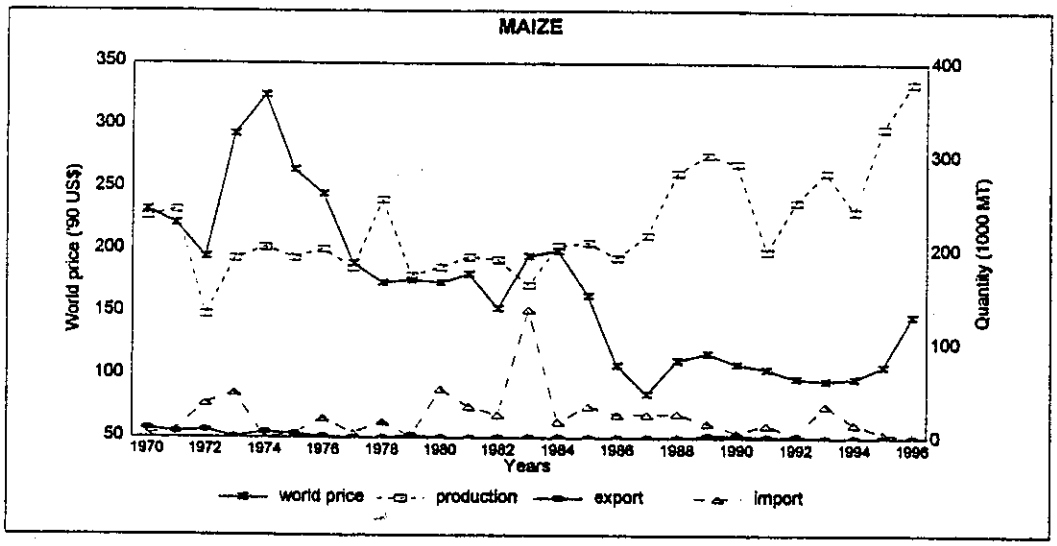
Quantity (1000 MT)
Years
world price
production
export
import

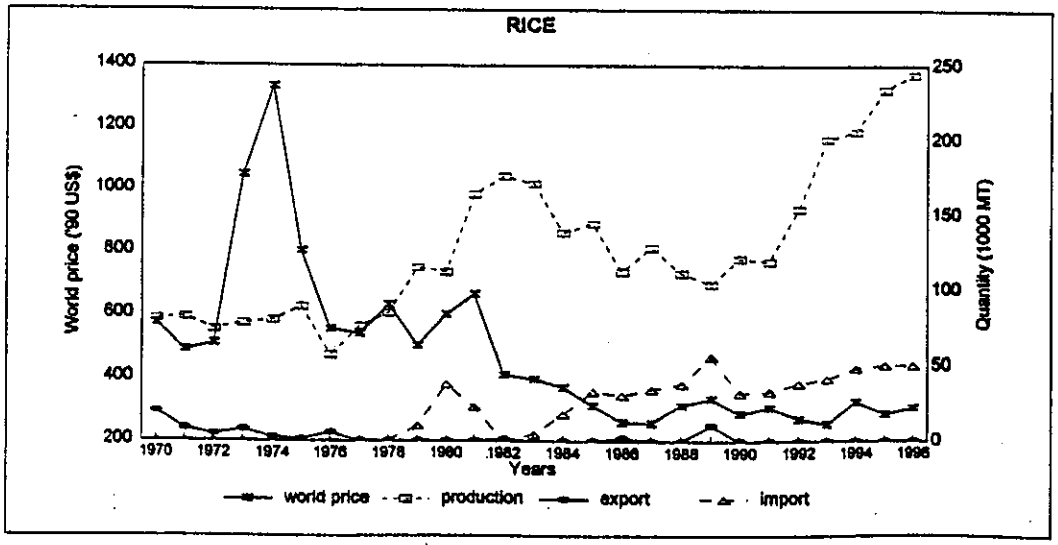

MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

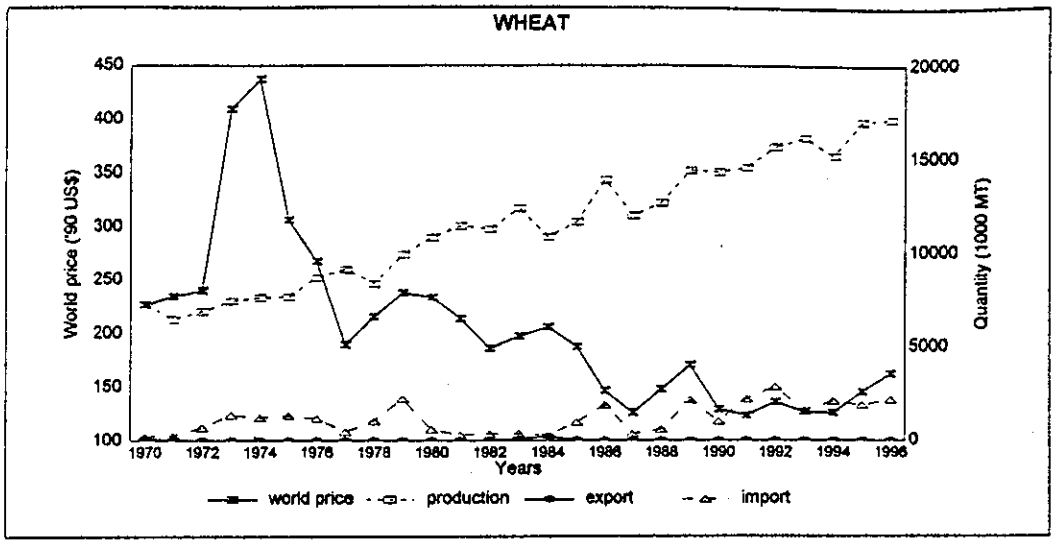
Nicaragua


WHEAT
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

Pakistan


WHEAT
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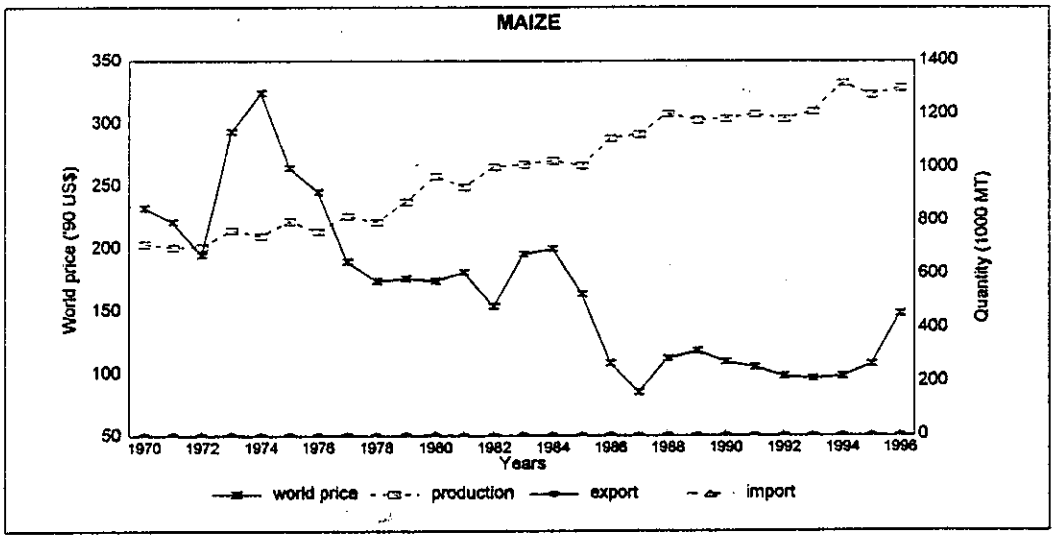
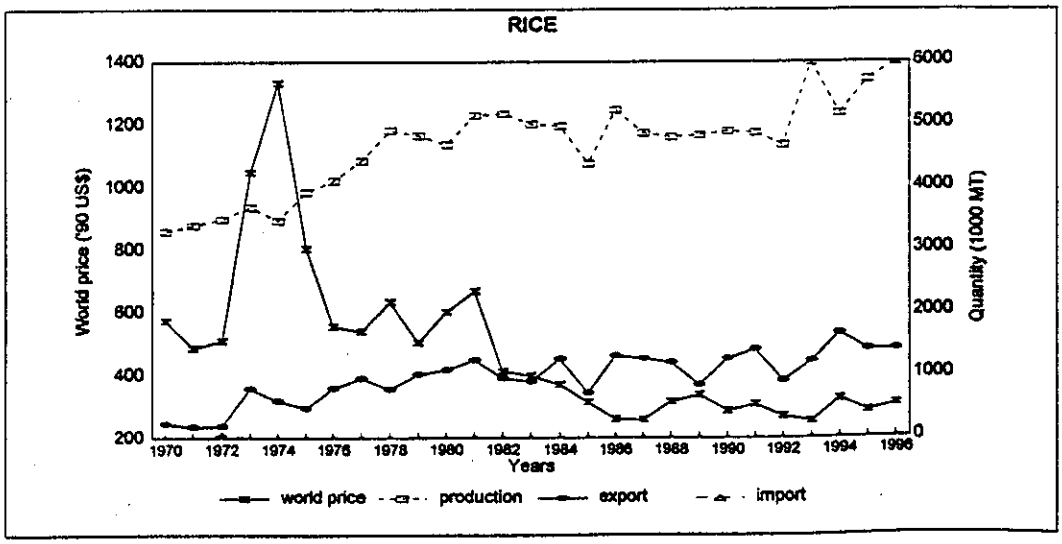
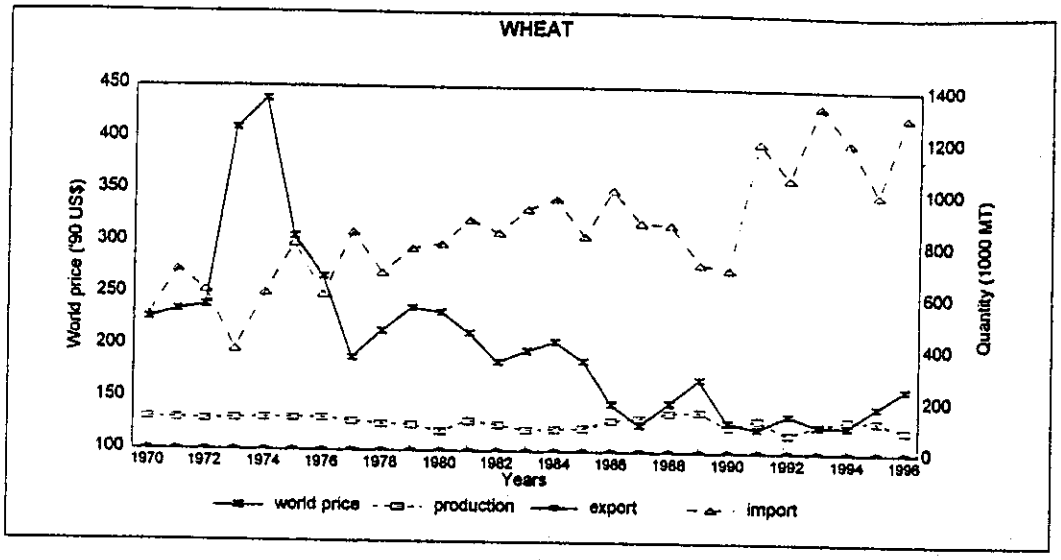
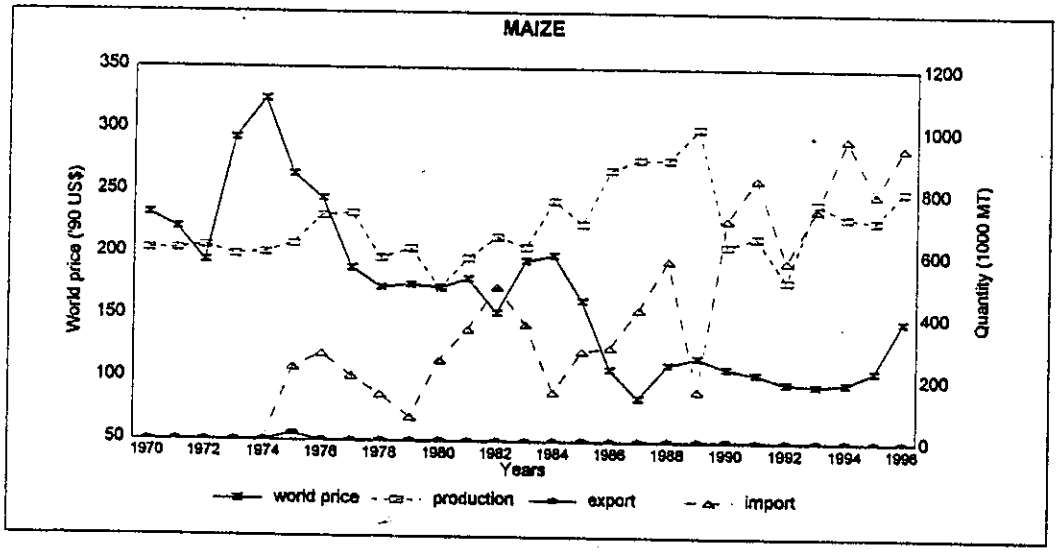
Quantity (1000 MT)
Years
world price
production
export
import

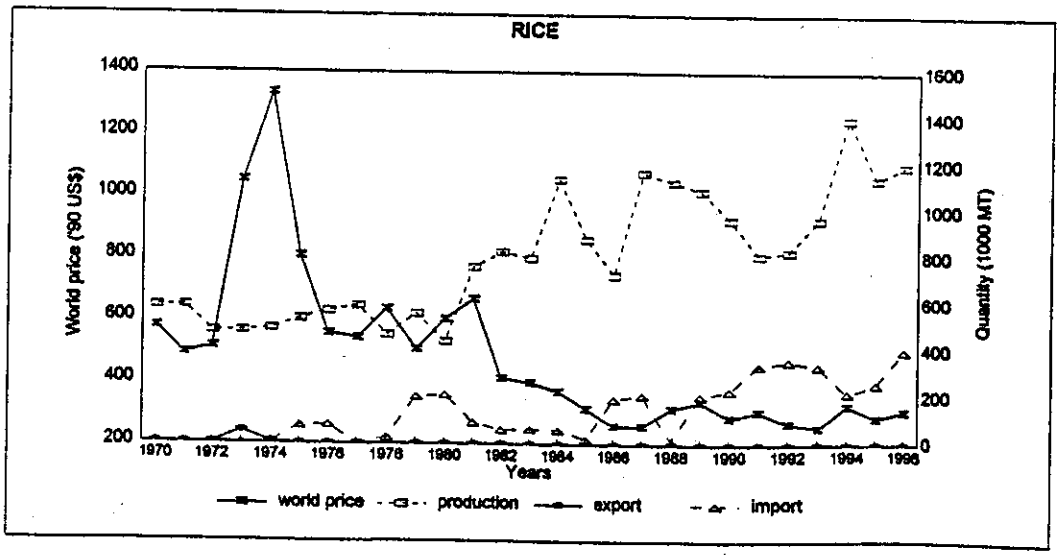

MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

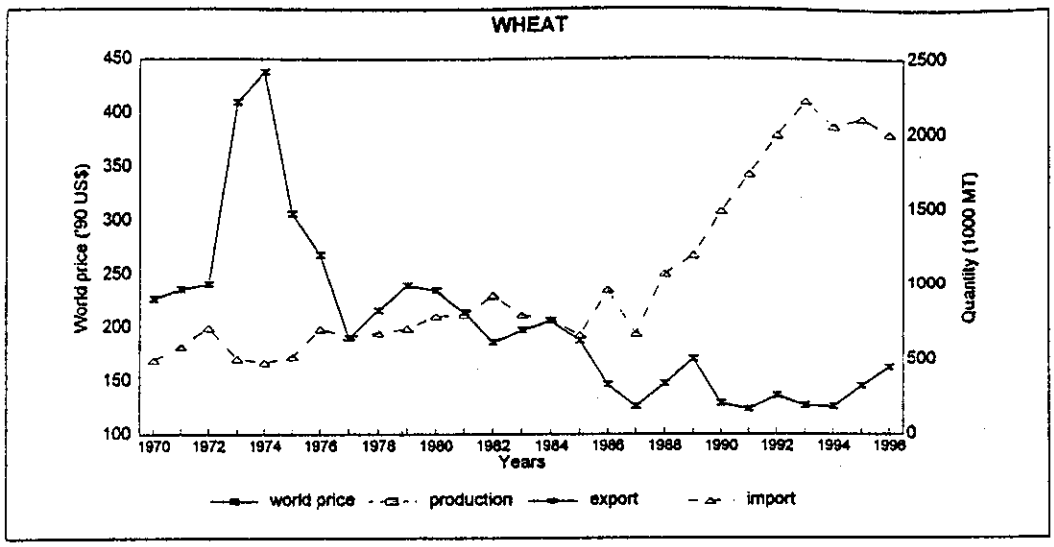
Peru

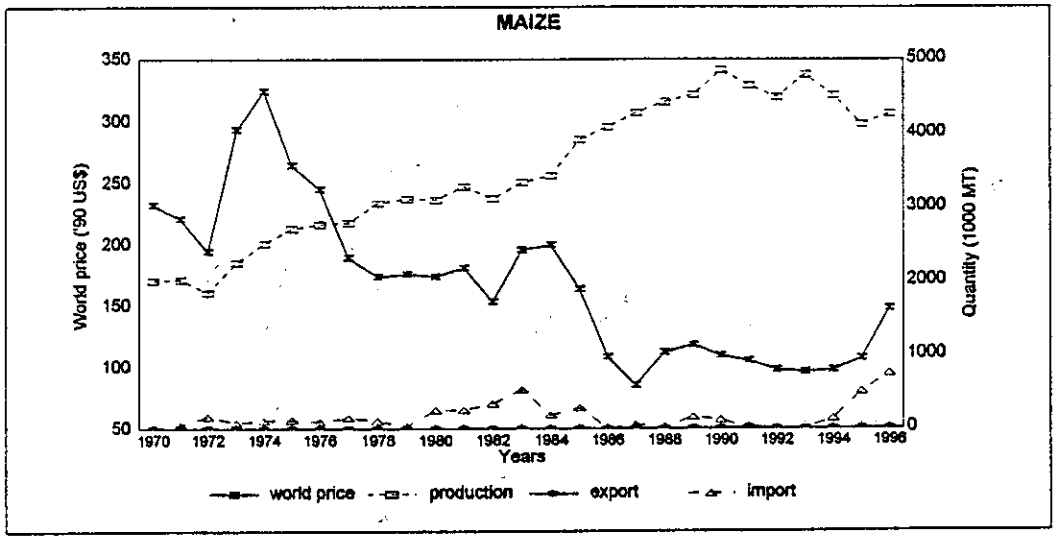

WHEAT
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

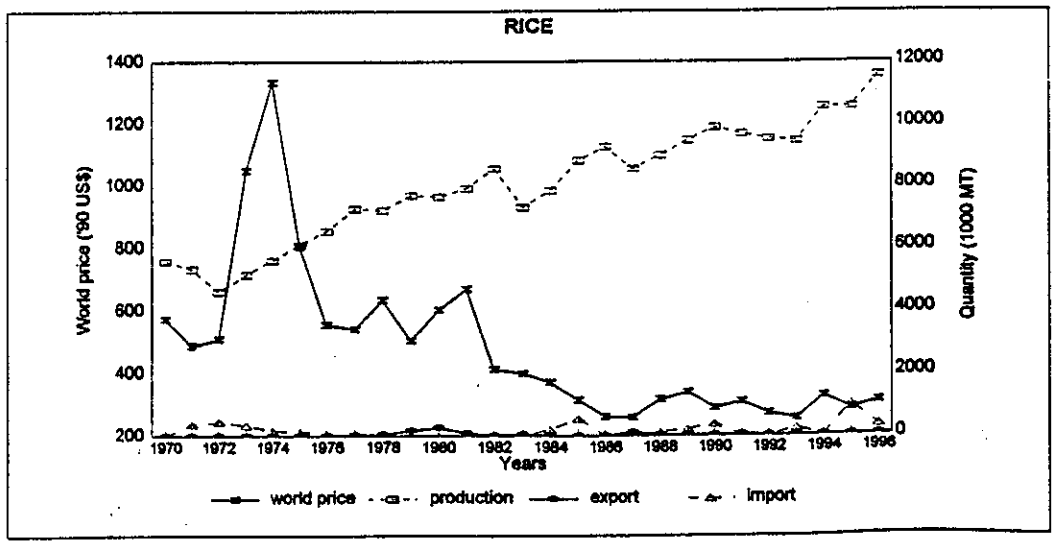

MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

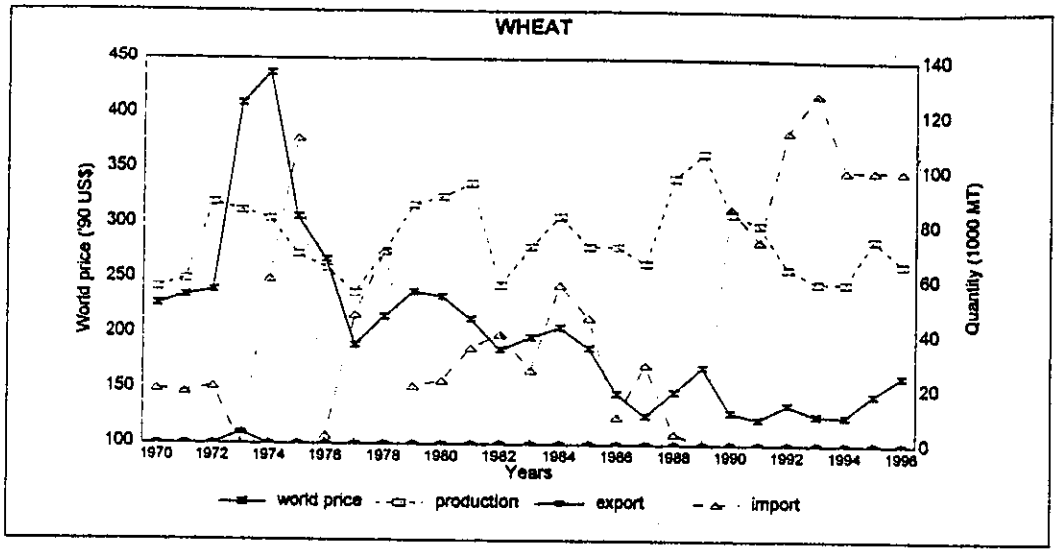
Philippines

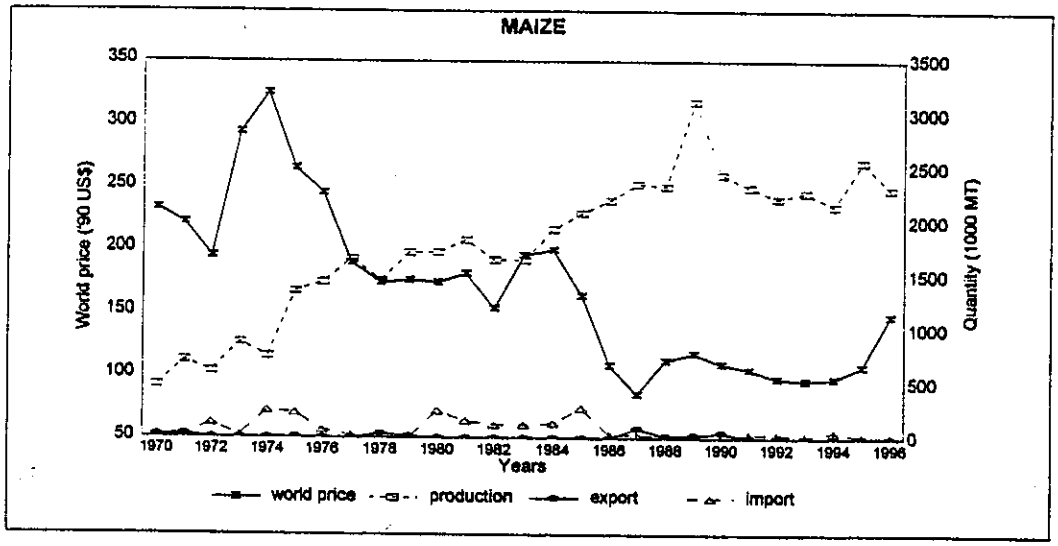


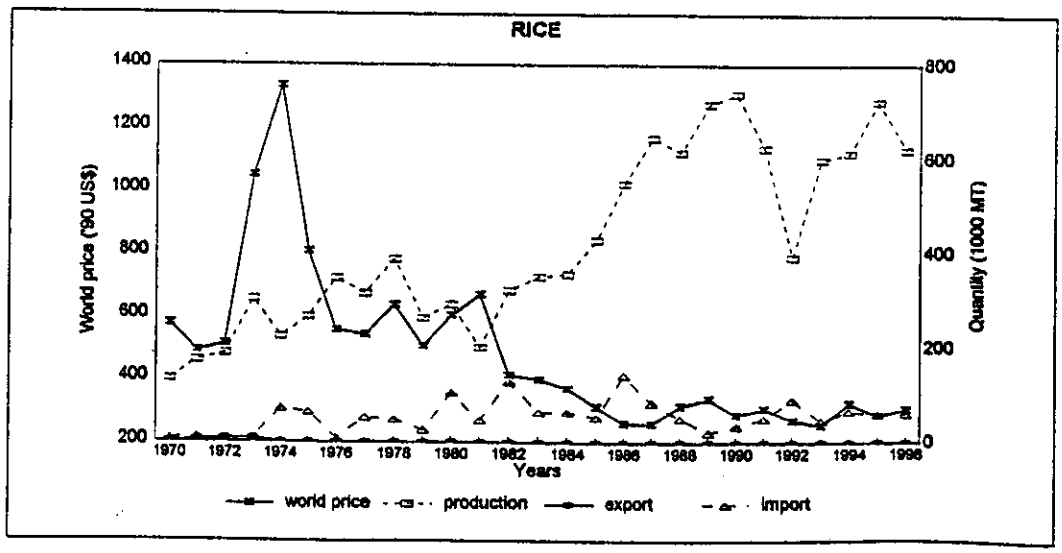




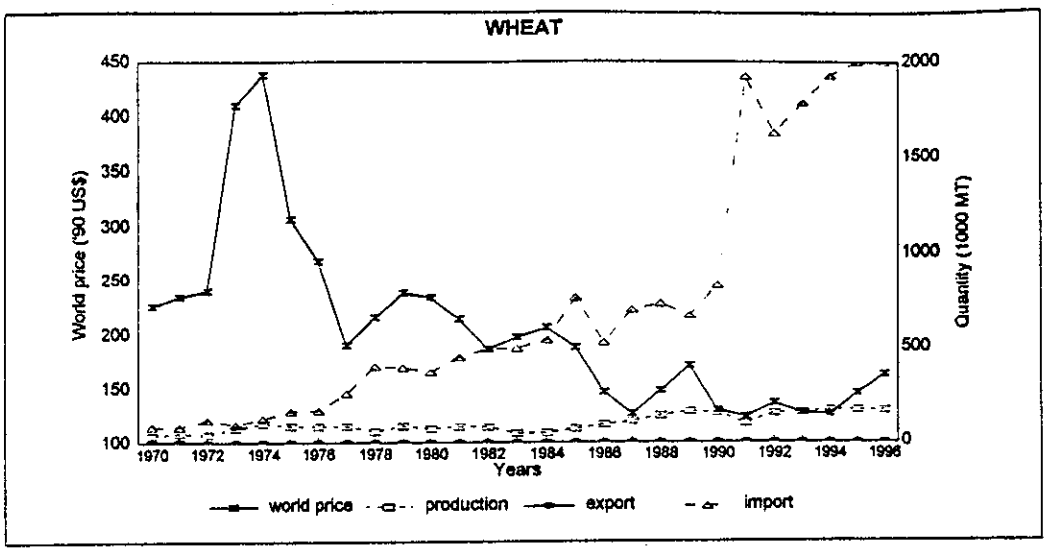
Tanzania

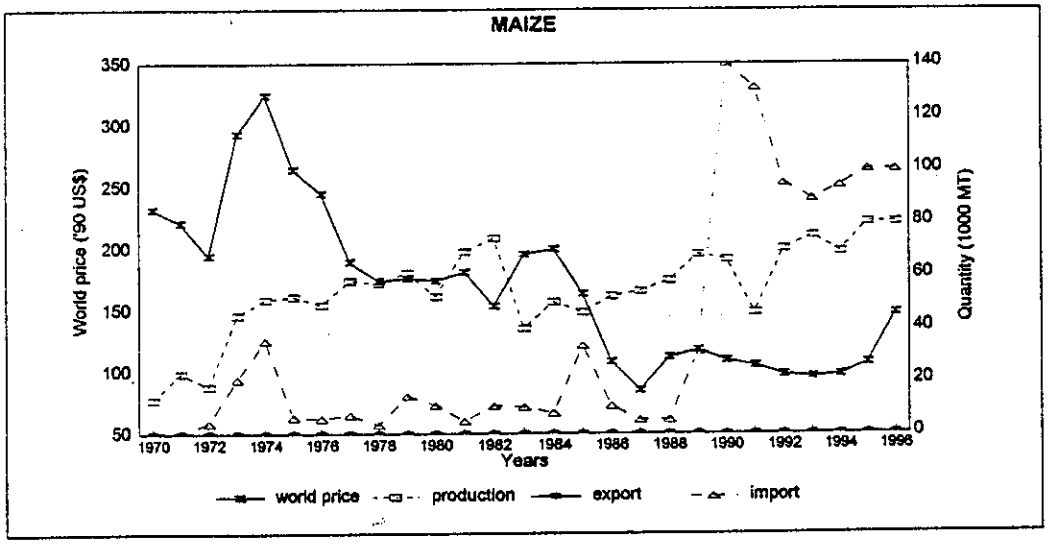

WHEAT
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

Yemen


WHEAT
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


MAIZE
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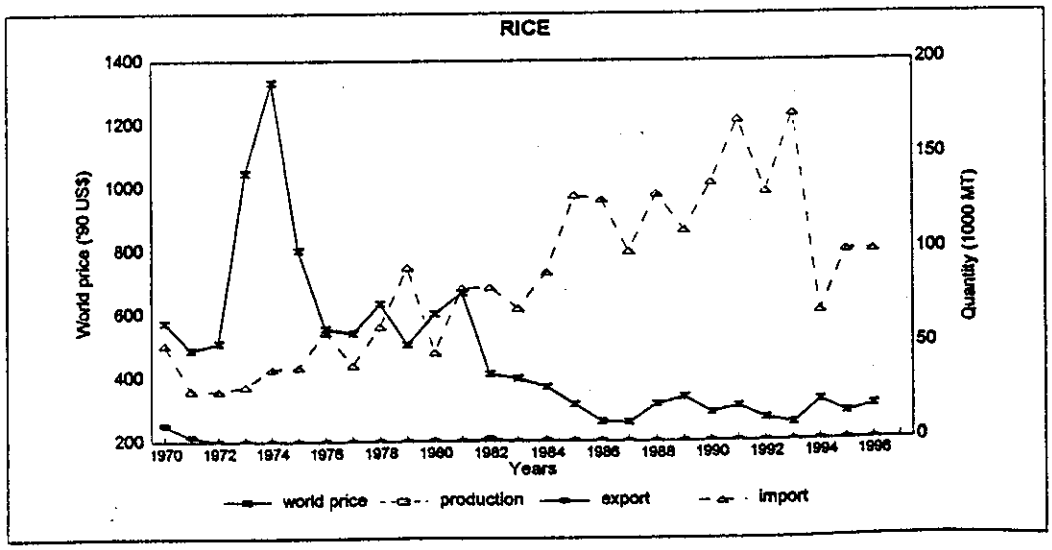
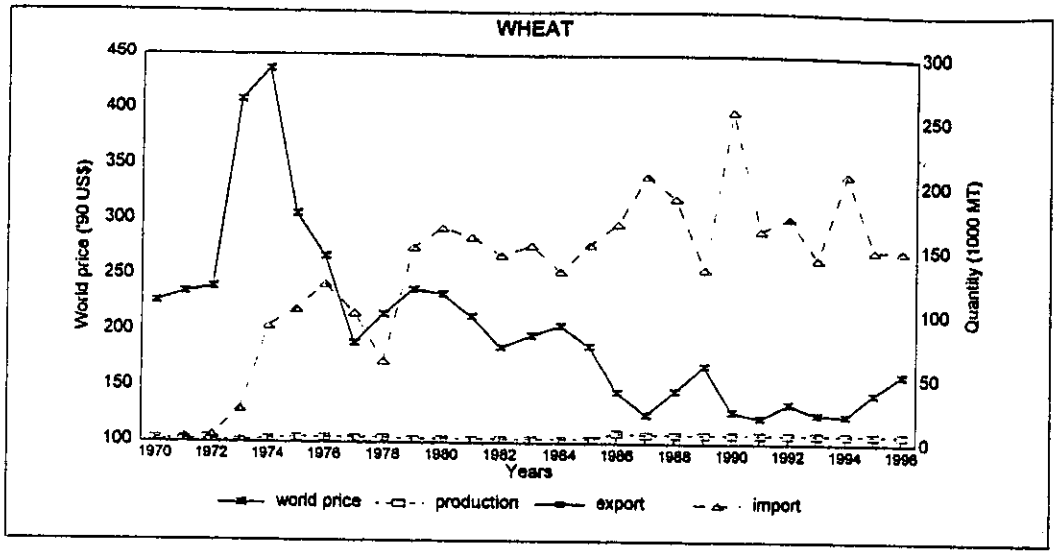
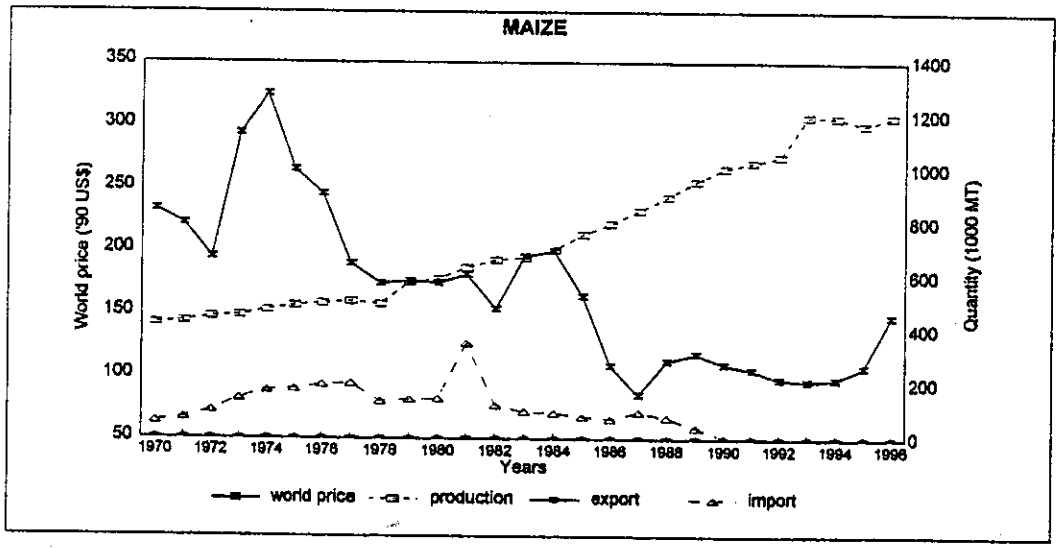
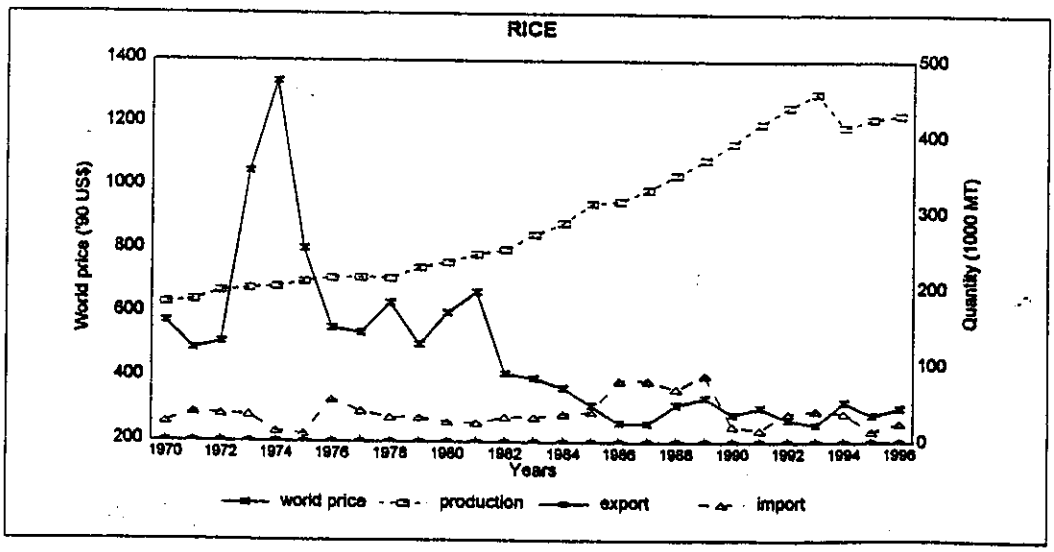
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

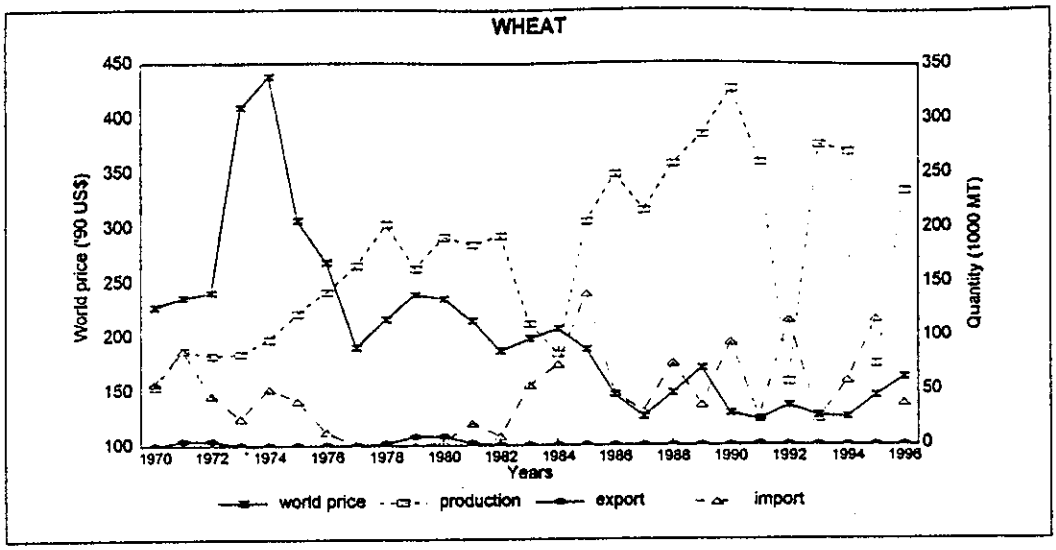
Zaire

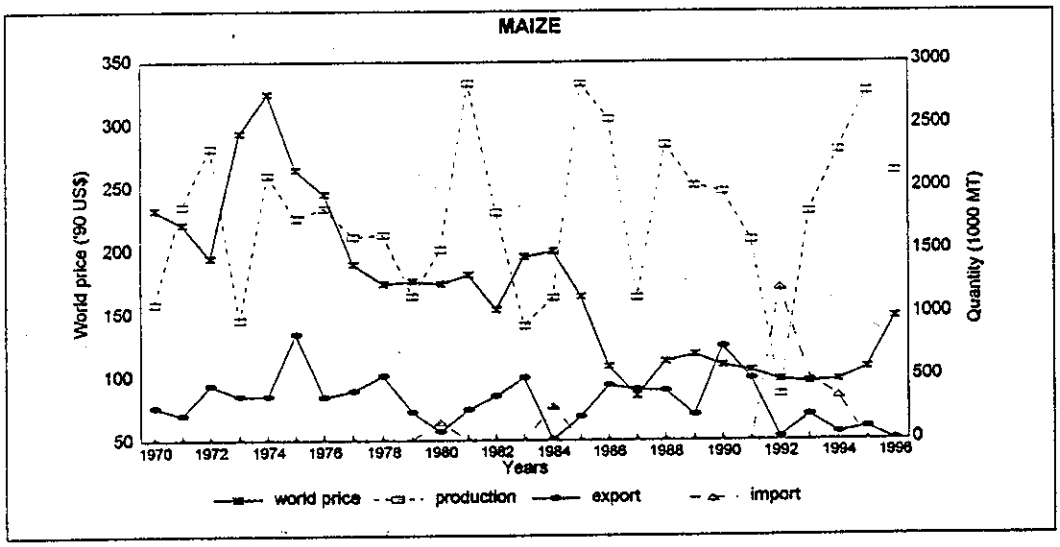

WHEAT
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

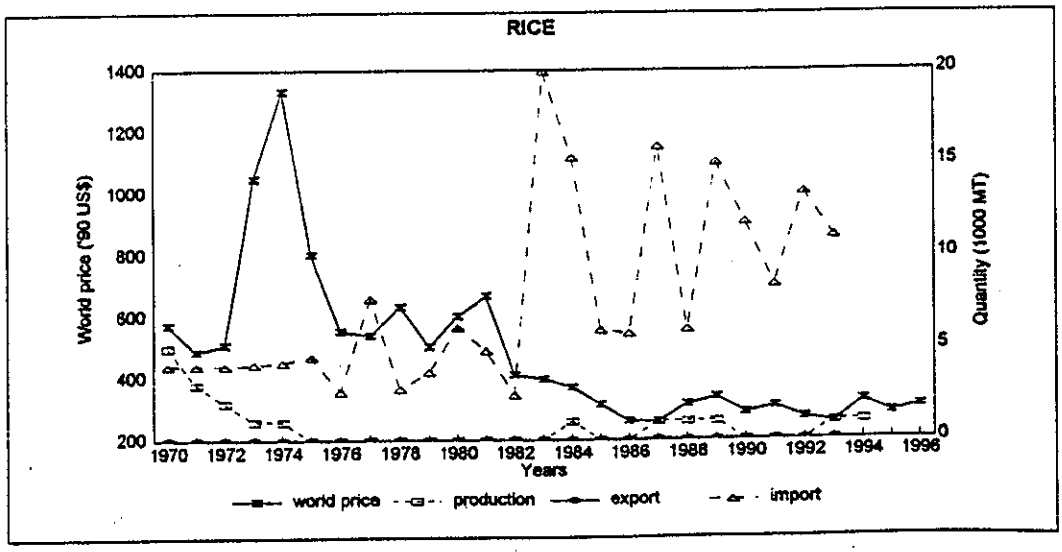

MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

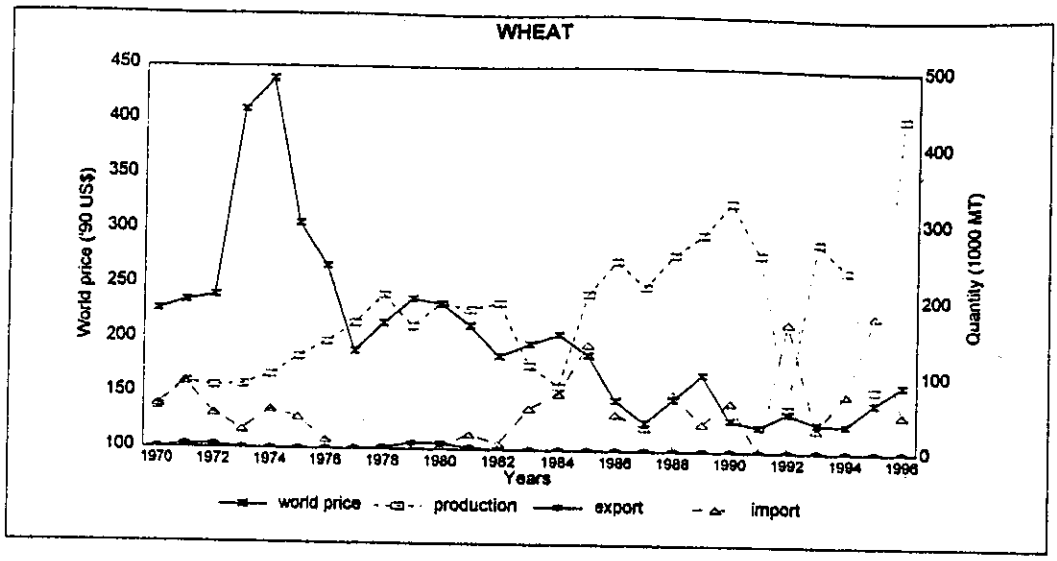
Zambia

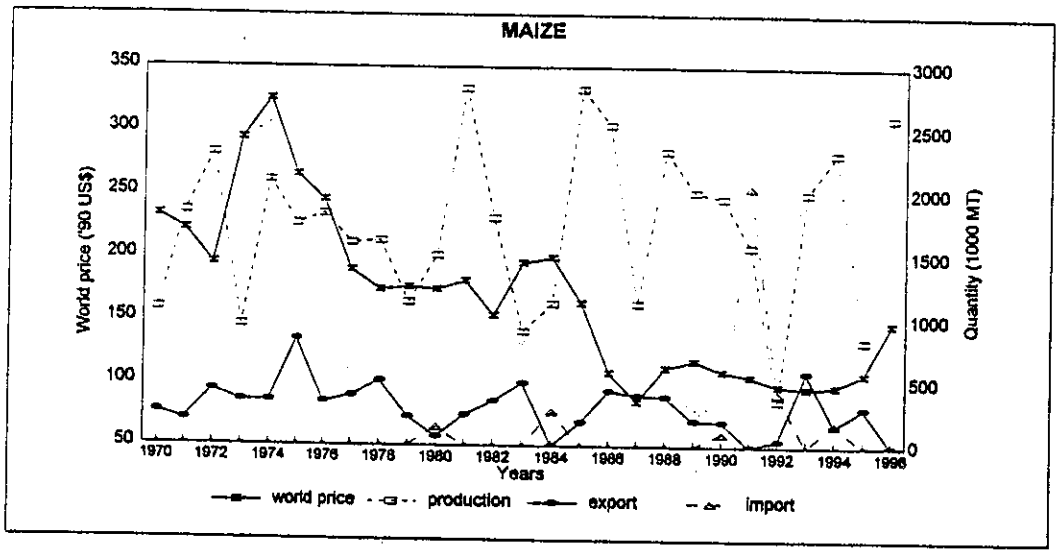

WHEAT
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

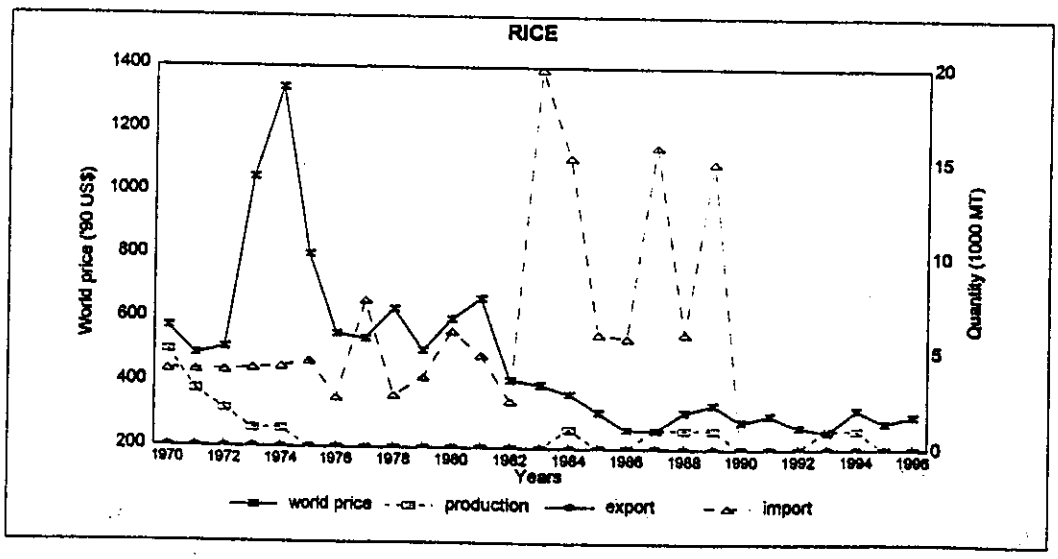

MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

Zimbabwe


WHEAT
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


MAIZE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import


RICE
World price ('90 US$)
Quantity (1000 MT)
Years
world price
production
export
import

Bangladesh

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	107	287	1,038	1,133
	Exports	0	0	0	0
	Imports	1,426	1,229	1,497	1,869
Maize					
	Production	2	2	1	3
	Exports	0	0	0	0
	Imports	0	0	0	0
Rice					
	Production*	16,308	18,983	21,257	23,777
	Exports	0	0	4	0
	Imports	406	232	275	345

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	890	1,004	1,065	1,176	1,131	1,245	1,320
	Exports	0	0	0	0	0	0	0
	Imports	1,384	1,439	1,040	1,065	1,718	1,200	1,200
Maize								
	Production	3	3	3	3	3	3	3
	Exports	0	0	0	0	0	0	0
	Imports	0	0	0	0	0	0	0
Rice								
	Production	26,778	27,377	27,510	27,062	25,248	26,513	27,000
	Exports	0	0	0	0	0	0	0
	Imports	11	39	10	100	813	1,575	400

Comments

Wheat and rice production remained steady throughout the period 1990-96, with rice production taking a dip in 1994. Wheat imports, half of total absorption, peaked in 1994. Rice imports rose dramatically after 1992 to a record high in 1995, but constitute a small share of absorption. This combination of relatively steady production and the rise in imports seems to indicate an increase in rice demand that might be attributed to the depletion of rice stocks. Most of these rice imports originated in Pakistan. Maize does not appear to constitute a major portion of the Bangladeshi diet.

Bolivia

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	53	63	63	71
Exports	0	0	0	0
Imports	53	144	249	228
Maize				
Production	281	333	434	468
Exports	0	0	2	1
Imports	1	0	1	1
Rice				
Production*	81	105	102	174
Exports	0	0	4	0
Imports	0	0	9	6

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
				(in 1000 MT)			
Wheat							
Production	54	103	113	146	85	125	92
Exports	0	0	0	0	0	0	0
Imports	273	387	432	424	430	400	400
Maize							
Production	407	510	430	503	530	521	581
Exports	0	0	0	0	0	0	0
Imports	0	0	0	1	0	1	5
Rice							
Production*	211	257	196	223	247	263	296
Exports	0	0	0	0	0	0	0
Imports	0	12	10	0	0	0	0

Comments

Despite record wheat production in 1991-96, wheat imports stabilized at historically high levels. This phenomenon reflects low stocks and the 1995 elimination of a 10% wheat import duty. Most of these wheat imports are from the USA. Bolivia does not trade significantly in maize or rice. In addition, Bolivia's total trade balance (for all commodities), which showed a surplus for much of the period 1970-1990, became a widening deficit after 1990.

China

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	34,769	50,670	70,507	87,600
	Exports	0	0	0	0
	Imports	5,500	6,371	12,439	11,659
Maize					
	Production	36,581	52,263	64,430	74,332
	Exports	58	74	267	4,662
	Imports	1,362	2,825	4,084	4,201
Rice					
	Production*	119,819	135,310	161,502	175,298
	Exports	1,980	1,547	1,064	923
	Imports	27	94	164	523

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	98,232	95,957	101,591	106,395	99,303	102,211	107,005
	Exports	0	0	92	177	25	300	200
	Imports	9,406	15,863	6,719	4,310	10,235	12,000	7,000
Maize								
	Production	97,158	99,148	95,723	103,110	99,674	112,362	114,350
	Exports	6,880	9,974	12,623	11,796	1,413	250	500
	Imports	0	0	0	0	4,287	1,600	500
Rice								
	Production	191,589	186,086	188,257	179,977	178,032	187,334	190,100
	Exports	689	933	1,374	1,519	32	300	250
	Imports	67	93	112	700	2,000	850	1,000

Comments

Imports of all three grains, rose over the period 1990-1996. This import boom occurred in the absence of any major production shortfall; in fact, maize exports collapsed and maize imports began is the face of record maize production. The year 1994 stands out as the year in which China's grain trade balance tipped towards a large deficit.

Djibouti

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	0	0	0	0
Exports	0	0	0	0
Imports	0	0	0	0
Maize				
Production	0	0	0	0
Exports	0	0	0	0
Imports	0	0	1	2
Rice				
Production*	0	0	0	0
Exports	0	0	0	0
Imports	6	8	14	23

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
				(in 1000 MT)			
Wheat							
Production	0	0	0	0	0	0	0
Exports	0	0	0	0	0	0	0
Imports	0	0	0	0	0	0	0
Maize							
Production	0	0	0	0	0	0	0
Exports	0	0	0	0	0	0	0
Imports	0	0	0	0	0	0	0
Rice							
Production	0	0	0	0	0	0	0
Exports	0	0	0	0	0	0	0
Imports	46	60	61	49	19	20	20

Comments

Djibouti imports nearly all of its food, but due to the country's small size, only rice is imported in significant quantities. Rice imports reached record levels in the 1990's.

Egypt

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	1,739	1,896	1,900	2,508
	Exports	0	0	0	1
	Imports	1,702	3,323	4,204	4,989
Maize					
	Production	2,462	2,922	3,419	3,906
	Exports	0	0	0	1
	Imports	131	538	1,257	1,774
Rice					
	Production*	2,432	2,371	1,347	2,395
	Exports	412	156	61	52
	Imports	0	0	0	11

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	4,268	4,483	4,618	4,833	4,786	5,722	5,690
	Exports	0	0	0	0	0	0	0
	Imports	5,692	5,807	6,004	5,866	5,850	6,000	6,000
Maize								
	Production	4,799	5,122	5,069	5,039	5,112	5,178	5,260
	Exports	0	0	0	0	0	0	0
	Imports	1,943	1,425	1,742	2,135	2,589	2,400	2,850
Rice								
	Production	3,167	3,448	3,910	4,161	4,583	4,789	4,500
	Exports	159	209	133	262	150	75	75
	Imports	0	0	0	0	0	0	0

Comments

Wheat imports remained stable and maize imports rose drastically even as production reached record levels in 1993-96. These findings suggest a rise in demand for wheat and maize. Rice exports were high in the '90s until 1994.

Ethiopia

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	665	518	718	825
	Exports	1	0	0	0
	Imports	39	144	260	470
Maize					
	Production	892	1,229	1,274	1,828
	Exports	1	0	0	0
	Imports	0	5	6	20
Rice					
	Production*	0	0	0	0
	Exports	0	0	0	0
	Imports	1	2	9	17

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	816	890	900	897	1,313	1,571	1,575
	Exports	0	0	0	0	0	0	0
	Imports	679	812	858	710	600	650	700
Maize								
	Production	2,000	1,785	1,650	1,644	2,011	2,189	2,200
	Exports	0	0	0	0	0	0	0
	Imports	0	0	0	1	4	0	0
Rice								
	Production	0	0	0	0	0	0	0
	Exports	0	0	0	0	0	0	0
	Imports	0	0	0	0	0	0	0

Comments

Wheat production rose to a record levels in 1995 and 1996 while imports steadily increased into 1996. Maize production remained fairly stable over the period 1990-1996.

India

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	23,370	29,843	38,773	47,145
	Exports	134	236	39	136
	Imports	2,508	2,984	1,368	425
Maize					
	Production	6,068	6,578	7,353	7,568
	Exports	1	0	1	5
	Imports	4	13	12	57
Rice					
	Production*	62,507	71,899	81,714	97,723
	Exports	23	110	483	346
	Imports	358	167	160	252

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	49,850	55,134	55,690	57,210	57,840	65,469	64,000
	Exports	200	680	31	28	75	620	1,200
	Imports	100	100	2,500	500	30	50	35
Maize								
	Production	8,962	8,064	10,044	9,578	8,952	10,270	10,000
	Exports	0	0	10	50	0	4	0
	Imports	0	0	1	0	0	0	0
Rice								
	Production	111,517	112,042	109,001	117,615	121,559	121,562	125,375
	Exports	500	720	560	625	4,201	3,250	3,000
	Imports	0	15	160	0	0	0	0

Comments

Wheat exports plummeted in 1992-94 but then rose to a record high in 1995 and 1996. Rice exports rose steadily until 1993 but then jumped to record levels in 1994-96. These export booms reflect large production increases. New demand for Indian grains comes mainly from Asian LDC's.

Indonesia

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	0	0	0	0
	Exports	0	0	0	0
	Imports	401	800	1,512	1,602
Maize					
	Production	2,877	3,251	4,422	5,650
	Exports	193	19	40	57
	Imports	0	43	40	86
Rice					
	Production*	20,549	24,210	33,390	41,048
	Exports	0	0	2	106
	Imports	1,038	1,546	889	84

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	0	0	0	0	0	0	0
	Exports	0	0	0	0	0	0	0
	Imports	2,000	2,400	2,600	2,900	3,800	3,450	4,000
Maize								
	Production	6,734	6,256	7,995	6,460	6,869	8,223	8,223
	Exports	28	145	81	35	56	30	0
	Imports	135	228	357	962	1,738	900	1,300
Rice								
	Production	45,179	44,688	48,240	48,181	46,642	49,860	51,077
	Exports	0	60	469	225	0	0	0
	Imports	192	650	22	950	3,000	1,250	1,500

Comments

Wheat imports jumped in 1994-96. The rate of increase in maize imports slowed as maize production steadily increased. Rice imports spiked in 1994 even while rice production steadily increased. The import spike was caused, in part, by the Indonesian government's underestimate of the 1994 rice crop.

Jordan

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	145	50	78	62
	Exports	1	0	1	13
	Imports	39	138	298	352
Maize					
	Production	0	0	0	2
	Exports	0	8	14	0
	Imports	27	79	140	242
Rice					
	Production*	0	0	0	0
	Exports	0	0	1	5
	Imports	21	25	44	60

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	83	62	75	57	47	58	50
	Exports	50	0	0	0	0	0	0
	Imports	866	703	576	734	730	750	600
Maize								
	Production	4	6	12	5	2	2	2
	Exports	0	0	0	0	0	0	0
	Imports	172	450	295	378	366	350	350
Rice								
	Production	0	0	0	0	0	0	0
	Exports	0	0	0	0	0	0	0
	Imports	111	69	86	127	76	90	75

Comments

Wheat imports fell over the period 1990-1996 while production fluctuated without revealing a trend. Maize imports also rose between in 1992 and 1996 after their peak in 1991. Rice imports remained quite steady from 1991-1996, except for 1990 and 1993 which are unusually high.

Malawi

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	1	1	1	1
Exports	0	0	0	0
Imports	0	1	8	12
Maize				
Production	1,202	1,247	1,323	1,357
Exports	22	0	50	30
Imports	19	9	14	63
Rice				
Production*	45	78	34	35
Exports	8	7	4	2
Imports	0	0	1	1

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
				(in 1000 MT)			
Wheat							
Production	2	1	1	1	1	2	2
Exports	0	0	0	0	0	0	0
Imports	0	0	0	0	0	0	0
Maize							
Production	1,343	1,589	612	2,034	1,040	1,661	1,907
Exports	0	0	0	0	0	0	0
Imports	64	500	150	301	200	50	150
Rice							
Production*	43	63	24	65	42	52	52
Exports	0	0	0	0	0	0	0
Imports	1	1	1	0	0	10	10

Comments

Maize imports were erratic over the period 1990-1996, reaching their low in 1995. Maize production and imports moved to counterbalance each other over the entire period, indicating no large demand increases.

Morocco

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	1,915	1,745	1,769	3,308
	Exports	0	1	0	0
	Imports	621	1,347	1,945	1,569
Maize					
	Production	337	350	238	326
	Exports	2	0	0	0
	Imports	17	51	148	165
Rice					
	Production*	16	22	12	22
	Exports	2	0	0	0
	Imports	0	0	9	8

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	3,614	4,939	1,562	1,573	5,523	1,091	5,920
	Exports	0	0	0	0	0	0	0
	Imports	1,967	1,552	2,811	2,403	1,215	2,350	1,000
Maize								
	Production	436	335	216	92	203	50	210
	Exports	0	0	0	0	0	0	0
	Imports	175	200	350	375	543	425	400
Rice								
	Production	3	25	22	54	70	35	50
	Exports	0	0	0	0	0	0	0
	Imports	28	1	1	1	10	20	10

Comments

Wheat production was extraordinarily erratic over the period 1990-1996, spiking in 1994 and 1996 with a 24-year low in 1995 due to the drought. Wheat imports were higher in years of low production. Maize imports rose in 1990-92, peaked in 1994 and subsided a little in 1995-96 while maize production decreased significantly from 1990. Morocco received large amounts of food aid during the mid 1980's, but only low amounts in the early 1990's.

Mozambique

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	9	3	7	5
Exports	0	0	0	0
Imports	82	96	140	111
Maize				
Production	423	390	356	356
Exports	37	0	0	0
Imports	13	66	114	275
Rice				
Production*	110	67	80	91
Exports	1	0	0	0
Imports	0	60	79	80

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
	(in 1000 MT)						
Wheat							
Production	5	3	2	2	2	2	2
Exports	0	0	0	0	0	0	0
Imports	123	106	129	137	140	150	120
Maize							
Production	453	327	133	533	526	734	947
Exports	0	0	0	0	0	0	0
Imports	350	750	293	300	150	200	200
Rice							
Production	96	56	33	66	98	113	140
Exports	0	0	0	0	0	0	0
Imports	199	118	159	91	42	50	50

Comments

Wheat imports, which dwarfed wheat production, remained well within their historical range. Maize production increased steadily in the period 1990-96, except for 1991 and 1992, two poor years for the maize crop. Maize imports decreasing slightly in the same period, except for an import spike in 1991.

Nicaragua

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	0	0	0	0
Exports	0	0	0	0
Imports	37	42	70	61
Maize				
Production	201	200	187	240
Exports	6	2	0	1
Imports	19	10	53	25
Rice				
Production*	79	84	152	120
Exports	9	1	0	3
Imports	0	2	17	38

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
	(in 1000 MT)						
Wheat							
Production	0	0	0	0	0	0	0
Exports	0	0	0	0	0	0	0
Imports	90	77	85	86	75	100	75
Maize							
Production	293	199	252	284	242	331	379
Exports	3	1	2	0	0	0	0
Imports	6	14	3	35	15	5	0
Rice							
Production*	121	119	154	201	206	234	244
Exports	0	0	0	0	0	0	0
Imports	32	33	38	41	48	50	50

Comments

Wheat and rice imports displayed no dominant trend during the period 1990-1996, with rice production resting at levels higher than those of the 1980's (according to the ERS). Maize production also experienced a boom relative to '80's levels, and maize imports were erratic but declining into 1996.

Nigeria

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	18	21	29	40
	Exports	0	1	0	0
	Imports	325	724	1,066	566
Maize					
	Production	1,021	837	831	1,841
	Exports	0	0	0	0
	Imports	4	41	177	26
Rice					
	Production*	438	515	1,232	2,002
	Exports	0	0	0	2
	Imports	3	319	511	315

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	50	60	40	30	40	36	36
	Exports	0	0	0	0	0	0	0
	Imports	480	450	875	816	550	675	700
Maize								
	Production	5,768	5,810	5,840	6,291	6,902	7,240	7,321
	Exports	0	0	0	0	0	0	0
	Imports	0	0	15	0	0	0	0
Rice								
	Production*	2,500	3,226	3,260	2,305	2,427	2,548	2,600
	Exports	0	0	0	0	0	0	0
	Imports	224	296	440	382	300	450	750

Comments

Wheat production declined slightly over the period 1990-91 and imports rose, almost doubling in 1992 and 1993. Rice production was steady over the period 1990-96, but peaked in 1992. Rice imports were more erratic but increased significantly in 1995 and 1996. Nigeria does not trade significant quantities of maize.

Pakistan

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	7,147	8,765	11,386	12,947
	Exports	24	0	64	10
	Imports	762	1,263	391	1,208
Maize					
	Production	730	812	989	1,126
	Exports	0	1	0	0
	Imports	3	0	2	0
Rice					
	Production*	3,468	4,438	4,996	4,820
	Exports	399	805	1,090	1,074
	Imports	12	0	0	0

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	14,316	14,565	15,684	16,157	15,213	17,002	17,145
	Exports	0	10	50	0	0	0	0
	Imports	1,026	2,217	2,862	1,617	2,107	1,900	2,200
Maize								
	Production	1,185	1,203	1,184	1,213	1,318	1,275	1,300
	Exports	0	0	0	0	0	0	0
	Imports	0	0	0	0	0	0	0
Rice								
	Production	4,891	4,865	4,674	5,992	5,170	5,714	6,000
	Exports	1,274	1,419	918	1,232	1,660	1,400	1,400
	Imports	0	0	0	0	0	0	0

Comments

Production of wheat and maize rose smoothly over the period 1990-1996, with wheat imports falling from the high level reached in 1992. Rice production and exports fluctuated but displayed no dominant trend. It is interesting to note that rice exports were higher in 1994 than in 1993 or 1995, which were years with greater production.

Peru

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	123	115	94	131
	Exports	0	0	0	0
	Imports	566	742	889	865
Maize					
	Production	613	661	629	881
	Exports	1	6	2	2
	Imports	1	191	331	354
Rice					
	Production*	527	546	793	999
	Exports	12	0	0	0
	Imports	0	78	97	131

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	100	127	73	108	130	125	92
	Exports	0	0	0	0	0	0	0
	Imports	706	1,193	1,057	1,338	1,200	1,000	1,300
Maize								
	Production	632	660	520	772	726	715	810
	Exports	5	2	2	2	2	0	0
	Imports	717	848	582	750	977	800	950
Rice								
	Production*	966	814	829	968	1,401	1,142	1,199
	Exports	0	0	0	0	0	0	0
	Imports	233	340	359	336	220	258	400

Comments

Production and trade figures did not deviated significantly from their respective trends, in all three grains. Wheat production plummeted in 1992 and 1996, and rice production spike 1994. Maize imports were increasing particularly quickly, surpassing or equally production over most of the period 1990-96.

Philippines

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	0	0	0	0
	Exports	0	0	0	0
	Imports	555	651	814	913
Maize					
	Production	2,130	2,895	3,262	4,248
	Exports	0	0	0	0
	Imports	81	101	311	103
Rice					
	Production*	5,257	6,961	7,843	9,005
	Exports	2	46	77	26
	Imports	266	44	38	171

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	0	0	0	0	0	0	0
	Exports	0	0	0	0	0	0	0
	Imports	1,487	1,733	1,992	2,217	2,050	2,100	2,000
Maize								
	Production	4,854	4,655	4,490	4,798	4,519	4,129	4,269
	Exports	0	20	0	0	0	0	0
	Imports	115	0	0	1	136	500	750
Rice								
	Production	9,885	9,673	9,513	9,434	10,538	10,541	11,544
	Exports	0	30	0	0	0	0	0
	Imports	350	0	0	215	0	975	300

Comments

Imports of maize rose sharply in 1993-96 in response to falling production. In spite of rising rice production, rice imports in 1995 were unusually high, a response to unprecedented high internal rice prices caused by depleted stocks. Further high imports of rice and maize are expected as the government attempts to replenish its stocks and avert further price spikes. Wheat imports increased steadily, reaching their high in 1995.

Tanzania

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	74	69	80	85
	Exports	1	0	0	0
	Imports	24	50	37	18
Maize					
	Production	695	1,533	1,762	2,425
	Exports	11	12	0	28
	Imports	92	66	158	70
Rice					
	Production*	203	315	303	591
	Exports	4	0	0	0
	Imports	20	40	81	70

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	84	80	64	59	59	75	66
	Exports	0	0	0	0	0	0	0
	Imports	86	74	114	128	100	100	100
Maize								
	Production	2,445	2,332	2,226	2,282	2,159	2,567	2,314
	Exports	50	0	0	0	0	0	0
	Imports	0	37	35	14	55	15	10
Rice								
	Production	740	625	392	600	614	723	621
	Exports	0	0	0	0	0	0	0
	Imports	34	50	90	46	66	60	60

Comments

Wheat production reversed its falling trend in 1995 with imports remaining stable. Maize and rice production remained stable and imports of both grains fell into 1995/96. Tanzania has just begun to liberalize its markets after a long experiment in "African Socialism."

Yemen

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	63	82	68	117
Exports	2	0	0	0
Imports	102	279	471	678
Maize				
Production	30	55	57	56
Exports	0	0	0	0
Imports	12	7	9	17
Rice				
Production*	0	0	0	0
Exports	2	0	0	0
Imports	34	58	73	119

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
				(in 1000 MT)			
Wheat							
Production	155	100	152	160	171	171	170
Exports	0	0	0	0	0	0	0
Imports	0	1,921	1,621	1,784	1,926	2,000	2,000
Maize							
Production	66	46	70	75	69	80	80
Exports	0	0	0	0	0	0	0
Imports	0	131	95	89	94	100	100
Rice							
Production	0	0	0	0	0	0	0
Exports	0	0	0	0	0	0	0
Imports	0	169	131	172	68	100	100

Comments

Wheat imports fell significantly in 1992-93 as production increased. Still, Yemen imports the vast majority of its grain. Rice imports rebounded in 1995 from their low 1994 level.

Zaire

1. Historical Trade and Production Data (five year averages)

		1970-1974	1975-1979	1980-1984	1985-1989
			(in 1000 MT)		
Wheat					
	Production	2	4	3	6
	Exports	0	0	0	0
	Imports	25	108	151	171
Maize					
	Production	450	518	655	854
	Exports	0	0	0	0
	Imports	115	175	164	76
Rice					
	Production*	192	215	257	335
	Exports	0	0	0	0
	Imports	30	34	40	71

2. Recent Trade and Production Data

		1990	1991	1992	1993	1994	1995	1996
					(in 1000 MT)			
Wheat								
	Production	7	7	7	7	7	7	7
	Exports	0	0	0	0	0	0	0
	Imports	257	165	175	143	209	150	150
Maize								
	Production	1,008	1,030	1,052	1,201	1,198	1,170	1,200
	Exports	0	0	0	0	0	0	0
	Imports	5	4	1	0	0	0	0
Rice								
	Production	392	418	440	458	414	425	430
	Exports	0	0	0	0	0	0	0
	Imports	21	16	38	41	38	14	25

Comments

Wheat imports varied widely over the period 1990-96, recording some of their lowest levels in 1995-96. Rice production remained fairly stable after 1990, and rice imports continued to decline from their historical level.

Zambia

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	0	5	12	29
Exports	0	0	0	0
Imports	90	108	119	50
Maize				
Production	948	1,398	900	1,441
Exports	34	22	0	7
Imports	71	24	152	102
Rice				
Production*	1	2	6	10
Exports	0	0	0	0
Imports	5	7	7	3

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
				(in 1000 MT)			
Wheat							
Production	55	65	58	71	43	50	60
Exports	0	10	20	5	22	30	20
Imports	52	55	58	70	43	50	55
Maize							
Production	1,093	1,096	483	1,598	1,021	738	1,490
Exports	14	0	0	100	0	0	0
Imports	50	900	100	350	500	300	300
Rice							
Production	9	15	9	14	6	12	13
Exports	0	0	0	0	0	0	0
Imports	0	0	0	2	1	0	0

Comments

1994 was a year of poor production for wheat and rice. Maize production recovered from 1992 and 1995 lows, while imports continue to decline in after 1995. Wheat production and imports remained stable over the period 1990-96.

Zimbabwe

1. Historical Trade and Production Data (five year averages)

	1970-1974	1975-1979	1980-1984	1985-1989
	(in 1000 MT)			
Wheat				
Production	81	158	152	242
Exports	2	2	2	0
Imports	53	11	32	66
Maize				
Production	1,663	1,597	1,639	2,173
Exports	319	463	232	324
Imports	0	1	83	0
Rice				
Production*	2	0	0	1
Exports	0	0	0	0
Imports	4	4	10	10

2. Recent Trade and Production Data

	1990	1991	1992	1993	1994	1995	1996
				(in 1000 MT)			
Wheat							
Production	326	259	58	276	239	83	440
Exports	0	0	0	0	0	0	0
Imports	65	0	170	31	77	180	50
Maize							
Production	1,972	1,586	362	2,012	2,326	840	2,609
Exports	192	0	47	585	166	300	0
Imports	100	2,053	421	0	177	0	0
Rice							
Production	0	0	0	1	1	0	0
Exports	0	0	0	0	0	0	0
Imports	0	0	0	0	0	0	0

Comments

Zimbabwe's import levels for wheat and maize were quite sensitive to production. In years of high production, imports fell, and when production faltered, imports rose. The quantity imported was never sufficient to fully make up for lost production for any of the grains.

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