

Agricultural Development in Developing Countries
and Changes in U.S. Agricultural Exports

by

Earl D. Kellogg^a

Presented at the
BIFAD Regional Seminar

Michigan State University
East Lansing, MI

January 30, 1987

^aAssociate Executive Director of the Consortium for International Development, Tucson, Arizona; Adjunct Professor of agricultural economics at the University of Arizona.

An important question to emerge in the United States over the past few years is whether providing agricultural development assistance to developing countries around the world is in the best interests of American agriculture. The concern is that increasing agricultural production in these countries has contributed substantially to the decline in U.S. agricultural exports since 1981. This paper considers the basis for this recent concern and briefly examines the evidence and data relevant to it. In addition, it discusses why U.S. agricultural exports have declined over the past five years; examines more closely the relationship between increasing agricultural production in developing countries and those countries' demands for agricultural imports; and concludes with a few comments about the future.

Why Agricultural Assistance to Developing Countries Has Recently Become an Issue

Although the possible inconsistency between supporting agricultural development in poor countries and increasing U.S. agricultural exports has been potentially troublesome since agricultural development assistance began several years ago, it has only recently become a big issue. Generally speaking, three reasons can account for this.

First, international and foreign phenomena are having a growing influence on U.S. agriculture.¹ For example, large international capital flows affect U.S. interest rates and exchange rates and help finance U.S. budget deficits. All these variables affect U.S. agriculture; the floating exchange rate of the U.S. dollar alone frequently changes prices of U.S. agricultural exports and imports. At the same time, substantial increases in the value of U.S. agricultural exports and imports between 1960 and 1984 (by 721 percent and 372

percent, respectively) have in turn increased the influence of global phenomena on our country (see Table 1). Finally, the proportion of U.S. agricultural exports going to developed countries versus developing countries has changed. In FY 1976, 30.5 percent of all U.S. agricultural exports went to less-developed countries (LDCs) while 69.5 percent went to developed countries. The same variables in FY 1985 were 41.4 percent and 58.6 percent, respectively (see Table 2).

Table 1. Value of U.S. Agricultural Exports and Imports, by Fiscal Year

	1960 (\$ mil)	1970 (\$ mil)	1984 (\$ mil)	1960-84 Increase (percent)
U.S. Agricultural Exports	4,628	6,958	38,010	721
U.S. Agricultural Imports	4,010	5,686	18,910	372

Source: ERS/USDA, U.S. Foreign Agricultural Trade Statistical Report (various years).

Table 2. U.S. Agricultural Exports for Fiscal Years 1974-85

Year	Developing Countries ^a (\$ bil)	To Developed Countries ^b (\$ bil)	Total (\$ bil)	Share to Developing Countries (percent)	Share to Developed Countries (percent)
1974	7.61	13.95	21.56	35.3	64.7
1975	8.27	13.55	21.82	37.9	62.1
1976	6.93	15.81	22.74	30.5	69.5
1977	8.46	15.51	23.97	35.3	64.7
1978	9.24	18.05	27.29	33.9	66.1
1979	11.04	20.94	31.98	34.5	65.5
1980	15.67	24.81	40.48	38.7	61.3
1981	18.24	25.54	43.78	41.7	58.3
1982	15.30	23.80	39.10	39.1	60.9
1983	14.45	20.32	34.77	41.6	58.4
1984	15.59	22.44	38.01	41.0	59.0
1985	12.92	18.27	31.19	41.4	58.6

Notes: ^aIncludes all Latin American countries; all countries in Asia except Israel and Japan; and all countries in Africa except South Africa.

^bIncludes all countries except developing countries.

Source: ERS/USDA, U.S. Foreign Agricultural Trade Statistical Report (various years); ERS/USDA, Foreign Agricultural Trade Statistics of the U.S., FY 1985 supplement.

A second reason lies with the growing visibility of U.S. universities (and other institutions supported by U.S. funds) in implementing projects designed to improve agricultural production in developing countries. Legislations in Title XII of the Foreign Assistance Act has created a distinct mandate for U.S. universities to be involved in these project giving rise to small, but identifiable international sections in many institutions, and state clientele are raising questions about such international activities.

And third, U.S. farm problems affecting farmer net income and net worth positions have become more severe in the past four to five years. In many regions, farmers are facing declining asset values, heavy debt burdens, high interest rates, low product prices, and reduced export sales (see Table 2).

Has Increased Agricultural Production in Developing Countries
Caused U.S. Agricultural Exports to Decline

If increased agricultural production in developing countries has been the reason for the decline in U.S. agricultural exports, one or more of the following conditions would also have to exist:

- o Significant increases in total and per capita agricultural production in LDCs since U.S. agricultural exports began to decline in 1980-81;
- o Increases in agricultural exports of LDCs; or
- o Significant reductions in total agricultural imports by LDCs.

Regarding the first point, from 1980-81 to 1983-84, total agricultural production in LDCs increased only 2.5 percent annually.² Further, per capita agricultural production in these countries has remained essentially constant

since 1973-74; only in East Asian LDCs had it increased substantially in the past decade. Thus, since LDC regions in general have shown little or no improvement in per capita agricultural production in the mid-1980's versus the early 1980's, they have apparently undergone no widespread boom in agricultural production to have caused the volume of their agricultural imports to decline.

As to possible increases in agricultural exports of LDCs, in 1970, developing countries accounted for 38 percent of the world's agricultural exports, whereas in 1980 the value declined to 32 percent, and in 1983 it was 29 percent.³ Overall, agricultural exports by LDCs during the 1980s have been steady to delining. Therefore, developing countries, in general, have not been taking away U.S. agricultural export markets. On the contrary, they are losing agricultural export market shares, not increasing them.

Finally, far from being reduced, the value of developing countries agricultural imports from 1974 to 1984 in fact increased by 141 percent. For the last four years of that period, however, their value declined, but that was only by 4 percent, or \$2.5 billion. Moreover, if measured from 1982 to 1984, the value of those imports acutally increased by 6.3 percent,⁴ and in 1984 it was higher than in any other year except 1981. In addition, from 1981 to 1984, when their value was falling, the volume of agricultural imports by developing countries actually increased.⁵

Apart from these points, it should be noted that from 1968 to 1983, the developed world, excluding the United States, increased its market share of LDC agricultural imports from 27 percent to 41 percent. The U.S. market share during the same period, however, increased only from 31 percent to 33 percent.⁶ Therefore, the United States has not increased its share of the LDC agricultural import market nearly as fast as have other developed countries.

In summary, then, there has been no major increase in per capita agricultural production in LDCs in the 1980s; the share of world agricultural exports accounted for by LDCs is declining, not increasing; and although their agricultural imports have been declining slightly in value in the 1980s, they have been increasing in volume, and other developed countries have been able to increase their share of the LDC agricultural import market much faster than has the United States. Therefore, based on the data, it is illogical to maintain the notion that increased agricultural production in developing countries has been a major factor causing U.S. agricultural exports to decline over the past five years.

Why U.S. Agricultural Export Values Have Declined Since 1981

If decreases in U.S. agricultural exports cannot be blamed on developing countries' increases in agricultural production, why have U.S. agricultural exports declined from \$43.8 billion in 1981 to \$31.2 billion in 1985?

Significantly, the United States is the only major exporting country to experience an absolute decline in export volume in the 1980s, and that was due entirely to a loss of market share in world agriculture exports. World export volume, on the other hand, increased by 1.7 percent per year from 1981 to 1984. Therefore, it is not fair to say that the world agricultural export market has collapsed. It has grown, but the U.S. share has declined.

One study shows that since 1981, the volume of U.S. agricultural exports has decreased far less than their value (20 percent versus 35 percent).⁷ About 60 percent of the decline in value of U.S. agricultural exports can be attributed to declines in exports to developed countries, and 40 percent rests with declines in exports to LDCs. Thus, the bulk of the problem is with U.S.

exports to the developed world. In addition, the decline in the value of U.S. agricultural exports to LDCs since 1981 (\$5.32 billion) is greater than the total decline in agricultural imports of the developing world (\$2.5 billion) over the same period. Therefore, it is not logical to blame LDCs for buying fewer U.S. agricultural exports when LDC total agricultural imports have not fallen by very much. The problem is that the United States is not keeping pace with other countries for the LDC agriculture import market.

Why, then, has the value of U.S. agricultural exports declined over the past five years?

The first is that from 1980 to late 1984, the U.S. dollar increased in value against many currencies. This raised prices for all exports from the United States, and a recent USDA study has estimated that the resultant decline in volume of U.S. agricultural exports amounted to \$6 billion between 1981 and 1983.⁸ Although the value of the U.S. dollar has been falling since early 1985 relative to some currencies (e.g., Japanese Yen and German Mark), this decline has not been as substantial against many other important currencies. From February 1985 to August 1986, the U.S. dollar declined only 4 percent against 17 currencies of important U.S. buyers and competitors.⁹ It has actually risen against the currencies of several nations including Canada and Mexico. Further, because some currencies are "pegged" to the U.S. dollar, it is difficult to devalue the dollar against these currencies. Given these situations, it will take longer to reduce U.S. agricultural export prices through U.S. dollar declines than might be expected.

Second, other developed countries have increased their agricultural exports, thus increasing their share of the world agricultural export market from 44 percent in 1975 to 49 percent in 1983 while the U.S. share has remained relatively constant.¹⁰ At the same time, the U.S. share of world wheat exports

declined from 45 percent in 1978-79 to about 28 percent in 1985-86.¹¹ The countries that were increasing their shares during this time were Canada, Australia, Argentina, and western Europe, none of whom have received agricultural development assistance from the U.S. for decades.

Third, developing countries have reduced their growth in imports of agricultural products. This can be partly attributed to decreasing availability of foreign exchange in these countries. From 1970 to 1983, the percent of GNP that was debt service among LDCs increased 73 percent in low-income countries, 187 percent in lower middle-income countries, and 176 percent in upper middle-income countries.¹² During this same time, exports of LDCs generally decreased: the annual decline from the mid-1970s to 1983 was 0.8 percent for low-income countries and 0.4 percent for lower middle-income countries, although upper middle-income countries saw an annual increase of 0.5 percent. Out of 73 developing countries with data listed in the 1985 World Bank World Development Report, only eight (11 percent) had positive current account trade balances. Thus, foreign exchange in developing countries for agricultural imports is becoming more scarce. Yet even with all their economic difficulties in the 1980s, developing countries have been growing in importance as markets for U.S. agricultural exports--as shown in Table 3.

Table 3. Share of U.S. Farm Exports That Went to Developing Countries

<u>CATEGORY</u>	1980	1983
	<u>PERCENT</u>	
Food Grain	55	67
Coarse Grain	29	42
Oil Seeds	15	19
Cotton	42	44

Source (13).

Reduced growth in agricultural imports among developing countries can also be attributed to their slower economic growth. One study reports that annual GNP growth among LDCs, which averaged a strong 6 percent during the 1970s, fell to 1.4 percent in 1981, to 0.9 percent in 1982, and to a dismal 0.4 percent in 1983.¹⁴ Further, GNP per capita in many developing countries has declined in the 1980s.

A fourth reason for the declining value of U.S. agricultural exports since 1981 lies with U.S. policies of supporting agricultural prices. These policies have tended to increase world prices above what they would have been otherwise, thus encouraging other countries to increase agricultural production and exports. Additionally, U.S. restrictions of agricultural exports to several countries in the 1970s and at other times to the Soviet Union, may have also made it attractive for other countries to enter the agricultural export business.

And fifth, the centrally planned countries have decreased their agricultural imports since 1980. At that time, they accounted for 11 percent of the world's agricultural imports; in 1983, they accounted for only 8 percent.¹⁵

Not one of these reasons for the decline in U.S. agricultural export values since 1981 has much to do with increasing agricultural production in developing countries. Moreover, many researchers feel that the total volume of U.S. agricultural exports, which rose more than 10 percent annually during the 1970s, will return to a more normal long-term growth rate of 2 to 3 percent annually between the early 1980s and the year 2000. The mid to late 1970s was an extraordinary period, and the conditions that defined it may not be repeated for some time to come.

Relationship Between Agricultural Production and Imports In Developing Countries

Does increased agricultural production in developing countries necessarily mean they will decrease their agricultural imports? Before this question can be answered, four important characteristics of developing countries must be acknowledged:

- o Agriculture accounts for a significant proportion of their total economic activity.
- o As incomes increase, significantly more is spent on both more food and diet diversification; food expenditures may increase 5 to 6 percent for a 10 percent increase in income. In many LDCs, 40 to 60 percent of income is spent on agricultural products, and as incomes rise, more is spent on meat and dairy products, which in turn increases the indirect demand for feed grains. Primarily for this reason, per capita grain consumption in developed countries is typically two and a half to four times that in developing countries.
- o In general, people who work in agriculture have lower incomes than those who do not. Therefore, an increase in income for agricultural workers will create a higher demand for food than the same increase would cause in the nonagricultural sector.
- o Population growth rates in developing countries, while declining slightly, are still relatively high and will remain higher than those in developed countries for many decades.

These characteristics indicate there may be strong possibilities for relatively high growth rates in the demand for agricultural products in developing countries.

Theoretically, greater agricultural production in LDCs might affect their agricultural imports in several ways. Some effects may be negative. For instance, production of a specific commodity may increase faster than domestic demand for it, which may cause the volume of imports of that commodity to decrease. Or the increased production of a certain commodity may be exported, thus replacing exports of another country.

On the other hand, increased agricultural production in LDCs may have positive effects on their agricultural imports. First, income generated from increased production of certain agricultural commodities may cause the demand for other agricultural commodities to increase faster than domestic supply. Second, increased production of certain commodities might be exported to earn foreign exchange for more agricultural imports. Third, as production increases for certain commodities, land and other resources may need to be transferred from production of other commodities and imports of these commodities may increase to compensate for this change in output mix. Fourth, more agricultural products may be imported for use as inputs (e.g., new variety seeds and livestock breeding stock) or as commodities to insure full capacity operation of agricultural processing industries. Finally and most important, increasing agricultural production is necessary for economic growth and increasing incomes in most LDCs which is vital if they are to remain good customers for U.S. agricultural exports. Therefore, to support and increase economic development, many developing countries will have to increase their domestic agricultural production.

Is there any solid evidence that such a positive relationship exists in developing countries between increased agricultural production and changes in agricultural imports? One study has shown that the 16 developing countries with the most rapid growth rates in staple food production between 1961 and 1976 also increased their net staple food imports by 133 percent during this period.¹⁶ In another study, the group of 18 developing countries with the most rapid growth rates in per capita food production between 1970 and 1982 also increased total agricultural, corn, and soybean and soybean product imports at respective rates of 34 percent, 97 percent, and 257 percent faster than the group of 13 developing countries with the slowest growth in per capita food production.¹⁷

Further, even developing countries that have become net exporters of agricultural products can also be expanding markets for certain agricultural imports. For example, Malaysia, a consistent net exporter of agricultural products, increased her imports of food, feed grains, and oil seeds from a wheat equivalent basis of about 1 million metric tons to almost 2.4 million metric tons from 1967 to 1983.¹⁸ In addition, from 1970-72 to 1980-82, Brazil, a country that competes with us in soybean product exports, increased her imports of wheat and wheat products and corn and corn products from the United States by 27 percent and 86 percent, respectively. In addition, between 1970 and 1984, a time when Brazil was rapidly increasing her own agricultural production, the quantity of U.S. agricultural exports to Brazil increased by 8.7 percent per year while the value of those exports grew by 16.3 percent per year.¹⁹ Finally, while the United States is acknowledged as a large net exporter of agricultural commodities, not so well recognized is its status as the world's third largest importer of agricultural products: note, for example, its 233 percent increase in agricultural imports from 1970 to 1984

(see Table 1). As these examples show, increasing agricultural production along specialized comparative lines in developing countries can complement increasing agricultural exports to them.

Lastly, in a recent analysis of 65 developing countries from 1970 to 1982, for those LDCs experiencing growth in per capita agricultural production, a positive and significant correlation was found not only between such production and per capita agricultural imports, but also between such production and per capita income.²⁰ Also in this study, per capita income emerged as the most influential variable affecting agricultural imports; increases in income spurred the demand for commercial agricultural imports and embodied services. In this study, there was no evidence that increasing agricultural production had a negative and significant effect on agricultural imports. A similar study found that the relationship between developing countries' agricultural productivity per worker and per capita Gross Domestic Product (GDP) was positive and significant. In addition, a strong and positive relationship was found between per capita GDP and agricultural imports of developing countries.²¹

The conclusion all this evidence points to is that for LDCs, increases in agricultural production is necessary for widespread income growth which leads to increases in agricultural imports. Because of this, LDCs with the faster-growing agricultural sectors were the faster-growing markets for U.S. agricultural exports. Thus, American agriculture has nothing to gain and much to lose from slowing down agricultural development in developing countries.

Regardless of one's position on the issue of how agricultural development assistance in LDCs countries affects American agriculture, it is clear that U.S. government expenditures on such assistance in developing countries are relatively small. U.S. domestic agricultural commodity price and farm income

support expenditures in 1983 (not even counting the Payment in Kind, or PIK, program) were twenty-five times larger than were U.S. expenditures on agricultural, rural development, and nutrition assistance programs for LDCs. Or, to put it another way, what we spent on agricultural development assistance was only 4 percent of what we spent in support of domestic agricultural programs.²²

There are exceptions to this general proposition that agricultural development boosts broad-based income growth and thus the demand for imported agricultural products. First, while agricultural production has increased dramatically in China, China has reduced imports of wheat and corn. This is a result both of China's strong policy emphasis on increasing foreign exchange availability and of her lack of a well-integrated, functioning internal market. The Chinese simply decided to increase their exports and reduce their imports, no matter what happened in the mid-1980s. For example, when their corn production fell by 13 percent in 1985, contributing to noticeable feed grain shortages in parts of China in 1986, corn exports were continued to increase foreign exchange availability. If the Chinese can better integrate their internal marketing system and relax their conservative foreign exchange policy, larger agricultural import demands can be expected.²³

Second, India is often cited as a developing country that has begun exporting agricultural commodities, in this case, wheat. This is not because she has met all of her internal food needs, but because of a lack of effective demand and poor performance in the nonagricultural sector. If the millions of poor and undernourished Indians should achieve substantial increases in income, India's current food grain trade posture might be transformed. Also, India imports many agricultural products even though she is a very small net exporter of wheat.

Finally, there are exceptions to this general proposition in the developing countries that export large amounts of oil or minerals and therefore do not necessarily have to develop their agricultural sectors to achieve income increases in the intermediate term.

The Likely Scenario for the Future

Looking ahead to the future, the food gap in developing countries between production and demand will probably increase moderately over the next two decades. A recent study by the International Food Policy Research Institute has indicated that the overall net food deficit, which was 50 million metric tons in 1980, will be about 70 million metric tons by the year 2000.²⁴

In addition, many developing countries that have had difficult economic times in the past few years will need to improve their foreign exchange positions and income growth records to continue as growing markets for agricultural imports. To accomplish these goals, agricultural development must be an important part of their plans.

At the same time, while LDCs will probably not be the growth market for the next twenty years that they were for agricultural imports from 1973 to 1981, they can be the most important growth market for agricultural exporters. Whether the United States can effectively compete with other developed countries for these developing country markets is another question.

Finally, macroeconomic forces such as interest rates, foreign lending, currency values, LDCs export performance, trade barriers to LDC exports, oil prices, and other variables will have major impacts on developing countries involved in importing agricultural products. If LDCs are forced to turn inward by a lack of export opportunities and foreign assistance, and if they adopt

import substitution and self-sufficiency policies, they may increase their agricultural imports only slowly. If this happens, it will probably be because of unfavorable macroeconomic forces and poor agricultural development performance rather than because agricultural production grew faster than the demand for many agricultural commodities.

Clearly, one can find examples of certain developing countries that have reduced their imports of certain commodities over a specific time period. But generally speaking, LDCs are the best hope for expanded markets for the world's agricultural exporters. For this hope to be realized, however, these countries will have to generate employment opportunities and achieve income increases for the billions of low-income people they contain, and this will require their successful agricultural development. Effective development assistance in agriculture that improves employment and income in developing countries can benefit vast numbers of poor people as well as American agriculture. Thus, the broader picture is one of mutual benefit for both American agriculture and agricultural development in poor countries.

Notes

1. G. E. Schuh, "Future Directions for Food and Agricultural Trade Policy," American Journal of Agricultural Economics 66 (1984): 242-247.
2. ERS/USDA, World Indices of Agricultural and Food Production, 1975-84, Statistical Bulletin no. 730 (Washington, D.C.).
3. T. K. White, G. A. Mathia, and G. E. Overton, "Global Trends in Agricultural Production and Trade," in United States Agriculture and Third World Development: The Critical Linkage (Washington, D.C.: Curry Foundation, forthcoming).
4. Food and Agriculture Organization (FAO), Trade Yearbooks (Rome: various issues).
5. F. H. Sanderson, "Long-Term Prospects for U.S. Agricultural Exports" (Statement Before the U.S. Senate Subcommittee on Foreign Agriculture, 3 June 1986, in manuscript).
6. White, Mathia, and Overton, "Global Trends."
7. Sanderson, "Long-Term Prospects."
8. J. Longmire and A. Mory, Strong Dollar Dampens Demand for U.S. Exports, Foreign Agriculture Economic Report no. 193 (Washington, D.C.: ERS/USDA, December 1983).
9. P. Coy, "Cheaper Dollar is Little Help," Arizona Daily Star, 5 October 1986.
10. White, Mathia, and Overton, "Global Trends."
11. U.S. General Accounting Office (GAO), Agricultural Overview: U.S. Food/Agriculture in a Volatile World Economy (Briefing report to the Congress, Washington, D.C., November 1985); Sanderson, "Long-Term Prospects."
12. World Bank, World Development Report 1985 (New York: Oxford University Press, 1985).

13. R. L. Paarlberg, "U.S. Agriculture and the Developing World: Partners or competitors?" United States Agriculture and Third World Development: The Critical Linkage (Washington, D.C.: Curry Foundation, forthcoming).
14. Ibid.
15. White, Mathia, and Overton, "Global Trends."
16. K. L. Bachman and L. A. Paulino, Rapid Food Production Growth in Selected Developing Countries: A Comparative Analysis of Underlying Trends: 1971-76, Research report no. 11 (Washington, D.C.: International Food Policy Research Institute [IFPRI], October 1979).
17. E. D. Kellogg, "University Involvement in International Agricultural Development Activities: Important Issues for Public Education," Proceedings of the Association of U.S. University Directors of International Agricultural Programs (Annual meeting, Athens, Georgia, 29-31 May 1985), pp. 121-136.
18. J. Lee and M. Shane, "U.S. Agricultural Interests and Growth in Developing Economies: The Critical Linkage" (ERS/USDA, June 1985).
19. Kellogg, "University Involvement."
20. E. D. Kellogg, R. Kodl, and P. Garcia, "The Effects of Agricultural Growth on Agricultural Imports in Developing Countries," American Journal of Agricultural Economics (forthcoming).
21. J. P. Houck, "A Note on the Link Between Agricultural Development and Agricultural Imports," Staff Paper 86-26, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, MN, July 1986.
22. U.S. GAO, Agricultural Overview.
23. Paarlberg, "U.S. Agriculture and the Developing World."
24. L. A. Paulino, Food in the Third World: Past Trends and Projection to 2000, Research report no. 52 (Washington, D.C.: IFPRI, June 1986).