



WORLD FOOD PRODUCTIVITY AND AGRIBUSINESS EXPORTS

If one accepts the proposition that research, expanded funding, and determined human effort will conquer all obstacles and produce the desired results, one might expect U.S. agribusiness exports (commodities, processed foods, fertilizers, chemicals, etc.) to increase significantly in the next decade. Even a brief review of agribusiness trade literature will convince the reader that expanding our commodity exports is a "hot" topic these days. Growers associations, commodity groups, and government institutions and agencies have launched numerous and diverse efforts to tap the foreign market. Plagued by surpluses and depressed domestic markets, the undercurrent of thought is that expanded markets abroad will lift our agricultural economy from the depths of its recessionary quagmire. While the theory is sound and the intentions are admirable, one must also recognize the Herculean size of the task to be performed. In recent years, agribusiness exports have actually declined, and reversing this trend will not occur rapidly, or easily. The objective of this discussion is to review the immediate, short-run implication for U.S. agriculture.

Mixed Emotions and Bad Signals

In 1977, a report titled "Global Report 2000" was prepared for the President by the Council on Environmental Quality and the Department of State. Throughout its two volumes, the report argued that the future growth rate for world agricultural output was inadequate to meet the needs of our planet's growing population and that higher food prices in the

long run were inevitable. This "Malthusian proposition," which finds population growing exponentially while food supplies grow arithmetically, could be traced to numerous other studies undertaken at earlier periods. The proposition is conceptually in concert with most Americans' view of the food production-consumption scenario in many less developed countries of the world. Our myopic view of the so-called Third World countries is that they are generally underdeveloped and underfed. And since such countries lack the technology to expand their own agricultural productivity, we expect this production-consumption imbalance to persist, perhaps even reaching the devastating levels now existing in much of Central Africa. We need, therefore, only to find a means for physically moving our surpluses to these foreign markets and the problem will be solved. But of course this scenario may be somewhat idealistic.

In simplest terms, the "Global Report 2000" was wrong, dead wrong, and while our emotions have been preoccupied with the tragedy of Africa's current drought, the productivity of the world's farmers has risen dramatically, quite in contrast to the Malthusian signals of earlier years. Rising world productivity suggests that U.S. farmers can expect increasing competition in export markets. Moreover, we must recognize that this increased competition will likely persist even if the strength of the U.S. dollar drops to pre-1980 levels. While exchange rates and world market prices reflect the strength of our dollar, food productivity, alone, is linked more to science and technology and less to economics. Third World nations, therefore, are much more desirous of importing our knowledge and technology than they are of

buying our surplus foodstuffs. A friend and colleague recently returned from the People's Republic of China to confirm this finding. China's millions are not generally underfed. Yet because of lower levels of labor productivity, a high proportion of their total population remains engaged in food production. The importation of our knowledge and technology would release labor for use in other areas of economic development. In reference to the often quoted axiom, the Chinese do not wish to buy our fish; rather they would like to learn how to increase their own catch.

Improved Food Productivity

Farmers the world over, out of a sense of pride, might argue that their increased productivity is the result solely of their own perseverance and hard work. One hundred years ago, this was largely true, but today few persons work harder than an Indonesian peasant farmer and his productivity, by world standards, is low. Modern agriculture depends more heavily upon off-farm support than ever before. Machinery, chemicals, fertilizer, finance, and information have become the basic productive resources, largely supplanting those of operator labor and land. While land and climate were once restrictive forces, capital and technology have now become the limiting factors to increased food production.

Scientific knowledge is no longer the captive element of developed nations. Agricultural research institutions have emerged in Third World countries and the results of their work are having an impact. In a recent paper, Dennis T. Avery of the U.S. State Department's Bureau of Intelligence and Research, reviewed progress in food productivity around the world.¹ Some of his findings are summarized below:

1. Some U.S. farmers have planted the world's first hybrid wheat, increasing

¹ Avery, D. T., *Journal of Agribusiness*, University of Georgia, February 1985.

yields by 25-30%. Foreign seed firms have established joint ventures within U.S. counterparts to gain access to the hybrid seed which could boost world production from 500 million metric tons (MMT) to 650 MMT.

2. New growth-regulating chemicals shorten soybean growing season requirements by two weeks, permitting and/or increasing the double-cropping potential of Chinese and Latin American growers.
3. Heavy doses of growth hormones have been found to stimulate dairy cow milk production by 15-40% with no added feed rations required.
4. The world's first viral insecticide has been announced and promises to raise yields of corn, tomatoes, soybeans, and tobacco with no negative environmental impact.
5. New minimum tillage techniques, when practiced in Third World countries and elsewhere, will actually restore crop residues to the soil, reduce erosion, and enhance soil productivity.
6. The International Rice Research Institute recently released its "Third World" variety which requires only two-thirds the nitrogen and one-tenth the pesticide protection of earlier varieties, while maintaining high yields.
7. Tissue culture experiments in Indonesia and Malaysia are expected to raise yields of rubber and palm oil with a technique that produces identical seedlings from high yielding parents in months instead of decades.
8. A green-revolution sorghum for Africa could triple cereal production there and in other semi-arid areas.
9. Researchers in Peru seem to have solved the problems of permanent cropping in the huge Amazon Basin. The addition of trace minerals may permit expanded

cropping of 200 million hectares in Peru and Brazil.

10. Even in more technically advanced countries like those in Western Europe, yields jumped 18% above a previous high as a result of new varieties of spring and winter barley. Europe's new "double zero" rapeseed varieties raised British yields by 30% in 1984, while new varieties of field peas and beans raised French production by 20% in 1983 and another 25% in 1984.

As noted by Avery, this added level of food productivity, as awesome as it appears, may be dwarfed by future advances in genetic engineering. As the secrets of DNA are unraveled, new vaccines, disease resistance and a plant's ability to produce ammonia for its own use are real possibilities.

The United States is not alone in its ability to invest huge sums of capital into its agribusiness infrastructure. Saudi Arabia has set a record for doubling its grain supplies through its heavy investment in irrigation wells and sprinkler systems. Norway will import no feed grains this year as its livestock industry is now self-sufficient. Even the European Economic Community has produced a huge shift in grain flows as it now exports 15 MMT on the strength of high price guarantees to its farmers. Government funding of such support programs is subject to change, of course, but in the meantime, U.S. support for farm programs may also lag.

According to the FAO, farm output in less developed countries rose 33% between 1971 and 1982, compared with an increase of only 18% for developed nations. This rate of increase in food productivity not only is much higher than that predicted by the Global 2000 report, but continues to rise from 2.7% a year during 1971-77 to 3.3% a year during 1977-82.

An Added Complication

It will be difficult to sell our surplus agricultural commodities to countries whose own level of

domestic food productivity is rising at record levels. But the situation is made even more difficult by the fact that most of these countries are heavily burdened with debt. In an attempt to gain some relief from their international debt load, some nations (for example, Brazil) are, at least in the short run, intentionally diverting some of their expanded food outputs away from domestic markets and dumping them on a stressed world market.

Neither can it be argued that the less developed countries lack the basic natural resources necessary to sustain expanded food productivity. Throughout South America, Southeast Asia, the Near East, and elsewhere there can be found large land areas where modern science and technology can compensate for limitations of soil and climate. Even in Ethiopia, where food shortages are now of crisis proportions, leadership and incentive, not soil or climate, appear to be the limiting factors. Avery notes that the domestic need for food in most developed nations is already satisfied and surpluses appear even more ominous as export trade opportunities seem already to be fully exploited. Moreover, by the time the huge population in the less developed countries can bid effectively for better diets, their own agribusiness industries will likely possess the ability to meet that demand with domestic production.

A Cautious Optimism

A literal interpretation of that which appears above would lead some to believe that any (or all) of our attempts to expand U.S. agribusiness exports are doomed to a costly failure. Indeed, the data and trends would suggest that, African droughts notwithstanding, the dietary needs of the world's population will be fulfilled in the future, perhaps even more adequately than in the past, and that domestic (not imported) foodstuffs will largely suffice for that purpose. While we may retain the comparative advantage in the production of some agribusiness products, our attempt to expand

our food exports would be like peddling American hamburgers at an Indonesian soccer match after the crowd has just finished eating its fill of rice cakes and pickled fish. In a strictly dietary sense, the needs of the crowd have been met and further purchases of an unfamiliar food product would seem unattractive.

Despite all that has been said above, I sustain a sense of cautious optimism about future U.S. food exports. The basis for my optimism lies in the subtle, but significant, difference between the terms "diet" and "appetite." It has long been the case that the United States could meet the dietary needs of its people. But those dietary requirements are measured generally in protein, calories, vitamins, and minerals, and remain largely unchanged over time. Appetite is quite a different phenomenon, however, as it suggests quantity, quality, and variety of food consumed, and these change quite measurably over time. As a young man, I would have cringed at the thought that I would someday be eating what is now on my weekly menu. What was once a nearly totally American intake of meat, potatoes, and eggs has, over time and with a rising income, been transformed into a menu of exotic foodstuffs including such imports as olives, wine, heretofore unknown vegetables, and a vast array of oriental food products. While my dietary requirements remain unchanged, my appetite has taken on an international flair. And herein may rest the key to our agribusiness export dilemma. American ingenuity and salesmanship have already resulted in the export of hamburgers, hot dogs, and fried chicken to population centers around the world. Perhaps as the incomes of foreigners continue to rise, they too, will prove susceptible to a variety of uniquely American foodstuffs. Perhaps our export market development efforts should focus on appetite enhancement rather than dietary adequacy. While the Japanese, for example, may require little American wheat flour to fulfill their dietary needs, perhaps we can tempt their appetites with good old American doughnuts and sweet pastries. Just as

Americans are now enjoying seaweed and squid cooked in a Chinese wok, perhaps the Chinese will someday learn to enjoy potato salad, American ethnic sausages, and Creole cooking. While the Chinese may be generally well fed, they may be starving for variety in their diets. As they become more affluent, their yearnings for American blue jeans and potato chips will grow. We must be prepared to meet this need as a friendly trading partner.

I'm not so naive as to suggest that the exportation of doughnuts, chocolate chip cookies, and bagels will solve our domestic wheat surplus problem. But the idea does add a new perspective. If the quantity of foods produced by the less developed countries is sufficient to meet domestic dietary needs, then our attempts to export foodstuffs to these nations would better focus on food product variety and appetite enhancement. Avery seemed to be defining effective demand in mechanical terms. Effective demand for bread has been satisfied in developed nations for many years but that has not prevented the development of enormous trade flows in wheat. Great fortunes have been made in building convenience, service, novelty, etc. into wheat products; for example, pizzas, sesame seed buns, gourmet desserts. The potato industry has been rebuilt through the frozen french fry. We must treat export sales the way Procter and Gamble treats soap sales and apply creative marketing to develop new opportunities. Otherwise, we will face a saturated market.

A second reason for my cautious optimism rests on the knowledge that combined efforts are generally more productive than individual attempts. Agricultural commodity commissions have historically worked alone to promote the domestic consumption of their particular product-dairy products, Washington apples, Idaho potatoes, California raisins, Florida orange juice, etc. Recognizing that foreign markets are more difficult and costly to develop, these groups, plus government agencies and state institutions, are now

attempting to coordinate, if not combine, their export development programs. These concerted efforts will doubtless prove to be more cost effective as our current knowledge of foreign markets, international tastes, and food preferences remains largely immature. The combined resources and talents of these groups will also exert a great influence where restrictive trade barriers and preferential treatments must first be resolved.

Finally, my cautious optimism rests on the knowledge that the U.S. agribusiness industry has long demonstrated its ability to produce, process, package, and distribute the highest quality of food products in the world. Our track record in this area is second to none and many nations remain envious of our accomplishments, particularly in our processed food sector. We also possess the ability to transport foodstuffs, fresh and processed, to all parts of the world in a timely and efficient manner. Having once eaten a fresh Washington apple purchased from a vendor in Jedda, Saudi Arabia, I remain filled with a sense of admiration for such accomplishments.

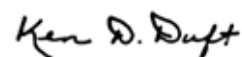
Summary

One can hardly review a piece of agribusiness industry trade literature these days without reading about a variety of efforts to expand our agricultural exports. Our total exports have actually diminished in recent years and this fact, alone, is often cited as an underlying cause for agriculture's

recessionary state. Reversing this recent trend will be costly and difficult. Positive results will not be achieved rapidly. The task is made even more awesome by the fact that many nations, particularly less developed ones, have recently experienced rapid increases in their own levels of food productivity. With access to improved science and technology, these countries are demonstrating an ability to achieve a state of self-sufficiency in food production.

If each nation can provide, internally, for the dietary needs of its own people, how can the U.S. expect that nation to import more foodstuffs? In my opinion, we must diminish our focus on dietary requirements and emphasize food variety, quality, and appetite enhancement. Americans have developed appetites for international foods and continue to import specialized products which cannot be, or are not, produced locally. As the income levels of other nations approach, or even surpass, that of our own, we must attempt to add variety to their menu, expand their appetites for uniquely American foods, and provide quantitative assurances that will facilitate the gradual expansion of the resultant foreign markets.

Sincerely,



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