THE VOICE OF SCIENCE ON CAPITOL HILL

F.A.S. NEWSLETTER

FEDERATION OF AMERICAN SCIENTISTS — Founded 1946
A national organization of natural and social scientists and engineers concerned with problems of science and society.

SPECIAL ISSUE ON
WORLD FOOD PRODUCTION

Vol. 26, No. 7 September, 1973

FOOD: MORALITY OF THE POLITICS OF SCARCITY

There is room for both optimism and pessimism in assessing the prospects for feeding the world. In the late sixties, pessimism bordered on panic and the prospects for world-wide famine seemed embodied in a succession of bad harvests, very low rates of growth of agricultural productivity and continued population growth. Within a few years, optimism had the upper hand: high yielding wheat and rice had given rise to handsome increases in production in several countries and they seemed to foreshadow further progress. The pattern of optimism and pessimism, as well as the recent world-wide poor weather in 1971 and 1972 can be seen in Figure A (lower graph) as perturbations in the per capita food production of the less developed countries.

Today new factors are still being added. The end of the cold war has solidified a truly world-wide market for agricultural products in which former adversaries buy and sell from one another. The same ebbing of confrontation prevents, in the Soviet and Eastern European countries especially, the suppression of consumer claims to a better diet. Meanwhile, per capita income increases in these countries and everywhere; with these increases comes, it turns out, proportionately greater consumption of grain—grain necessary to provide meat for a higher quality diet. Thus affluence makes its claims for grain. Today, with world trade increasing rapidly, a developed country may buy the grain we would otherwise have donated, or sold on easy terms, to the developing world.

In the past, we worried whether agricultural production would increase by percentages as great as that of population—between 1 and 3% depending on the country. Now we must wonder whether food production can in addition, **keep up with rates of increase of per capita income—rates which can grow up to 5% or more.**

In addition, our very progress in birth control techniques, and in agricultural advances, reveals to us the further social, economic, cultural, and ecological difficulties that remain. True, the world is institutionalizing the research necessary for advance, and it is developing an awareness of what must be done and a certain commitment. But how long it will take to make the actual progress is uncertain. Nor can we be sure what future technology may hold no matter how promising it may seem. And, whatever technology may provide, it must be combined with progress in limiting demand for food through changes in consumption patterns, and, above all, through rapid progress in limiting population growth.

Needless to say, everything depends, in the short run, on the weather. But in the longer run, we must be prepared for a period in which food becomes an important element in geopolitics. There may come to pass what has been called the politics of scarcity. What is the morality of that politics?

1. We ought to make every effort to encourage agricultural research in the developing countries, applying and extending our scientific knowledge to problems of their food production. America

(Continued on Page 2)

Approved by the Federation Executive Committee, the above statement was reviewed and endorsed by these leading consultants on food production and population growth:

Lester R. Brown Paul R. Ehrlich

(See page 7 bottom for identification).

FOOD PRODUCTION VERSUS POPULATION & AFFLUENCE

In the middle to late sixties, famine was the immediate fear of world food specialists. Its immediate cause was poor weather and its long term cause was population growth. There was even talk of saving what U. S. resources existed only for those countries which could be saved. Food would not be offered other more "hopeless" cases. One author was prepared to write off India.

Five years later, the problem is still ominous though less so, and its dimensions are different.

Famine does threaten, at least in sub-Saharan Africa where 20 million people live. But elsewhere hunger and malnutrition is the immediate focus of efforts. And where all attention was previously focused on population growth as the sole source of demand, today an equally important source of demand has become apparent: affluence. Economists have long argued that expenditures on food would drop with increases in income—a man could only eat just so many meals; this was Engel's law. It is not as accurate a reflection of reality as one might expect.

(Continued on Page 3)

does not want to hoard its advantage in agricultural science to enhance geopolitical benefits. Full support should be provided to international research centers in agriculture. And domestic agricultural research should be provided greater status. For American scientists "who care," agriculture is an obvious place to work.

2. The United States ought to take the lead in encouraging a system of stable food reserves. The world has long relied upon American surpluses and excess acreage to protect against shortages. If these traditional reverses are no longer to exist, we have an obligation to be sure that something takes their place. In particular, we do not want to have to choose during famines between selling our food to developed nations or donating it to the undeveloped. And we must protect against the ever present possibility of a succession of bad years or even a climatic change that requires some readjustment of world agricultural patterns.

The obligation upon our Nation to encourage international food reserves is matched by an obligation of others. Nations that may become dependent upon our food surpluses have a duty to develop their own food reserves so that their degree of dependence is reduced.

3. In the face of global scarcity of food, our obligation is to produce food—not to restrict its production. We do not want to secure monopolistic advantages by artificially propping up prices. Expansions of programs for concessional sales (PL 480) or a beginning to the accumulations required for international reserves should be used to absorb surpluses, so long as this is done carefully to avoid depressing foreign agriculture.

4. As food becomes an element in global diplomacy, we have an obligation to handle it diplomatically. All-out stop and go policies—in which uncontrolled open markets alternate with embargoes—become inappropriate. The obligations of a seller to an established buyer must be respected, all the more so in light of the fact that the buyers invariably have less food than do we. And when there is doubt that our market can sustain all comers, some system of rationing foreign sales has to be provided to prevent diplomatic disruptions.

The politics practiced by America with regard to food require very special attention because food means life, because we are well supplied with food and because others are less so. But, in addition, we should keep in mind that food is not the only world necessity. We are faced with the possibility of world wide shortages of other substances, for many of which we are eager buyers—sources of energy are just one current example. We use enormously more of the world's resources than our population size would suggest. Thus we are potentially as vulnerable to the politics of scarcity as any country on earth. In our handling of food, we should be particularly careful to "do unto others as we would be done to."□

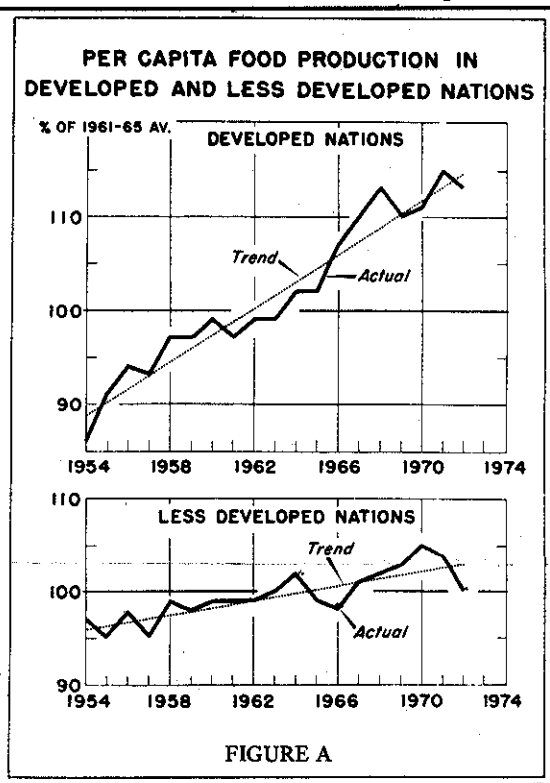

FIGURE A

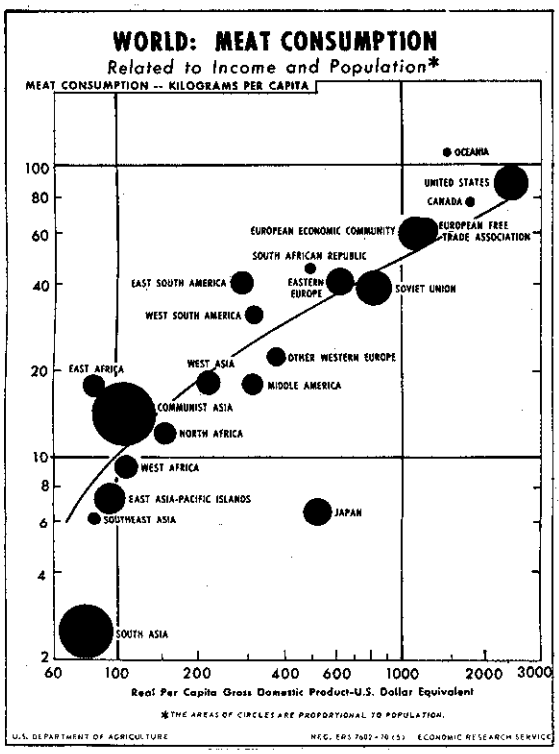

FIGURE 1

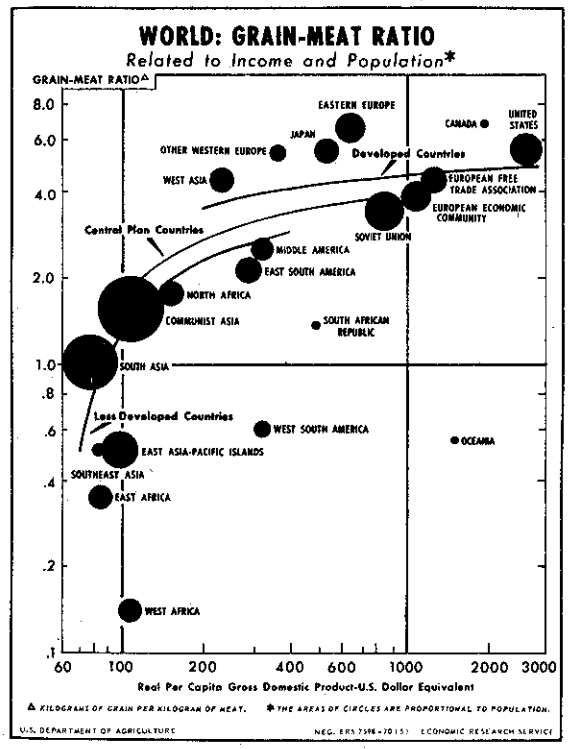

FIGURE 2

FOOD PRODUCTION, from Page 1

Three square meals may be the physical limit but the quality of the meals can be increased steadily.

Thus, as in figure 1, meat consumption rises steadily even in the developed countries. In South Asia, 7 pounds per capita per year may be the rule. But in the United States, it is 200 pounds or 30 times as much.

Furthermore, eating meat can be considered, in one sense, as an inefficient way of eating grain. In the United States, it takes three pounds of grain to produce a pound of poultry, five to one is the ratio for pork, and ten to one is the ratio for beef. Our average grain-meat ratio of six to one is itself much higher than the ratios in poorer countries (see figure 2), where animals are less well fed or left to forage.

In the end, Americans eat 80% of all the grain they consume indirectly, first using it for feed and then consuming the meat it produces. We do eat a bit less grain for food directly than less developed countries (figure 3). But the net effect is one of absorbing far more grain when both food and feed grains are considered together. Thus Americans may consume almost a ton of grain a year (2,000 pounds) while inhabitants of poorer countries may consume 1/5 as much.

In the past, the United States produced enough to supply its own needs amply and with low food prices. It supported farm prices to help the farmer. It placed in surplus the substantial excess these supports created. And it held down domestic production, through such devices as acreage allotment and soil banks to avoid still further surpluses. It also sought the reduction of foreign tariff barriers to encourage the export of the food surpluses. And it offered easy terms for sales to needy countries.

Today a more affluent, and less tense, world provides better markets for these surpluses. When the Soviet Union has a bad harvest it does not simply tighten its belt as it did ten years ago, but it buys one quarter of the U.S. wheat crop. In a relatively recent development the Japanese buy almost all of their soybeans from the United States. And in Eastern Europe, consumers have become used to more meat, and thus require far more supplies of grain. In short, the need for food in poorer countries has been supplemented by a competing market demand for food from richer nations.

The competition is already evident. For example, on July 13, the United States approved 100,000 tons of grain to help the famine in the Sahara. Agency for International Development (AID) officials noted that this approval had come only after the Agriculture Department announced on July 10 that bumper crops were expected in the fall. The sales to the Soviet Union had been about 20,000,000 tons or two hundred times as large as the gift under consideration!

Projecting Future World Demand

Estimating world demand for food now requires, therefore, estimating not only the rate of growth of population, but the rate of growth of affluence, and the relationship between these two sources of demand, and the demands themselves. Obviously, changes in prices that mediate the demand and supply conditions further complicate the problem.

At present, the population growth rate in the developed countries (U.S., Europe, USSR, and Japan) is between 1 and 1.5%. Asia (except Japan) is growing at between 2% and 2.5%. South America, Africa and the Middle East are growing at between 2.5 and 3%. Central America is growing at an even higher rate. Overall, the less

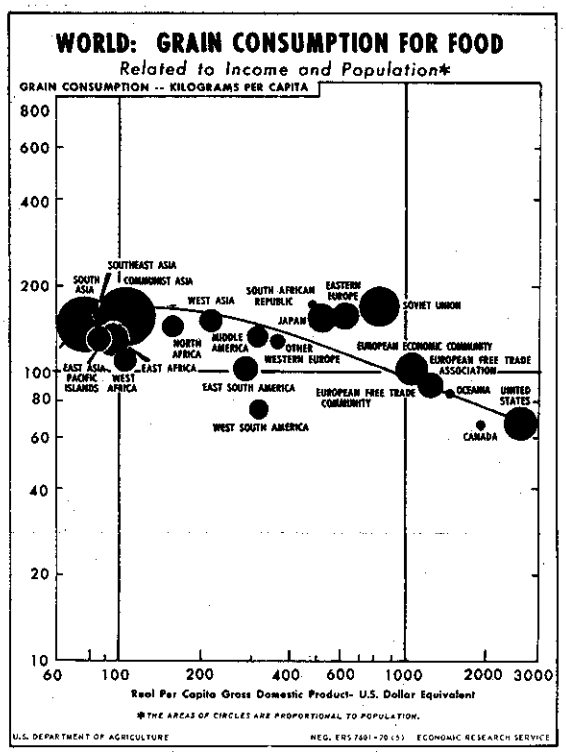

FIGURE 3

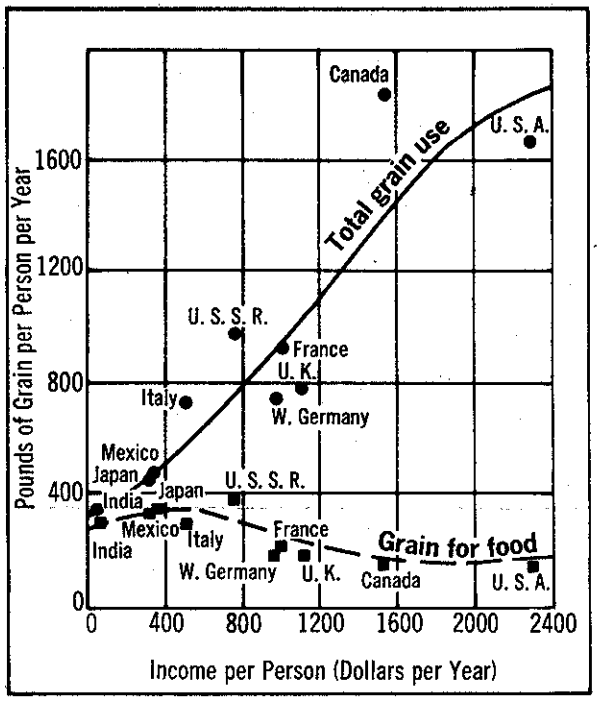

FIGURE 4

developed world is growing at between 2 and 3% a year. It is normally presumed that demand for food based on population growth is proportional to that growth.

What of the demand created by affluence? This question is not well understood by the experts and is complicated by problems of price and international finance. But examination of Figure 4 suggests that consumption of grain rises faster than per capita income when people are very poor—earning less than a few hundred dollars income per year. But over a wide range, between about $400 and $2,000 per capita income, that consumption of grain (either as food or feed) is surprisingly proportional to per capita income.

A 1965 Department of Agriculture study on "Foreign Economic Growth and Market Potentials for U. S. Agricultural Products" would seem to bear out this result since it shows that, considering all countries importing from the United States, agricultural imports increased about 11 per cent for each 10 per cent increase in per capita income in those countries.

One observer noted that this suggests that underlying demand for food is, over a wide range, proportional to gross national product—the product of population and per capita income (e.g., if one doubles gross national product, either by doubling the population or the per capita income, or some suitable combination of proportionate increases in both, the demand for grain will roughly double). Experience, according to the World Bank, shows that agricultural demand does not rise quite so rapidly. It suggests that population growth of 3% and per capita income growth of 3% would typically produce an increase in demand for food of about 5%. In any case, the close link between demand for food and gross production is clear.

The U.N. Food and Agriculture Organization (FAO) projects an increase in food demand in developing countries of 3.6% a year in the eighties, assuming an annual increase in gross domestic product of 5.4%. If the developing countries meet the target rate for growth of the Second Development Decade, approximately 6.7% a year, demand for food is expected to rise by about 4 percent a year.

Unhappily, FAO is less hopeful about world production. It expects the developing countries to increase agricultural output by about 3.3% a year. This would provide an increase in per capita production by about .6% annually compared with .3% in the sixties. It expects deficits in livestock products and fish for food. All in all, FAO sees a close race between agricultural production and demand in the seventies. The Agriculture Department is somewhat more optimistic. A 1971 Department of Agriculture study, "World Demand Prospects for Grain in 1980," suggests that growth in unconstrained production "would most likely exceed growth in demand" and cause a fall in prices which would hurt the chances of less developed countries to improve their export earnings in this decade.

What of the longer run? One rough estimate from the Department of State and the Department of Agriculture on the year 2000 makes the race between food production and demand seem quite a close thing. A report to the President in April 9, 1970 entitled "World Food Population Levels" suggests that modernization of agricultural techniques in the developing nations could probably feed between 3.8 and 4.4 billion people depending upon the diet postulated. This sounds in balance since the U.N. projects a population in these developing countries of 3.5 to 3.9 billions by the year 2000. However, these rough estimates must also assume that $10 billion a year

in foreign exchange be provided to modernize the agriculture in those nations; this is about 10 times the 1971 level of assistance from all donor countries.

It seems that the problem of forecasting demand for grain over decades involves so many imponderables as to be highly unreliable. But population growth and affluence together have a good chance of being responsible for steadily rising food prices, if not truly serious crises. The opposite would be a real surprise and it would presumably require technological advances.

What of Technological Progress?

There are two ways to increase food production. One can increase acreage and one can increase yields. There is little world acreage left. Incautious efforts to use marginal land can lead to erosion and can therefore be counterproductive. The problem therefore generally reduces to increasing yields. A good beginning was made in the creation of the high yielding wheats and rice. These were capable of doubling yields or better given appropriate management and inputs such as water and fertilizer. In four years, beginning in 1965, about one tenth of Asia's grain acreage was planted in these new varieties. The impact in India, Pakistan and the Phillipines was dramatic. Production of wheat increased in excess of 50% in India and Pakistan in a few years. Rice production in the Phillipines turned it from a perennial importer into an exporter. Where, a few years before, famine had been forestalled only by enormous American grain shipments, there were plans to become self-sufficient.

The increases in yields bought time against the increases in population. Still more important, however, they showed the value of institutionalizing research and development in agriculture. The high yielding wheat had been developed in Mexico at a Rockefeller-sponsored institute; its success had led to the creation of an International Rice Research Institute in the Phillipines which had promptly proved its value with the rice varieties.

There is no interest in private enterprise in doing research in agriculture in the developing countries. And philanthrophy could only do so much. As a result of these realities a major effort is being made to organize an across the board effort to set up and oversee needed research institutes.

Housed in the World Bank, there is now a "Consultative Group on International Agricultural Research" sponsored by the Bank, FAO, the United National Development Programme, and certain Governments and philanthropic organizations. It aims to raise $24 million in 1973 to support six international agricultural research centers already established. Besides the two already mentioned, these are: the International Center of Tropical Agriculture, in Columbia; the International Institute of Tropical Argiculture, in Africa; the International Potato Center, in Peru; and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), in India.

The Consultative Group receives recommendations, from a Technical Advisory Committee (TAC) consisting of 12 distinguished agricultural scientists, on which projects should be supported. It is considering such problems as increasing yields of rice on non-irrigated land, collecting and preserving genetic resources of potential value for cross-breeding, and the development of an African Livestock Institute which would, in particular, develop vaccines to protect African cattle against two major killer diseases.

PROTEIN VIA A MAGIC WAND

"If the plant geneticist should succeed in producing strains of cereals and pulses that differ from existing high-yielding strains only in their protein content—if the strains have the same yield, respond the same way to fertilizer, produce the same income for the farmer as lower protein strains, and have exactly the same cooking qualities and taste as existing strains—the effect would be akin to waving a magic wand over the production-income-diet complex, and protein intake could be improved at a very small cost."

The Nutrition Factor—Alan Berg, pg. 63

In addition to spreading existing high yield varieties to new areas, further increases in yield can be expected over time. The Department of Agriculture expects, for example, a 3% annual growth in yield in corn through 1980. The new rice varieties need a good deal of both water and sunlight—thus they work well in irrigated sunny areas. But varieties that need less sun could work well in countries watered by the monsoon and work is underway to develop them.

The prospects for further improvement in wheat look good. Existing cereals may be crossed to provide man-made cereals with high nutritional content. Disease resistence may be improved and so on.

Malnutrition

Much of expected technological progress in food centers around improving the nutritional value of existing foods by modifying or fortifying them.

Human diets must contain six basic kinds of nutrients: carbohydrates, proteins, fats, minerals, vitamins and water. The carbohydrates are mostly found in certain vegetable foods, especially cereals (grains), such as wheat, rice, corn and the millets; root crops, such as potatoes, yams, cassava; or in sugars. These foods provide most of the world's calories.

In the developing countries, the average person receives 2,000 calories a day; in the developed countries, 3,000. It is believed that 20% of the people in developing countries are undernourished due to insufficient caloric intake—350-450 million people. The effort to increase yields of cereals and root crops is critical to providing adequate numbers of calories.

But in addition to securing sufficient calories, humans must have 40 to 52 grams/day of protein.

If a person's diet is deficient in protein, but adequate in calories, he suffers from a disease called *Kwashiorkor*. His growth suffers, his muscles waste, his hair comes out, his appetite is poor. The children are characterized by bloated bellies and glassy stares. In the less-developed countries 1% to 10% of pre-school age children suffer from this disease.

If the person gets insufficient calories, he can be expected to be receiving insufficient proteins as well. The protein-calorie malnutrition disease from which he suffers is called *masasmus*. Its victims are characterized by shrunken, wizened features and gross physical retardation. In low income countries, 1.2-6.8% of preschool-aged children may be affected by it.

The effects of malnutrition are far-reaching. Malnutrition during infancy can permanently affect intelligence and can reduce brain size. Whether or not it gives rise to permanent damage it destroys the child's ability to learn and concentrate and thereby compromises his future. Physical size is reduced and physical vigor. Life span is reduced. Specific nutritional deficiences can cause specific diseases such as blindness caused by lack of Vitamin A, or anemia caused by a shortage of iron. In Latin American countries and in India upwards of 50% of expectant women are often found to be anemic.

In the process of digestion, protein is not used directly but is broken down into amino acids. Eight of these amino acids can not be manufactured by the body as needed but must be provided in the diet. Minimum daily requirements for these essential amino acids are as follows (in grams):

Isoleucine	0.7	Valine	0.8
Leucine	1.1	Lysine	0.8
Threonine	0.5	Phenylalainine	1.1
Methionine	1.1	Tryptophan	0.25

The protein molecules need not come from animals. Indeed, some 50% of the world's protein supply comes from cereals. But if the protein does come from animal, rather than vegetable sources, the protein molecules are more similar in composition to those of humans. In particular, they contain the essential amino acids in such proportions as humans require to make their own proteins. Thus, in the digestion process, the protein provides ingredients in the proportion required to rebuild human protein. Animal proteins, for this reason, are called complete.

Not so with those proteins of the vegetable kingdom. For example, the cereal grains are, relatively speaking, short on lysine and corn is deficient in threonine. When these foods are eaten, the amino acids which are present in greater than needed quantities are wasted. The amino acid least available becomes the "bottleneck" to protein reconstruction. Thus, even if a person receives sufficient proteins in quantity, the quality of these proteins may be deficient—i.e. the proportions of the amino acids contained may be inappropriate and the nutritious value of them correspondingly reduced by a proportionate shortage of one or a few particular amino acids.

One simple solution is to add the limiting amino acids to the diet. This can be done by complementing a food short, for example, in lysine with a food rich in it. Or the cereal may be fortified with added nutrients (as in enriched bread). Still better, it is possible to change the genetic character of the seed. Thus high lysine corn was developed.

There is, of course, enormous potential in genetic improvement. The incorporation of higher protein quality in the seed itself is an ultimate solution to the lack of protein quality in the plant. But enrichment or fortification of existing foods by physically adding nutrients while the food is being processed is also astonishingly cost effective. Also, synthetic micronutrients (vitamins and minerals) can be placed into flour while it is being milled. Children eating a few slices of bread made from that flour will get the vitamin, mineral and protein equivalent of a diet filled with fruits, vegetables and milk. Vitamin A shortages can be avoided with raw material costs of less than 2 cents per person a year; an alternative effort to secure Vitamin A would require a large improvement in the overall diet of the poor.

Fortification works well when the food to be fortified is made centrally. In this case, a few decision-makers and administrators with a small budget can quickly reach very large numbers of persons. The problem with fortification is reaching the rural poor who do not eat centrally processed foods. Also, in general much care must be taken to avoid changing the taste or character of the food in such a way to make it unacceptable.

Alternatively, entirely new foods can be composed by mixing complementary ingredients and people can be encouraged to change their tastes. Thus a Wheat-Soy Blend was invented with high protein quality; its protein quantity was 20%—slightly higher than that of ground beef and slightly lower than that of American cheese. New cola-type drinks with high nutritional values, such as Vita-soy, have also been promoted.

The general effort to increase sources of protein includes fish-protein concentrate processed by removing fats and water from species of fish not usually consumed. This concentrate can be added to foods short in protein.

Still further removed on the time scale, but promising over the next decade or two is single-cell protein (yeast) grown on (fed by) petroleum. The proteins are then used for animal feed. (Will we, someday, prefer not to waste the potential food value of our petroleum just on automobile fuel?)

NEW FOOD RESERVES REQUIRED

"The central fact is that, for about the last 20 years, the continuation of surplus stocks of grains in the major exporting countries has provided the world with a kind of cushion against adversity. In the first place, to revert to the problem of shortages, the physical existence of these stocks meant that there was a security reserve for the world as a whole. Secondly, and more relevant to what I am now going to say, these stocks of grain—both in themselves and because of the importance of grain for the livestock industry—afford comparative price stability for the main temperate zone foodstuffs over these 20 years.

This situation has now changed. The major exporting countries have been successfully applying national supply management policies to reduce these surpluses, which are to them mostly a burden, and have no intention of continuing to be counted on to provide the world's reserve supplies."

Dr. A. H. Boerma, Director-General, FAO, Rome, 11 June, 1973

The substitution of vegetable products for animal products is another solution: oleomargarine for butter; vegetable imitation milks for real milk; vegetable derived bacon and simulated meats made out of spun vegetable fibres for meat. Since the grain required to produce animal protein is substantial, as noted, these substitutions represent substantial overall economics.

The Effort to Build Reserves

From a global point of view, 1971 and 1972 were years of unusually bad harvest. The developing countries may have increased grain production by only about 1% a year. (The U.N. target for the seventies is 4% a year.) By mid-1973 wheat exporters' stocks were down to about the lowest levels since 1952. This was combined with a shortage of rice. It was feared that one more year of poor weather would produce overall shortages of grain supplies in late 1973 or the first half of 1974.

Prior to the seventies, the United States surplus, backed by U. S. productive capacity, had been the world reserve and had served to stabilize prices also. The countries which export wheat (even smaller and more concentrated than the number which export oil) are U.S., Canada, Australia and Argentina. Most of the exports had come from the U.S. In the seventies, however, it seemed that affluent nations would purchase U.S. grain in periods of bad weather and the poorer countries would lose their effective reserves.

In this context, the Director General of FAO, Dr. A. H. Boerma, proposed that a plan be adopted, involving all countries, which would provide for reserve stocks. Nations would agree on a minimum level of world reserves and would undertake to consult with one another with a view to maintaining such reserves. Vulnerable developing countries would be helped to achieve the reserves suitable for them.

This plan could have financial attractions to U.S. farmers. An effort to build up world wide reserves would provide a large market. More likely, however, an effort would be made to build up the reserves from local nation production. The local demand resulting from the increased effort could be a useful spur to local agriculture. In the past, though necessary in emergencies, U.S. surpluses—sold abroad on credit or given away—may unfortunately have had a depressing effect on developing nation farm prices. Certainly, these programs sometimes permitted local governments to ignore the necessity for agricultural investment and reform. This can be unfortunate. It is evident from observing American agriculture that much more than technology and knowhow are necessary to increase productivity—high and stable prices and credit are also. Rising prices for food, and the increased demand that results may help motivate agriculture.□

Credentials of Co-Signers on Page 1

Lester R. Brown is Senior Fellow of the Overseas Development Council, and former Administrator of the International Agricultural Development Service in the Agriculture Department. He played a leading role in the Green Revolution.

Paul R. Ehrlich is Professor of Biology, Stanford University, the founder of Zero Poulation Growth (ZPG) and the author of "The Population Bomb."

A POLICY VACUUM

We have chosen commercial sales of wheat to the Soviet Union over guarantees of an adequate diet for those impoverished Americans who subsist on surplus commodities.

We have chosen, at least indirectly and without complete success, to feed American livestock, in support of our taste for meat over grain, instead of meeting desperate human needs in West Africa, South Asia, and elsewhere.

We are forced to such results because we simply have no policy for choosing which needs to fill and which to ignore when we cannot fill them all. And, although I am convinced it is both possible and relatively uncomplicated, we neither have nor appear to be pursuing with any vigor policies which could help us avoid these soul-shattering choices.

Senator George McGovern
Congressional Record—Senate
August 3, 1973 S 15649

WHEAT DEAL: ADMINISTRATION ASLEEP OR DISINGENUOUS?

From 1949-1964, the Government engaged in a wheat price-support program aimed at supporting farm income. Wheat surpluses resulted, at prices artifically supported above the world market price. To encourage export of these same surpluses, the Government would encourage exporters to negotiate sales at the lower world price by promising to pay them the difference, i.e. the difference between the negotiated price and the higher support prices that the exporters had to pay for the wheat. In 1964, the support prices were dropped to bring them into line with world prices—from $2.00 (plus or minus 25¢) they fell to about $1.25—but the subsidy program continued in force in principle.

In June, 1971, President Nixon rescinded a directive of President Kennedy that 50% of grain sold to Russia would have to be carried on U.S. ships. As a result, in late 1971, sales to the Soviet Union began to take place. On July 8, 1972 President Nixon gave the Russians $750 million of credit for purchases of grain over a three year period. Meanwhile, the Soviets were already dealing secretly with several different American exporters. Disguising their interest in very large sales of wheat by talking of, and buying some, corn they made several large orders totaling $700 million.

The Department of Agriculture had received reports that one-third of the Russian winter wheat crop of 71-72 had been killed by severe cold and that Soviet spring wheat acreage was not being increased in response. It knew also that the Kremlin had committed itself to increase the protein component of Soviet diets by 25% over a five year period. This would have, in any case, required agricultural imports. Moreover, there was no other supplier of large amounts of wheat than the American market. And demand for wheat was rising throughout the world—in Pakistan because of war, in India because of a late monsoon, in China and West Africa because of

drought. Nevertheless, the Department—without making other than informal calculations—decided to maintain subsidies to keep the world price at $1.63-$1.65. Both the Australian and the Canadian Wheat Boards complained that prices should be allowed to rise; the Australians even said, "Frankly we cannot envisage any more propitious circumstances than exist at present for an increase in world price levels." Thus we were underselling our allies unnecessarily for the benefit of the Russians.

By September, 1972, hard winter wheat was bringing $2.49. By maintaining the subsidy, the Department incurred costs of about $300 million of which about $150 million can be attributed to the Soviet sale. In late September, domestic prices were rising so rapidly that the subsidies had to be, and were, stopped. By then the Canadians and the Australians had already raised their prices.

One conclusion seems to be the necessity for confronting state buyers from countries with controlled economies with a unified front. Our private corporations had no obligation to report what they were doing and for the Russians, it was divide the market and conquer. There is no reason why such large sales should be made on a free market basis.

Another conclusion, emerging gradually from Senate investigations, is the likelihood that the Administration did not really want to know what was happening—that tips were ignored. An Administration buffeted by Watergate was determined to maintain intact its foreign policy triumph detente. With its full attention elsewhere, it may have acquiesced in a wheat deal that would otherwise have been scrutinized more closely. The effect has been to trigger an inflationary spiral in food costs which will far exceed the direct financial benefits of the Soviet sale.

Still more upsetting however is the possibility that the Administration has not learned a lesson. No change has been made in U.S. procedures. Foreign buyers are continuing to raid the U.S. market by placing advance orders. Are we going to continue to sell freely without knowing whether we can fulfill our commitments to regular buyers and to ourselves? No decisions, enlightened or unenlightened, should have to be made in ignorance.☐

FAS NEWSLETTER (202) 546-3300
203 C Street, N.E., Washington, D. C. 20002
September 1973, Vol. 26, No. 7

☐ I wish to join FAS and receive the Newsletters as a **Full Member.** Enclosed is my check for 1973 calendar year dues. (☐ I am not a natural or social scientist or engineer, but wish to become a non-voting **Associate Member.**)

☐ **$15** Member ☐ **$50** Supporting ☐ **$100** Patron ☐ **$500** Life ☐ **$7.50** Student or Retired

☐ In addition to joining FAS, I wish to become a TACTIC Participant and enclose an additional $5. My Congressional District is _____

☐ **NEWSLETTER ONLY:** I do not wish to become a member, but would like a subscription to the FAS Newsletters. Rates: $15 per calendar year for individuals or institutions, (libraries, government, etc.).

NAME AND TITLE _____
Please Print

ADDRESS _____

CITY AND STATE _____
Zip

PRIMARY PROFESSIONAL DISCIPLINE: _____

TACTIC TERMINATED; PROGRAM OF CORRESPONDENTS INITIATED

In the summer of 1970, FAS began sponsoring a grassroots lobbying network called TACTIC (Technical Advisory Committees to Influence Congress). TACTIC was to be composed of small groups of scientists in each Congressional District who would receive periodic mailings on science and society issues of the day; they would then interpret these issues to their Congressmen.

After thirty months had gone by, FAS sponsored a survey of TACTIC operations. The results were uniformly disappointing. In principle, 235 of 435 districts had TACTIC groups—but only 55 had met. In two and one-half years, only 65 meetings with Congressmen had occurred. Twenty-five of the groups felt they had some favorable effects. But in view of TACTIC costs, these meetings may have cost $300 each. And TACTIC groups were responding only to the most major issues.

On April 23, ten of twenty-four FAS Council members met in Washington and discussed the problem. TACTIC coordinator Dr. Barry M. Casper urged that it be continued in its present form and, indeed, embedded in the FAS Constitution. He submitted a proposal to the Council that a full-time staff member be hired to run TACTIC from Washington. However, a consensus of attendees felt that staff was not the only issue and that at least some changes in TACTIC operations were called for.

On June 22, TACTIC Coordinators Barry M. Casper and Myra B. Casper resigned abruptly. A subsequent formal vote of the FAS Council rejected the Caspers' view with only one dissenting vote. Further information revealed that Congressional redistricting had left the local groups in geographic confusion in 40 states.

The Executive Committee has therefore set in motion an entirely new program—one of FAS Correspondents at local universities and workplaces. Each Correspondent will handle a variety of tasks for FAS at his or her institution, including—but not limited to—organizing meetings of relevant local experts with local Congressmen. A mailing to FAS and TACTIC members will shortly request members to volunteer to become FAS Correspondents and will describe the advantages of the new system.☐

Second Class Postage Paid at Washington, D. C.

Return Postage Guaranteed