I think this is possible; the trained personnel in the world exists with respect to agriculture. The pattern of international research is established. I think again what we have to have here is more imaginative leadership on the part of the production scientists and more money in the worldwide research and development complex, But this is possible. We don't have it yet, but we can if we want it.

The other half of we have got to do-and when I say we, I am talking about the world now-is achieve a stable world population in 35 years. If we do not, then everything we are talking about here will be for naught.

In this connection I am very pessimistic because I do not see any of the countries where the rapid increases in population are taking place doing anything effective about it. In fact, they are saying quite the contrary. They are saying you are rich, and if we want tobreed, that is our privilege and you should help us support ourselves.

I know some studies that are going on in the new International Research Institute located here in Washington that suggest that the food gap in the less developed world will double in the next 10 years.

I am involved in some work which suggests that in the next 20 years, if we cannot stabilize world population, the amount of grain we will need to transfer to the LDC's is so great that you cannot even contemplate it.

Therefore, I am arguing that the long-run trend problem, is a very difficult problem, and it is not going to be easily resolved.

The short-run fluctuation problem is important, but here we know what to do about it. It is just a question of having the courage to do it and some political leadership that can get us moving.

Thank you, Congressman Brown and Senator Humphrey.

Chairman HUMPHREY. Thank you.

Lauren Seth, do you have some comments you wish to make?

STATEMENT OF LAUREN SOTH, WRITER-ECONOMIST, CHAIRMAN, NATIONAL PLANNING ASSOCIATION AGRICULTURE COMMITTEE, AND MEMBER OF THE OTA FOOD ADVISORY COMMITTEE, DES MOINES, IOWA

Mr. Sorer. Well, my colleague, Dr. Cochrane, has explained our paper so lucidly and extensively that I do not think there is much for me to say. But I would like to make a couple of points.

First, Senator Humphrey and Congressman Brown, the National Planning Association Committee on Agriculture will have a statement on national and agricultural policy released about, the 7th or 8th of January. I think you might be interested in it, it does not deal with international aspects as much as this hearing, but has some suggestions on adjusting our acreage bases for possible future use, and on price supports, commodity loans, and soon.

Chairman HUMPHREY. You will see we get a copy of that?

Mr. SOTH. Yes, I will get you a copy.[1] It was prepared by Prof. Harold Breimyer, University of Missouri, and there is a committee statement accompanying it.

[1] The statement of the National Planning Association Committee 1s retained in committee files.

For the purpose of this hearing I should like to emphasize again, as I have many times before, and I know Senator Humphrey is interested in this, the importance of national planning and goals in a

I think I mentioned to you onetime before, Senator Humphrey that I would like to see more direct mention of agriculture in the bill by you and Senator Javits on agriculture; particularly m this world food situation that Mr. Jaenke and Dr. Cochrane have described so ably , it is essential that we set some production targets each year for leading commodities. We should have been doing that all along. We can do that under present legislation.

In order to have an agriculture plan that means anything, of course, you need the best available political and economic intelligence, and we can see in this current year that we certainly are not getting very good intelligence. In the middle of the summer, the Department of Agriculture was I think estimating a Russian crop of around 180 million tons——

Chairman HUMPHREY. Actually, higher.

Mr. JAENKE. The Soviet goal was initially 215 million.

Mr. SoTH. TIM Soviet goal was over 200 million. The first estimate by the U.S. Department of Agriculture was around 180 million.

Mr. SOTH. Then down to 180 million. Now, the latest guess is around 140 million. That is not all the fault of our people, of course, but it is the inadequate of the Russian reporting system. I mention that just to show that if you are going to plan a reserve program, a reduction program in this country, we obviously need far better intelligence on what is going on in our own country and around the world.

We have the best reporting system in the world. I know Harry Trelogan, recently retired Director of the USDA Crop Reporting Service, is in the room here, and he would be the first to agree that it could be improved.

We do need to put more emphasis on this matter of getting the best information available. My colleague and I have suggested toward the end of this paper that some reorganization and coordination of information-gathering and analysis in our Government would be helpful.

The responsibility for world food information now is split among three agencies in the Department of Agriculture. We believe there is some confusion of function in this setup. We could do abetter job of it. The foreign commodity analysis unit of FAS, we think, might well be transferred to the Economic Research Service. It is logical to combine those two staffs and place them under an agency which has no action responsibility. FAS does have a sales responsibility and as earlier statements before this committee have indicated, there is at least a suspicion of some conflict of interest there.

Necessarily, under our present setup, we have to get information on other countries to the agricultural attaches until such time that specialists in crop and livestock reporting might be substituted for these people. I stress again the importance of getting better information for our own policymaking.

We also need better analysis of the available data. And the logical agency for that is ERS, where most of the analysis goes on now.

If we are going to run this international reserve program that all three members of this panel agree upon, I think the first step is to take action to get better information and to insist, if we can, more effec-

tively on better information out of the Soviet Union, the biggest single grain producer in the world.

Thank you, Senator Humphrey and Mr. Brown.

Chairman HUMPHREY. Thank you.

[The material referred to follows:]

[The following paper was submitted by Dr. Cochrane and Mr. Soth :]

FOOD AND AGRICULTURE POLICY CHANGES NEEDED IN LIGHT OF THE NEW WORLD FOOD SITUATION

(By Williard W. Cochrane and Lauren Soth[2])

(A Paper Prepared for the Office of Technology Asessment)

The United States needs changes in its food and agriculture policies and in government agencies to cope with urgent world food problem%

The recent agreement with the Soviet Union providing for a minimum annual level of grain exports to that country could become a significant stabilizing factor in world grain markets. But much more needs to be done to dampen down and moderate wide and unpredictable swings in agricultural prices-a problem that has been accentuated in the 1970's.

Tremendous pressures are placed on the American free market system by the lack of a free market system in most of the world. U.S. consumers and farmers have been absorbing most of the instability in the commercial food markets of the world.

All the other major agricultural export countries, including Canada, Australia, Argentina, and Brazil, maintain various kinds of governmental controls over exports. All export sales of grain by Canada, for example, are made through the Canadian Wheat Board, a quasi-governmental body established in 1935.

The European Economic Community has established internal price support policies for farm products and levies countervailing duties on imports equal to the difference between the world price and the internal support price. Another major importer, Japan, buys wheat and barley through a government food purchasing agency and closely supervises private imports of corn, grain sorghum, and soybeans. The U.S. S. R., China, and other Communist countries of course make all their import purchases through government agencies.

Thus the major food exporting and importing countries have policies to shield their farmers and consumers against extreme variations in prices. Without such stabilizing policies in this country, American producers and ***consumers*** are left to **take much of the shock of changes in world supplies.**

Projections by experts of the U.S. Department of Agriculture and of the U.N. Food and Agriculture Organization indicate that worId trade in grains will grow in the future. 'Demand for food in the developing Countries is likely to increase faster than production, requiring increased imports. USDA projections up to 1985 indicate that grain production in the developed countries will grow faster than demand, leaving a sufficient quantity available for export to less developed countries.

But there is likely to be considerable fluctuation "from year to year' in the total world grain supply. Since the United States is fully integrated into this world grain market (about 56 percent of the world trade in feed grains in recent years, 50 percent of the trade in soybeans and soybean products,. and 45 percent of the trade in wheat), it is essential that this country consider means of dealing with world instability.

The short world grain crops of 1972-73, intervention of the giant Communist countries into world markets for grain on a large scale, the sudden quadrupling of the price of imported oil and the incidence of famine, and near-famines in several countries have altered the world setting for U.S. food-agriculture policy.

Famines are not, unfortunately, uncommon to this earth; in fact, the latest ones are mild compared with many of the past. Nor is the finite character of fossil energy supplies, especially petroleum, something previously ***unknown;*** **warnings have been sounded for decades by geologists.**

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[1] Professor of agricultural economics, University of Minnesota.

[2] **Writer-economist ; chairman,** National Planning Association Agriculture Committee, nnd member of the **OTA Food Advisory Committee.**

But the magnitude of recent changes in grain prices and world trade and the coincidence of these with the energy price hike delivered a shock to world consciousness about food. The steep rise of prices of basic foodstuffs in 1973 and 1974, along with the plight of undernourished people in Bangladesh and the Sahel region of Africa, gave common currency to the term "food crisis." Governments took stock of food prospects, and a World Food Conference to consider remeflial measures was held in Rome in late 1974 under sponsorship of the United Nations.

The food shortages in the early 70's have revived long-range fears of population outrunning food production capacity **in the world. These fears had been quieted for several decades as food output per person gradually rose, and success stories about agricultural progress flourished in the less developed countries. New seed strains, more fertilizer, better irrigation, and new disease and insect controls, with technological help and capital from the wealthy countries promised steadily improving rations for hungry people in the future. Then the rapid disappearance of the large grain reserves carried for many years in the United States and Canada roused the old fears of gradually worsening food scarcity.**

In this new atmosphere of panic, we often hear predictions of calamity and . proposals for radical "solutions." For example, some prophets of disaster have proposed what they' call the "lifeboat" system of meeting the food problem. Only the most promising of the poor countries would be aided by the rich to seats in the lifeboat, abandoning the others to extinction by starvation, because there aren't enough seats in we boat for everybody. Another version of this idea is called "triage," a French army term for rescuing the wounded who have the best chance of survival, rather than using limited medical manpower in a futile effort to save all.

We reject such an apocalyptic view of the world food situation. We do not minimize the problem of the long run-of humankind increasing faster than the means of sustenance. But neither do we want to foster an attitude of hopelessness, such as the "lifeboat" concept implies. We believe wise policy and intelligent action can bring about a resumption of steady gains in food nutrients per person in the poor countries, gains which continued until the recent short harvests in several key production areas.

In the revival of ancient fears about the food-population equation, people tend to overlook another good-agriculture problem we regard as critical to food security. This is the problem of instability of supplies and consequently of prices. Some of the errors in food-agriculture policy have come from projecting short-term swings in supplies and prices. (The current doomsday predictions contain an element of this.)

In this respect, we want first to look at this nagging problem of instability. Let us assume that the real cost of producing grains and hence of food will rise over the next quarter-century. We will have something to say about possibilities for changing this trend later, but for now let us project a gradual rise in the prices of grains for these reasons:

(1) The supply of new conventional productive resources-land and water—as a source of increased food output will become scarcer as more of the easily developed land is developed.

(2). Energy resources will become scarcer, especially easy-to-use petroleum and natural gas.

(3) Weather conditions in the temperate zones best suited to cereal production may gradually worsen, as some climatologists believe, in the next quarter century.

(4) Population will continue to grow rapidly in the less developed areas of the world.

(5) Demand for grain for production of livestock products will **continue to grow in the more highly developed, richer areas. The consumption of livestock products has been growing as economic development progresses and countries are willing to put more resources into agriculture to get more livestock products.**

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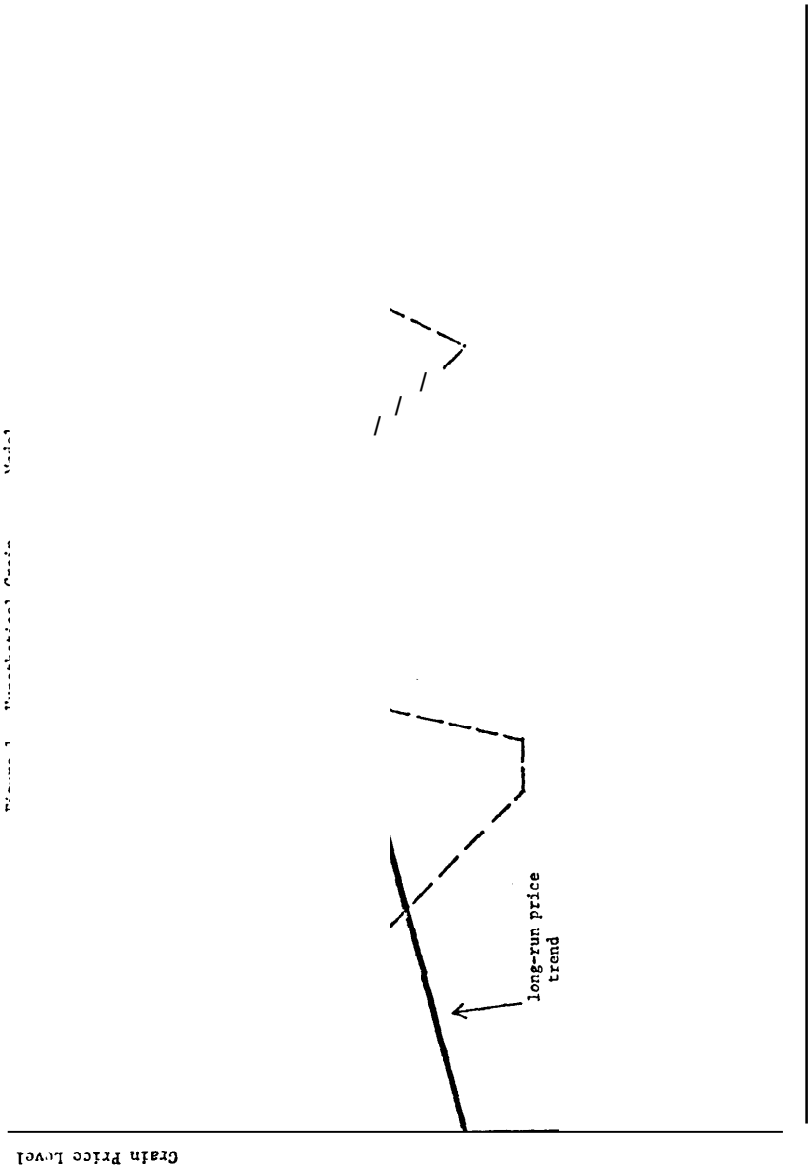
[3] **Grains** make up by **all odds the** most **important direct food for mankind and are the raw material for much of the meat and other livestock products consumed as human food. Grains make up nearly SO percent of the crop acreage in America and are the balance wheel of the agricultural** economy.


Grain Price Level
long-run price
trend

THE PBICE INSTABILITY PROBLEM

U! this gradual upward trend occurs in prdces of food, due to slightly declining output per person, it certainly will not be a smooth configuration. Prices of cereal grains will fluctuate widely and unpredictably. We show this in a symbolic graph in Figure 1.

Instability of prices is likely to be a more serious problem in meeting the world food needs of the next quarter century than the trend of total food output.

The reasons we can predict instability with confidence are straightforward and indisputable.

(1) Demand for grains is highly inelastic small change in supply results in a big change in price. If the supply is short, people will bid up the price trying . to maintain their consumption, but if the supply is long, people will not increase consumption much, even at a low price.

(2) Production of grain is unstable and unpredictable because of unpredictable weather conditions.

(3) Demand for grain in international commerce is unpredictable and erratic, . because of policy changes in importing countries, primarily the state-trading countries. Here, for example, are the imports of grain into the Soviet Union in the last three years and the estimated total for 1975:

Tear:	*Million metric tons*
1972	*20.8*
1973	10.5
‘1974	4.9
1975	25.0

This in-and-out buying on the world market jolts commodity distribution patterns and prices.

(4) Countries are closely linked in a network of grain trade today, where conditions in one importing or one exporting country are quickly reflected in prices the world around. The United States is the leading exporter, by far, and its markets are extremely sensitive to the factors” mentioned above.

(5) The prices of individual food products may be expected to zip and zoom in wider swings than the average price of all foods. Variation will depend on the lags in production of livestock products and the degree of substitutibility for some individual foods. Food-agriculture policies in different countries also vary for particular foods. On the whole, however, food prices for any country will not stray far from the general movement of prices (dashed line in Figure 1) unless that country is willing to isolate itself from the world trading system.

To sum up, the United States is confronted with a critical problem of instability in food and agriculture in the next quarter century. The forces causing this instability arise in large measure outside this country.

Consumer groups and humanitarians who have been focusing on the perils of long-term growth of world population in relation to food output would be wise to look more closely at the consequence of year-to-year changes in supply and demand. Fluctuations such as those of the 1972-75 period harm consumers by . causing extreme advances in food prices which tend to become anchored into the structure. Rigidities in costs of processing and distribution tend to keep retail prices from falling when supply increases as much as they rise in time of short supply.

Farmers and their organizations and U.S. Government policy have given relatively little attention to the stability’ question. In most of the last forty years, the central issue for farmers was to maintain a high, profitable price level in a time of surplus production capacity. It is difficult for a farmer to see the advantages of stability or leveling out the peaks and valleys of prices. That process implies limits on the upswings of prices, as well as limits on the downswings. A farmer can readily see the benefits of the latter but does not like to face up to the economic and political necessity of the former.

Political realism, however, requires farmers to recognize that they cannot claim protection against disastrously low prices without also yielding to the claim of consumers for policies to protect against disastrously high prices. Obversely. consumers cannot claim protection against soaring food costs without also yielding to the claim of farmers for protection against damaging declines in their prices.

Although the U.S. has not developed a deliberate policy of food-agriculture supply and price stabilization, the functioning of price-support and commodity loan programs did, prior to 1972, provide a measure of such effect, as a by-

product of other policy. Large accumulations of grain under government control in the late 1830's (called "burdensome surpluses") became valued reserves for the extra demands of World War II. Unquestionably, Americans had better diets and were able to supply their allies more fully because of this grain reserve.

Similar inadvertent reserve stocks were beneficial in maintaining reasonable food prices *in the 50's* and 60's Livestock producers *were* not faced with such sharp rises in feed coats as would have occurred without t.@ stockpiles of grain.

In 1972-73 and 1974-75, by contrast, we have seen financial crisis and violent disruption of the livestock Industries from short feed supplies and steep rises in feed costs, stemming from the combined effects of world drought Russian-Chinese imports and inflation Livestock price rises added to inflationary pressure on the entire economy.

In the light of this experience we recommend a national food-agriculture policy to deliberately stabilize the supplies and prices of *grains.*

PRODUCTION TARGETS

We believe the place to begin is to set production, target each year for the leading agricultural commodities. Under the Agriculture and Consumer Protection Act of 1973, the U.S. Secretary of Agriculture is required, in effect, to make such calculations in determining whether to establish crop acreage and if so, how much. So what we are calling for here is not a new planning system but the effective employment of a system now on the lawbooks.

The target for each commodity would be constructed from five components : (1) Domestic commercial requirments; *(2) Domestic food* assistance requirements; (3) Commercial export demand; (4) Non-commercial exports; that is, a food-aid commitment for poor countries; and (5) A requirement to replenishh the U.S. share of an international grain reserve.

In order to make the best possible estimates of these aggregates, the Department of Agriculture needs the best possible political and economic intelligence about world supply and demand. The U.S. Government ought to take the leadership in helping to improve crop and livestock reporting services for other countries, the United Nations Food and Agriculture Organisation, and the new World Food Council.

The least predictable element in the above list of five production requirements is No. 3, the estimate of commercial exports. International cooperation in scheduling grain exports and imports, better crop estimating in major producing countries, and forward contracting for grain by importers would help stabilize this element of total demand.

The United States and the Soviet Union have an agreement to exchange agricultural data, but it has not been carried out as well as it might be. We urge the U.S. Government to press for full cooperation in the furnishing of information on production, rise, and stockpiling of food commodities, especially grain. Investment by the United States in improving the fundamental data base both home and abroad for projecting commodity requirements would pay a high return in terms of reducing surprise, uncertainty, and speculative price gyrations.

We believe that establishment of national production targets or goals each year would provide improved guides for individual farmers in planning their own operations. It would formalize a public commitment on the part of the U.S. Government as to the food needs of consumers and other claimants to America's agricultural abundance.

Setting production targets--and going through the process of collecting information and analyzing it in the public arena--is in itself a valuable contribution to wiser matching of output and needs. But to be most effective the Government must back up production targets by realistic incentives for producers. And Government must, of course, carry out objectives in food aid at home and abroad and in the acquiring and distributing of grain reserves.

Government programs already exist for purchase of commodities to supply food aid and to build reserves. (Later in this paper we propose improvements in these mechanisms.) We emphasize that these programs should be used on a planned, rational basis, with understood procedures and upper and lower limits for executive action.

Although the experience of the last few years would seem to rule out a return to crop acreage adjustment as a backstop to supply stabilization, a longer view indicates that such programs may be needed when there is a probability of price depressing surpluses. We believe the cropland set-aside system now in the law is the most workable method. But the bases for these set-asides could be and should be improved. The historical base system would produce wide inequities

among farmers if set-aides were reinstated. We recommend a revision of bases on a formula of resource conservation. Now is an excellent time to set about this reformulation, in a period of full production and non-use of incentives to reduce output.

The Government ought to be prepared to' assure farmers needed inputs, at subsidized prices if necessary, for commodities for which an expansion of output is sought. This is being done from time to time, with regard to propane for example, and could become essential in other respects as the energy problem becomes more acute.

Incentive prduction payments may needed at times to reinforce the market in inducing expansion of output in needed communities. In the main, however, we believe a vigorous program of outlook and production information for farmers can be relied upon for serving such objectives.

It will be noted that we do not mention price-supporting action by Government as a tool for helping achieve production goals. Our overall policy seeks to stabilize prices-that is, reduce fluctuations--and we believe it would be contradictory to intervene in markets in another context. (More about this later.)

STABILIZING WORLD GRAIN PRICES IN THE SHORT RUN

We turn now to a proposal for moderating the fluctuations in world grain prices, the disrupting effects of which have been harmful to both consumers and producers in the early 70's. This is the heart of our food-agriculture policy for the United States:

World society must have a planned reserve stock program for grains to hold market prices within a price stabilization range.

(1) Governments should stand ready to acquire (or assure the holding by private individuals and firms) of stocks at the lower boundary of the price range;

(2) They should stand ready to release stocks at the upper boundary of the price range; and, as a result;

(3) Even out supplies flowing into markets over time, holding prices within the bounded price range.

OPERATING A GRAIN RESERVE PROGRAM

The grain reserve program might be operated by the United States alone, by a United Nations agency alone, or by a group of countries under an international agreement.

As we have mentioned, the United States did, for all practical purposes, operate a world grain stock program by itself for many years. Canada was an involuntary participant part of the time.[1] The stocks were accumulated under the farm price support program and released when world demand sent prices soaring. The cost of this operation, which was of considerable benefit to the world, especially the less developed countries such as India, was borne by the American

. . . .

There are advantages and disadvantages to each of the three organizational forms we have suggested. The U.S. handling the program alone, as the biggest single producer and exporter, could probably do the most effective job. But the cost would. be on one country. The United Nations system is the most logical from the viewpoint of world politics and of sharing the cost equitably. Ultimately, we would hope this could be the way to run a grain supply stabilization plan. But there are obvious difficulties in administering such a program in the U.N. today, with its antagonisms and consequent incapacity to make decisions on rational economic grounds.

We. conclude that the most practioal system at this time is an organization with a small group of countries (say the U. S., Japan, Britain Germany, Canada, and one or two others). Such a group, we feel could work together effectively.

World grain prices can be stabilised at plus or minus 10 percent of the trend, we believe, with 90 percent probability of achieving this range, with an average grain reserve of 60 to 70 million tons. This is manageable; it is not more than the stocks held in *the* United States in the 1950's. Such a stock program, properly managed, would provide the mechanism for evening out supplies flowing into consumption and consequently prices for both consumers and producers. (See symbolic diagram; Figure 2.)

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[1] A Canadian Wheat Board officials recently have expressed interest in cooperation with the U.S. and Australia in managing the export trade and reserve stocks of grain. (See article by George Anthan, "Canada Eyes Cartel with U.S. on Grain," *Des Moines Sunday Register,* October 26, 1975.)

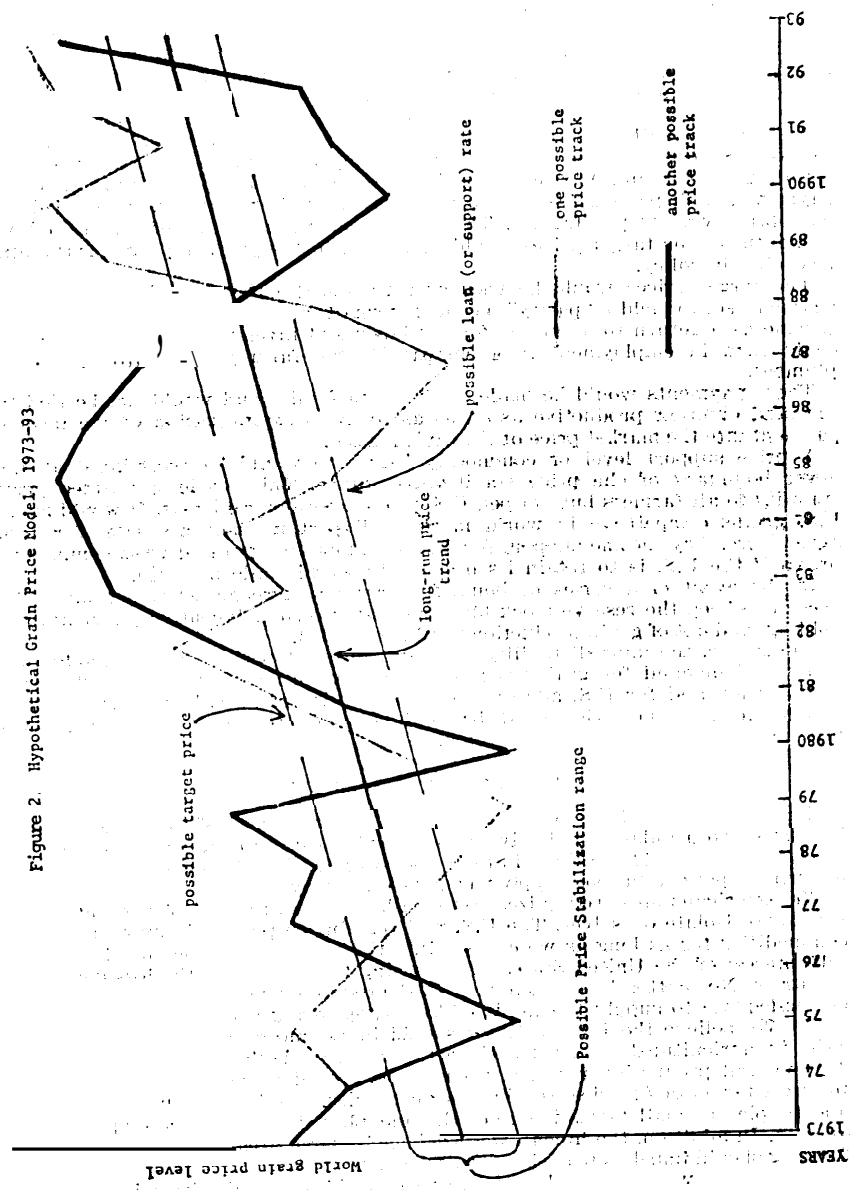

Figure 2. Hypothetical Grain Price Model, 1973-93

In operating the price stabilization program, we would let the price trend unfold itself through a moving three-year average of market prices. The price stabilization objective for, say, 1976, would be plus or minus 10 percent of the average of the last three years. Other methods of establishing abase for stabilization operations are, of course, possible, and the best guide would be several years of experience. But for a start, we think the Wee-year base would be best.

It is operationally feasible and, we believe, economically and socially desirable to link U.S. domestic farm stabilization and support programs to the international stabilization concept. We recommend a system of target prices and deficiency payments, with payment scaled so as to favor smaller farmers, with a ceiling on total payments per farmer. This is the basic framework of the 1973 law. Commitment on target prices would be limited to one year, to permit maximum flexibility in *policy.*

The target prices would be used only to compute the size of the deficiency payment set to yield a "parity" income for small farm families. We define parity income as a return to a farmer for his labor and investment equal to what he could earn in employment in a comparable non-farm job, for example as a plumber.

These payments would be made to the farm family and would not be tied to the land or other productive asset, so as to avoid capitalization of the income payment into the market price of the capital asset.

A price support level or commodity loan rate would be established at the lower boundary of the price stabilization range. This would guarantee price stability to all farmers but not peg U.S. prices above world levels. It would make U.S. grains competitive in world markets. Export **markets are vital** for U.S. agriculture. Any income support for farmers must be separated from commodity prices if the U.S. is to retain its position in world trade in grain.

In the event of a series of bountiful harvests, acreage set-asides might be needed to keep the reserve stock bins from overflowing. Incentive payments for holding land out of grain production would be needed.

To sum up, the unpredictability of short-run developments in crop production and world demand for grains requires this flexible machinery for world price stabilization and for U.S. adaptation to it. The international grain regime and U.S. national farm policy must be flexible, ready to adapt to famine, overproduction or other unforeseen developments.

LOOKING AT THE LONG BUN

Early in this report we expressed the view that the trend of world food supply in relation to population is likely to be toward scarcity in the next few decades. What policies should the United States follow in an effort to prevent such a trend or turn the per capita food supply trend the other way?

We Americans must recognize, first of all, that we are part of a world where we cannot isolate ourselves. The U.S. will remain the principal exporter of food commodities for as long as we can see into the future. This does not lessen the self-interest of the United States in increasing food output in the less developed countries. No matter how much U.S. food production might increase, it would - be inadequate to supply the needs of the fast-growing poor countries.

(1) We believe the United States should invest more money, public and private, in agricultural research and energy research both at home and abroad. Agricultural production research ***needs to be geared more to*** technology suited to small farms in America and in other countries. The low productivity of land and people on small farms is one of the unexploited sources of added food production. In addition, the human welfare benefits from greater emphasis on small farming should impel us to such a research orientation.

(2) It may well be sound economics to subsidize certain farm inputs, especially for small farmers, in order to maximize food output. Most of the technologies which have resulted in the remarkable increases in agricultural output per man and per acre in the last 30 years are adaptable to small farms as well as large--fertilizer, herbicides, pesticides, better seeds, irrigation. (There has been a lag in development of machinery suited to small farms, however.) Educational and financial help to small farmers to apply these improved technologies might be the investment with the highest payoff in greater food output at this time.

(3) We recommend the continuation and expansion of domestic food-aid programs, especially the Food Stamp Plan and the School Lunch Plan, to help assure the availability of good nutrition to all Americans.

(4) We endorse the confirmation of foreign aid to help those poor countries

willing to help themselves. The foreign aid effort of the U.S. should be directed increasingly through international agencies, as recommended by Secretary of State Henry Kissinger in his September address to the United Nations. As part of the U.S. foreign aid program, we favor continuation of food aid.

The limited resources available for foreign aid, including food, should be concentrated in areas where local self-help efforts make the aid most productive. We mean by this that effective agricultural development by the recipient country is essential, as well as effective population limitation programs, if American contributions are to be well used. We should consider limiting foreign aid to those less developed countries that undertake and sustain effective programs of agricultural development and population control.

(5) In the event of continued critically short food supplies, the United States might need to institute an event export control policy in its own and the world's interest. This would be a supplement to the international grain reserve we have recommended above. The policy might take the following form:

The U.S. would announce to the world its domestic requirements, the requirements of its regular foreign customers, and the necessary ***reserve*** allocation. It would then state that these supply requirements would be protected.

Periodically, perhaps every three months, the U.S. would report the drawdowns in supply and indicate the extent to which domestic requirements and those of regular foreign customers would be met without imposing export controls.

Foreign food aid for less developed countries on confessional terms would be adjusted to the situation, with guarantees for those countries dependent on the U.S.

Sales ***of*** grain to the state-trading countries would be negotiated by the U.S. Government, covering the total volume, range of prices, and other considerations. Actual sales and handling of the grain would be conducted by the private grain firms as before. But the U.S. Government would be in position to monitor and regulate the outflow consistent with other requirements.

If the world shortage continued and was of such extent that free exports from the U.S. would endanger the fulfillment of guarantees to American consumers and those countries long dependent upon us, the U.S. would impose export controls. This would be done after informing the world grain trade. Regular foreign purchasers would be exempt from the controls.

This, however, should be a policy of last resort in a critical world food situation.

If the above policies were carried out, we believe the swings in grain prices Would be substantially moderated and that the long-run trend toward food scarcity could be turned around.

It is most important that Congress and the Administration appraise the long-run food situation, make long-run policy commitments, and stick to them.

Many, perhaps most, of the policy changes recommended here could be accomplished under existing legislation, with minor alterations. However, a legal mandate and authority are needed if the U.S. is to help create and participate in an international grain reserve plan.

To carry out the proposals in this statement, a number of changes in government organization are needed, in our opinion.

The crises in food affairs in recent years have demonstrated in the iadequacy of information available to U.S. policy makers. The Congress and the executive branch have been caught short on knowledge about world supplies and prospective demands. The report of the Food Advisory Commitee of the Office of Technology Assessment and testimony by a number of witnesses in earlier hearings on food information systems have clearly shown the gaps in information and the lack of adequate analysis of the facts available.

The responsibility for world food information in the U.S. Department of Agriculture is now split among three agencies: the Economic Research Service, the Foreign Agricultural Service, and the Statistical Reporting Service. There is a confusion of functions in this setup and a potential conflict of interest that may contaminate the quality of the information and analysis.

The FAS has a primary responsibility to expand foreign markets for U.S. farm products. This makes suspect the assessments of world commodity situations and outlook prepared by the Foreign Commodity Analysis Unit of FAS. One way to overcome this apparent conflict of interest would be to transfer this analysis unit to the ERS. Commodity specialists in ERS already perform much of the same kind of analysis of foreign commodity situations. It is logical to combine the two staffs and to place them under ERS, which has no "action"

responsibility. Its duty is to provide economic intelligence for ***users*** of its reports and for government policy makers.

FAS also has a responsibility to collect facts and collate information about world food and agriculture conditions. To achieve the maximum objectivity, it would be desirable to separate this fact-gathering function from the sales promotion agency and to assign it to SRS, which has the sole function of preparing factual reports on agricultural data. However, the responsibility for collecting foreign agricultural data necessarily must remain with the agricultural attaches under FAS until such time as specialists in crop and livestock reporting can replace them.

The Food Advisory Committee and others who have examined the world food information problem agree that better analysis of available data is needed. We believe the logical agency in which to center responsibility for this function is IRS and that it should be provided funds to increase its staff for this purpose.

In general, the important statistical and analytical services in USDA have been neglected compared with other services. It is true, we believe, as is often claimed, that these services in SRS and ERS are the best of their kind in the world and the most objective and reliable. Nevertheless, the vital importance of a world food intelligence system for this country and for the world makes it essential that these services be improved as much as possible.

It has been suggested that a separate world food intelligence agency be established, separate from the USDA Outlook and Situation Board. This is a reasonable proposal, but we believe improving the present Board's operation and strengthening ERS and SRS would accomplish the same result and should be tried first.

The Interagency Commodity Estimates Committees now are responsible for developing supply-demand estimates used by the ERS Outlook and Situation Board. The ICEC is chaired by an official of the Agricultural Stabilization and Conservation Service, an action agency. Here, as in the case of FAS, there is a potential conflict of interest, in appearance if not in fact. We find this undesirable and a handicap to achieving the most objective food situation analysis.

We agree with Howard J. Hjort, who testified before this committee on September 24, that the chairmanship of the ICEC should be removed from ASCS. Further, responsibility for foreign trade estimates should be removed from FAS and representation of that agency on the supply-demand estimates committees should be removed.

With these alterations, and additions to staff, ERS and its Outlook and Situation Board could perform more reliably as a world food intelligence unit.

[The following questions were submitted by Senator Humphrey to Mr. Seth and his answers thereto:]

Question 1. If I understand your paper, you indicate a reserve stock program, accumulating stocks when prices fall 10 percent below the three year world average and releasing them when prices rise 10 percent above this average, would contain the market fluctuations within these limits in 9 years out of 10. Is this a correct reading of your paper? How confident are you of these frequencies, in view of our recent experience?

Answer 1. The calculations on the amount of stocks needed to stabilize grain prices within a range 10 percent above and 10 percent below a three-year average are based, necessarily, ***on*** the experience of recent decades. In the perspective of the whole century since 1875, the last three decades have been a period of remarkably stable temperature and rainfall in the major grain-producing areas. There is some reason to believe, according to Louis Thompson of Iowa State University, that weather will be less favorable in the next quarter century. If this occurs, the instability of production in the early '70s may continue. Then our estimate of the steps needed to stabilize prices would require modification.

Question 2. Would you place any limit on the physical size of the stocks, or would you accumulate stocks as long as the market price remained below the announced stabilization level?

Answer 2. I would not place any arbitrary limit on size of stocks. However, if a series of big crops resulted in a situation comparable to that of the 1950s, then the acreage-adjustment features of the 1973 farm act should be brought into play. We recommended a revision of the acreage bases to make this program feasible if the "surplus" circumstances should arise.

Question 3. How would you have the Government and the producers share in holding the reserve stocks?

Answer 3. The Government needs sufficient stocks to meet its responsibilities quickly in any international reserve plan. Beyond this, maximum storage on

farms, with storage payments to farmers, is desirable, especially in the case of feed grains. The practical working out of a storage program could guide the ratio of government to farmer stockholding. The main thing is to have an overall target for the reserve program and to see that it is reached, totaling government, commercial and on-farm storage.

Question .4. If stocks are acquired in excess of some agreed minimum desirab1e level, would you release the excess before market prices reach the upper stabilization level?

Answer 4. No. Stocks should not be released until the upper price limit is reached-and in certain circumstances perhaps not then. This range of stabilization is not always likely to be the perfect range. In at least one out of 10, we figured, the ranges might be exceeded. However, the problem is likely to be *to* maintain sufficient stocks-not the problem of surplus and over-accumulation.

Question 5. What is the merit of continuing target prices and deficiency payments, if price supports are maintained at 90 percent of the three year average world price level (or some similar level) ?

Answer 5. Target prices and deficiency payments should be continued in the law for possible use whenever prices to producers sink below a "parity" level. Our plan is for stabilization around a long-time trend, with no income-support for farmers. But it is possible that another series of good crops could lower income to the point where some income protection would be needed. In that situation, we prefer the payment system to price support. The payments should be the means of providing farmers with some guarantee in return for a full production program. Price supports above a long-term trend would handicap the United States in foreign trade.

Question 6. We have resorted to voluntary export controls several times in the last 3 years. You expect the world food supply per capita to trend down rather than up in the next 25 years. In view of both recent experience and this outlook, is existing statutory export control authority adequate?

Answer 6. Existing export control legislation seems adequate. It should be resorted to, as **we said** in our paper, only in extreme circumstances. Normally, Cochrane and I would expect that "export control" would be achieved by the managing of the reserve stockpile. That is, the government by its buying and commodity loan policies would assure that sufficient reserves were maintained to fulfill our international commitments and to meet stabilization requirements.

Question 7. If it is not adequate, how should it be modified?

Answer 7. See answer to 6.

Question 8. What Government agency should have the responsibility for administering food export controls?

Answer. 8. The Commodity Credit Corp. or other agency assigned responsibility for managing the U.S. grain supplies.

Question 9. You ***seem to*** advocate combining aspects of a welfare program with aspects of a commercial agriculture policy (page 198 and again on page 200). Why not restrict policy in agriculture to commercial agriculture policy and let welfare programs be labeled as such?

Answer 9. If the United Stakes wants to maintain a healthy rural economy, and the Rural Development Act indicates that it does, then some measures need to be taken to preserve family-type farm operations. "Loading" any deficiency payment plan slightly in favor of smaller or intermediate-size farmers would be one way of doing this. It would remove some of the advantage that large-scale firm operations now have. Favoring the family farm in farm income support programs has long been conventional doctrine-in rhetoric. But Cochrane and I believe firmer action is needed to stop the trend toward industrialized farming. Welfare programs, such as food stamps, should be 1abeled as such, but we are talking here about income protection for commercial farmers.

Question 10. Page 200, paragraphs (1) and (2) : These points seem to contradict. In paragraph (1) you say we need technology oriented to small farms; in paragraph (2) you say ***most*** technology developed is equally advantageous to any size farm ! Which is correct?

Answer 10. It is true that the major advances in farm technology. fertilizer, seeds. chemicals, are equally adaptable to small and 1arge farms. But, as we mentioned, machinery development has favored large farms and little effort has been made to improve machinery for small farms. Methods of using new technology have not been well adapted to small farms, and maybe this is a matter of education or extension as much as of research. What is needed is social science research **to enable** the farm technology revolution to become effective on Small firms especially in less-developed countries.

[The following questions were submitted by Senator Humphrey to Dr. Cochrane an answers thereto:]

Question 1. If I understand your paper, you indicate a reserve stock program accumulating stocks. When priced fall 10 percent below the 3-year world average and releasing them when prices rise 10 percent above this average, would contain the market fluctuations within these limits in 9 years out of 10.

Is this a correct reading of your paper?

How confident are you of these frequencies, in view of our recent experience?

Answer 1. Your reading of our proposed reserve stock program is correct. With a stabilization price range of plus or minus 10 percent of the 3-year moving average, we argue that worldwide market price fluctuations would be contained within that range 9 years out of 10, with one qualification. This probability holds only after the program has been in operation a few years and the reserve stock has been built up to the average of 60 to 70 million tons.

You ask how confident are we of these frequencies. If the long-run trend price of grain turns out to be flat and the 3-year moving average trends neither upward or downward, I would be most confident of the probability of containing worldwide market price fluctuations in the grains within limits of plus or minus 10 percent, 9 years out of 10. But if the long-run trend in grain prices is upward, reserve stocks would be persistently pulled down and the program would lack the capacity to contain upward market fluctuations. If, on the other hand, the long-run trend in grain prices is downward, reserve stocks could accumulate persistently and become greatly in excess of stabilization needs and hence require some means of curtailing the continuous inflow of stocks. To keep the 3-year moving average of prices from declining steadily and the reserve stock bins from overflowing, the nations party to the international grain reserve stock program would need to adopt effective production controls for the grains. Long-run upward or downward trends in world grain prices would, without doubt, complicate the effective operation of an international reserve stock program for the grains.

Question 2. Would you place any limit on the physical size of the stocks, or would you accumulate stocks as long as the market price remained below the announced stabilization level ?

Answer 2. As I intimated in my reply to Question 1, if the long-run trend in world grain prices is downward, it would become necessary to find a means of reducing the inflow of stocks. But the answer could not be a limitation on the acquisition of stocks; such a limitation would break the stabilization program by letting market prices fall below the lower boundady of the stabilization range. Continuous overproduction and a long-term downward trend in world grain prices would need to be corrected by production controls in the commercial exporting nation. However, it should be recognized that the downward movement in the 3-year moving average of world market prices would itself moderate the problem of accumulating reserve stocks greatly in excess of stabilization needs. Thus, I ***would certainly not advocate the*** establishment of a physical stocks ***limitation in the beginning years of the*** stabilization ***program.*** If long-run grain price trends in the 1970's and 80's are reasonably flat, we may expect the reserve stocks accumulated and held under the 10 percent decision rule to average 60 to 70 million tons. Given this general world supply, and demand situation, the program itself will generate the desired quantity of reserve stocks. If the general world supply and demand conditions generate either long-term upward or downward grain price trends, then we would need to experiment with export policies and input subsidies on one hand or production controls on the other—hut ***not physical limitations on stock acquisitions.***

Questions 3. How would you have the Government and the producers share in holding the reserve stocks?

Answer 3. I have not given a great amount of thought to the question posed under number 3, but for starters I would suggest that the government and producers share the holding of the United States portion of the international reserve on a 50-50 basis above some minimum amount which the government must hold at all times, if it is able. The United States government must have stocks which it can release quickly and readily at all times; thus I suggest that government hold some minimum amount of the U.S. stock, plus 50 percent of the amount above that minimum. But contracts with producers would also need to be flexible. Contracts with producers would have to contain a clause in which the government could obtain the stocks held by producers with, say, one-month's notice. Such a provision would be necessary in contracts with producers in order to replenish the government stock, as it released stocks into the market. I am sure that ar-

rangements could be worked out wherein producers held an important part of the reserve stock provided the storage contracts with producers could be terminated within a reasonable time, say one month, if and when the government stocks become too low to enable the United States government to fulfill its commitment to the international reserve stock program.

Question 4. If stocks are acquired in excess of some agreed minimum desirable level would you release the excess before market prices reach the upper stabilization level?

Answer 4. Stocks should never be released except in response to the established decision rule for releasing stocks. The decision rule might say that some stocks will be released before market prices reach the upper limit of the stabilization range. But such a formula for releasing stocks before the market prices reach the upper boundary of the stabilization range would need to be defined precisely and known to all. Stocks should never be released in response to their accumulation to some excessive quantity; if stocks were so released, confidence in the stabilization program would quickly erode. Excessive stocks might call for production control on the part of the nations party to the #stabilization agreement but not for the arbitrary imposition of a limitation to the accumulation of stocks.

Question 6. What is the merit of continuing target prices and deficiency payments, if price supports are maintained at 90 percent of the three year average world price level (or some similar level) ?

Answer 5. As a part of our internal agricultural policy, the United States might wish to continue a system of target prices and deficiency payments to protect the incomes of small and medium sized farmers where the 8-year moving average of world prices is declining persistently and significantly. Internal price supports at 90 percent of the 3-year moving average would provide price stability and price certainty to producers in their production planning. But it would not guarantee producers a fair income, Thus, to repeat, we might as a matter of national policy wish to make deficiency payments to small and medium sized family farmers to support and enhance their income.

Question 6. We have restorted to voluntary export controls several times in the last 3 years. You expect the world food supply per capita to trend down rather than up in the next 25 years. In view of both recent experience and this outlook, is existing statutory export control authority adequate?

Answer 6. If the world per capita food supply trends downward over the next 25 years and the real price of food trends upward, it may well be necessary for the United States to have an export policy to protect its consumers in years when market prices are not contained within the stabilization range by the stabilization program. I am not sure whether existing statutory export control is adequate, since I don't know its exact provisions, but I would doubt that it is. Seth and I outline in our paper what we deem to be a desirable export policy on page 201 of our paper. This policy we believe should be enacted into law. If the international reserve stock program for the grains is operating satisfactorily, the control features of the export policy outlined on page 201 would not become operative. But in years in which world supplies were exceedingly short and world market prices were not contained within the stabilization range, the control features of the policy outlined on page 201 would become operative. And to become operative in such years, it should be placed on the legislative books now or in the immediate future.

Question 7. If it is not adequate, how should it be modified?

Answer 7. I have already answered this question in my answer to Question 6.

Question 8. What Government agency should have the responsibility for administering food export controls?

Answer 8. In my judgment the present United States Department of Agriculture should be expanded and restructured with three principal missions: (1) the provision and distribution of adequate food supplies to all persons in the United States; (2) the promotion of a prosperous, productive, commercial agriculture; and (3) the promotion of rural development and a high quality of living in rural areas. The administration of the food export policy described under Question 6 would logically fall under the first mission of this expanded and restructured Department of Food, Agriculture, and Rural Welfare.

Question 9. You seem to advocate combining aspects of a welfare program with aspects of a commercial agricultural policy (page 198 and again on page 200). Why not restrict policy in agriculture to commercial agriculture policy and let welfare programs be labeled as such?

Answer 9. We are not talking about social welfare as it is usually viewed in the United States on page 198 of our paper. In the first paragraph of page 200, we are talking about a system of deficiency payments, or income supplements, to