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NATIONAL NUTRITION POLICY STUDY

REPORT AND RECOMMENDATION—I

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PREPARED BY THE

PANEL ON

NUTRITION AND FOOD AVAILABILITY

TO THE

ECT COMMITTEE ON NUTRITION AND HUMAN NEEDS UNITED STATES SENATE

JUNE 1974

Printed for the use of the Select Committee on Nutrition and Human Needs

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PANEL ON NUTRITION AND FOOD AVAILABILITY--Report, May 31, 1974

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PREFACE

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May 31, 1974

The Honorable George McGovern
Senator from South Dakota and
Chairman of the United States Senate
Select Committee on Nutrition
and Human Needs
The Honorable Charles H. Percy
Ranking Minority Member and
Senator from Illinois
United States Senate
Washington, D.C. 20510

Dear Senators McGovern and Percy:

Enclosed with this letter is the Statement of the Food Availability Panel that you requested to be distributed and discussed at the National Nutrition Policy Conference scheduled by the Select Committee for June 19-21. We realize that there are many papers and presentations that have been developed by various groups in our country looking at the food problem. We have had the benefit of having the inputs from these papers in our thinking and have quoted from them or have used their statistics extensively in developing this report for you.

We are pleased to enclose a summary of 21 recommendations from the panel, together with the back-up material that led us to these recommendations. We are also pleased to report to you that this is a unanimous recommendation of the panel, but represents participants in the total food system from farm supplier to ultimate consumer and includes nutritionaly inputs, as well as inputs from the whole agribusiness food system.

We are looking forward to discussing these and other issues with you on June 20 when this panel is scheduled to appear before you, and want to again thank you and Dr. Jean Mayer for the privilege and pleasure of participating in this most important undertaking. We hope that this material proves not only useful to you for the conference in June, but provides back-up thoughts and ideas for the World Food Congress in November.

Sincerely yours,

Terrance Hanold

Ray Goldberg

Terrance Hanold and
Ray A. Goldberg
Co-Chairmen

June 4, 1974

A SUMMARY OF THE FOOD AVAILABILITY PANEL RECOMMENDATIONS AT

MAY 28, 1974 MEETING

HARVARD BUSINESS SCHOOL

1. We expect continued imbalances in the world agribusiness food system because of the unpredictable production of output and constantly changing consumer food and nutritional wants and needs.

2. The above imbalances between supply and demand will lead to perpetual price swings that for the most part must be adjusted by free market pricing mechanisms.

3. On the other hand, we recognize the need for shock absorbers in the system to protect the consumer in times of extreme shortages and to protect the producer in times of extreme gluts.

We recommend that the Secretary of Agriculture use programs which will induce the retention on the farm and in the distribution system of ample stocks of essential grains.

We do not recommend the establishment of supplemental government reserve stocks unless such stocks are prohibited from being sold at a price no less than 2.7 times the current U.S. average cost of production of the grain as established by the U. S. Department of Agriculture.

4. We urge the U.S. private and public agribusiness economy to provide technical assistance as it is requested by developing countries to aid them in the development of their food production and distribution system according to their social, economic, and political priorities. We believe that the effective development of each country's agricultural production and distribution system in response to their food and nutrition needs should be a first objective for their over-all economic development. Countries also have an obligation of taking measures to moderate demand by population programs as well as the improvement of production and infra-structure. Because of the lack of trained manpower and agricultural production information in undeveloped countries, we endorse the continued support by USAID of university development programs.

5. As part of the world food system, the U. S. Department of Agriculture has an obligation to lead in the development and use of international food monitoring system through the use of weather satellites, etc., and with the cooperation of other trading nations.

6. We urge a renewal of the support of the research and productivity aspects of the U.S. agriculture by the national, state and local governments. The remarkable productive capacity of American agriculture was achieved principally as a result of research programs in the land-grant universities, such research being the central factor in achieving food production goals. We urge implementation of National Association of State Universities and Land-Grant Colleges' recommendation for 30% increase in federal funding ($35 million-$40 million per year) for each of the next three years for agricultural research. We also urge that primary food producing states give priority attention in obtaining similar funding increases via their Legislatures.

7. We urge more cooperative research with other nations by both the private and public sectors of the economy.

8. In the development of coordinating institutions for the domestic and world food economy we support the development of farmer cooperatives to insure producers an effective role in the food economy.

9. We urge the development of international futures markets as a means of strengthening the effective planning and risk-taking in the U.S. and world food system.

10. In the coordination between production and distribution, maximum freedom should be given to managers in selecting all types of coordinating arrangements.

11. In the U.S., one out of every three meals is obtained away from home. This institutional market provides an opportunity to introduce improved nutrition, new products, with less waste and more efficiency than traditional distribution methods. This new market can also aid as a market developer for new types of food production at the farm and processing stages. We also need to develop a large-scale meal delivery system for school children and senior citizens.

12. We urge a closer link between agricultural production and a more efficient use of the food stamp program in welfare and nutrition programs.

13. The transformation of grain through livestock and poultry will continue as a response to our national goals of an abundant and varied supply of nutritious foods. Consumers will shift the mix of their diet according to the changing supply and demand conditions in these industries.

14. The processing and manufacturing of food in the U.S. will continue to develop in a variety of ways and should be free to innovate and respond to changing consumers' food and nutrition wants and needs, and should be encouraged to create new foods as new technologies and new resources provide opportunities, especially new foods that will improve the nutritional status of malnourished people in lesser developed areas of the world.

15. We recommend the use of food stamp premiums as incentives to establish effective food outlets in the poor areas of our country. These areas are currently penalized by the lack of incentives for efficient and effective supermarkets to develop in their areas.

16. We believe that our transportation system is in a weak and deplorable state. We require a sanitary, safe, and efficient system. Many private transportation systems have been developed by firms unable to have their needs met effectively by current transportation firms and agencies. Improvement of our rail transportation system is an imperative necessity.

17. We urge the development of aquaculture and new protein sources through additional research and development programs.

18. We urge the development of an international fishing code to protect the fishing rights of all nations.

19. We urge the adoption of world-wide uniform grades, standards and measurements.

20. We urge the development of economic incentives to encourage more construction of fertilizer plants, more imaginative usage of limited water resources, and a broad development of the human resources in each country through expanded educational programs for on-farm and off-farm agribusiness participants.

21. In case of shortages of petroleum and other strategic resources required in the production, processing and distribution of food, the food system should be given the highest priority.

22. Importing countries should be asked to and carry short-term inventories of grain.

23. We need broad educational programs to train more effectively on-farm and off-farm participants in agribusiness.

REPORT OF THE PANEL ON NUTRITION AND FOOD AVAILABILITY
NATIONAL NUTRITION POLICY STUDY HEARINGS
June 19-21, 1974

May 31, 1974

This panel is instructed to address itself to issues concerning Nutrition and Food Availability. It is constituted within the framework of the National Nutrition Policy Study organized by Dr. Jean Mayer as General Chairman pursuant to authority conferred by the Senate Select Committee on Nutrition and Human Needs. The panel members have received their appointments from the General Chairman and the Select Committee.

The general objects of the NNPS were expressed early this year by Dr. Mayer in a memorandum to the Select Committee in these terms:

> Review progress made in the nutrition area since the 1969 White House Conference -- with an eye to chartering what still remains to be accomplished from these recommendations.
>
> Determine what new policies need to be formulated to meet the quickly developing conditions of the present food crisis so that the dramatic and unsettling changes running through the country today can be met. The conditions make it imperative that a well-informed Congress move quickly and comprehensively to develop long-range policies that adequately protect producers and consumers.

In seeking authority of the Senate for the NNPS Senator McGovern, chairman of the Select Committee, said in part:

> Events of the last year have thrown our food and farm policies into serious disarray,

> making it necessary to seriously re-examine America's commitment to the war against hunger, and the role of America's food producing sector.

The nation's historic policy on farm and food issues, he stated, has rested on four pillars:

> First, we seek adequate food abundance for our consumers at prices fair both to them and to farmers.
>
> Second, we have determined that no American, and especially no American child, should want for a decent diet -- supplying the essential requirements of adequate nutrition.
>
> Third, we seek growing access to commercial food markets elsewhere in the world.
>
> Fourth, we have sought to use our unparalleled food abundance and technical knowhow as a tool of peace -- responding to the desperate needs of hungry people around the globe.

He pointed out that with surplus supplies of food there has been no conflict among those goals in the past. "But this past year, all four of those objectives have suffered. Each one has been challenged; to some extent each one has been denied. Now is the time to re-examine in a fundamental way where we have been and where we are going in this critical nutrition area."

The grand object of the study, therefore, as frequently stated by each one who has taken upon himself the burden of initiating the NNSP or of carrying it forward, is the development of a national food and nutrition policy by

national concensus, rather than by partisan political processes, which can be implemented by Congress and the Executive.

THE CHARGE TO THIS PANEL

This panel has no primary linkage with the main stream issues raised for discussion at the 1969 White House Conference on Food, Nutrition and Health. The production and availability of foodstuffs and their products were not much in question then.

Since that time the inexorable rise in world population coupled with the rapid increase in the diet quality of industrial nations, has immensely increased the use of cereal grains which form the broad base of both our national and the world food supply.

Added to these pressures are those created by the physical and economic constraints on the inputs which have just come into powerful focus which further increases in output require now and will require in future.

The definition of these developments, the demonstration of their consequences and the delineation of the policies dictated for the management of these conditions and their consequences, are our special province. This charge requires

that we consider in succession these general areas --

1. The basic foodstuff situation
2. The dairy, livestock, poultry situation
3. The food processing and manufacturing situation
4. The food marketing and distribution situation
5. The food services situation

While we accept this as our charge and we have undertaken the assignment, we are hardly bold enough to promise its accomplishment. Time, resources and talent are all completely inadquate to the task. But we believe in the necessity for a start toward a world food order, and in the necessity to have at its base a national food policy consistent with that purpose and supportive of the interests of the United States. We believe that this effort can start us toward these ends.

1. The Basic Foodstuff Situation

The United States food supply has always depended on foreign sources for certain of its vital ingredient including sugar, cocoa, spices, some fats and oils, coffee and tea. But in the main we have regarded ourselves as self-sufficient in foodstuffs. Our total production has been so bountiful that we have tended to overlook the points at which we are deficient. And we have altogether ignored the emerging fact that these deficiencies are increasing in size and number.

The rest of the world until quite recently, apart from occasional catastrophes, seemed able to supply its separate needs as well. So the American farmer looked always to the home market for his livelihood. And of course that market for decades was marked by rising affluence, which in part was based on low food prices, in its increasingly urban population. The agricultural sector has had a legitimate desire to share in that affluence, but the outlet for its production afforded by the domestic market was insufficient to the purpose. And the farmer could not achieve equality of income by producing surpluses to sell abroad where demand for his products was always uncertain and often restricted by trade barriers.

So in an attempt at partial equity our national policy was designed to assure him domestic prices for domestic requirements above world prices, and compensation benefits

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for holding unneeded agricultural resources out of production. These policies still resulted in some surplus stocks, and these were disposed of through governmental subsidies enabling their sale at world prices, or as grants under P.L. 480 and similar programs to developing nations, or as gifts to those nations suffering from famine or catastrophe. Obviously these uses of surpluses helped guarantee that the world price would be held below the U.S. price and lowered the incentive in deficit and destitute nations to develop domestic food resources.

So our policies contributed to the undue emphasis on industrialization in developing nations and to the radical shift of rural populations to the cities in these countries, thus inflating the problems we now face.

The rate of population increase has long been modest in Europe. Through education and incentive Japan has tended toward population stabilization. And the U.S. in the last 15 years has seen its growth rate drop from 2 per cent a year to 0.7 per cent. For the world at large, however, the rate of increase holds steady at about 2 per cent per year -- currently about 75 million people annually. This has raised the world's human population from three billion to four billion in the last fifteen years, and promises to raise it to five billion in the next eleven years. Such

are the remarkable consequences of exponential growth curves.

Accompanying this increase in absolute numbers of people has been the shift already noted in the relative proportions of the world population from the subsistence farmer class to the dependent consumer class. Clearly this has increased the claimants on world food stocks even more rapidly than the population increase.

A further factor having a demand impact on world foodstuffs, although its adverse effect on total food supplies is almost certainly much exaggerated, is the tendency in affluent societies for diets to shift toward meat proteins and away from cereal foods. This change has probably been most apparent in the United States where red meat consumption per capita has risen from 160.9 pounds in 1960 to 191.8 pounds in 1971, with a decline to 175.5 pounds in 1973. But the critics allow no offset for the decline in per capita consumption of milk and eggs; so at this time the subject is more in need of data than declamation.

The net effect of these factors upon foodstuffs demand between 1960 and 1973 is of critical importance. On the basis of such data as is available world population grew in that span of years by 850 million or at the rate of 1.94% a year. Yearly consumption of world grain stocks

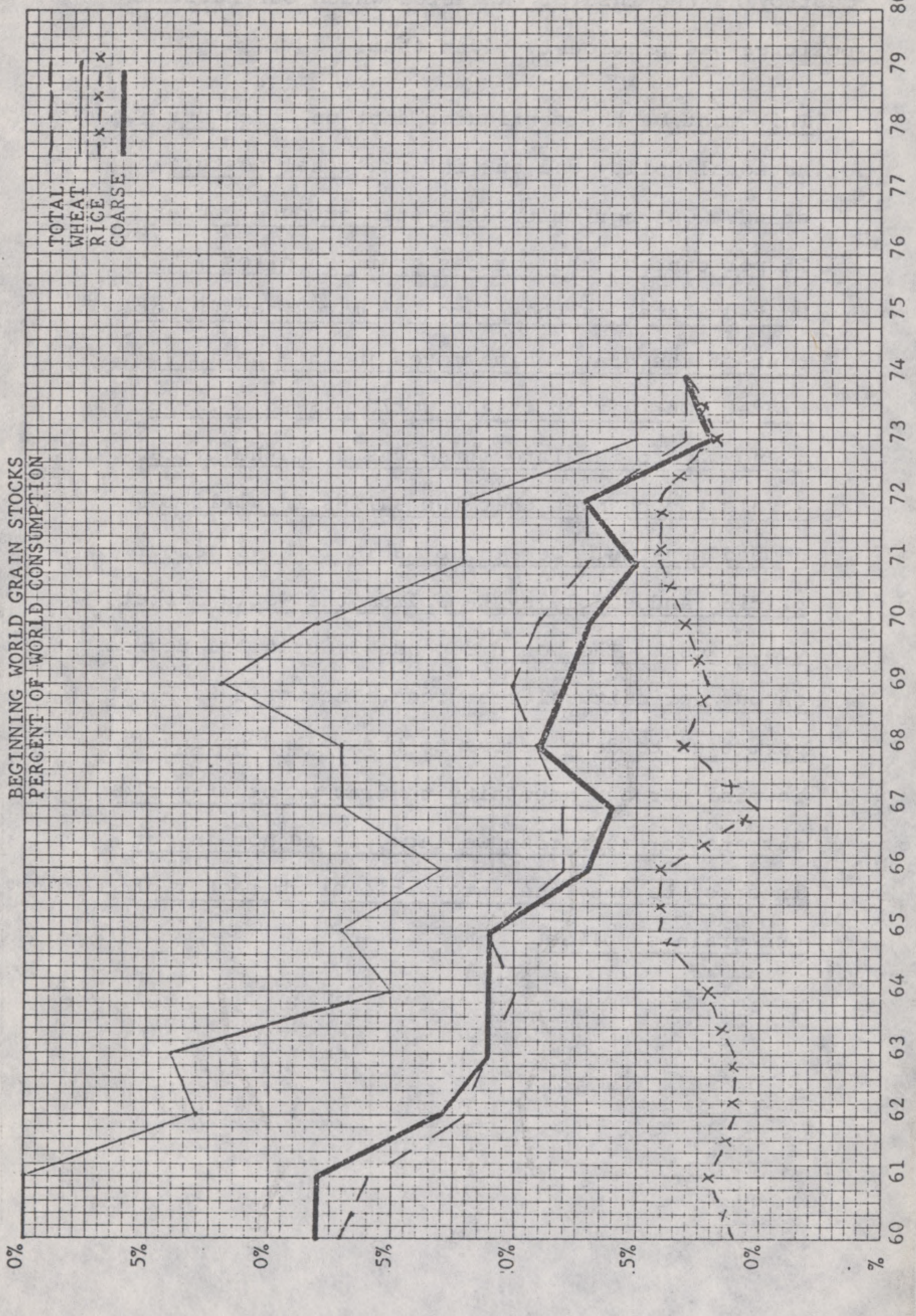
grew by 450 million metric tons (about 16.6 billion bushels), or at the annual rate of 3.1 per cent. The continuance of these differing rates of change is and must be a matter of acute concern.

The charts attached show the general parallel between grain consumption and production that prevailed from 1960 to 1971, although a dominant downward trend in reserves is observable from the beginning of the period. But with the 1972 crop an abrupt divergence occurs and a severe invasion of grain reserves resulted. While 1973 crops were of record size the invasion of carryover stocks continued. It is projected that 1974 crops will be ample and will permit some restoration of reserves. But in the fact of these long term trends that the charts show, real confidence in that result must await reports of the actual outturn.

The 1972 drop crisis was caused by a world shortfall of only 3 per cent from 1971 production. But it was sufficient to disclose that foreign stocks were exhausted and that virtually all of the world's grain reserves were held in North America. So the world has had no choice but to turn to our markets to obtain the supplies it must have, and from that time forward the flows of world supply and demand have determined prices in our domestic markets thus

destroying the insular character which our national policies had previously given them.

This must be the continuing fact on which our national policy and our international posture stand. Our agricultural system produces about 25 per cent of the world's grain supplies. The United States is the cource of more than 40 per cent of the grain which moves in international trade. Our market is the world market. There is no way to insulate ourselves from the price levels and changes that the shifts in worldwide demand creates. We are not able to divorce our pricing and supply systems from the world market conditions. The world depends in critical degree on our agricultural resources. The world will not permit us to deny access to them. And having in mind our own necessity to draw on other world markets for resources we lack, it is not in our interest to deny the international character of our grain supplies.


BEGINNING WORLD GRAIN STOCKS
PERCENT OF WORLD CONSUMPTION
TOTAL
WHEAT
RICE
COARSE
80
79
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76
75
74
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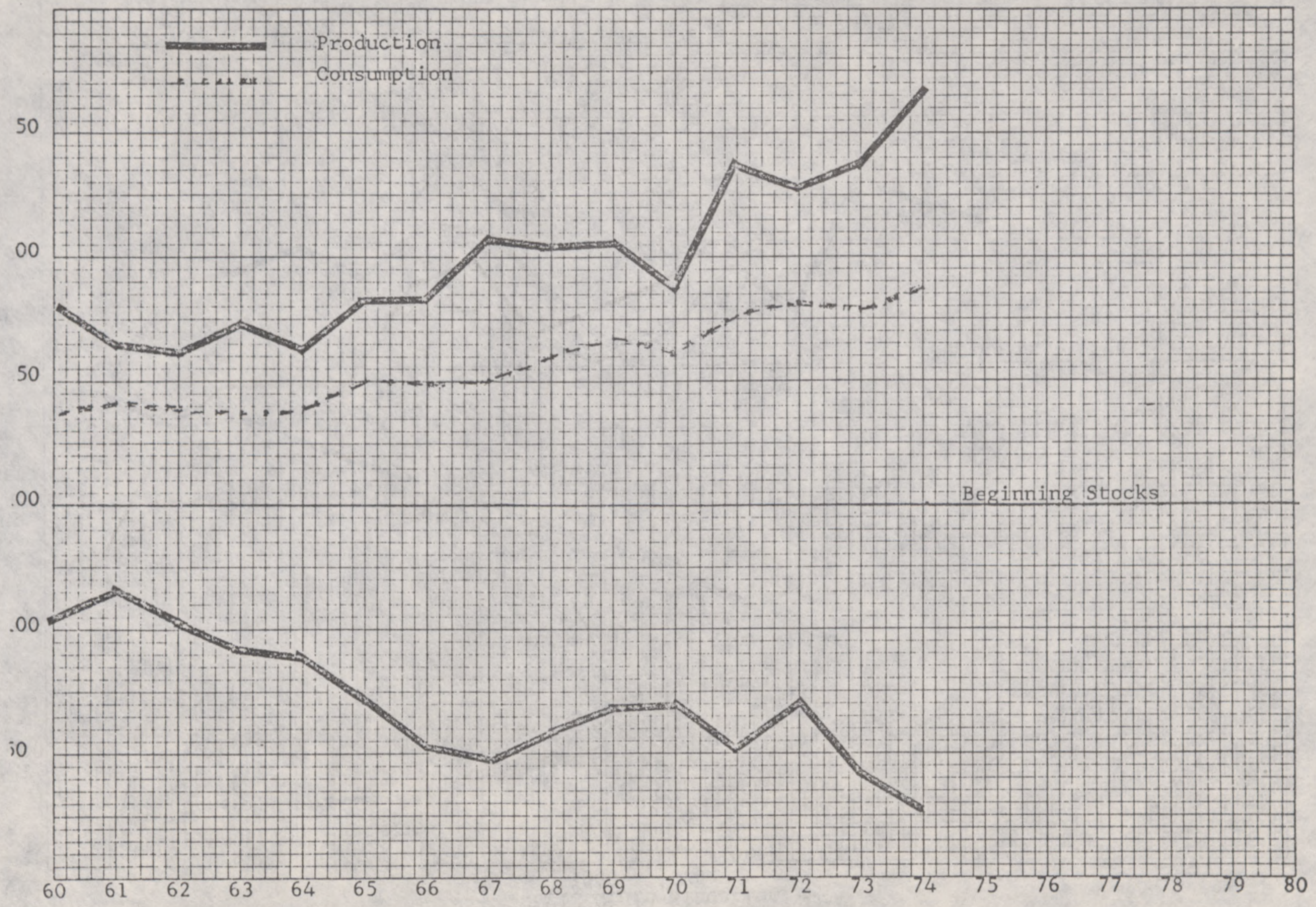
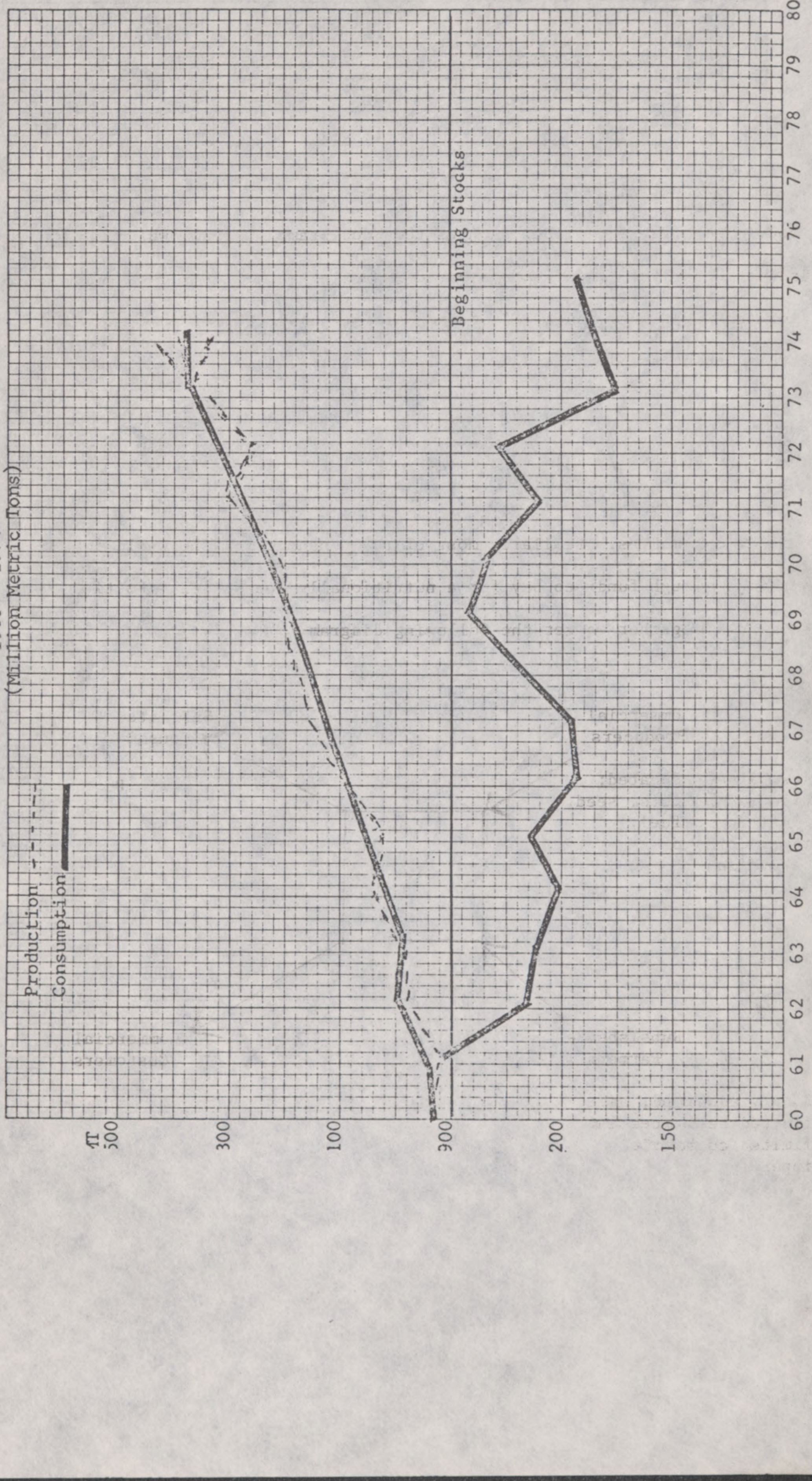
U.S. GRAIN SITUATION (MMT)



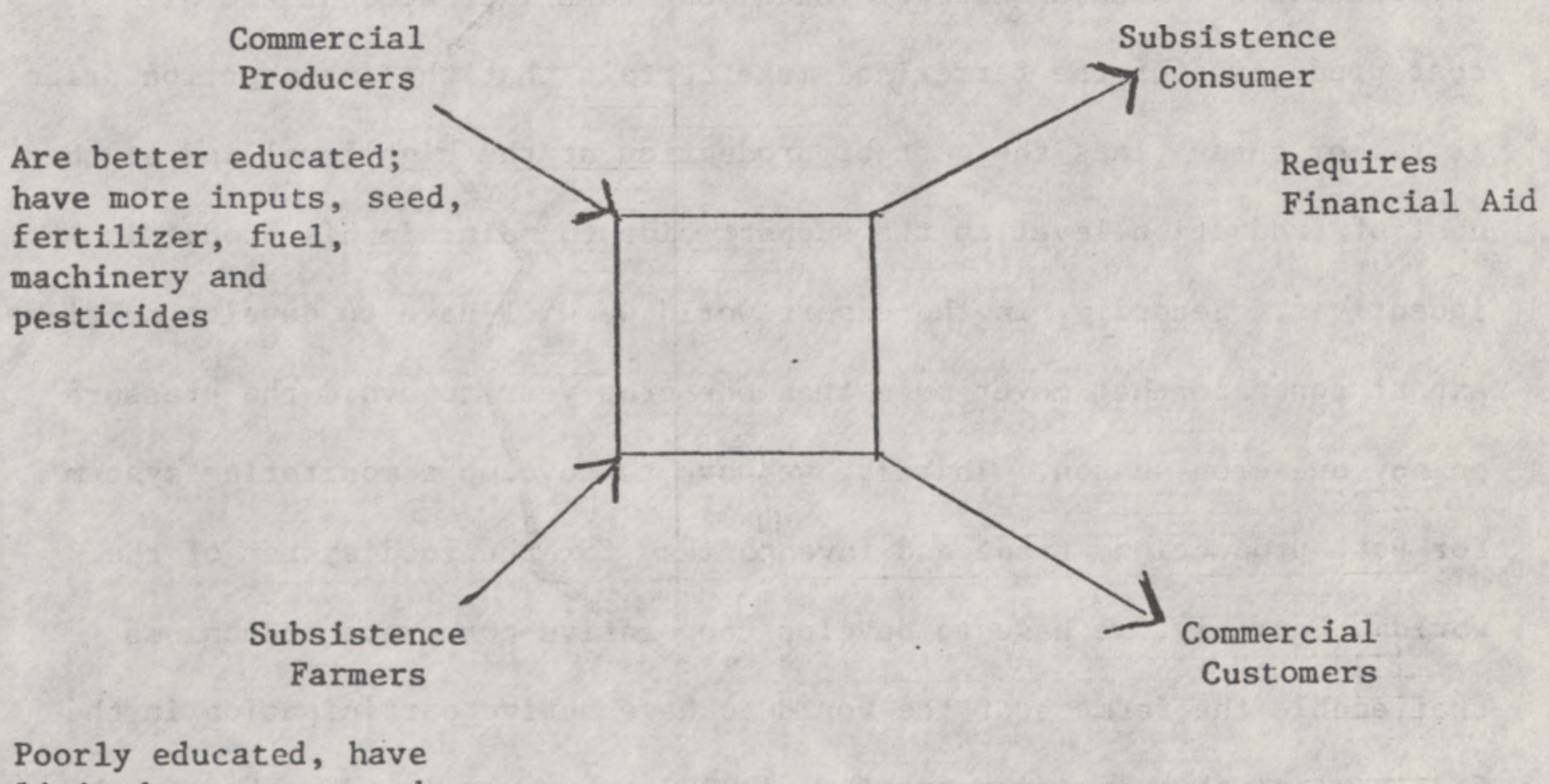
World Grain Situation
1960 - 1974
(Million Metric Tons)



A Global Perspective

One way of looking at the world food situation is to compare it with the United States. Over 90% of our production comes from commercial farmers who are an integral part of U.S. agribusiness and most of this production is sold to consumers who can afford to pay for the food. There are exceptions such as the Food Stamp Program, which, as indicated earlier, is becoming a more important part of food distribution and might even reach 25% of the population by 1980, if one extrapolates current trends.

With the exception of Europe and Japan, most of the rest of the world is in an opposite situation. Over 50% of the producers are subsistence, meaning that they only produce enough food for themselves and their families. Similarly most of the consumers of the world do not have enough funds to pay for a nutritionally sound diet. Putting those two together we get the following diagram.



In the material that follows we have attempted to indicate what the current production and productivity base is for the commercial and subsistence part of world agribusiness and the income level of consumers included in the market system.

From the data it is apparent that many consumers have moved from subsistence consumption to commercial consumption, thus adding additional pressure to the food system over and above a mere population increase. Similarly, it is apparent that technical aid is badly needed by subsistence producers if they are going to take advantage of their productivity capability. If we assume rapid progress on the productivity side and moderate progress on the population and improvement of the commercial system on the consumption side, we should be able to meet the next couple of decades of demand. The question then is how to make these assumptions come true. The other issues involved a reserve system that takes into account the variability of weather, crop production cycles, estrus life production cycles, and human population trends that are unpredictable. Such a reserve system must take into account the high cost production of the farmer and make certain that the intervention price is two or three times the cost of production at the high level and at the cost of production level on the support side to maintain his production incentives. Secondly, in the export world we will have to develop multi-year export contracts that cover more than one-crop year to avoid the pressure on any one crop season. Thirdly, we have to develop a monitoring system for both production, trade and inventories for the food system of the world. Fourthly, we have to develop cooperative-corporate mechanisms that enable the farmers of the world to have active participation in the food system, thus avoiding artificial OPEC type organization that in the

long run hurt both the consumer and the producer. Fifthly, the production must be targeted to some international nutritional standard and such standards must be translated in the form of price incentives back to the producer.

To summarize the global perspective that we have in mind, the following charts are set forth. These charts were developed by Professor R. Ewell at a recent meeting called by Ambassador Martin in preparation for the World Food Congress. In brief fashion they indicate the relationships that exist between the less developed countries and the developed countries, hereafter referred to as LDCs and DCs, and in turn influence the recommendations that are contained at the end of this report.

From Figure 1, it is apparent that most of the major population growth of the world in the future will come from the LDCs. From Figure 2, it is also equally apparent that the LDCs must rely on their own resources if they are to have a nutritionally sound supply of food. From Figure 3, it is apparent that the grain production per capita, with the exception of last year when a decrease occurred, has barely kept pace in the LDCs and has advanced rapidly in the DCs. This indicates the tremendous amount of technical development still required by the LDCs. Figure 4 indicates that price support programs and supply control programs in developed countries have tended to limit the area in cereal grains, whereas reclamation and irrigation projects in LDCs have added to the arable areas available for cereal grains in the LDCs. Figure 5 again substantiates the fact that grain yields are going up in both LDCs and DCs with the rapid rate still being in the developed countries. It also implies a major energy and resource component in the DCs which we have to be aware of in terms of cost of production

and the use of energy and water resources. Figure 6 indicates the consumption of fertilizer and the fact that the DCs have been in a position of being able to acquire fertilizer because of foreign exchange availability more easily than have the LDCs. Figure 7 relates this consumption to a per capita basis which even shows a wider gap. Figure 8 shows grain production versus fertilizer production and together with Figure 9 indicates the obvious fact that the marginal utility of fertilizer in LDCs is greater than in the DCs, because of the additional incremental value. It also indicates the tropical nature of most LDC production and the potential of double and triple cropping, or intensive versus extensive agriculture as well. Figure 10 indicates the international trade in wheat in 1972 and again demonstrates that for the most part it is those countries that are developed that are the exporters, and it is those countries that are also developed and have currencies that tend for the most part to be the largest importers. Figure 11 indicates the international trade in rice. Here there are more developing countries listed as importers, with also a few developing countries listed as exporters. It is also apparent that most of the rice trade is centered in the Southeast Asian area of the world. Figure 12 outlines the international trade in maize or corn, and again for the most part it is from developed to developing countries. Similarly, Figure 13 shows the international trade in soybeans with the arrival of Brazil as a major exporter, and again showing that the major importers are DCs. Figure 14 outlines the human population by the most populous countries of the world, and it also relates it to cattle population as well. In addition, from this table it is apparent that through historical and religious traditions many countries do not

use their livestock population for beef or veal production, even though their animal population is numerous. This figure obviously indicates that we cannot look at numbers and needs alone, but also to the traditional diets and traditions of the country as a whole. Figure 15 gives us the diets of people in DCs and LDCs and, as Dr. Mayer has expressed in various meetings, these diets can change only if major conditions surrounding these diets change as well. Figures 16 through 21 have been prepared by the Department of Agriculture for the World Food Congress background material and indicate the population and grain picture for DCs and LDCs, as previously shown by other charts, and also estimate the US picture for major cereal and feed grains in the United States up to the 1985 period. Figure 22 relates specifically to the fertilizer situation and the tremendous needs of the DCs. Other sessions prior to the World Food Congress have indicated that there are additional plants on the drawing board for the fertilizer industry, but there is a lag in the lead time in getting these under way. In addition, it is quite evident that the fertilizer companies are going to need monetary incentives with excellent returns on investment if these plants are to be developed and used effectively in the world food system. Figures 23, 24, 25, 26, 27 and 28 pinpoint the fertilizer needs by major regions of the world. Figure 29 indicates that even with productivity increases in the LDCs the needs of DCs are such that we will still be shipping great quantities of food from the DCs as well. Figure 30 summarizes the food production population relationships of the LDCs and the DCs. Figure 31 indicates the decline in food production per capita in 1973 in the LDCs which brought it all the way back to 1966, but the year 1974 puts it right back on target again, for which we are all grateful. There are

some serious problems in the over-all averages of the LDCs as the figure also indicates with downturns occurring in both West Asia, primarily in India, and in Africa, as we are all painfully aware of.

FIGURE 1 - POPULATION OF WORLD, DC'S AND LDC'S

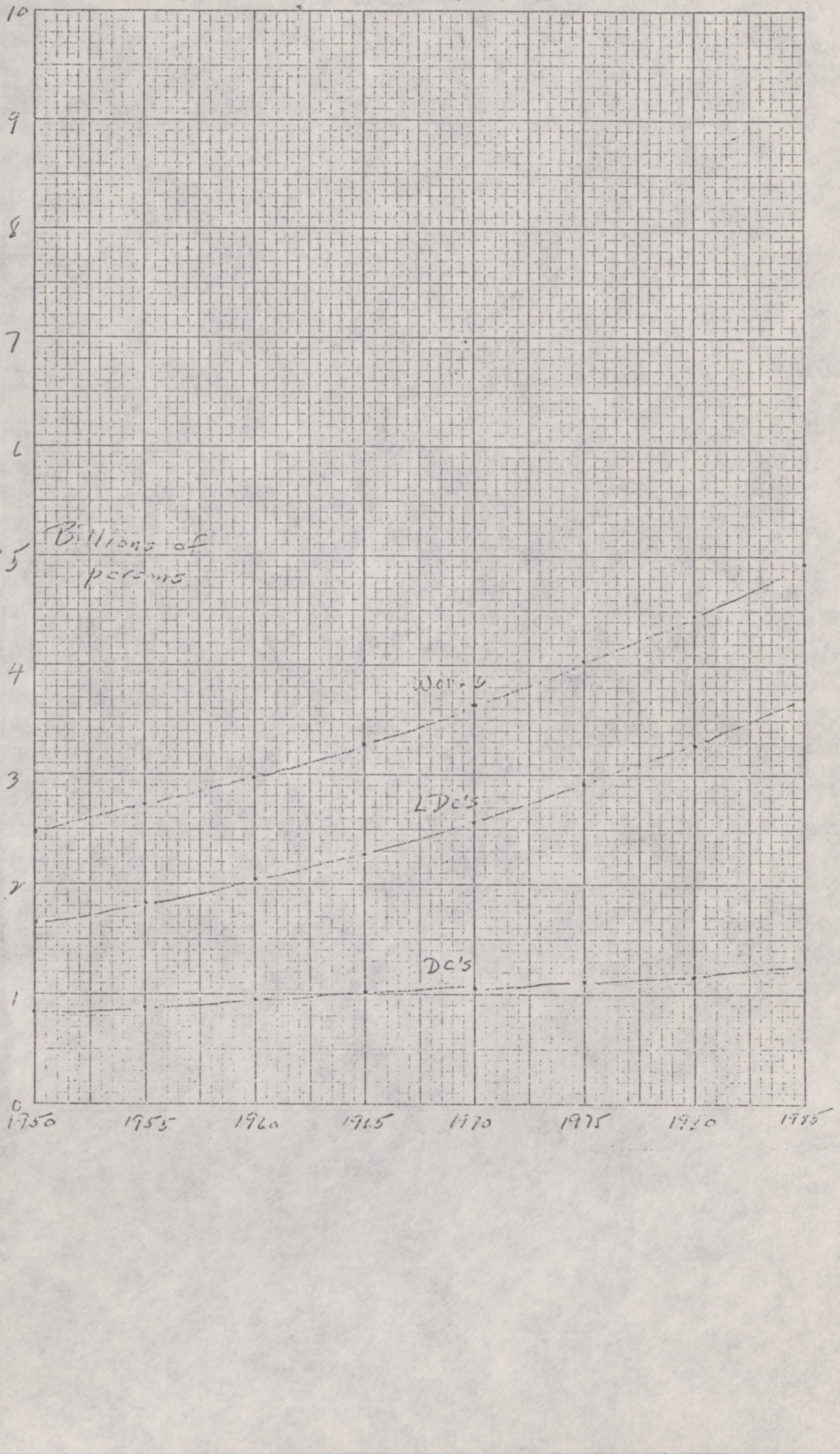


FIGURE 2 - PRODUCTION OF GRAIN

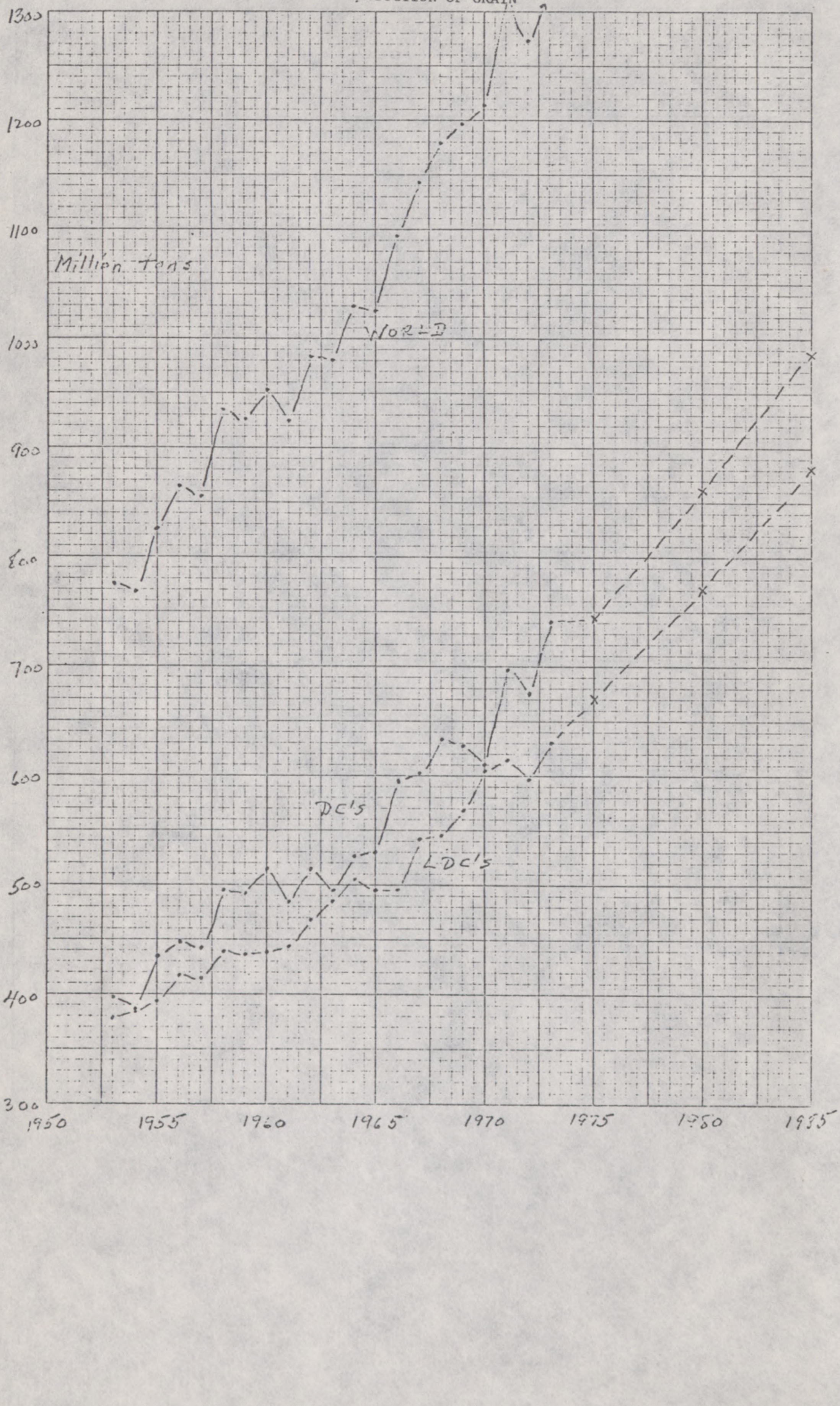


FIGURE 3 - GRAIN PRODUCTION PER CAPITA

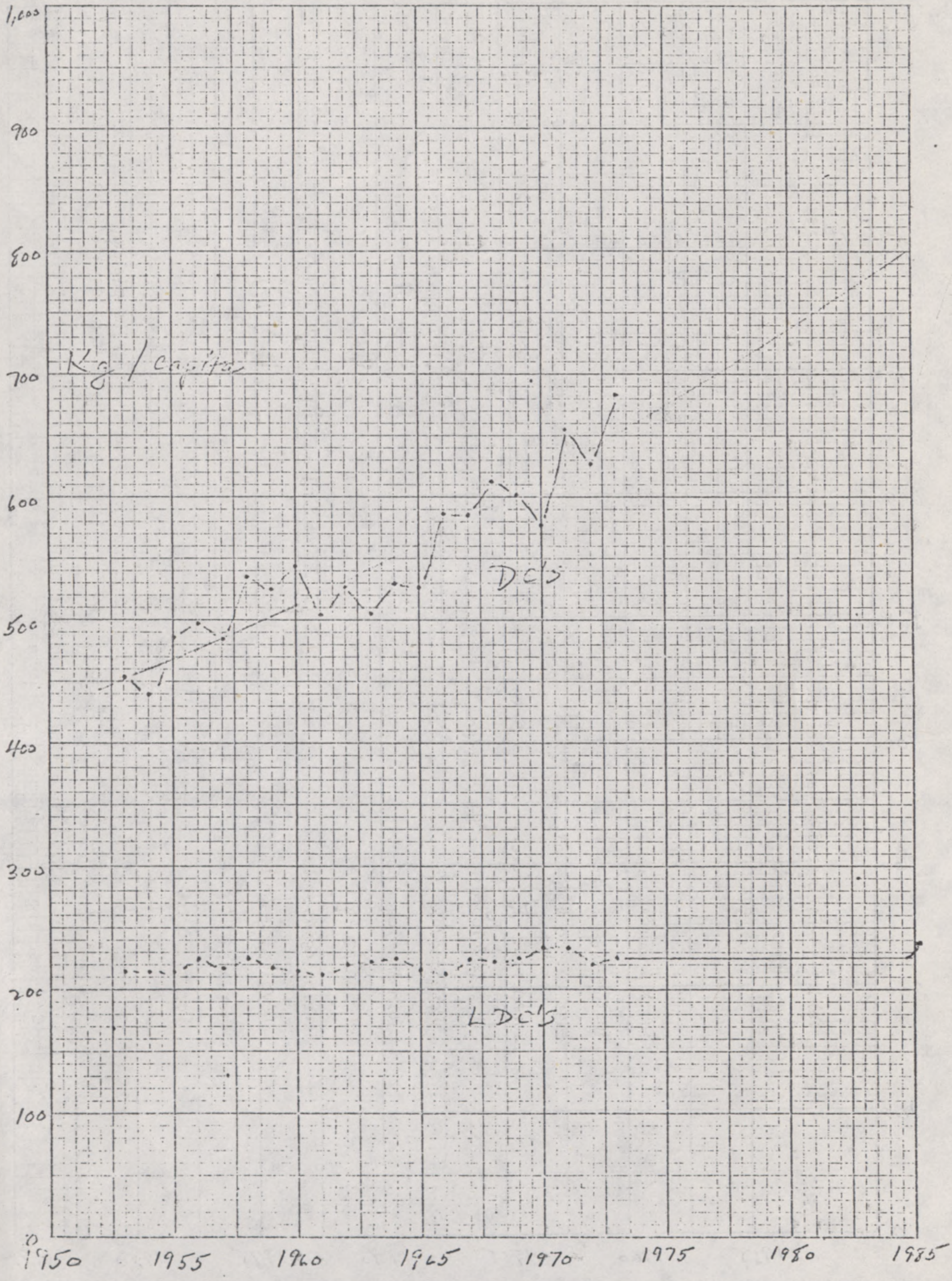


FIGURE 4 - AREA IN CEREAL GRAINS

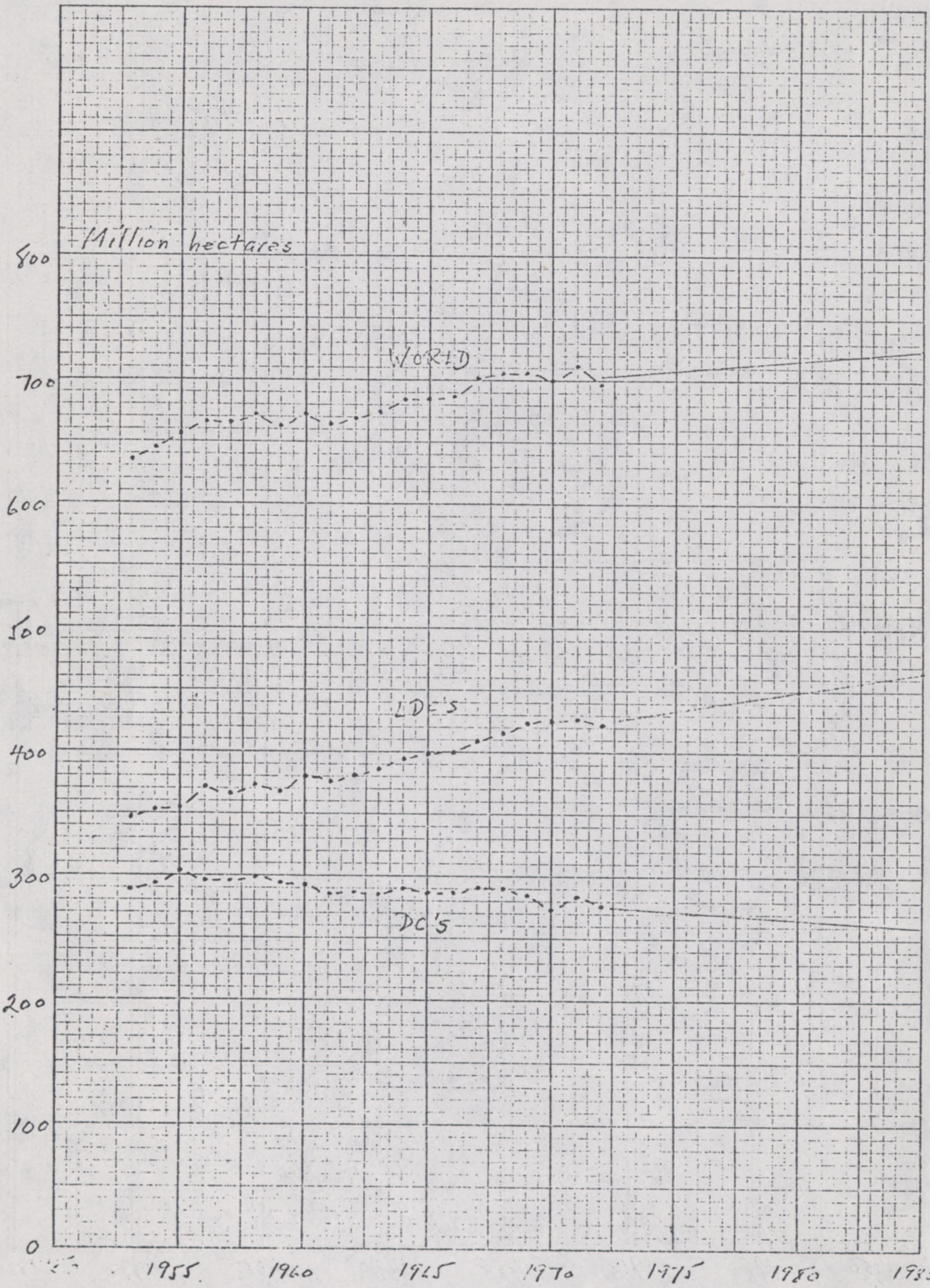


FIGURE 5 - GRAIN YIELDS

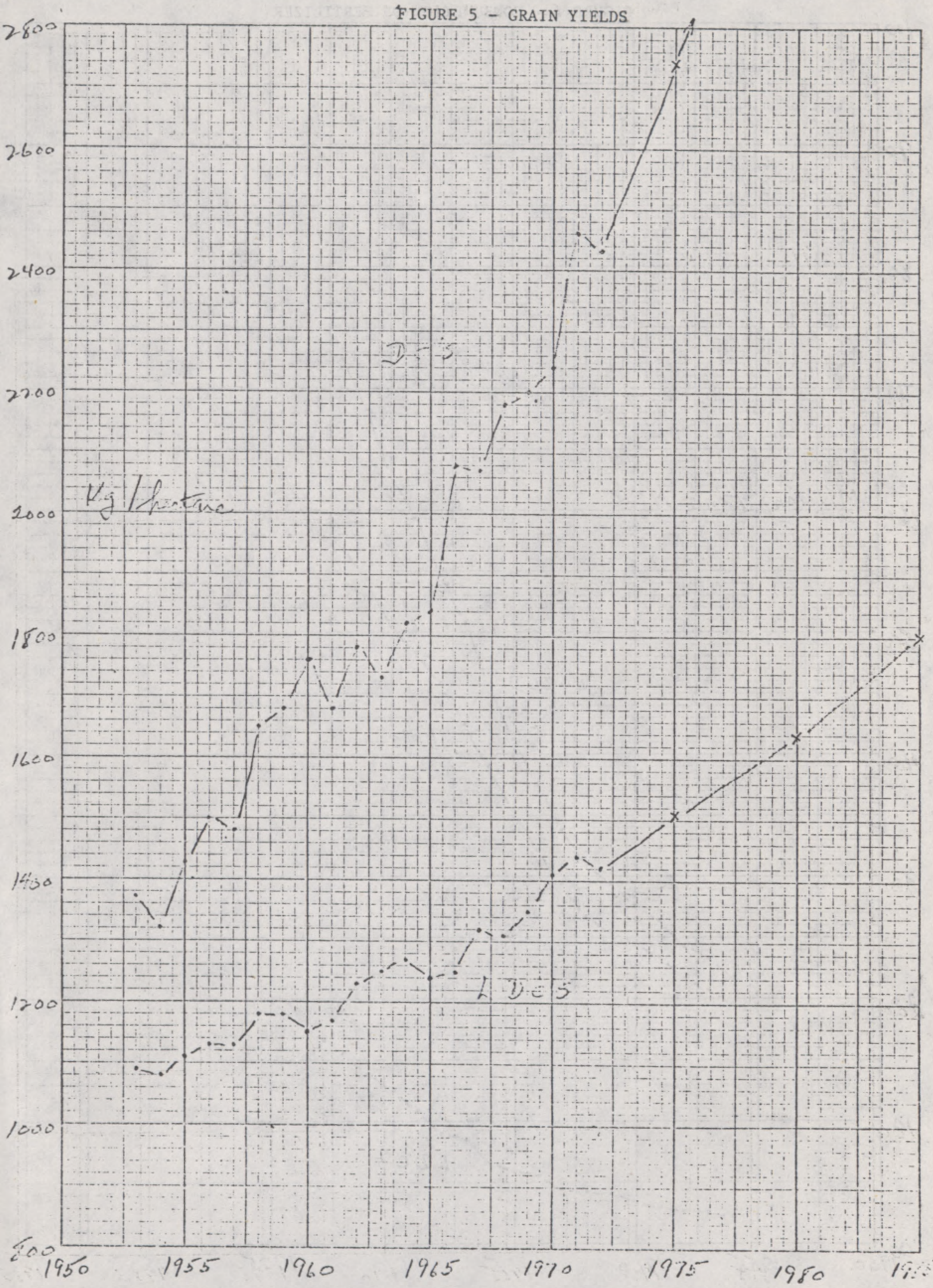


FIGURE 6 - CONSUMPTION OF FERTILIZER

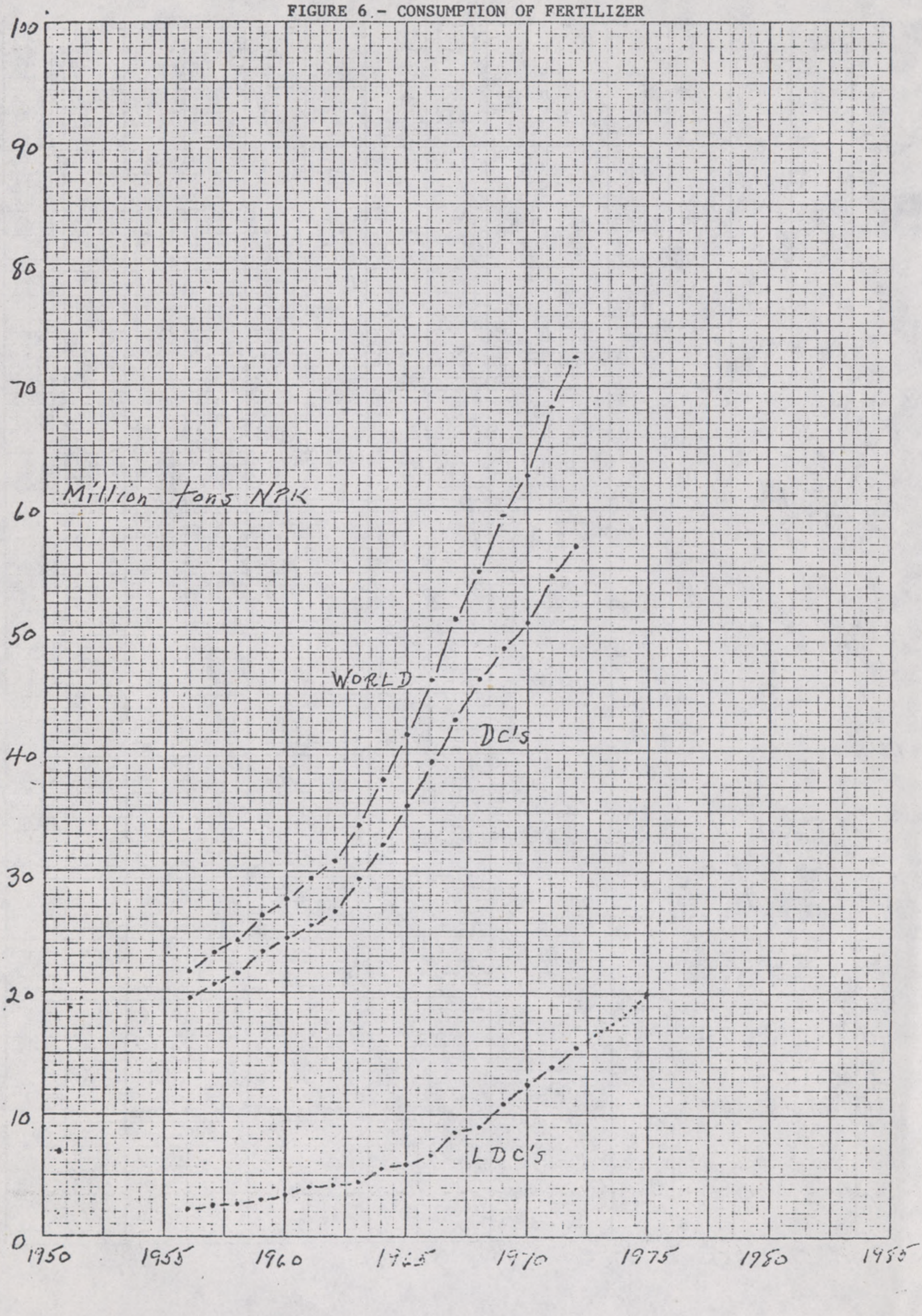


FIGURE 7 - FERTILIZER CONSUMPTION PER CAPITA

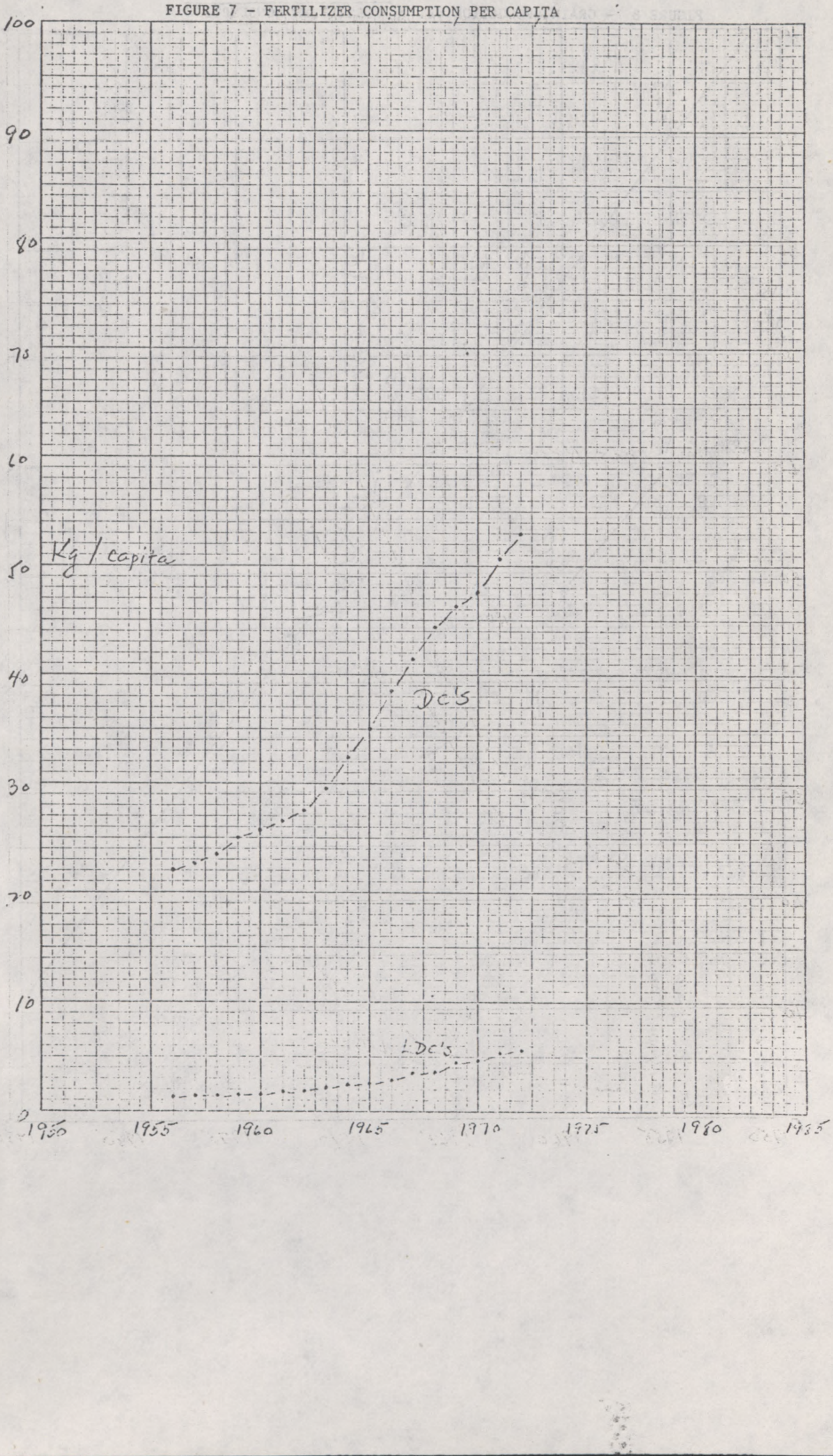


FIGURE 8 - GRAIN PRODUCTION vs. $\sqrt{\text{FERTILIZER CONSUMPTION}}$

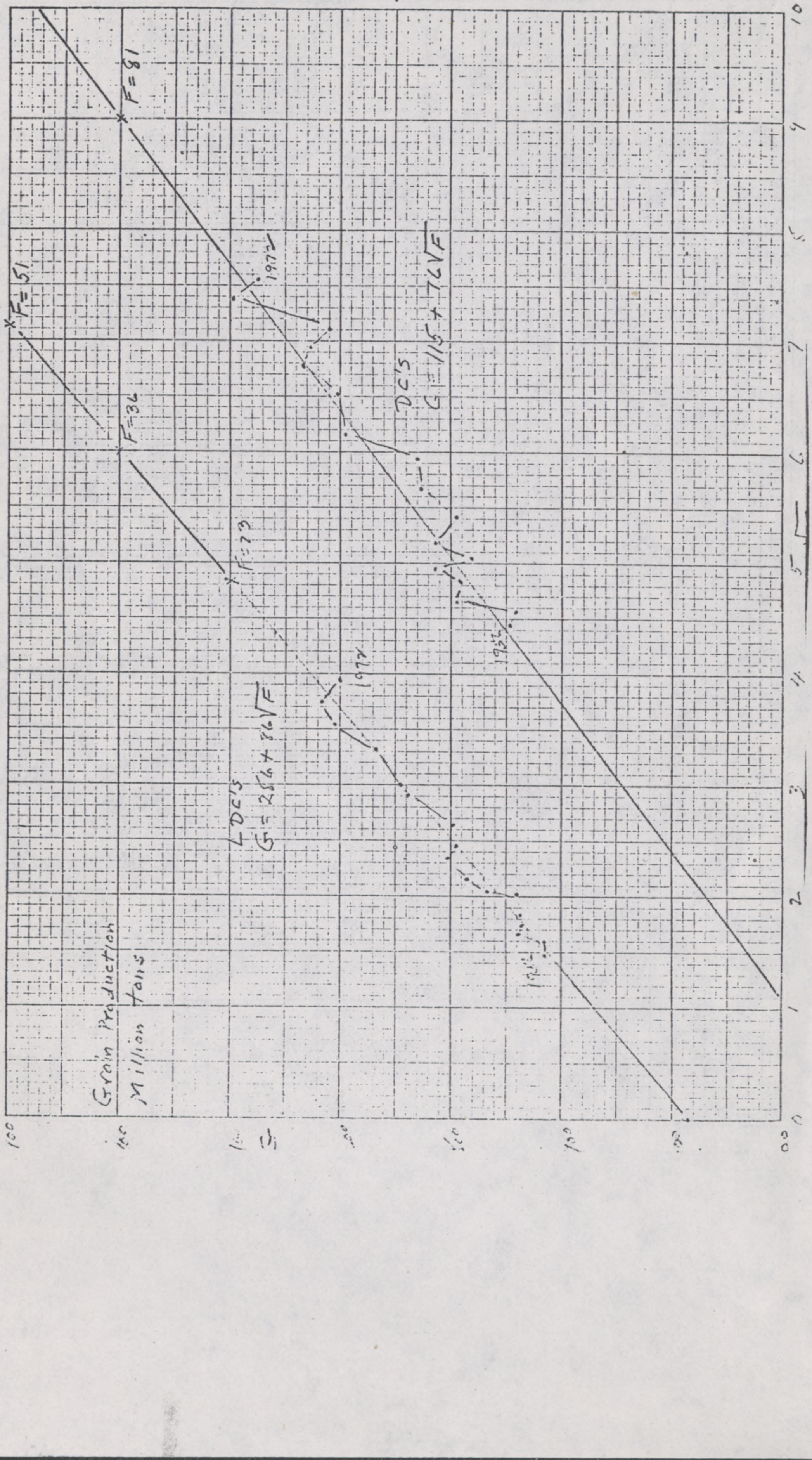


FIGURE 9 - GRAIN PRODUCTION vs. FERTILIZER CONSUMPTION

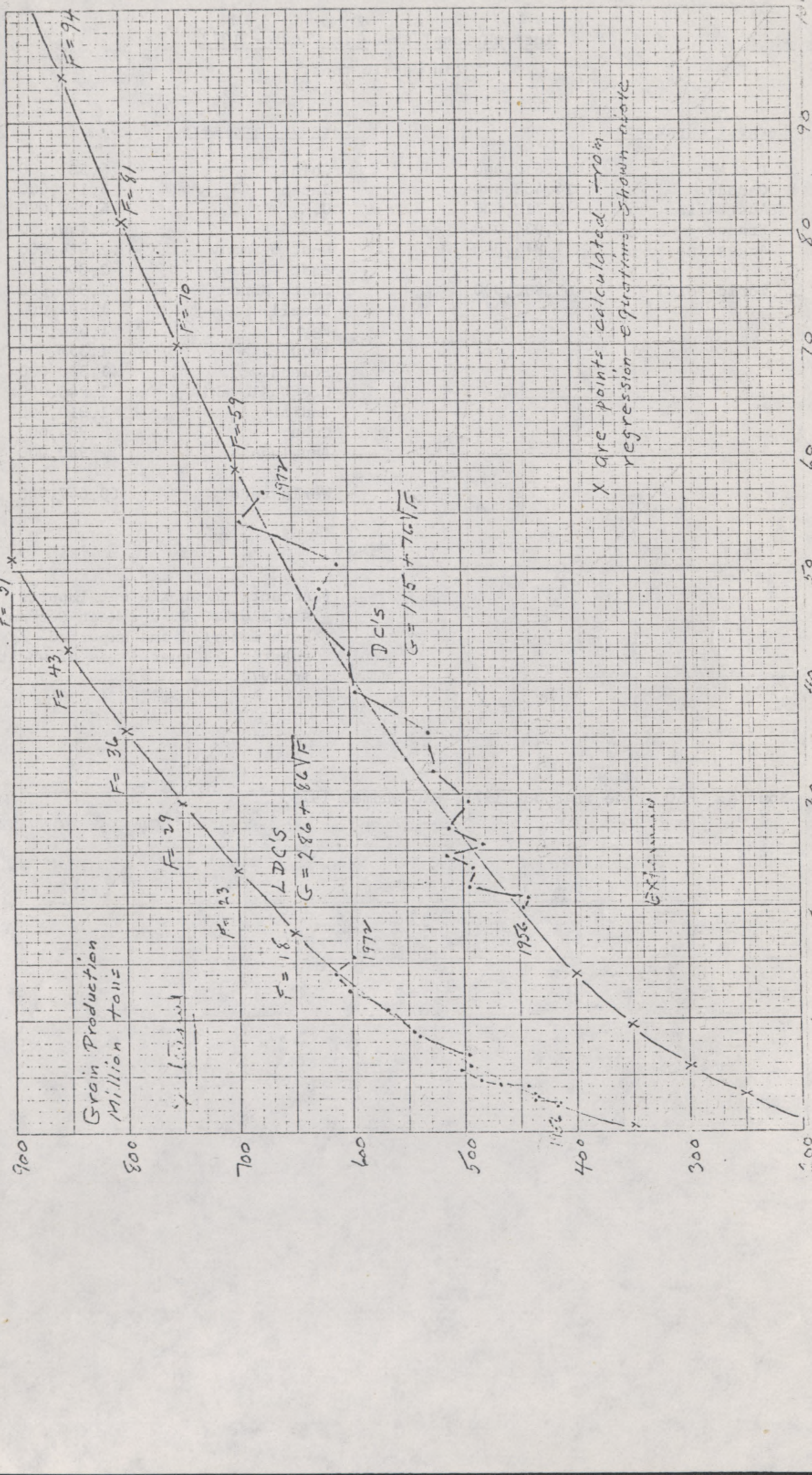


FIGURE 10

International Trade in Wheat - 1972

(in metric tons)

Largest exporters		Largest importers	
U.S.A.	22,612,000	China	5,522,000
Canada	14,463,000	Japan	5,145,000
Australia	8,712,000	U.K.	4,284,000
France	7,034,000	U.S.S.R.	2,450,000*
Argentina	1,814,000	West Germany	2,024,000*
		East Germany	2,000,000
World total	63,832,000	South Korea	1,938,000
		Brazil	1,804,000
		Egypt	1,686,000
		Indonesia	1,357,000
		Poland	1,350,000
		Czechoslovakia	1,246,000
		India	1,010,000
		Cuba	986,000
		Bangladesh	980,000
		World total	60,647,000

* Amounts shown are net imports since U.S.S.R. and West Germany both imported and exported substantial quantities of wheat in 1972.

Source: FAO Trade Yearbook 1972, FAO, Rome, 1973.

FIGURE 11

International Trade in Rice (Paddy) - 1972

(in metric tons)

Largest exporters		Largest importers	
Thailand	2,076,000	Indonesia	734,000
U.S.A.	2,036,000	South Korea	732,000
China	750,000	Bangladesh	658,000
Burma	460,000	Philippines	434,000
Egypt	456,000	India	419,000
Italy	338,000	Hong Kong	415,000
Pakistan	300,000	South Vietnam	383,000
Australia	179,000	Singapore	363,000
		Sri Lanka	298,000
World total	7,554,000	U.S.S.R.	280,000
		Malaysia	254,000
		Cuba	250,000
		Senegal	243,000
		Saudi Arabia	167,000
		West Germany	157,000
		France	132,000
		U.K.	129,000
		Total world	8,225,000

Other importers 50,000 - 100,000 tons

Austria	Laos
Belgium	Mauritius
Canada	Netherlands
Chile	Poland
Czechoslovakia	Reunion
Ivory Coast	Syria

Source: FAO Trade Yearbook 1972, FAO, Rome, 1973

FIGURE 12

International Trade in Maize - 1972

(in metric tons)

Largest exporters		Largest importers	
U.S.A.	22,386,000	Japan	5,790,000
France	3,230,000*	Italy	4,842,000
Argentina	3,039,000	U.K.	3,145,000
South Africa	3,000,000	West Germany	3,119,000*
Thailand	1,719,000	U.S.S.R.	3,040,000*
		Spain	2,383,000
World total	36,776,000	Netherlands	2,037,000*
		Belgium	1,011,000*
		East Germany	730,000
		China	584,000
		Czechoslovakia	500,000
		World total	35,517,000

* Amount shown is net export since France both exported and imported substantial quantities of maize in 1972.

* Amounts shown are net imports since West Germany, U.S.S.R., Netherlands, and Belgium both imported and exported substantial quantities of maize in 1972.

Source: FAO Trade Yearbook 1972, FAO, Rome, 1973.

FIGURE 13

International Trade in Soybeans - 1972

(in metric tons)

Largest exporters		Largest importers	
U.S.A.	11,993,000	Japan	3,396,000
Brazil	1,040,000	West Germany	2,217,000*
		Spain	1,428,000
World total	13,793,000	Netherlands	1,369,000*
		Italy	819,000
		Denmark	533,000
		France	458,000
		U.K.	539,000
		China	342,000*
		Belgium	337,000
		Israel	330,000
		Canada	267,000*
		Norway	235,000
		U.S.S.R.	226,000
		World total	13,716,000

* Amounts shown are net imports since West Germany, Netherlands, China and Canada both imported and exported substantial quantities of soybeans in 1972.

Source: FAO Trade Yearbook 1972, FAO, Rome, 1973

FIGURE 14

FIVE MOST POPULOUS NATIONS

Country	Human Population 1970 - million -	Human Population 1980 - million -	Cattle Population 1970 - million -	Cattle Population 1980 - million -	Beef & Veal Production 1970 - thous. tons -	Beef & Veal Production 1980 - thous. tons -	Consumption 1970 - thous. tons -	Consumption 1980 - thous. tons -
China (Mainland)	848	1,033	95	104	2,192	2,712	2,130	3,139
India	551	708	231	237	177	271	177	271
USSR	242	269	195	111	4,800	5,980	4,915	6,765
USA	205	229	112	121	10,269	12,835	10,979	13,998
Pakistan	131	176	50	52	300	473	300	470
Total	1,977	2,416	590	623	17,738	22,271	18,501	24,643
WORLD	3,719	4,575	1,225	1,363	39,976	51,711	39,725	53,364

FIGURE 15

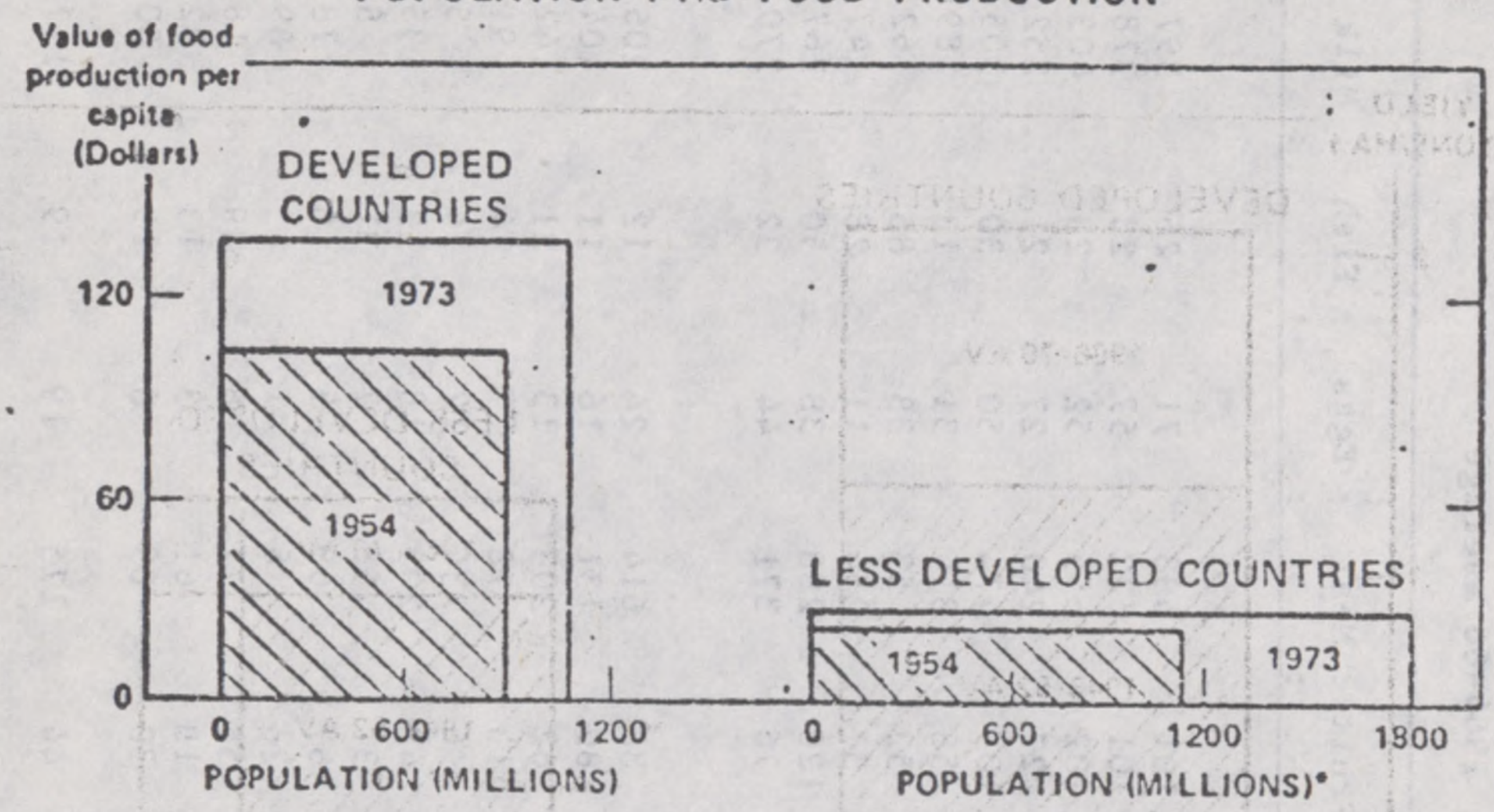
Table 2. Calories per person per day from 11 food groups, 1964-66 average

Region	Total	Cereals	Starchy crops	Sugar	Pulses, nuts & cocoa	Vege-table	Fruit	Meat	Eggs	Fish	Milk	Fats & oils
DEVELOPED												
United States	3,156	649	95	513	103	73	101	598	71	26	397	530
Canada	3,142	670	155	520	73	62	101	622	57	23	378	481
Australia & N. Zealand	3,192	821	101	550	61	47	102	655	52	23	403	377
U.S.S.R.	3,182	1,544	265	412	60	41	27	240	27	21	252	293
EC-9	3,111	878	179	391	68	59	109	474	50	30	305	568
Eastern Europe	3,080	1,498	183	307	59	49	58	314	31	13	189	379
Japan	2,416	1,397	134	197	146	90	53	53	38	85	62	174
South Africa	2,732	1,583	33	403	55	14	37	254	11	28	147	167
Other Western Europe	2,897	978	191	304	103	69	126	288	38	50	267	483
AVERAGE	3,043	1,127	175	388	82	59	76	371	44	32	270	419
LESS DEVELOPED												
Argentina	2,885	999	180	378	28	30	88	614	24	12	206	326
Mexico & Cent. America	2,425	1,197	107	388	188	14	82	131	16	11	104	187
Other South America	2,276	898	291	363	80	23	62	203	13	21	142	180
West Asia	2,316	1,480	41	187	91	39	113	78	7	4	91	185
China	2,045	1,383	224	35	134	33	6	134	12	14	5	65
Brazil	2,541	861	410	401	312	11	48	203	18	13	135	129
East Asia & Pacific	1,969	1,271	245	99	107	27	31	58	7	31	8	85
North Africa	2,290	1,461	104	198	72	43	67	69	5	6	78	187
South Asia	1,975	1,300	29	192	176	35	26	8	1	5	89	114
Southeast Asia	2,121	1,589	70	84	78	29	58	77	8	39	18	71
Africa South of Sahara	2,154	1,109	568	53	180	13	18	61	3	13	32	104
AVERAGE	2,097	1,300	191	135	146	30	30	89	8	13	50	105
WORLD	2,386	1,247	186	212	127	39	44	175	19	19	117	201

Source: FAO Food Balances 1964-66.

FIGURE 16

POPULATION AND FOOD PRODUCTION



*Population excludes Communist Asia

In this chart the area of each rectangle, determined as the product of population (measured on the horizontal axis) times value of food production per capita (in dollars on the vertical axis), represents the total value of food production in million dollars for an indicated group of countries at a specified time. All four rectangles may be compared in height, in width, and in area. (Values computed at 1961-65 average prices.)

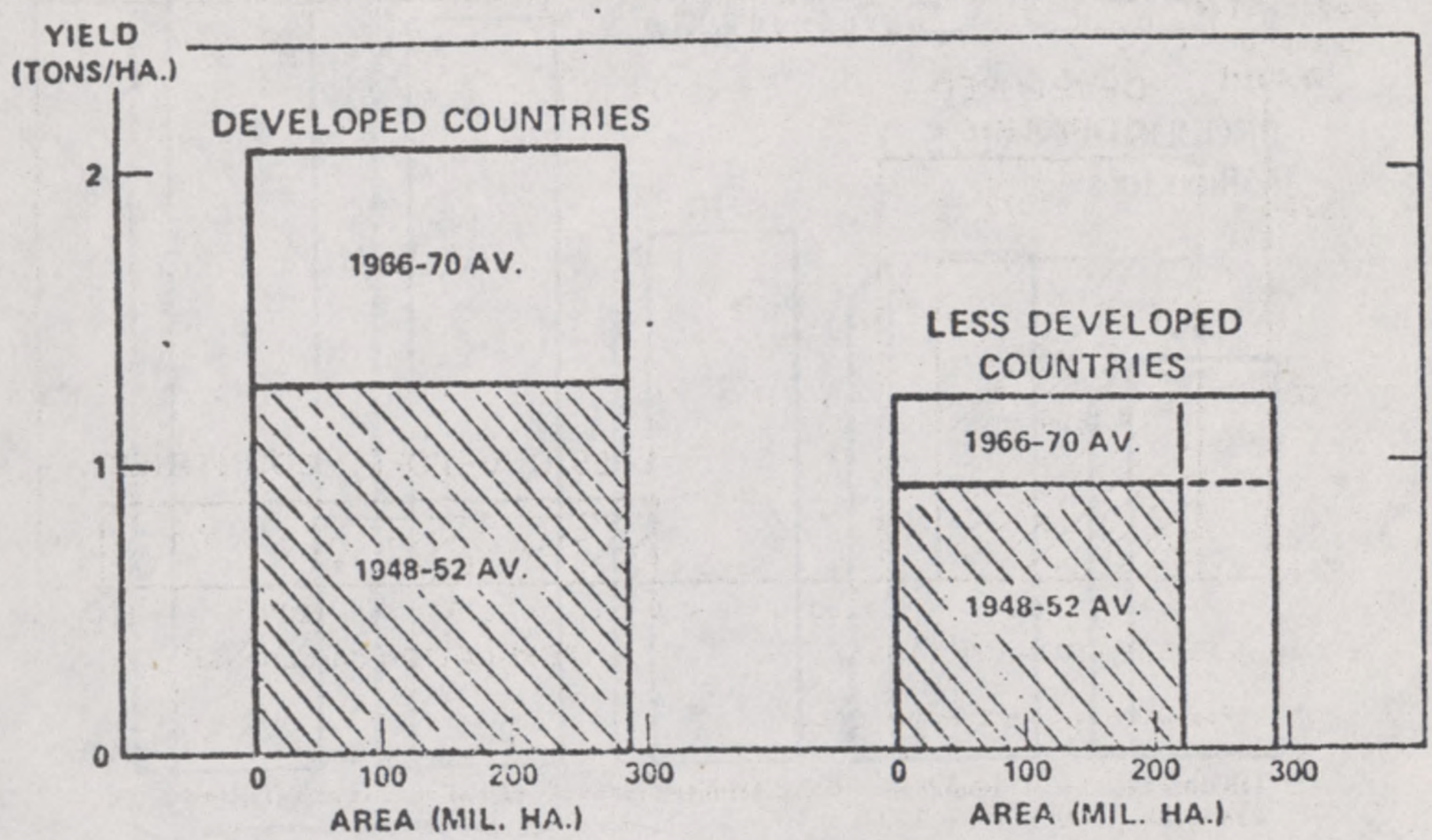
1. Developed countries in 1973 accounted for:
   a. Two-fifths of world population
   b. Three-fourths of world food production
   c. Three-fourths of the increase in world food production since 1954
   d. One-fourth of the increase in world population since 1954

2. From 1954 to 1973, the developed countries:
   a. Increased population one-fourth, reaching 1,100 million, about equal to population in the LDC's in 1954, whose populations increased 60 percent by 1973.
   b. Increased food production per capita one-third, reaching $1390 per person, more than 5 times the level of the LDC's.
   c. Increased total food production two-thirds, to $150 billion, more than 3 times that of the LDC's.

3. In the LDC's:
   a. Food production per capita increased only 5 percent.
   b. Aggregate food production rose two-thirds by 1973, to total little more than half that of the DC's 20 years earlier.

FIGURE 17

ALL GRAINS: AREA, YIELD, AND PRODUCTION



In this chart the area of each rectangle, determined as the product of the amount of land in grains (in million hectares or the horizontal axis) times yield per hectare (in kilograms on the vertical scale), represents the total production of grains in million tons for an indicated group of countries at a specified time. All four rectangles may be compared in height, in width, and in area.

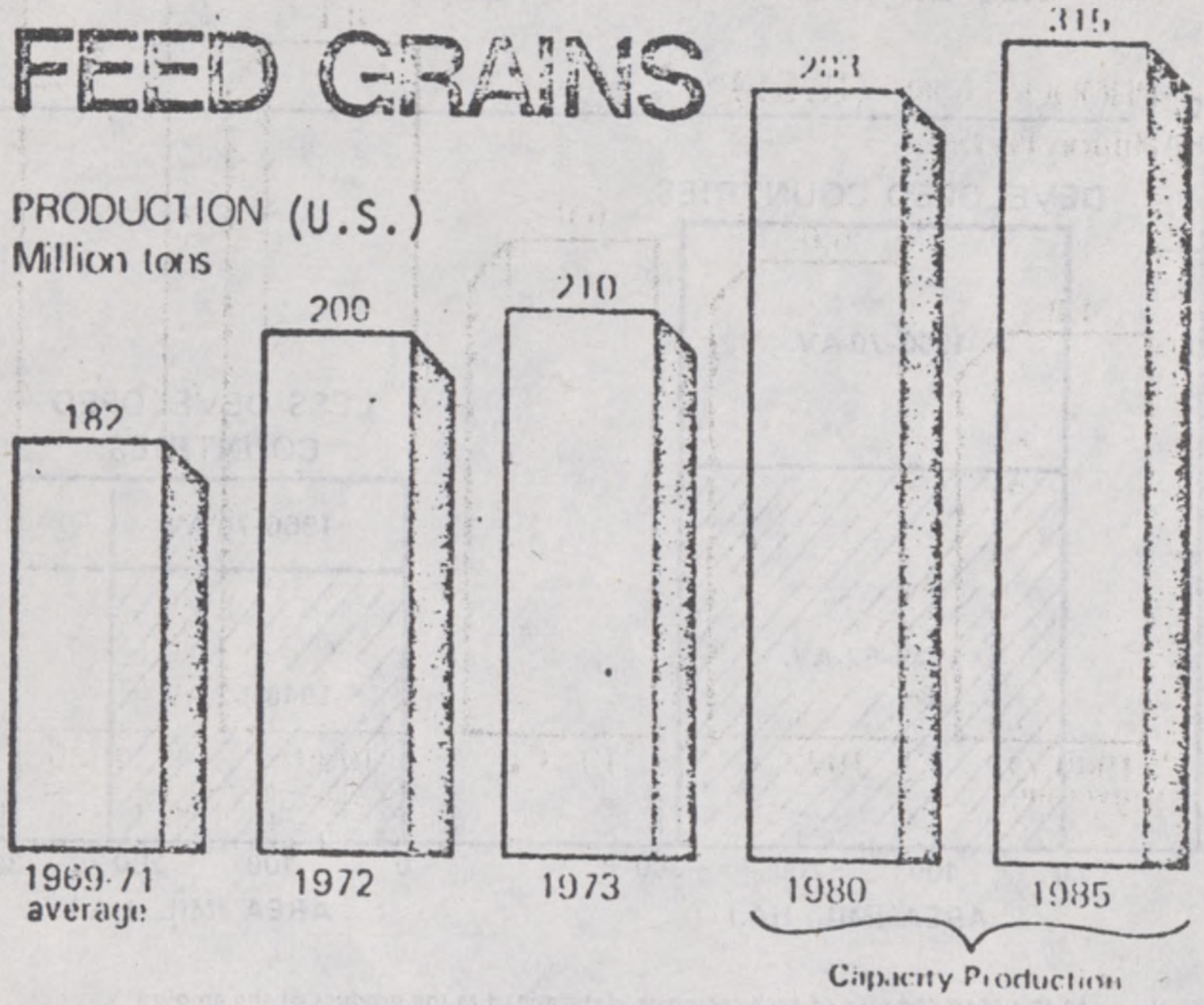
1. Developed countries in 1966-70 accounted for:
   a. 50 percent of area in grains
   b. 65 percent of world grain production
   c. 61 percent of the increase in grain production over the 1948-52 average
   d. None of the increase in world grain area

2. From 1948-52 to 1966-70 the LDC's:
   a. Increased grain area 35 percent, reaching nearly 300 million hectares, thereby catching up with area in developed countries, which made no gain over this period.
   b. Increased grain yields 32 percent, to 1.2 tons per hectare, nearly equal to developed countries' 1948-52 yields which increased 63 percent by 1966-70.
   c. Increased grain production 78 percent to 356 million tons, nearly equal to the developed countries' 1948-52 production, which increased 64 percent by 1966-70.

   The increase in production in the LDC's was 156 million tons:

   45 percent from increased area
   41 percent from increased yields
   14 percent from combined effect of increased area and yields.

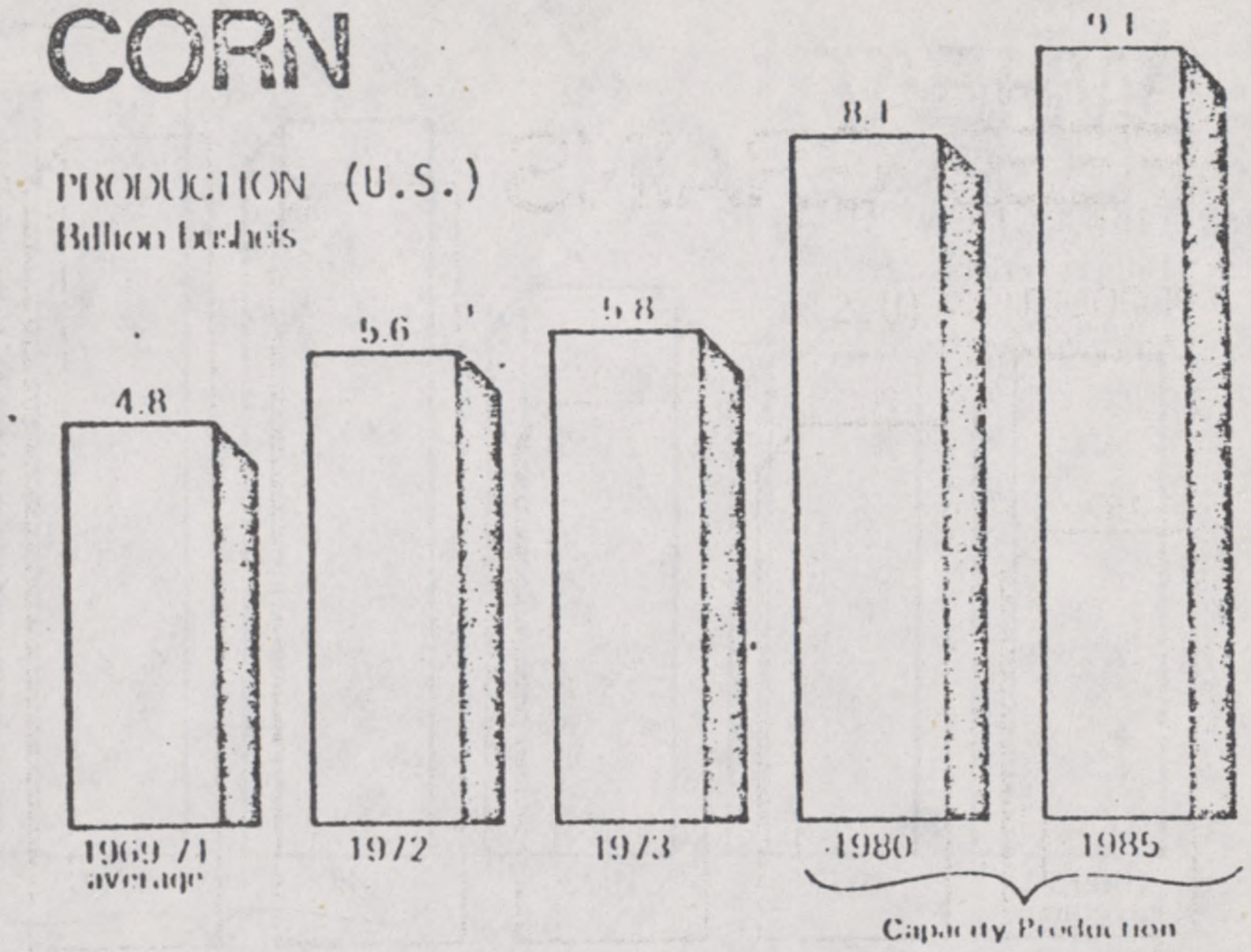
FIGURE 18



Feed grains, piling up acreage and yield increases, will continue to set production records. Total output in 1985 may soar 50 percent over 1973.

YIELDS		ACREAGE	
	Tons per acre		Million acres
1969-71 average	1.81	1969-71 average	100.4
1972	2.13	1972	94.1
1973	2.05	1973	102.4
1980	2.47	1980	114.7
1985	2.72	1985	115.7

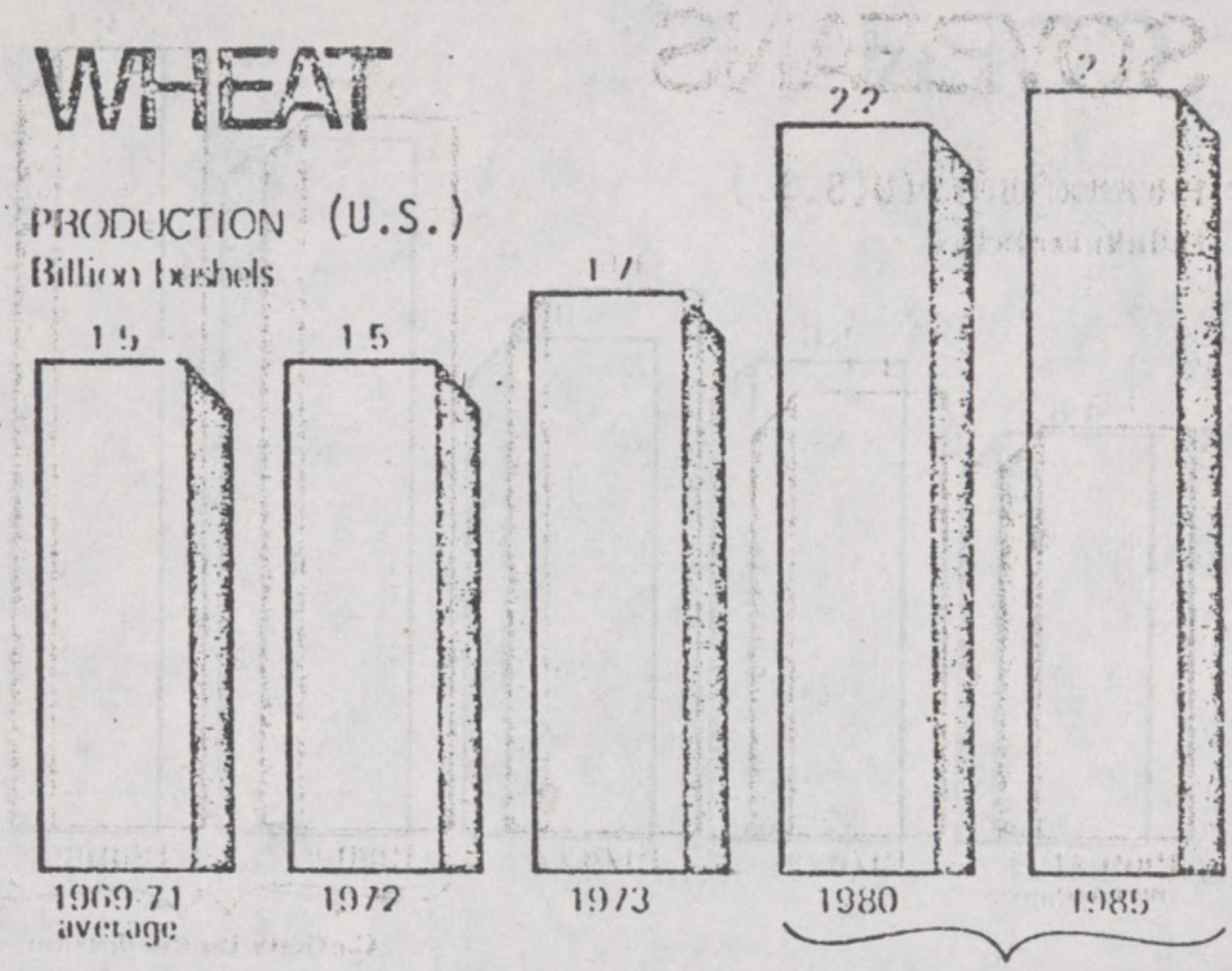
FIGURE 19



Corn crops may reach 9 billion bushels by the mid-eighties, with much of the expansion in harvested acreage occurring outside the Corn Belt.

YIELDS		ACREAGE	
Bushels per acre		*Million acres*	
1969-71 average	82.2	1969-71 average	58.7
1972	96.9	1972	57.3
1973	93.8	1973	61.5
1980	109.5	1980	73.7
1985	120.0	1985	75.5

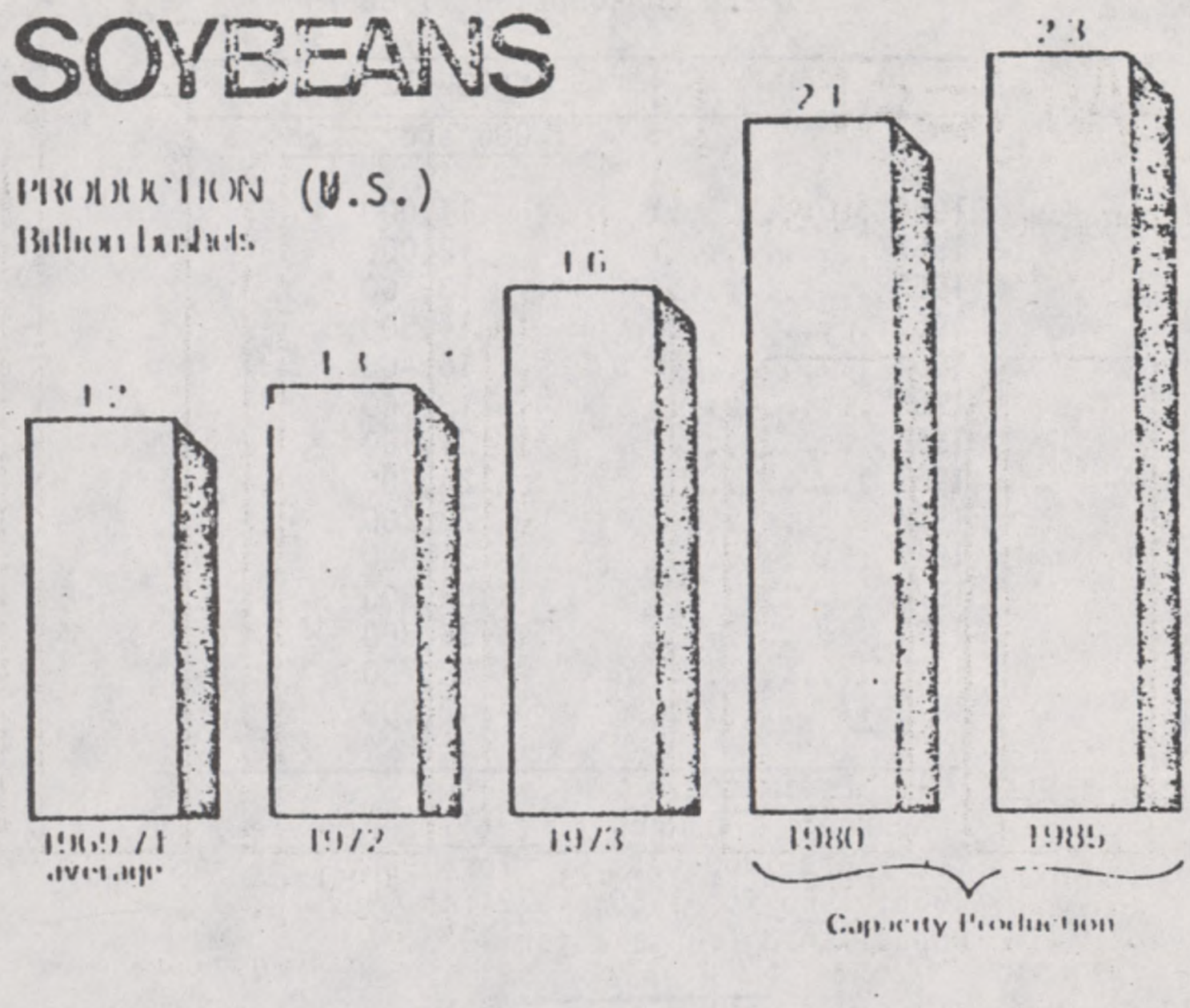
FIGURE 20



Wheat harvests under all-out production could surge 40 percent over the present mark. New hybrids only recently available stand to sharply boost average yields.

YIELDS		ACREAGE	
Bushels per acre		*Million acres*	
1969-71 average	31.9	1969-71 average	46.1
1972	32.7	1972	47.3
1973	32.2	1973	53.7
1980	34.5	1980	62.3
1985	36.6	1985	62.3

FIGURE 21



Soybeans may take up some 65 million harvested acres of cropland by 1985, while output could post a one-third increase over current levels.

YIELDS		ACREAGE	
Bushels per acre		*Million acres*	
1969-71 average	27.4	1969-71 average	42.1
1972	28.0	1972	45.8
1973	28.5	1973	56.2
1980	32.0	1980	64.1
1985	34.5	1985	65.7

FIGURE 22

Table 8.--World nitrogen fertilizer production and consumption, 1960-73

Year	Production
	1,000 short tons
1960	11,000
1961	12,000
1962	13,100
1963	14,500
1964	16,400
1965	18,600
1966	21,100
1967	24,700
1968	28,200
1969	31,300
1970	33,300
1971	36,300
1972	38,700
1973 1/	42,200

1/ Estimated.

Source: FAO Annual Fertilizer Review, 1963 for years 1960-63; 1964 for 1964; 1965 for 1965; 1966 for 1966; 1972 for 1967-72; unpublished TVA data for 1973.

FIGURE 23

Table 9.--Net nitrogen fertilizer trade balance, by region, 1967-1972 1/

Region	1967	1968	1969	1970	1971	1972
	1,000 short tons					
North America	260	570	1,220	920	630	640
West Europe	2,010	1,980	2,280	1,810	1,730	1,470
East Europe & USSR	-100	10	90	240	440	830
Japan	1,030	1,150	980	1,360	1,560	1,400
Other developed nations 2/	-100	-130	-120	-10	0	-120
Developed regions	3,100	3,580	4,450	4,320	4,360	4,220
Latin America	-370	-520	-560	-530	-650	-690
Developing Africa	-320	-420	-430	-440	-430	-600
Developing Asia	-1,330	-1,880	-1,720	-1,620	-1,190	-1,310
Developing regions 3/	-1,920	-2,820	-2,710	-2,590	-2,270	-2,610
Other Asia 4/	-1,210	-810	-1,430	-1,600	-1,900	-1,700

1/ Positive numbers imply net exports, negative numbers imply net imports.
2/ Includes South Africa, Israel and, Oceania.
3/ Excludes Other Asia.
4/ Includes PRC, Taiwan, North Vietnam, North Korea, and Mongolia.

Source: Tennessee Valley Authority, World Fertilizer Market Review and Outlook, Muscle Shoals, Ala., forthcoming.

FIGURE 24

Table 10.--Phosphate Fertilizer production and consumption, world 1960-73

Year	Production
	-- 1,000 short tons P_2O_5 ----
1960	10,740
1961	11,130
1962	11,440
1963	12,200
1964	13,740
1965	15,260
1966	16,630
1967	18,780
1968	19,870
1969	20,490
1970	21,260
1971	22,970
1972	24,810
1973 1/	26,130

1/ Estimated.
Source: FAO Annual Fertilizer Review, 1963 for years 1960-63, 1964 for 1964, 1965 for 1965, 1966 for 1966, 1972 for 1967-72; unpublished TVA data for 1973.

FIGURE 25

Table 11.-- Potash fertilizer production and consumption, world 1960-1973

Year	Production
	----1,000 short tons K_2O -----
1960	9,600
1961	9,670
1962	10,320
1963	10,820
1964	11,900
1965	13,370
1966	15,180
1967	16,000
1968	16,860
1969	17,510
1970	18,430
1971	19,520
1972	21,210
1973 1/	23,700

1/ Estimated.
Source: FAO Annual Fertilizer Review, 1963 for years 1960-63, 1964 for 1964; 1965 for 1965; 1966 for 1966; 1972 for 1967-72; unpublished TVA data for 1973.

FIGURE 26

Table 12--Estimated nitrogen fertilizer production and consumption, world, by region, 1978 and 1980

Region	1978 production capacity 1/	1978 production		1980 consumption		
		High 2/	Low 3/	High	Midpoint	Low
	- - - 1,000 Short Tons N - - -					
North America	13,400	12,700	11,400	11,400	11,300	10,900
West Europe	12,900	12,300	11,000	10,700	10,500	10,200
East Europe and USSR	16,100	15,300	13,700	18,200	17,200	16,300
Japan	4,000	3,800	3,400	1,200	1,000	800
Other Developed Nations 4/	800	800	700	1,000	800	600
Developed Regions	47,200	44,900	40,200	42,500	40,800	38,800
Latin America	4,100	2,900	2,500	3,600	3,400	3,100
Developing Africa	1,100	800	700	1,600	1,400	1,200
Developing Asia	8,500	6,000	5,200	8,600	7,800	7,000
Developing Regions 5/	13,700	9,700	8,400	13,800	12,600	11,400
Other Asia 6/	2,700	2,000	1,800	8,300	7,500	6,800
World	63,700	56,600	50,400	64,600	60,900	57,000

1/ Known production capacity for 1978 based on current capacity plus planned additions.
2/ Based on plants in developed countries operating at 95 percent of 1978 capacity and in LDC's at 70 percent.
3/ Based on plants in developed countries operating at 85 percent of 1978 capacity and in LDC's at 60 percent.
4/ Includes South Africa, Israel, and Oceania.
5/ Excluding Other Asia.
6/ Includes PRC, Taiwan, North Korea, North Vietnam, and Mongolia.
SOURCE: Based on TVA and unpublished USDA data.

FIGURE 27

Table 13--Estimated phosphate fertilizer production and consumption, world, by regions, 1978 and 1980

Region	1978 production capacity 1/	1978 production		1980 consumption		
		High 2/	Low 3/	High	Midpoint	Low
	1,000 short tons P_2O_5					
North America	10,280	9,900	8,930	7,200	6,700	6,200
West Europe	8,300	8,030	7,450	8,220	7,920	7,620
East Europe and USSR	10,020	9,700	9,070	8,400	8,140	7,810
Japan	1,050	1,000	910	1,000	810	630
Other Developed Nations 4/	2,370	2,340	2,130	2,790	2,140	1,490
Developed Regions	32,050	30,970	28,510	27,680	25,710	23,750
Latin America	1,950	1,470	1,320	2,730	2,540	2,360
Developing Africa	2,470	1,900	1,710	790	710	640
Developing Asia	2,160	1,630	1,450	3,190	2,770	2,350
Developing Regions 5/	6,590	4,680	4,480	6,700	6,020	5,340
Other Asia 6/	1,920	1,890	1,880	2,320	2,110	1,900
World	40,560	37,540	34,870	36,700	33,840	30,990

1/Known production capacity for 1978 based on current capacity plus planned additions.
2/Based on plants in developed countries operating at 95 percent of 1978 capacity and in LDC's at 70 percent.
3/Based on plants in developed countries operating at 85 percent of 1978 capacity and in LDC's at 60 percent.
4/Includes South Africa, Israel, and Oceania.
5/Excluding Other Asia.
6/Includes PRC, Taiwan, North Korea, North Vietnam, and Mongolia.
SOURCE: Based on TVA and unpublished USDA data.

TABLE 28

Table 14-Estimated potash fertilizer production and consumption, world, by regions, 1978 and 1980

Region	1978 production capacity 1/	1978 production 2/	1980 consumption		
			High	Midpoint	Low
	1,000 Short Tons K_2O				
North America	10,390	9,090	6,940	6,510	6,080
West Europe	7,400	6,470	6,960	6,550	6,130
East Europe and USSR	11,200	9,800	10,680	9,870	9,060
Japan	0	0	970	820	670
Other Developed Nations 3/	820	730	600	500	420
Developed Regions	29,810	26,090	26,150	24,250	22,360
Latin America	0	0	2,270	2,040	1,820
Developing Africa	500	370	330	290	240
Developing Asia	0	0	1,390	1,290	1,190
Developing Regions 4/	550	370	3,980	3,620	3,250
Other Asia 5/	130	110	360	360	270
World	29,860	26,580	30,600	28,240	25,870

1/ Known production capacity for 1978 based on current capacity plus planned additions.
2/ Based on plants in developed countries operating at 95 percent of capacity and in LDC's at 70 percent.
3/ Includes South Africa, Israel, and Oceania.
4/ Excluding Other Asia.
5/ Includes PRC, Taiwan, North Korea, North Vietnam and Mongolia.

FIGURE 29

Table 15--World total: Production, disappearance and net trade of grains (wheat, coarse grains and milled rice), 1969-71 and 1985

Country and region	1969-71			1985 Alternative I			1985 Alt. II
	Prod.	Disap.	Net trade 1/	Prod.	Disap.	Net trade 1/	Net trade 1/ 2/
	Million metric tons						
Developed							
United States	208.7	168.3	39.3	286.0	232.4	53.7	79.8
Canada	34.8	22.4	14.7	46.0	26.1	19.9	20.9
EC-9	93.2	110.4	-16.6	133.5	135.2	-1.7	-8.4
O.W. Europe	29.0	3.9	-5.0	37.8	44.0	-6.2	-6.7
Japan	12.7	28.2	-14.4	11.5	46.6	-35.1	-37.1
Aust. & N.Z.	14.9	6.0	10.8	22.7	8.5	14.1	14.9
South Africa	10.1	6.9	1.2	14.9	10.8	4.1	4.3
Total	403.4	376.1	30.0	552.4	503.6	48.8	67.7
Communist							
East. Europe	75.0	82.2	-7.3	102.9	104.0	-1.2	-5.2
USSR	168.8	164.9	4.0	227.3	227.6	-.3	-8.3
China	159.3	162.4	-3.1	209.7	214.0	-4.2	-5.2
Total	403.1	409.5	-6.4	539.9	545.6	-5.7	-18.7
Less developed							
Mexico & Cent. Am.	16.0	18.0	-1.8	25.3	30.2	-4.9	-5.9
Brazil	20.6	21.7	-.7	31.3	33.3	-2.0	-2.0
Argentina	19.3	10.7	8.3	25.6	12.9	12.6	13.7
O.S. America	7.6	10.8	-3.1	9.6	17.0	-6.9	-7.5
North Africa	15.0	18.3	-3.3	23.0	33.3	-10.3	-10.8
Central Africa	30.7	31.8	-1.0	40.2	44.6	-4.4	-5.4
West Asia	29.4	34.2	-5.1	36.1	47.3	-11.2	-12.7
South Asia	114.1	118.0	-4.7	180.0	188.8	-8.7	-9.7
S.E. Asia	25.6	22.0	3.6	40.8	34.6	6.1	6.1
East Asia, Pac.	31.2	38.4	-7.7	47.6	60.9	-13.2	-14.6
Total	309.5	323.9	-15.5	459.5	502.9	-42.9	-48.8
World total	1,116.0	1,109.5	8.1	1,551.8	1,552.1	.2	.2

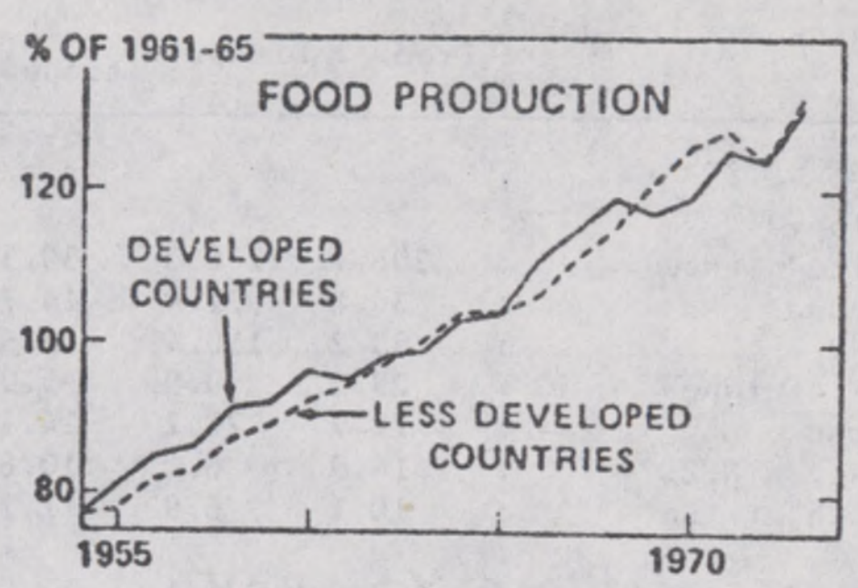
1/ Net trade may not equal the difference between production and disappearance because of stock changes. Minus indicates net imports.

2/ Alternative II was done for coarse grains only.

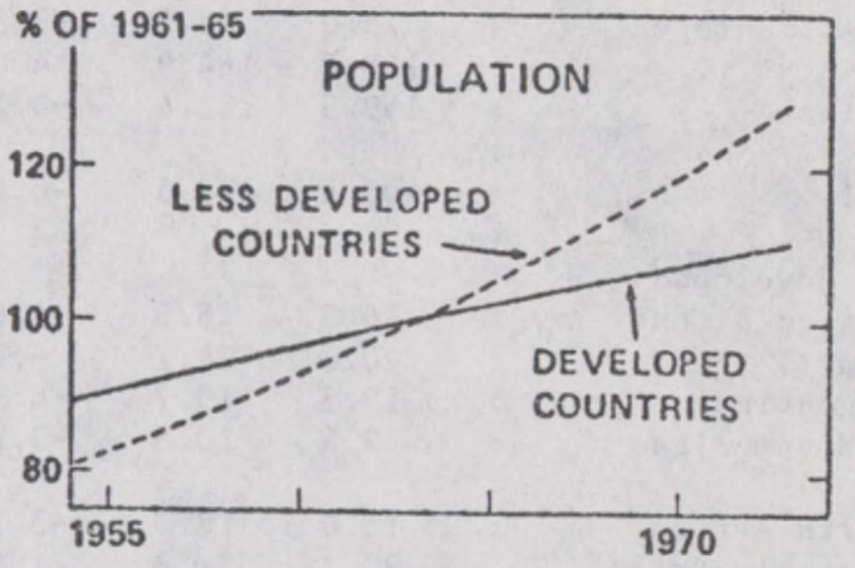
FIGURE 30

FOOD PRODUCTION AND POPULATION
DEVELOPED AND LESS DEVELOPED COUNTRIES

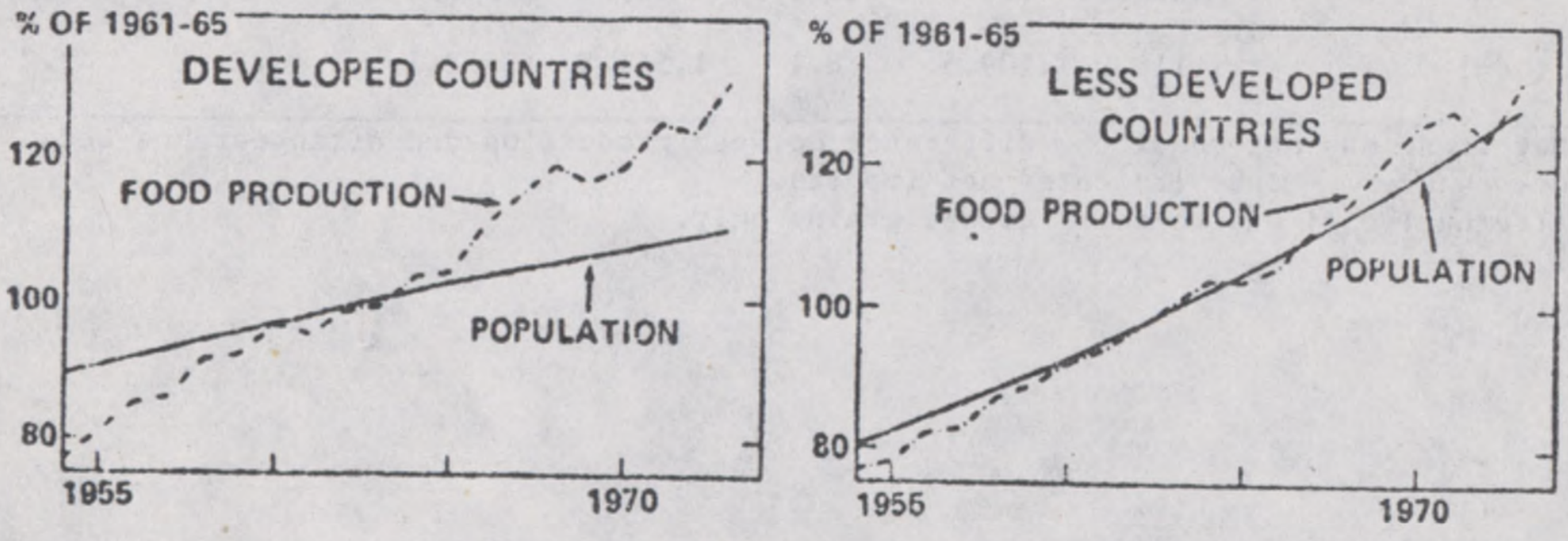
Food production has grown steadily over the past two decades. Growth in the developed countries has roughly paralleled that in the less developed countries.



Population has grown faster in the less developed countries.



Peoples of the developed and less developed country groups have not fared equally from the roughly equal growth in food production. In the developed countries production has increased much faster than population, boosting production per capita. In the LDC's population gains have absorbed nearly all of the production increase; production per capita has improved only slightly.

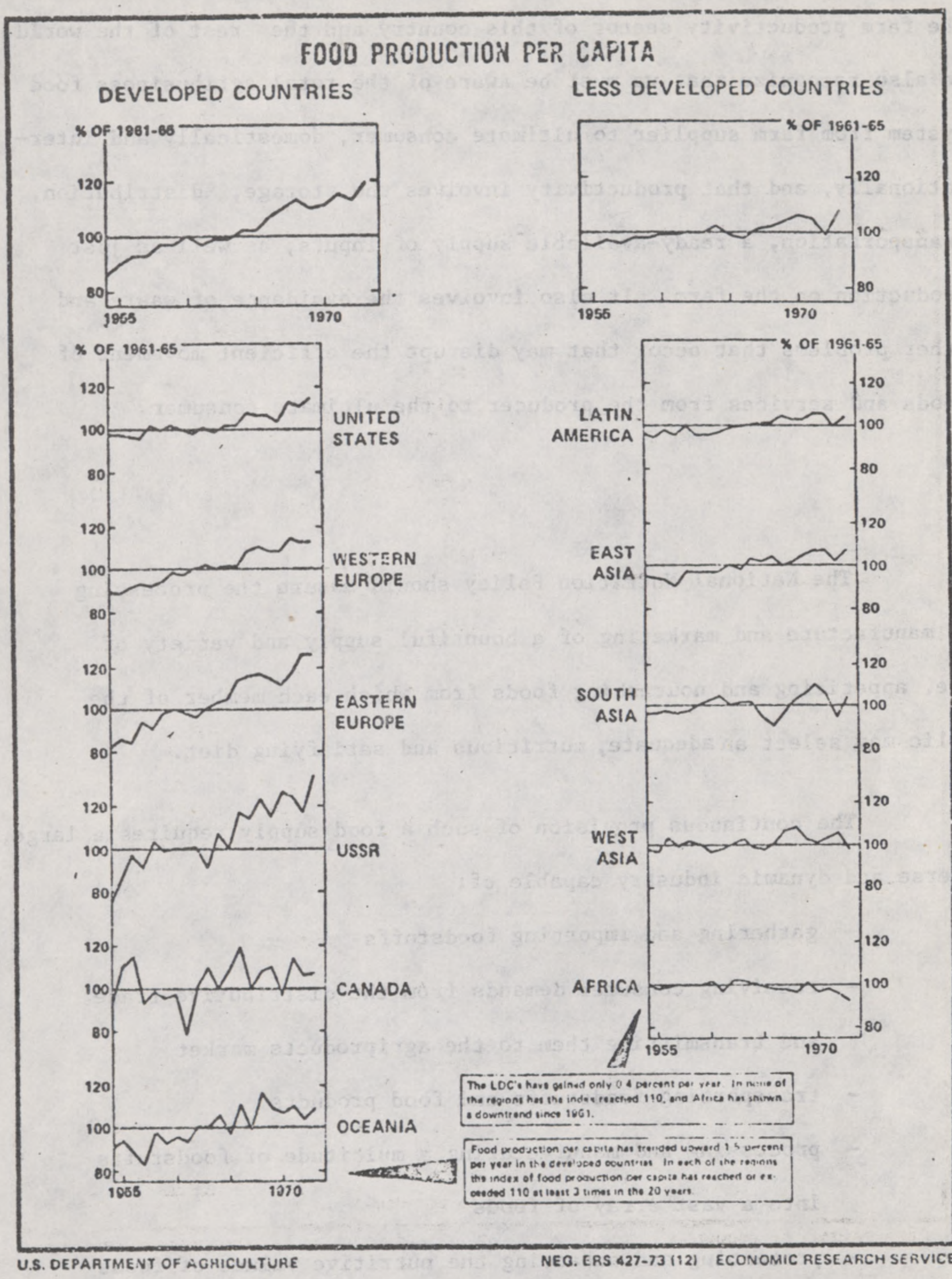


POPULATION EXCLUDES COMMUNIST ASIA

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 426-73 (12) ECONOMIC RESEARCH SERVICE

FIGURE 31



U.S. DEPARTMENT OF AGRICULTURE NEG. ERS 427-73 (12) ECONOMIC RESEARCH SERVICE

Thus far in our report we have been primarily concerned with the farm productivity sector of this country and the rest of the world. We also recognize that we must be aware of the total agribusiness food system from farm supplier to ultimate consumer, domestically and internationally, and that productivity involves the storage, distribution, transportation, a ready-available supply of inputs, as well as just production on the farm. It also involves the avoidance of waste and other problems that occur that may disrupt the efficient movement of goods and services from the producer to the ultimate consumer.

The National Nutrition Policy should assure the processing and manufacture and marketing of a bountiful supply and variety of safe, appetizing and nourishing foods from which each member of the public may select an adequate, nutritious and satisfying diet.

The continuous provision of such a food supply requires a large, diverse and dynamic industry capable of:

- gathering and importing foodstuffs
- receiving consumer demands from the distributive trade and transmitting them to the agriproducts market
- transporting foodstuffs and food products
- processing and manufacturing a multitude of foodstuffs into a vast array of foods
- protecting and enhancing the nutritive values of foods
- providing the nutrition balance needed at a range of price-value levels appropriate to the income levels of the general population

To serve the public as its interest demands, the food processing and manufacturing industry requires the continued expansion of its capital and technological base in order to

- research and develop food resources
- develop new food systems
- expand the body of nutritional knowledge
- fabricate food manalogs
- optimize costs of food production
- increase productivity of plans and materials
- secure the extraction of more values from agriproducts
- optimize inputs and conserve resources
- enhance price-value benefits to the public

By offering food products to the consumer market, food manufacturers accept the duty to satisfy the public's right to be informed. Each food manufacturer has the duty to publish, by label or advertising or otherwise as may be appropriate, information respecting

- the nature of the product
- its ingredients
- its uses
- its availability
- its nutritional value
- its identifying mark
- the identify of the manufacturer or issuer.

To provide for the continuing expression of the evolving public interest as it affects particularly the food processing and manufacturing industry, it is necessary that official agencies establish and administer standards and policies respecting the safety of foods and foodstuffs and

respecting the nutritive values of those foods on which the public especially depends for essential elements of diet. The purpose of these standards should be to supply information, assurance and protection to the public and should not be to impose constraints and controls on the development and introduction in appropriate fashion of safe and nutritious foods.

These few brief comments, put together with numerous charts, have led our Panel to arrive at a brief list of 23 specific recommendations. We do not believe that this is an exhaustive list, but we do feel that it is a priority list. We have listed these recommendations at the end of this report, and we have also listed these recommendations at the beginning of the report so the reader can relate the recommendations to the material obtained in the report. In addition to these recommendations, we are also listing as an appendix to this report specific communications that have been received by various individuals serving on this Panel. They include the following items:

A statement by Mr. William F. Allewelt contrasting the development of specialty crops in DCs and LDCs.

A statement by Mr. Harold P. Jordan with respect to the maximization of farmer incentives and the need to recognize this important dimension to our problem.

A statement by the National Cattlemen's Association prepared by Dr. G. Alvin Carpenter on the importance of this industry in the U.S. and world food system.

And finally, a brief table estimating the funds available by the oil producing countries from oil sales and the impact that this might have on the total international currencies and the impact of inflation that may result from it on the total world food economy, or conversely the availability of funds that might be used to develop technology in the LDCs that is so badly needed if the food system is going to supply the nutritional requirements of this area.

The Panel looks forward to discussing these and other issues with the Senate Committee on June 19-21, 1974.

Respectfully submitted,

May 31, 1974

OUTLINE PREPARED BY W. F. ALLEWELT, Jr. FOR RAY GOLDBERG

received in San Francisco office May 20, 1974

copies to George Thomas and Ross Wurm

I. Contrasts of specialty crops--fruits and vegetables--to primary commodities:

A. Commercial production limited to subtropical climate zones and availability of water and suitable soils.

B. Require relatively high level of employed labor and/or substituted capital.

C. Require intensive use of fertilizer, insecticides and fungicides, herbicides.

D. Highly perishable, and weather vulnerable at all stages of production and harvest; because of perishability require relatively complex assembly, processing/packaging and distribution systems.

E. Because of intensive input application, consumption largely limited to developed economies.

F. Nutrient qualities vital for optimum health levels.

II. Contrasts in production between developed and underdeveloped economies:

A. Developed:

1. Highly mechanized, sophisticated technology, relatively low labor input.

2. Because of high level of fixed investment, extremely vulnerable to price impact of surpluses--forces idle capacity.

3. Reliable marketing systems vital to high level of productivity.

B. Underveloped:

1. Attractive for employment of otherwise surplus labor, other resources.

2. Attractive for desirable currency exchange.

3. Because of 1. and 2. above, government aids extended in capital investment, farm subsidies, export incentives, transportation advantages, etc.

4. Production less reliable because of limited technology, social customs, political considerations.

III. Social and economic implications of U.S. specialty crop production:

A. Virtually last major employer of unskilled labor--technologically unemployed.

B. Tremendous leverage in employment of other resources--fruits and vegetable gross income to the producer represents 25% or less of f.o.b. price of canned product.

C. Exports of fresh, dried and processed products are significant contributors toward balanced trade with developed foreign economies--nonfarm inputs are significant values added to export of farm products involved.

D. Loss of share in domestic and/or export markets can result in significant long-term reduction in production potential--Cling Peach bearing acreage in California in 1969, 80,000 acres; in 1974, 50,000 acres.

E. High value crops and associated packaging/processing facilities are major employers and local tax contributors in rural areas.

IV. Domestic production constraints:

A. Uncertainties regarding governmental policy.

1. Wage and price measures--their pecularly damaging effects on industries with cyclical earnings and on their dependent growers.

2. Possibility of export embargoes.

3. Impact of environmental, plant sanitation and safety regulations.

4. Unclear future role of government in food purchases, i.e. School Lunch, Needy Family, etc.

5. Labor shortages.

6. Disposition of government to not extend NLRA to agricultural workers, thus leaving vacuum of law relating to employer-employee relationships. Uncertainties of disruptions add risks/costs; causes shortages, invites competition of Mexican tomatoes, Formosan asparagus, etc.

B. Inflation.

1. Incentive to restrict production to assure acceptable price from free market system.

C. Upward trend in interest rate.

1. Severe impact on seasonal processors, year-round marketeers.

D. Materials shortages.

1. Fertilizer, fuel, energy, fiber cartons, tin plate, caustics, etc.

E. Alternate crops.

1. Cotton versus tomatoes.

2. Grains, soya beans versus peas, corn.

F. Poor investment climate.

1. Because of A through E above, plant modernization, expansion higher risk.

V. Solutions:

A. Industry related:

1. Improve processor contracting with producer, providing better year-to-year reliability; give better economic effect to processing and marketing values of raw product--processor efficiences in through-put, yields, grades of finished product; timing in terms of utilizing otherwise idle plant capacity.

2. More reliable, longer term contracting by processors with major input suppliers (including growers) and with customers. Objectives: minimize speculative risk, improve productivity throughout system by more reliable planning, minimize extremes in earnings cycles, supply shortag es, surpluses.

3. Possible role for futures market with standardized products.

B. Government related:

1. More rational application of wage/price control measures, export embargoes.

2. Attack problem of technologically unemployed, economically and socially deprived through systematic long-term program of nutrition, medical care, housing, education, job training, guaranteed minimum income.

3. Low interest loans for environmental, plant sanitation and safety additions, also perhaps of surplus inventory financing--would reduce inflationary effect on consumer food costs of "nonproductive investments" and/or abandoned capacity and resultant shortages.

4. Renewed emphasis on production-marketing research--private research, by its nature, is discriminatory.

5. Longer term contracting of government food purchases.

INDIANA FARM BUREAU COOPERATIVE ASS'N, INC.

47 SOUTH PENNSYLVANIA STREET • INDIANAPOLIS, INDIANA 46204 • (317) 631-8361

26 April 1974

Dr. Ray A. Goldberg, Co-Chairman
Mr. Terrance Hanold, Co-Chairman
Nutrition and Food Availability Panel

Gentlemen:

I would like to make a few comments on some of the issues which were discussed in the meeting of the Food Availability and the International Situation Panel in New York on April 16.

First, I believe very strongly, and it seemed most of the members of the panel seemed to be in agreement, that policy should be adopted by our Government which would provide incentive and motivate America's farmers to maximize production of food. I believe this is important for a number of reasons:

1. This should and I believe would maximize farmers' production efficiency.

2. There is evidence that future years will see increased world-wide demand for food.

3. Evidence would seem to indicate that the production efficiency of American farmers would enable them to compete with other nations of the world in the production of food.

4. Our country is no longer self-sufficient nor is it likely to be in the foreseeable future in petroleum and in a number of other very strategic and critically-needed materials. Therefore, we must maximize our ability to produce and export those things which we can produce efficiently to improve our balance of trade and make it possible for us to purchase those things which we must import. If food continues to be a short and strategic item in the world, it can become a strong economic and political bargaining strength if we maximize efficient food production.

5. If we maximize food production, it will reduce unit production costs and long term it will reduce consumers' costs and, therefore, be in the best interest of consumers.

Second, I would like to express my strong opposition to sizable grain reserves owned and held by our Government for the following reasons:

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1. In my considered opinion there is no way in our social and political environment to avoid the use of these reserves in a manner which will not adversely affect the incentive and motivation for farmers to maximize production because:

(a) Flour millers, oil seed crushers and feed manufacturers will become too dependent on these reserves (as they have in the past) and, therefore, not bid for these grains in competition with other consuming nations' processors.

(b) Politicians under constant pressure from consumer voters are likely to force the sale of these grains at much lower prices than are necessary to provide incentive to farmers to maximize their production.

(c) Farmers will continue to be skeptical of the adverse effect of these reserves on prices they receive and will tend to limit their production.

2. The costs of carrying reserves high enough to be of any value will be very costly to America's taxpayers.

3. Farmers themselves are adding tremendous storage capacity and the law of supply and demand will work much more effectively if grain reserves are held by farmers, the grain trade and processors.

4. The farmer takes tremendous risks every time he plants a crop as do his cooperatives and other farm input suppliers when they plan production of fertilizer, chemicals and other supplies a year and sometimes several years in advance of their use. Therefore, food processors, merchandisers and retailers ought also to assume some risk responsibility rather than try to saddle the government and taxpayers with providing a comfortable cushion for them.

A very large number of individual farmers which is the best and the most efficient example of individual enterprise left in America want to and will, in my opinion, produce at maximum capacity and at maximum efficiency if they are given free access and freedom to sell in world markets and without somebody in Washington deciding what prices they will receive rather than the market place making such decision.

I know there is strong sentiment among consumers, among processors and even among some few farmers, to establish

government-held reserves thinking that this will protect everybody. I believe it was Thomas Jefferson who once said, "Were we directed from Washington when to sow and when to reap, we would want for bread." This is as true today as it was when he said it. I think it is also just as true that "Were it directed from Washington what we are to receive in return for what we sow and what we reap, we will want for bread." My fear is that such a reserve will most certainly be used for that purpose. If, however, such reserves are established, I think the law should provide that they should only be released to the domestic market and then only when farm prices for grain reach 2-1/2 or 3 times the "parity" value of such grains. This should be written into the law in such a manner that it will be impossible for administrative officials or precipitous action of the Congress itself to violate such a provision. We only need to look at the ineffective manner in which the government performed and the adverse effects which we experienced in price ceilings on beef and the whole government-adopted controls of the petroleum industry and numerous other examples to see how inept government really is in regulating the supply and demand of needed materials and products. If this could be done by government, then Russia and China ought to be the best feed nations of the world. It is clearly evident that they are not.

I address this letter to you as co-chairman of the panel on which I have been asked to serve in the hope that some of my thoughts might be included in the report which our panel submits for the Congressional hearings in June. If I can be of any further help or provide any information which our organization might have, I hope that you will let me know.

Sincerely,

INDIANA FARM BUREAU COOPERATIVE ASSOCIATION, INC.

Harold

Harold P. Jordan, General Manager

STATEMENT

OF

AMERICAN NATIONAL CATTLEMEN'S ASSOCIATION

Prepared for

National Conference on Nutrition
Washington D.C.
June 20, 1974

By

Dr. G. Alvin Carpenter
Professor, Agricultural Economics
Brigham Young University
Provo, Utah

STATEMENT OF THE AMERICAN NATIONAL CATTLEMEN'S ASSOCIATION

Prepared for the National Conference on Nutrition
June 20, 1974

The U.S. cattle industry is made up of two basic groups: (1) The ranchers and farmers with beef breeding herds or stocker operations producing feeder cattle and (2) the cattle feeders and feedlot operators who purchase the feeder cattle and finish them out for market on grain rations.

The Economics of Beef Production and Feeding

The commercial breeding herd is the fountainhead of the beef producing business. Here are produced the calves that ultimately reach the market place as finished beef, as well as the heifers used as replacements. Breeding animals are usually restricted to the rougher and cheaper rangelands and pasturelands of the country, mainly because cows used to produce calves have less need for the more expensive feeds required to produce the more rapid weight gains and fattening of younger animals. On many farms breeding herds utilize cheap roughages and by-products that otherwise might be wasted. The objective is to maximize production of calves with high weaning weights at a minimum cost.

The stocker operation is mainly concerned with the growing out of young cattle; the addition of weight to animals too thin fleshed or too young for fattening and heifers being grown out for replacement purposes in the breeding herd. It involves mostly the use of roughages such as the better range and grass areas, meadows, irrigated pastures and by-products to promote cheap and rapid gains.

The objective of the feeding, (finishing) operation is to add to the weight of the animal and increase its value by improving the grade and quality of the meat. This is done by using high energy feeds such as corn, milo, barley and other concentrates, as well as feed supplements and additives to increase rate of gain and lower costs of gain. In recent years cattle finishing has become a very specialized industry with an increasing volume of the business being done in large commercial feedlots.

Profits in beef cattle production, for any phase of the operation, are measured by total pounds of beef produced times the price received minus the production costs. High expenses may cause operational losses, even though the total pounds of beef produced and the selling prices are favorable. But when costs are high and selling prices are relatively low, (as has been the case in 1974) extreme losses occur. Costs will vary from area to area, ranch to ranch and between operations.

Capital investment for breeding and stocker operations is mainly in land, buildings, facilities and livestock. Investment per animal unit varies greatly throughout the country depending on location, type of land, climate and other conditions. It takes considerable capital, especially at the start, to go into the cow-calf enterprise -- or to expand it. And it is a slow turnover enterprise. There is no cash flow until the calves start going to market. The real value of a ranching operation is determined by its actual production and potential. In many areas now, factors other than returns from livestock greatly influence the prices paid for land.

Capital investment in feedlots and finishing operations in large commercial operations are very substantial. They consist of investment in corrals, buildings and pens for handling the cattle, feed mills and storage facilities for handling feeds; but the largest investment is in cattle and feed. The biggest risks are those of fluctuations in prices of feeder animals as well as finished cattle and also the prices of feed.

The nature of the "roller coaster" situation faced by the cattle feeder is illustrated by what happened during the early part of 1974. Feed grain prices nearly doubled. Corn rose from $1.65 per bushel in April 1973 to $3.00 per bushel in March 1974. Much of this rise was due to the strong world demand for feed grains. Prices for 500-600 pound feeder cattle reached a high of $65 per cwt. in Kansas City last August. Faced with such high prices for feeder cattle and feed, the feedlot operator was greatly dependent on receiving high prices for finished beef; otherwise he would sustain terrific losses. This proved to be the case as prices for 900-1100 pound choice steers at Omaha and other markets dropped from $53 per cwt. in mid-August to $42 by mid-October and to $38 by mid-December. Cattle feeders had purchased high priced feeder cattle for their lots and were faced with continuing increases in feed costs making their cost of gain increase from around $.27 per pound in the fall of 1972 to over $.53 by early 1974. The precipitous drop in fat cattle prices and accompanying losses have reduced incentive to feed cattle and consequently monthly placements of cattle on feed have continued below a year earlier for the past several months. At the present time there are more cattle available for placement in feedlots than a year ago. But producers are reluctant to sell at present price levels, however, the current state (May 1974) of the feeding industry restricts interest in purchasing feeder cattle. Generally, cattle placed in feedlots are marketed for slaughter about 150 days later. Therefore, as placements continue to lag, supplies of slaughter cattle will be down later in 1974. These economic facts about the industry must be understood by consumers when they face lower beef supplies and high prices.

Land values and taxes are other inflexible expense items that have greatly increased like other production costs. Assessment rates on real estate, livestock, machinery and other properties have increased in recent years.

Current Situation and Outlook

At present there are rather large supplies of cattle in feedlots which are or will be ready for market. The back-up of cattle was caused by market disruptions from price controls, the recent truck strike and the economic conditions in the industry including lagging demand by consumers.

If the cattle industry is to recover from its current depressed condition, it is necessary to continue to move burdensome supplies quickly. Therefore, stepping up promotion of beef by retailers is imperative. Transportation must also be available to expediously move the product to market. Further truck strikes and stoppages should not be allowed.

In the longer run, the current losses in cattle feeding will have adverse impacts on the basic cow herd. If feeder cattle prices continue to decline, there may be some liquidation of basic herds. An indication of a cutback is seen in the fact that cow slaughter has been above year earlier levels from August 1973 to the present. Cow slaughter for the rest of 1974 is likely to be above 1973. With increased cow slaughter and more beef imports, downward pressure on cow beef prices is likely.

Feeding costs are likely to continue high for some time. Exports of grain to meet world demands and help U.S. balance of payments, the fertilizer shortage, and small grain reserves, all add up to prospects for high grain prices. At the same time there is a limit on how high cattle and beef prices can go without serious disruptions.

If feed costs cannot come down and if slaughter cattle and beef prices can go only so high, there will be more pressure on the remaining factor in the beef feeding business, namely the price of feeder cattle. If the cow-calf operator cannot see a profit in his operation, he will be forced out.

Thus we see that the survival and stability of both major segments of the cattle industry -- the cow-calf operators and the cattle feeders depend on early relief from the present disastrous price situation. Nothing remains static for long in the beef

industry. If the free market system is allowed to work, adjustments occur continually. For example, during 1973 the cow-calf operator received a growing share of the consumer's dollar spent for beef while the cattle feeder's portion declined sharply. Meat packers realized a very small part of the total in the summer but got much more in the fall. The retailer's share was below other recent years during the first three quarters of 1973 but increased sharply in the fall. Further adjustments continued in 1974. In the months ahead the share received by cow-calf operators and meat packers will likely shrink while the cattle feeder's share will probably expand if he is to stay in business. The retailer's share may not change much. Such adjustments will be necessary if the total industry is to return to healthier economic relationships.

Grain Production and Export Policies

A tight supply and demand situation dominates the outlook for feed grains. Last year's grain export boom was triggered by short crops in 1972 around the world. But despite a record 1973 grain crop, world grain demand continues exceptionally strong in 1974.

With world population growing at a rate of 75 million people annually, the demand for food and fibre also continues to grow. Diets in many countries are improving and this means more animal protein. U.S. feed grain disappearances increased at an average rate of 19 million metric tons annually during 1968-72.[1] World production, while fluctúating during this period, increased at an annual rate of 12 million tons. In years when production declined large carry-over stocks were available to meet consumption requirements. This was the case in 1972-73 when increased exports reduced carry-over stocks to low levels resulting in exceptionally high prices for all feed grains as well as other concentrates and high

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[1] USDA, ERS -- "Outlook for Feed Report" December 18, 1973.

protein feeds. The year 1972-73 will be long remembered in the feed industry. Soybean meal (44% protein) rose from $109 per ton to a peak of $450 in June 1973 before declining to $200 in September. Corn prices at Chicago rose from $1.65 per bushel in April 1973 to $3.00 in February 1974. Other feed grains and concentrates showed similar rises. This situation resulted in greatly increased costs for feeding livestock. If high volume exports and resulting high domestic grain prices continue, the impacts on cattle feeding and beef production are quite obvious.

The U.S. is clearly in an advantageous position with respect to feed grain production and expanding world exports of feed grains. Every thinking citizen can see the importance of maintaining and expanding our exports to help our balance of payments position to avoid pressure on the U.S. dollar. As world demand continues, producers of feed grains in this and other countries will expand production until demand is met and prices stabilize and come down some. In the meantime, cattle feeders and the industry in total will have to meet these pressures. The cattle industry would not ask for an embargo on grain exports. It has confidence that if government intervention is avoided, the supply and demand factors will eventually bring about necessary adjustments to balance things out again.

Current and prospective prices of feed grains are considerably above the "target prices" established by the Farm Act of 1973. It is not likely that support prices for grains will be needed or activated for another year or so. At least not until supplies and inventories build up to bring prices down to "target price" levels.

For years U.S. Government feed grain programs were operated under price supports resulting in the building up of large surplus stocks in CCC storage bins. Many countries benefited from such stocks when subsidized programs moved U.S. grains for their use. The cost of these storage and subsidy programs to U.S. taxpayers was large. Today things are different. Grains move freely on the world market without subsidy and burdensome storage costs are eliminated. Grain farmers are getting their incomes from

the market place and not from government subsidy. Such a program is better for U.S. agriculture in general. Although many countries would like to see grain reserves built up again for use in emergencies, it is not fair that the United States carry the big end of the burden of surplus stocks. If world grain reserves are to be established for special emergency needs, a more equitable plan for financing such reserves needs to be established.

Why Not Expand Beef Exports?

Since several developed countries have been increasing their imports of U.S. feed grains in order to expand their domestic red meat and poultry production, should we not try to convince them that it would be more economical for the U.S. beef industry to produce higher quality beef from U.S. feed grains and export it to such countries? Costs of producing beef are considerably higher in Japan, West Germany and other European countries than in the U.S.

U.S. beef production in 1973 totalled over 22 billion pounds. In addition, we imported 2.0 billion pounds of beef -- mostly a lower grade manufacturing type. We exported only 91 million pounds of beef.

In view of the rising world demand for beef, it seems desirable that more effort be given to developing export markets for U.S. quality fed beef -- exporting more of our feed grains in the form of meat. In the past, the beef industry has been prone to think only of domestic demand, but we now realize that the future is dependent upon world supply and demand for beef and for the raw materials essential to the production of beef.

Beef represents a higher value product which production would utilize U.S. produced grain and forage plus U.S. processing facilities and labor. Furthermore, additional exports would help balance our outflow of payments for imports of manufacturing beef, oil and many industrial products. The exporting of higher value products makes more economic use of transportation facilities and gives more domestic employment.

If we increased our beef production and fully used our processing capacity, technology and economies of scale, both U.S. consumers and people overseas would benefit from our greater efficiency in converting feed to food. Also, there are definite cost savings in shipping one pound of processed, ready-to-cook beef in place of fifteen pounds of grain. A recent analysis showed we could generate $1 million in exports from 21.8 million pounds of corn. We could get the same export income from 1.4 million pounds of beef.

All segments of the beef industry should join in an aggressive international marketing effort to push U.S. beef abroad. It should be a type of product that would meet the specifications of the foreign markets and not excessively fat. Cooperation with other countries could be developed. Countries, such as Australia, with abundant cheap land and forage, could serve the frozen and manufacturing trade while the U.S. industry with its abundant feed grains could fill the growing world demand for chilled, finished beef for the world's hotels, restaurants and more affluent homes.

To do this would mean a joint attack on world trade barriers, quotas, etc., which would have to be reduced and eliminated. This would be a hard fight but appropriate government and industry officials should get at the job. More reciprocity in trade is the target to shoot at.

Grain for Livestock or for Man

Increasingly these days, suggestions are heard that with a world shortage of grains, it is wasteful to produce animal proteins -- including beef. Some say that instead people should consume the grain directly rather than feeding it to animals and eating the animals. This is a short-sighted, oversimplified view of the technology, economics and nutritional values involved in our food production system. Carried to the extreme, such a policy would be grossly wasteful of our available resources. This would be

particularly true of any move to rule out use of ruminant (four stomached) animals, such as beef and dairy cattle.

First, consider these fundamentals:

1. The only way to capture the sun's energy and convert it to human food is through plant life suitable for consumption by man or his supporting animals. To maximize our production of essential nutrients, we must make all possible use of plant life.

2. The only way to convert fibrous plant materials (which are indigestible or inedible by man or single-stomach animals like pigs and chickens) into human food is to feed them to ruminant animals. This is Nature's way of taking otherwise wasted energy and other nutrients and turning them into human food (meat and milk).

Now, consider these facts:

1. Only about 1% of the total solar energy reaching this planet is captured as chemical energy during photosynthesis in plants. Only about 5% of the total chemical energy fixed in plant life is in a form suitable for food for man and his supporting animals. To increase our food supply, we must convert more of the fixed energy into a form available to man--directly, or indirectly by feeding animals.

2. In the U.S., we have millions of acres of land, including grazing lands, which can produce only grass or forage. The only way to harvest this renewable resource as human food is through grazing by or feeding to livestock.

3. When we produce millions of tons of grain, we also produce millions of tons of crop refuse (like stems and stalks),

and the only way to convert this fiber into human food is to pass it through the rumen of a cow or steer or heifer.

4. When we process grain, oilseeds, fruit, vegetables, nuts and potatoes into human food (or even beer and whisky), we have left over more than 30 million tons annually of by-products which the human cannot or will not digest or eat--things like citrus pulp, cottonseed hulls, hominy feed, linseed meal, rice hulls, wheat millfeed, brewers grains, dried whey, tomato pomace, oat hulls, corn gluten feed and many more. Much of this is fibrous and useless except by cattle. At one time, these by-products polluted our streams and countryside. Now, through modern animal nutrition, they can be fed to animals and converted to human food.

5. It takes about 7 or 8 pounds of grain to produce a pound of beef in the feedlot when cattle are being finished for market. Actually, the mother cow on the range gets little or no grain. A typical steer entering the feedlot at 600 pounds has had little or no grain; he has had only grass, forage or crop by-products. Figuring on a birth-to-market basis, the amount of grain fed per pound of beef produced may range from only 1.7 to 3.4 pounds, depending on the feeding program. Furthermore, a certain amount of grain must be fed in order to produce the beef quality demanded by Americans and to realize the full benefit of the previously consumed grass and forage.

6. In much of the U.S.--including mountain areas, the plains, the Northeast, Southeast and even parts of the Midwest--there are no agricultural alternatives for pasture, range and forage production. The only way to produce food from this land--and to retain

viable economies in the areas--is to produce cattle or sheep. Furthermore, while it takes 1/2 calorie of fossil fuel to produce 1 calorie of food from cultivated crops, it takes virtually no fossil fuel to produce a calorie of energy from cattle on grass.

7. Our young people--here and in other countries like Japan--are now bigger, stronger and healthier. The major reason is a better diet, and the major diet change has been more protein, and the added protein has been animal protein with its optimum balance of essential amino acids (the building blocks of protein), vitamins and minerals. Furthermore, there is increasing evidence that balanced protein in pre-natal development and the early years of childhood is needed for proper mental development. Diets based primarily on grain can supply adequate energy but not balanced protein in adequate amounts.

8. People speculate on what ought to be done in this world, but, realistically, we do only what is economically and socially feasible. And, at this time, there is increasing rather than decreasing demand for tasty, highly nutritious, animal protein foods, including beef.

Obviously, cattle are uniquely valuable as food-producing machines. If we were to eliminate, or unwisely cut down on, beef production in the U.S., we would be extremely wasteful of much of our renewable resources. And we would be depriving our people of billions of pounds of the highest quality, most enjoyable type of protein food. As other countries become more affluent and as family incomes increase, people are able to exercise their preference for eating beef and they enjoy eating a more palatable type of protein.

Land Use Policies Related to Beef Production

Land use legislation.--The cattle industry recognizes the need for proper planning of land use. However, it is strongly recommended that the planning be done by people closest to the problem--by local and state governmental units. Adequate hearings should be held in the field before Congress passes vital land use legislation. More views from the "grass roots" are needed.

The cattle industry opposes some of the current land use legislation proposals for the following reasons:

1. In spite of claims to the contrary, the legislation would pre-empt state and local rights to plan and regulate land use.

2. It would set up another costly and inefficient federal bureaucracy.

3. It could restrict land use without compensating the owner for diminution of value.

4. It could seriously hinder rather than help agriculture to grow and prosper.

5. Man does not live by environmentalism alone. He also needs food, shelter and employment. The "no growth" syndrome can be carried too far.

6. Proposed legislation would further erode constitutional property rights, would further the trend of having communities rather than owners determine property use.

A balanced use of land resources is needed. Legislation which fails to recognize the interrelationships of economic, social and environmental demands must be avoided. State and local, rather than federal land use planning, is the best way to achieve the desired balances.

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Public Lands

The following materials taken from a special report by The Council for Agricultural Science and Technology, January 1974, illustrate the importance of public lands to the livestock industry.

> Almost half the land area in the 11 Western States is Federally owned. Domestic livestock graze on 73% of this area. Federal land is estimated to supply 12% of all grazing resources in the region and to provide the equivalent of the feed required yearlong for 1.7 million head of cattle and 1.0 million sheep. These grazing lands provide energy, water, minerals, recreational opportunities, and wildlife in addition to grazing for domestic animals. The forages on Federal lands represent a renewable natural resource and an economical source of feed for production of cattle and sheep.
>
> Loss of the products of grazing currently derived from Federal lands would increase the scarcity of feed, meat, and wool. The mounting demands for both grain crops and meat point to an increase in importance of forages on both private and public lands to support the beef and sheep industries.
>
> Elimination of grazing from Federal rangelands in the 11 Western States would require a shift of animals to other lands or would result in loss of these animals from the productive pool. More animals on non-Federal lands would require more intensive use of private rangeland; acreage increases in pastures, harvested forages, and feed grains; more acres in cultivation; and greater dependence on feedlot feeding for meat production. Only limited acreage is available for development of additional intensive pastures in the United States.

An increase in demand for U.S. grains has resulted recently from a complex set of factors including droughts, crop failures, increased affluence in many countries, dollar devaluation, and expanding populations. We believe this trend will continue and that grains will become increasingly limited and higher priced. The result will be an increased reliance on forages from range, pasture, and harvested supplies for meat and wool production.

The energy required from fossil fuels and electricity to produce beef cattle and sheep is less on the range than anywhere else. Cattle ranches in the Southwest used approximately 4 gallons of gasoline and 62 kilowatt hours of electricity to produce 100 pounds of beef on the hoof in 1972. If range cattle production were shifted from grazing to feeding with a ration of 20 pounds of alfalfa hay per day, fossil fuel requirements would double, and requirements of electrical energy would increase about 50%. In 1969, livestock ranches in the U.S. spent 2.8 cents for fossil fuels per dollar of product sold. If harvested feed grains were substituted for grazing on Federal lands, they would cost more than twice as much in fossil fuels.

Fertilizer usage in range livestock operations is small, but some fertilizer is applied to cropland for production of homegrown hays and grains. If additional harvested forages and grains were to replace forage grazed from Federal lands, more fertilizer would be needed to increase yields per acre. As explained in another current report by the Council for Agricultural Science and Technology, there is a scarcity of fertilizer worldwide, and this is partly a consequence of the scarcity of energy required in manufacture. Large quantities of natural gas are used to supply the hydrogen that is reacted with nitrogen to form ammonia, the basic nitrogenous fertilizer material. A shift of livestock production from rangeland to cropland would aggravate the situation by substituting a type of agriculture relatively expensive in fertilizers and in fossil-fuel energy for one relatively economical of both.

In rangeland agriculture, animal wastes are widely dispersed and are readily assimilated by the ecosystem. Substitution of confined feeding for extensive grazing, however, would concentrate the wastes in small areas, where disposal without pollution would present an economic problem.

Rangeland is often incorrectly thought of as a homogeneous kind of land. In actuality it consists of widely diverse soil and vegetational types, ranging from deserts to high mountain meadows. Productivity and vulnerability to misuse vary accordingly. Practical experience has shown that livestock grazing must be adjusted to meet the ecological requirements for maintenance and improvement of each dissimilar type. When that is accomplished, each site supports vegetative cover in accordance with its production capabilities.

Based upon widespread experience, we find that livestock grazing is being managed and integrated with other uses of Federal lands. The extent of enhancement of other resources with grazing or lack of grazing varies with the kind of range, the grazing objectives, and the skill of the manager. Desert vegetation responds slowly, but vegetation in moist and humid areas changes rapidly. After giving due weight to these natural landscape differences, we find no evidence to indicate that well-managed grazing of domestic livestock is incompatible with a high quality environment. There is ample evidence that managed grazing by livestock enhances certain uses and that poor management detracts from them. Properly managed grazing is a reasonable and beneficial use of the range.

Transportation Problems

An efficient transportation system is necessary to provide adequate supplies of production inputs and to move products expeditiously to markets.

This country can no longer afford the luxury of inefficient freight transportation -- transportation that has not realized a high enough net return on investment to make the necessary new investment for modernization of equipment and facilities. This applies to rail transportation as well as highway transportation.

The recent truck strike brings home very dramatically the fact that all is not well with the independent owner-operator segment of the trucking industry. Basically, their margin of profit has been so low that when there were rapid increases in the cost of fuel and their effective earning power was reduced by lower speed limits, they simply were not physically nor financially able to move the produce of this country to market. During the truck strike in February 1974, meat in adequate volume did not move from packing plants to consumption centers. This caused some shut down of packing plants with resulting loss of employment and backing up of cattle in feedlots as well as shortages of meat and higher prices in consuming centers. Every effort must be made to assure an improved system and proper relationships between trucker's costs and net returns to assure prompt movement of meat and other food products to market. Impediments in the transportation system results in higher costs to consumers and lower returns to producers.

With the higher costs of fuel, it becomes very apparent that the efficiency in the use of that fuel is more important. Some segments of the public say that trucks should not become larger, that increased weights are damaging the highways. If trucks cannot become larger and have more ton miles per man, then there must be a drastic increase in the total number of trucks and more fuel allotted to them in order to move the food products to markets. Products could be moved more economically if axle weights and lengths of trucks were raised and lengthened. It is also important to have uniformity between the states in transportation regulations. We cannot afford the luxury of letting some

with antiquated rules halt the movement of goods back and forth across this country.

It becomes rather obvious that the cost of transportation in the U.S. must rise in the coming years if the system is to modernize and serve the needs of the population. This may mean somewhat higher prices to consumers and lower returns to producers, but transportation costs must be met.

Problems and Policies in Processing and Marketing

The problems which the livestock and meat industry face in the future are bound up in an interrelated package involving livestock producers, feedlot operators, meat packers, processors, and retailers. Each is an important segment of a large and complex industry. They are interdependent. Thus, what takes place in one phase of the industry has important implications for each other segment. It behooves each segment to make proper adaptations to recognized trends in the total industry complex if it is to remain competitive.

Time will not permit detailing the many significant changes that have taken place in the meat packing and processing industry during the past two decades. These changes have been influenced by developments in meat retailing, livestock feeding operations and transportation, rising cost structures and general competition in the industry. Some of the major trends which have taken place and which are likely to continue are:

1. Decentralization of slaughter plants away from large terminal markets and location closer to supplies of fed cattle. This trend will continue largely as a result of cost problems:

   a. To get away from high cost at central terminals.

   b. To help solve complex labor problems.

   c. Because of obsolete high-cost, centralized facilities.

   d. To reduce excessive costs of transportation for cattle and/or meat products.

Figures show that those plants developing away from large terminals have better earnings. It is more economic to ship meat than feed or live animals under today's economic conditions.

2. There has been an increase in specialization of slaughter according to species, class and grade to meet the specifications of meat jobbers and the retail trade. This trend will continue.

3. Many plants are being remodeled to streamline operations, utilize labor-saving equipment and develop new processes to cut per unit costs and meet competition; also to meet new Federal and State inspection and humane slaughter laws.

4. There is a continuing trend toward more deliveries direct to retailers from the packer. It may not be long before the wholesale cuts of meat will run through gangsaws at the packing plants, be picked up and automatically packaged, be loaded on pallets and be distributed to the retailer with much more efficiency than we have today. Many strategically located slaughter plants are including carcass-breaking operations and preparing primal cuts and boxed beef, vacuum packed, for shipment direct to jobbers and institutional users, thus bypassing some of the traditional marketing agencies. This trend will likely continue in order to reduce costs.

5. Packers will seek lower cost methods of procurement through direct buying and other means. Forward contracting arrangements will be used more to reduce short-term fluctuations in volume of slaughter and to attain better control of raw material quality.

Influence of Large Retailers on the Meat Industry

The concentration of food distribution into more chain store and supermarket type operations has resulted in fewer, but larger, market outlets for meat. Packers, are forced more and more to abandon their branch houses and traditional operations and must now negotiate the sale of large quantities of meat with large volume chain store and supermarket buyers across the table or by telephone.

Such buyers must plan their programs well in advance; thus, there is more advance buying of meat and consequent arranging for slaughter livestock and feeder livestock all throughout the industry.

The share of the market handled by chains and independent supermarkets today is about 65 to 70%. Most of the meat is now purchased by some type of group buyer. Consequently, large retailers are in a position to influence various factors, including price, delivery terms, cutability, trim and other terms of sale. The retail markup placed on beef as supplies increase or decrease has marked effect on retail prices and how fast beef moves into consumption.

More meat is now bought on specification, and the specifications are more rigidly enforced. Such a tightening of specifications is primarily to reduce variability in quality, cut size, flavor, tenderness, etc., in order to assure the consumer "eating quality" that she can rely on.

With the growing aversion to fat, we can expect more retailers to require yield grading for cutability. Yield grading was a new term and a new idea to many people when it was introduced in June 1965. During the past several years, however, this new marketing tool for the meat industry is beginning to catch on. The percentage of beef slaughtered in federally inspected plants that is yield graded now exceeds 30%. The gradual increase in yield grading has resulted from the acceptance and use of yield grades by numerous meat packers and retailers throughout the country. Buyers and sellers of carcass beef are becoming more aware of the value differences between carcasses and are beginning

to realize the importance of trading on the basis of both quality and yield grades. Reports of the USDA indicate that most packers selling beef on a yield-grade basis have been able to obtain important price differentials between yield grades. Although these price differentials may be only $1.00 to $1.50 per hundred-weight, and may not yet accurately reflect full value differences associated with differences in yields of retail cuts, nevertheless, they are an important step in the right direction.

More and more it is being recognized that there are wide differences in the cutability of cattle after slaughter, even though they may look very similar on a live basis when together in the pen. Yield grading is definitely a fairer way to determine the meat value of a carcass than the current practice of selling on an average price basis. When cattle are sold on the basis of an average price for the whole lot in the pen, those having high cutability are penalized to subsidize those carcasses having low cutability. Although it will take a lot of doing to work out all of the details for improved marketing using cutability grades, this type of marketing is on the increase.

Grading Standards

Consumers have exhibited a clear preference for lean, tender, flavorful beef without excess fat. This makes it important for the industry to constantly evaluate its grading standards to assure that consumers get beef to meet their preferences. Some good arguments can be advanced that with high grain prices and generally high costs of beef production, animals should not be carried to such a high degree of finish. It is possible that a

certain percentage of the market would be satisfied with carcasses carrying less finish if they could be obtained at lower prices. On the other hand, a marked change in grade standards at the present time may disrupt smooth marketing of beef which has met with good consumer satisfaction in the past.

The beef industry has developed faster gaining, more efficient and generally improved quality cattle. Currently the industry is faced with a world outlook for high feed grain prices, changing consumer desires with respect to meats and protein substitutes, changing in the economics of beef production systems, changing in processing methods and the energy crisis. Consequently, there is real concern that these circumstances may dictate that a lower percentage of fed beef will attain the top finished grades (choice and prime). It is important that the industry continue to evaluate the situation so as to make modifications when most timely in order to improve marketing and consumer satisfaction.

Market Coordination

Substantial opportunities exist in the livestock and meat industry for cost reduction through improvements in operating methods and technology. To achieve maximum efficiency it may be necessary to increase vertical and horizontal integration to effect economies of scale, eliminate intermediate steps and markups, reduce transportation and handling costs. While further developments in this direction may be controversial, firms and capital from outside agriculture are coming into the business to integrate ranching, cattle feeding, processing and marketing. One of the greatest forces which will shape agriculture in the future will be the effort to coordinate production, processing and marketing to streamline the flow of product from where it is produced to where it is consumed.

There is a growing insistence by all firms from the feedlot to the retail level that marketing be conducted more orderly and especially that supplies move more steadily and dependably, both in quality and quantity. These are basic forces which will influence the future market structure of the industry.

Pertinent Issues for Consumers

A number of consumer groups, government officials and congressmen are clamoring that something be done to provide more food for consumers at lower prices. The extent to which U.S. farmers and livestockmen provide food for American consumers and how well consumers eat will be determined largely by how consumers and their elected representatives answer a number of important questions, a few of which are enumerated here:

1. How do consumers want to be fed? more beef? more high quality, high cost items? If so, they must be willing to pay for them as inflation forces production costs ever higher. The era of cheap food has gone. Consumers must recognize this.

2. Does the U.S. have the responsibility to help improve diets or alleviate malnutrition and famine in many parts of the world even if it means reducing levels of quality and quantity of food consumption in the U.S.? Currently, we are exporting large quantities of wheat, feed grains, rice, soybeans, etc. abroad. These large exports influence the rise in food prices at home. But if exports are not maintained, farm prices decline and the balance of payments problem intensifies. Also expensive farm support programs may be needed again. Should the farm sector of our economy be expected to subsidize the consumer? Cheap food policy subsidizes the consumer at the expense of agriculture.

3. Should U.S. trade policy be one of liberalizing trade with our neighbors or should it be a policy of self-sufficiency with the possibility of war at the borders.

4. To what extent should U.S. continue to give food aid to underdeveloped nations? Why shouldn't other affluent nations that have benefited from U.S. aid in the past, now contribute more of their share to aid other nations in need?

5. Should the U.S. continue to export technology and know-how to help other countries increase food production and distribution? Will such action reduce markets for U.S. products?

6. Are consumers more interested in food prices and availability of food or in protecting their own vested interests? Most people have a strong interest in their own employment or a particular cause. When minimum wages for agricultural and related workers are increased, a number of actions will follow. Costs of production, harvesting and handling will increase. This will increase prices to consumers. Will consumers understand the reasons for the increase and be willing to pay?

7. Feed additives for livestock and growth hormones promote higher rates of gain and improved feed conversion rates in cattle. DES has been shown to improve cattle weight gains up to 15% and feed efficiency up to 10%, thus reducing large amounts of grain needed for cattle finishing. DES was removed from the market when the safety of its use was questioned by the FDA. It was reinstated again in 1974 with an increased waiting period required between last use and slaughter. There is still no conclusive evidence of its harmful effects on humans when regulations are followed.

If such items, used to reduce costs of production, are declared off limits by environmentalists and consumers, will they be willing to pay higher prices for beef?

8. State and Federal regulations have been written to control the pollution of surface and underground water supplies from nutrients and salts emanating from wastes of livestock fed under confined conditions including beef feedlots and drylot dairies. These regulations require the livestock owner to (1) dispose of the wastes on a larger area of land; (2) transport or sell the wastes to an unthreatened watershed; or (3) construct waste treatment facilities. All three alternatives will increase the costs of producing meat and milk with existing livestock operations. Will consumers recognize these factors in the rising prices of meat and milk?

9. The National Environmental Protection Act of 1969 for the first time required an environmental justification of projects undertaken either by public or private interests. This act requires specification of all adverse and beneficial effects of any project. The intent is to expand public participation in the decision process where potential environmental impact is significant. Meeting the requirements of this act raises costs to new food production and processing projects. Will consumers understand the impact of EPA activities on food prices?

10. Continued inflation is the number one problem facing all of us. The dollar has been devalued twice in two years. This has tended to increase exports and reduce imports and hopefully improve our balance of payments. But many internal corrections must be made if we are to control inflation. There must be an increase in labor productivity that exceeds increases in wages and salaries or inflation will not be reduced. Likewise, the federal budget must be balanced and deficit financing eliminated. Do we as citizens understand these issues and are we willing to support programs that will attack the causes of inflation instead of clamoring for price controls which distort the economy and in the long run add to shortages instead of providing more food on the table.

11. In final analysis, society must understand that food production is a biological industry subject to natural laws as well as economic laws. Society must recognize the costs of the demands they make on the food industry and determine realistically if they are willing and able to meet the costs required. More people must be willing to put their money where their mouth is.

12. We are facing a period in which the production costs of beef will increase because of feed shortages and other cost factors. Under such circumstances, it is necessary that every effort be made to produce beef and other food items as efficiently as possible. Simultaneously, consumers must be protected against hazards from contamination and pollution. It is more important than ever to use scientific methods in animal production. The risks from these practices appear to be very small when they are controlled according to regulations that have been approved in recent years. The benefits both to producer and consumer are measured in lower costs and increased supplies. These benefits will be more important because of rising production costs.

13. Many groups and officials advocate building up U.S. stockpiles of food for emergency use. If this were done, who would carry the burden and pay for such a program? No such demands are made to stockpile industrial products such as automobiles, building materials, clothes, etc. as protection against scarcity or higher prices. If the government were to follow a policy of stockpiling basic food,prices of such products would likely fall, and government farm subsidy programs would be called for again. If world stockpiles are to be developed, other countries, as well as segments of the U.S. economy other than agriculture should assume their fair share of the costs.

14. American agriculture is an international tool for peace, a political force in world affairs and an economic tool to

stabilize the dollar abroad and to balance our trade. Using agriculture wisely, we can provide other countries with the food and fiber they need in exchange for other products that we need and want.

The value of the American farmer and livestock producer can hardly be overstated. Yet his value depends upon an atmosphere of freedom to produce and opportunity to meet the demands of the market place, not a climate of controls and stifling restrictions.

FUNDS AVAILABLE FOR OPEC COUNTRIES FROM OIL SALES,

ASSUMING CURRENT PRICE LEVELS

1973	$ 23 billion
1974	$ 85 billion
1975	$100 billion
1980	$175 billion

This assumes $12 a barrel for oil by 1980. The implications of this dollar transference in terms of world currencies, in terms of energy costs are most important to the study.

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