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PROGRESS REPORT

MSU/AID csd/1203

"SEED SURVEY"

July 1, 1966 - June 30, 1967

Technical and Economic Factors Associated with Establishment of a Seed Industry in the Less Developed Countries

Submitted by:

SEED TECHNOLOGY LABORATORY

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I. Background:

The task of feeding the rapidly growing population of the world appears to be the greatest challenge facing man during the remainder of the twentieth century. At the present rate of increase, the world's population will double to over 6.3 billion by the year 2000. Unfortunately, the highest rates of population increase are occurring in the less- developed nations which are technologically the least able to increase their food production

Historically, societies have supplied food for increasing populations by bringing new land under cultivation, an area-expanding type of agriculture. Many densely populated developing countries, however, have little new land that can economically be brought under cultivation. Thus, increases in agricultural productivity must come through increases in the yield from the area already under cultivation. The developed countries have made the transition from an area-expanding to a yield-increasing type of agriculture, increasing yield more rapidly than population during the past 25 years.

Production of crops can be increased in several ways:

1. Increase area under cultivation.

2. Increase the number of crops sown per unit area per year.

3. Increase in yield per crop per unit area.

4. Shift from crops with low yield rate to crops with high yield rates.

With the possible exception of the first, the methods of increasing crop production require a substantial increase in agricultural technology: Improved seed, fertilizer, pesticides, water, machinery, and credit (capital).

Improved seeds responsive to an increase in fertilization and water supply, and resistant to diseases and insects are basic to the highly productive yield-increasing agriculture of North America, Oceania (Australia and New Zealand), Europe, Japan, and Taiwan. It is estimated that application of the concepts of genetics to plant breeding, together with effective methods of

yield - increasing agriculture of North America, Oceania (Australia and New Zealand), Europe, Japan and Taiwan. It is estimated that application of the concepts of genetics to plant breeding, together with effective methods of increasing and distributing new seed (varieties) to farmers, accounts for 25 to 33 percent of the annual increases in crop production in Western Europe in recent decades.

Experiences in developing countries (particularly in India) indicate that improvements in plant breeding techniques and development of superior varieties in themselves can not improve agriculture unless seed production and distribution methods are also improved. The lack of use of improved varieties is stated to be one of the reasons why agricultural productivity in Latin America is so low.

Considerable progress is being made in the less-developed countries in terms of improved varieties. This is being brought about by an increase in the number of plant breeders trained in modern genetic concepts and applications, and the introduction of new varieties, hybrids or crops from the developed countries. Much less progress, however, is being made in other requisites of a comprehensive seed improvement program: seed increase, production, distribution, testing and control. Too often the fruits of the plant breeder's labors remain in the storage room or are so diluted with admixtures of old varieties that little effect on productivity can be observed.

The seed industry of the United States is a highly-developed private sector of the agricultural economy. Its potential contribution to agricultural productivity in the less developed countries in terms of technical know-how, improved varieties, off-shore breeding, production, and distribution facilities, and seed export is considerable. The extent of its present involvement in the agriculture of the less developed countries, its past experiences and future plans in seeking to establish off-shore operations in these areas, however, are known only in a general way. Nevertheless, there is the impression that the American Seed Industry would like to increase activity in and with the less developed countries. Within the past few years, several of the large seed companies have merged with large corporations heavily involved in production of agricultural chemicals and machinery. It seems reasonable to expect that this trend will continue. The increasing international orientation of the agricultural, chemical, grain, and machinery industries should serve well to focus the attention and at least some of the energy of the seed industry in the same direction.

The crisis in world food supply demands that the private sector of the food producing technology and resources of the United States serve to increase food production in the less developed countries in the best possible manner.

An established seed industry is significantly absent in most of the less developed countries. Most existing seed improvement programs are governmentally controlled and operated and are geared to production of relatively small

quantities of seed of improved varieties. Distribution and marketing channels are largely unexplored.

Indigenous private enterprise and investment of money, materials, and know-how, by the American Seed Industry can contribute significantly to agricultural development through large scale production, distribution, and marketing of quality seed of improved varieties.

Regardless of its origin a viable, effective, and efficient seed industry can only become established in a political - economic - technical environment that encourages private investments and provides opportunities with a minimum of legal, economic and technical restrictions.

II. Objectives of this Survey:

A. (1) To determine the economic, technical and political conditions necessary for the growth of private seed industries in the LDCs.

(2) To determine the actions and conditions which have fostered the development of seed industries by local private interests, U. S. Seed Companies or both acting cooperatively in the less developed countries.

(3) To discover the barriers to private participation in the local seed industries now existing.

(4) To establish the changes needed in existing technical, economic and political situations in order to promote the growth of a private seed industry.

(5) To report the results of this research in the form of a handbook that can be used as a guide to creating the conditions necessary for the development of private seed industries by US AID, officials of the less developed countries, and seed companies so that the farmers can be assured of adequate quantities of the best possible seed at reasonable prices.

B. To achieve the objectives above the following steps will be used as guidelines:

(1) Contact American seed firms and trade representatives to determine the past, present, and expected future involvement of the American seed industry in seed production and marketing in the LDCs by means of surveys, questionnaires and interviews. Emphasis will be placed on the nature of previous experience; the technical, economic and political problems encountered; details of successes and failures in overseas operations; present policies and philosophies regarding overseas operations; current and future plans for overseas expansion; and changes needed in the less developed countries to promote

private sector seed production.

(2) Interview personnel of A.I.D. Missions, the USDA, the Rockefeller and Ford Foundations, FAO, private seed companies, seed officials of the less developed countries, and others as to the present status of seed research, production, regulation, and distribution programs in the less developed countries; problems of the private sector seed producers; recommended solutions to private seed producer problems; and the future requirements for seed. They will be asked to comment specifically on current seed production plans, programs designed to promote the growth of a seed industry, barriers to growth and to American participation in local seed production activities, and to make suggestions as to how private sector seed production can be stimulated.

(3) Secure from several countries of each region pertinent country seed publications, copies of seed laws, rules and regulations, seed production statistics and other seed information. Several representative countries (selected by A.I.D./W in consultation with the contractor) will be studied in depth with contractor personnel visiting each to conduct interviews with appropriate country officials, the US AID and others and to briefly survey the seed production situation and the political, economic and technical factors affecting it.

(4) Companies indicating past or current overseas experience will be interviewed in depth by Contractor as to the difficulties encountered, how they are surmounted or circumvented, what situations presented insurmountable difficulties, what encouragement did they receive and from whom and any other information that would be of value in explaining individual country and company successes and failures.

(5) A few countries which have been investigated in connection with (3) above and (6) below and have been found as especially successful in promoting a private seed industry and a few where the opposite condition prevails will be studied in depth by Contractor to determine the factors influencing these successes and failures and to gain an insight as to possible solutions to the problem of involving private industry in seed production in the LDCs.

(6) The countries referred to in (3) above will be visited and analyzed by Contractor for political, economic, and technological factors limiting and/or promoting the development of a private seed industry.

(7) A report of the results of the survey along with specific recommendations for eliminating barriers to the establishment of private seed industry or for minimizing their effects will be prepared in the form

of a handbook for use by A.I.D./W, the US AID and the less developed countries. This handbook will attempt to establish and explain the technical, economic, and political conditions necessary for the development of a seed industry and the means for satisfying these requirements.

III. Statement of Progress:

During the first six months, work was centered on the collection of necessary background material prerequsite to a study of this magnitude, establishing and obtaining approval of the Advisory Council members and in the preparation of the information and plan of work to be presented to the Advisory council during its first meeting.

The Advisory Council members selected and approved are as follows:

Mr. T. H. Roberts, Jr. DeKalb, Illinois	President, DeKalb Agri. Assn.
Dr. Harold Loden Belmond, Iowa	Director of Research, Paymaster Seeds
Mr. A. S. Carter (Ret) Lafayette, Indiana	State Cirector of Seed Control and Chemical Services
Dr. Alvin D. Ayers	AID/Department of State Washington, D. C.
Mr. Jack W. Wells	FAS/USDA Washington, D. C.
Mr. John Osquthorpe	WOH/AID/Department of State Washington, D. C.
Ex-Officio, Mr. John Sutherland Executive Vice President	American Seed Trade Assn. Washington, D. C.

The Rockefeller and Ford Foundations and the UN/FAO were requested to nominate a person to serve on the Advisory Council, however; each of these organizations declined due to their previous committments but indicated that they were willing to supply that information which they had available for our use.

The council met in February 1967 to consider the overall scope of work and review the proposed questionnaires. They made the following recommendations and approved the general work plan as follows:

A. Recommendations:

(a) Only the ASTA International Committee and selected U. S. companies dealing with such crops as rice and peanuts be surveyed. It was the consensus that this restricted list would include more than 95% of the export and off-shore seed operations conducted by U. S. companies.

(b) In addition to the 70 LDCs, two or three countries which were formerly LDCs i.e., Taiwan, should be included in the over - seas survey to assure having a complete array of "experiences" in the study.

(c) Generally more emphasis be placed on financial and human resources in the overseas survey than development of the area of export sales in both U. S. and foreign interviews.

It was consensus of the committee that the following schedule be followed:

B. Plan of Work:

1. (March, 1967) A mail questionnaire, designed to determine the past and present involvement of U. S. Companies in specific LDCs, be sent to selected U. S. seed companies.

2. (April, 1967) A detailed questionnaire to be sent to USAID Mission agricultural officers, agricultural attache's and agricultural specialists of the Ford and Rockefeller Foundation in the LDCs. This survey will be designed primarily to obtain general statistics and to determine the stage of development of the more important resources necessary for an effective seed industry.

3. (May - July, 1967) Conduct in-depth interviews with managerial personnel of a representative group of U. S. seed companies. These interviews will detail the successes and failures of these companies in all types of off-shore operations. In addition, information on the general requirements for foreign investment by U. S. companies will be ascertained.

4. (July - August, 1967) Summary of information collected in steps 1, 2 and 3 and recommendations to USAID of those countries in which in-depth interviews would appear to be most fruitful.

5. (August, 1967 - January, 1968) Conduct in-depth interviews in six LDCs known to represent different levels of economic and technical development and two former LDCs. These interviews will include technical advisory and policy making personnel in the attempt to determine the barriers to and the opportunities for the development of indigenous and/or foreign seed operations in each country.

6. (November, 1967 - March, 1968) Compilation and interpretation of data and information obtained. Additional interviews with U. S. companies, UN officials, etc., as necessary. Preparation of first draft of final report to include guide lines and recommendations for implementation of programs and policies to promote the development of seed trade in the LDCs.

7. (June, 1968) Final Report.

C. U. S. Mail - out Survey

Pursuant to the recommended plan of work a questionnaire was sent to 48 U. S. based seed companies to obtain information on their type of operation , the extent of their present involvement in foreign trade and operations, the problems they had encountered and their plans for future expansion into foreign trade. A summary of these questionnaires appears as Appendix I.

All 48 of the companies responded to the questionnaire, however; six of them indicated that they either conducted no foreign trade or did not wish to participate in the survey. This high rate of response is due primarily to the cooperation of Mr. John Southerland, Executive Vice President, American Seed Trade Association and Mr. John Meredith, Executive Secretary of the Southern Seedsmen's Association each of whom sent a letter to the seed companies belonging to their respective organizations soliciting their support.

Based on the results of this questionnaire 21 companies representative of the various specilized interests and levels of experience in foreign trade were selected for in-depth interviews. The first of these interviews were conducted in June, 1967. The last will be completed by mid - August of this year, therefore; it is not possible to catigorize the responses or elucidate extensively on the "obstacles" indicated in the mail-out questionnaires.

The following list of the "obstacles" encountered by the responding companies and a brief explanation of those which appeared with the greatest frequency pinpoints those areas hindering the U. S.

Seed Trade in their attempts to establish foreign markets. A more complete list appears on the last page of Appendix I.

(a) Money Exchange and Slow Payment

Money exchange and slow payment are barriers to trade between importers in certain countries and exporters in the United States. Certain Less Developed Countries are low on United States dollar reserves. This impedes the making of prompt payments by imposition in those countries to exporters in the United States who expect to be paid in US dollars. One interviewee stated that this situation prevails in Brazil and Colombia. Since their dollar reserves are low, it is difficult for importers to obtain permits to change their currency into United States dollars. In some instances, there is a six to eight month lag between the time when the product is sold in that country and the time when the seller inside the United States collects for it.

(b) Import and License Restrictions, Including Gratuities

Import and license restrictions vary considerably between the Less Developed Countries. Some countries cannot afford breeding and production facilities of their own that will equal that available in other countries. Seed production facilities and personnel in the United States are so highly developed that they prefer to deal with United States firms, rather than to produce their own seed. At the other end of the continuum are countries like South Africa and Mexico where import permits and other problems pose significant restrictions. South Africa requires the inspection of crops during the growing season and this increases the difficulty of producing seed outside the country. In Mexico, it was reported that one never knows where he stands. Even when a contract is made there, one can never be certain that he will receive the crop until it crosses the border. One firm was producing lettuce and beans there. They had problems getting the crop out because Mexico can stop exports, if the products to be exported are needed in local markets. In Mexico, also, there is significant variation in the interpretation and enforcement of judicial rules. There are sometimes high duties at the border. Mexico has a seed certification program and it is difficult to know from one year to the next which fees will be charged and how much they will be. When shipments are stopped at various inspection points along the border, drivers can generally slip the inspectors a few pesos and move on. Occassionally, shipments are highjacked.

(c) Plant quarantine and phytosanitary restrictions

Preliminary indications are that many foreign governments have unrealistic and unnecessary phytosanitary inspection and certification requirements. They often require a signed certificate of inspection for diseases, insects or weed seeds that do not exist in the U. S. or are not seed-borne. Sometimes these certificates must cover the crop from the date of planting which, in the case of perennial crops, is completely unrealistic.

(d) Low educational level of potential consumers and seed producers

This includes not only the high rate of illiteracy in most of the LDCs but a general lack of technical knowledge on the advantages and methods necessary to utilize the full potential of improved varieties. Two of the companies interviewed indicated that their success in off-shore operations was directly related to the success they achieved in working with the local farmers to shift to a more productive agriculture technology (Spain and Argentina).

(e) Lack of Trained Indigenous Personnel with Business Acumen

U. S. seed firms dealing in Less Developed Countries generally find it desirable to obtain all managerial personnel in the United States and to locate individuals who have special knowledge of the language or mores of the country of operation. It has been reported as exceedingly difficult to obtain indigenous personnel who have the managerial skills required for successful operation of American-owned enterprises. As a result, Americans generally occupy managerial positions in the American-owned enterprises and indigenous personnel perform the labor below the management limit. Indigenous local managers are prefered.

(f) Restricitive varietal lists and requirements for introduction of new varieties

Several companies have indicated that it is difficult to introduce improved varieties into LDC countries because they require lengthy testing periods without the advantage of an unbiased testing program similar to that available through the US Experiment Station System. The average life - span of the new field crop variety in the US is approximately five years, some countries require a variety to be tested for this period of time. This is ambigous in view of the extensive testing completed prior to the release of a new variety from either a public

or private organization in the U. S.

(g) Competition from local Government in production and merchandizing

This is one of the major hinderances to establishment of an indigenous free enterprize operation in any country with a socialistic form of government regardless of its nature. Though most of the US seedsmen apparently realize that the "governments are in the seed business because no one else is" it is at best extremely difficult to compete with any governmental operation. It should be noted that the stated aims of some governments are (a) To establish a system of governmental seed production, processing and distribution stations and (b) To encourage the development of a free enterprize seed industry. Although these objectives are not, in themselves, contradictory; in practice they are quite contradictory since the governments having once attained the "power to produce" are very reluctant to give up this power.

(h) Prohibitive Investment Risks

Interest rates vary considerably from those inside the United States. It has been reported that interest rates in some Central and South American countries are as high as thirty to forty-five per cent. This means that funds for operation can seldom be obtained safely within the country of operation. An additional prohibition sometimes encountered relates to fluctuating exchange rates between local currency and United States dollars. Loans obtained in the currency of the underdeveloped country can become more difficult to repay if more United States dollars are required to repay the loan.

(i) Tariffs on United States Products

Since the productivity of labor and capital in the United States is generally greater, and thus prices may be generally lower on products produced in the United States than upon corresponding products in other countries, it is not uncommon for some countries to place tariffs on products produced in the United States. For example, Australia is rapidly developing its agriculture, including seed production, and the productivity of its labor and capital is increasing. It can produce lettuce seed so well that it restricts the importation of lettuce seed from the United States. One interviewee reported that free trade between nations is necessary if the world-wide seed industry is to prosper.

To date there has been no attempt to catagorize the information from the interviews completed, however; some general statements appear to be in order:

1. The U. S. Seed Industry is very receptive to and interested in this survey and its potential usefulness for the development of increased investment in overseas operations.

2. The U. S. Seed Industry is generally optimistic about the future possibilities of expanded trade and operations.

3. The companies contacted have very limited knowledge of the various U. S. Governmental programs designed to assist businessmen in overseas investments. Without exception they have endorsed, in principal, the idea of the WOH's Businessmen's Information Center. (It appears as if the U. S. Seed Industry would be a very fertile area in which to develop an educational program to explain these assistance programs.)

4. Some changes will be necessary in the U. S. Government Guarranty risk and Foreign Credit Insurance programs before they will be widely used by the Seed Industry. It appears as though these programs are primarily for now perishable products, a classification not applicable to seeds, particularly when produced or shipped into a subtropical area. Specific recommendations can not be made at this time.

D. Overseas Surveys:

The mailout questionnaire to be sent to AID/ARDO officers, the U. S. Agricultural Attaches and other agricultural specialists has undergone several revisions but now appears to be in final form, subject to final approval of the AID "regional desks" in Washington. It should be stated that Mr. John Wilson, Deputy Director and Dr. A. D. Ayers ARDO/WOH/AID have been most cooperative and helpful in assisting the contractor in the development of this questionnaire. These questionnaires will be sent to the various LDCs in August 1967.

The contractor has recently submitted the following list of countries as the prime countries for consideration for the overseas in-depth interviews:

Brazil	Korea	Taiwan	Ghana	Kenya
India	Uganda	Tarizania	East Pakistan	Phillipines
Turkey	Columbia	Argentina	West Pakistan	Thailand

These countries were selected primarily on the basis of varied level of development of the indigenous seed industry, interest or lack there of on the part of US Seed Companies in establishing trade, known US Government interest in assistance to these countries, geographical location and the background of information which has been accumulated by the contractor through 10 years of contact with representatives from most of the less developed countries.

Personnel Conducting Survey

Near East and East Asia

Dr. James C. Delouche. Project Leader. Dr. Delouche received a B. S. degree in Horticulture from the University of Southwest Louisiana, and the M. S. and Ph. D. degrees in Economic Botany from Iowa State University. He is Director of the Mississippi Seed Technology Laboratory, Director of the State Seed Regulatory Laboratory, and Agronomist and Professor, Mississippi State University. His responsibilities include administrative work, graduate instruction, seed storage and seed deterioration. He also advises the Mississippi Department of Agriculture on interpretation and enforcement of the state seed law, and the Mississippi Seed Improvement Association on seed certification operations. Dr. Delouche has participated in many activities under the Mississippi State - AID seed improvement agreement, working in the Far East, Central and South America.

Mr. Bill R. Gregg. Mr. Gregg has a B. S. and M.S. degree in Agronomy - Seed Technology from Mississippi State University and recently completed the course work required for a Ph. D. His experience includes service as a certification inspector for the Mississippi Seed Improvement Association. (3 years) Supervisor of a seed training and research program and Director of the Washington State Foundation Seed Stocks program and Crop Improvement Association (7 years). For the three years prior to joining the staff at Mississippi State University as an Assistant Agronomist he was Secretary of the Alabama Crop Improvement Association and Extension Seed Specialist at Auburn University. He has worked extensively in the MSU/AID programs in

Panama, Guatemala and Honduras during the past year.

Latin America and Africa

Dr. Howard C. Potts. Principal Investigator. Dr. Potts has a B. S. (Agronomy) from Oklahoma State University, an M. S. (Agronomy-Seed Technology) from Mississippi State University and a Ph. D. (Plant Breeding) from Texas A & M University. His experience includes 2 years work in the Texas Foundation Seed Stocks Program, 4 years with a commercial seed company as supervisor of production and processing of field seeds and 4 years as Extension Seed Specialist with the Virginia Polytechnic Institute as the coordinator of both the public; state Department of Agriculture, Crop Improvement Association, Extension and Research; and Private sectors of the seed industry. At present he is an Associate Agronomist working in the area of seed production and processing and assistant coordinator of MSU's Brazil contract.

Dr. H. Dean Bunch. Dr. Bunch holds degrees in Agronomy from Oklahoma State University (B.S.), University of Tennessee (M.S.) and Mississippi State University (Ph.D.). He is the former Director of the Mississippi Seed Technology Laboratory, Professor and Agronomist Mississippi State University and is presently completing a three-year assignment as Chief - of - Party of the Mississippi State University - AID/Brazil seed improvement contract. One objective of this contract is to establish a seed industry in Brazil. Dr. Bunch has many years experience in hybrid seed corn production, foundation seed stocks, seed certification, and teaching and research on seed production, processing, drying, and storage. He has served as a consultant to AID/W in the capacity of technical advisor to Seed Improvement Seminars in Latin America, Africa, and the Far East. As a senior memb member of the Mississippi State University-AID Seed Improvement contract teams, Dr. Bunch has visited in and worked with USAID personnel and nationals in many countries on seed improvement programs. He is currently Director of International Programs in Agriculture at Mississippi State University.

Consultants(U. S. Only)

Dr. William C. Flewellen, Jr. Dr. Flewellen holds B. S. and M. S. degrees from the University of Alabama in General Business and Accounting, respectively. He received his Ph. D. from Columbia University in Business Administration. He is presently Dean, College of Business and Industry, Mississippi State University. In addition to a distinguished professional and administrative career he has served as a consultant to several banks, governmental agencies and private companies in the areas of accounting, investment potential,

and business opportunity.

Dr. Guy T. Peden, Jr. Dr. Peden holds B. S. and M. S. degrees from Mississippi State University in marketing Sociology and Marketing Economics, respectively. He received his Ph. D. from the University of Arkansas in Economics - Marketing. Presently, he is the Director of the Bureau of Business and Economic Research and Professor of Marketing at Mississippi State University. He has extensive experience in conducting, analyzing and interpreting business and economic surveys and has served as a consultant to both private and public organizations in the areas of economics and marketing.

Appendix I

LDC SEED SURVEY
MSU/USAID csd 1203

SUMMARY
US - Mail Survey

The following information will be kept confidential and will in no way be used to disclose specific operations or intentions of your company.

Name of Respondent(s) 48 companies surveyed

42 completed and returned questionaire

6 were not interested in completing the survey

I. A. Type of operation (check all applicable spaces):

5	Broker, Export - import	29	Processor
2	Broker, domestic	14	Retailer
36	Grower (including contracts)	25	Wholesaler (jobber)

B. Of the basis of your compar y's average annual volume (1964 - 1966) of seed. give the following information: Column 1 - The percentage of your annual volume of seed in each applicable class; Column 2 - The percentage of seed exported within each class; Column 3 - The quantity of seed exported within each class.

Class of Seed	Number of Companies	Range in Percent Exported Annually	Quantity Exported (Pounds)
1. Cereals & Feed Grains (corn, sorghum, rice, etc.)	16	1.0 - 100	40,410,000
2. Vegetables (peas, beans, sweetcorn, etc.)	11	1.0 - 100	16, 286,000
3. Oil Crops (soybeans, cottonseed, peanuts)	9	0.5 - 98	36,700,000
4. Grasses	10	2.0 - 30	19,443,000
5. Legumes	10	3.0 - 70	11,869,000
6. Others (specify)	6	0.01 - 30	1,900,000

II. Past and present experiences in foreign trade and/or operations.

The following tables are designed to determine the location and extent of your company's involvement in foreign trade and/or overseas operations. Place an "X" in those spaces that best describe your activities since 1960. Please consider each geographical region and country listed. However, if you have never sold seed or operated in a region, for example Oceania, place and "X" in column 1 opposite the regional designation and pass on to the next region.

	SALES				METHOD			PRODUCTION	
	1. No Previous Experience	2. Occasional Export Sales	3. Regular Export Sales	4. Direct Sale to Foreign Country or Company	5. Sales Through Foreign Representatives	6. Branch Sales Operations in Foreign Countries	7. No Foreign Production	8. Foreign Production Through Foreign Contract Growers	9. Own Foreign Production
A. EUROPE									
Belgium	23	10	9	13	7			1	
Denmark	26	5	11	12	4			3	
England	18	8	16	16	7			4	
France	13	11	18	17	14	1		7	1
West Germany	15	10	17	15	14	1		1	1
Greece	26	9	7	13	6				
Holland	17	8	17	17	11			5	
Italy	14	10	18	18	11	1		7	2
Norway	31	8	3	8	4				
Spain	16	11	15	16	10			4	1
Sweden	23	9	10	13	6				
Switzerland	23	6	13	14	7			1	
Others (specify)									
Austria	40	1	1	2	1				
Bulgaria	40	1	1	2	1				
Canary Islands	41		1	1					
		(see attached list)							
B. OCEANIA									
Australia	25	6	11	12	4	1		4	2
New Zealand	28	5	9	10	1			1	
Others (specify)									

	SALES			METHOD			PRODUCTION		
	No Previous Experience	Occasional Export Sales	Regular Export Sales	Direct Sale to Foreign Country or Company	Sales Through Foreign Representatives	Branch Sales Operations in Foreign Countries	No Foreign Production	Foreign Production Through Foreign Contract Growers	Own Foreign Production
	1.	2.	3.	4.	5.	6.	7.	8.	9.
Czechoslovakia	41		1	1					
Finland	39	1	2			2			
Hungary	38	2	2	4	1			1	
Ireland	39	2	1	2	2				
Luxembourg	41	1		1					
Poland	41		1	1	1				
Portugal & Azores	38	4	2	3	3				
Rumania	40	2		2					
Yugoslavia	41	1	1	2					

		SALES				METHOD			PRODUCTION	
		1. No Previous Experience	2. Occasional Export Sales	3. Regular Export Sales	4. Direct Sale to Foreign Country or Company	5. Sales Through Foreign Representatives	6. Branch Sales Operations in Foreign Countries	7. No Foreign Production	8. Foreign Production Through Foreign Contract Growers	9. Own Foreign Production
C. LATIN AMERICA										
Argentina	21	10	11	15	7	2		2	2	
Bahamas	36	2	4	5	1					
Barbados	35	3	4	5	2					
Bolivia	32	6	4	6	4					
Brazil	24	12	6	9	9		1			
Chile	25	11	8	11	8				1	
Colombia	26	9	7	10	7					
Costa Rica	29	5	8	9	3		2			
Dominican Republic	32	5	5	8	1					
Ecuador	31	4	7	9	3					
Guatemala	27	5	10	11	8					
Haiti	34	2	6	7	1					
Honduras	33	4	5	8	1					
Jamaica	33	2	7	7	2				1	
Mexico	15	13	14	19	4	5		2	7	
Nicaragua	31	3	8	8	4					
Panama	34	2	6	6	3					
Paraguay	33	6	3	8	1					
Peru	28	8	6	8	5	1		1		
Trinidad	34	1	7	7	1					
Uruguay	28	5	9	6	9					
Venezuela	28	6	8	9	5					
Others (specify)										
Bermuda	41	1		1						
Br. Honduras	41		1	1						
El Salvador	39		3	3						
Guadeloupe	41		1	1						
Gayana	39		1	1						
Neth. Antillea	41	1		1						

	SALES					METHOD			PRODUCTION	
	No Previous Experience	Occasional Export Sales	Regular Export Sales	Direct Sale to Foreign Country or Company	Sales Through Foreign Representatives	Branch Sales Operations in Foreign Countries	No Foreign Production	Foreign Production Through Foreign Contract Growers	Own Foreign Production
	1.	2.	3.	4.	5.	6.	7.	8.	9.
D. ASIA									
Afganistan	39	3		3					
Burma	39	3		3					
Cyprus	34	5	3	7	1				
Israel	25	10	7	14	2			1	
Iraq	32	6	4	8	1				
Iran	35	4	3	7	1				
Japan	18	13	11	21	6			3	
Jordan	33	3	6	7	8				
Korea	33	8	1	8	2				
Lebanon	35	3	4	5	3				
Laos	38	3	1	4					
Nepal	40	1	1	2					
Pakistan	34	8		6	2				
Philippines	31	5	6	8	4				
Saudi Arabia	36	2	4	4	2				
Syria	34	3	5	5	4				
Taiwan	33	4	5	7	2			2	
Thailand	35	4	3	7	1				
Turkey	33	7	2	8	2			1	
India	34	4	4	8		1			1
Vietnam	35	4	3	6	2				
Yemen	40	2		2					
Others (specify)									
Aden Arabia	40	1	1	2					
Celon	39	2	1	3					
Hong Kong	39	1	2	2					
Malaysia	41	1		1					
Mauritius	40	1	1	2					

	SALES					METHOD		PRODUCTION	
	No Previous Experience	Occasional Export Sales	Regular Export Sales	Direct Sale to Foreign Country or Company	Sales Through Foreign Representatives	Branch Sales Operations in Foreign Countries	No Foreign Production	Foreign Production Through Foreign Contract Growers	Own Foreign Production
	1.	2.	3.	4.	5.	6.	7.	8.	9.
E. AFRICA									
Algeria	37	2	3	3	2				
Burundi	40	2		1	2				
Cameroon	38	4		2	2				
Central African Republic	41	1			1				
Chad	40	2		1	1				
Congo (Kinshasa)	39	3		1	2				
Dahomey	40	2		1	1				
Egypt	34	6	2	6	2				
Ethiopia	35	4	3	5	2				
Gabon	40	2			2				
Ghana	36	4	2	4	2				
Guinea	37	4	1	2	3				
Ivory Coast	40	2		1	1				
Kenya	30	9	3	8	4			1	
Liberia	40	2	3	3	2				
Libya	39	3	2	3	2				
Malagasy	39	3		1	2				
Malawi	39	3		1	2				
Morocco	36	5	1	4	2			1	
Niger	40	2	1	2	1				
Nigeria	35	6	1	5	2				
Rwanda	40	2		1	1				
Senegal	39	3		1	2				
Sierre I eone	38	4	2	2					
Somali	39	3	1	2	2				
South Africa Republic	19	8	15	16	4	2		3	3
Sudan	35	4	3	6	1			1	
Tanzania	37	5		3	2			1	
Togo	40	2		1	1				
Tunisia	39	3	2	3	2				
Uganda	38	4		2	2				
Upper Volta	40	2		1	1				
Zambia	39	3		1	2				
Others (specify)									
Angola	40	2		2					
Mozambique	41	1		1					
Rhodesia	38	1	3	2	2			1	1

On the basis of your experience, list the five most significant obstacles to the establishment of trade with or operations in foreign countries.

See attached sheet

IV. If your company is not presently involved in seed production, processing and/or distribution operation(s) in a foreign country, but has considered or investigated the establishment of such operations: (A) Place an "X" in the space which most acurately discribes your level of investigation; (B) list the country or countries.

No. of Companies		
4	Company discussions	Countries 11
8	Discussions with other companies	Countries 19
3	Contact with U. S. Government or other agencies	Countries 3
3	Feasibility study of a foreign country	Countries 4
4	Negotiations with foreign country or company	Countries 4

V. With reference to investments:

Averages

A. Give the ratio of fixed to working capital that you believe is necessary for a stable financial investment in the seed business: United States 34% to 66%; Foreign Country 27.5% to 72.5% .

B. What rate of return (net profits) would you expect from a foreign investment having 25% fixed and 75% working capital? 13.6%

C. What do you consider as the minimum rate of repartriation needed from a foreign investment? 36.5% of net profits.

D. What type of managerial and ownership arrangement do you prefer for foreign operations? (Number in order of preference. 1=Most preferable 4=Least preferable)

Managerial	Ownership
2.33 American	1.75 Parent Company 100%
1.54 American - Indigenous	1.36 Partnership: Your company 51+% Indigenous 49-%
1.20 Indigenous	2.17 Partnership: Your Company 50% Indigenous 50%
	3.60 Partnership: Indigenous 50+% Your Company 49-%

VI. All respondents wish to receive a copy of the final report of this study (Fall 1968).

Obstacles encountered by responding companies
(Seed page 7 for an expansion on some of these obstacles)

1. Money exchange and slow payment.
2. Import and license restrictions including gratuities.
3. Plant quarantine and phytosanitary restrictions.
4. Low educational level of potential consumers.
5. Lack of trained indigenous personnel with business acumen.
6. Restrictive varietal lists and requirements for introduction of new varieties.
7. Language and communications barriers.
8. Impractical purity and/or germination requirements.
9. Interest primarily in price and not quality.
10. Lack of local credit.
11. Competition from local government in production and merchandizing.
12. Lack of knowledge and information on market locations, requirements for development, potential for development, etc.
13. Prohibitive investment risks.
14. Governmental restraints on private businesses.
15. Lack of protection against "pirating" of non- hybrid privately-developed varieties.
16. Tariffs on U. S. products.
17. Restrictive packaging requirements.
18. Lack of media for promotion and sale of products to users in local countries.
19. Limited market within individual countries and restrictions between countries within an area with similar market potential.
20. Trade preferences, i.e., EEC, Commonwealth, "Mother" countries.
21. Lack of unbiased varietal or sub-species performance test data in foreign countries.
22. Too few U. S. personnel in foreign countries having a bilateral understanding of the problems of the Seed Industry in U. S. and developing the countries.
23. Lack of U. S. Government support or unrealistic programs in foreign credit insurance and market development in LDC's.
24. Threat of socialization of foreign investments, capital and facilities.
25. Excessive paper work involved in shipment to foreign countries.