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AGENCY FOR INTERNATIONAL DEVELOPMENT

SPRING REVIEW
OF
THE NEW CEREAL VARIETIES

May 13 - 15, 1969

STUDY DESIGN

SPRING REVIEW

New Cereal Varieties

STUDY DESIGN

Development of the Review Program

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(Revised)

Purpose: The primary purpose of the Review is to look to the recent experience with miracle grains for clues about the nature of farming in the LDC's, and for suggestions on an appropriate agricultural sector strategy for A.I.D. in the future. Insofar as the Spring Reviews are a part of the Agency-wide Evaluation System, the intention is also to design the research program insofar as possible to strengthen that System and establish a model for subsequent Reviews. For example, the intention is to draw heavily on both Mission and Washington talent, the better to involve the entire Agency community in a concerted examination of the past. These bureaucratic objectives are not inconsistent with the substantive target, and have not interfered with the quality of the discussion.

The subject selected is not an ideal choice for the first major retrospective analysis of A.I.D. experience, or so it seemed at first. The problem is that the basic research program which developed the high yield varieties was not an A.I.D. affair at all, and an analysis of that work would be more an exercise in general research than self-examination. But the more work progressed, the more obvious it became that the propagation story was at least as important as the research story, and inasmuch as A.I.D. has been involved in each country in getting the seeds out, we were not falling far short of the ideal.

Crops: Most of the excitement concerns wheat and rice varieties, and these are the primary targets of the study. Corn is included also: first because it is the most important food crop in Latin America; second because the introduction of hybrid corn in some areas (e.g. Kenya) has had a pay off and diffusion rate almost as impressive as wheat and rice; third because it provides a useful comparison with the other, generally ubiquitous, success stories. Sorghum and millets are the remaining important cereal crops. They were not included in the study, primarily because it would be impossible to examine them without examining India -- where most of the acreage is and most of the adaptive research has taken place --- and the Indian Mission would have been faced with preparing three crop papers.

Countries: The objective was to include a large sample of miracle countries which are successfully using the new seeds plus some control countries where either the new seeds have not done well ("failures"), or where a technological package has been diffused that did not include the miracle seeds ("successes"). The countries selected each had to have an A.I.D. Mission (except Mexico, for which sufficient material was available in Washington). Each Regional Bureau was to be represented. In the end, thirteen countries were included in the Review. Because some countries provided more than one crop paper (Brazil and Pakistan had three), the total number of crop case studies was twenty. In addition we were able to use a recent USDA report on rice in West Africa to increase the geographic coverage of this crop.

Table 1 arranges the case studies by type, and shows that although the control system would have been improved with the addition of a few more reports, it was far from inadequate. Table 2 lists the LDC's by total acreage devoted to each crop. The reporting countries are underlined. It shows that for each of the three crops we were successful in selecting a significant number of those countries which mattered the most. The only major omission is corn in India, where there has been substantial success with hybrids. Inclusion would have strengthened that crop's representation in the Review. The Indonesian rice story is another obvious omission, though its inclusion may not have added any new insights into the progress of superior rice varieties.

Documentation: The research plan was to have four successive series of reports. The first, the Country Crop Papers (CCP's) were to tell the basic story for that crop in the individual country. Initially, the intention was to give the Missions, which were assigned this job, considerable leeway in composing the report. They received guidelines, and an annotated list of principal questions that needed answers, but they were free to emphasize the issues they considered important and slight the ones they didn't. That assignment was eventually rewritten, as AID/W moved to establish more uniformity in the presentations in order to facilitate comparative analysis. Thus most of the final draft CCP's followed more or less the same outline. (Attachment A), though one or two of the earlier field submissions followed a different scheme. It also transpired that the Regions reacted differently to the initial scheme for having the Missions prepare the principal CCP draft. The latter ocurred in NESA, Africa and Vietnam. However, the East Asia Technical Support Office in AID/W prepared the bulk of the Philippine and Thailand CCP's, and sent the two authors to those posts to help complete the reports. Most of the Latin American CCP's were also prepared in Washington: the Mexican story by USDA and the Colombia, Brazilian, and El Salvador CCP's by the Bureau's Evaluation Officer and his consultant (this two-man team had worked together in Brazil).

The next series of reports were the Global Crop Papers, one each for wheat, rice and corn. Their role was to analyze the worldwide experiences -- the miracle and control cases -- and reach some conclusions about the significant factors which explain success in some countries and failure in others for that crop. They were also intended to discuss the global economy -- suggesting how far the high yield varieties might spread and what the impact would be on global trade patterns. The Rice Paper was written by an agricultural economist, and largely followed this pattern. The Wheat and Corn Papers, however, were written by plant breeders and were prepared more with a research than an economic flavor. This was unexpected and a welcome outcome, since it substantially strengthened the technical basis of the Review. All three drafters were contracted for this job, but each had had previous assignments in cereal work overseas with A.I.D. and the wheat and corn experts had only recently returned from Turkey and Kenya, respectively.

The third series of reports are referred to as the Functional Papers, for want of a better term. These are the principal analytic documents, and the ones presented at the Review for formal discussion. Their job is to draw from the diversity of experiences registered in the CCP's, and assimilated in the Global Crop Papers, insights on two main issues: first, why the high yield varieties have been adopted at unprecedented rates almost everywhere they were introduced; and second, what problems are emerging from these successes. There are eight functional papers (or pairs of papers). The first is an overview of the significance of the new cereal varieties in Asia; the next five are studies of particular factors of production (government fiscal and monetary policy, management, institutions, physical inputs (fertilizers and water)and research -- there is some overlap); the seventh deals with emerging problems (there are two papers on this subject, one concentrating on economic issues, the other on non-economic issues); the eighth synthesizes the preceding discussions and offers some alternatives for a global agricultural strategy. The titles of these papers conform to the titles of the individual Review Sessions. The authorship is a mixed group of consultants, USDA experts and A.I.D. staff personnel. The latter predominate, with eight of the total of twelve final papers (double-counting pairs).

The fourth and final series of documents are the Issues Papers, short statements two or three pages in length. These were prepared in AID/W just prior to the Review. Their purpose is to highlight the principal issues raised in each functional paper and provide a mechanism for guiding and focusing the discussions in each session.

The plan was to have each series of documents largely completed before the next were begun. Not unexpectedly, deadlines were overrun in almost all cases, so that in the final three weeks of the study a few of the CCP's and all of the Global Crop Papers and Functional Papers were being prepared simultaneously. This telescoping of the writing schedule turned out to be less harmful than anticipated, since first drafts of all papers were widely distributed and each drafter could learn from all the others. The one undesirable effect was that there was little time for the global and functional paper drafters to solicit additional information from the Missions to cover gaps which only became obvious as the analysis progressed. For future Reviews, sufficient time will have to be built into the study schedule to allow for this secondary dialogue.

A list of all final documents prepared for this Review is attached (Attachment 2).

Review Attendance: Since the purpose of the Spring Review is to improve A.I.D.'s agricultural programs, the people who belong at the review are the principal Agency decision makers, the authors of the analytical papers (Global Crop Papers and Functional Papers), A.I.D. and A.I.D.-related experts who had specialized knowledge of the subject matter, and outside experts who could lend their expertise to discussions where the Agency's own contribution might be relatively thin. These last mentioned experts are assigned the jobs of panelists (along with a few Agency personnel), and are expected to lead the discussion in each Session, following introductory remarks by the Paper drafter. A schedule for the entire Review which identifies the drafters and panelists by name and institution is attached (Attachment 3).

Administration: Titular responsibility for the Spring Evaluation Review was divided between the Director of Program Evaluation in the Administrator's Office and the Assistant Administrator for Program and Policy Coordination. Operational responsibility has been delegated to the Chief of the Evaluation Staff in the Office of Program and Policy Coordination, but in the case of the New Cereal Varieties Review the principal administrative responsibilities were further delegated to a special advisor in the Office of the War on Hunger. The Evaluation Staff worked under the direction of this advisor in helping to design and manage the Review. The principal liaison officers in the Regional Bureaus were the Regional Evaluation Officers, though in every case except Latin America the job of coordinating the Regional contribution with the rest of the Agency's task force was redelegated to the Regional Technical Office and/or the Desks. The heaviest load fell on the Office of South Asian Affairs, which had to deliver to the operation five CCP's and a share of a functional paper.

COUNTRY CROP PAPERS

TABLE 1

	REGION				TYPE		
	NESA	E. ASIA	AFRICA	L.A.	MIRACLE	CONTROL SUCCESS	CONTROL FAILURE AND OTHER
Wheat							
	India				X		
	Pakistan				X		
	Turkey				X		
			Morocco		?		
				Mexico	X		
				Colombia			X
				Paraguay		X	
				(Brazil)			X
Rice							
	India				X		
	Pakistan (2)				X		X
		Thailand					X
		Philippines			X		
		S. Vietnam			X		
			(W.Africa)				X
				(Guyana)		X	
				(Guatemala)		?	
				(Brazil)		X	
Corn							
		Thailand				X	
			Kenya		X		
				Brazil			?
				Mexico			X
				El Salvador			?

FOOTNOTE: Abbreviated or draft CCP's prepared for countries in parenthesis.

The Guyana and Guatemala experiences are somewhat anomalous and have not been incorporated in the Review design.

TABLE 2 | WORLD CEREAL ACREAGE | PPC/POL/E8

million hectares sown 1965/1966

(Crop Papers were prepared for countries underlined)	WHEAT	RICE (paddy)	CORN
WORLD	217	126	101
N. AMERICA	32	1	23
EUROPE	29	-	11
USSR	70	-	3
CHINA+	26	30	10
OCEANIA	8	-	-
LATIN AMERICA	8	6	25
AFRICA	7	3	15
ASIA	37	85	14

India	13.06	India	35.44	Brazil	8.74
Turkey	8.05	Pakistan	10.63	Mexico	7.59
Pakistan	5.32	Indonesia	7.51	India	4.92
Argentina	4.72	Thailand	6.40	Argentina	3.17
Iran	4.10	Burma	4.68	Indonesia	2.86
Afghanistan	2.35	Brazil	4.31	Philippines	2.13
Algeria	1.84	Japan	3.25	Nigeria	1.20
Iraq	1.72	Philippines	3.10	Kenya	1.10
Morocco	1.64	S.Vietnam	2.37	Colombia	1.04
Syria	1.03	Cambodia	2.26	Malawi	.81
Tunisia	.98	S. Korea	1.23	Ethiopia	.78
Chile	.82	Nepal	1.10	Peru	.77
Brazil	.74	Laos	.92	Guatemala	.74
Mexico	.67	Taiwan	.78	Thailand	.58
Egypt	.59	Madagascar	.77	Pakistan	.55
Japan	.45	Ceylon	.47	Afghanistan	.50
Ethiopia	.42	Egypt	.47	Angola	.50
Uruguay	.39	Malaysia	.45	Venezuela	.46
Jordan	.24	Iran	.37	Morocco	.43
Libya	.18	Colombia	.33		
Peru	.15	Sierra Leone	.26	El Salvador	.20*
S. Korea	.15	Ivory Coast	.26		
Colombia	.12	Guinea	.25		
Nepal	.12	Nigeria	.23		
Kenya	.11	Afghanistan	.22		
Bolivia	.09				
		Guyana	.13*		
Paraguay	.01*	Guatemala	.01*		

	WORLD	LDC's
BARLEY	70	16
OATS	31	2
RYE	26	1
SORGHUM	37	30
MILLET	35	31

+ 1952-1956 average
* Out of sequence

ATTACHMENT 1

OUTLINE FOR COUNTRY - CROP PAPERS

COUNTRY_____

CROP_____

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   - C. Program Budget Costs
   - D. Urban Income Effects
8. Taste Factors

V. PROJECTIONS

Attachment 2

SPRING REVIEW: New Cereal Varieties

Documentation*

STUDY DESIGN

COUNTRY CROP PAPERS

Wheat:
- India
- Pakistan
- Turkey
- Morocco
- Mexico**
- Colombia
- Paraguay***
- Brazil***

Rice:
- India
- Pakistan(West)
- Pakistan(East)
- Thailand
- Philippines
- S. Vietnam
- Brazil***

Corn:
- Thailand
- Kenya
- Brazil
- Mexico**
- El Salvador

GLOBAL CROP PAPERS

- Wheat
- Rice
- Corn

FUNCTIONAL (Topical) PAPERS

Events to date: New Varieties in Asia
The Role of Government and the New Agricultural Technologies
Management Systems (2)
The Role of Institutions
Major Physical Inputs
The Role of Research
Emerging Problems
Emerging Problems: Some Economic Considerations
Priorities and Programming (2)

ISSUE PAPERS

The Role of Governments and Government Policy
Management Systems
The Role of Institutions
Major Physical Inputs
The Role of Research
Emerging Problems

ASSOCIATED PAPERS

Rice in West Africa	(USDA/AID)
The Green Revolution: Cornucopia or Pandora's Box	(Clifton R. Wharton, Jr.)
Technological Change in Agriculture	(USDA)
The World Situation and Outlook for Grains, Cotton and Oilseeds	(USDA)

*Documents distributed at Review Sessions are underlined.

**Comparative study of wheat and corn.

***Abbreviated CCP's

May 13 - 15, 1969

Attachment 3

SPRING REVIEW COLLABORATORS

TITLE	DRAFTERS	UNIVERSITY, AGENCY, ETC.	PANELISTS	UNIVERSITY AGENCY, ETC.
GLOBAL CROP PAPERS WHEAT -	W. E. Kronstad	Oregon State University		
CORN -	S. A. Eberhart	Iowa State University/USDA		
RICE -	Floyd L. Corty	Louisiana State University		
I. SUMMARY -- NEW VARIETIES IN ASIA - 2:00 - 2:30 p.m. Tuesday, May 13, 1969	Joseph Willett	USDA	E. N. Efferson	LSU
II. THE ROLE OF GOVERNMENT 2:30 - 4:00 p.m. Tuesday, May 13, 1969	John Mellor	Cornell U.	Rueben Buse Lester Brown Gustav Ranis	U. of Wisconsin ODC Yale U.
III. MANAGEMENT SYSTEMS 4:15 - 5:30 p.m. Tuesday, May 13, 1969	E. Rizzo K. Smith	PPC/A.I.D. VH/A.I.D.	A. Coutu J. Grant	N.C. State ODC
IV. THE ROLE OF INSTITUTIONS 9:00 - 11:00 a.m. Wednesday, May 14, 1969	Frank Parker E. B. Rice	WOH/A.I.D. PPC/A.I.D.	Mervin Smith Woods Thomas Erven Long	Ohio State U. Purdue U. WOH/A.I.D.
V. MAJOR PHYSICAL INPUTS 11:15 - 12:15 p.m. Wednesday, May 14, 1969	D. McCune O. Kelley	TVA WOH/A.I.D.	John Murdock	U. Wisconsin
VI. THE ROLE OF RESEARCH 2:00 - 3:30 p.m. Wednesday, May 14, 1969	Alex B. Daspit	WOH/A.I.D.	T. Schultz G. Wortman A. Moseman	U. Chicago Rockefeller Foundation ADC
VII. EMERGING PROBLEMS 3:45 - 5:15 p.m. Wednesday, May 14, 1969	P. Lyman J. French R. Newberg	PPC/A.I.D. PPC/A.I.D. ARA-LA	Glenn L. Johnson Lowell Hardin V. Ruttan	Michigan State University Ford Foundation Univ. of Minnesota
VIII. PRIORITIES AND PROGRAMMING 9:00 - 12:00 p.m. Thursday, May 15, 1969	E. Hendrix Dale Adams	USDA/INDIA PPC/A.I.D.	W. Falcon W. D. Hopper A. Mosher J. Mellor Irwin Hedges	Harvard University Rockefeller Foundation ADC Cornell U. WOH/A.I.D.

AA/WOH