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#1 I/I/963 #34 P 7/12

PROJECT EVALUATION SUMMARY

(Submit to MO/PAV after each project evaluation)

1. Mission or AID/W Office Name	2. Project Number
DS/AGR/FCP	931-0621

3. Project Title

Spring x Winter Wheat Project, Oregon State University SPECIAL EVALUATION

4. Key project dates (fiscal years) a. Project Agreement Signed	b. Final Obligation	c. Final input delivered	5. Total U.S. funding life of project
September 28, 1976	September 30, 1979	September 30, 1979	$ 943,000

6. Evaluation number as listed in Eval. Schedule	7. Period covered by this evaluation FROM:	TO:	8. Date of this Evaluation Review
	Sept. 1976 Month/year	July 1978 Month/year	June 20-23, 1978 month/day/year

9. Action Decisions Reached at Evaluation Review, including items needing further study (Note--This list does not constitute an action request to AID/W. Use telegrams, airgram, SPARS, etc., for action)	10. Officer or Unit responsible for follow-up	11. Date action to be completed
1. Extend the contract for a three-year period after the present contract is completed.	DS/AGR/FCP	9/14/79
2. Keep USAIDs informed of nursery sites and cooperators.	OSU	Continuing
3. More in-country (LDCs) training and seminar programs should be held. Previous LDC staff graduates, trained technicians and USAID staff should be used as resource people for training programs	DS/AGR/FCP-OSU	"
4. Make provision for additional graduate assistantships to help alleviate the reduction of scholarship funds provided by Rockefeller Foundation	OSU / DS/AGR/FCP	FY 1979

12. Signatures:

	Project Officer	Mission or AID/W Office Director
Signature	Keith Byergo	Tony Babb DS/DAA/FN
Typed name	Keith M. Byergo	John R. Wilson
Date	April 5, 1979	April 5, 1979

13. SUMMARY - Summarize in about 200 words the current project situation, mentioning progress in relation to design, prospects of achieving purpose, major problems encountered, etc. The improvement of wheat through hybridization of spring and winter types constitutes the principal objective of this program. The principal cooperators are CIMMYT which is taking the lead in producing spring wheats and Oregon State University, with funds provided in part by AID, emphasizing the development of winter types.
OSU is presently providing seed for international screening nurseries to 90 cooperating institutions located in 45 countries. Each planting consists of 250 entries. There is a 70 percent response with respect to the recipients of the seed submitting the data from their test planting. The data is summarized at OSU and published in an annual report. The reports of results for the 1976-1977 year consists of 264 pages. This information is of great benefit to wheat breeders the world over.
Although the chief use which will be made of the segregating populations in the International Winter X Spring Wheat Screening Nursery (IWSWSN) is incorporating lines with superior characteristics into the local breeding programs, some use is being made of the advanced generations directly. For example, selections from the nurseries are being yield tested and seed is being increased for distribution in Afghanistan, Iran, Jordan, Korea and Turkey.
The program involves linkages with CIMMYT, ICARDA, IRRI, FAO and the Rockefeller Foundation. There is cooperation with the AID-supported wheat program at the University of Nebraska to take advantage of the high protein, high lysine lines and varieties identified in the Nebraska program. In addition to providing seed for the nursery plantings and summarizing and publishing the data secured therefrom, OSU has (cont'd)

14. EVALUATION METHODOLOGY - Describe the methods used for this evaluation, i.e. was it a regular or special evaluation? was it in accordance with the Evaluation Plan in the PP with respect to timing, study design, scope, methodology and issues? What kinds of data were used and how were they collected and analyzed? Identify agencies and key individuals participating and contributing. The Project Statement (Ref 1, page 21) states: "A detailed review of the project should be conducted at the end of the second project year, to assess progress and to determine the need for possible extension."
The review was held as close to the above suggested time, i.e., from June 20 through June 23, 1978. The members of the review team are shown in Appendix A and the names of all of those participating (at least a part of the time) in Appendix B.
The team was accompanied in making the review by Mr. Keith Byergo, Chief, Food Crop Production Division, Office of Agriculture, Bureau for Development Support.
The documents made available to the review team are listed in Appendix C.
The itinerary of the review team was as follows (locations visited are given in Appendix D). See Continuation Sheet for itinerary.

15. Documents to be revised to reflect decisions noted page 1 (other side:)

☒ Project Paper (PP) ☒ Logical Framework ☐ CPI Network ☐ Financial Plan

☒ PIO/T ☐ PIO/C ☐ PIO/P ☐ Project Agreement ☐ Other

☐ This evaluation brought out ideas for a new project -- a Project Identification Document (PID) will follow.

☒ None until contract termination.

16. Evaluation findings about EXTERNAL FACTORS - Identify and discuss~~ion~~ major changes in project settings which have an impact on the project. Examine continuing validity of assumptions.
The effectiveness of the IWSWSN program is greatly enhanced through the cooperative efforts of OSU and CIMMYT, Mexico program. All of the crosses are made in Mexico. Selection for winter types is emphasized in the nurseries grown in Oregon and for spring types for those grown in Mexico. There is a strong interchange of materials, and scientists from both organizations make periodic inspection trips to the other's nurseries. Cooperation with the USDA is carried out through the utilization of the Western Wheat Quality Laboratory at Pullman, Washington and through the participation in the project by Dr. Robert Metzger, USDA, who is stationed at Corvallis. Dr. Darling, Director of ICARDA, has visited the project, and IRRI has a graduate student studying under the project at Corvallis.

The newly-completed Cereal Research Laboratory at the Hyslop Agronomy Farm will facilitate project work. It includes a quality laboratory.

The reduction in the extent of the protein quality program on wheat at the University of Nebraska, which has been supported by AID, will reduce high quality germplasm sources coming into the program at OSU. Getting the quality laboratory fully functional at OSU will help offset this loss.

The gradual reduction taking place in funds for graduate training by the Rockefeller Foundation should be taken account of. The IWSWSN provides an excellent vehicle for graduate training for students in the LDCs, and such students in turn add strength to the research efforts.

The validity of assumptions presented in the Logical Framework is as follows:

Assumption: LDCs will actively attempt to expand food crop production. Valid? Yes. There is no known exception to such efforts.

Assumption: Nutritional quality can be improved without major constraints on yield. Valid? Yes. Although there is generally an inverse relationship between yield and grain protein, and between protein and lysine content, it appears that with the materials being worked with and conditions under which grown (generally low rainfall), the protein and lysine content can be maintained, and in fact increased. The research program on protein content and quality underway at the University of Nebraska contributes substantially.

Assumption: Solutions can be found to major constraints. Valid? Yes, providing there is the necessary scientific personnel (critical disciplines adequately represented) and facilities available.

Assumption: Agriculture extension services are able and willing to promote proven practices. Valid? Yes, in part. The willingness appears to exist in all LDCs, but in some cases there is a lack of adequately trained personnel, organization and support such as funds for travel to adequately carry out the needed programs.

16. Evaluation....(Cont'd)

Assumption: LDC research institutions develop adequate capabilities. Valid? Yes, for the most part. There is some variation by countries. Bringing students to OSU to work on the project while taking course work for advanced degrees, who later return to do research work in their home countries, greatly strengthens the effectiveness of a program of this type. It is encouraging to note that presently about 70 percent of the cooperators conducting nurseries return data which are reliable.

Assumption: LDCs and USAIDs will request technical assistance; research findings will be available. Valid? The fact that 90 cooperating institutions in 48 countries are cooperating in conducting nursery plantings shows excellent and widespread interest in the program. The results of the experimental plantings, internationally, are effectively summarized and published in usable form (see reference 4). Other publications emanating from the project are listed on page 25 of the Project Review (reference 3).

Assumption: Cooperation of LDCs. Valid? Yes. In addition to conducting nursery plantings, there have been numerous usages made of the materials from the IWSWSN program, as shown in the list on pages 27 to 30 of the Project Review (reference 3). The program has also been an important factor in graduate training of students from the cooperating countries.

Assumption: Interest and resources exist in LDCs. Valid? In part. There is a manifest interest in the program, however, resources in some LDCs limit the extent of usage that can be made of the materials and findings produced.

Assumption: Collaboration of international institutions. Valid? Yes. CIMMYT is an integral part of the program, and there is cooperation with ICARDA, IRRI, FAO, and the Rockefeller Foundation.

Assumption: Sufficient interest among LDCs and qualified personnel. Valid? Yes, in part. There is a great deal of interest in the program in the LDCs. There are not enough adequately trained scientists in some of the LDCs to make full use of the program. However, the situation is improving, through graduate training being provided at OSU, in part made possible by the IWSWSN program and at other institutions.

Assumption: AID/W funding will be available on schedule and in quantity agreed upon. Valid? Yes, according to OSU administrators the funds have been provided as agreed upon, both with respect to amount and time of payments.

Assumption: Contractor will have necessary qualified personnel; university facilities will be available to project. Valid? For the most part, yes. Land has been made available for experimental plantings at a number of strategic locations and in adequate amounts. Although buildings and equipment have been reasonably satisfactory, the new Cereal Research Laboratory will add an important dimension to the project, especially with respect to the quality laboratory.

16. Evaluation....(Cont'd)

There has been and continues to be good cooperation with the Departments of Plant Pathology, Soils, the Statistical Department, and the Columbia Basin Agricultural Research Center at Pendleton. Similar cooperation does not exist with the Department of Entomology, which is discipline-oriented. There could be more graduate training related disciplines.

The project enjoys exceptionally good cooperation and support from the wheat growers in Oregon.

Assumption: International organizations, USAIDs and LDCs will have personnel and resources to support this activity. Valid? In part. The principal international organization cooperating in the IWSWSN project is CIMMYT, and their participation is far above that which would normally be expected. It is significant that Dr. Norman Borlaug, Nobel Award winner, spent most of the week at OSU when the review team was present. Interchange of personnel and materials is extensive. It appears that ICARDA will also cooperate in the program.

The USAIDs are short of agricultural staff, but should be kept informed of all IWSWSN activities in all countries where there are AID missions. To the extent possible, they should be actively involved. USAIDs should be encouraged to send students to OSU for graduate training.

As noted earlier in this report, the personnel situation varies by LDCs. There is some lack of qualified personnel, but often lack of adequate facilities and funds for operations are even more of a handicap.

17. Evaluation findings about GOAL/SUBGOAL - For the reader's convenience, quote the approved sector or other goal (and subgoal, where relevant) to which the project contributes. Then describe status by citing evidence available to date from specified indicators and by mentioning progress of other projects (whether or not U.S.) which contribute to same goal. Discuss causes--can progress toward goal be attributed to project, why shortfalls?

The Sector Goal as given in the Logical Framework is as follows:

To increase quantity and nutritional value of food crops in developing countries.

Although it would be expected that materials from the IWSWSN would be used in breeding programs in the participating countries, it is significant that in some countries selections have been placed into yield trials and seed is being increased for direct varietal release. This is true in Afghanistan, Iran, Jordan, Korea and Turkey. Such developments represent rapid progress, indeed.

The potential for the Sector Goal is very good. There has not yet been time for such an impact in the developing countries, but progress as noted above, is excellent for varietal (cultivar) development. Yields will be increased, and quality may be.

17. Evaluation findings....(Cont'd)

No serious shortfalls are evident, except that if the quality work at the University of Nebraska is reduced rate of progress on improving quality through IWSWSN will be also be lessened. Materials from the Nebraska program have been incorporated in the OSU program through topcrosses. It is imperative that the quality laboratory at OSU be made fully operative at the earliest possible date, and that greater use be made of the Western Wheat Quality Laboratory at Pullman, Washington.

18. Evaluation finds about PURPOSE - Quote the approved project purpose. Cite progress toward each End-of-Project Status (EOPS) conditions. When can achievement be expected? Discuss causes of progress or shortfalls.

The purpose given in the Logical Framework is as follows: To make available to LDCs high yield, nutritious varieties of wheat with multiple resistance to moisture and temperature stresses, diseases and insects, together with improved practices for their cultivation.

Excellent progress is being made in carrying out the purpose of the project. The wide variation in precipitation in Oregon and the heavy incidence of disease provide an excellent environment for selection of segregating materials. Simultaneously, there is the advantage of growing the materials by CIMMYT in Mexico and the nurseries in the cooperating countries. For example, it is possible to get much better readings on stem and leaf rust in Mexico than in Oregon. The extensive cooperation program will lead rapidly to the development of superior varieties. It is generally easier to get farmers to adopt improved cultural practives with the introduction of new and improved varieties. A "package deal" can be developed and recommended to farmers through the extension services.

The participation of the USAIDs will become especially important as new varieties become available.

19. Evaluation findings about OUTPUTS and INPUTS - Note any particular success or difficulties. Comment on significant management experiences of host contractor, and donor organizations. Describe any necessary changes in schedule or in type and quantity of resources or outputs needed to achieve purpose.

The outputs and inputs listed in the Logical Framework and progress made are as follows:

Output 1: Identification of superior germplasm. In addition to the 3500 cultivars collected at the time this program was initiated, approximately 200 new entires are added each year. These cultivars provide the parent material for the winter x spring crossing program. From the miscellaneous crossing block, the most promising genotypes are advanced to the hybridization program. The 6th IWSWSN was made up of 250 lines from F4, F5, and F6 populations. The program provides an excellent vehicle for developing and identifying lines with superior germplasm.

19. Evaluation findings about OUTPUTS....(Cont'd)

Output 2: Incorporation of desirable traits into broadly-adapted varieties suitable for LDC use.

Given adequate time, the indicator of "....2 superior varieties for each major agroclimatic region (where winter wheat is grown)" should be easily attainable. As noted under the section on "Goal", materials from the program are already being increased for possible release in Afghanistan, Iran, Jordan, Korea and Turkey.

Output 3: Evaluation of improved varieties and practices in LDCs.

In addition to the 90 cooperating institutions in 45 countries conducting the nursery plantings, the contractor lists 18 of these countries (pages 27 to 29 of Project Review, reference 3) which "....are making extensive use of the lines in the screening nurseries either through further hybridization or as direct varietal releases". The indicator of ".... 1 test location in each major winter wheat growing LDC" is being greatly exceeded.

The USAIDs should be kept better informed. The statement "country reports, including USAID reports" should be included in Column 3 of the Log Frame.

Output 4: Training of LDC personnel in wheat research.

The indicator calls for 10 LDC trainees completing training. Earning of an advanced degree is not specified. On the basis of obtaining some training in connection with the project, the above number has been greatly exceeded (see Appendix 3). The Project Review (reference 3) speaks of "many" thesis problems having been a spin-off from the program. The report lists the names and thesis titles for 40 "former and current graduate students in the cereal research project." There are also post doctoral positions.

Output 5: Establishment of effective linkages with LDC agencies.

Linkages have been established with CIMMYT, ICARDA, FAO and the Rockefeller Foundation (see indicator in the Log Frame).

With respect to LDCs (see indicator in Log Frame) linkages have been established with institutes in Tunisia, Turkey, Jordan, Pakistan, Afghanistan, and India.

Input 1: AID/W provides financial support and project guidance.

This has been fully carried out as outlined in the contract.

Input 2: Contractor provides qualified personnel and backstopping facilities.

The verifiable indicator in the Log Frame calls for "24 worker months/year technical personnel; adequate laboratory facilities; 10 or more acres field research area. Personnel provided for exceeds this indicator as shown on page 2 of the Project Review (reference 3). The area devoted to the experimental

19. Evaluation findings about OUTPUTS....(Cont'd)

plantings at the 3 principal field locations in Oregon also far exceeds the 10 acres indicated. Laboratory facilities have been greatly improved through the completion of the Cereal Research Laboratory. The Oregon Wheat Commission has contributed $27,000 for purchase of equipment for the quality laboratory in this new facility. OSU, in addition to the above, has provided office space, greenhouses, various laboratories and the computer center.

Input 3: Participating personnel and cooperation provided by: 1) LDCs, 2) USAIDs, and 3) international organizations.

In addition to the evidence presented above, Appendix F shows the list of cooperators and their respective countries to whom germplasm has been sent in 1977 or will be sent in 1978. The 90 cooperating institutions in the nursery plantings, the list of foreign visitors to OSU during the past year (see Appendix E), and the country review programs listed on pages 26 and 27 of the Program Review (see Reference 3) all attest to participation on the part of the LDCs. Among the international organizations, the participation by CIMMYT, under the leadership of Dr. Norman Borlaug, is most significant. Both CIMMYT and OSU devote extensive resources to this joint program. With respect to the USAIDs there is need for keeping them better informed, and hopefully there will be more participation on their part.

20. Evaluation findings about UNPLANNED EFFECTS - Has project had any unexpected results or impact, such as changes in social structure, environment, technical or economic situation? Are these effects advantageous or not? Do they require any change in plans?

    No unplanned effects were observed.

21. CHANGES IN DESIGN OR EXECUTION - Explain the rationale for any proposed modification in project design or execution which now appear advisable as a result of the preceding findings (items 16 to 20 above) and which were reflected in one or more of the action decisions listed on page 1 in Item 15 on page 2.

The review team recommends extension of the contract for a three-year period, at an annual funding of approximately $400,000. It is suggested that there should be more workshops, seminars and short courses conducted by the contractor in the LDCs. There should be more involvement of the USAIDs in countries where there are AID missions.

22. LESSONS LEARNED - What advice can you give a colleague about development strategy -- e.g., how to tackle a similar development problem or to manage a similar project in another country? What can be suggested for follow-on in this country? Similarly, do you have any suggestions about evaluation methodology?

The program in Oregon shows how such projects can be beneficial to all parties involved. CIMMYT benefits through the opportunity to see the spring x winter wheat crosses grown under several different environmental conditions in Oregon, and gets the benefit of the information compiled from the world-wide nurseries.

22. LESSONS LEARNED ....(Cont'd)

Oregon State obtains reciprocal benefits from the work conducted by CIMMYT. Oregon and other U.S. wheat growers benefit from the strengthened wheat breeding programs. Direct benefits plus their interest in foreign assistance has resulted in very strong support of the program by the Oregon Wheat Growers League and the Oregon Wheat Commission. But the greatest beneficiaries are the LDCs which receive the valuable germplasm and segregating materials from the contractor for further testing, breeding and in some cases direct increase for named cultivars in their respective countries.

The contractor also deserves special commendation for the method in which graduate students are handled. They are full participants in the research underway. They are learning how to do applied research, and become valuable scientists as they return to their home countries. They make excellent cooperators as they assume scientific careers in their home country research institutions.

With respect to evaluation methodology, it is recommended that ample time be allocated to making field trips and visiting laboratories. Also, informal conferences with farmer-producers of the commodity in question are mutually beneficial. These portions of the recommended program were well planned and carried out in the Oregon review.

23. SPECIAL COMMENTS or REMARKS (for AID/W projects, assess likelihood that results of project will be utilized in LDCs).

The review team wishes to reemphasize its strong recommendation that the project be extended for a three-year period. The participation of the LDCs is well documented in the preceding sections of this report. Direct use of the materials being distributed by the contractor as cultivars in various countries is in the yield testing and seed increase stages. Even much wider use is being made of the materials by incorporating various lines in the in-country breeding programs. But much more time is needed to realize full benefits of this excellent program.

The spin-off benefit of graduate programs, particularly for students from the LDCs has also been documented earlier in this report. This activity should be continued and strengthened.

There should be a tightening up of cooperation with the USAIDs. At least some of them could and should be involved in supporting graduate students from their respective countries studying at OSU.

13. SUMMARY (Cont'd)

issued 10 publications (1976-77), participated in 8 meetings relevant to the project, and conducted 8 incountry reviews.

An extremely valuable spin-off of the project has been graduate training. OSU lists 40 former and current graduate students in the cereal research project. Through the wheat project, the students gain valuable field experience. As they return to their respective countries, they become effective cooperators in this and other crop improvement projects.

In conclusion, the review team recommends a three year extension of the contract from the present termination date of September 14, 1979.

The very productive research is a cooperative effort involving principally AID, CIMMYT, Oregon State University and plant breeders in the cooperating countries. Any diminution or termination of support by any of these principal cooperators would seriously reduce the overall program.

Need for extension was recognized before the project was initiated by AID, shown as follows in the Project Statement (Ref 1, page 21): "The three-year framework proposed for the initial project is recognized as too brief to reach full results, and it should be anticipated that extension would be desirable if progress is made as expected."

14. EVALUATION METHODOLOGY (Cont'd)

Itinerary of Team:

1. June 20 a.m.: Met with OSU, College of Agriculture Administrative Staff; Presentation of program and accomplishments by Crop Science Dept. staff members.

2. June 20 p.m.: Tour of facilities and field experiments, Hyslop Agricultural Experiment Station.

3. June 21-22 : Field trip to Moro and Pendleton areas.

4. June 23 : 8 a.m. to 2 p.m. - Preparation of report by review team;
2 p.m. to 5 p.m. - Review of program with OSU staff, including administration.

15. DOCUMENTS TO BE REVISED (Cont'd)

The review team concurs in the Project Statement that three years is too brief a period to reach full results. An excellent program is underway. Accomplishments to date exceeded reasonable expectations. Considering inflationary costs and added work that needs to be done, the team strongly recommends extension of the project for a three-year period, at a funding level of $400,000 per year. It is noted that the Rockefeller Foundation is reducing its support for graduate training, a program which has helped the IWSWSN project; also OSU needs to expand its quality work. These latter expanded activities will, in addition to inflationary costs, require funding at a higher level.

APPENDIX A

Members of the Review Team

Dr. Elvin F. Frolik, Consultant, A.I.D., Chairman
Dr. Lee Briggle, SEA/NPS/USDA, Beltsville Agricultural Research Center
Dr. Robert Allen, SEA, FR/USDA, Pullman, Washington
Mr. Allen Hankins, Latin American Bureau, A.I.D.

(Accompanied By)

Mr. Keith M. Byergo, Chief, Food Crops Production Division
Office of Agriculture, Bureau for Development Support, A.I.D.

APPENDIX B

PARTICIPANTS IN THE OREGON STATE WHEAT PROJECT REVIEW

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Graduate Students and Research
Assistants

APPENDIX C

References

1. Project Statement

2. Memorandum of June 4, 1976 from Leon F. Hesser, TA/AGR to John Gunning, TA/PPU, with the following attachments:

a. Summary of RAC recommendations made at the May 24-25, 1976 meeting.

b. PID signed by Leon F. Hesser on 12/10/75

c. PIO/T signed by various parties in August and September, 1977

d. Memorandum of 8/31/77 from Robert O'Brien, CM/COD to Mary Mozynski, TA/PPU. Subject: "Advance procurement action."

e. PIO/T signed by various parties in May, June and July 1976. Included Attachment A, Oregon State University "Workplan for first two years."

f. Amendment of solicitation/modification of contract, dated 9/30/76.

g. Amendment of solicitation/modification of contract, dated 9/30/75, with attachments

3. Project review. Contract AID/ta-C-1352. June 20-23, 1978 (Prepared by contractor for the review.)

4. Results of the 4th International Winter X Spring Wheat Screening Nursery (1976-1977). OSU-CIMMYT. Oregon State University, Corvallis, Oregon.

5. Wheat cultivar abbreviations. May 10, 1978. AEG, Oregon State University Corvallis, Oregon.

6. Columbia Basin Agricultural Research. 1978 progress report. AES, Oregon State University in cooperation with SEA/USDA.