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DEPARTMENT OF STATE

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SUBJECT - Noncapital Project Paper (PROP) Revised -
Wheat Improvement in North Africa

REFERENCE -

Country: Regional (Morocco and Tunisia) Subject No.: 698-11-130-173

Submission Date: _____ Original 20 March 1968 not rec'd

Revision 17 December 1969

Project Title: Wheat Improvement in North Africa

U.S. Obligation Span: FY 1969 through FY 1973

Gross Life-of-Project Financial Requirements:

	<u>FY 1969</u>	<u>FY 1970</u>	<u>FY 1971</u>	<u>FY 1972</u>	<u>FY 1973</u>	<u>TOTAL</u>
U.S. Dollars	150,563	119,347	117,100	123,000	122,990	683,000

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DRAFTER BY Schlitzberger O'Ferguson (USAID/Morocco)	OFFICE AGR	PHONE NO. 286	DATE 12/18/69	APPROVED BY: DIR: STEWART
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AID AND OTHER CLEARANCES
PRM/Tunis: H. Sweet
AGR/Rabat: Walker (in substance)

UNCLASSIFIED
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A. SUMMARY DESCRIPTION

The goal of this regional cereals project is primarily to increase wheat production in Morocco, Tunisia, and other North African countries as appropriate by providing certain technical, material, and training assistance. Increases in production on the order of 25-50 percent are projected to be achieved within five years of the starting date of the project. The principle changes needed as a complete package to make these increases possible are (a) to develop or identify and introduce into production, wheat varieties of satisfactory grain quality which have significantly higher yield potential than varieties regularly grown, (b) to expand the rational use of fertilizers, and (c) to improve production management practices.

Specific activity targets are as follows:

1. Plan and conduct in each country a program of comparative trials of introduced and locally developed varieties of wheat.
2. Train production management and research agronomists and technical assistants on the job at the International Maize and Wheat Improvement Center (CIMMYT)^{1/} in Mexico and elsewhere as appropriate.
3. Develop a comprehensive network of on-the-farm applied research and production demonstrations utilizing the best wheat varieties available, and improved management practices including better land preparation, fertilization, weed control and irrigation.
4. Improve seed production programs to ensure that sufficient quantities of seed of superior varieties are available to farmers.

The activities in each of the project countries are carried out in cooperation with the responsible Divisions in the Ministry of Agriculture and other appropriate agencies, as part of ongoing U.S. supported wheat improvement programs.

AID through a contract with CIMMYT is financing services described below. These are provided in the cooperating countries and at CIMMYT Mexico.

CIMMYT will supply technical assistance, training services and commodities over a 5-year period. The following is a breakdown of funding during this period:

^{1/} Hereinafter referred to as CIMMYT.

<u>Category</u>	<u>FY 69</u>	<u>FY 70</u>	<u>FY 71</u>	<u>FY 72</u>	<u>FY 73</u>	<u>TOTAL</u>
	\$	\$	\$	\$	\$	\$
Technical Assistance:						
Salaries	12,688	51,000	56,000	60,000	60,000	239,688
Travel and Transportation	2,714	17,000	16,000	16,000	20,000	71,714
Other Direct Costs	5,470	7,000	7,000	7,000	7,990	34,460
Participant Training	14,951	9,049	18,000	24,000	18,000	84,000
Commodities	101,052	24,448	10,000	10,000	5,000	150,500
Overhead	13,688	10,850	10,100	11,000	12,000	57,638
TOTALS	150,563	110,347	117,100	128,000	122,990	638,000

B. PROJECT SETTING

Morocco, once an important exporter of wheat must now import wheat to feed its people. Depending on the weather during the growing season, the "wheat gap" fluctuates widely. During the period 1960-67, Morocco had an average annual net short-fall of about 270,000 tons. Moroccan officials estimate that the annual deficit could reach 800,000 as early as 1970. The urgency of the wheat deficit problem is evident.

The annual wheat shortage in Tunisia in recent years has been on the order of 200,000 tons or over 25 percent of consumption requirements. A static production trend, a high rate of population growth and an increase in per capita consumption of wheat, makes the "wheat gap" the most important agricultural production problem in Tunisia.

Although soil and climatic factors in Tunisia and Morocco vary from highly favorable to unfavorable, studies in Morocco and Tunisia by U.S. agronomists, wheat scientists and economists from the Tennessee Valley Authority, the Stanford Research Institute and the Rockefeller Foundation agree that wheat production can be increased substantially through use of higher-yielding varieties and the production of them using production technology developed for local conditions. These studies in Morocco and Tunisia identify the following conditions as responsible for the critically low wheat yields in those two countries.

1. The use of wheat varieties of low yield potential

In the past wheat varieties in Morocco and Tunisia were selected largely for qualities the export market demanded to complement wheats produced by France. Now because of immediate domestic needs, North African countries, as a first priority, are taking immediate action to develop and produce high-yielding varieties.

2. Extremely low level of fertilizer use

Tunisia is rapidly increasing its consumption of nitrogen fertilizer on wheat. Morocco uses more but the amount used is still far below that which could be economically used for maximum production.

3. A generally mediocre level of wheat production technology

Land preparation, time, rate and method of seeding, weed control, fertilization and quality of seed are generally unsatisfactory on a high percentage of the planted acreage and can be greatly improved.

4. Shortage of agronomists specialized in wheat improvement and production

Although wheat improvement activities had been conducted for many years in Tunisia and Morocco these programs did not focus on the problem of low yields. They were too slow and conservative to satisfy farmer needs. The genetic materials used did not include the best of the world's superior selections and varieties. Neither were the breeding programs integrated with high levels of soil fertility, weed control, and irrigation (where available) to develop varieties which would give the maximum response to fertilizers and supplemental irrigation. Effective agricultural extension programs have not been implemented to provide quick transfer of research results to farmers.

Until now wheat improvement programs were not geared to solve the problem of meeting production needs. They were largely in the hands of conservative foreign technicians. Dependence on foreign personnel to carry out applied research on a crop so vital to North Africa is regarded as a temporary expedient. Training of local wheat geneticists and production agronomists is given the highest priority under this project.

C. STRATEGY

1. Contractor

The urgency of the food problem (wheat) in North Africa requires continued support of a program which will result in near-term increases in wheat production. At the same time the program must provide for training the technical manpower required for a continuing long-term effort in wheat breeding and production technology.

CIMMYT has demonstrated the soundness of combining in a single project: (a) applied research to develop varieties and identify improved production technology, (b) comprehensive training of cereal agronomists, and (c) an extensive demonstration program to convey results to farmers.

A training program alone might eventually produce cereal scientists and production agronomists who could plan and carry out a creditable project of the kind described herein. But, one can be sure that the time required would be much longer and the results less certain. The need for a solution to the wheat problem is too urgent

to rely on a solution requiring many years for success. Since CIMMYT has demonstrated outstanding success in Mexico and more recently in Pakistan, India and Turkey in planning and carrying out wheat improvement programs, they have been contracted to assist in a similar undertaking in Tunisia and Morocco. CIMMYT is equipped to:

- a. Carry out a cereal breeding program to develop lines and varieties for testing in participating countries (Middle East and North Africa);
- b. Provide technical assistance in planning, conducting and evaluating cereal improvement programs in individual countries; and
- c. Give intensive field and laboratory training to research and extension agronomists since the competence of CIMMYT is widely recognized as a result of its accomplishments both in Mexico and in other countries.

2. Leadership

This regional project is designed to give essential and major applied research and training support to individual wheat improvement programs in Morocco and Tunisia. It is implemented through the Ministries of Agriculture in Tunisia and Morocco. Both countries have active U.S. supported wheat improvement projects underway, as briefly described in F below. Continuous planning is underway by the GOT and GOM to expand these individual country programs. In both instances the GOM and the GOT in their country programs are counting heavily on technical training and material assistance which would be provided by CIMMYT under this regional project. For details of annually updated project plans refer to the individual country documents which clearly describe objectives, inputs, progress to date, etc.

One of the potential weaknesses of an activity that receives inputs from and is conducted by several implementing agencies is the possibility of a breakdown in project implementation as a result of the uncooperative behavior of any one participating agent. The regional cereals project is such a multilateral undertaking (GOM, GOT, CIMMYT, Ford Foundation, USAID). To attain the project's ambitious objectives effectively and efficiently, all of the participating agencies have agreed upon a single chain of command and all parties have a clear understanding of their respective authorities and responsibilities.

To ensure project coordination, The Agency for International Development has assumed the primary role for coordinating all regional aspects of the regional cereals project, the coordinator designee being stationed at and working from Tunis, the post considered to be the North African Regional Center.

3. Institutional Aspects

The project is expected to strengthen the work of the Planning, Development and Research Services by demonstrating what can be accomplished in a planned program of applied research to develop superior varieties of wheat and establish the production technology required, coordinated with an agricultural extension program

to convey the results to farmers. In addition, a successful wheat improvement project will stimulate the production technology of other crops such as corn, barley, pulses, etc.

By training up to 16 agronomists from each country the project will make an important contribution toward solving the critical shortage of cereal agronomists in North Africa. It is foreseen that some of these will receive long term graduate training.

D. PLANNED TARGETS RESULTS AND OUTPUTS

The goal of this project is to increase wheat production in Tunisia and Morocco by 25-50 percent within five years from the starting date of the project. These increases would be achieved through changes brought about by technical and material assistance in varietal improvement, improved cultural practices, weed control, expansion of pure seed production and wider use of fertilizers.

Specific activity targets which can be identified are:

1. Through the respective Ministry of Agriculture in each country develop an accelerated program of wheat improvement and evaluation.
2. Train agronomists and technical assistants at CIMMYT in Mexico.
3. Develop a program of on-the-farm production demonstrations utilizing the best wheat varieties available, and the best management practices including fertilization, weed control, and modern cultural practices.
4. As superior varieties are identified, develop seed production programs to insure that sufficient seed is available to farmers.

An annual cooperative project review will be held with CIMMYT, the USAID, and the host countries participating. Project accomplishment and problems will be studied and work plans developed for the following year. Progress of the project will be measured in numbers of wheat varieties released for increases, or identified as meriting further testing, the number and results of on-the-farm demonstrations in each country, acreage planted of improved varieties, increased use of fertilizer and weed control measures, the number of agronomists trained or in training, and any perceptible trend in total wheat production in the countries.

E. COURSE OF ACTION

A contract (AID/afr-573) has been developed with CIMMYT to provide the following:

1. Technical Assistance - The services of four full-time wheat scientists as follows: Tunisia, one production agronomist (Extension) Morocco, one plant breeder, one production agronomist, and one fertilizer agronomist. They are assigned to work

with wheat improvement projects in Tunisia and Morocco respectively but will divide their time between those countries according to a mutually agreeable schedule. Additional technical personnel may be needed in future years, depending on specific needs.

The duties of the four wheat scientists, provided under the CIMMYT Contract, and of three additional wheat scientists, supported by the Ford Foundation, include but are not limited to the following:

a. In cooperation with local specialists, evaluate present wheat research programs and inventory the physical and human resources available for expanded comprehensive programs of wheat improvement in the cooperating countries.

b. The research and extension production management specialists are assisting in developing and conducting practical research and extension education programs in support of all aspects of improved production management.

c. The plant breeders assist in the selection of experimental sites, the preparation of plans, and participate in the supervision of tests of introduced and locally developed wheat varieties. They also work with pure seed producing agencies to make superior varieties available to farmers.

d. Assist in selecting local technicians and technical assistants for intensive training at CIMMYT and elsewhere.

2. Provision of Plant Materials - CIMMYT through its access to extensive collections provides selected plant materials for testing in North Africa. These materials come mainly through CIMMYT in Mexico but if a similar center is opened in the Mediterranean Basin the bulk of the introduced plant materials would be expected from that center. Other sources include the U.S. Department of Agriculture, State Experiment Stations and the FAO.

3. Training - Training of Moroccan and Tunisian wheat scientists is one of the most vital elements of the project. It includes short-term (less than one year) training at CIMMYT and degree training in Mexico and/or the United States.

Trainees receive intensive field and laboratory instruction and practice in modern techniques and methods of wheat improvement. Training covers a complete crop cycle, from initial planning and layout of plots to analysis and interpretation of results.

During the training period outstanding individuals capable of higher academic achievement will be identified, and sent for advanced degree training.

4. Country Self-Help Actions - The Ministries of Agriculture of the cooperating countries have designated team leaders and staff with whom CIMMYT specialists work. Tunisia and Morocco have wheat improvement programs underway and the individuals and facilities of these programs are the cooperating entities with whom the contractor works.

F. PROGRESS TOWARD ACHIEVEMENT OF ACTIVITY TARGETS

The Rockefeller Foundation made a preliminary reconnaissance study of wheat production problems in Morocco and Tunisia in 1966. The report from this study suggested that substantial improvements in wheat production could be obtained in both countries. At the request of AID and the governments of Morocco and Tunisia in 1966 - 1967 and 1967 - 1968, respectively, CIMMYT supplied for testing several hundred strains of potentially high-yielding, short-strawed bread wheats. In addition, because of the favorable results obtained with Mexican wheats in the uniform regional trials in both countries CIMMYT also assisted in the importation from Mexico of one ton of seed of two varieties for Morocco and 50 tons of nine varieties for Tunisia. In Tunisia these varieties were planted at 32 different locations, including both irrigated and dryland farms, under the close supervision of the USAID Agricultural Research Advisor. In Morocco that same year demonstration-increase plantings were effected at two locations, plus yield trials at 6 other locations under the supervision of the Agronomic Research Service and project personnel.

An extensive fertilization program on wheat in Morocco in 1966-67 covered 180,000 hectares and the following year 1967-68, 345,000 hectares. In 1968-69 because of relatively unfavorable weather the number of hectares fertilized dropped back to 330,000 hectares. General technical recommendations for the campaign were prepared by a TVA fertilizer team in late 1966. AID has provided \$17 million equivalent in dirhams to set up a revolving fund to finance local costs of this extensive wheat production effort.

During 1968-69 in Tunisia about 12,000 hectares were planted to the newly introduced short-strawed varieties with seed produced in Tunisia plus 500 tons imported from the U.S. and Mexico with plans for the following year for about 140,000 hectares. In Morocco the respective figures are about 5,000 and 20,000 hectares planned for 1969-70. In addition to the production demonstration-commercial plantings extensive applied research in plant breeding cultural practices, weed control and fertilization was carried out in both countries.

The USAID's are providing varied assistance in personnel, commodities, infrastructure, training, etc. to ensure attainment of project goals through balanced programs. (For specifics see individual country program documents.)

G. COORDINATION WITH OTHER AGENCIES AND PROJECTS

Activities under the project are coordinated with FAO activities in Tunisia and Morocco in order to avoid duplication of effort and to ensure adequate attention to important problem areas.

CIMMYT will utilize materials of high protein content in the world wheat collection maintained by the University of Nebraska and will coordinate their work with any activity Nebraska may undertake in North Africa to increase protein content of wheat (contract funded by WOH).

The Ford Foundation has provided a grant of \$231,000 to CIMMYT in support of:

1. Financing three wheat scientists assigned to Tunisia (plant breeder, fertilizer agronomist and production agronomist). These scientists from time to time also visit Morocco to advise in their respective fields.

2. Temporarily finance in Tunisia as per agreement between cooperating parties certain lesser employees, e.g., mechanic, chauffeur, translator-interpreter, administrative assistant, secretary, etc. who are essential to the project but not immediately supportable by the host country.

MULCAHY

A.I.D. Reference Center Room 1650 *RPC/RS/PS*

PROJECT AUTHORIZATION

1. PROJECT NUMBER 698-11-130-173	3. COUNTRY Regional (Tunisia & Morocco)	4. AUTHORIZATION NUMBER 0165
2. PROJECT TITLE Wheat Improvement Project in North Africa		5. AUTHORIZATION DATE February 12, 1971
		6. PROP DATED 12-22-69

7. LIFE OF PROJECT

a. Number of Years of Funding: 06
Starting FY 19 68; Terminal FY 19 73

b. Estimated Duration of Physical Work
After Last Year of Funding (in Months): 9

FUNDING BY FISCAL YEAR (in U.S. \$ or \$ equivalent)	DOLLARS a/		P.L. 480 CCC + FREIGHT	LOCAL CURRENCY Exchange Rate: \$1 = .525 TD			
	GRANT	LOAN		U.S. OWNED		HOST COUNTRY	
				GRANT	LOAN	JOINTLY PROGRAMMED	OTHER
Prior through Actual FY 1970	337			444			20
Operational FY 1971	165						15
Budget FY 1972	122						15
B + 1 FY 1973	107						15
B + 2 FY							
B + 3 FY							
All Subsequent FY's							
TOTAL	731			444			65

9. DESCRIBE SPECIAL FUNDING CONDITIONS OR RECOMMENDATIONS FOR IMPLEMENTATION, AND LIST KINDS AND QUANTITIES OF ANY P.L. 480 COMMODITIES

a/ In addition, the Ford Foundation provides funding in support of CIMMYT's activities in the project. Funding is estimated through FY 70 to be \$189,000 and \$110,000 each for FY 71, FY 72 and FY 73.

10. CONDITIONS OF APPROVAL OF PROJECT

(Use continuation sheet if necessary)

11. Approved in substance for the life of the project as described in the PROP, subject to the conditions cited in Block 10 above, and the availability of funds. Detailed planning with cooperating country and drafting of implementation documents is authorized.

This authorization is contingent upon timely completion of the self-help and other conditions listed in the PROP or attached thereto.

This authorization will be reviewed at such time as the objectives, scope and nature of the project and/or the magnitudes and scheduling of any inputs or outputs deviate so significantly from the project as originally authorized as to warrant submission of a new or revised PROP.

A.I.D. APPROVAL	CLEARANCES	DATE
 SIGNATURE AA/AFR, Dr. Samuel C. Adams, r. <u>4/12/1971</u> TITLE DATE	AFR/NA:E.J.Moore <i>[Signature]</i>	2-5-71
	AFR/DP:D.Shear <i>[Signature]</i>	2/10/71
	AA/AFR:P.Birnbaum <i>[Signature]</i>	2/10/71
	A/CONT	