

PROJECT APPRAISAL REPORT (PAR)

*Handwritten:* PD-ABB-552  
WB 67806  
REPORT U-446

PAGE 1

1. PROJECT NO. <b>511-11-190-364.5</b>	2. PAR FOR PERIOD: <b>3/25/71 TO 12/31/74</b>	3. COUNTRY <b>Bolivia</b>	4. PAR SERIAL NO. <b>FY 1974-4</b>
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5. PROJECT TITLE

**Cereals Development**

6. PROJECT DURATION: Began FY <b>1969</b> Ends FY <b>1974</b>	7. DATE LATEST PROP <b>Sept. 3, 1969</b>	8. DATE LATEST PIP <b>May 30, 1970</b>	9. DATE PROJECT END <b>3/25/71</b>
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10. U.S. FUNDING	a. Cumulative Obligation Thru Prior FY: \$ <b>1,713,000</b>	b. Current FY Estimated Budget: \$ <b>392,000</b>	c. Estimated Budget to completion After Current FY: \$ <b>2,105,000</b>
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11. KEY ACTION AGENTS (Contractor, Participating Agency or Voluntary Agency)

a. NAME <b>Utah State University</b>	b. CONTRACT, PASA OR VOL. AG. NO. <b>Contract AID/511-64T</b>
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I. NEW ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION

A. ACTION (X)			B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
USAID	AID/W	HOST		
			<p><b>I. Summary Statement on Accomplishments</b>                      Significant progress was accomplished in raising wheat yields (up 30%) in the traditional production area where small farm units predominate and production is almost entirely for on-farm consumption. Higher net returns to competing crops of potatoes and corn, however, precluded a more satisfactory supply response leading to increased off-farm sales. On the positive side, progress is noticeable in:</p> <p>1. Upgrading the existing Bolivian wheat research capability in San Benito (Cochabamba) and Chinoli (Potosi) experiment stations and establishing, in April, 1972, a wheat experimental station as part of the National Wheat Institute near Portachuelo, Department of Santa Cruz. (This lowlands area appears to offer Bolivia's greatest potential for a significant expansion in wheat production.)</p> <p>2. Improving the technical capability of the present staff of the Ministry of Agriculture's Commercialization and Statistical Departments which, assisted by the USU advisors, have been analyzing the production and marketing aspects of selected agricultural commodities and preparing reports which can be used for planning purposes.</p> <p>3. Establishing a soils sampling and testing process within the MinAg soils testing laboratory located in Santa Cruz (not limited to wheat) which was established by the British Mission and is functioning well. The process of passing the results to the farmer together with recommendations on fertilizers, is also established; however, there are (Cont. on page 1a.)</p>	<p><i>Handwritten signatures and initials:</i>  <del>Earl E. Smith</del>  <del>John R. Olson</del>                      Kent                      LRP                      3947</p>

D. REPLANNING REQUIRES

REVISED OR NEW:  PROP  PIP  PRO AG  PIO/T  PIO/C  PIO/P

E. DATE OF MISSION REVIEW  
**January 31, 1974**

PROJECT MANAGER: TYPED NAME, SIGNED INITIALS AND DATE  
**RDD: Earl E. Smith** *ES* **March 18, 1974**

MISSION DIRECTOR: TYPED NAME, SIGNED INITIALS AND DATE  
**D: John R. Olson** *JRO*

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B. List of Actions

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some limitations at the Extension Service level as the extensionists lack the resources (transportation and per diem) to reach the farmer effectively.

4. Expanding the country's milling capacity to 135,000 M.T. which presently is adequate to meet both locally produced and imported wheat grains. (Two new wheat-flour mills have been completed and made operational in the last two years.) The USU advisors developed uses and marketing channels for the milling by-products (bran). The bran is used as a source of livestock feeding.

5. Improving the technical capability of Ministry of Agriculture and Wheat Institute staff through in-country seminars and training in the United States.

6. Establishing, within the MinAg, an Information Center which is adequately printing and disseminating information on agricultural development.

7. Assisting in testing over 1000 wheat varieties, through the Research facilities mentioned under 1. above. Presently, there is no shortage of seeds to meet the regional requirements for effective production.

8. Introducing winter season wheat production into the lowlands area of Santa Cruz Department. Plantings have increased from zero hectares in 1969 to approximately 4000 in 1973.

On the other hand, progress in other key aspects of the project has been marginal or non-existent. For example:

1. The proposed national organization of quality seed production within the Ministry of Agriculture has been established but it is not performing seed certification functions yet. However, the Ministry is adequately meeting the demands for wheat seeds and it is in the process of establishing an operational seed quality control laboratory and processing plant in Quillacollo, Cochabamba. (There is one qualified technician in charge of the laboratory who recently completed training in Argentina on the operation of the Laboratory).

2. The National Wheat Committee, which was formed on March 6, 1969 through a Supreme Decree did not until recently perform its assigned functions as envisioned, i.e. to advise the Ministry of Agriculture and the National Wheat Institute on research, production, and marketing of wheat. However, a new Committee was formed in 1973; it has met 3 times since January, 1973 and is beginning to function as intended.

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3. The National Extension Service, although numerically is properly staffed (there are 75 agents to cover the whole country and all crops of which 32 are trained and working in wheat production areas) and to a great extent technically qualified to provide assistance in wheat production, lacks adequate GOB support (transportation, per diem, low salaries) for effective field work.

4. The organization and operation of cooperatives (50) have lagged behind the stated target with only two registered cooperatives in Potosí reported as serving wheat growers. In this respect, the June 22, 1972, AID/Utah contract includes as a duty of the Extension Advisor, the development and promotion of cooperatives. The extension Advisor has conducted several training programs aimed at preparing extension agents to work more effectively with groups of farmers. As a result, 40 pre-coops have been formed by the Extensionists to work as cooperatives to service the wheat growers. These pre-coops do not meet GOB requirements for formal incorporation as coops. (See recommendation No. 3).

5. Adequate credit is still beyond the reach of many small farmers. However, credit funds are available (e.g., Loan 042) and it appears that credit is beginning to flow to some small farmers and wheat growers associations. Some of the main problems connected with credit to small farmers are:

(a) Many individual farmers are reluctant to seek and/or accept credit as they do not want to accept the repayment risk in view of possibilities of crop failure due to hail, frost, and drought;

(b) Traditionally, farmers are not used to credit and they do not seek it; and

(c) The channels to make credit available to individual farmers are limited, ineffective, or do not exist.

6. In terms of increased wheat production, the aim of achieving 50 percent self-sufficiency in wheat production by 1975 is lagging far behind project expectations. Presently, the country's wheat production (about 57,000 metric tons) is only about 16 percent of local consumption (as compared to 20 percent in 1968) which represents a retrogression in increasing the level of self-sufficiency. Wheat production levels in Bolivia for the years 1968-1973, as estimated by the National Wheat Institute, in thousands of metric tons, are as follows:

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Metric tons	1968	1969	1970	1971	1972	1973
	45.0	53.0	43.6	41.0	53.6	57.0

A January 1974 USU study of the net income comparative advantage of wheat versus corn and potatoes in the traditional wheat areas of Bolivia shows that it was more advantageous to these farmers to produce marketable surpluses of potatoes and corn than wheat. This condition prevails despite a more than three-fold increase in wheat prices during the past twelve months. The outlook for increasing wheat prices and improved marketing channels suggests, however, a slow but still increasing production of wheat in these traditional areas. In the newly developing winter wheat areas of the lowlands, the strong price outlook also suggests a steadily increasing output.

**II. Specific Recommendations**

1. The contractor (USU) should submit to the USAID a report on the comparative advantage of wheat production in Bolivia to assist the USAID in reaching a decision on future U.S. assistance to the GOB in the wheat area.

January 1974

2. The USU Team should develop objective standards leading to rational and adequate pricing policies which are consistent and responsive to the purpose of obtaining increased wheat production. These standards on pricing policies should serve as the basis for a USAID recommendation to the GOB.

March 1974

3. The USU Team should develop a plan of action outlining the specific steps which the GOB should undertake to promote and facilitate the creation of more coops.

March 1974

4. The USU Team should review and up-date the chart on the organizational roles of appropriate agencies involved or concerned with wheat production.

March 1974

5. Although project financing terminates in FY 1974, implementation has been tentatively approved to continue through December 31, 1974. In order to achieve maximum benefits from USU technical assistance the GOB should undertake the following steps during the period April 1, through December 31:

April through December 1974

(Cont. on page 1 d.)

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**A. Action (X)**  
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**B. List of Actions**

**C. Proposed Action Completion Date**

X	(a) Keep wheat pricing policy under continuous review, maximizing its flexibility to reflect world market prices and conditions as closely as possible, and to avoid subsidization.	April-December 1974
X	(b) Provide the related operational funds and intensify the wheat promotion and technical assistance activities of the MinAg extension service and research division.	April-December 1974
X	(c) Initiate a pilot project, for the 1974 traditional area harvest, of strategically located rural buying stations to test local marketing conditions and small farmer response to higher price levels.	May 1974
X	(d) Make maximum use of FRA credit funds to facilitate expanded production in both the traditional and winter wheat areas.	April-December 1974
X	(e) Maximize the availability of improved seed varieties through the MinAg seed production-distribution program. This includes completion and staffing of the processing center in Cochabamba.	April-December 1974
X	(f) Initiate a pilot project of small threshing machine pools for the coming harvest in the traditional areas (with available MOA machines.)	April through July 1974
X	(g) Expand experimental work in the oriente to broaden the base of knowledge of geographical areas, adaptable varieties and cultural practices for successful wheat production.	May through December 1974
	(h) Review the current role of the Instituto Nacional del Trigo and re-define it as appropriate.	March 1974
	(i) Continue investigation and promotion of wheat flour substitutes.	
	6. The USAID Project Manager, in concert with the USU Team, should prepare a work plan specifying the revised targets and actions to be carried out by the USU Team and the USAID (complementary to the GOB actions mentioned above) to achieve those targets during the period April 1 through December 31, 1974.	March 1974

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**II. PERFORMANCE OF KEY INPUTS AND ACTION AGENTS**

A. INPUT OR ACTION AGENT CONTRACTOR, PARTICIPATING AGENCY OR VOLUNTARY AGENCY	B. PERFORMANCE AGAINST PLAN							C. IMPORTANCE FOR ACHIEVING PROJECT PURPOSE (X)				
	UNSATISFACTORY		SATISFACTORY			OUT-STANDING		LOW		MEDIUM		HIGH
	1	2	3	4	5	6	7	1	2	3	4	5
1. Utah State University					X							X
2.												
3.												

Comment on key factors determining rating

Most performance factors during this evaluation period were rated satisfactory. Contractor personnel are technically well qualified; they have arrived in timely fashion; they have done a satisfactory job in helping to train local staff and in developing relevant participant training programs to meet the needs of the project; their reports are timely submitted and contain a considerable number of recommendations (most of them not implemented or accepted due to GOB inability, such as inadequate budgetary support); contractor's personnel maintain good relations with local counterparts and contractor's home office support is superior.

**4. PARTICIPANT TRAINING**

	1	2	3	4	5	6	7	1	2	3	4	5
					X							X

Comment on key factors determining rating

(a) Nine out of ten performance factors were rated satisfactory. One factor, English language ability for training programs in the U.S. was rated negative in view of past difficulties in finding an adequate number of prospective trainees with proficiency in English and language difficulties experienced by some participants while in training status in the U.S.

(Cont. on page 2 a.)

**5. COMMODITIES**

	1	2	3	4	5	6	7	1	2	3	4	5

Comment on key factors determining rating

Commodities for the project have been contract funded. Commodity expenditures (seeds, threshers, etc.) amount to about \$79,168 since March 1971. These commodities have been used as intended and are properly maintained. All performance factors were rated satisfactory.

**6. COOPERATING COUNTRY**

a. PERSONNEL			X									X
b. OTHER		X										Y

Comment on key factors determining rating

**(a) Personnel Factors**

Continuity of project leadership, use of project trained manpower, technical skills of project personnel, planning and management skills of project personnel, continuity of staff, willingness to work in rural areas, counterpart acceptance of and association with project purpose and management of commodities were considered satisfactory. However, three key personnel performance rating factors, i.e. technical skills of GOB project personnel, technical man years available, and adequacy of pay and allowances were rated negative in view of: (1) the lack of enough numbers of technically qualified project personnel (such as soils testing and research); and (2) low salary scales for technical personnel which fail to attract and retain better qualified personnel. (The starting salary of a Bolivian technician with a master degree is about \$150/month and opportunities for promotion are very limited). All performance factors were considered important for achieving the project purpose. (Cont. on p. 2.)

**7. OTHER DONORS**

UNDP

	1	2	3	4	5	6	7	1	2	3	4	5
					X					X		

(See Next Page for Comments on Other Donors)

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**(Block 4 - Participant Training)**

(b) Nine participants have been trained in the United States since 1970 in areas directly related to the project. Of these, 5 participants have undertaken short-term training programs of 10 weeks or less and 4 have undertaken long-term training programs (all in the United States) of one year or more. The 9 participants completed their U.S. training programs successfully and are working in areas directly related to their training, i.e. two are working with the National Wheat Institute, four are working with the Bolivian Agricultural Bank, one is currently director of the Chinoli Experimental Station (Potosí), one is chief of the MinAg Forestry Division (Santa Cruz) and one is chief of the MinAg Soils and Irrigation Division in Cochabamba. In addition, there are 8 participants presently in training status in the United States.

A vigorous in-country training program for MinAg personnel, selected University staff members and some representatives of the private sector was initiated in 1971.

A total of 23 courses has been presented with a total of 961 participants including extensionists and other MinAg personnel. Subjects covered in these courses include Agricultural Planning and Evaluation, Public Administration, Farm Management, Price Theory, Agricultural Development, Soils, Soil-Plant Relations, Credit, Economics, Wheat Production, Extension Methods, Pedagogy, Marketing, Meteorology, Research Methodology, Irrigation and Drainage, and Human Problems in Agricultural Technological Change. The USU Team has developed a systematic follow-up procedure to evaluate relevance of these training programs to the needs of the project and the participants' tasks. This procedure includes completion of questionnaires by participants (upon completion of course and 6 months after) and personal interviews.

**(Block 6 - Cooperating Country)****(b) Other Factors**

Nine out of 12 other performance factors relevant to the project were rated satisfactorily. Yet three critical factors affecting the success of the project were rated negative. These are:

- (1) Cooperation within Host Government. There is not good coordination at the national level between the National Wheat Institute and the MinAg's Seed and Extension Service Divisions. Neither the Seed Division nor the Extension Division cooperates adequately with the Wheat Institute at the national level. At the state, provincial and local levels, communication among field agents is good. There is also effective cooperation between the Wheat Institute and the FRA as exemplified in the areas of Potosí, Santa Cruz and Cochabamba where they have joined efforts (publicity, technical assistance, credit) to promote wheat production.
- (2) Adequacy of project funding. Salaries of MinAg technicians are low, and the lack of adequate budgetary support frequently limits the field work. In recent months, however, this support appears to be increasing.
- (3) Political conditions specific to project. Political considerations have influenced pricing policies and removed some of the incentives conducive to greater wheat production. Since mid-1973, however, the GOB appears to be rapidly altering its agricultural pricing policies from an orientation toward low consumer prices to that of increased price incentives to the farm sector. Official wheat prices since January, 1973 have increased over three-fold.

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II. 7. Continued: Comment on key factors determining rating of Other Donors

All performance factors were rated satisfactory. Through the UNDP Abapó-Dzozog Project, a wheat variety testing program has been in progress for the past three years at about 100 kms south of Santa Cruz where wheat varieties are grown under irrigation during the winter season. A cooperative program with the National Wheat Institute has been in progress for the past 2 years in which wheat introductions and experimental data are exchanged. An economic evaluation of wheat production possibilities on this area is now in progress. The CBF irrigation project at Villamontes is also geared to determine the feasibility of wheat production in the Villamontes area (northeast of Tarija).

### III. KEY OUTPUT INDICATORS AND TARGETS

A. QUANTITATIVE INDICATORS FOR MAJOR OUTPUTS		TARGETS (Percentage/Rate/Amount)					END OF PROJECT
		CUMULATIVE PRIOR FY	CURRENT FY 74		FY 75	FY ____	
			TO DATE	TO END			
<b>MAGNITUDE OF OUTPUTS</b> 3 trained planners available by 1975 to staff the MinAg Planning Unit.	PLANNED	3					3
	ACTUAL PERFORMANCE	9					
	REPLANNED						9
2 trained co-op specialists in Banco Agrícola Boliviano training others in organization and operation of co-ops.	PLANNED	2					2*
	ACTUAL PERFORMANCE	12*					
	REPLANNED						12*
National director of MinAg seed program. 1 lab director, 1 lab supervisor, 5 area supervisors.	PLANNED	6		2			8
	ACTUAL PERFORMANCE	6					
	REPLANNED						6
2 MinAg seed processing plants operational by 1975.	PLANNED	1			1		2
	ACTUAL PERFORMANCE	1					
	REPLANNED				1		2

#### B. QUALITATIVE INDICATORS FOR MAJOR OUTPUTS

1. Twenty-five trained provincial extension personnel, 5 departmental and one national on the job.

COMMENT: There are 32 extension agents working in wheat production areas. During the time period 1969-1973, agents working in wheat production areas have received training in (a) wheat production (including such production factors as soils preparation and management, weed control, soil testing and fertilizer use, quality seed, ~~xxxxxx~~ seed varieties, etc.); (b) credit (planning for, use of, availability and farm planning); (c) working with groups (group decision making, communications, functions and operations of cooperatives, etc.). Two national extension leaders and five Departmental Extension leaders from Tarija, Potosí, Santa Cruz, Chuquisaca ~~xxxxxx~~ and Cochabamba have participated in the wheat production training programs. On going personnel changes at Departmental and Provincial levels required on-going training to prepare

\*The Banco Agrícola does not have training centers

(Cont. on page 3a.)  
F  
t have trainees in coops but there are 12 MinAg specialists

II. 7. Continued: Comment on key factors determining rating of Other Donors

III. KEY OUTPUT INDICATORS AND TARGETS

A. QUANTITATIVE INDICATORS FOR MAJOR OUTPUTS		TARGETS (Percentage/Rate/Amount)					END OF PROJECT
		CUMU- LATIVE/ PRIOR FY	CURRENT FY 74		FY 75	FY	
			TO DATE	TO END			
4 research personnel testing new varieties by 1975.	PLANNED	4					4
	ACTUAL PERFORMANCE	4					
	REPLANNED						4
Credit manual produced in BAB.	PLANNED	1					1
	ACTUAL PERFORMANCE	1					
	REPLANNED						1
	PLANNED						
	ACTUAL PERFORMANCE						
	REPLANNED						
	PLANNED						
	ACTUAL PERFORMANCE						
	REPLANNED						
B. QUALITATIVE INDICATORS FOR MAJOR OUTPUTS	COMMENT: <del>xxxxxx</del> new workers for servicing wheat production needs.						
1. <del>x</del>							
2. <del>MinAg</del> /Center producing data at technical, extension, and farmer levels.	COMMENT: <del>xxxxxx</del> The Information Center was established in 1972 and is operating effectively. The Center is equipped with two off-set printing presses, new photo equipment with accessories to facilitate making metal plates for the machines, a paper cutter, stapler, etc., donated by USAID on a "Grant in AID" basis.						
3. <del>x</del>	COMMENT: <del>xxxxxx</del> There is a team of five well-trained, competent technicians operating the Center, four of whom previously worked for USAID. The supervisor was a USAID employee before creation of the Center. The Center lacks adequate operating budget. Support for maintenance, spare parts and some (Cont. on page 3b.)						

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	<p>materials are frequently supplied by the USU contract. Publications by the Center are of technical, extension and farmer levels.</p>
<p><b>MinAg</b> 3. / Cereals lab operating with minimum of one trained technician.</p>	<p>Comments: The cereals lab (physical housing) is located in Quillacollo, near Cochabamba. The building construction is completed including interior and exterior paint, new access road and security fence. However, the well and water supply system is not complete. Also, much needed equipment is lacking. One trained technician is on the MINAG employment list. He expects to move to Cochabamba in January 1974 to make the lab operational. Additional/funding (about \$US15,000) is needed to procure needed equipment.</p>
<p>4. Research being carried out by trained Bolivian personnel in production, marketing and consumption patterns.</p>	<p>Comments:</p> <p>A. <u>Production research</u> - More than 1,000 different wheat lines have been tested for adaptability, resistance to disease, etc. in both the traditional and Santa Cruz wheat production areas. Winter wheat production is being researched in Santa Cruz, Abapó and Villamontes areas. All wheat research is currently under the direction of the MINAG Research Division. Hugo Villarroel, Manager of the Chinoli (Potosi) Experiment Station (who recently completed his M.S. degree at USU in Plant Breeding) is director of the Wheat Research Program. Research on soils and fertilizer needs is being conducted in all wheat producing areas through the cooperative efforts of the MINAG Soils Division and Research Division.</p> <p>B. <u>Marketing and Utilization</u> - Research on marketing problems is being done through the MINAG Marketing, Statistics and Planning Divisions. Their work to date is primarily that of finding out what is going on. One study is currently underway to determine wheat storage problems in the Santa Cruz area. This is being done by the National Wheat Institute, MINAG and USU Contract Team. An extensive agricultural products rural-urban consumption study was initiated in 1972 to determine supply of and demand for Bolivian agricultural products. The final report is due in 1974. The field work was done by the MINAG technicians in Planning and Marketing in cooperation with the Institute of Social and Economic Studies, University of San Simón, Cochabamba.</p> <p>Training in research methodology has been given to MINAG Division of Research and Planning technicians and to University Professors working in Cochabamba and Santa Cruz. Inadequate GOB financial resources exist to support meaningful, needed research in areas of production, marketing and utilization. The Chinoli</p> <p>(Cont. on page 3c.)</p>

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Experiment Station, for example, must earn money from the sale of potatoes, breeding sheep, wool and wheat in order to have a budget to conduct research. The station manager spends 80% of his time on budget-management matters and has very little time or resources for research. He is in charge of the National Wheat Production Research Program. The situation hampers progress.

Research Plans are written yearly.

5. Plans for production of priority products are being developed by Planning Department of the Ministry of Agriculture.

Comments: The Ministry of Agriculture, through its Planning Division, is currently conducting an Agricultural Sector Assessment. When completed, a National Agriculture Plan will be developed to give; direction and program emphasis for the production of priority products. This is expected during the Calendar Year 1974. Extensive ground work has already been completed by the MinAg Planning Division on cost-benefit analysis of 18 agricultural products.

6. Studies prepared that are pertinent to storage, efficient production of flour and use of by-products.

Comments: Technical assistance consultants from the University of Kansas have visited Bolivia three times, developed studies on wheat storage feasibility and needs in the hot, humid Santa Cruz area and in the traditional production areas. A research project is currently underway in Santa Cruz to investigate storage problems related to insects, humidity, temperature and changing viability of seed during a year's time.

Studies have been conducted to determine the level of and use of quinoa flour with wheat flour in bread production. Test samples have been produced.

At the beginning of this Cereals Project, economic feasibility was dependent upon use of milled wheat by-products. There was no national use for bran and the situation was serious for the millers. A program was instituted to demonstrate the use of by-products as livestock feed. The program was successful and the demand now exceeds the available supply.

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IV. PROJECT PURPOSE

A. 1. Statement of purpose as currently envisaged. 2. Same as in PROP?  YES  NO

To develop an operational vertical wheat program through upgrading and coordinating existing institutions which can serve as a model for other programs.

B. 1. Conditions which will exist when above purpose is achieved.	2. Evidence to date of progress toward these conditions.
<p>1. National Wheat Committee organized and coordinating Vertical Wheat Program.</p> <p>2. National Extension Service equipped and operating in 25 wheat production centers with 31 trained personnel.</p>	<p>A National Wheat Committee is organized, but functions sporadically and really does not coordinate the Vertical Wheat Program. The Committee went two years at one time without a meeting. Most program coordination and direction appears to come from the National Wheat Institute that is currently directed by a career agronomist (who has Masters degrees from two U.S. universities in Plant Science and Ag. Economics).</p> <p>There are 24 Extension Centers operating in wheat production areas. Five departmental leaders, two national leaders and 32 agents are in place and have received training in matters essential to realizing the vertical wheat program goals including institutional development.</p> <p>The National Extension Service is not adequately equipped nor does it have enough operating budget to enable its training personnel to get out among clientele groups to plan, organize and conduct (Cont. on page 4a.)</p>

V. PROGRAMMING GOAL

A. Statement of Programming Goal

To reduce dependence on imports of agricultural products and increase exports.

B. Will the achievement of the project purpose make a significant contribution to the programming goal, given the magnitude of the national problem? Cite evidence.

Yes. It is expected that the increased institutional capacity including the upgrading of the local wheat research and soils testing capability, the improved capability of the National Wheat Institute and the increased number of trained technicians in the Ministry of Agriculture will contribute to achieving the program goal by reducing wheat imports. It should be noted, however, that progress in reaching the goal depends heavily on certain actions and policies to be undertaken by the GOB, as enumerated under List of Actions, Section III 2 A - G of this PAR.

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programs and demonstrations to facilitate the realization of program goals. Unless agents are better equipped with teaching and demonstration supplies and made mobile with cars that function and adequate amounts of gasoline, oil, tires, etc., the values to be derived from training inputs are unobtainable.

3. Fifty cooperatives operating and fifty cooperatives in preparation in support of the Wheat Program by 1975.

According to National Records, only two officially registered coops are organized and operating to service increased wheat production. National laws and requirements governing coop organization are so complicated as to make official registration almost impossible. However, there are many groups, organized through the efforts of coop and extension agents, the U.S. Peace Corps program (which ceased operation in Bolivia in June 1971) and others that function as coops and which are helping with wheat production. Presently, there are 40 of these groups functioning in the Departments of Chuquisaca, Tarija, Potosí and Cochabamba. About 1,360 farmers, who own about 2,531 hectares of land, have become members of these groups.

4. National Organization of a seed certification and regulatory agency including an operational seed lab to determine the demand for improved seed and assuring that this demand is met.

An infant national organization of a seed certification and regulatory agency exists. A technician trained in seed production and certification requirements is heading up the national program. A field staff of five technicians is at work. A seed laboratory and seed processing plant have been constructed near Cochabamba and are operating. Additional equipment is needed for both and a water supply must be developed. The agency, in cooperation with the National Wheat Institute, is meeting the National demand for improved wheat seeds by supervising the production, purchase, processing and distribution of such seeds.

5. Bolivian research capability to meet Bolivian needs in wheat production and utilization.

Trained technicians are available in the MinAg Research Division and the Wheat Institute to conduct needed research in wheat production and utilization. However, the financial resources for research are inadequate. Participant trainees have returned with M.S. degrees from U.S. Universities in such subject areas as cereals breeding, plant pathology, soil science, Ag. Economics, etc. Most research to date has dealt with production and improved practices. Much remains to be done in the areas of marketing (transportation, storage) and pricing policies as they relate to production stimulation, etc.

6. MinAg Commercialization Department gathering and disseminating economic information.

A staff of one economist constitutes the MinAg Commercialization Department. As permitted by an inadequate operating budget, the technicians gather and publish agricultural economic information. However, the inadequate financial situation makes gathering, analyzing and publishing an erratic, unscheduled process and inadequate (Cont. on page 4 b.)

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7. A viable soil testing program

7. A viable soil testing program capable of analyzing 10,000 soil samples per year to provide the basis for a fertilizer recommendation system.

8. The credit system is providing acceptable loans for production, marketing and industrialization.

9. Milling capacity equal to domestic production targets at acceptable qualities, including efficient use of by-products.

for the country's existing needs.

A modern, well equipped MinAg Soils Laboratory is in operation in Santa Cruz serving the whole country. It has the capacity to handle 10,000 soil samples per year. An effective, functioning system exists for receiving and analyzing soil samples and returning results to farmers. Trained lab personnel are operating the lab. Extension agents and soils technicians are trained to teach farmers to prepare and submit soil samples and to interpret results.

Implementation of a USAID Agricultural Production and Marketing Loan (511-L-042) to the GOB was initiated in 1972. It provided \$7.25 million for production and marketing sub-loans for specific commodities of which wheat is a principal one. No other principal source of wheat credit exists. To date approximately \$750,000 from this loan has been utilized for wheat production and marketing sub-loans. These funds appear to be satisfactorily meeting the current needs of the larger commercial farms, but it is suspected that institutional and cultural constraints are precluding a more satisfactory level of use among small farmers. An on-going project evaluation is expected to provide guidelines for the increased utilization of these credits in the tradition small farm sub-sector.

There is adequate milling capacity to meet domestic milling demands. Thirteen modern mills exist in Santa Cruz (1), Tarija (2), Potosí (1), Oruro (2), Cochabamba (3), Sucre (1) and La Paz (3). They have an annual capacity in excess of 135,000 metric tons working 24 hours/day, 270 days/year. There is a strong demand for wheat by-products in the livestock and poultry feed industry and no surplus by-products exist.