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In accordance with instructions contained referenced circular attached is a case history report of the project, National Agricultural Development - Crop Development (Plant Protection)

306-11-190-002.01

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DEVELOPMENT GRANT PROGRAM EVALUATION, AFGHANISTAN
PROJECT CASE HISTORY:
PROJECT TITLE OR NUMBER: National Agricultural Development - Crop Development (Plant Protection) 306-AD-13-AD-5(c) (Formerly 306-11-002IV-Plant Protection) 306-11-190-002

I. THE BACKGROUND SITUATION

a. Through the years, the ravages of certain insects and diseases have hampered Afghan agriculture, but have gone unchecked. Only during the past decade have serious efforts been made to combat these pests. Although organized only slightly over ten years ago, the Plant Protection Section of the Ministry of Agriculture has rapidly expanded its activities, however, it has been greatly handicapped by a dearth of technicians, equipment, and supply shortages.

b. This continuing project dates from February, 1955, when the Ministry of Agriculture requested assistance in the training of its personnel in the control of locusts and other major insect crop pests. A special agreement to provide such assistance was entered into in March, 1955, by the Regional Insect Control Project (RICP) of the U. S. Department of Agriculture and U.S. A.I.D./Afghanistan. An Entomologist of the RICP made a general survey of the country's insect problems from June to December, 1955. Another RICP Entomologist was definitely assigned to this project for two years, beginning in October 1956. In the 1957 and 1958 seasons, control programs featuring demonstrations and training of the plant protection personnel of the Ministry were undertaken, first in the Kabul area, and later in the outlying provinces. The first full-time RICP Entomologist departed in October, 1958, at the end of his two-year tour. Because of recruitment difficulties, it was not until two years later, in October of 1960, that the present replacement arrived to continue the programs. In the interim, however, other RICP Entomologists spent brief TDY assignments on several occasions to assist with pressing control problems. The present RICP Entomologist has just recently returned from home leave and plans to continue the project for another two years.

c. The FAO unit of the UN organization has maintained a program in Afghanistan, and for the past four years has had a Plant Pathologist assigned as an advisor to the Plant Protection Section. This advisor's program has consisted chiefly in developing a program for the control of Mildew, which is very detrimental to Grapes in Afghanistan, and in pursuing the study from other countries of wheat varieties that are resistant to rust and other diseases. He has been training laboratory workers and a counterpart in this respect, and in learning to culture and isolate diseases in media. He has also advised and consulted in the control of plant pests in general.

FAO has also sponsored four participants for training in other countries. One Plant Protection agent was sent to Iran for nine months for Sann Pest study in wheat; one to Southwest Asia and African countries for nine months for locust control study; one to Mexico for one year for wheat variety and wheat rust studies; and one to Germany for two years for general Plant Protection training and study. Another agent has just recently left for Mexico for one year's study of wheat varieties and wheat rust.

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FAO has also furnished several vehicles to the Plant Protection Section for temporary use in times of emergencies, especially during the past locust season.

Russia has helped the Ministry of Agriculture for a number of years under a joint country agreement; by furnishing aircrafts, ground power equipment, insecticide and technicians in a periodic Italian and Moroccan locust campaign every spring in the northern provinces. With this year's heavy desert locust season, the Russians furnished three duster aircrafts, twelve power dusters, 300 tons of BHC dust, and technicians for the control of these pests in the Herat area of western Afghanistan.

For the past two years a Russian entomologist has been stationed at Jalalabad, under joint agreement, for the biological study and control of Pink and Spiny Bollworms of cotton. Another Russian specialist has been under contract with the Plant Protection Section the same length of time for the purpose of studying and formulating plant quarantine laws, programs, and border stations in Afghanistan. For the past nine months he has supervised all insect and disease spray activities on the King's farm at Kariz-i-Mir.

Under training, Russia has sponsored three plant protection agents who have just recently left for Moscow for five years of study leading toward a college degree in plant protection. One agent has also just recently left for four years of the same aim and study in Czechoslavakia. Two agents spent three months of study in Russia on the control of the Sunn Pest in wheat.

II. OBJECTIVES

a. The general objectives were to assist the Plant Protection Section of the Royal Afghan Ministry of Agriculture in developing efficient and effective programs of control against the Desert locust and plant pests of major importance that are detrimental to Afghan agriculture.

In order to achieve these general objectives, it was necessary to draw up a plan of specific activities that should be followed for the purpose of obtaining the desired end results. These activities to be followed were thus drawn up as listed:

1. Short range objectives:

Make large-scale demonstrations and encourage the use of new, cheaper, and more effective pesticides.

Demonstrate and instruct in the operation and maintenance of modern equipment for the application of pesticides.

2. Long range objectives:

Develop an adequately organized, trained, and mobile plant protection unit within the Ministry of Agriculture and in the provinces.

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Train plant protection personnel in insect pest surveys, field control methods, and field organization.

Establish a mobile locust control center at Kabul which send units, when needed, to any part of the country.

Cooperate with extension and educational service in promoting plant protection.

Encourage and advise on entomological research, but not to interfere or detract from the Ministry's responsibility in laboratory and small plot research.

Assist as called upon in supporting and guiding HVA's plant protection program and help coordinate it with the Ministry's program.

Major activities have consisted in attempting to follow and carry out the above-listed objectives as closely as possible. In some cases it has been necessary to deviate for various reasons, and to acquire basic needs and materials necessary for the conduct of the objectives.

III. [illegible]

a. For U. S. technicians committed to the project, see I b.

Key officials with which the U. S. technicians have had contact and activities over the years have ranged from the Minister level down to village workers. Within the Plant Protection Unit proper, the key agents have varied from four to ten individuals.

Eight participants and agents have taken plant protection training abroad under U. S. A.I.D. sponsorship, mostly at A.U.B. in Beirut. Two have just recently returned from A.U.B. and two more have recently left for the U. S. for one year of special training and study in this field. Another official recently departed for two years of special study and work in plant protection activities in West Germany, rotating with one who has just completed the same program.

For resources, technicians, and training committed to Plant Protection from other countries and international organizations, see I c.

Resources from the Royal Afghan Ministry of Agriculture have been its normal budget and personnel for the Plant Protection Section. The Section has purchased a nominal amount of insecticides and equipment, and has gradually increased its budget and personnel to meet expanding needs over the past eight years. It is estimated the Ministry has spent about $552,500.00 for Plant Protection during this period.

b. U. S. Funds obligated:

U. S. funds obligated since 1956 have been mostly used for commodity purchases

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of modern U.S. insecticides, equipment, and some laboratory and insect collection equipment

	Dollars	Local Currency (U.S. owned or) (controlled)
Total thru 6/30/62	$195,000.00	$68,000.00
FY-63	66,000.00	---

Note: These figures include salaries, expenses, vehicle, etc., for PICP technicians, as well as participant costs, since 1955. All figures are estimated.

IV. FACTORS AGGRESSATING OR RETARDING PROGRESS

a. On Host Country side:

1. Major difficulties encountered are:

The lack of adequately trained personnel in plant protection has hampered faster progress in the development of this organization. Although most of the key personnel have had some degree of training, it is still far from enough. Several have left for additional training, and study abroad, and several are scheduled to go in the future. Until all of these key personnel have returned, there will continue to be a lag. This is unfortunate, and it will be several years yet before this is resolved. However, this training is absolutely necessary and the lag must be tolerated before the desired goal is reached. On-the-job training alone cannot solve the need of adequately trained leaders.

As there is no marketing and grading system for fruit and vegetable produce in Afghanistan, and the ordinary local individual is not educated enough to distinguish and refuse poor quality or insect-infested produce, the market value of such are limited. The farmer does not get more money for better quality produce. Increase in production alone does not entirely offset the added cost of pesticides and equipment. Until the over-all economy of the country is greatly increased, and grading systems are inaugurated so that high quality produce will subsequently bring higher profits, farmers will necessarily be slow in accepting the use of pesticides and pest control equipment.

There are no pesticides available on the open market in Afghanistan. All that are available are in the hands of, and are controlled by, the Ministry of Agriculture. Apparently the government has strict control of poisons and chemicals, and does not permit the free sale to the local population who, on the whole, are not educated enough to be trusted with their safe use. There is some pesticide equipment available and displayed on the Afghan market, but the importation cost of these practically puts them out of the reach of the ordinary farmer. Here again equipment is useless without the pesticide to use with it.

There should be more liaison and cooperation between all services of the

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Ministry. Decentralization is needed and more authority should be delegated to subordinates. Many demonstrations of insect control could be conducted in the provinces by Extension workers with the technical aspects and material and equipment furnished by Plant Protection. Each are separate organizations and need to be for practical purposes but they should work more closely together.

Another example are forests in Afghanistan's Elm, Poplar, Willow, and fruit trees. As the Forest Service has jurisdiction over shade, forest, and windbreak trees, but has no entomologist or pesticide equipment, a cooperative control program with Plant Protection against these pests is urgently needed.

The Ministry has been reluctant to push ahead with more wide-spread demonstrations and activities in the outlying provinces in response to the pressure and request of officials and farmers; this being chiefly due to its inability to follow through because of its limited trained personnel, and lack of sufficient budget, equipment and material.

2. Pest and insect problems are mean area:

Heavy damage to various fruit and vegetable crops and subsequent control demonstrations against them has undoubtedly convinced Ministry officials and farmers that a plant protection program is one of the quickest and most rewarding means of increasing agricultural output.

There are only a small variety of different insect pests of major importance in Afghanistan. Most of these occur in surrounding countries, Europe, and even the U.S., and they are near relatives of pests whose life histories, habits, and control are already known. Consequently, long research is not needed and only modification of already-known control practices is needed to get certain programs underway.

It has been demonstrated that most of the major pests can be controlled with a few applications of only a few of the new modern insecticides. These have been those that are relatively safe to handle and use and that are not detrimental to man and animal when properly handled.

The natural balance of nature in the insect world is especially noticeable in Afghanistan. Many crops have revealed insects that are of major importance in other countries. Yet, here these crops show very little population or damage from these pests. An example of this are aphis and weevils in Alfalfa which receives no insecticide applications whatever in this country. Predators, parasites, and environmental conditions are undoubtedly the contributing factors that keep these pests in check. Consequently this must not be overlooked and whenever any new programs are recommended or inaugurated careful study and approach must necessarily be exercised in order not to upset this balance.

Before 1956 the activities of Plant Protection in Afghanistan were extremely limited. Tremendous strides have been made in this field since that time.

An analysation of the work accomplished, personnel trained and material and equipment acquired since that time easily reflects the progress.

As the unfavorable factors are gradually met and overcome, the progress should continue. If the next five to six years can show as much as the past six have, Plant Protection should be well established as an efficient, stable, and one of the most important services of the Ministry of Agriculture.

b. On the U. S. Side:

1. Specific devices or tactics facilitating progress.

Response on the part of the U.S. to requests for assistance in locust control operations opened the door for assistance in other phases of plant protection. Also, operations like locust control with their connected crisis aspect tend to create and stimulate interest. Taking advantage of this interest to expand the program formed the basis of a good working relationship between U. S. and FGA technicians and programs.

Judicious use of committees through the demonstration of new insecticides and control tools was helpful in keeping the program moving.

Interest in the program by highest levels of the U. S. program in the country stimulated the program. Like most people, the Afghans like to work with top officials and appreciate the interest these top officials show to the local problems and programs.

2. How might performance have been improved.

Continuous placement of an entomologist from the start of the program would have helped. The lack of an American entomologist for a two year program allowed the program to lag.

It is believed that an earlier start of intensive training of plant control specialists through participant grants outside the country would have advanced the trained core of the organization technically.

V. ACCOMPLISHMENTS

A sound start has been made towards the development of an organized, trained, and mobile plant protection unit within the Ministry of Agriculture. The entire second floor, consisting of 12 to 15 rooms, of a new modern building, now houses the laboratory and offices of the Plant Protection Section. This building was built mostly with PL-480 wheat funds.

Satisfactory progress has been made by the Ministry of Agriculture concerning large-scale demonstrations of the use of new, cheaper, and more effective pesticides, although only about one-half of the country has been covered. A check was made of plant

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protection needs in the provinces and several tons of insecticides were moved from the central warehouse in Kabul to provincial centers. Malathion has been introduced and accepted as a modern and efficient insecticide against most fruit and vegetable pests. DDT is widely known throughout the country. Aldrin has been accepted as a highly effective insecticide against locusts, soil pests, and cutworms. BHC dust is extensively used throughout Afghanistan against locusts and local grasshoppers. Other insecticides, such as Cyanox, Metasystox, Endrin, DinitroCresol, and Lime Sulphur, have also been introduced and used. Weed killers, such as 2-4D, have been tested.

Progress has been made with the demonstration of modern plant pest equipment. The use of hand-operated, pressure, and knapsack sprayers and dusters, is now known. Both hand-operated and power-wheelbarrow sprayers have been demonstrated. Power dusters are being used, and this year two turbine sprayer-dusters mounted on jeeps were acquired, as well as a row-crop duster for tractor mounting, a 100-gallon trailer-type power sprayer, and a micro-pulverizing machine for dust formulation.

On-the-job training was given with the aid of the RICP Entomologist stationed in Afghanistan in 1956-1958. This training was continued in 1960 through 1962. Ministry personnel continued this activity during the interim. Training sessions consisting chiefly of lectures, in short courses, were given to extension workers, plant protection agents, university students, and farmers on fruit, cotton, and sugar beet insect control, and insect survey, collection, detection, and reporting. On-the-job training of spraying against fruit flies and weevils in melons and cucurbits, and of soil treatment of nursery stock was given to extension, village leader, and plant protection agents. Methods of survey, detection, and collecting of insects were also shown to plant protection agents in the field. Some twenty American text and technical books on applied entomology and plant disease control were acquired and put into the Afghan Plant Protection Laboratory Library for reference use by the plant protection personnel.

An intensive general survey of crop insect pests was made during the summer of 1961 in order to more definitely establish the presence and damage extents of the major crop insects that occur in Afghanistan. 302 lots of insect collections were submitted to the U. S. National Museum for positive identification. Returns have been received from most of these and a detailed report has been submitted to the Plant Protection Section. The Section has been encouraged to develop a national collection and museum in order to have representative specimens of insects occurring in Afghanistan. Equipment and materials have been ordered for this purpose and are now being awaited.

The Ministry of Agriculture has willingly assisted the Helmand Valley Authority, when requested to do so, with insect control, particularly locust eradication. Over the past years the Ministry, upon request, has sent some of its plant protection agents several times to advise on locust control. In May, 1960, the Ministry donated four tons of insecticide and loaned some equipment to the HVA for locust control work. During this 1962 excessively heavy season of locusts, the Ministry again donated forty tons of insecticides and equipment, and furnished five agents for locust control. RICP has always maintained periodic periods of work and advice on plant protection and locust activities in Kandahar province and with the Helmand Valley Authority, as well as technical support to U. S. A.I.D. agricultural technicians. Approximately 40 per cent of the technician's time has been

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spent in field trips away from Kabul. These trips were mainly in conjunction with survey, and in contacts with provincial directors of agriculture, and with plant protection and extension workers stationed in the provinces. The contacts were relative to advise, consultations, programs, and needs for plant pest activities and control.

With this year's heavy locust season in Kandahar province and the Helmand Valley, U.S. A.I.D. furnished one large Air Force C-123 spray aircraft for one week and one Cessna 180 spray aircraft for one month, in the control of late hoppers and fledgling locusts over 15,000 acres of waste and crop lands. This activity was timely in stopping swarms from possibly destroying valuable crops in this area. U.S. A.I.D. also purchased an additional 775 gallons of Aldrin insecticide to replace the Ministry stockpile which was depleted by the above activities. The Ministry assumed the freight cost on this insecticide which was air-lifted into Afghanistan from India. The RICP Entomologist supervised the above operations with the help of several U.S. A.I.D. agricultural technicians and Ministry officials. A special report on this program was prepared and submitted for general distribution.

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VI. Appraisal by Reporting Technical Division.

a. Actual rate of progress is not too far behind that expected under the program. It was recognized at the start of the program that qualified people would be limited and that most of the organization must be trained from the ground up. Thus, a relatively modest but attainable program was set-up and has followed the planned development. Loss of some of the earlier trained Afghans to other positions within the Ministry is not a complete loss since most of these people have gone into more responsible positions and have carried their interest and training with them.

b. The plant protection program is an essential element in the over-all development of Afghan agriculture. The finding that the Ministry of Agriculture is reluctant to move the program into the action phase with farmers due to their believed lack of ability to service the program needs to be overcome. The demand for sulphur for the dusting of grapes is an example where lack of sulphur due to import and foreign currency limitations has caused considerable criticism against the RGA to the point where effort is being made to overcome these problems.

Planned testing and trial work on the control of commercial crop pests such as cutworms in cotton has been developed to the point where relative sound control measures are known and ready for application when expanded production of these crops brings on the inevitable pests.

Lack of foreign exchange and pre-procurement of insecticides by the RGA has and will continue to hamper the program and allow for the build up of crises such as happens with nearly every locust invasion. Findings further point out the necessity of attempting to secure better liaison between arms of the RGA so that programs are handled on a planned and not a crash basis.

c. The relative success of this program points up the desirability of expanding technical assistance programs only at the rate the Host Country is able to make. It further points out the value to be received from placement of well-qualified technicians adequately backstopped with commodities and a limited amount of local currency.

VII. Director's Comment.

I agree with the above appraisal by the Division Chief.

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