

CONVENIO DE DONACION PARA PROYECTO DE INVESTIGACION
 ENTRE
 LOS ESTADOS UNIDOS DE AMERICA A TRAVES DE LA
 AGENCIA INTERNACIONAL PARA EL DESARROLLO (AID)
 Y MOSCAMED

LIMITED SCOPE GRANT AGREEMENT FOR THE RESEARCH PROJECT
 "NON-AFRICANIZED HONEYBEE QUEEN REARING FACILITY"
 BETWEEN
 THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (AID)
 AND MOSCAMED
 520-U000

1. TITULO DEL PROYECTO/ PROJECT TITLE 2. NUMERO/ PROJECT NUMBER

Technical Support
 Local Currency Trust Fund

NON-AFRICANIZED HONEYBEE QUEEN REARING
 FACILITY

FISCAL DATA

F000305
 LSGA 520-U000-001 MOSCAMED

Appropriation: 72FT800
 Allotment : YKEX-90-25520-U000
 PRM Code : LC-90-16

3. Por este medio las partes arriba mencionadas, de común acuerdo, convienen en llevar a cabo el proyecto descrito en este Convenio de acuerdo con (1) los términos de este contrato incluyendo el ANEXO "A" Descripción de Proyecto y Presupuesto Ilustrativo, ANEXO "B" Disposiciones Generales, y ANEXO "C" Disposiciones Administrativas y Fiscales y (2) cualquier acuerdo general en relación a cooperación técnica o económica. La compra de productos por el donatario deberá estar de acuerdo con el Manual 11 de AID (Divisas) y con el Capítulo 18 del Manual 1 de AID, Suplemento B (Moneda Local), incluidos como ANEXO D y ANEXO E.

The above named parties hereby mutually agree to carry out the project described in this Agreement in accordance with (1) the terms of this Agreement, including ANNEX "A" Project Description and Budget, ANNEX "B" Standard Provisions and ANNEX "C" Administrative and Fiscal Provisions hereto, and (2) any general agreement regarding economic or technical cooperation. Procurement of commodities by the Grantee shall be in accordance with AID Handbook 11 (Foreign Exchange) and Chapter 18 of AID Handbook 1, Supplement B (Local Currency), enclosed as ANNEX D and ANNEX E.

4. MONTO DE LA CONTRIBUCION DE AID/ AMOUNT OF AID CONTRIBUTION: 5. FECHA DE FINALIZACION DE LA ASISTENCIA DEL PROYECTO /PROJECT COMPLETION DATE:

Q282,170

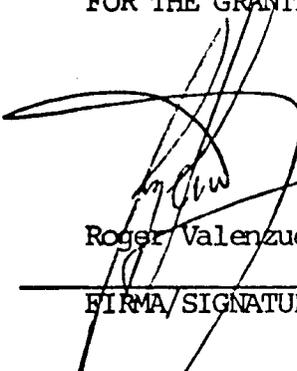
MARCH 1, 1990

6. La meta a largo plazo de este proyecto es proveer de Apicultores Guatemaltecos con habilidades y conocimientos necesarios para mantener provisiones de crianza que demuestren las cualidades deseables. El objetivo primordial será el de proveer asistencia técnica a por lo menos 100 apicultores Guatemaltecos en cuanto a la obtención y mantenimiento de una adecuada provisión de abejas reina productoras no-africanizadas. Se pondrá énfasis en adoptar recursos disponibles para la producción de abejas reina. El proyecto contribuirá al objetivo global de reducir el impacto negativo de la emigración de miel de abejas Africanizadas (AHB) a través de América Central y Norte América. Las actividades descritas en este Convenio de Donación serán coordinadas y llevadas a cabo por MOSCAMED.

The long-term goal of this project is to provide Guatemalan beekeepers with the necessary skills and knowledge to maintain breeding stocks that exhibit desirable traits. The primary objective will be to provide technical assistance to at least 100 Guatemalan beekeepers in obtaining and maintaining an adequate supply of non-Africanized queen producers. Emphasis will be put on adopting available resources for queen production. The project will contribute to the overall goal of reducing the negative impact of the migration of Africanized honey bees (AHB) through Central America and into North America. The activities described within this Limited Scope Agreement will be coordinated and carried out by MOSCAMED.

7. POR EL DONATARIO/
FOR THE GRANTEE

POR LA AGENCIA PARA EL DESARROLLO
INTERNACIONAL (AID)/
FOR THE AGENCY FOR INTERNATIONAL
DEVELOPMENT


Roger Valenzuela


Anthony Cauterucci

FIRMA/SIGNATURE

FIRMA/SIGNATURE

MOSCAMED Director

USAID/Guatemala Director

TITULO/TITLE

TITULO/TITLE

January 9, 1990

January 9, 1990

FECHA/DATE

FECHA/DATE

ANNEX A

A. PROJECT PURPOSE:

The purpose of this project will be to provide technical assistance to at least 100 Guatemalan beekeepers in: a) obtaining and maintaining an adequate supply of non-Africanized queen producers, b) identifying and treating bee disease and pests and, c) assisting these same beekeepers to better market their goods and services. Emphasis will be put on mobilizing locally available resources towards these efforts including active involvement of the eleven apiculture Peace Corps Volunteers and DIGESEPE apiculture personnel currently working in Guatemala. The project will contribute to the overall goal of reducing the negative impact of the migration of Africanized honey bees (AHB) and increasing the productive capacity of Guatemalan beekeepers. The activities described within this Limited Scope Grant Agreement will be coordinated and carried out by MOSCAMED with help from USDA's Agriculture Research Service (ARS).

B. BACKGROUND:

Africanized honey bees (AHB) in Guatemala can pose difficult problems for beekeepers who want to maintain European-like honey bees. In Africanized areas European queens mate predominantly with Africanized drones because European drones are out numbered and less aggressive. As of July 1988, the degree of Africanization in Guatemala was estimated at about 50%. Progeny from such queens display many undesirable characteristics of AHB including excessive stinging and swarming.

Guatemalan bee experts have singled out bee diseases and pests as constituting an equally important constraint on increasing production and quality of honeybee products. At the same time, local beekeepers are extremely interested in expanding their market reach to include provision of pollination services to fruit and vegetable producers within the country and the export of products outside the country.

Mating studies in Venezuela suggest that acceptable naturally-mated queens (i.e.: queens mated to low percentage of AHB drones) can be produced in areas with AHB. In most areas researchers believe that queen producers can influence 90 percent or more of the matings with drone saturation techniques. Furthermore, control can be enhanced by mating queens in areas that have few Africanized bees. Surveys in Columbia and Venezuela indicate that such areas are found in some mountainous regions. Researchers believe that there is an excellent chance that AHB populations are also low in some of the mountains of Guatemala. Guatemalan beekeepers should be able to produce quality queens in these areas. In low-lying areas Guatemalan beekeepers will be taught how to live and work with AHB to maximize yield.

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C. PROJECT ACTIVITIES:

The project is to be divided into four parts:

1. Determining feasibility of producing acceptable queens in mountainous areas.
2. Examining commercial queen mating methods and related events toward the possibility of identifying ways to refine existing procedures.
3. Organizing interested beekeepers and facilities (apiaries, technical materials, lodging, transportation).
4. Implementing a queen breeding program in which drone saturation and isolation techniques are demonstrated and then conducting three to four workshops to train selected beekeepers queen and drone production techniques, fundamentals of AHB biology, AHB identification procedures, procedures to identify common bee diseases and pests, and simple breeding and selection methods.

Advance preparations will include:

1. Organize interested groups of beekeepers;
2. Locate apiaries (minimum 200 colonies which could be rented for the duration of the project);
3. Assess technical needs (e.g. queen grafting materials, queen excluders, mating colonies, beekeeping literature in Spanish) and type of bee equipment;
4. Arrange lodging and local transportation for 3-4 scientists.

Beekeeper training will focus on procedures and techniques that are required to produce acceptable naturally-mated queens. Three to four workshops are planned which will be taught by three or four members from our laboratory and one or two honey bee specialists who will be contracted by ARS.

Possibilities for these workshops are as follows:

1. Bee Diseases and Pests: As identified by the Guatemalans, this workshop will be the most important to project goals. Participants will be taught to identify and treat common brood diseases such as American foulbrood, European foulbrood, sacbrood and chalkbrood; common adult diseases such as nosema and bee paralysis. Special emphasis will be put on teaching participants to identify

tracheal and Varroa mites. Through this workshop APHIS would like to organize a country-wide survey for all bee diseases and pests.

2. Biology and Identification: This workshop will teach participants the fundamentals of AHB biology as they relate to practical beekeeping. We have learned through experiences in Venezuela that Africanized colonies must be worked differently from European colonies. We will focus on methods related to colony defense, honey production, pollination, swarm prevention, swarm capturing, queen finding, and queen introduction. Additionally, we will train participants FABIS procedures which will enable them to distinguish highly Africanized bees from European bees. Through this workshop we also would like to coordinate a survey to document levels of Africanization throughout the country.

3. Breeding and Selection Methods: Participants will be taught simple breeding and selection techniques for producing quality queens and methods to evaluate colonies. Instrumental insemination (II) techniques will be demonstrated for interested participants. The instructors will explain how II can be integrated into a practical breeding program. Implementation systems designed to maintain a desirable breeding stock will be a major focus of discussion and instruction.

4. Queen and Drone Production: Participants will be taught standard queen rearing methods which will include grafting, preparing starter colonies, cell builders and mating colonies. Additionally, participants will be taught procedures for managing colonies for drone production. These drone source colonies will be indispensable for controlling natural matings. This element of the project will allow beekeepers to hone their skills and, at the same time, will allow MOSCAMED to continue an examination of drone saturation procedures that was started in Venezuela by the USDA. Influence of unmanaged drones in these matings will determine whether acceptable levels of mating control are realistic. Furthermore, mating percentages established in these areas will enable queen breeders to estimate the amount of control they can attain by increasing numbers of drone source colonies.

5. Marketing: ARS Specialists will impart skills and knowledge relating to provision of related honey bee services such as pollination and export marketing of products. Local horticulturists will be identified and invited to attend the workshop as it relates to pollination. Guatemalans have expressed a desire to know about FDA grading standards and other restrictions that

might impede the export of honey bee products to the U.S. or other countries. Strategies relating to fulfilling FDA standards and exploring other market outlets will be discussed in detail.

Workshops will be held in two or three locations in the mountains (possibly Coatepeque in the Department of Quetzaltenango and Capeanilla in the Department of Huehuetenango) and in a similar number of locations in the lowlands (possibly Los Brilliantes in the Department of Retalhuleu and Sanjon in the Department of San Marcos).

A similar project is currently underway in Navasota, Texas, with the USDA. Information from the two projects will be shared with the intention of developing procedures that will allow queen breeders to maximize mating control and otherwise deal with AHB.

D. PROJECT MANAGEMENT AND TIMETABLE

MOSCAMED will provide a Project Manager to manage the grant and provide all personnel, facilities, and services as described above in Section C.

The initial organization and first workshop will be combined into one trip; subject to advance preparations being made by Guatemalan contacts. Subsequent workshops will be planned at appropriate times during the implementation of the queen breeding project.

A tentative schedule for the queen breeding project is as follows:

- a) (Before last week in November) Introduce cordovan breeder queens (5-10 for producing queens for drone source colonies). These queens will be provided by the Agriculture Research Service of the United States Department of Agriculture by prior agreement.
- b) (First week in December) Graft cordovan queens (+-200) for drone source colonies.
- c) (Third week in December) Requeen drone source colonies with cordovan queens. Make plans for breeder stock for cordovan test queens.
- d) (First week in January) Select locations for mating apiaries; establish breeder queens for producing project virgin queens.
- e) (Starting last week in January) Graft cordovan queens for first mating cycle; prepare mating apiaries.
- f) (Second week in February) Graft cordovan queens for second mating cycle.

E. TITLE OF PROPERTY

Upon termination of the Grant, all studies and reports financed with funds under the grant shall become property of USAID/Guatemala. Property purchased under the grant will become property of MOSCAMED.

F. PROPOSED BUDGET

	<u>Local Currency (Q's)</u>
Air Fares (15 round trips; Guatemala - Baton Rouge, LA, USA)	33,360.
Per Diem (300 man-days * Q231.6)	69,500.
Vehicle Rental	77,840.
Colony Rental (200 colonies)	33,360.
Contractor fees	68,110.
TOTAL	<hr/> Q282,170. (\$101,500.)

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