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Soybean insect pests in Indonesia

Michael E. Irwin

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International Soybean Program, INTSOY

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INTERNATIONAL SOYBEAN PROGRAM (INTSOY)
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
UNIVERSITY OF PUERTO RICO, MAYAGUEZ CAMPUS

TRIP REPORT
INDONESIA
AUGUST 17-24, 1980

NAME: Michael E. Irwin, Associate Professor

TITLE: Agricultural Entomology, Plant Pathology, and International Soybean Program (INTSOY)

ITINERARY:

August 17 Tokyo/Jakarta, arriving 9:00pm
August 18 At Jakarta, visiting USAID offices, MUCIA office
August 19 At Jakarta; Jakarta/Bogor/Jakarta, visiting the Institute
Pertanian Bogor
August 20 At Jakarta; Jakarta/Bogor/Jakarta, visiting the Central
Research Institute for Agriculture
August 21 Jakarta/Yogyakarta; leave 9:00am, arrive 10:00am. At
Yogyakarta, visit Rockefeller Foundation and University
of Gadjah Mada. Also visited some soybean fields
August 22 Yogyakarta/Jakarta; leave 3:00pm, arrive 4:00pm. At
Yogyakarta, visit some soybean fields with Dr. Loy Crowder,
Rockefeller Foundation
August 23 Jakarta/Singapore; leave 2:00pm, arrive 4:00pm
August 24 Singapore/Los Angeles; leave 7:00am, arrive 12:30pm
August 25-6 At Los Angeles; annual leave
August 27 Los Angeles/Champaign; leave 12:10pm, arrive 7:35pm

PURPOSE:

To become acquainted with the insect pest situation on soybean in Indonesia, an area long under soybean cultivation and within the humid tropics belt. Also, to establish entomological and agricultural contacts at various institutions in Indonesia for possible future collaborative programs in the areas of soybean production and integrated crop protection.

INSTITUTIONS AND PERSONS CONTACTED:

Rockefeller Foundation, Yogyakarta

Dr. Loy Crowder, crops
Dr. Allen Tillman, livestock (did not meet him)

University of Gadjah Mada, Yogyakarta

Dr. Joedoro Sardosono, Dean, Faculty of Agriculture
Dr. Soenjoto Djojodirdjo, soybean breeder, in charge of Rockefeller
sponsored soybean program
Dr. Rasdiman Sastrosubroto, entomologist

Dr. Moehadi Prawirodisastra, entomologist
Dr. Soepropto Mangoendihardio, entomologist
Dr. Kasumboge Untung, entomologist
Ir. Samino Wirjosuhardjo, entomologist

Central Research Institute for Agriculture, JL. Merdeka 99, Bogor, Indonesia

Dr. Rusli Hakim, Director
Dr. Dandi Soekarna, head entomologist with soybean program
Ir. Imam Prasadja, entomologist with cropping systems, including soybean
Ir. Harnoto, chemical control entomologist with soybean program
Ir. Ruhendi, ecological entomologist with soybean program
Ir. Agus Iqbal, ecological entomologist with soybean program
Ir. Wedanimbi Tengkano, ecological entomologist, a Ph.D. candidate
with soybean program

CRIA Mwaru Farm

Mr. Iwin Hadisyaban, farm manager and plant breeder
Mr. Didi Supardi, agricultural assistant

Institut Pertanian Bogor (Fakultas Pertanian, Bogor, Indonesia)

Dr. Freddy Rumawas, Head, Department of Agronomy (did not meet him)
Dr. Rusmilah Suseno, plant pathologist working on viruses of legumes

Ministry of Agriculture, Extension Division CRIA Merdeka 99, Bogor, Indonesia

Dr. Ida Nyoman Oka, Director (met him in Thailand November 1980)

USAID/INDONESIA (American Embassy, Medan Merdeka selatan 3, Jakarta-Pusat,
Indonesia)(APO San Francisco, CA 96356)

Mr. Thomas C. Niblock, Director (did not meet him)
Mr. Walter Tappan, Chief, Agricultural Development Division
Mr. Douglas Tinsler, Chief, Rural Development Division
Mr. Enrique M. Barrau, Agricultural Extension Advisor
Dr. David Warner, Irrigation Engineer
Mr. Berry Primm, Agriculture Development Division
Mr. Paul A. Bisek, Project Officer, Citanday River Basin Development
Project and Luwa Project

MUCIA/AID Indonesian Higher Agricultural Education Project (MUCIA
Jakarta Office, Tromolpos 3285/JKT, Jakarta, Indonesia)

Dr. Kenneth E. Harshbarger, Director

RESULTS/ACCOMPLISHMENTS:

I went with Ken Harshbarger to the USAID/Indonesia mission. There I met with Mr. Walter Tappan who gave several potential contacts re. soybeans and pest management. Among them:

Dr. Nyoman Oka, Hasar Mingu Area, Jakarta
Telephone 782-213 or 781-652
Dr. Rusli Hokim, CRIA Director, Bogor

The use of INTSOY and/or Integrated Crop Protection programs in the Agricultural AID scheme for Indonesia would depend upon reaction by CRIA and other official institutes in Indonesia, according to Mr. Tappan.

I met next with Mr. Douglas Tinsler who was very enthusiastic about the potential inputs of INTSOY into two rural development projects that are underway: Citanduy River Basin Development Project and the Luwa Development Project. The Citanduy project is located in south central Java (see map, appendix 1) and the Luwa project is located on the island of Sulawesi with the project office at Palopo (see map, appendix 2). Mr. Tinsler directed me to his agricultural technologist, Mr. Enrique Barrau, who gave me more information about these projects.

The Citanduy project is in its second phase. The first phase emphasized levy construction and irrigation schemes. The second phase is emphasizing the cropping systems. The idea is to grow rice during some of the year and another crop, either soybean, cassava, corn or peanut as the second and/or third crop. Soybean would be preferred, and is already the major second crop in the lower part of the area during the dry season.

The Citanduy project was initially supported by USAID/Indonesia but the Asian Development Bank is funding a 24,000 ha subproject in the 446,000 ha project.

Next year AID/Indonesia plans to begin 5 upland research stations that they propose be run directly by CRIA and under the leadership of Suryatha Effendi. One of these, the Sidareja site, will also be a demonstration area for technology transfer. The soybean cultivar Orba is currently being grown in the Citanduy project.

The Luwa Development Project is a more tightly compact unit with an established farmer cooperative center that can provide credit, supply machinery and other inputs, and has a seed multiplication unit. The cooperative was organized by Mr. Sam Filiaci who says the group can sell all the soybeans they produce, and at good prices, too. The soybean production is suffering most from insect pests, and AID is sponsoring a 3- to 4-week consultancy visit by Dr. George Teetes of Texas A & M University to review the pest problems.

Drs. Rusli Hokim and Dandi Soekarna further emphasized the strong position soybeans hold in the Indonesian agricultural economy by stating that soybeans provide the major source of protein for Java, their most populated island. Nearly 500,000 ha of soybeans are currently planted in Indonesia each year. Their yield is low, averaging only about 700 kg/ha. CRIA wants to increase yields by investigating the two most limiting factors: lack of proper genetic material and insect pests.

Within the pest management aspect they have put considerable resources behind the effort. Headed by Dr. Soekarna, there are five other entomologists, one involved in pesticide evaluation, two in ecology and control, one in pest management and phenology, and another in the cropping systems aspects. They have a few articles that describe the key and important pests of soybean in Indonesia and give some idea of the phenology of these

pests. They are attempting to establish an integrated pest management program for soybean patterned somewhat on the successful one they have on rice.

Dr. Rusli Hakim emphasized the need for any future projects in soybeans to be coordinated with and complementary to the project the Government of Japan currently has underway within CRIA. Dr. M. Okada of the Tropical Agricultural Research Institute in Tsukuba, Japan is working at Bogor on this program, especially on pest management. Unfortunately, I did not meet him.

Soybean production is highest in east Java, with moderate production in the central part and very little in the western part. Dr. Hakim suggested that the need for the various areas in Java differed as to varietal factors. For instance, he suggested that west Java needed a large seeded variety that could mature in 85 days while the eastern part of the island needed a small seeded variety that would mature in 100 days.

In 1976, soybean production averaged 4 sprays per season. These were mostly scheduled sprays and did not follow the tenet of pest management. Currently the pest management team at CRIA is attempting to establish the economic injury levels of Agromyza stemborers and Plusia defoliators. They are also looking at potential impact of mulching after rice crop on soybean production and its effect on insect pests.

Currently, economic injury levels are known for some soybean pests:

1. Riptortus linearis, 1 per 9 plants.
2. Defoliators, 13% defoliation in vegetative stages (this was determined through mechanical defoliation experiments).

The need for integrated pest management in soybean is obvious and the scientists recognize this. Fortunately, the government has set soybean as its number one priority for the next several years, so much effort is being directed toward the holistic program of fitting soybean into a rice-based cropping system.

The farming systems involving soybean currently underway in Indonesia include:

- 1) soybean planted after lowland rice, usually under rainfed conditions;
- 2) soybean row intercropping with corn, especially in the highland areas;
- 3) soybean planted in young stands of perennial crops such as coconut, or interplanted with cassava when the crop is young.

In Yogyakarta, I was met by Loy Crowder and taken directly to the University of Gadjah Mada where we met with the Dean of Agriculture, Dr. Joedoro Sardosono. Dr. Sardosono explained some of the workings of the University vis-a-vis soybean production. After that, a large number of the soybean production research staff met with Loy and he explained in detail their program. I gave a short introductory statement on INTSOY and on the purpose of my visit. We then went to the field where we viewed about four different soybean fields in various stages of development and in different cropping systems. Most of the soybeans in that area are planted as a second crop after rice. The soybeans are not well looked after and the amount of damage to all fields I

saw by a multitude of pests probably reduced yields greatly. The fields were absolutely teeming with defoliators, pod feeders, stem borers, etc., not to mention the large number of plants I saw that looked diseased.

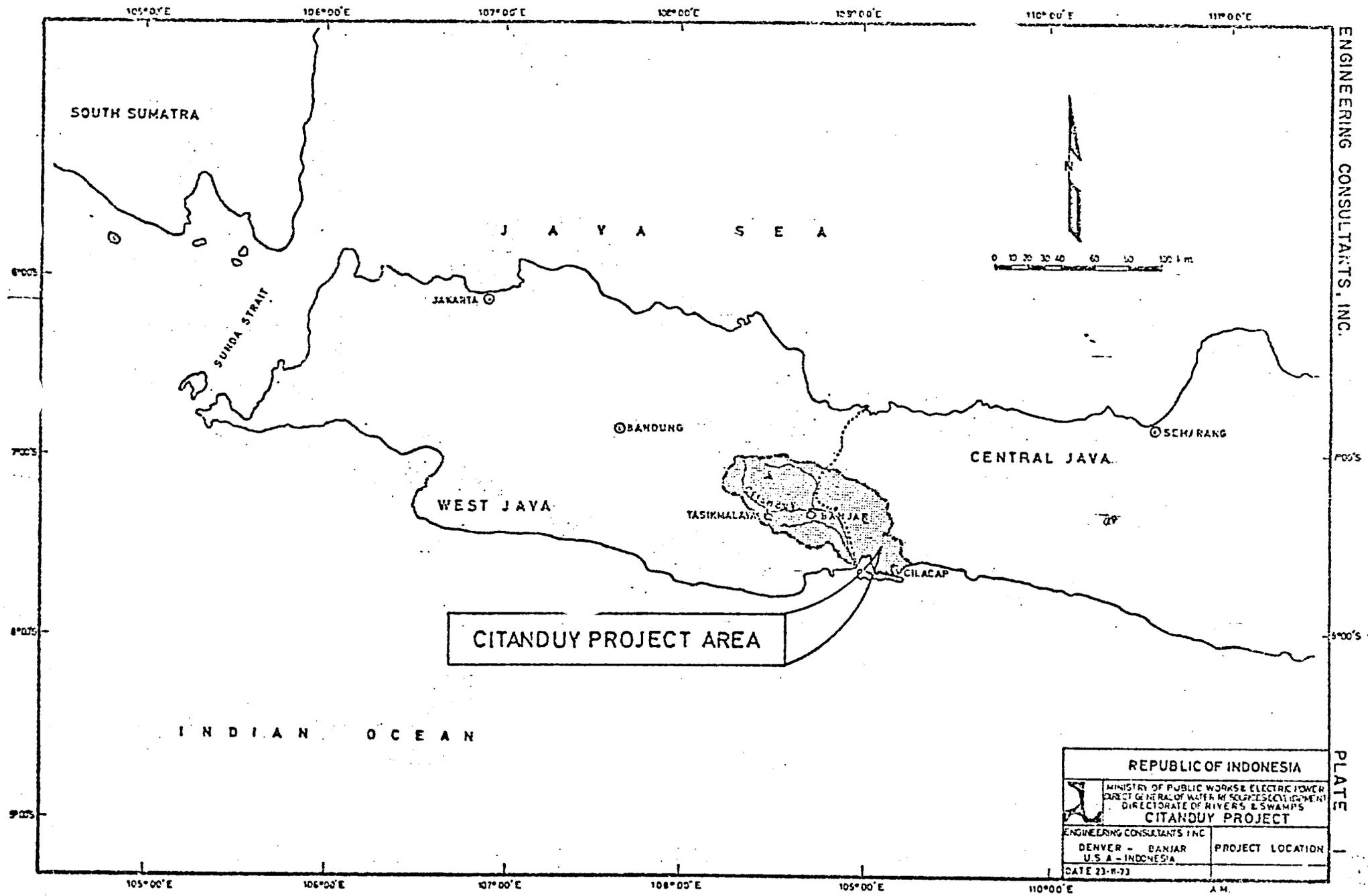
The next day I viewed more fields and then flew back to Jakarta and on to the United States. But I brought with me a deep impression of the importance insects play in the production of soybeans in Indonesia and in the large number of well-qualified researchers, especially entomologists, who are beginning to mount a program to reduce the influence of pests on soybean production.

FOLLOW-UP ACTION

Discuss with the INTSOY Director the sincerity of the Indonesian effort in soybean production and request that he visit Indonesia in conjunction with his trip to Sri Lanka.

ATTACHMENTS

- APPENDIX 1. Map of the Citanduy River Basin Development Project.
- APPENDIX 2. Map of Luwu Development Project.



REPUBLIC OF INDONESIA	
MINISTRY OF PUBLIC WORKS & ELECTRIC POWER DIRECTOR GENERAL OF WATER MANAGEMENT & SWAMP DEVELOPMENT DIRECTORATE OF RIVERS & SWAMPS	
CITANDUY PROJECT	
ENGINEERING CONSULTANTS, INC. DENVER - BANJAR U.S.A. - INDONESIA	PROJECT LOCATION
DATE 23-6-73	A.M.

