

Agency for International Development

Development Support Bureau

Office of Agriculture

Detailed Summary
of
Project Activities

"Pest Management and Related
Environmental Protection"

Contracted to the Regents of the University
of California at Berkeley

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DETAILED SUMMARY OF PROJECT ACTIVITIES

a. Pesticide Manual. The project supervised the preparation of a pesticide manual for use by A.I.D. in planning and executing well-designed pesticide programs for LDCs. The project, which contracted the preparation of the manual to a consulting firm, provided the outline for the manual, supervised its preparation, reviewed the draft, and furnished important data and references. The Pesticide Manual consists of three parts: I - Safe Handling and Use of Pesticides; II - Basic Information on Thirty-five Pesticide Chemicals; and III - Specifications. The manual, was published in 1972 in two volumes totaling 609 pages. One chapter in Part I on handling, transportation, and storage of pesticides was revised and re-published in 1976 (See Project Publications 1, 2, and 3).

b. Pest and pesticide surveys. An early activity of the project was a survey for the identification and evaluation of pest problems that were having significant impact on food production in the LDCs. The survey also included an evaluation of pest control and pesticide handling practices in these countries. In 1972 the project organized six multi-disciplinary teams, each consisting of an entomologist, a plant pathologist, a nematologist, and a weed scientist. The teams were dispatched to the following regions and countries:

East Asia:

Philippines	Hong Kong
Thailand	Singapore
Malaysia	Japan
Taiwan	

Near East/Asia:

Turkey	Afghanistan
Iran	Pakistan

Near East/Mediterranean:

Jordan	Spain
Lebanon	Portugal
Tunisia	

Africa:

Senegal	Nigeria
Niger	Kenya
Mali	Tanzania
Ghana	Ethiopia

Central America:

Guatemala	Costa Rica
Honduras	Panama
Nicaragua	Guyana

South America:

Brazil	Bolivia
Uruguay	Ecuador
Dominican Republic	

The Central and South America Teams were preceded by a two-man pilot study team which made a preliminary study of the situation in these regions. The South American team also included a pesticide specialist.

Upon completion of these surveys, each team prepared a report recording the principal pest problems on the major crops in each country, the effectiveness of current control operations, a description of the pesticide regulation and handling (management) and the actual or potential problems relating to the pesticide management situation in each country (See Project Publications as follows: East Asia, 4; Near East/Asia, 5; Near East/Mediterranean, 6; Africa, 7; Central America, 8; South America, 9. The report of the two-man team preliminary study in Latin America is given in Project Publication 10. An overall report of the situation on weeds, a summary from the six team reports, is given in Project Publication 11).

c. Special surveys.

(1) Pest and pesticide management in Vietnam. A special study on pest and pesticide management in South Vietnam was made by Dr. B.E. Day in 1974. The results of his study are presented in Project Publication 12.

(2) Pesticide use in Pakistan. A three-man project team made a study of pesticide use in Pakistan in 1974 at the request of the Government of Pakistan. Results of the study and recommendations are given in Project Publication 13.

(3) Plant protection in Bangladesh. In 1975, at the request of the Government of Bangladesh, a special five-man multidisciplinary team made a study of plant protection in that country. Results of the study and recommendations from the team are given in Project Publication 14.

(4) Tropical fruit flies in Central America and Panama. A seven-member team of scientists made an on-site investigation and evaluation of tropical fruit flies on the production and economy of Central American countries and Panama. The study was conducted in 1977. The multidisciplinary team reflected expertise in fruit fly ecology, biological control, mass rearing of parasites, and fruit flies, chemical control, agricultural economics, and plant quarantine. The results of the investigation and the team recommendations are given in Project Publication 15.

(5) International survey on selected pesticide problems. A five-member panel on pesticides conducted a mail survey on selected pesticide problem areas. A questionnaire consisting of nine general questions was sent to 54 organizations or individuals on a worldwide basis. Good response (40 percent) was received from the request. The results of the

survey are presented in Project Publication 16.

d. Special reports.

(1) List of references on plant protection. In 1974, the project prepared a list of reference books in the plant protection sciences. The list of books, published in English, included those considered to be an important part of a plant protection laboratory, particularly where a facility may be isolated from a major laboratory. It includes publications in entomology, plant pathology, nematology, weed science, and vertebrate pests. The publication is Number 17 in the attached list of Project Publications.

(2) Rice losses to pests. In 1975, the project made a study of the scientific literature on losses to rice from various pests. The purpose was to present some representative loss data from some of the more important rice-growing regions and for some of the more significant pests to call attention to the need for effective crop protection schemes. The 64-page report is Number 18 in the attached list of Project Publications.

(3) Information systems for methods of pest control. In 1976, the project published a report on information systems for alternative methods of pest control. It synthesizes the current status of information systems science, computer science, and biological sciences involved in crop protection and pest management. The report was presented at the FAO/UNEP Consultation on Pest Management Systems for the Control of Cotton Pests in Karachi, Pakistan, in 1975. The report is listed as Number 19 in the attached list of project publications.

(4) Agromedical approach to pesticide management. As the Project has proceeded through several years of activities, it has become abundantly clear that effective countrywide pesticide management programs must be a joint effort of both the agricultural and medical components of a society. The approach and suggestions on how to accomplish such a program were put together in a manual published in 1976. It is referenced as Number 20 in the list of project publications.

(5) Acronym list. In the process of dealing with the numerous organizations in the United States and worldwide, the project management has found a long list of acronyms. In order to have the list for ready reference, the project prepared a list of 391 acronyms with the full names of the organizations represented by the acronyms. The list, published in 1977, is indicated as Number 21 in the attached list of project publications.

(6) Pest management colloquium in Egypt. The project sent a six-man team to participate in a pest management colloquium in Egypt on October 25-31, 1975. During this time, the team analyzed the current pest and pesticide management situation in Egypt. The participation of the team in the colloquium laid the groundwork for the subsequent seminar/workshop in pesticide management which was held in 1977 and noted in a

subsequent part of this appendix. Observations of the team are recorded in project publication Number 22 in the attached list.

(7) List of international conferences relate to pest management. The project has prepared lists of international conferences related to pest management. Such lists are a valuable document to LDC scientists in planning for their participation in such meetings. The latest list, dates April, 1978, notes 110 such conferences spanning the years of 1978 through 1982, inclusively. This list is referenced as Number 23 in the attached list of project publications.

e. Seminars, workshops, and conferences.

(1) Seminar on pesticide and environmental management in El Salvador. During the last decade serious pesticide management problems have occurred as a result of the importation and indiscriminate use of large amounts of agricultural chemicals. The project, cooperatively with the Ministers of Agriculture and Health of El Salvador, the USAID Mission in San Salvador, and the Pan American Health Organization, sponsored a training seminar on "Management of Pesticides and Protection of the Environment" in El Salvador. The seminar, which was held on December 3-7, 1973, drew 88 participants, some of which came from Guatemala, Peru, and Nicaragua. A report of the seminar was published and is listed as Number 24 in the list of project publications.

(2) Seminar, workshop and training in pesticide management in Indonesia. The level of pesticide use in Indonesia was relatively low in 1974, but was expected to increase by 8 times by 1980. That seemed like a propitious time to lay the foundation for improved pesticide management. So, the project cooperatively with the Indonesian government and other agencies held a seminar on pesticide management in Jakarta on July 8-11, 1974; a workshop on July 12-13; and a training program from July 19 to August 3. There 205 registrants for the seminar. The workshop, the purpose of which was to develop plans for implementation of pesticide management programs in the country, involved six working groups of 10-15 people representing the ministries of health, agriculture and manpower, and the pesticide industry. Following the seminar and workshop, a three-week specialized training session in residue analysis was provided for Indonesian chemists, 22 of whom participated. Proceedings of the three activities are documented in the project publication 25 in the attached list.

(3) Conference on managing crop pests in the Sahel. The Sahel governments and members of the donor community to these governments are aware of the limitations in these countries to manage pests of annual crops. The project held a Sahel Crop Pest Management Conference in Washington to obtain a consensus among the interested donor agencies and African technicians as to a feasible approach to the solution of the problem. The conference was held on December 11-12, 1974. It involved 32 scientists and administrators from the United States, Senegal, England, Mexico, Mali, Italy, Canada, France, and Chad. Proceedings by the con-

ference and its conclusions are documented in project publication referenced as Number 26 in the attached list. The results of this conference led directly to the development of the Regional Food Crop Protection Project in West Africa as well as the Sahel Integrated Pest Management project being executed by FAO with AID funding.

(4) Seminar and workshop on pesticide management in the Philippines. The project, jointly with the Philippine Government and the pesticide industry, conducted a seminar and workshop in pesticide management in Manila on February 10-15, 1975. The seminar covered the basic problems with pesticides and procedures for management; the workshop was devoted to developing a system of pest and pesticide management for the Philippines. The seminar led directly to the enactment of new pesticide legislation by the Government of the Philippines. There were 291 participants. Proceedings of the seminar and workshop are documented in a report listed as Number 27 in the attached list of project publications.

(5) International bacterial wilt research conference. An international conference to assess the status of research and to consider areas for emphasis in future studies of bacterial wilt, caused by Pseudomonas solanacearum, was held at North Carolina State University on July 18-23, 1976. While the project did not conduct the conference, it did participate by providing funds to North Carolina State to assist in defraying the costs of holding the conference. Fifty-three people representing 23 countries participated in the conference. Results of the conference are recorded in publication Number 28.

(6) Seminar and workshop on pesticide management in Egypt. The project, cooperatively with the University of Alexandria, the Ministry of Agriculture of Egypt, and three United Nation agencies conducted a seminar and workshop on pesticide management at the University of Alexandria in Egypt on March 5-10, 1977. The seminar was devoted to information on pesticide management, and the workshop was directed at planning a system for managing pesticides in Egypt. There were 136 participants in the seminar and workshop. The proceedings are recorded in the publication referenced as Number 29 in the attached list.

(7) Seminar and workshop on pesticide management in Guatemala. The project organized and planned a seminar-workshop on pesticide management in Guatemala on February 2-4, 1976. However, it had to be terminated because of an earthquake that caused widespread damage. The activity is documented in project publication Number 30.

(8) Seminar and workshop on pesticide management in Colombia. A seminar-workshop on pesticide management was organized and conducted by the project in Colombia on February 13-17, 1978. The report from this activity has not been published.

(9) Pest management training workshop for LDC entomologists. A pest management training workshop for entomologists from LDCs, sponsored by the project, was conducted by Cornell and North Carolina State universities from July 18 to August 27, 1976. The workshop included extensive

lectures and demonstrations on insect pest management technology, travel through the agricultural areas of several states and attendance at the XV International Congress of Entomology in Washington, D.C. The workshop was attended by 25 entomologists from 15 LDCs. The proceedings of the workshop are given in project publication Number 31.

f. Quality control program for pesticide analytical laboratories in LDCs

In 1975 the project, through its subcontract with the University of Miami (Florida), initiated a quality control program for pesticide analytical laboratories in developing countries for the purpose of measuring the overall performance of each participating laboratory and determining any specific training needs that would be required to upgrade and standardize their performance. At present there are 46 laboratories from 18 LDCs involved in the program. As part of this program, specialized training sessions for chemists employed in laboratories in the LDCs have been organized and conducted, either in conjunction with a seminar-workshop in the home country of the trainee or at the University of Miami. In 1977, three separate training sessions were held at the University of Miami for six chemists from Egypt and one from Costa Rica. A training manual to assist personnel in residue analyses was published in 1978 (Reference Number 32 in project publications).

g. Other special project and activities

(1) Symposium on crop pest management in the Sudan in 1978 participated in by Dr. Ray Frisbie, Texas A&M University; documented in a trip report.

(2) FAO Technical consultation on Inter-Country Programme for Integrated Pest Control (IPC) in Rice in South and Southeast Asia, Bangkok, Thailand, in 1978 participated in by Dr. Ray F. Smith; documented in trip report.

(3) Planning for integrated pest management training in Peru. Documented in trip report.

(4) Training course on integrated pest management in Peru. Conducted by Drs. Ray F. Smith, J.L. Apple and others. Documented in a trip report.

(5) Colloquium on bird control attended by Dr. G.R. Maxwell, State University of New York; colloquium sponsored by the European and Mediterranean Plant Protection Organization; documented in trip report.

(6) 13th Meeting of the Inter-African Phytosanitary Council in Accra, Ghana, in 1977. Attended by Dr. D.F. Bateman; documented in a trip report.

(7) Planning trip to Senegal and Nigeria in December, 1977, by Dr. E.H. Glass of Cornell University to discuss the feasibility of holding a pesticide management workshop in West Africa; documented in a trip report.

(8) Ad Hoc Government Consultation on International Standardization of Pesticide Registration Requirements in Rome, October, 1977. Attended by Dr. V.H. Freed, Oregon State University; documented in a trip report.

(9) Trip in October and November, 1977, to Colombia by Dr. J.B. Mann, University of Miami to review the pesticide analyses program; documented in a trip report.

(10) Trip to Peru to study viral diseases of citrus by Dr. J.M. Wallace, University of California-Riverside. Documented in a trip report.

(11) Workshop on pest and pesticide management in Thailand conducted by Dr. David Pimentel of Cornell, Dr. Ian Tinsley of Oregon State and Dr. Ray F. Smith. Documented in a trip report.

(12) Study of potential pest management strategies in Haiti by Dr. J.W. Smith of Texas A & M University. Documented in a trip report.

(13) International plant protection library. The project has established an International Plant Protection Library in its headquarters at the University of California, Berkeley. It contains documents, reprints, books, and journals dealing with agriculture in developing countries of the world. It contains information on pesticides, plant diseases, pest control, ecology and the environment, the world food situation and related international institutions. Files of clippings are also maintained dealing with various social, political and cultural aspects of many different countries. The library has several thousand documents. It is invaluable in briefing teams for work in the several LDCs.

(14) Pest management news. In September of 1975 the project began to publish a periodical newsletter with the title of Pest Management News. The publication contains articles concerning pest management problems and programs, pesticide management and other items of interest to plant protection specialists throughout the world. The newsletter is currently being sent to about 2,500 people and organizations around the world, 60 per cent of which are international. There have been nine issues published, the last of which was March, 1978. The project is considering an edition in Spanish.

(15) Participation in other international meetings. The Project has attached considerable significance to attendance at various important international meetings and conferences by project staff and consultants. Such activity affords for liaison and contacts to develop between the Project and officials of various international organizations such as FAO, UNDP, etc., that have responsibilities for planning and implementing pest management programs. In 1977, for example, there was project attendance at 13 such international meetings in 10 different countries. Attendance at these meetings are documented in trip reports at Project Headquarters in Berkeley, California.

h. List of progress and annual reports

The Project has prepared progress and/or annual reports as follows:

(1) Anonymous, 1973. Progress Report of the UC/AID Pest Management and Related Environmental Matters Project. July 1, 1971 to January 15, 1973. (Referenced as Project Publication Number 33.)

(2) Anonymous, 1975. Annual Report, UC/AID Pest Management and Related Environmental Protection Project (1974-75). (Referenced as Project Publication Number 34.)

(3) Anonymous, 1976. Annual Report, UC/AID Pest Management and Related Environmental Protection Project (1975-76). (Referenced as Project Publication Number 35.)

(4) Anonymous, 1978. Summary of Activities for 1977 of the UC/AID Project in Pest Management and Related Environmental Protection. (Referenced as Project Publication Number 36.)

i. List of project publications

The following list of publications of the Project has been compiled from information and publications provided to the Review Team. The numbers assigned are purely for the convenience of the Review Team.

(1) von Rumker, R., and F. Horay, 1972. Pesticide Manual; Part I: Safe Handling and Use of Pesticides and Part II: Basic Information on 35 Pesticide Chemicals. Department of State and AID Special Manual.

(2) von Rumker, R., and F. Horay, 1972. Pesticide Manual; Part III: Specifications. Department of State and AID Special Manual.

(3) Freed, V., 1976. Pesticide Manual; Part I: Safe Handling and Use of Pesticides (Chapter on Handling, Transportation and Storage of Pesticides - replaces chapter on Department of State and AID Special Manual.)

(4) Glass, Edward H., et al., 1971. Plant Protection Problems in Southeast Asia. UC/AID/PM Multidisciplinary Study Team Report.

(5) Koehler, C.S., et al, 1972. Plant Protection Turkey, Iran, Afghanistan, Pakistan. UC/AID/PM Multidisciplinary Study Team Report.

(6) Cavin, George E. et al., 1972. Crop Protection in the Mediterranean Basin. UC/AID/PM Multidisciplinary Study Team Report.

(7) Sasser, J.N. et al. 1972. Crop Protection in Senegal, Niger, Mali, Ghana, Nigeria, Kenya, Tanzania and Ethiopia. UC/AID/PM Multidisciplinary Study Team Report.

- (8) Caltagirone, L.E. et al, 1972. The Crop Protection Situation in Guatemala, Honduras, Nicaragua, Costa Rica, Panama and Guyana. UC/AID/PM Multidisciplinary Study Team Report.
- (9) Echandi, Eddie, et al., 1972. Crop Protection in Brazil, Uruguay, Bolivia, Ecuador and Dominican Republic. UC/AID/PM Multidisciplinary Study Team Report.
- (10) Apple, J. Lawrence and Ray F. Smith, 1972. A Preliminary Study of Crop Protection Problems in Selected Latin American Countries. UC/AID/PM Preliminary Report.
- (11) Zimdahl, R.L. ed., 1973. Weed Science in the Developing Countries of the World. UC/AID/PM Summary Report.
- (12) Day, Boysie E., 1972. Pest Management and the Efficient Use and Safe Handling of Pesticides in South Vietnam. UC/AID/PM Special Report.
- (13) Yates, W.E., et al., 1974. Analysis of Pesticide Use in Pakistan. UC/AID/PM Multidisciplinary Study Team Report.
- (14) Wilcoxson, R.D., et al., 1975. Plant protection in Bangladesh. UC/AID/PM Multidisciplinary Study Team Report.
- (15) Mitchell, W.C., et al., 1977. The Mediterranean Fruit Fly and its Economic Impact on Central American Countries and Panama. UC/AID/PM Multidisciplinary Study Team Report.
- (16) Davies, John et al., 1972. International Survey on Pesticide Use. UC/AID/PM Panel on Pesticides (out of stock).
- (17) Koehler, C.S. and Ray F. Smith, 1974. Reference Books in the Plant Protection Sciences. UC/AID/PM Special Compilation.
- (18) Barr, Barbara A., Carlton S. Koehler and Ray F. Smith, 1975. Crop Losses - Rice: Field Losses to Insects, Diseases, Weeds and Other Pests. UC/AID PM Special Report.
- (19) Bottrell, D.G., C.B. Huffaker and Ray F. Smith, 1976. Information Systems for Alternative Methods of Pest control; With emphasis on problems and needs of crop protection specialists in developing countries. UC/AID/PM Special Report.
- (20) Anonymous, 1976. The Agromedical Approach to Pesticide Management. Compilation of papers presented at previous UC/AID Pesticide Management Seminar/Workshops. (Available in Spanish also.)
- (21) Anonymous, 1977. Acronym List of International Organizations Related to Agriculture, Economic Development and Pest Management.

(22) Adkisson, F.L. et al., 1976. A Special Report on Pest Management and Pesticide Management in the Arab Republic of Egypt. Observations made during a US/Egypt Colloquium on Pest Management, Cairo, Egypt, October 25-31, 1975. UC/AID/PM Special Report.

(23) Anonymous, 1975. International Conferences Related to Pest Management.

(24) Anonymous, 1974. Management of Pesticides and Protection of the Environment. A Report on a Seminar held at San Salvador, El Salvador, December 3-7, 1973. Sponsored jointly by UC/AID/PM; Ministries of Agriculture and Livestock; Public Health and Social Welfare; USAID Mission and the Pan America Health Organization.

(25) Anonymous, 1974. A Report on a Seminar, Workshop and Training in Pesticide Management. Proceedings of these activities held in Jakarta, Indonesia July 8 - August 3, 1974. Sponsored jointly by UC/AID/PM; Departments of Health, Agriculture and Manpower, Indonesia; FAO; WHO; and the local pesticide industry.

(26) Smith, Ray F. ed., 1974. Report of the Sahel Crop Pest Management Conference. Proceedings of an AID-sponsored conference held in Washington, D.C., December 11-12, 1974. (Available in French also.)

(27) Anonymous, 1975. A Report on Seminar and Workshop in Pesticide Management held in Manila, Philippines, February 10-15, 1975. Sponsored jointly by UC/AID/PM; USAID/Manila; the Bureau of Plant Industry, Philippines; and the local pesticide industry.

(28) Sequeira, Luis and Arthur Kelman, eds., 1976. Proceedings of the First International Planning Conference and Workshop on the Ecology and Control of Bacterial Wilt Caused by Pseudomonas Solanacearum, Raleigh, North Carolina, July 18-24, 1976. Sponsored jointly by the University of Wisconsin-Madison, North Carolina State University-Raleigh and the International Society for Plant Pathology.

(29) Anonymous, 1977. A Report on a Seminar/Workshop in Pesticide Management. Proceedings of these activities held at the University of Alexandria, Alexandria, Arab Republic of Egypt, March 5-10, 1977. Sponsored jointly by UC/AID/PM, the University of Alexandria, Ministry of Agriculture, Egypt and USAID/Cairo.

(30) Anonymous, 1976. Primer Seminario Regional Sobre Uso y Manejo de Plaguicidas en Centro America. Instituto Centro-Americano de Investigacion y Tecnologia Industrial - ICAITI. Bajo el Patrocinio del Proyecto de la Universidad de California y la Agencia Para el Desarrollo Internacional de los Estados Unidos de America - A.I.D. Control Integrado de plagas y Proteccion del Medio Ambiente.

(31) Anonymous, 1976. UC/AID Pest Management Training Workshop for Entomologists. July 18 to August 27, 1976. Organized by Cornell University and North Carolina State University.

- (32) Mann, Jon B., 1978. Manual for Training in Pesticide Analysis. University of Miami subcontract with University of California/USAID.
- (33) Anonymous, 1973. Progress Report of the UC/AID Pest Management and Related Environmental Matters Project. (July 1, 1977 to January 15, 1973).
- (34) Anonymous, 1975. Annual Report, UC/AID Pest Management and Related Environmental Protection Project (1974-75).
- (35) Anonymous, 1976. Annual Report, UC/AID Pest Management and Related Protection Project (1975-76).
- (36) Anonymous, 1978. Summary of Activities for 1977 of the UC/AID Project in Pest Management and Related Environmental Protection.
- (37) Anonymous, 1978. History and Background, UC/AID Project in Pest Management and Related Environmental Protection.
- (38) Smith, J.W. and Lionel Richard, 1978. Potential pest management strategies for Haitian agriculture - developing the ecological base.