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P R O E X A G
NON-TRADITIONAL AGRICULTURAL EXPORT SUPPORT PROJECT

TECHNICAL/PESTICIDE TRAINING AIDS

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SUBMITTED TO:

Regional Office for Central America and Panama (ROCAP)
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PREFACE

This assignment was to provide advice on the development of pesticide use training programs in Central America, with particular emphasis on the use of pictograms among illiterate or non-Spanish speaking farmers. Through extended dialogue with the director of PROEXAG, detailed reading of documents in the PROEXAG office, interviews with representatives of ICI and Rhone-Poulenc agricultural chemical companies, and general discussion with office staff, the current situation on pesticide training was assessed and recommendations made for PROEXAG and ..OCAP's future

The author wishes to acknowledge the assistance of the PROEXAG staff as well as the numerous persons who have collaborated on his previous research on symbolic labeling for pesticides.

EXECUTIVE SUMMARY

PROEXAG and USAID ROCAP have an historic opportunity with their project on non-traditional export crops to develop and implement an effective pesticide use training course integrated with product labeling harmonized for Central America. Both elements should utilize pictograms to enhance understanding and compliance by illiterate or semi-literate growers or users. Even literate users can benefit from the visual reminder cues given by pictograms on labels and in training.

The traditional arguments for the proper handling and use of pesticides -- danger to one's health or the environment -- are often overshadowed by immediate concerns for economy or expedience. For non-traditional export crops to the U.S., however, the threat of rejection and/or automatic detention or exclusion is a powerful incentive in favor of proper use.

The preliminary results of the Polly Hoppin study (4/13/89) suggest several important trends in pesticide practices by growers of non-traditional export crops in Guatemala:

-- Independent growers seem to have the most difficulty controlling residues from approved products as well as from non-approved products.

-- Overall, application of approved products too close to harvest seems to be more difficult to control than the use of non-registered products.

-- Cosmetic problems and fear of rejection because of them may make it difficult to enforce days to harvest recommendations.*

-- The least number of problems occurred with growers in Category I (Exporter provides inputs and technical assistance to grower.) Cooperatives measured the most violations (by percentage), but they also have the greatest incentive to comply since all members suffer equally if a shipment is refused.

This study corroborates earlier suppositions about the behavior of growers in the field and the reasons why violations occur. An intensive, well-designed training course backstopped by an up-to-date information system on pesticide products, combined with easy to understand labels should go a long way to minimizing violations by growers in all categories.

* A continuing research question is whether the days to harvest recommendations according to the EPA label for relatively temperate climates are accurate for the tropical climates prevalent in Central America.

The problem of misuse of pesticides in Central America has been analyzed with a decision tree by John Lamb showing several levels at which intervention can take place to insure that non-traditional export crops do not fail inspections because of excessive residues of non-approved products:

1. Lack of information about approved chemical products for a specific crop and how to use them, e.g. days to harvest.

2. Lack of availability of approved products for a specific crop or availability of non-approved products at cheaper prices.

3. Economic incentives to growers -- strongly negative when a shipment is refused -- or can be positive when non-approved products will work, are cheaper, and may sneak through the residue test.

4. Product misuse -- spraying by calendar, not need -- not following label directions for mixing, application or days to harvest.

Item 1 is being addressed by the product data bank project (based on the Banco Centroamericano de Integracion model.)

Item 2 is not amenable to education except of suppliers and indirectly through demand created by informed growers. The Latin American Working Group of responsible chemical companies could play a key role in informing their members about the residue problem for non-traditional exports and recommending the appropriate products.

Item 3 must be handled by growers having the appropriate information from Item 1 and adequate training under Item 4.

Training, then becomes the critical variable for insuring that non-traditional export products have no entry problems to the U.S. (and perhaps ultimately to the EEC.)

The training program may be based upon the EPA certification course suggested, with some modifications.

-- The training must be in the context of the export crops and the absolute necessity of following recommendations emphasized. The economic incentive variable must be stressed here with actual examples of potential losses compared to costs of using the right products in the right amounts and intervals.

-- Training may be in two levels; growers and supervisors, and actual field workers. For the latter, simplicity and understandability are keys to compliance. It is here where the pictograms to suggest correct behavior can be of the most use. The training with pictograms will be reinforced by the use of the

same pictograms on actual labels of the products. Few pictograms are so intuitively obvious that their meaning will be apparent to all viewers, so merely placing the drawings on the labels is not enough. Their meaning must be trained for and reinforced in every way possible; posters, handouts, formal courses, etc.

ACTIONS TAKEN UNDER THIS ASSIGNMENT

1. Reviewed materials in PROEXAG office relative to the pesticide problem, discussed them with John Lamb, and summarized conclusions from them in a brief document.

2. Critiqued the GIFAP pesticide handling symbols and the procedure used to test them. Presented the SUNY symbol Glossary as an improved alternative.

3. Developed a strategy document "STEPS TO ACHIEVE HARMONIZATION OF SYMBOLS FOR PESTICIDE LABELS IN CENTRAL AMERICA," which laid out the elements needed to get pesticide labeling coordinated in Central America and pictographic symbols included on them.

4. Developed a strategy document, "STEPS TO ACHIEVE A LOCALLY APPROPRIATE TRAINING COURSE FOR PESTICIDE USE IN CENTRAL AMERICA," which detailed the measures needed to review existing training courses and develop a course that is useful in Central America which includes pictograms to enhance pesticide user understanding among low literacy growers.

5. Met, along with John Lamb, with George Allen of ICI Agricultural Chemicals company and Juan Bocanegra of Rhone Poulenc Chemical company to discuss their companies' involvement in pesticide use training and interest in adding pictograms to product labels. Both were receptive and offered to assist in any way possible. Sr. Bocanegra especially was helpful in agreeing to provide PROEXAG with an entre to GREPAGRO which is the local Guatemalan affiliate of GIFAP, the worldwide confederation of pesticide manufacturers.

6. Reviewed the videotape, "Farmworker Pesticide Safety Program," produced by the University of Florida and USDA Cooperative Extension for possible use in Central America. The first two parts of the tape are general information about pesticide handling presented in almost soap opera fashion. They are not likely to be of much use for the PROEXAG training course. Part III of the videotape would be of some use since it is a concise treatment of proper handling techniques except that the visuals used for clothes washing (automatic washing machine) are not appropriate for Central America.

7. Met with Alberto Rivera in the office of CAFAN adjacent to PROEXAG to discuss possible use of their Macintosh computing system to develop presentation materials with pictograms. (All previous work on the pictograms at SUNY is on Macintosh.) Mr. Rivera was enthusiastic about collaborating and would like to coordinate their equipment with PROEXAG's so that they could share a Laser printer. If CAFAN obtained a copy of Word Perfect for Macintosh, any text produced by PROEXAG could be read and incorporated with graphics on the Macintosh system. This could

be especially helpful in developing training materials using the pictograms.

8. Met, along with John Lamb, with Tully Cornick of ROCAP to discuss PROEXAG's pesticide education project and its relationship to AID's forthcoming HADS and RENARM projects. He was intrigued with the project and especially the possibility of testing the pictographic symbols with some of the indigenous groups in Guatemala who do not speak Spanish.

CONCLUSIONS AND RECOMMENDATIONS

The overall recommendation is that PROEXAG assign a staff member the responsibility of following through with the chemical companies in Guatemala and the region along with their trade associations to push the idea of harmonizing their labels in Central America and incorporating pictograms on them. Similarly, there will have to be a concerted effort to make sure that an appropriate training course with effective visuals is produced in a timely fashion and given the necessary distribution to ensure that growers of non-traditional export crops, as well as others, are properly trained in the safe handling and use of pesticides.

Specific recommendations and steps to achieve them are included in the two attached documents.

STEPS TO ACHIEVE HARMONIZATION OF SYMBOLS FOR PESTICIDE LABELS IN CENTRAL AMERICA

1. Meet with representatives of agricultural chemical companies in Guatemala to gain collaboration and ideas -- such as George Allen of ICI and Juan Bocanegra of Rhone Poulenc.

2. Develop concensus on what symbols should appear on the label:

   a. Every label should have:
      - Read and Follow Instructions
      - Keep Out Of Reach of Children
      - Type of Product
      - Dispose of Container Properly

   NOTE: The compilation of label instructions by the Banco Centroamericano de Integracion may be used as a guide for which symbols to use on which products. Also, The Farm Chemicals Handbook has protective clothing suggestions according to toxicity category.

   b. According to toxicity:
      - Skull and Crossbones

   c. According to product:
      - Wear Gloves
      - Wear Boots
      - Wear Waterproof Apron
      - Wear Eye Protection
      - Wear Respirator
      - Wear Waterproof Hat

   d. Clean-up Instructions:
      - Wash Hands With Soap
      - Wash Clothing

   e. Health Precautions as necessary:
      - First Aid Instructions
      - Induce Vomiting
      - Do Not Induce Vomiting

   f. Special Precautions as necessary:
      - Do Not Contaminate Water
      - Do Not Pour Into New Container
      - Toxic to Bees
      - Toxic to Fish
      - Toxic to Wildlife
      - Do not Apply near Domestic Animals
      - Re-entry Time for Workers
      - Days to Harvest

3. Develop several mock-up labels for testing in Central America.

4. Assemble a working group of the Ag Chemical trade representatives in all Central American countries. Gain their endorsement and possible financial collaboration.

5. Inform and solicit collaboration of Latin American Working Group (LAWG).

6. Carry out testing in at least three Central American countries with suppliers, growers, cooperatives, and individual growers with particular attention to low education, low literacy groups.

7. Report results, refine symbols, and prepare training materials tailored to the specific symbols chosen.

STEPS TO ACHIEVE LOCALLY APPROPRIATE TRAINING COURSE
FOR PESTICIDE USE IN CENTRAL AMERICA

1. Meet with representatives of agricultural chemical companies in Guatemala to solicit examples of training courses that the companies have developed -- such as the GIFAP course mentioned by George Allen of ICI.

2. Review the EPA Private Applicator Certification Course for appropriateness for Central America and non-traditional export crops in specific.

3. Obtain and review copies of other training courses in Spanish that may be currently available: Army training course for use in Puerto Rico, NACA course for migrant laborers, University of Florida course, etc.

4. Develop concensus out of all the courses what the content of the PROEXAG/ROCAP course should be.

5. Incorporate the appropriate symbols from the Central American Labeling Project which must be trained for:

   Read and Follow Instructions
   Keep Out Of Reach of Children
   Type of Product
   Dispose of Container Properly
   Skull and Crossbones
   Wear Gloves
   Wear Boots
   Wear Waterproof Apron
   Wear Eye Protection
   Wear Respirator
   Wear Waterproof Hat
   Wash Hands With Soap
   Wash Clothing
   First Aid Instructions
   Induce Vomiting
   Do Not Induce Vomiting
   Do Not Contaminate Water
   Do Not Pour Into New Container
   Toxic to Bees
   Toxic to Fish
   Toxic to Wildlife
   Do not Apply near Domestic Animals
   Re-entry Time for Workers
   Days to Harvest

6. Work with Keith Andrews at Zamorano to develop training course per his original solicitation of February 9, 1989.

7. Implement training throughout the region.