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# PROCEEDINGS

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# The IR-4 Program

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The IR-4 program is a nationwide cooperative effort which aids in the development of data required for the registration of animal drugs, biologic pest control agents and pesticides required for minor or specialty uses. Headquartered at Rutgers University, New Jersey, it supports regional offices at four locations across the country. The Southern Region Leader Laboratory, located at the University of Florida, Gainesville, coordinates the research and data collecting aspects of IR-4 in thirteen states plus Puerto Rico and the Virgin Islands.

Registration needs identified by researchers, growers and other users are brought to the attention of IR-4 and protocols are written to outline research required for eventual registration. IR-4 supports scientific research at Universities, State Experiment Stations and USDA facilities and develops data into a registration package. It usually requires two years from the time a request is presented to IR-4 until ultimate registration.  
**Keywords:** EPA, IR-4, pesticide registration.

Any use of a pesticide in the United States and territories must be registered with the Environmental Protection Agency (EPA). By following a process described in Section 3 of the Federal Insecticide Fungicide and Rodenticide Act, pesticides can obtain a full national registration. Also, pesticides may be registered for one year under an emergency or crisis exemption. Registrations are permitted when scientific data comply with EPA standards and regulatory restrictions are obeyed.

Manufacturers budget time and funds for research and development (R&D) to register major pesticide uses. It can require 10-15 years and over six million dollars to meet all data requirements specified by EPA. The eventual pesticide use must be large enough for sales to exceed costs or the manufacturer or sponsor will not become involved in the registration process. Potential small scale or minor pesticide uses would therefore remain unavailable to farmer, grower, nurseryman and others needing small quantities of pesticide for pest control.

The IR-4 program has been established to meet the needs of the small farmer by aiding to secure pesticide registrations for minor or specialty uses.

The IR-4 program is a nationwide cooperative effort of the USDA-SEA (ARS and CSRS), EPA, State Agricultural Experiment Stations, individual researchers, manufacturers and growers. With headquarters at Rutgers University, NJ, it is administered through state agricultural experiment stations in each of four regions (south, north east, north central and west) plus a special agricultural research service unit. The southern regional office is located at the University of Florida, Gainesville, and coordinates work in 13 southern states plus Puerto Rico and the Virgin Islands. Much of the pesticide residue analysis from southern region projects is facilitated at the University of Florida.

The regional offices coordinate IR-4 activities in their regions by working with a liaison representative from each state or territory. Each representative functions to identify pesticide needs, select IR-4 projects of high interest and recruit scientists to carry out research. The IR-4 liaison representatives for Puerto Rico and the Virgin Islands are Mr. Rafael Montalvo-Zapata and Mr. Walter Knausenberger, respectively.

The IR-4 process is initiated when someone completes a pesticide clearance request (PCR) and sends it to a liaison representative. He, in turn, submits the PCR through the regional office to national headquarters. The PCR, displayed in

Fig. 1 should be completed as thoroughly as possible. In particular, IR-4 requires information on proposed labeling, item no. 9. It is advisable to have some documentation that the pesticide formulation is efficacious when applied according to recommended dosage and proposed directions for use.

Each PCR is carefully screened first at the regional office and then at national headquarters to be sure that it meets certain criteria:

1. There is a verifiable need for the new pesticide.
2. The need is not satisfied by chemicals already labelled for control of the problem pest.
3. The pesticide has a full registration (usually on a major commodity).
4. The manufacturer desires registration, but does not wish to support research.
5. There are no EPA data gaps on the pesticide such as:
  - a) missing short- or long-term animal feeding study, or
  - b) missing toxicology data.
6. There are no other EPA constraints such as:
  - a) acceptable daily intake (ADI) exceeded,
  - b) under special review, or
  - c) missing metabolite and/or impurity information.

Many requests have been submitted to IR-4 for pesticide uses on subtropical and tropical crops. Each was screened and prioritized on a computerized listing. More than forty requests originating from Puerto Rico and the Virgin Islands have been accepted as IR-4 projects and are in various stages of completion (Table 1). During the past five years, field research has been carried out in southern California, Guam, Florida, Hawaii, Puerto Rico and the Virgin Islands on several hundred requests originating in subtropical and tropical areas of the world. Analytical laboratories in California, Florida and several other locations in the U.S. have aided by developing residue analysis data. Pesticide labels have been expanded to include uses on many commodities grown on small acreages such as cassava, guava, mango, pigeon pea, pepper, tanager and yam. It normally requires about two years for IR-4 to expand the label of a pesticide to a minor or specialty use.

The IR-4 program is also expanding pesticide labels for uses in ornamentals and obtaining new labels for biological agents and animal drugs.

TABLE 1. Development of pesticide labels through IR-4.

Project	Status
Avocado/Ambush/caterpillars, thrips /Vendex/mites	data review by ICI need residue data
Bean (snap)/Nemacar/nematodes	need residue data
Cassava/Evik/grass weeds	labelled
Cucurbits/Nemacur/nematodes /Roundup/weeds	submitted to EPA submitted to EPA
Eggplant/Ambush/flea beetle, fruit worm, leafminer /Nemacur/nematodes	labelled field work in progress
/Pydrin/potato beetle	labelled
/Roundup/weeds	submitted to EPA
Guava/Roundup/weeds	labelled
Mango/Ambush/thrips, leafhopper	no action
/Bravo/anthracnose	field work in progress
/Roundup/weeds	labelled
/Supracide/scale	labelled
/Triflorine/powdery mildew	data review
Okra/Pydrin/stink bug, corn earworm	field work in progress
Papaya/Ambush/leafhopper, thrips /Surflan/weeds	data review by ICI data review
Pepper/Ambush/beetle, leafminer, weevil	labelled
Pepper (nonbell)/Benomyl/powdery mildew /Roundup/weeds	field work in progress submitted to EPA
/Vydate/nematodes, mites	field work in progress
Pumpkin/Ambush/squash bug, aphids, borers /Roundup/weeds	submitted to EPA submitted to EPA
/Vydate/aphids, nematodes	waiting for label
Sugarcane/Lannate/rootstalk borer /Orthene/rootstalk borer	submitted to EPA data review by Chevron
Pigeon Pea/Bravo/rust /Caparol/weeds	data review by SDS labelled
/Paraquat/weeds	data review by ICI
/Roundup/weeds	field work in progress
Sweet potato/Ambush/earworm, weevil	residue analysis in progress
Tanier/Evik/weeds /Paraquat/weeds	labelled residues with Chevron
Tomato/Roundup/perennial weeds	submitted to EPA
Watermelon/Ambush/aphids, beetles, borers, leafminers /Roundup/weeds	need more data submitted to EPA
Yam/Evik/weeds /Paraquat/weeds	labelled need more data
/Roundup/weeds	complete

FIGURE 1. Minor Use Pesticide Clearance Request Form

1. Requestor (Name/Address/Phone): \_\_\_\_\_

2. Chemical Needed (Std Name/Trade Name/Mfg): \_\_\_\_\_

3. Site/Commodity: \_\_\_\_\_

4. Where needed (Field, Greenhouse, Water, etc.): \_\_\_\_\_

5. Parts Consumed—Including By-products (where appropriate): \_\_\_\_\_

6. Reason for Need (Pests, etc.): \_\_\_\_\_

7. Alternative Treatments (Advantages/Disadvantages): \_\_\_\_\_

8. Importance of Proposed Use (Acres, Economics, etc.): \_\_\_\_\_

9. Proposed Labeling:  
 Formulation: \_\_\_\_\_  
 Dosage Rate (Active Ingredient): \_\_\_\_\_  
 Method of Application (Ground, Air, etc.): \_\_\_\_\_  
 Directions for Use (Timing, No. Appl., Frequency, etc.): \_\_\_\_\_  
 Limitations (Harvest Interval, etc.): \_\_\_\_\_  
 Special Safety Precautions (if any): \_\_\_\_\_

10. Other Interested States/Agencies: \_\_\_\_\_

11. Comments: \_\_\_\_\_

12. Submitted by: Name Signature, Date \_\_\_\_\_  
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