

# IR-4 CROP PEST MANAGEMENT PROGRAM<sup>1</sup>

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## INTRODUCTION

In 1962, the State Agricultural Experiment Station Directors recognized the needs of growers in obtaining pesticide registrations for minor use and or speciality crops. They asked the U.S. Department of Agriculture's Cooperative State Research Service (CSRS) to initiate and coordinate a program to unite the agriculture community in an effort to obtain these needs.

The project which is known as IR-4 was established in 1963 to obtain national pesticide registrations for use on food and fiber minor crops.

This national program now involves **USDA/ARS** and **USDA/CSREES**, the Environmental Protection Agency (EPA), State Agricultural Experiment Stations (SAES), agricultural chemical companies, commodity organizations, and individual growers.

The IR-4 Program was expanded in 1975 when SAES established regional laboratories to provide regional coordination and analytical services. In 1976, USDA/ Agricultural Research Service (ARS) established a minor use program to provide further support for IR-4. The **IR-4**

program was expanded in 1977 to include ornamentals research on nursery and floral crops. This research now also includes label expansion for the commercial landscape, interior plantscapes, forestry production, turf, tissue culture, and Christmas tree production. In 1982, national label registration research was initiated to include biological pest control agents such as **microbials** and **biochemicals**.

An IR-4 national headquarters staff based at the New Jersey Agricultural Experiment Station (NJAES) at Rutgers University provides the leadership and coordination for this diverse program.

Each region includes a Regional Coordinator and each state has a representative to provide input for future research needs. A companion minor use program is administered by ARS. The ARS minor use program operates in concert with the IR-4 project in the clearance of minor uses. The major difference between the two programs is that funding comes from separate sources within USDA.

Since the IR-4 Ornamental Pesticide Research Program was initiated in 1977, we have had over 13,000 research projects (see table 1). During this time frame, ornamental research conducted by IR-4 has led to over 5,000 national label registrations (table 1). The number of research trials averaged about 475 for the last three years (table 2). The number of registrations for the period 1995-1997 exceeded 1400 or about 28 percent of the total registrations for the program (table 2).

During 1997, data were collected from 9 fungicides, 14 herbicides and 14 insecticides (Appendix One). During 1997, 135 new registrations were obtained (Appendix Two).

The data collected during the entire program has included research by over 200 different researchers. In 1997, 26 researchers at 20 locations in 16 different states were involved in the program.

The future of the program relies on the input from all research and extension personnel and growers who have pest control problems.

Table 1—IR-4 ornamental research 1977-1997

	Total projects	Total registrations
Fungicides	3,930	1,881
Herbicides	4,348	1,311
Insecticides	4,616	1,708
Nematicides	237	80
PGRS	90	48
Others	13	3
Total	13,234	5,031

Table 2—IR-4 ornamental research

	1995	1996	1997
Research trials	443	445	539
New registrations	377	891	135

<sup>1</sup>Frank, J.R. 1999. IR-4 crop pest management program. In: Landis, T.D.; Barnett, J.P., tech. **coords.** National proceedings: forest and conservation nursery associations-1998. Gen. Tech. Rep. SRS-25. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station: 75-77.

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## REFERENCES

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**Quality Assurance: Good Practice, Regulation, and Law.** 1994. No. 3(September): 254-288. Vol. 3.

## Appendix One

**During 1997, data were collected for these 9 fungicides:**

- *Ampelomyces quisqualis* (AQ-10 Biofungicide)
- Bordeaux mixture (13.3 percent)
- chlorothalonil (Daconil Ultrex 82.5 percent)
- etridazole (Ethazole) (Truban 5G)
- flutolanil (**Prostar** 50 WP)
- fosetyl-AI (Chipco Aliette WDG 80)
- Physan 20
- tebuconazole (Lynx 25)
- thiophanate methyl (**Clearys** 3336 **4.5F**)

**Fourteen herbicides were also evaluated during 1997 including:**

- bentazon (Basagran T/O)
- clethodim (Envoy 12.6 percent)
- 2,4-D LV Ester (**Weedone** LV4)
- oxyfluorfen (Goal T/O 2XL) diuron (Direx 80 DF)
- halosulfuron (Permit)
- isoxaben (Gallery 75DF)
- napropamide (Devrinol 5G or Devrinol 50DF)
- Oryzalin (Surflan AS 40.4 percent, XL 2G)
- oxadiazon (Chipco **Ronstar** G or Chipco **Ronstar** 50WP)
- dithiopyr (Dimension 1 EC)
- oxyfluorfen +**oryzalin** (Rout 2G)
- pendimethalin (Pendulum 60 WDG,
- Ornamental Weed Grass Control G 2.8 percent)
- prodiamine (Barricade 65 WG,Factor 65)

**Research was also conducted on 14 insecticides including:**

- acephate (Orthene Turf, Tree and Ornamental Spray)
- bendiocarb (Dycarb **76WP**, Turcam **2.5G**, Turcam 76)
- bifenthrin (Talstar Nursery Flowable, Talstar Nursery Granular)
- capsaicin (Champons 100 percent Natural)
- chlorpyrifos (Dursban 50 W, 4EN)
- fenitrothion (**Pestroy** 4EC)
- formetanate hydrochloride (**Carzol** SP)
- hexythiazox (Hexagon, Savey 50WP)
- horticulture oil (Sun Spray Ultra-Fine Spray Oil)
- malathion (Malathion **5EC**, **Gowan** Malathion 8)
- trichlorfon (Dylox 80)
- pyridaben (Sanmite 75)
- pirimicarb (Pirimor 50 DF) diazinon (Knox Out 2FM)

**Appendix Two**

**1997 Pesticide registrations supported by IR-4 data**

<p><b>bendiocarb (Turcam 2.5G 76, Dyvarb 76WP)</b>                      Andromeda (<b>Pieris</b>)                      Apple (non-bearing)                      Arborvitae                      Azalea                      Crabapple                      Geranium                      Juniper                      Privet                      Rhododendron</p>	<p><b>fluazifop-butyl (Fusilade TO Herbicide)</b>                      Ajuga                      ice plant</p> <p><b>fosetyl-AI (Chipco Aliette WDG)</b>                      Azalea                      Rose</p>	<p><b>paraquat (Gramoxone Extra)</b>                      Easter Lily</p> <p><b>PCNB (Terraclor 75 WP,400)</b>                      Pansy                      Snapdragon  <b>horticulture oil (Sun Spray Ultra-Fine Spray Oil)</b>                      Ageratum                      Ash                      Azalea                      Balsam                      Camellia                      Carnation</p>
<p><b>chlormequat chloride (Cycocel 11.8 percent)</b>                      Columbine                      False Spirea                      Geranium                      Hibiscus</p>	<p><b>Isofenphos (Oftano12)</b>                      Andromeda (<b>Pieris</b>)                      Arborvitae                      Ash                      Azalea                      Birch                      Crabapple (non-bearing)                      Geranium                      Hemlock                      Japanese Holly                      Japanese Maple                      Juniper                      Kentucky Bluegrass                      Laurel (Kalmia)                      Linden                      Black Locust                      Maple                      Oak                      Plane                      Tree                      Privet                      Rhododendron                      Yellowwood                      Yew</p>	<p><b>Cocunut</b>                      Palm                      Crown of Thorns                      Hydrangea                      Leatherleaf Fig                      Maidenhair Fern                      Marigold                      Moth Orchid                      Petunia                      Philodendron                      Rose                      Shasta Daisy                      Transvaal Daisy                      Zinnia</p>
<p><b>chlorothalonil (Daconil2787)</b>                      Aster                      Baby's Breath                      Balsam                      Cactus                      Croton                      Flowering Dogwood                      Good Luck Plant,                      Ti Plant                      Jade Plant                      Pine, Air                      Pine, Norfolk Island                      Plum (non-bearing)                      Redwood</p>	<p><b>isoxaben (Gallery 75DF)</b>                      Flowering Dogwood                      Fosters Holly                      Holly</p>	<p><b>Triadlmeфон (Bayleton 25, 50, Strike 25WDG)</b>                      Purple Wintercreeper</p>
<p><b>clethodim (Envoy)</b>                      Daylily                      Stonecrop                      Sedum X spectabile</p>	<p><b>Malathion (Malathion 5EC, Gowan Malathion)</b>                      Chrysanthemum</p>	<p><b>Trifluralin (TreflanE.C,5G, Gowan Trifluralin E.C., 10G)</b>                      Bellflower                      Cone Flower                      Pincushion Flower                      Sage                      Speedwell</p>
<p><b>Daminozide (B-Nine)</b>                      Larkspur</p>	<p><b>mancozeb (Penncozeb 75DF Protect T &amp; O)</b>                      Gloxinia</p>	<p><b>vinclozolin (Curalan D.F.,E.G., Ornalin FL)</b>                      Balsam                      Begonia                      Carnation                      Cherry (non-bearing)                      Chrysanthemum                      English Ivy                      Geranium                      Hydrangea                      Madwort                      Marigold                      Petunia                      Plum (non-bearing)                      Poinsettia                      Snapdragon                      Zinnia</p>
<p><b>DCPA (Dacthal)</b>                      Kentucky Blue Grass                      diquat dibromide (Reward)                      Easter Lily</p>	<p><b>methiocarb (MesuroI 75-W) Afican</b>                      Violet                      Chrysanthemum</p>	
<p><b>dithiopyr (Dimension IEC)</b>                      Geranium                      Hawthorn                      Juniper                      Sugar Maple                      Red Oak</p>	<p><b>oxydemeton-methyl (Metasystox-R)</b>                      Spruce</p>	
	<p><b>oxytetracycline(Mycoject 4.2 percent)</b>                      Pear (non-bearing)</p>	