IR-4 CROP PEST MANAGEMENT PROGRAM[1]

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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

[1]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

IR-4. 1993. Project statement. October 1, 1993- September 30, 1998. New Brunswick, NJ: NJAES, Cook College, Rutgers University. 37 p.

IR-4. 1997. Annual report. New Brunswick, NJ: NJAES, Cook College, Rutgers University. 53 p.

IR-4. 1998. Commercially grown floral, forestry, nursery and turf crops. IR-4 Minor Use Report Card-1998 Update. 15 p.

Quality Assurance: Good Practice, Regulation, and Law. 1994. No. 3(September): 254-266. 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-Al (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 1EC)
- 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)

bendiocarb (Turcam 2.5G 76, Dyvarb 76WP)
Andromeda (Pieris)
Apple (non-bearing)
Arborvitae
Azalea
Crabapple
Geranium
Juniper
Privet
Rhododendron

chlormequat chloride (Cycocel 11.8 percent)
Columbine
False Spirea
Geranium
Hibiscus

chlorothalonil (Daconil 2787)
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

clethodim (Envoy)
Daylily
Stonecrop
Sedum X spectabile

Daminozide (B-Nine)
Larkspur

DCPA (Dacthal)
Kentucky Blue Grass
diquat dibromide (Reward)
Easter Lily

dithiopyr (Dimension IEC)
Geramum
Hawthorn
Juniper
Sugar Maple
Red Oak

fluazifop-butyl (Fusilade TO Herbicide)
Ajuga
Ice plant

fosetyl-Al (Chipco Aliette WDG)
Azalea
Rose

isofenphos (Oftanol 2)
Andromeda (Pieris)
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

isoxaben (Gallery 75DF)
Flowering Dogwood
Fosters Holly
Holly

Malathion (Malathion 5EC, Gowan Malathion)
Chrysanthemum

mancozeb (Penncozeb 75DF Protect T & O)
Gloxinia

methiocarb (Mesurol 75-W)
Afican Violet
Chrysanthemum

oxydemeton-methyl (Metasystox-R)
Spruce

oxytetracycline(Mycoject 4.2 percent)
Pear (non-bearing)

paraquat (Gramoxone Extra)
Easter Lily

PCNB (Terraclor 75 WP,400)
Pansy
Snapdragon

horticulture oil (Sun Spray Ultra-Fine Spray Oil)
Ageratum
Ash
Azalea
Balsam
Camellia
Carnation
Cocunut
Palm
Crown of Thorns
Hydrangea
Leatherleaf Fig
Maidenhair Fern
Marigold
Moth Orchid
Petunia
Philodendron
Rose
Shasta Daisy
Transvaal Daisy
Zinnia

Triadimefon (Bayleton 25, 50, Strike 25WDG)
Purple Wintercreeper

Trifluralin (TreflanE.C,5G, Gowan Trifluralin E.C., 10G)
Bellflower
Cone Flower
Pincushion Flower
Sage
Speedwell

vinclozolin (Curalan D.F.,E.G., Ornalin FL)
Balsam
Begonia
Carnation
Cherry (non-bearing)
Chrysanthemum
English Ivy
Geranium
Hydrangea
Madwort
Marigold
Petunia
Plum (non-bearing)
Poinsettia
Snapdragon
Zinnia