The IR-4 Project

Providing Safe and Effective Pest Management Solutions for Specialty Crop Growers

IRM in Specialty Crops

The Role of IR-4

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IR-4 Project

Mission Statement

To Facilitate Registration of Sustainable Pest Management Technology for Specialty Crops and Minor Uses

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Specialty Crops Include:

Most: **Vegetables**

Fruits

Nuts

Herbs

Spices

Floral

Nursery

Landscape

Christmas trees

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Other Crop Customers

Minor Uses on Major Crops

Corn, Soybean, Cotton, Rice, Turf, Forestry

Crops for Processing

Sweet corn, tomato products, legumes, etc,.

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Current IR-4 Project Activities

- Food Crop Registration Program
- Crop Grouping Enhancements
- Biopesticide and Organic Support Program
- International Harmonization of Crop Grouping, MRL's and Registrations

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IR-4 Food Crop Program

- The original IR-4 Project objective (Flagship Program)
- 80% of the Project's efforts and resources
- Focus work with reduced risk products
- Predominantly residue testing, future involves more "Value" research

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The Food Use Program Process

Stakeholder:

Define Pest Problem

Identify Pest Management Solution

Request Assistance from IR-4

The Process Starts with Requests

Submitted from:

- **Growers,**
- **Grower Groups,**
- **State/Federal Research & Extension Personnel**

Request Reviewed by Manufacturer

Requests Prioritized

Top Priority Researched That Year

Second Priorities Researched as Money Allows

Field and Lab Research

- **Measure Residue levels in Crop/Crop Group**
- **Top Priorities completed in 30 months**

Package Submitted to EPA

Risk Assessment

Tolerance Established by EPA

Manufacturer Adds Crop to the Product Label

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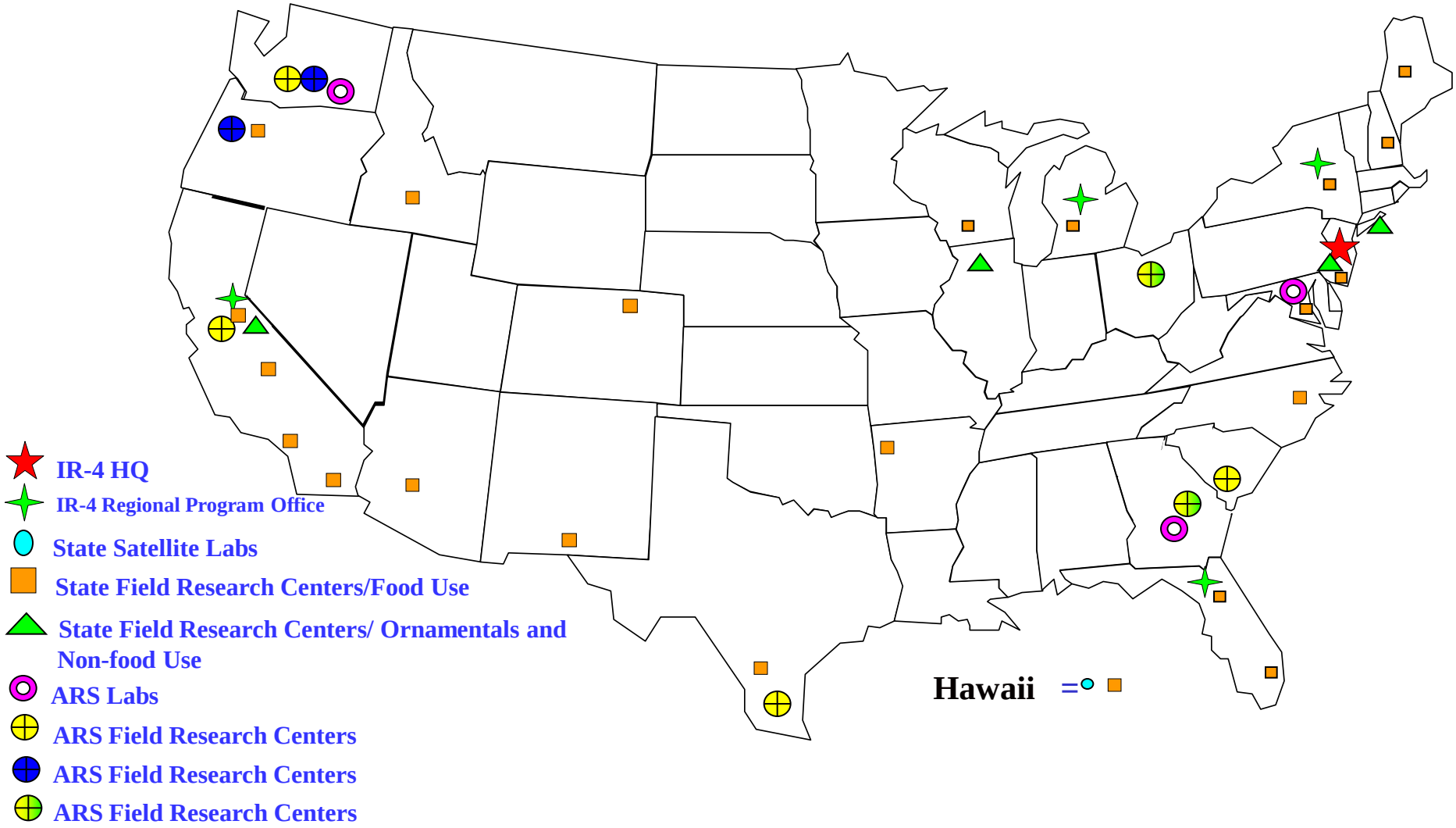
IR-4 Project Infrastructure



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Who Pays for IR-4?

Direct Contributions

Over $18 million

USDA-CSREES	$12,180,000
USDA-ARS	$ 4,000,000
USDA-ARS/DoD	$ 250,000
USDA-FAS	$ 250,000
State Ag. Exp. Stations	$ 481,182
Grants from Industry	$ 1,100,000

Indirect Contributions

At least $18 million

IR-4 Fills the Grower's "Tool Box"

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Specialty Crops Before IR-4..

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Specialty Crops After IR-4!!

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Or maybe……

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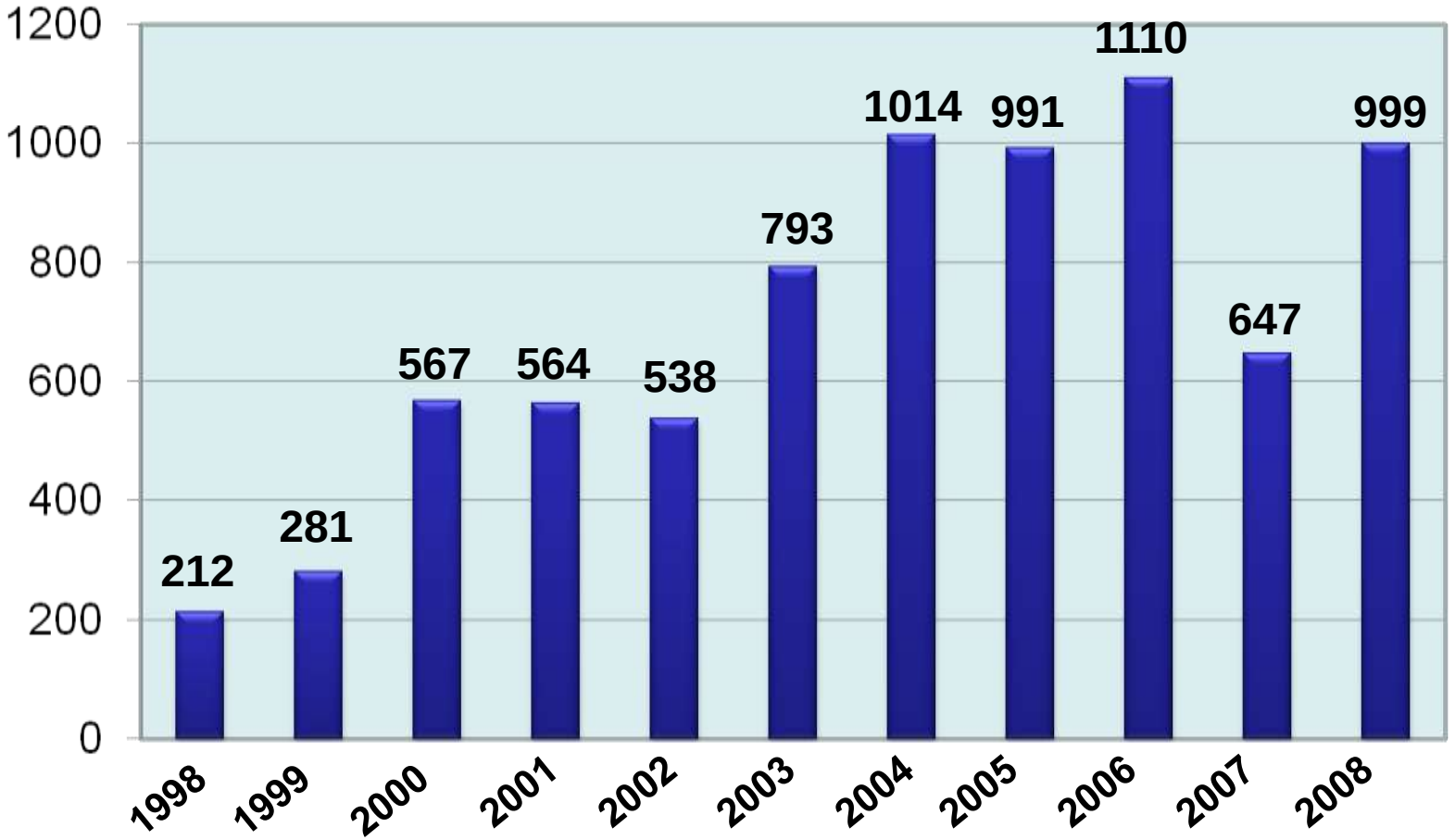
IR-4 Food Use Registrations



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Crop Grouping Efforts

Crop Groups - allow for extrapolation of data from a few crops to many, efficient use of resources. Recent enhancements include:

- **Berries & Small Fruit (45 commodities)**
- **Bulb Vegetable (26 commodities)**
- **Edible Fungi (20 commodities)**

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Cranberry weevil

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Cranberry Weevil

Main chemical management tool had been CHLORPYRIFOS for many years.

Growers began experiencing control problems in the late 1990's.

Resistance to chlorpyrifos was identified. Resistance took off in 2001 and 2002.

Spring flooding was used to set back the pest but practice potentially lowers yield and control is poor. Alternative chemical controls were desperately needed.

Cranberry Weevil

INDOXACARB and THIAMETHOXAM Identified as Solutions

Thiamethoxam: First solution identified. IR-4 study initiated in 2000 (field trials in MA, NJ, OR, and WI. EPA grants full registration in May, 2005.

Used mainly in summer against first generation weevils.

Indoxacarb: Needed as a IRM partner for thiamethoxam. IR-4 responded in 2002 with two field trials in MA. Provided data to support a MA Section 18 in 2003 while IR-4 completed data requirements for a national label (fully registered in 2007).

Extensively used in May to control overwintering weevils. Effective product well-liked by growers.

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Sparganothis Fruitworm in Cranberry

Sparganothis Fruitworm in Cranberry

Again, CHLORPYRIFOS had been the tool of choice for many years with resistance developing in the mid 1990's.

UMASS researchers scrambled for solutions and identified tebufenozide (first MAC insecticide).

IR-4 study in 1996, full label 4/99. *The first joint project with Canada!*

Spinosad also identified as a solution by researchers.

IR-4 joint study with Canada in 1998, full label 2/02.

Second generation MAC insecticide methoxyfenozide found to be superior to tebufenozide.

IR-4 study in 1999, full label in 11/03. Also a joint project with Canada. Both MACs still used by growers.

Indoxacarb also very useful (IR-4 study 2002/2003, full label 6/08).

Acetamiprid labeled in 6/08 as a result of IR-4 Crop Grouping.

Spinetoram ("second generation" spinosad) recently registered based upon IR-4 spinosad data.

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Sparganothis Fruitworm in Cranberry: Projects In-Progress

IR-4 Continues to fill the tool box for cranberry growers.

Clothianidin: 2005 study, tolerance proposed 4/09.

Chlorantraniliprole: 2007 joint IR-4 study with Canada). Data already submitted, registration in review at EPA/PMRA.

Dinotefuran: 2008 IR-4 study.

Cyantraniliprole: 2009 NAFTA study.

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Biopesticide and Organic Support Program

- **10% of the Project's efforts and resources**
- **Registration support and grants program for efficacy data**
- **Focus work with integration of biopesticide into conventional systems**
- **Support for organic markets**
- **Plant incorporated protectants**

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Varroa Mite in Honeybee

Varroa Mite Resistance to Coumaphos

Thymol: IR-4 supported a Section 18 and submitted for full registration.

Sucrose Octanoate: IR-4 submitted for full registration.

IR-4 established tolerance requirement exemptions for both of these materials, which are now fully registered.

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Poplar Clearwing Moth Pheromone

4:1 ratio of (*E,Z*):(*Z,Z*)-3,13-octadecadienyl straight-chain 18 carbon alcohols

A pest of hybrid poplar trees, the clearwing moth had become resistant to chlorpyrifos.

IR-4 Biopesticide and Organic Support Program funded efficacy studies which supported full registration of these molecules.

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IR-4 International Activities

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Global Harmonization

IR-4 was established as a domestic program, Why involved in Global Harmonization?

IR-4 has provided domestic growers with access to numerous new pest management tools. These are OK to use if crop sold in US. Often significant problems if produce is exported. Growers forced to use older pest management tools.

This is a serious issue to many commodity groups

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NAFTA "Win-Win" Model

- Cooperative research with Canada started in 1996
  - Mutual projects conducted jointly on both sides of the border - reduced data needs of each country
  - Supported by EPA/PMRA joint reviews and workshare
- Major funding and expansion for Canada's Pest Management Centre in 2003

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IR-4 Global Leadership

Harmonization of Crop Groups

- **NAFTA**
- **Codex**

Global Minor Use Summit

Pilot Global Residue Study/Zoning

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Other Global Activities

- **Provide data to Japan, EU, Taiwan, China, JMPR/Codex CCPR for MRL establishment**
- **Assist other minor use programs (Australia, Latin/South America, EU, India, China, Africa)**

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Thank You!

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