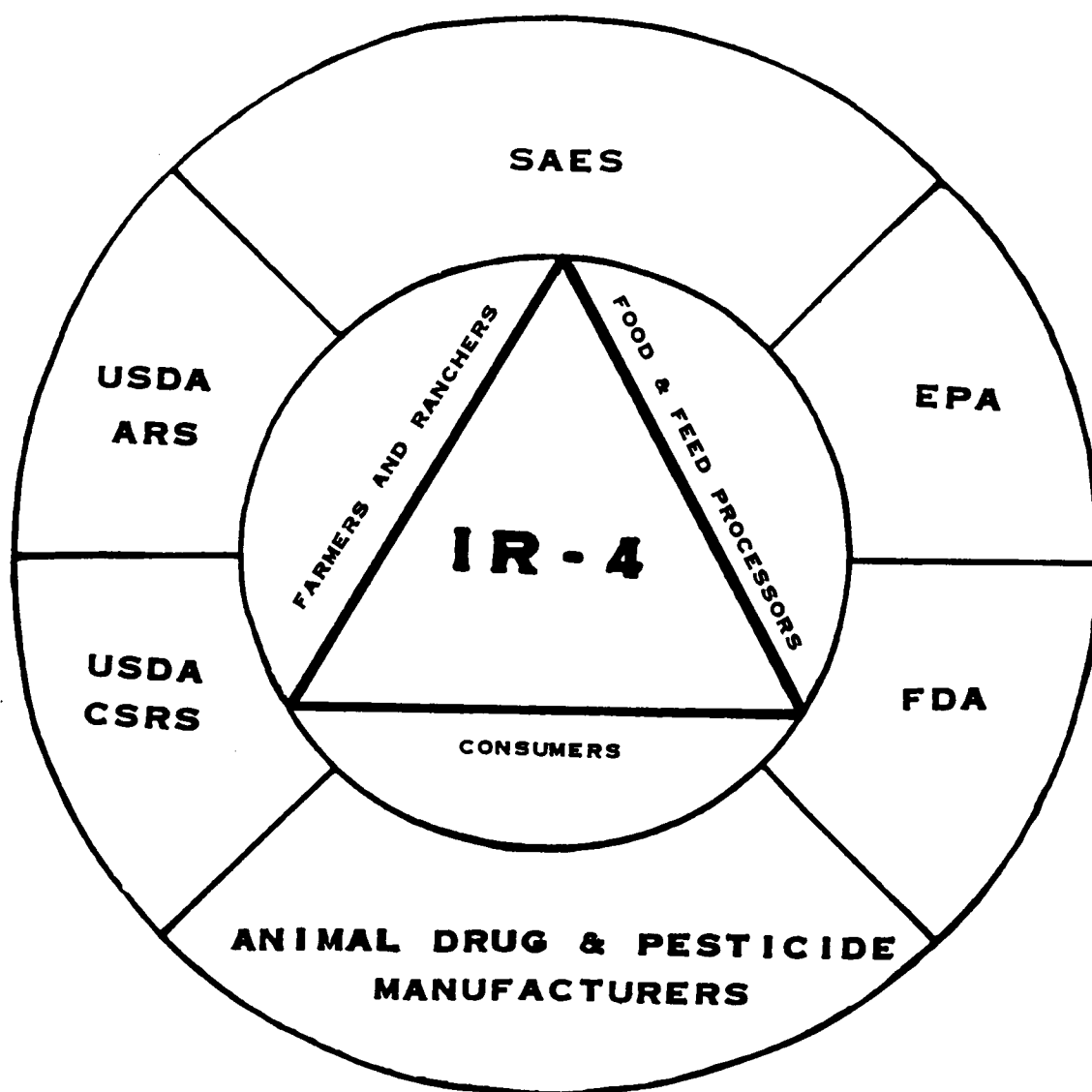


INTERREGIONAL RESEARCH PROJECT NO. 4

1991 ANNUAL REPORT



**A NATIONAL AGRICULTURAL PROGRAM
TO CLEAR PEST CONTROL AGENTS AND ANIMAL DRUGS
FOR MINOR USES**

1991 IR-4 ANNUAL REPORT
Glossary of Abbreviations used in this Report

AHI - Animal Health Institute
APHIS - Animal and Plant Health Inspection Service
ARS - Agricultural Research Service
CB - Chemistry Branch
CMGV - Codling Moth Granulosis Virus
CSRS - Cooperative State Research Service
CVM - Center for Veterinary Medicine
DMRCH - Division of Drug Manufacturing and Residue Chemistry
EPA - Environmental Protection Agency
ERMUS - Emergency Response Minor Use Section
FDA - Food and Drug Administration
GH - Greenhouse
GLP - Good Laboratory Practice
HED - Health Effects Division
HQ - Headquarters
IPM - Integrated Pest Management
IR-4 - Interregional Research Project Number 4
NACA - National Agricultural Chemicals Association
NRPM - National Research Planning Meeting
NRSP-4 - National Research Service Project Number 4
OPP - Office of Pesticide Programs
PGR - Plant Growth Regulator
PL - Public Law
PMF - Public Master File
R - Regional
RD - Registration Division
RSB - Registration Support Branch
SAES - State Agricultural Experiment Station
SRRD - Special Review and Reregistration Division
USDA - United States Department of Agriculture
USDI - United States Department of Interior

1991 IR-4 ANNUAL REPORT

SUMMARY

There are presently 5166 minor use food requests on record with IR-4, an increase of 186 over that reported last year. Of these requests, 1536 are characterized as researchable projects with 1183 representing requests for new uses and 353 representing undefended reregistration needs. During 1991, the four IR-4 Regions and USDA-ARS minor use program scheduled research on 262 food-use projects, from which residue samples for 202 projects went to state and USDA-ARS cooperating laboratories and samples for 24 projects went to private analytical laboratories including agrichemical companies. With the completion of 1991 and prior research projects, data requirements will be satisfied for an additional 122 minor use needs. Protocols for 455 field projects and 226 laboratory projects were prepared or revised. Overall, research trials were conducted on 87 separate food commodities.

IR-4 Headquarters prepared 58 regulatory packages during the 1991 calendar year. These included 45 new tolerance petitions, 7 reregistration petitions, 4 registration data packages, and 2 crop definition petitions. In addition, 4 major amendments were made to petitions during the year in response to EPA requests for additional residue data. During 1991, IR-4 Headquarters petition submissions resulted in pesticide actions representing 26 pesticide/commodity tolerances. Additionally, 85 tolerances were proposed. These proposals will become clearances in 1992.

There are presently 876 researchable ornamental projects with 175 new requests added to the list of researchable projects in 1991. The IR-4 Project funded 437 ornamental research trials in 1991 and prepared registration packages containing 155 reports on 4 pesticides. These were submitted to registrants for review and labelling. Also during 1991, IR-4 data were used to support 122 new ornamental registrations for 6 pesticides.

The registration of biological control organisms is an increasingly important dimension of the IR-4 Project. IR-4 funded research has been completed on the control of annual bluegrass in turf utilizing the fungus Xanthamonas campestris and the bioherbicide is being developed commercially. Toxicology and safety studies required for the registration of the Codling Moth Granulosis Virus (CMGV) have been completed by the University of California. IR-4 is preparing a petition requesting EPA to exempt the CMGV from the requirement of a tolerance on apples, pears, walnuts, and plums. In 1991, IR-4 funded the University of Florida to develop registration data on the control of dodder using Alternaria spp. and Fusarium tricinctum. IR-4 also committed 1992 funds to the University of Florida to develop registration data on the control of the Red Imported Fire Ant with the fungus Beauveria bassiana.

The IR-4 Animal Drug Program has been reorganized yet remains part of the IR-4 administrative structure. A separate Technical Committee for the Animal Drug Program reports directly to the IR-4 Administrative Advisors. A separate Animal Drug Headquarters, located at Michigan State University, has been established and is staffed by Dr. Robert K. Ringer who has been designated National Coordinator of the Animal Drug Program.

The IR-4 Animal Drug Program has cleared 18 drug uses for minor animal species since the program was initiated in 1982. Seven additional Public Master Files are currently under review at FDA-CVM and three additional projects have been recently completed.

Continued excellent cooperation with federal research agencies was again evidenced in 1991. Of the 262 food projects noted above, the USDA-ARS minor use program conducted field trials on 83 food projects, and analyzed residue samples from 30 projects, and researched 215 ornamental projects. Additionally, USDI Fish and Wildlife Service scientists cooperated in 1 minor animal clearance project.

A Minor Use Task Force, under the leadership of the USDA-Agricultural Marketing Service (AMS), met on a regular basis in 1991 to seek solutions to the minor use problem. This group, representing both the public and private sectors, encouraged IR-4 to develop a Reregistration Notification Network to advise commodity organizations and end point users of voluntary cancellations of registered labels. Working with EPA and the National Agricultural Chemicals Association (NACA), IR-4 posted seven reregistration notifications between March and May to an extensive mailing list of over 1800 producers, commodity organizations, extension personnel, pesticide coordinators and state departments of agriculture. The responsibility for the Reregistration Notification Network was assumed on June 1 by USDA-NAPIAP.

With agreement by the IR-4 Technical Committee and approval by the IR-4 Administrative Advisors, an IR-4 Commodity Liaison Committee was established in 1991. The Committee, presently consisting of ten representatives of varying agricultural interests, offers suggestions and guidance on how the Project can most effectively serve agricultural interests. The Committee also will represent the IR-4 Project locally and at the national level.

The first meeting of the Commodity Liaison Committee (CLC) was held in September. One of the results of that meeting is an IR-4 Sponsored Research program that provides for cooperative interaction with the private sector on registration projects funded in whole or in part from private sources. It was the consensus of the CLC that, in spite of recent efforts, the accomplishments of the IR-4 Project remain unknown to a large segment of the agricultural community. IR-4 has been encouraged to develop a public relations program to communicate the objectives of the minor use program.

The CSRS Peer Review Report of the IR-4 Project was completed in February. This comprehensive report made a number of excellent recommendations regarding funding, priority setting and management and coordination for both the IR-4 Pesticide Program and IR-4 Animal Drug Program. The IR-4 Technical Committee response for implementing these recommendations has been conveyed to USDA-CSRS, the Review Team and the IR-4 Administrative Advisors.

In addition to the USDA-CSRS Peer Review, a General Accounting Office (GAO) review of the IR-4 Project and minor use program was initiated in April and is presently ongoing. This GAO review was requested by the House Committee on Agriculture. There also were discussions with the Office of Management and Budget (OMB) during the year concerning the structure, operation and accomplishments of the IR-4 Project.

Guidelines for a cooperative research effort between IR-4 and CSRS-NAPIAP have been agreed upon by both groups. It is expected that closer coordination between the two programs will benefit agriculture by drawing upon the strengths of each program. Representatives by each group will meet jointly several times a year to review research of mutual interest.

IR-4 is cooperating with the National Pesticide Information Retrieval System (NPIRS) to develop a program to rapidly assess the impact of the loss of registered pesticides on minor crops.

ANNUAL REPORT OF COOPERATIVE INTERREGIONAL
RESEARCH PROJECT NO. 4 (IR-4)
NATIONAL RESEARCH SERVICE PROJECT #4 (NRSP #4)
JANUARY 1 TO DECEMBER 31, 1991

1. PROJECT: NRSP-4/IR-4 - A National Agricultural Program to Clear Pest Control Agents and Animal Drugs for Minor Uses.

2. PRINCIPAL SOURCES OF FUNDS: Hatch Act & PL 89-106

3. ADMINISTRATION (PRINCIPAL LEADERS):

Administrative Advisory Committee:

Dr. R.E. Wyse, Rutgers University, Chair
Dr. J.P. Jordan, CSRS Administrator
Dr. R.D. Plowman, ARS Administrator
Dr. N.P. Thompson, University of Florida
Dr. G.W. Ware, Jr., University of Arizona
Dr. T.M. Yuill, University of Wisconsin

Represents

Northeastern Region
USDA-CSRS
USDA-ARS
Southern Region
Western Region
Northcentral Region

Technical Committee (Pesticide):

Dr. P.H. Schwartz, Jr., USDA-ARS/Beltsville, Chair
(Staff Scientist, Office of Minor Use Pesticides)
Dr. R.T. Guest, Rutgers University
(National Director, IR-4 Project)
Dr. R.M. Hollingworth, Michigan State University
(Northcentral IR-4 Regional Laboratory Director)
Prof. G.M. Markle, Rutgers University (Executive Secretary)
Dr. J.V. Parochetti, USDA-CSRS
Dr. J.N. Seiber, University of California
(Western IR-4 Regional Laboratory Director)
Dr. T.D. Spittler, Cornell University/Geneva
(Northeastern IR-4 Regional Laboratory Director)
Dr. W.B. Wheeler, University of Florida
(Southern IR-4 Regional Laboratory Director)

USDA-ARS
National
Northcentral Region
National
USDA-CSRS
Western Region
Northeastern Region
Southern Region

Technical Committee (Animal Drug):

Dr. R.K. Ringer, Michigan State University, Chair
(National Coordinator, IR-4 Project)
Dr. J.G. Babish, Cornell University
(Northeastern IR-4 Animal Drug Regional Coordinator)
Dr. A.L. Craigmill, University of California
(Western IR-4 Animal Drug Regional Coordinator)
Dr. R.E. Holland, Michigan State University
(Northcentral IR-4 Animal Drug Regional Coordinator)
Dr. L.R. Miller, USDA-CSRS
Dr. S.F. Sundlof, University of Florida
(Southern IR-4 Animal Drug Regional Coordinator)

National
Northeastern Region
Western Region
Northcentral Region
USDA-CSRS
Southern Region

4. CONSULTANTS COMMITTEE:

Mr. D.M. Baker, Jr., EPA Liaison to IR-4, Chair
Ms. K. Davis, EPA-OPP-SRRD Liaison
Ms. J. Edwards, EPA-OPP-SRRD Liaison
Dr. M.T. Flood, EPA-OPP-HED-CBI Liaison
Mr. H.L. Jamerson, EPA-OPP-RD, Minor Use Officer
Dr. L.A. Leach, AHI Representative
Dr. M.S. Metzger, EPA-OPP-HED-CB2 Liaison
Mr. N. Somma, NACA Representative
Dr. E.E. Viera, FDA/CVM Liaison to IR-4

5. COOPERATING REGULATORY AGENCIES:

Environmental Protection Agency (EPA):

Mr. D.D. Campt, EPA-OPP, Director
Ms. A.E. Lindsay, EPA-OPP-RD, Division Director
Mr. D.R. Stubbs, EPA-OPP-RD-RSB, Branch Chief
Dr. R.D. Schmitt, EPA-OPP-HED-CB, Branch Chief
Ms. R.S. Cool, EPA-OPP-RD-RSB-ERMUS, Section Head

Food and Drug Administration (FDA):

Dr. G.B. Guest, FDA-CVM, Director
Dr. R.H. Teske, FDA-CVM, Deputy Director
Dr. R.C. Livingston, FDA-CVM-DMRCH, Director
Dr. N.K. Das, FDA-CVM, Minor Use Officer

United States Department of Interior (USDI)/Fish and Wildlife Service:

Ms. R.A. Schnick, USDI-Fish & Wildlife Service, Information Specialist

United States Department of Agriculture (USDA)/Animal & Plant Health Inspection Service (APHIS):

Dr. D.A. Espeseth, USDA-APHIS, Deputy Director, Veterinary Biologics

6. IR-4 HEADQUARTERS:

6A. NATIONAL HEADQUARTERS: (908) 932-9575 FAX: (908) 932-8481

The National Headquarters is located at the New Jersey Agricultural Experiment Station, Cook College, Rutgers - The State University of New Jersey, New Brunswick, NJ 08903-0231.

Dr. R.T. Guest, National Director
Prof. G.M. Markle, Associate Director
and Recording Secretary to the Project
Dr. J.J. Baron, National Coordinator
Dr. W.L. Biehn, Coordinator
Dr. R.G. Choban, Coordinator
Mr. R.R. Libby, Coordinator
Dr. D.L. Kunkel, Coordinator

Mr. D.M. Baker, Jr., EPA Liaison
Mr. L.E. Mitchell, Pesticide Consultant
Mr. P.L. Pontoriero, Pesticide Consultant
Mrs. P.A. Sarica, Administrative Assistant
Mrs. D.K. Infante, Information Specialist
Mrs. C.L. Ferrazoli, Secretary
Mrs. J.R. Streisand, Secretary
Mrs. J.A. Eato-Griffin, Secretary

6B. ANIMAL DRUG PROGRAM HEADQUARTERS: (517) 336-2048 FAX: (517) 355-4603

Dr. R.K. Ringer, National Coordinator, Michigan State University, East Lansing, MI 48824.

7. IR-4 REGIONAL COORDINATORS AND STATE/FEDERAL LIAISON REPRESENTATIVES:

IR-4's field research personnel include - (I) a Pesticide Regional Coordinator, an Animal Drug Regional Coordinator, and a Laboratory Regional Coordinator for each of the four regions, i.e., Northcentral, Northeastern, Southern, and Western; (II) four USDA-ARS scientists per region representing the disciplines of entomology, plant pathology, weed science, and pesticide analytical chemistry, and (III) an IR-4 State Liaison Representative for each of the 50 states and the U.S. Territories, including the District of Columbia, Guam, Puerto Rico, and the Virgin Islands. These 54 IR-4 State Liaison Representatives are scientists appointed by the Director of their respective State Agricultural Experiment Station (SAES). Their mission is to define the crop and animal protection needs of the farmers, growers, ranchers and homeowners in their states with respect to the production of foods (i.e., fruits, vegetables, nuts, berries, grains, spices, meat, fish, honey, etc.), fibers, feeds, ornamentals, nursery stock, forestry seedlings, and fur-bearing animals.

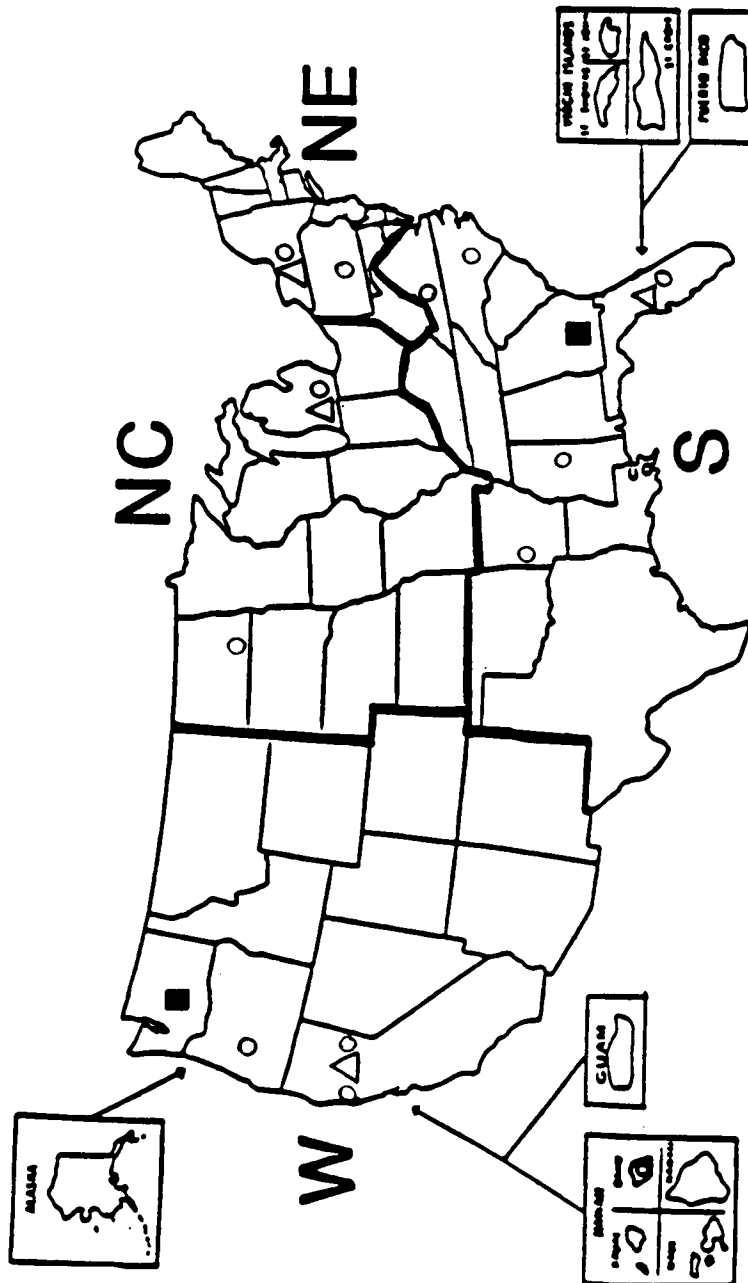
7. Continued

REGIONAL RESEARCH PERSONNEL

The names and affiliations of the field research personnel described above and the location of the four regional laboratories and associated USDA-ARS laboratories are shown below. Regional Coordinators are physically located at their respective regional laboratories.

| NAME | STATE/TITLE | TELEPHONE | SPECIALTY AREA | NAME | STATE/TITLE | TELEPHONE | SPECIALTY AREA |
|----------------------------|--------------------|----------------|-----------------------------|--------------------------|--------------------|----------------|------------------------------|
| Northeastern Region | | | | Southern Region | | | |
| Dr. Terry D. Spittler | Reg. Lab. Dir. | (315) 787-2283 | Chemistry | Dr. Willis B. Wheeler | Reg. Lab. Dir. | (904) 392-1991 | Biochemistry |
| Mr. John H. Martini | Pesticide Coord. | (315) 787-2308 | Chemistry | Dr. Charles W. Meister | Pesticide Coord. | (904) 392-1979 | Plant Path. |
| Dr. John G. Babish | Animal Drug Coord. | (607) 253-3514 | Drugs/Foreign Compound Met. | Dr. Steve F. Sundlof | Animal Drug Coord. | (904) 392-1841 | Veterinary Toxicology |
| Dr. Terry D. Spittler | Reg. Lab. Coord. | (315) 787-2283 | Chemistry | Ms. Jau Yoh | Reg. Lab. Coord. | (904) 392-1978 | Analytical Chem. |
| Dr. Richard A. Ashley | CT. | (203) 486-3435 | Plant Sci. | Dr. Michael L. Williams | AL. | (205) 844-5006 | Entomology |
| Dr. Susan P. Whitney | DE. | (302) 451-2526 | Entomology | Dr. Terry L. Lavy | AR. | (501) 573-3955 | Weed Science |
| Dr. Don P. Demyers | DC. | (202) 282-7364 | Botany/Plant Pathology | Dr. Charles W. Meister | FL. | (904) 392-1979 | (See Above) |
| Mr. David E. Yarbrough | ME. | (207) 581-2924 | Horticulture | Dr. Keith S. Delaplane | GA. | (404) 542-3685 | Entomology |
| Dr. James J. Linduska | MD. | (301) 742-8788 | Entomology | Dr. Chris M. Christensen | KY. | (606) 257-5955 | Entomology |
| Dr. Prasanta Bhowmik | MA. | (413) 545-2353 | Weed Science | Dr. Richard N. Story | LA. | (504) 388-1634 | Entomology |
| Dr. James S. Bowman | NH. | (603) 862-1159 | Entomology | Dr. Mark E. Kurtz | MS. | (601) 686-9311 | Plant Physiology |
| Dr. Jerry Ghidlu | NJ. | (609) 455-3100 | Entomology | Dr. T. Jack Sheets | NC. | (919) 515-3391 | Weed Science |
| Mr. John H. Martini | NY (Geneva) | (315) 787-2308 | (See above) | Ms. Nilsa M. Acin | OK. | (405) 744-5531 | Entomology |
| Dr. Donald A. Rutz | NY (Ithaca) | (607) 255-3283 | Entomology | Dr. Robert G. Bellinger | PR. | (809) 667-9705 | Chemistry |
| Dr. Ralph O. Muma | PA. | (814) 863-4435 | Entomology | Dr. Carroll J. Southards | SC. | (803) 656-5042 | Entomology |
| Dr. David B. Wallace | RI. | (401) 792-2900 | Plant Path. | Dr. Robert L. Holloway | TN. | (615) 974-7135 | Nematology |
| Dr. A.R. Gotlieb | VT. | (802) 656-2630 | Plant Path. | Dr. Rodney L. Weaver | TX. | (409) 845-3849 | Entomology |
| Dr. Joe E. Weaver | WV. | (304) 293-6023 | Entomology | Dr. Michael J. Weaver | VA. | (703) 961-6543 | Plant Path. |
| Dr. Ralph E. Webb | MD, USDA-ARS | (301) 504-8262 | Nematology | Virgin Islands | | | |
| Dr. James C. Locke | MD, USDA-ARS | (301) 344-2413 | Plant Path. | Dr. James M. Schalk | SC, USDA-ARS | (803) 556-0840 | Entomology |
| Mr. J. Ray Frank | MD, USDA-ARS | (301) 619-7132 | Weed Science | Dr. Alva W. Johnson | GA, USDA-ARS | (912) 386-3372 | Nematology |
| Dr. Albert Herner | MD, USDA-ARS | (301) 504-8902 | Residue Chem. | Dr. Norman C. Glaze | GA, USDA-ARS | (912) 386-3908 | Plant Phy |
| | | | | Dr. R. Don Wauchope | GA, USDA-ARS | (912) 386-3892 | Residue Chem. |
| Northcentral Region | | | | Western Region | | | |
| Dr. Robert M. Hollingworth | Reg. Lab. Dir. | (517) 353-9430 | Entomology | Dr. James N. Seiber | Reg. Lab. Dir. | (916) 752-4528 | Chemistry |
| Dr. Satoru Miyazaki | Pesticide Coord. | (517) 353-9497 | Pest Analysis & Entomology | Mr. Rick Meinicos | Pesticide Coord. | (916) 752-7633 | Botany |
| Dr. Robert E. Holland | Animal Drug Coord. | (517) 353-9710 | Veterinary Toxicology | Dr. Arthur L. Craigmill | Animal Drug Coord. | (916) 752-2936 | Env. Veterinary |
| Dr. Richard A. Leavitt | Reg. Lab. Coord. | (517) 353-6377 | Analytical Chem. | Dr. Jim Stokes | Reg. Lab. Coord. | (916) 752-4742 | Toxicology |
| Dr. Henry G. Taber | IA. | (515) 294-0025 | Weed Science | Dr. Jeff S. Conn | AK. | (907) 479-7614 | Weed Science |
| Dr. David J. Williams | IL. | (217) 333-2126 | Horticulture | Dr. Paul B. Baker | AZ. | (602) 621-4012 | Entomology |
| Dr. Richard X. Latin | IN. | (317) 494-4639 | Plant Path. | Mrs. Margaret Reiff | CA. | (916) 752-7633 | Biology |
| Dr. Don C. Creas | KS. | (913) 532-5891 | Entomology | Dr. Bert L. Bohmont | CO. | (303) 491-5237 | Ag. Chemistry & Weed Science |
| Dr. Satoru Miyazaki | MI. | (517) 353-9497 | (See above) | Dr. R. Muniappan | Guam | (671) 734-2375 | Entomology |
| Dr. Bert T. Swanson | MN. | (612) 624-7432 | Weed Science | Dr. Michael K. Kawate | HI. | (808) 956-6008 | Biochemistry |
| Dr. Chris J. Starbuck | MO. | (314) 882-7511 | Horticulture | Dr. Gene P. Carpenter | ID. | (208) 885-7541 | Entomology |
| Dr. John D. Nalewaja | ND. | (701) 237-8158 | Weed Science | Dr. Gregory D. Johnson | MT. | (406) 994-3518 | Entomology |
| Dr. Shripat G. Kamble | NE. | (402) 472-6857 | Entomology | Dr. Michael English | NM. | (505) 646-2546 | Entomology |
| Dr. A.C. Waldron | OH. | (614) 292-7541 | Entomology (Chem. Control) | Dr. Clyde Sorenson | NV. | (702) 784-4419 | Entomology |
| Mr. Leon J. Wrage | SD. | (605) 688-4591 | Agronomy, Weed & Plant Sci. | Dr. Jeff Jenkins | OR. | (503) 737-5993 | Ag. Chem. & Toxicology |
| Dr. Chuck F. Koval | WI. | (608) 262-4608 | Entomology | Dr. Howard M. Deer | UT. | (801) 750-1600 | Pesticides |
| Dr. T.L. Ladd | OH, USDA-ARS | (216) 263-3898 | Entomology | Dr. Robert Harwood | WA. (Interim) | (509) 335-4563 | Entomology |
| Dr. Charles Krause | OH, USDA-ARS | (216) 263-3672 | Plant Path/ Nematology | Dr. Mark A. Ferrell | WY. | (307) 766-5381 | Weed Science |
| Dr. Lloyd M. Wax | IL, USDA-ARS | (217) 333-9653 | Weed Science | Dr. Robert G. Linderman | OR, USDA-ARS | (503) 757-4544 | Nematology/ Plant Path. |
| Dr. William M. Doane | IL, USDA-ARS | (309) 685-4011 | Physical Chem. | Dr. Harold H. Toba | WA, USDA-ARS | (509) 575-5981 | Entomology |
| | | | | Dr. James L. Krysan | WA, USDA-ARS | (509) 575-5945 | Entomology |
| | | | | Dr. Rick A. Boydston | WA, USDA-ARS | (509) 786-2226 | Weed Science |

MINOR USES PROJECT RESIDUE LABORATORIES



| RESIDUE LABORATORIES | |
|----------------------|----------------|
| △ | IR-4 REGIONAL |
| ○ | IR-4 SATELLITE |
| ■ | USDA/ARS |

NORTHEASTERN REGION

△ Cornell University, Geneva, NY

- Cornell University, Ithaca, NY
- Pennsylvania State University

■ USDA/ARS, Beltsville, MD

SOUTHERN REGION

△ University of Florida

- University of Arkansas
- University of Florida (College of Veterinary Medicine)
- North Carolina State University
- Virginia Polytechnic Institute & State University
- Mississippi State University

■ USDA/ARS, Tifton, GA

NORTHCENTRAL REGION

△ Michigan State University

- Michigan State University (College of Veterinary Medicine)
- North Dakota State University

WESTERN REGION

△ University of California, Davis, CA

- University of California, Berkeley, CA
- University of California, Davis, CA (School of Veterinary Medicine)
- University of Hawaii
- Oregon State University

■ USDA/ARS, Yakima, WA

7. Continued

IR-4 Recognition of Field and Laboratory Research Cooperators:

IR-4 is grateful to the many agricultural scientists who participated in the field and laboratory research phases of our pesticide research projects producing essential residue samples, and performance and residue data. Cooperation throughout the United States and the territories is essential to meet EPA's geographical requirements. We further wish to acknowledge their willingness to continue to support IR-4 while meeting the requirements of EPA-mandated Good Laboratory Practices enacted October 1989. The continuous association by many of the scientists enhances the value of our data as well as strengthening our confidence that we will meet the large goals of providing needed new registrations and defending many uses during reregistration.

Field Cooperators (1991):

| <u>Cooperator</u> | <u>State</u> | <u>Commodity</u> | <u>Discipline</u> |
|---------------------------------------|--------------|------------------|--------------------------------------|
| <u>USDA-ARS</u> | | | |
| Dr. James E. Duffus/ Sharon Benzen | CA | Vegetables | Plant Pathologist/ Horticulturist |
| Dr. Laurence D. Chandler | GA | Multi-Crops | Entomologist |
| Dr. Norman C. Glaze | GA | Multi-Crops | Weed Scientist |
| Dr. Alva W. Johnson | GA | Multi-Crops | Nematologist |
| Dr. Loyd M. Wax | IL | Multi-Crops | Weed Scientist |
| Mr. J. Ray Frank | MD | Multi-Crops | Weed Scientist |
| Dr. James C. Locke | MD | Ornamentals | Plant Pathologist |
| Dr. Barbara J. Smith | MS | Small Fruits | Plant Pathologist |
| Dr. T.L. Ladd, Jr. | OH | Ornamentals | Entomologist |
| Dr. Lawrence R. Schreiber | OH | Ornamentals | Plant Pathologist |
| Dr. Robert G. Linderman | OR | Ornamentals | Plant Pathologist |
| Dr. Howard F. Harrison | SC | Vegetables | Weed Scientist |
| Dr. James M. Schalk | SC | Vegetables | Entomologist |
| Mr. Randy J. Coleman/ Sam Flanagan | TX | Vegetables | Entomologist/ Horticulturist |
| Dr. Rick A. Boydston | WA | Multi-Crops | Weed Scientist |
| Dr. Harold H. Toba | WA | Multi-Crops | Entomologist |

Northcentral Region

| | | | |
|----------------------|----|-----------------------|-------------------|
| Ms. Rhonda Ferree | IL | Ornamentals | Weed Scientist |
| Dr. Allen Hammer | IN | Ornamentals | Weed Scientist |
| Dr. Stephen Weller | IN | Vegetables | Weed Scientist |
| Dr. Al York | IN | Vegetables/ Spices | Entomologist |
| Dr. Jim Johnson | MI | Fruits | Entomologist |
| Dr. Al Jones | MI | Fruits | Plant Pathologist |
| Dr. Don Ramsdell | MI | Small Fruits | Plant Pathologist |
| Dr. Bernard Zandstra | MI | Vegetables/ Fruits | Weed Scientist |
| Dr. Leonard Hertz | MN | Vegetables | Weed Scientist |
| Dr. John Nalewaja | ND | Field Crops | Weed Scientist |
| Dr. Mike Ellis | OH | Small Fruits | Plant Pathologist |
| Dr. Stan Gorski | OH | Vegetables | Weed Scientist |

7. Continued

| <u>Cooperator</u> | <u>State</u> | <u>Commodity</u> | <u>Discipline</u> |
|-------------------------------------|--------------|---|-------------------|
| <u>Northcentral Region (Con't.)</u> | | | |
| Dr. Casey Hoy | OH | Vegetables | Entomologist |
| Dr. Dave Nielsen | OH | Ornamentals | Entomologist |
| Dr. Elton Smith | OH | Ornamentals | Weed Scientist |
| Dr. Roger Williams | OH | Small Fruits | Entomologist |
| Dr. Larry Binning | WI | Vegetables | Weed Scientist |
| Dr. Gordon Harvey | WI | Field Crops | Weed Scientist |
| Dr. Herb Hopen | WI | Vegetables | Weed Scientist |
| Dr. Chuck Koval | WI | Ornamentals | Entomologist |
| Dr. Walter Stevenson | WI | Vegetables/ Field Crops | Plant Pathologist |
| Dr. Jeff Wyman | WI | Vegetables | Entomologist |
| <u>Northeastern Region</u> | | | |
| Dr. Ed Beste | MD | Vegetables | Weed Scientist |
| Dr. Anne Averill | MA | Small Fruits | Entomologist |
| Dr. Jerry Baron | NJ | Vegetables/Fruits | Weed Scientist |
| Dr. Jerry Ghidiu | NJ | Vegetables | Entomologist |
| Dr. Steve Johnston | NJ | Vegetables | Plant Pathologist |
| Dr. Brad Majek | NJ | Vegetables | Weed Scientist |
| Dr. Dean Polk | NJ | Small Fruits | Entomologist |
| Mr. Jack Rabin | NJ | Spices | Horticulturist |
| Dr. Donald Riemer | NJ | Small Fruits | Weed Scientist |
| Dr. Al Stretch | NJ | Small Fruits | Plant Pathologist |
| Dr. Art Agnello | NY | Small Fruits | Entomologist |
| Dr. Robin Bellinder | NY | Vegetables | Weed Scientist |
| Dr. C.J. Eckenrode | NY | Vegetables | Entomologist |
| Dr. Ian Merwin | NY | Fruits | Weed Scientist |
| Dr. Joseph Neal | NY | Ornamentals | Weed Scientist |
| Dr. Roger Pearson | NY | Small Fruits | Plant Pathologist |
| Dr. Andrew Senesac | NY | Vegetables/Spices | Weed Scientist |
| Dr. Anthony Shelton | NY | Vegetables | Entomologist |
| Dr. Joseph Sieczka | NY | Vegetables | Weed Scientist |
| Dr. Richard Straub | NY | Vegetables | Entomologist |
| Dr. Wayne Wilcox | NY | Small Fruits | Plant Pathologist |
| Mr. Joseph Weaver | WV | Vegetables | Entomologist |
| <u>Southern Region</u> | | | |
| Dr. Charles Gilliam | AL | Ornamentals | Horticulturist |
| Dr. Paul McLeod | AR | Vegetables | Entomologist |
| Dr. Ron Talbert | AR | Ornamentals/ Vegetables/ Small Fruits | Weed Scientist |
| Dr. Thomas Bewick | FL | Multicrops | Horticulturist |
| Dr. Jonathan Crane | FL | Tree Fruits | Horticulturist |
| Dr. Tim Crocker | FL | Fruits | Horticulturist |
| Dr. Art Engelhard | FL | Ornamentals | Plant Pathologist |
| Dr. Charles Howard | FL | Small Fruits | Plant Pathologist |
| Dr. Fred Johnson | FL | Vegetables | Entomologist |

7. Continued

| <u>Cooperator</u> | <u>State</u> | <u>Commodity</u> | <u>Discipline</u> |
|---------------------------------|--------------|-----------------------------|-------------------|
| <u>Southern Region (Con't.)</u> | | | |
| Dr. T. Kucharek | FL | Vegetables | Plant Pathologist |
| Dr. Sal Locasio | FL | Vegetables | Horticulturist |
| Dr. Jeff Norcini | FL | Ornamentals | Horticulturist |
| Mr. Clay Olson | FL | Field Crops | Agronomist |
| Dr. Jorge Pena | FL | Tree Fruits | Entomologist |
| Dr. William Stall | FL | Vegetables | weed Scientist |
| Dr. Richard Chalfant | GA | Vegetables | Entomologist |
| Dr. Jim Dutcher | GA | Tree Nuts | Entomologist |
| Dr. Wayne Porter | LA | Vegetables | Weed Scientist |
| Dr. Larry Rolston | LA | Vegetables | Entomologist |
| Dr. Mark Kurtz | MS | Field Crops | Weed Scientist |
| Dr. Gary Lawrence | MS | Field Crops | Plant Pathologist |
| Dr. Frank Matta | MS | Small Fruits | Horticulturist |
| Dr. D. Mike Benson | NC | Small Fruits | Plant Pathologist |
| Mr. William Cline | NC | Small Fruits | Horticulturist |
| Dr. Charles Mainland | NC | Small Fruits | Horticulturist |
| Dr. John Meyer | NC | Vegetables | Entomologist |
| Dr. David Monks | NC | Vegetables/ Fruits | Weed Scientist |
| Mr. Walter Skroch | NC | Tree Fruits/ Ornamentals | Weed Scientist |
| Dr. Ken Sorensen | NC | Vegetables | Entomologist |
| Dr. Jim Walgenbach | NC | Vegetables | Entomologist |
| Dr. Jonathan Edelson | OK | Vegetables | Entomologist |
| Mr. Aristide Armstrong | PR | Vegetables | Horticulturist |
| Mr. Raphael Ingles | PR | Vegetables | Entomologist |
| Dr. Lii-Chyuan Liu | PR | Vegetables | Weed Scientist |
| Dr. Greg Reighard | SC | Tree Fruits | Horticulturist |
| Dr. Charles Mullins | TN | Vegetables | Horticulturist |
| Dr. William Shamiyeh | TN | Vegetables/ Tree Fruits | Entomologist |
| Dr. Mike Braverman | TX/LA | Vegetables | Weed Scientist |
| Dr. Frank Dainello | TX | Vegetables | Horticulturist |
| Dr. Marvin Harris | TX | Tree Fruits | Entomologist |
| Dr. Rodney Holloway | TX | Vegetables | Entomologist |
| Dr. Robert Baldwin | VA | Vegetables/ Herbs/Spices | Plant Pathologist |
| Dr. Jeff Derr | VA | Ornamentals/ Tree Fruits | Weed Scientist |
| Dr. Peter Schultz | VA | Ornamentals | Entomologist |
| Dr. Keith Yoder | VA | Tree Fruits | Plant Pathologist |
| Dr. Geoffrey Zehnder | VA | Vegetables | Entomologist |
| <u>Western Region</u> | | | |
| Dr. Mike Kilby | AZ | Tree Nuts/Fruits | Horticulturist |
| Mr. Harry Agamalian | CA | Vegetables | Weed Scientist |
| Dr. Blair Bailey | CA | Vegetables/ Tree Fruits | Entomologist |

7. Continued

| <u>Cooperator</u> | <u>State</u> | <u>Commodity</u> | <u>Discipline</u> |
|--------------------------------|--------------|---|-------------------------------|
| <u>Western Region (Con't.)</u> | | | |
| Dr. Gary Bender | CA | Guava/Fruits/Nuts | Horticulturist |
| Mr. Joseph Connell | CA | Tree Nuts/Olives/Citrus/ Subtropicals | Horticulturist |
| Dr. Mike Davis | CA | Multi-Crops | Plant Pathologist |
| Dr. Clyde Elmore | CA | Fruits/Ornamentals | Weed Scientist |
| Mr. Bill Fischer | CA | Vegetables | Weed Scientist |
| Dr. Larry Godfrey | CA | Field Crops | Entomologist |
| Dr. Doug Gubler | CA | Fruits/Vegetables | Plant Pathologist |
| Mr. Gary Hickman | CA | Fruits/Vegetables | Horticulturist |
| Mr. Harold Kempen | CA | Vegetables/Small Fruits/ Ornamentals | Weed Scientist |
| Dr. Frank Laemmlen | CA | Vegetables/Field Crops | Plant Pathologist |
| Dr. Joe Ogawa | CA | Fruits/Tree Nuts Vegetables | Plant Pathologist |
| Mr. Bill Olson | CA | Fruits/Tree Nuts/Kiwi | Horticulturist |
| Dr. Al Paulus | CA | Vegetables/Fruits/ Ornamentals | Plant Pathologist |
| Mr. Wilbur Reil | CA | Tree Nuts/Fruits | Horticulturist |
| Dr. James Klett | CO | Ornamentals | Horticulturist |
| Dr. Phil Westra | CO | Vegetables/Field Crops | Weed Scientist |
| Dr. Joe DeFrank | HI | Vegetables/Ornamentals | Weed Scientist |
| Dr. Mike Kawate | HI | Multi-Crops | Weed Scientist |
| Dr. Keith Dorschner | ID | Hops | Entomologist |
| Dr. Garvin Crabtree | OR | Vegetables | Horticulturist |
| Mr. Joe DeFrancesco | OR | Small Fruits | Horticulturist |
| Mr. Bob McReynolds | OR | Vegetables | Horticulturist |
| Dr. Jay Pscheidt | OR | Nuts/Fruits/Ornamentals | Plant Pathologist |
| Dr. Ray William | OR | Fruits/Vegetables/ Ornamentals | Weed Scientist |
| Dr. Wilbur Anderson | WA | Vegetables/Small Fruits/ Bulk Seeds/Forage | Horticulturist |
| Dr. Leonard Askham | WA | Multi-Crops | Vertebrate Pest Management |
| Dr. Wyatt Cone | WA | Hops/Small Fruits/ Asparagus | Entomologist |
| Dr. Bill Dean | WA | Vegetables | Horticulturist |
| Dr. Gary Grove | WA | Fruits | Plant Pathologist |
| Dr. Dennis Johnson | WA | Mints | Plant Pathologist |
| Dr. Bob Parker | WA | Hops/Multi-Crops | Weed Scientist |
| Dr. Gerald Santo | WA | Potatoes/Mints/Apples | Nematologist |
| Dr. Carl Shanks | WA | Small Fruits | Entomologist |
| <u>Private Cooperators</u> | | | |
| Mr. Dave Anderson | OR | Multi-Crops | Entomologist |
| Dr. Mohammad Bari | CA | Artichokes | Entomologist |
| Dr. Ronald Burr | OR | Grass Seed Crops | Weed Scientist |
| Mr. Craig Collins | OR | Tree Fruits/Vegetables | Entomologist |
| Mr. Ron Collins | OR | Small Fruits/Vegetables | Entomologist |
| Mr. R.R. Johnson | FL | Vegetables | Horticulturist |
| Mr. Paul Kloft | OR | Grass Seed/Multi-Crops | Agronomist |

7. Continued

| <u>Cooperator</u> | <u>State</u> | <u>Commodity</u> | <u>Discipline</u> |
|-------------------------------------|--------------|--|-----------------------------|
| <u>Private Cooperators (Con't.)</u> | | | |
| Mr. Ed Kurtz | CA | Vegetables | Entomologist/Weed Scientist |
| Mr. Mick Qualls | WA | Vegetables/Cereal Grains/ Legumes/ Fruits | Agronomist |
| Mr. Lance Santo | HI | Sugarcane | Weed Scientist |
| Dr. Gopal Saxena | FL | Vegetables | Horticulturist |
| Dr. Mark Wach | CA | Mushrooms | Plant Pathologist |

Residue Laboratory Cooperators (1991):

| <u>Cooperator</u> | <u>Location</u> | <u>Lab. Identity</u> |
|---------------------|-----------------|----------------------|
| <u>USDA/ARS</u> | | |
| Dr. Albert Herner | Beltsville, MD | USDA-ARS Lab |
| Mr. C. Ron Sell | Yakima, WA | USDA-ARS Lab |
| Dr. R. Don Wauchope | Tifton, GA | USDA-ARS Lab |

Northcentral Region

| | | |
|---------------------|------------------|---------------|
| Dr. Richard Leavitt | East Lansing, MI | Leader Lab |
| Dr. J.R. Fleeker | Fargo, ND | Satellite Lab |

Northeastern Region

| | | |
|-----------------------|------------|------------|
| Dr. Terry D. Spittler | Geneva, NY | Leader Lab |
|-----------------------|------------|------------|

Southern Region

| | | |
|--------------------|-----------------------|---------------|
| Ms. Jau W. Yoh | Gainesville, FL | Leader Lab |
| Dr. Parshall Bush | Athens, GA | Satellite Lab |
| Dr. James R. Heitz | Mississippi State, MS | Satellite Lab |
| Dr. Terry L. Lavy | Fayetteville, AR | Satellite Lab |
| Dr. T. Jack Sheets | Raleigh, NC | Satellite Lab |
| Dr. Roddy W. Young | Blacksburg, VA | Satellite Lab |

Western Region

| | | |
|-------------------------------------|---------------|---------------|
| Dr. James Stokes | Davis, CA | Leader Lab |
| Dr. Mike Kawate/ Carl Yanagihara | Honolulu, HI | Satellite Lab |
| Dr. Herman Moya | Yakima, WA | WSDA Hop Lab |
| Dr. Ian Tinsley | Corvallis, OR | Satellite Lab |
| Dr. Stephanie Whalen | Honolulu, HI | HSPA Lab |

Private and Registrant Laboratories:

Residue analysis for 24 projects is being sponsored at 11 different laboratories by commodity groups and registrants.

8. PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:

(A) FOOD USE RESEARCH PROJECTS:

There are currently 5166 IR-4 food-use requests, an increase of 186 over the 4980 requests reported last year. Of these, 1536 are characterized as researchable projects. During 1991, the four IR-4 Regions and USDA-ARS scheduled research on 262 food-use projects, from which residue samples for 202 projects went to state and USDA-ARS cooperating laboratories. Samples from an additional 24 projects went to private analytical laboratories including chemical companies. With completion of 1991 and prior research projects, data requirements will be fulfilled for an additional 122 minor use needs. Research protocols for 455 field trials and 226 laboratory projects were prepared or revised and the following pesticides/ commodities were researched in 1991:

(1) FUNGICIDES AND NEMATICIDES:

FUNGICIDES: Anilazine/celeriac, pumpkin, squash (winter), watermelon - Benomyl/parsley, spinach (seed trt), collard, greens (mustard), kale, basil, dill, pistachio - Captan/turnip (soil), celery (plant bed), endive, lettuce (leaf), parsley, spinach (in furrow), broccoli (plant bed), cabbage (plant bed), greens (mustard) (soil), pepper (plant bed), tomato (plant bed), pear, caneberry, kenaf - Carboxin/kenaf - Chlorothalonil/horseradish, dill, mint - DCNA/blackberry, raspberry - Fenarimol/filbert - Ferbam/blackberry, blueberry, cherry, grape, raspberry - Fosetyl-Al/cranberry, grape, macadamia - Imazalil/mango - Iprodione/leek, parsley, Chinese broccoli, Chinese cabbage (bok choy), Chinese cabbage (napa), watercress - Metalaxyl/blackberry, artichoke, artichoke (gh), kenaf - Methyl Bromide + Chlor-O-Pic/taro (dry land) - Myclobutanil/bean (snap), strawberry - Nitrpyrin/cauliflower, pepper (bell), tomato - Oxytetracycline/apple - PCNB/radish, greens (mustard) - Propiconazole/spearmint - Thiabendazole/chicory (belgian endive) - Triadimefon/blueberry - Triforine/asparagus, okra - Vinclozolin/blueberry, alfalfa - Ziram/grape

NEMATICIDES: Ethoprop/mint - Fenamiphos/onion (dry bulb), bean (lima), pea (green), cantaloup, cucumber, squash, watermelon, blueberry

(2) HERBICIDES AND PLANT GROWTH REGULATORS (PGR's):

HERBICIDES: 2,4-D (Amine)/asparagus, hops - Ametryn/cassava, tanier, arracacha - Clomazone/sweet potato, broccoli, bean (snap), muskmelon, squash (summer), watermelon - Clopyralid/cherry, peach, cranberry, asparagus - DCPA/dill, fennel - Diuron/blueberry - Endothall/onion - Fomesafen/pea (southern) - Glyphosate/ celeriac, spinach, Chinese cabbage (bok choy), kohlrabi, hops, prickly pear cactus - Imazethapyr/ endive (escarole), lettuce (head), lettuce (leaf) - Lactofen/pea (succulent), pepper (bell), tomato - Linuron/ celeriac, celery - Methazole/onion (dry bulb) - Metolachlor/radish, blackberry, raspberry, corn (sweet) - Metribuzin/ pea (pigeon) - MSMA/kenaf - Napropamide/daikon, basil (fresh & dry), chives (fresh & dry), dill (fresh & dry), marjoram (fresh & dry), thyme (fresh & dry) -

8A. Continued

(2) HERBICIDES AND PLANT GROWTH REGULATORS (PGR's) (Con't):

Oxyfluorfen/sweet potato, garlic, cabbage, strawberry (perennial), sugarcane - Paraquat/greens(turnip), lettuce (head), cabbage, collard, pea (pigeon), bean (lima), bean (snap), pea (southern), eggplant, melon, pumpkin - Pendimethalin/ carrot - Phenmedipham/cabbage - Pronamide/dandelion, marigold - Quizalofop/kenaf, pineapple - Sethoxydim/horseradish, daikon, rutabaga, turnip, endive (escarole), rhubarb, buckwheat, grasses, basil (fresh & dry), chives (fresh & dry), dill (fresh & dry), marjoram (fresh & dry), thyme (fresh & dry), kenaf, okra - Thiobencarb/ carrot - Trifluralin/ rutabaga, eggplant

PGR's: Ethephon/peach, blueberry - NAA/plum, prune, almond, walnut

(3) INSECTICIDES, MITICIDES, AND BIRD REPELLENTS:

INSECTICIDES AND MITICIDES: Abamectin/eggplant, cucumber, hops - Acephate/kenaf - Amitraz/pecan - Azinphosmethyl/celery, broccoli, Brussels sprout, cabbage, cauliflower - Bifenthrin/celery, tomato, tomato (gh), blackberry, raspberry - Carbaryl/yam, basil, pineapple - Chlorpyrifos/onion (green), broccoli, coffee, hops, persimmon, pineapple - Cyhalothrin/strawberry, pineapple - Cypermethrin/onion (green), clover - Cyromazine/onion (dry bulb), bean (lima), bean (snap), pea (southern) - Diazinon/dandelion, chives, asparagus - Dicofof/blackberry, macadamia - Dimethoate/tomato, hops - Disulfoton/ turnip, collard, greens (mustard) - Esfenvalerate/kale, cranberry, strawberry, basil, chive, dill, marjoram, sage, kenaf, okra, pineapple - Ethoprop/hops - Fluvalinate/blueberry - Fonofos/ cucumber, watermelon - Hexakis/bean (lima), bean (snap), pea (southern), pepper (bell), cucumber, watermelon, raspberry - Malathion/cabbage - Methomyl/daikon, passion fruit - Naled/spinach - Oxythioquinox/ raspberry - Parathion (Ethyl)/ okra - Permethrin/ turnip (root & top), collard, greens (mustard), raspberry, papaya - Phosmet/sweet potato - Propargite/bean (lima), bean (snap), pepper (bell), tomato, raspberry - Thiodicarb/ turnip, endive, collard

BIRD REPELLENT: Methyl Anthranilate/cherry, blueberry, grape

In summary, the IR-4 Project sponsored research on 87 individual commodities utilizing 84 pesticides in 1991.

The National Research Planning Meeting (NRPM) was held at the IR-4 Headquarters on 19-21 November 1991. At the NRPM, the IR-4 Headquarters Pesticide Program Scientists, The IR-4 Pesticide Regional Coordinators, the IR-4 Laboratory Regional Coordinators, the USDA-ARS Laboratory Chemists formulated a cooperative research program to establish field research and designate laboratories to analyze residue samples. The tentative research scheduled for 1992 includes 343 food-use projects and 662 individual trials.

(B) RESEARCH DEVELOPMENT AND REGULATORY SUCCESSES:

IR-4 Headquarters prepared 58 regulatory packages during the 1991 calendar year. These regulatory packages included 45 new tolerance petitions, 7 reregistration petitions, 4 registration data packages, and 2 crop definition petitions. In addition, 4 major amendments were submitted in response to EPA's requests for additional data.

8B. Continued

Thirty-six tolerance petitions (including 5 reregistration petitions) were submitted to EPA and an additional 14 are currently under review by manufacturers (eventual label registrants) prior to submission to EPA. Additionally, 2 reregistration packages were prepared and sent to industry. These reregistration packages included reformats and summaries which were required under Phase 3 of reregistration. These packages have been submitted to EPA by the manufacturer as part of an IR-4/Industry cooperative effort in the handling of minor use reregistration requirements.

During 1991, IR-4 Headquarters petition submissions resulted in pesticide actions representing 26 pesticide/commodity tolerances. These are reviewed in detail below:

- (1) FUNGICIDES AND NEMATOCIDES (8 tolerances):
 - Calcium Hypochlorite/Potato, Sweet Potato
 - Fenamiphos/Bok Choy (R)
 - Methyl Bromide + Chloropicrin/Ginger (R)
 - Thiabendazole/Carrot, Papaya
 - Vinclozolin/Belgian Endive
- (2) HERBICIDES (10 tolerances):
 - Clomazone/Pepper (bell, non-bell)
 - Glyphosate/Cherimoya, Cocoa Bean, Genip
 - Norflurazon/Asparagus, Avocado
 - Pendimethalin/Garlic, Lupine
 - Sethoxydim/Sweet Potato
- (3) INSECTICIDES (5 tolerances):
 - Chlorpyrifos/Caneberries (Blackberry, Youngberry, Loganberry, Raspberry)
 - Methomyl/Broccoli Raab
- (4) RODENTICIDES (3 tolerances):
 - Zinc Phosphide/Artichoke (R), Sugar Beet (top & root) (R)

Clearances which have the (R) designation are tolerances with regional registration. See EPA Minor Use Policy in the 2 APR 86 Federal Register for details.

Additionally, 85 tolerances were proposed. These proposals are expected to become clearances in 1992.

During 1991, IR-4 Headquarters relocated to off-campus facilities, but maintains its association with Rutgers University. Although the move placed an additional burden on the operation of IR-4 Headquarters, we were able to continue our efforts on minor uses for 1991.

The 1988 amendments to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA '88) necessitated that IR-4 reallocate resources to the defense of critical minor uses. This procedure required the reevaluation of data that were previously submitted to EPA in support of tolerance petitions which were subsequently approved by EPA. In some cases, IR-4 determined that additional data would be required to retain specific uses.

8B. Continued

Reregistration has also affected the time frame in which the agricultural chemical industry and EPA reviews our submissions. Registrants are facing major challenges during reregistration and, in some cases, minor use needs receive low priorities. In other cases, there have been agreements to develop multi-company "Task Force" committees to cost-share the data requirements mandated by reregistration for certain pesticides. These Task Force committees need to review and approve all IR-4 activities for the respective pesticides. Since Task Force committees may meet only infrequently, responses to IR-4 can be delayed.

IR-4 continues to have meaningful dialogue with EPA's Health Effects, Registration, and Special Review and Reregistration Divisions concerning current residue and toxicology data requirements for various pesticide uses. These discussions have aided IR-4 in the selection of research projects. This is very important because of funding limitations.

EPA's expanded Good Laboratory Practice (GLP) regulations were finalized in October 1989. IR-4 field and laboratory procedures were modified over the last few years to meet the current requirements. All IR-4 cooperators are now utilizing written standard operating procedures, and are being reviewed by quality assurance units. Additionally, GLP's have placed an added burden on petition writing.

There continue to be cases where pesticide manufacturers are unwilling to register a pesticide on a minor crop due to potential crop damage liability concerns. Several individual growers, grower groups, and other organizations in New Mexico, Louisiana, Wisconsin, Florida, and New York have set a precedent by formulating 3rd party registration agreements with the agricultural chemical companies to limit the potential crop damage liability of the primary registrant. In addition, a few pesticide formulator companies have worked out agreements with the primary registrants to assume the potential crop damage liability and sell the pesticide in the minor use market.

Based on the current success of the working arrangements, there is considerable interest for the expansion of third party registrations. Currently, negotiations are continuing in several states in order to develop agreements with the primary registrants.

IR-4 actively supports 3rd party registrations and encourages all parties to investigate this possibility when feasible. EPA requires a tolerance or exemption from the requirement of a tolerance before a pesticide can be registered on a food or feed crop. IR-4 can be of assistance in instances where tolerances or exemptions do not exist. It can take up to 5 years from the start of a project until a tolerance is established, therefore, IR-4 must be informed of potential third party registrations at the initiation of tentative agreements.

(C) ORNAMENTAL RESEARCH AND DEVELOPMENT:

There are presently 876 researchable ornamental requests with 175 new requests added to the list of researchable projects in 1991. During the 14 1/2 years the IR-4 Ornamentals Program has been in existence (APR 77 - NOV 91), IR-4 has undertaken 12,843 ornamental research trials. In 1991, the IR-4 Project funded 437 ornamental research trials, and IR-4 HQ prepared registration packages for 4 pesticides (1 fungicide and 3 herbicides)

8C. Continued

containing 155 reports. These registration packages were sent to registrants for review and eventual labeling. During 1991, IR-4 data were used to support 122 ornamental pesticide registrations. Since 1977, the total number of label registrations on ornamentals is 3,036. Ornamental registrations that were supported by IR-4 data in 1991 include:

| PESTICIDE | ORNAMENTAL USES OR SPECIES REGISTERED |
|---|--|
| Sethoxydim (VANTAGE [®]) | To control weeds on field and container grown barberry, birch, ornamental cherry, crape myrtle, english ivy, gladiolus, photinia, privet, hydrangea, sedum, shasta daisy, alyssum, Japanese maple, crown vetch, white ash, azalea (Delaware Valley White), mondo grass, ajuga, osmanthus, hosta, and veronica. |
| Diﬂubenzuron (DIMILIN [®]) | To control larvae of gypsy moth, tent caterpillar, Nantucket pine tip moth, and tussock moth in trees and shrubs. |
| SUNSPRAY [®] 6E PLUS | To control insects on azalea, begonia, chrysanthemum, dieffenbachia, Easter lily, gardenia, hibiscus and palm. |
| Metolachlor (PENNANT [®] Liquid) | To control weeds on field and liner grown allyssum, ash, aster, bellflower, birch, canna lily, chrysanthemum, coreopsis, daisy, daylily, galliardia, gazania, geum, impatiens, Leopards's bane, marigold, petunia, red cedar, stachys, sweet william, veronica, rose, gardenia, yarrow, iris, and columbine. |
| Trifluralin (TREFLAN [®] 5G and EC) | To control weeds on field grown blackeyed susan, coreopsis, and cornflower. |
| Isofenphos (OFTANOL [®]) | To meet quarantine certification requirements for Japanese beetle larvae and other white grub larvae on container grown nursery stock (accepted by EPA). |

(D) BIORATIONAL RESEARCH AND DEVELOPMENT:

The IR-4 Biorationals Program was established to help develop biological (microbial and biochemical) control agents for economically important pests. September, 1991 marks the completion of nine years of the IR-4 Biorationals Program.

In 1991, IR-4 funded a research project entitled "Bioherbicide for Control of Dodder" at the University of Florida. This project involves research on Alternaria spp. and Fusarium tricinctum for the control of dodder.

In 1991, IR-4 received the final report covering efficacy studies with Xanthomonas campestris for the control of annual bluegrass in turf. This research was conducted under the direction of Dr. David Roberts of Michigan State University. Mycogen Corp. of San Diego, CA is currently pursuing further research and development of this bioherbicide in cooperation with several

8D. Continued

universities. IR-4 funding for this project was vital in supporting the initial phase of the research.

The University of California and IR-4 are continuing their efforts to obtain a clearance for the Codling Moth Granulosis Virus (CMGV) on apples, pears, walnuts, and plums. The required toxicology and safety studies have been completed and IR-4 in cooperation with the University of California will be submitting a petition to EPA requesting a full exemption of CMGV from the requirement of a tolerance in the first quarter of 1992.

In the first quarter of 1992, IR-4 in cooperation with the California Department of Health Services will be submitting a petition to EPA requesting an exemption from the requirement of a tolerance for the fungus, Lagenidium giganteum, to obtain labeling for use on certain food sites, such as, rice, soybeans, and irrigated pastures where floodwater mosquitoes are a problem.

(E) ANIMAL DRUG RESEARCH AND DEVELOPMENT

Since the IR-4 Animal Drug Program was established in 1982, 18 uses have been cleared. The 18 clearances, listed below, have been published in the Federal Register. Additionally in 1991, seven projects (listed below) are under review as Public Master Files (PMF) with FDA-Center for Veterinary Medicine (CVM), three (listed below) are complete and the data will be filed with FDA-CVM, and 21 are ongoing research projects.

Public Master Files (PMF) for the following 18 projects were published in the Federal Register (F.R.) as clearances:

| <u>PMF</u> | <u>DISEASE/SPECIES</u> | <u>DRUG</u> | <u>DATE</u> <u>F.R. PUBLICATION</u> |
|------------|--------------------------------|---------------------------------|--|
| 3857 | Gapeworm/Pheasant | Thiabendazole | 02/22/84 |
| 3883 | G.I. Parasites/Goat | Ivermectin | 03/24/89 |
| 3887 | Coccidiosis/Pheasant | Amprolium | 12/14/84 |
| 3895 | Warbles/Reindeer | Ivermectin | 12/14/84 |
| 5012 | Coccidiosis/Goat | Decoquinate | 02/18/87 |
| 5014 | Coccidiosis/Quail | Monensin | 04/14/87 |
| 5020 | Coccidiosis/Quail | Salinomycin | 03/22/89 |
| 5028 | Gaffkemia/Lobster | Oxytetracycline | 01/03/86 |
| 5042 | Coccidiosis/Rabbit | Lasalocid | 03/15/90 |
| 5055 | Coccidiosis/Goat | Monensin | 12/19/86 |
| 5056 | Enteric Septicemia/ Catfish | Sulfadimethoxine/ Ormetoprim | 04/16/86 |
| 5071 | Lungworms/Bighorn Sheep | Fenbendazole | 02/14/89 |
| 5117 | G.I. Parasites/Goat | Levamisole Hcl | 09/08/89 |
| 5178 | Ulcerative Enteritis/Quail | Bacitracin | 02/22/88 |
| 5258 | Coccidiosis/Sheep | Decoquinate | 09/28/90 |
| 5118 | G.I. Parasites/Goat | Fenbendazole | 04/03/91 |
| 3543 | External Parasites/Shrimp | Formalin | 05/06/91 |
| 5307 | Ear Mite/Ranch Fox | Ivermectin | 11/29/91 |

Public Master Files for the following seven projects are currently under review by FDA-Center for Veterinary Medicine (CVM):

| <u>PMF</u> | <u>DISEASE/SPECIES</u> | <u>DRUG</u> |
|------------|------------------------------|-----------------------------|
| 5059 | Hypodermosis/American Bison | Ivermectin |
| 5157 | Coccidiosis/Chukar Partridge | Sulfadimethoxine/Ormetoprim |

8E. Continued

| <u>PMF</u> | <u>DISEASE/SPECIES</u> | <u>DRUG</u> |
|------------|---------------------------|--------------------------------|
| 5206 | Bacterial Pneumonia/Goat | Sulfamethazine |
| 5316 | Bacterial Pneumonia/Goat | Oxytetracycline/LA-200 |
| 5321 | Bacterial Pneumonia/Sheep | Oxytetracycline/LA-200 |
| 5331 | Mastitis/Goat | Procaine Penicillin/Novobiocin |
| 5366 | G.I. Parasites/Goat | Morantel tartrate |

The research for the following three projects under Investigational New Animal Drug (INAD) applications is complete and data will be filed with FDA-CVM:

| <u>INAD</u> | <u>DISEASE/SPECIES</u> | <u>DRUG</u> |
|-------------|------------------------------------|--------------|
| 4447 | Bacterial Pneumonia/Goat | Amoxicillin |
| 4449 | Bacterial Pneumonia/Sheep | Amoxicillin |
| 6013 | Bacterial Kidney Disease/Salmonids | Erythromycin |

(F) COORDINATION WITH FEDERAL AND STATE AGENCIES:

Continued excellent cooperation with federal research agencies was again evidenced in 1991. Of the 262 food projects noted, the USDA-ARS minor use program conducted field trials on 83 food projects, and analyzed residue samples from 30 projects, and researched 215 ornamental projects. Additionally, the USDI Fish and Wildlife Service scientists cooperated in one animal drug clearance project. This team-work approach is providing the farmers, ranchers, growers, nurserymen, and homeowners with the necessary tools that will result in food and environmental safety while increasing production efficiency. Sixty six percent of the states participated in the 1991 research program.

9. USEFULNESS OF FINDINGS:

Without the field and laboratory research conducted by the IR-4/SAES and USDA-ARS scientists and the subsequent successful tolerance establishment, minor commodity uses including alternative crop uses would seldom, if ever, be cleared due to the negative economic factors confronting industrial manufacturers. In this sense, IR-4 serves a valuable "bridging" role between American farmers and ranchers, pesticide and drug producers, and regulatory agencies, i.e., no other federal or state mechanism exists to assure that the animal, fruit, vegetable, and ornamental growers, both large and small, have the safe and efficacious pest control materials they need to produce commercial yields of high quality and wholesome commodities. IR-4 continues to be the clearinghouse and communication center for the clearance of safe animal drugs and safe crop protection chemicals, including biorationals, which in conjunction with cultural practices, scouting, and conventional pesticides are frequently used in integrated pest management (IPM) systems. The biorational research, which includes the development of biological (microbial and biochemical) control agents, also provides alternatives and supports organic or sustainable farming systems.

10. WORK PLANNED FOR NEXT YEAR:

Since IR-4 is mission oriented with its focus on food and environmental safety, as well as, crop and animal protection, we will continue to develop data required by EPA and FDA for the establishment of minor use tolerances, including IPM materials and animal drug approvals, as necessary and when appropriate and as funds permit. Additionally, a similar effort will be expended in developing nonfood uses, i.e., ornamental registration data packages. Since funding levels can only address approximately 20% of the existing researchable food-use projects, IR-4 will continue to work on the highest priority needs and maintain the food-use program at the expense of the ornamental or nonfood use program. Also, funding levels for the animal drug

10. Continued

and biorational programs are not adequate to address more than 15% and 10%, respectively, of the researchable projects on the books. The research program in ornamentals has been reduced and only 40% of the researchable projects have active research underway.

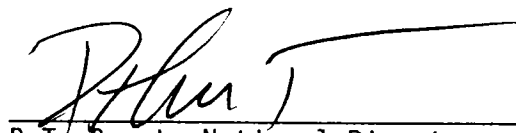
In order to gain maximum benefit from a limited funding base, IR-4 works closely with EPA, FDA, and the pesticide, animal drug and commodity production industries. Requests are screened carefully so the projects, involving pesticides and drugs having significant data gaps, can either be eliminated or delayed as the situation dictates. By doing this, the overall efficiency of all operations will be improved, so that time and money are not expended on projects which cannot be successfully concluded at the present time.

11. PUBLICATIONS:

Baron, J.J., G.C. Hamilton, and M.G. Robson. 1991. Third-Party Pesticide Registrations: A Guide to New Jersey's Growers. NJAES, New Brunswick, NJ, pp 8.

Markle, G.M. (Editor). 1991. IR-4 Newsletter (Quarterly).

December 31, 1991

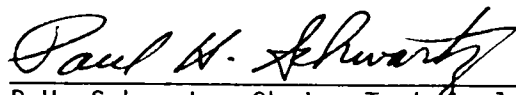


R.T. Guest, National Director
IR-4, Cook College, Rutgers - The State
University of New Jersey

Approved:

1/14/92

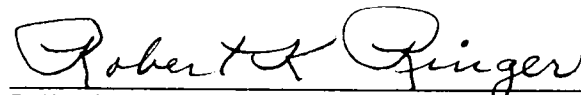
Date



P.H. Schwartz, Chair, Technical Committee (Pesticide)
Staff Scientist, Office of Minor Use Pesticides
USDA-ARS

1-10-92

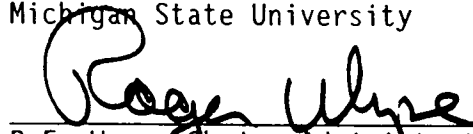
Date



R.K. Ringer, Chair, Technical Committee (Animal Drug)
National Coordinator (Animal Drug)
Michigan State University

1/9/92

Date



R.E. Wyse, Chair, Administrative Advisers
Director, NJAES, Cook College
Rutgers - The State University of New Jersey

Attachment:

Glossary of Abbreviations used in this Report