WISCONSIN IR-4 CENTER: STEP ONE TO A VEGETABLE CROP LABEL

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In 2004, Wisconsin farmers grew 3.6 million acres of corn, 5 million acres of alfalfa and 1.6 million acres of soybeans. In sharp contrast, Wisconsin farmers grew only 30,000 acres of green peas, 73,000 acres of snap beans, 2,000 acres of onions and 4,200 acres of carrots (Wisconsin Ag Statistics, 2005). If you were going to invest $70-100 million on developing a new pesticide for one of the above crops, which would you choose? It doesn't take a financial wizard to realize that the return on investment has the potential to be disastrous from a low acreage crop. Nonetheless, the need for pest management tools on these minor acreage crops often equals or exceeds the large acreage field crops.

The Interregional Research Project No. 4 (IR-4 Program) was organized in 1963 by the Directors of the State Agricultural Experiment Stations (SAES) to obtain regulatory clearances for crop protection chemicals on specialty food crops when the incentives for the registrants precluded private sector investment. The objectives of the program were expanded in 1977 from just food crops to include registration of pest control products for the protection of nursery, floral, forestry, Christmas trees, and turf crops and again in 1982 when biopesticides were added. IR-4 operates as a unique partnership between the land grant university system and the USDA (ARS and CSREES). IR-4 Headquarters is located at Rutgers University in New Jersey. The U.S. is divided up into 4 regions with the North Central Regional staff located at Michigan State University. The Wisconsin IR-4 Center, Co-Directed by Dan Heider and Scott Chapman, is one of 24 IR-4 field research centers located throughout the U.S.

The IR-4 Process

Although many have heard of the IR-4 program, the actual process of moving a project through IR-4 and towards a minor crop label is rarely understood. The following gives a broad overview of the many steps involved.

1. Identification of Needs – Requests for specific pest management needs are made by minor crop growers, commodity groups, land grant university and USDA scientists and university extension personnel. This step requires the submission of a Project Clearance Request (PCR) which documents the crop, pest, pesticide, potential use patterns, any existing alternatives, and whether any initial performance data is available.
2. Prioritization – It is not uncommon for IR-4 to have over 1000 PCR's on file at any one time. Unfortunately IR-4 does not have sufficient resources to conduct research on all proposed researchable projects. Therefore, each fall a national Food Use Workshop (attended by numerous Wisconsin representatives) is held to prioritize the projects. These are open forums where specialty crop growers, commodity

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organization representatives, agricultural pesticide company representatives, and federal and state research scientists discuss every potential research project in detail looking at efficacy of alternatives, pest damage potential, performance of the proposed chemical and its IPM compatibility. In 2006, funding will allow work to begin on less than 50 IR-4 field projects selected from the 1000+ requests.

3. Final Workplan – The highest priority projects are selected for research based on resources available and agreed upon by Headquarters, Regional and ARS staff.
4. Implementation – All food use field and laboratory studies are conducted in full compliance with EPA's Good Laboratory Practice (GLP) requirements. Protocols are developed and assigned to Field Research Centers based on the EPA's geographical requirements. Crops are grown, pesticides applied and samples harvested for residue analysis. Ornamental and some biopesticide projects require only crop safety and efficacy data.
5. Petition Preparation – All data are critically reviewed, summarized and prepared as a petition at IR-4 Headquarters based on the field and laboratory results.
6. EPA Petition Review and Approval – Upon receipt, EPA Registration Division performs a preliminary review for completeness of the data submitted and initiates discussions with scientists in the Health Effects Division to schedule a comprehensive review of all IR-4 and Ag Chemical Company data submitted. If the data show that clearance of the proposed use would not expose consumers or the environment to unreasonable adverse effects, the EPA publishes a tolerance as a Final Rule in the Federal Register. This tolerance is the maximum safe limit of the agricultural chemical in or on the harvested crop that is considered safe and legally acceptable.
7. Product Availablility – The establishment of a tolerance by EPA allows the registrants (usually the agricultural chemical company) to put the minor crop uses on their existing product labels and make those specific uses available to minor crop growers.

How long does this whole process take? In an effort to streamline the process, IR-4 has a goal of completing steps 4 and 5 above within 30 months. Adding in several months up front from project selection to protocol approval, another year or more from data submission at EPA to setting a tolerance and additional time to incorporate a use onto a label, we are often looking at a 4-6 year timeframe at a minimum from the beginning of a project until a useable label is in hand. Quite simply, the amount of work that goes into each and every project necessitates this seemingly lengthy amount of time; which has been greatly shortened in recent years due to a more partnership-like relationship between all entities involved.

The Wisconsin IR-4 Center is extremely active in the IR-4 process. Our continued pesticide efficacy screenings for herbicides, insecticides and fungicides provide us with invaluable data allowing us to submit Project Clearance Requests very early in the process for pesticides which could benefit Wisconsin growers. At the prioritization workshop, Wisconsin representation ensures that we see a number of projects important to Wisconsin growers enter the field trials each year. The Wisconsin Center currently has two Field Research Directors responsible for conducting 25-30 residue field trials each

year. That's quite an undertaking, considering the average residue field trial requires between 40 and 80 hours to complete.

Most often, you may not even realize that IR-4 has had a hand in a new minor crop use being registered. The following list is just a sampling of somewhat recent pesticide registrations that are a result of tolerances obtained due to IR-4 data submissions to EPA.

Dimethenamid-P / Outlook® – potato, garden beet, onion, horseradish
Sulfentrazone / Spartan® – mint
Flumioxazin / Chateau® – onion, mint
Halosulfuron-methyl / Sandea® – snap beans, lima beans
Imazamox / Raptor® – snap beans
Clethodim / Select® - mint

Since the inception of IR-4 in 1963, it has been responsible for residue data and other petitions to support over 8,300 food use clearances, more than 10,600 ornamental or non-food crop clearances and supported research on biopesticides which has resulted in over 300 biopesticide clearances. In fact, IR-4 clearances account for approximately 50% of all food use approvals granted by EPA. Additional information about the IR-4 program can be found at their website: http://ir4.rutgers.edu/.

If you have ideas for potential IR-4 projects, contact either of the Wisconsin IR-4 Center Co-Directors listed below:

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References

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