Part VII. Focus on the Future

Introduction

USDA's 1994 IPM Initiative, which was designed to rally support and develop the strategies needed for IPM adoption in U.S. agriculture, was the basic frame of reference for this symposium. Many of the commodity reports on farmer/stakeholder IPM needs presented in Part VI, for example, were funded through the Initiative. The IPM Initiative also represents the Department's national strategic plan for carrying IPM into the next century.

In the closing plenary session of the IPM Symposium/Workshop, three speakers focused on the future of IPM. Jim Cubie, Democrat Chief Counsel, Agriculture, Nutrition, and Forestry Committee, U.S. Senate, proposed some innovative institutional mechanisms (e.g., marketing orders doubling as pest-management districts and crop insurance for new IPM technologies) to help build support for IPM.

Barry Jacobsen, USDA IPM Coordinator, presented a progress report and strategic-planning update on the IPM Initiative. Some of the accomplishments that were mentioned include the involvement of thousands of farmers in identifying research and extension priorities for IPM and increased Congressional funding for areawide biologically based IPM technologies. Finally, the closing remarks at the Symposium by Eldon Ortman, who chairs the Experiment Stations' steering committee on pest management, are also offered here. His comments provide a link to previous IPM symposia and to a major objective that has been shared by all of them: to increase the usefulness and visibility of IPM to a broader segment of the American public.

Institutional Support for IPM

Jim Cubie
Agriculture, Nutrition, and Forestry Committee, U.S. Senate

For the first time ever, USDA and EPA have agreed to work cooperatively to meet the objective of helping farmers to reduce pesticide risks. Instead of battling, they have agreed to identify the products that the farmers are most concerned about losing and to work cooperatively to help farmers find alternatives. This is called the "alternatives development" process. The Administration has backed this effort with requests for funding this program.

The Administration has also shown leadership in establishing a goal of reaching 75-percent IPM use by the year 2000. It needs assistance in developing the institutional support to meet that goal. IPM is broadly supported by sensible agricultural and environmental groups. The following are proposals to help the Administration meet that goal.

Institutional Support

Successful IPM requires that the community of growers work together in a cooperative fashion. The social support for a cooperative IPM will break down if there are "free riders." Also, "rogue" growers can destroy a successful IPM project just as they can destroy a successful marketing-order system. These principles are already inherent in marketing orders. Federal marketing orders represent 25 percent of the fruit and vegetable production in the United States.

Proposal: Support legislation to permit Federal marketing orders to operate as IPM districts.

Research and promotion orders also cover millions of acres of crop, fruit production, and range. Under these orders, producers are annually assessed a fee on a unit-of-production basis. These fees are used to promote the product and for research related to the production of the product. In addition to the federally established research and promotion orders, there are 261 research and promotion orders in 43 States representing 55 commodities.

Proposal: USDA could issue a notice to all research and promotion orders that it will look favorably on operating plans that include a proposal to participate in the alternative-development strategy.

The recent issue of *ARS Agricultural Research* highlighted the need for widescale cooperative action to make grasshopper IPM control strategies work. Grasshoppers now infest 55 million acres. Controlling them on one property while adjacent land remains infested can be a hopeless task. The Beef Promotion Order assesses cattle producers for advertising of beef. Cattlemen are the chief beneficiaries of grasshopper control. At the same time every western State has "weed-management districts" in which landowners are required to cooperatively work to control weeds and other pests.

Proposal: Develop a cooperative program between the Beef Promotion Order and the weed-management districts to implement a multistate grasshopper IPM program.

As the cotton boll weevil program shows, effective IPM requires that the program be undertaken on an area-wide basis. The Fillmore Citrus Protective District has operated as such a pest-management district in Ventura County since 1922.

Proposal: Authorize the establishment of pest-management districts in the same fashion as marketing orders are established.

Risk Management

Farmers will greatly increase their willingness to accept new IPM technologies if they do not risk their crop. Crop insurance should be provided on a demonstration basis to help the introduction of new IPM technologies in farmers' orchards and fields. The first demonstration of using crop insurance for this purpose is now beginning.

Proposal: Establish a nationwide demonstration

program providing IPM insurance to growers for research-proven IPM projects targeted to the pesticides that the farmers are most likely to lose or that have the greatest environmental or health significance.

To reach the goal of 75-percent IPM adoption, qualified field practitioners are absolutely necessary. Currently, there are not enough of these practitioners. A major obstacle to the growth of this service is the severe risk practitioners face in the absence of affordable professional liability insurance. Such insurance, based on the skill and experience of certified consultants, could also promote innovative recommendation beyond the current status quo.

Proposal: Support legislative and administrative efforts to use the Federal Crop Insurance Corporation or other vehicles to make professional liability insurance available and affordable to certified consultants.

Achieving the National IPM Goal

Barry J. Jacobsen
Cooperative State Research, Education, and Extension Service, USDA

On September 21, 1993, the USDA, EPA, and FDA called for a national commitment to develop and implement IPM methods on 75 percent of total U.S. crop acreage within the next seven years. In response to this challenge, on December 14, 1994, USDA announced an IPM Initiative and with the land-grant universities developed a strategic plan based on two premises: (1) Involving farmers and practitioners in the development and assessment of IPM programs increases implementation of IPM practices. (2) Increasing the use of IPM systems enables farmers to achieve both economic and environmental benefits, including reducing risks to human health and the environment associated with pesticide use. Achieving the goals of the IPM Initiative requires an active partnership among the USDA, land-grant universities, farmers, consultants, agribusiness, public-policy interest groups, and other stakeholders. It is critical that we focus on broad involvement in setting and achieving goals for the development and implementation of IPM systems for specific crop-production areas and in reporting the results to all who have invested in the Initiative. The National IPM Strategic Plan outlined below provides a mechanism to achieve the national IPM goal. This National Plan represents input from USDA agencies, land-grant-university research and extension scientists, crop consultants, and farmers. The four objectives of the plan and progress on each of the four objectives follow:

Objective I. Involvement of Stakeholders in Needs Assessment and Implementation

A process should be established and conducted for identifying the IPM implementation needs of producers, and the support and resources necessary to conduct a coordinated program of research, development, and delivery of education and information should be provided to meet producers' IPM implementation needs.

Progress: In 1995, an increase of $25,000 in Smith-Lever 3(d) Pest Management Education funding was provided to each State and territory to conduct a process with farmers and other stakeholders to identify and prioritize needs for IPM implementation for key commodities in each State. As of March 1996, more than 4250 customers, including 3205 farmers, are currently involved in identifying priority research and extension needs for IPM implementation for key commodities at the State level. This process will continue and help assure congruence between producers' needs and Federal funding for IPM research and education.

In addition to the State-level needs assessment process, 23 production-region IPM teams were funded at approximately $20,000 per team for one year to identify the IPM implementation needs for specific crop-production regions. These teams, with representation from 44 States, have identified needs for crop production systems in regions. These teams involve 154 farmers or crop consultants, 36 food processors or marketers, State and national level commodity organizations, agribusinesses, USDA and EPA field personnel, and research and extension faculty at cooperating land-grant universities. This approach to "buy in by researchers, farmers and others involved in all phases of the development and implementation of IPM programs" was complimented in the 1995 Office of Technology Assessment study, *Biologically Based Technologies for Pest Control*, as being a proven method to ensure the expeditious flow from research projects into applications by farmers and private practitioners.

This participatory needs-identification and priority-setting process has created high expectations for implementation of the USDA IPM Initiative by U.S. farmers, agribusiness, and environmental and public interest groups. A common statement made by farmers and others involved in this process is "not only are these things important, we want them done!" Funding currently available for research and extension is insufficient to comprehensively address these

producer-identified needs in a timely manner. Again, the 1995 Office of Technology Assessment Study, *Biologically Based Technologies for Pest Control*, concluded that the USDA IPM Initiative addressed a number of criticisms raised in the report on moving from research to implementation. This report concludes that, "Ultimately the impact of the USDA IPM Initiative will depend on sustained commitments from USDA, the Administration, and the Congress."

The budget request for the USDA IPM Initiative is based on meeting farmer and other stake-holder-identified research and extension education needs for 75-percent IPM implementation within 6 to 7 years. For research and extension programs in the Cooperative State Research, Education, and Extension Service (CSREES), an investment of $27.5 million (a budget increase of $12 million) is required in FY 1997. In FY 1998, we will propose an increase of $8.0 million (to a total of $35.5 million) to provide the IPM research and extension education support needed to implement basic to advanced IPM strategies on 75 percent of the nation's crop acres. This level of support will need to be sustained for 6 to 7 years to successfully address the pest-management needs identified for selected major cropping systems representing more than 75 percent of the nation's cropland. In addition, ARS has requested increased funding for the Areawide Pest-management Programs to a level of $6.0 million, an increase of $2.2 million over FY 1995.

Areawide IPM programs focus on management of pests where existing technologies (including pheromones, biocontrols, and alternatives to pesticides that disrupt natural control systems) are most effective when used over a multistate area. Control of codling moth with mating disruption on apple and pear in the western United States is an example. Other pest/crop systems are currently under evaluation, and a corn rootworm areawide program is scheduled to start this summer in the Midwest. The areawide programs are coordinated with land-grant-university extension and research programs. (The 1997 budget request is $6.0 million, an increase of $2.2 million.)

The Pest-management Alternatives Program is a new competitive grants program that addresses the memorandum of understanding between the EPA and USDA that commits these agencies to: (1) provide farmers with chemical pesticides, biological control products, or cultural tactics to replace agricultural chemicals lost because of regulatory action, under regulatory consideration, or voluntarily canceled by registrants and for which producers do not have effective alternatives; (2) provide alternatives where pest resistance limits IPM options; and (3) help farmers implement new alternative pest-management tactics. This program will require $4.5 million in FY 1997. The process to identify critical needs at the State level for this program is supported by the National Agricultural Pesticide Impact Assessment Program and State Extension IPM coordinators. Registration of new biological or other pest-control products is coordinated with the IR-4 Minor Crop Use Registration Program and the USEPA. Pest-management-information decision-support system software has been developed to bring together related but separate pesticide and pest-management databases that facilitate the process of identifying critical needs for research and extension funding.

Funding for the IPM Initiative has been requested in the IPM and Biological Control Research, Pest Management Education, USDA Agricultural Research Service, National Research Initiative, and Emerging Pest and Disease Issues budget lines. These resources will support (1) ongoing core regional and State programs, (2) new production-system IPM development and implementation projects, and (3) the development of alternative management technologies. Funding for new IPM component research and extension education and technology-transfer programs is provided in the four regional IPM competitive grants programs. These programs are funded through the IPM and Biological Control Research (PL 89-106, Special Research) and the Pest management Education [Smith-Lever 3(d)] budget lines. The four regional competitive grants programs will be supported with $3.8 million from the IPM and Biological Control Research budget line and approximately $700,000 from the Pest Management Education line in FY 1997 and are responsive to the needs and priorities identified by production region and State IPM teams. In addition, the Pest Management Education

budget line supports the critical basic education and technology-transfer infrastructure necessary to transfer IPM research to farmers via Extension Service programs in every State and county at approximately $10.1 million per year. The 75-percent goal will not be achieved without strengthening this basic education and technology-transfer infrastructure. The fundamental research supported by the National Research Initiative and the USDA Agricultural Research Service undergirds the IPM component and systems research program.

A three-phase process to develop and implement IPM for crop-production systems has been planned. This process is essential in developing and providing the right tools for farmers to implement IPM methods on 75 percent of the nation's crop acres. The three phases are:

First, formation and development of IPM project-development teams that address cropping systems in crop-production regions. These crop-production regions typically address more than existing administrative regions. In 1995 and 1996, 23 production region IPM teams composed of farmers, consultants, research and extension staff, State and Federal agencies, and others identified priority research, education, and technology-transfer needs to implement new and improved IPM programs for specific crop-production systems. In FY 1997, we envision expenditure of $400,000 to develop approximately 20 new production-system teams that will address cropping systems not addressed previously. These teams will develop implementation project plans for funding in FY 1998. These teams plus those formed in 1995 will address IPM implementation for 40 to 45 major cropping systems in the United States and will incorporate needs and priorities from the State-level IPM teams.

Second, initiation of IPM development and implementation projects for specific crop-production systems, projects that address the research and extension education needs identified in Phase I. To achieve the needs identified, we envision that approximately 30 to 35 production-system projects will be needed to achieve the 75-percent goal. These projects will fund the research and education needed to develop and implement IPM for regional cropping systems and will be based on proposals developed by IPM teams submitted for funding through a competitive process in FY 1997 and FY 1998. Requested funding for FY 1997 will competitively fund approximately 16 projects at up to $500,000 per project per year; these projects will be funded for up to 6 years with a mandatory midpoint review. Approximately 16 additional projects will be initiated if Congressional funding is approved in FY 1998 for cropping systems not addressed in projects initiated in FY 1997.

Third, privatization of IPM systems in regional cropping systems. Experience has shown that implementation of IPM and privatization by farmers, crop consultants, IPM cooperatives, or pest-management associations has occurred where adequate IPM tools have been developed and economic and environmental benefits are identifiable. Phase II projects will provide these prerequisites for privatization. Core-formula extension and research programs plus ongoing base IPM support for regional IPM grant programs will provide the needed education and technology transfer to farmers, crop consultants, cooperatives, and agribusiness plus the development of IPM tools for existing and new pest problems. Extension educators associated with the Health, Environmental, and Pesticide Safety Education Program will be critical in educating pesticide applicators and operators in IPM based pest-control technologies.

Objective II. Coordination

The USDA IPM programs and policies should be effectively coordinated across USDA agencies and cooperation should be facilitated with non-USDA entities (public and private) to meet the national goals for IPM implementation. The key coordinating mechanism is the USDA IPM Program Subcommittee, which is chaired by the USDA IPM Program Coordinator. The IPM Program Subcommittee has representation from the Agricultural Research Service (ARS), Animal and Plant Health Inspection Service (APHIS), Forest Service (FS), Farm Services Administration (FSA), Agricultural Marketing Service (AMS), National Resources Conservation Service (NRCS), Cooperative State Research Education and

Extension Service (CSREES), Economic Research Service (ERS), National Agricultural Statistics Service (NASS), Office of Budget and Policy Analysis (OBPA), and EPA. This broad working group assures coordination of Federal research, education, and regulatory programs with land-grant-university and State- based USDA programs in every State.

Progress: This committee has effectively coordinated IPM-related activities across nine USDA agencies and the EPA. Important progress has been made in grant coordination, assessment, strategic planning, integration of Federal and land-grant-university programs, crop insurance, cost sharing, increased funding by Extension and EPA for regional IPM competitive grant programs and implementation of the new Pest Management Alternatives Program.

Objective III. Measure IPM Implementation

Methods should be developed and programs should be conducted to accurately measure progress toward the 75-percent IPM goal and assess the impacts of IPM implementation on the public and private sectors as measured by economic, environmental, public-health, and social factors.

Progress: During the past year, ERS, CSREES, ARS, APHIS, and Extension and research scientists have begun to identify the parameters and methods to measure IPM implementation and impacts. A key focus of this symposium was measurement of IPM impacts and methods for measurement. This meeting was preceded by the
Big Sky conference attended by individuals with IPM-implementation experience and expertise in pest control, economics, rural sociology, and program assessment. As a result of that meeting, white papers presented at this symposium were commissioned. In addition, plans were developed for the assessment component of the Phase II request for proposals and for a national overall assessment team to develop national-level impacts and to work with regional projects.

ERS and NASS have begun modification of NASS survey instruments to provide IPM implementation and impact data. This year, modified survey instruments will provide the most comprehensive data to date for IPM implementation on corn, soybean, wheat, cotton, and potato. This will provide critical baseline information and will complement the data from the 1994 ERS study on IPM adoption. In addition, several commodity groups are developing IPM implementation self-studies with the assistance of the EPA Pesticide Environmental Stewardship Program and land-grant-university scientists.

Objective IV. Communication

A communication and information-exchange program involving stakeholders should be implemented to increase public and policy-maker understanding of the USDA IPM Initiative and its objectives, progress, impacts, and benefits.

Progress: The State and production-region IPM planning teams have involved a wide range of stakeholders in priority setting for IPM programs. Those involved understand that the IPM Initiative is based on developing a strong connection between producer needs and research and extension education programs of USDA and the land-grant universities. In addition, we have directly involved commodity groups, consultants, public-policy interest groups, and others in national, regional, and State-level IPM Initiative planning. This symposium has also been a major component of the IPM communication plan. This symposium has been attended by a more diverse group than previous IPM symposium/workshops. The first session of "Putting Customers First" provided critical input directly from producers, consultants, and the environmental public policy community. The sessions on the second and third days involved a diverse group of economists, rural sociologists, public-health specialists, and technology-transfer specialists. The Third National IPM Symposium/ Workshop has been attended by 634 registrants who presented 161 posters.

The IPM Initiative approach to reduction in risks from pesticide use and development of more sustainable agricultural production strategies was adopted by USDA and EPA rather than the mandated-use-reduction strategy adopted by several European governments in the early 1990s. Since the

first coordinated Federal funding for IPM was provided for the Huffacker project by EPA, NSF, and USDA in 1972 and for Extension Pest Management Education [Smith-lever 3(d)] funding in 1973, the Federal investment in all IPM- related research and education programs has been approximately $180 million per year. As a result of the IPM Initiative strategy, an increase of $25,000 in Smith-Lever 3(d) Pest Management Education base funding was provided to each State and territory to conduct a continuing process with farmers and others to identify and prioritize needs for IPM implementation for key commodities in each State. The Clinton Administration first requested increased budget support for the IPM Initiative in FY 1996. In FY 1996, Congress appropriated increased funding of $2.0 million for the Pest Management Alternatives Program, one component of the IPM Initiative. Funding for the complete USDA IPM Initiative was again requested in the executive budget for FY 1997. The total investment requested for FY 1997 is $204.9 million, an increase of $15.1 million over the appropriated FY 1996 budget.

Achieving the IPM goal will require the cooperative work of farmers, crop consultants, agribusiness, State and Federal agencies, research and extension scientists and educators associated with the land-grant universities, public-policy interest groups, other IPM stakeholders, and the executive and legislative branches of Federal and State governments. The USDA IPM Initiative Plan sets forth a new paradigm for connectivity between producer-identified needs and the research, education, and regulatory agencies at the State and Federal level. Achieving the 75-percent IPM-implementation goal is clearly within reach if we work together.

Summary Comments: National Integrated Pest Management Symposium/ Workshop

Eldon Ortman
Purdue University

The Pest Management Strategies Subcommittee (PMSS) is one of the national committees appointed by the Experiment Station Directors Committee on Policy. The membership is composed of multiple disciplines, it represents different commodity interests, and it includes representation from across the United States. The committee is advisory to the experiment station directors on issues related to IPM. The primary role is to keep the land-grant administrators informed and engaged in an area of priority for agriculture: IPM. PMSS was very much involved in the identification, development, and promotion of the National IPM Task Force. The joining of PMSS and the Task Force preceded the reorganization of the Cooperative State Research, Education, and Extension Service (CSREES).

One of the areas of emphasis and initiative for IPM has been the matter of relevance and utility to those stakeholders and entities that are served by IPM. In that respect, we are pleased to see the current effort that is being made by many States to identify the IPM needs through dialogue with the stakeholders in their States. We would urge that this be a continuous process and that those who have not yet engaged in this assessment of needs, through consultation with the user community, find the opportunity and means to pursue this activity. One of the continuing strengths of IPM is its attention to addressing problems of importance, relevance, and need.

This symposium/workshop program has had many highlights, and it is certainly somewhat hazardous to select any items for reiteration. However, let me call our attention to the comments made by several of our speakers from the opening session. Deputy Secretary Rominger made a special point of the importance of putting customers first. I believe IPM does put customers first. Under Secretary Karl Stauber indicated that IPM is a model for agriculture. The things he identified as setting IPM apart were a combination of characteristics: producer profitability; social concerns and needs; and broad collaboration across disciplines and the country. Terry Nipp of ESOP Enterprises indicated that, in his view, IPM was uniquely configured and positioned to address a combination of issues and items that have a broad constituency. Namely, IPM has a positive impact on agriculture and on the environment. Thus, it should be possible to identify a win-win situation because for a combined agriculture/-environmental initiative.

This is the Third National IPM Symposium. Each had its highlights, and each has provided innovations and new topic areas. This third symposium had a special emphasis on assessment and economic impact. In this symposium we had a greater, a broader disciplinary involvement and also an increased presence of the producer and the user communities. Special credit goes to the Washington-based staff of the Federal State Partnership in initiating, developing, and coordinating an excellent symposium/workshop.

IPM is in a unique and exemplary position. That status, I believe, is based on a combination of situations:

1. IPM is based on solid science and the development of appropriate technology.
2. There are many outstanding, dedicated, hard-working scientists contributing to IPM.
3. IPM is outcome oriented; that is, it seeks to find a better way to address pest problems.
4. There has been a significant level of creativity and innovation.
5. The program has been flexible and opportunistic.
6. Discovery research through application has had a focus on service to customers and to society.

It is important that we maintain these aspects of the program to continue to be dynamic and to prosper and to make contributions to the future of agriculture and society.