

New Integrated Pest Management (IPM) Program Working Group – Discussion Paper

{A summary of preliminary recommendations being considered by the BAA Working Group on IPM}

Background:

The Association of Public and Land-Grant Universities (APLU) Board on Agriculture Assembly (BAA), Budget and Advocacy Committee (BAC) supports “in principle” the Integrated Crop Protection Program (CPP) proposed in the President’s FY2013 Budget. The BAC recognizes the need to simplify the budget by consolidating lines, particularly within the Integrated Activities accounts of the NIFA budget. However, the BAC has expressed concern over diminishing fiscal appropriations for existing programs and/or in some instances the complete loss of effective programs altogether. The BAC has noted an erosion of previous funding from the agency within its Integrated Activities accounts. That reduction is estimated to be approximately \$34 M in the last five years. **In addition, nearly \$23M, in congressionally mandated grants targeting pest management issues across the country, has been lost. In reality these actions have reduced the funding for IPM and related programs by nearly \$57M, severely limiting the development of solutions to pressing problems.** The BAC forwarded its recommendation to the BAA Policy Board of Directors, and subsequently (May 2012) a Working Group on Integrated Pest Management (IPM) program was formed. The following discussion paper has been developed based on discussions of the BAA Working Group on IPM.

Scope of the Recommendations by the IPM Working Group:

A number of critically important IPM programs supported by USDA are administered by the nation’s Land Grant Colleges and Universities (LGUs) that help maintain America’s agricultural productivity. Such efforts by LGUs involve direct assistance to producers in ways that are effective and efficient, and backed by strong support from farmers and stakeholder organizations across the U.S.

With the emergence of a renewed commitment to crop protection and integrated pest management the Working Group on IPM is offering recommendations that focus upon (both, current and new) programmatic approaches that will make our national response more effective, efficient and collaborative. The Working Group identifies these core elements, or programmatic responses of national USDA IPM effort as “**ESSENTIAL ELEMENTS.**”

Essential Elements	2013 Funding (\$1,000s)	For consideration: Funding (\$1,000s)??
Competitive Grants Programs		
RIPM	\$2,362	\$2,362
EIPM Decision Support System	\$153	\$153
PMAP	\$1,402	\$1,402
CAR	0	\$1,400
RAMP	0	\$4,400
Other		\$2,344
Extension – IPM (E-IPM)	\$9,918	\$9,918
Integrated Pest Management Pest Information Platform for Extension (IPM PIPE)	\$115	\$150
IR-4 Project (Interregional Research Project #4)	\$11,913	\$11,913
Regional IPM Centers	\$4,000	\$4,000
Community IPM		NEW/TBD
Next Generation of Crop Protection Scientists		NEW/TBD
Total	\$29,863	\$38,007

Importance of the IPM Program to National Food Security

The combined value of the majority of crop production was over \$200 billion in 2010 (NASS data). Maintaining a strong agricultural industry requires a coordinated national network of research and Extension programs aimed at addressing weed, disease, invasive species, and arthropod management on the nation's croplands. The following recommendations will position USDA's IPM programs as a primary response to protecting the nation's food supply, while also improving the profitability of agricultural-related businesses and products. Further, these programs also enhance human and environmental safety by reducing threats from inappropriate use of pesticides.

USDA's portfolio of support for IPM includes a range of programs and projects, the majority of which are delivered by LGUs. Examples include: pesticide approvals for minor use crops, regional pest management centers that focus multistate expertise of the LGUs, and pesticide applicator training and Extension IPM programs.

The working group also acknowledges other critically important programs that leverage and extend the reach of the nation's LGUs, yet they fall beyond the scope of these recommendations. For example, IPM also involves "sentinel" programs such as the National Plant Diagnostic Network (NPDN) which facilitates detection, accurate diagnosis, and rapid communications needed to help mitigate the impact of endemic, emerging, and exotic pathogens and pests that attack agricultural, forest, and landscape plants in the U.S. In addition, efforts targeting special competitive grant programs help refine the focus of the LGUs to address critical issues that are unique to production zones (these include efforts like IPM-PIPE, and former programs like CAR and RAMP).

Taken alone, none of these programs are individually responsible for the success of American crop production. However, collectively these IPM programs significantly reduce production risks for growers and improve profitability, while providing for a safe and plentiful food supply. In fact, the success of American crop production would not be possible without these crucial and essential programs.

National Funding for IPM

The President's FY2013 Budget Proposal would have eliminated a number of lines related to pest management totaling about \$38M (see table on page one) and created a New Crop Protection Program with proposed funding of \$29M. This plan was not supported in Congress; however, such ideas are expected to be re-introduced during the FY2014 budget discussions.

Over the past five years, significant funding has been redirected, and/or combined from three sections of the NIFA budget: Research and Education, Extension, and Integrated activities. Further, some \$2.6M has been redirected or unaccounted for, and two important programs, Crops at Risk (CAR) (\$1.4M) and the Risk Avoidance and Mitigation program (RAMP) (\$4.4M), have been eliminated in the last two years. In addition, congressionally targeted special grant funds to address plant diseases and pest management (approximately \$23M) have been cut. Given this recent history, additional federal funding reductions for crucial programs are likely in the future.

The Working Group on IPM calls attention to the need to recapture the nearly \$34M in additional reductions and redirections that have occurred in the past five years in the USDA budget. This support is critical to our ability to respond to pest management problems at the local, regional and national levels.

NIFA Goals

The stated goal of the National Institute of Food and Agriculture (NIFA) is to combine all related pest management efforts into a single coordinated national response. The agency has expressed intent to create a new program from the ground up in order to "respond to pest management challenges with coordinated region-wide and national research, education and extension programs, and serve as a catalyst for promoting further

development and use of IPM approaches.” This so called Crop Protection Program (CPP) is intended to foster regional and national team building efforts, communication networks, and enhanced stakeholder participation. The Working Group shares the desire for greater coordination, but does not agree with the need to “recreate” an entirely new program from the ground up.

There is pressure within government to simplify the budget process by consolidating program lines where appropriate. There may also be many positive aspects to repackaging current IPM funding. A larger, banner-like Integrated Pest Management should include many existing programming efforts. As such, USDA should give more emphasis, including funding, to support the needs of many essential programs that when combined become a national response to IPM challenges. Too many previous decisions have appeared as defending smaller projects in ways that have ultimately pitted programs within the national IPM portfolio against one another. Furthermore, a larger banner like IPM may make it easier to increase funding because as a group of programs stakeholders may see themselves reflected in those goals and local responses to problems.

To succeed in creating a new Integrated Pest Management Program, at a minimum, there must be level funding; however, given the level of threats to U.S. food security and agricultural production there is most certainly need for additional funding. Never before has the need been greater for a comprehensive IPM Program for the U.S. The long list of chronic pests, the onslaught of new weeds, plant diseases and insect pests is relentless. All pose a risk to agriculture and food security, our natural resources and human health. Any new initiative will not be successful when it asks us to do more, with less.

Engage Stakeholders

The IPM initiative needs to actively engage the stakeholders of the programs whose budget lines are being consolidated. To better address the needs of the nation and stakeholder concerns in the broadest sense, the program must also be very flexible, yet comprehensive, in supporting local problem solving. A new commitment to the IPM program should recognize the tremendous capacity already in place across our states in local E-IPM programming, regional IPM Centers, the diagnostic network, IPM Pipe, and the IR-4 program. For a national effort in IPM to be successful, it must provide: (1) a comprehensive regional, state and community response that reaches local producers; and (2) competitive projects that support, and take advantage of local and state expertise.

The development of this new nationally coordinated IPM program needs to be much more inclusive. It cannot solely rely on input received during federal listening sessions. If we are to move forward in developing these concepts and shared common goals, there must be greater opportunity for stakeholder participation in establishing how a new IPM program will be designed and implemented. Stakeholders should also be involved in identifying programs and resources that will be needed. Some redirection of effort is important; however, it is not necessary to recreate an entirely new initiative, especially one solely based on national coordination of limited term single function projects.

Budget Disposition/Location

The President’s FY2013 budget proposed a new Crop Protection Program within the Integrated Activities area of the NIFA budget. However, experience over the last few years indicates that the Integrated Activities lines have been severely cut or eliminated. Any budget lines in the Integrated Activities account may be in future jeopardy, suggesting that it would be prudent to locate this program elsewhere. If the goal is budget simplification, all lines should move to the same location and it is essential that the affected programs be partners. Given that the majority of funds would come from Research and Education Programs and Integrated Activities, all elements of the new IPM program could be moved to the Research and Education Programs area.

Following the guiding principles outlined (below), this could be accomplished with full authority and functional intent of the legislation such that several of the programs highlighted above will maintain form and function. However, consolidation into a single budget line (within NIFA) should only be done in such a way to enhance the coordination among essential elements described in this working paper (e.g., IR-4, Regional IPM Centers and E-IPM). Such consolidation should not be interpreted as justification for overall budget reductions.

Furthermore, any consolidation must be contingent upon: (1) the allocation of additional (NOT redirected) funds for new programs such as Community IPM and Developing Next Generation of Crop Protection Scientists; and (2) additional funding to address an overall loss in operating funds from any new indirect allowances, should they occur due to changes in policy and/or budget location of specific program lines.

The concept of functional equivalency (described below) is critical to the success of this effort. It is important to protect program integrity, including maintaining current eligibility for accessing the funding. Without functional equivalency, many currently successful programs will only be asked to do more with less when, in fact, need has never been greater for these programs.

Guiding Principles

The following principles were developed and endorsed by the ESCOP and ECOP Budget and Advocacy Committees, and provide the foundation from which the Working Group on IPM has developed its rationale for this report.

- Protect/maintain the funding for E-IPM, Regional IPM Centers, and IR-4 programs of the Land Grant Universities. This includes local capacity as well as competitive support for important programs and projects;
- Consolidate budget lines where it makes sense, doing no harm;
- Maintain intent (functional equivalency) of programs (e.g., integrated activities regardless of where the budget resides within the USDA/NIFA Budget);
- Expand our ability to integrate research, education, and Extension functions of the nation's Land Grant Universities in local and multistate problem solving;
- Ensure regional multistate collaboration focused on sharing and cooperating among Land Grant Universities and NIFA;

Additional input and comment will be obtained (and subsequently addressed) from COPs, BAC and PBD. And, the recommendations much also be acceptable to appropriators.

**These guiding principles were also reflected in the 2011 ECOP/ESCOP Task Force Report on Section 406 Programs, including recommendations that addressed a number of IPM activities supported in the Integrated Activities Accounts of NIFA.*

Functional Equivalency Defined

IPM programs will be conducted and funded as provided for in legislation. While programs may be combined into a single budget line, each will maintain functional integrity, intent, and eligibility.

Essential Elements in a New Integrated Pest Management (IPM) Program

Essential Element - Competitive Grant Programs

The development of a new IPM program offers an opportunity to consider, more broadly, how competitive funding could be brought to bear on critical pest management and crop protection issues. Competitive funds are important to enhance the essential elements of IPM. The Working Group recommends that the new IPM program recapture lost funding and then restructure former grant programs (e.g., CAR, RAMP, RIPM and/or other congressionally targeted special grant funds that have been recently cut). Such competitive grants could also target “Critical Emerging Issues” such as invasive species, expanding pest ranges, etc. (this is still under consideration by the Working Group).

A significant portion of this new competitive funding pool could be managed by the Regional IPM Centers. These Regional Centers have considerable experience in managing competitive grant programs with a clear understanding of local, regional and national needs. Furthermore, such regional management of competitive funds is found in other USDA programs like SARE. Regional coordination by the IPM Centers would insure stakeholder input into priorities and strengthen the relevance of funded projects.

Further discussion by the Working Group is needed to determine the scope of Competitive Grants, level of funding needed (e.g., critically important if the scope is to include a component to address “Emerging and Critical Issues”).

Essential Element - Extension-IPM (E-IPM)

The Extension Integrated Pest Management Coordination and Support Program (E-IPM) works directly with agricultural producers, urban clientele, and other pest managers, providing education about sound pest management practices that meet economic and environmental goals. The E-IPM program is centered on locally-adapted, problem-solving, and is critical to fully integrating scientific expertise with outreach that engages stakeholders about IPM. A strong E-IPM effort helps ensure that the work of other the Essential Elements (e.g., IR-4 and Regional IPM Centers) reaches producers and transforms their operations.

The E-IPM program has a long record of increasing the adoption of improved management practices through training, demonstration, and evaluation of impacts at the end user level. Each Land Grant Institution identifies an individual to be the primary institutional/state Coordinator. When taken together, these state leaders form a national network of more than 50 E-IPM Coordinators providing an essential cadre of experts on IPM. These coordinators are a critical bridge between local/county-based extension personnel and the research and Extension capacities of their institutions, and act as a catalyst for state and regional IPM programs. They translate needs into programs and then coordinate implementation back to the client base. E-IPM programming is based on an implementation strategy that rapidly addresses state/local/multistate needs, and existing and emerging pest problems. State-based plans and strategies are funded at various levels based on a national competitive review, and IPM Coordinators merge these funds with local funding sources to enable our national IPM capacities to operate efficiently. By addressing pest problems locally, E-IPM meets national IPM goals and larger geographic issues of significance. This network of interconnected state-based programs is critical for providing pest managers, producers and urban clientele with unbiased information on pest control tactics. The E-IPM program also has a strong commitment to measuring the outcomes and impacts of its work, and by doing so it is able to share its expertise and successful approaches to local IPM programs carried-out by Extension Agents throughout the nation.

E-IPM has been flat or declining (when adjusted for inflation) for many years, while other programs like Organics and SARE have increased. Other Essential Elements of the new IPM program cannot function without Extension IPM infrastructure in place in each state and territory. The Working Group recommends a large and significant increase in funding. Furthermore, the Working Group notes that any such federal investments leverage additional local commitment by incentivizing people and institutions to invest more in E-IPM.

Essential Element - Integrated Pest Management Pest Information Platform for Extension (ipmPIPE)

The ipmPIPE (<http://www.ipmpipe.org/>) is a monitoring network and early-warning system developed by the Land Grant Universities, USDA, and private groups to alert farmers to the presence of pest problems of area-wide importance. The ipmPIPE includes surveillance and monitoring networks, a web-based information management system with criteria for deciding when to apply fungicides, predictive modeling, and outreach directly to producers, often through the E-IPM network of state coordinators. The program's coordinated framework has been highly effective in helping our nation's producers to make informed decisions about fungicide application. First established for Asian Soybean Rust, ipmPIPE has become an essential tool for farmers and producers, guiding the use of fungicides. In its first year the ipmPIPE was estimated to have helped American farmers save up to \$299 million, according to an Economic Research Service report (Roberts et al. 2006).

Currently, there are seven ipmPIPE projects in operation: soybean rust, insects and diseases of legume and pulse crops, cucurbit downy mildew, pecan scab and nut casebearer, onion diseases, southern corn rust, and, most recently, Western Specialty Crop PIPE that focuses on light brown apple moth and spotted wing Drosophila of small fruits.

Valuable data has been collected through the ipmPIPE; however, in recent years, it has become critical that the data captured by the various ipmPIPEs be readily accessible to scientists across the country. A central repository of data and models is needed that would house and make accessible all ipmPIPE data. Providing this core function will allow new ipmPIPE components to be added when they are developed. Through this function, these stored data could provide a foundation for new research.

Essential Element - IR-4 (Interregional Research Project #4)

The IR-4 program provides crucial support to specialty, and minor use crops by developing residue and other data that are required by U.S. EPA to facilitate the regulatory clearance of conventional reduced-risk pesticides and biopesticides. The efforts of IR-4 help sustain specialty and minor use crops through the expansion of pesticide labels to cover these critical needs. The IR-4 program is needed because the cost of obtaining the data required for specialty crops/minor uses far exceeds the potential return on investment to industry (particularly in small acreage markets that generate over \$40B in products). Because the contributions made by the IR-4 Program are considered critically important, the AES Directors have been providing additional support for a number of years through a National Research Support Project (currently \$481,000 /year). The IR-4 program must be maintained into the future to assure competitiveness of America's specialty crop industry.

The Working Group recommends IR-4 expand its collaborative activities to assist in the national and global study of pesticide resistance baselines and monitoring systems for key pest targets and key active ingredients. Stronger integration of IR-4 with outreach efforts by the Regional IPM Centers, E-IPM Land Grant Research and Extension and other USDA agencies will increase efficiency and coordination of all of the programs.

Essential Element – Regional IPM Centers

The Regional IPM Centers maintain critical linkages to local stakeholders through the IPM programs of participating states and territories. These Centers develop and broker information about IPM research, education

and Extension priorities for regions, commodities, and other environments where IPM is needed. They offer support to the extensive network of experts who respond to federal, regional and local inquiries about pest management issues of importance.

Each center has an advisory and/or steering committee comprised of IPM practitioners, often from both the agricultural and urban sector, industry, and other regional representatives. Committees meet regularly to provide critical guidance to help ensure that Centers are responding to priority pest management problems for the region. Each state has an IPM Coordinator who is typically connected to his/her respective Regional IPM Center, providing direct feedback on needs. Regional IPM Centers commonly have components that include: state and regional crop profiles, multistate pest management strategic plans on major problems, regional/national pest alerts on emerging issues, and regional/national training programs in cooperation with Land Grant Universities, NPDN, APHIS, and ARS. The Centers currently coordinate the competitive proposal review processes for the Regional IPM (RIPM) grants programs (\$2.8M), assuring that regional needs are met. The Regional IPM Centers are at the core of effective IPM programs across the Nation and must be maintained.

The Working Group recommends maintaining existing funding for the Regional IPM Centers, and further encourages additional support. Increased funding would create opportunities to support unique needs within regions. For example, each Center's core operations would be funded at similar levels across all regions; while a competitive pool could be established to help Centers address unique needs such as those that occur within difference cropping zones of the country.

Essential Element (new programmatic effort) –Community IPM

Community IPM includes managing pests in schools, homes, yards, office buildings, workplaces, and wherever pests that affect public health are found. Community IPM encompasses an extremely wide range of environments; places where people live, work, learn, play, receive care, and the public spaces (e.g., transportation, rights of way, etc.) that connect those environments. It also addresses sensitive structural environments where the pest threshold level is set at zero (e.g., hospital operating rooms, food processing plants, computer chip manufacturing plants, etc.). By its far-reaching impact, Community IPM benefits nearly all U.S. citizens, from non-farm households in rural areas to office workers in the center of major metropolitan areas.

There is a growing network of Community IPM educators across the country. This network includes leaders in government, research, education, public health, and indoor air quality and pest management. For example, the National School IPM Implementation effort involves four regional working groups and more than 300 partners. These efforts have resulted in an average 71% reduction in pesticide use and 78% reduction in pest complaints, with no long-term increase in costs. In other public buildings, implementing an IPM-based contract for structural pest management services coupled with competent oversight of service providers reduced pesticide use by 93% and pest complaints by 89%, with immediate and dramatic reductions in the application of insecticide sprays, greatly reducing the potential for human exposure.

Essential Element (new programmatic effort) – Developing the Next Generation of Crop Protection Scientists

Supporting the on-going and future needs for science and discovery in managing the nation's agricultural lands is critical to meeting challenges we see today and those we must prepare for, including those that are yet to be known. The Working Group recommends that the new IPM program include a commitment to developing future scientists and expanding the capacity for science-based decision making by agricultural professionals. Such a commitment could be reflected in graduate student opportunities and in curriculum development by our Land Grant Colleges and Universities. All of the Essential Elements of a new IPM program would be asked to develop specific strategies aimed at increasing the number of young people entering IPM and related fields in agriculture.

Enhancing Coordination and Improving Efficiency

Each Essential Element (described in this report) serves an important niche within the national IPM portfolio. It is acknowledged that coordination is taking place among state IPM coordinators, regional IPM centers, regional grants, and the IR-4 program. Many such projects supported by these Essential Elements already function well and with great efficiency. Therefore, maintaining **functional equivalency** in a combined budget line is critical.

However, there is always room for enhancing how expertise is combined to focus on problems. Further, it is important to show how current investments in those programs are leveraged within and across the Essential Elements (described above). Enhanced coordination and efficiency would involve role clarification, shared leadership, and structural changes that foster more cooperation and communication at the national, regional and state levels.

- **National** – the establishment of:
 - (1) IPM Coordinating/Administrative Council. Creating an environment for “shared leadership and decision making” in national level decisions about program priorities and funding is very important to maintaining coordination among the Essential Elements of the new IPM program. A national council (leadership team) should be established with representation from the Essential Elements. The NPL (or NPLs) would be part of the council as advisors (not official voting members due to federal advisory committee rules). Effective and successful models for this type of shared leadership exist in the SARE and the National Integrated Water programs. *NOTE: this national IPM Coordination Council would NOT replace any existing stakeholder committee (e.g., the National IPM Committee); rather, it is offered as a way to foster coordination and collaboration, internal decision-making, and priority setting among the Essential Elements that make up the new IPM program.*
 - (2) National IPM Coordinator, recognized within USDA (e.g., in the Undersecretary’s office). A 2001 report by the Government Accounting Office indicated that USDA had not provided any departmental entity with the authority necessary to lead its IPM initiative. It further described that among six USDA agencies, state and land-grant universities, and EPA there was little or no coordination on IPM related activities. That report called on the agency to establish department-wide leadership, coordination, and management for federally funded IPM efforts. Such USDA (department-wide) leadership could include an office of IPM, staffed by a national IPM coordinator, with purview of USDA agencies and its mission areas that have IPM related programs. This concept is further endorsed by the National Roadmap for Integrated Pest Management (2004) and also by the IPM Institute.
- **Regional** – Increase uniformity in the core support services of the Regional IPM Centers. Each IPM Center has a technical and applied research problem solving mission that is organized to address pest issues at the regional level. However, the Center should have (new) unique contributions among the four regions that when combined among all four provide strategic contributions and a national foundation to supporting the E-IPM network. (All four, together, have individual contributions that when combined become more holistic-nationally.) Centers should also increase their leadership on multistate information sharing about program approaches and successful pest management techniques. Centers could expand the efforts they give to helping E-IPM work in collaborative ways (e.g., information sharing to supporting both biophysical and social science needs assessments). As previously stated, Regional Centers could also

manage competitive grants that provide additional financial support to address emerging and special pest management problems.

- **State** - Each E-IPM program (within a state or institution) will have a clearly identified IPM Coordinator. All coordinators should meet annually within their respective regions for the purpose of cross-state sharing and multistate priority setting. This is a function that would also be supported/hosted by the Regional IPM Centers. Likewise Regional Center directors should be encouraged to meet as a team (probably at least annually). It is also noted that national-scale meeting/conference should be considered (similar to the National Integrated Water Program's Annual Conference) for the purpose of national information sharing and fostering multi-state collaboration on pest problems. Furthermore, successful state coordination should also involve sharing with the many other programs, agencies and involved stakeholder groups working on IPM within our states.

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