

# Introduction and Program Review

This annual report presents the progress and achievements made during the period from October 1, 2009 to September 30, 2010, the first year of the fourth phase of the Integrated Pest Management Collaborative Research Support Program (IPM CRSP). Upon receiving communication from USAID for the renewal of the IPM CRSP, Virginia Tech released an RFA on July 6, 2009. It requested the submission of proposals from U.S. universities for six regional and five global theme projects. An external evaluation panel consisting of a plant pathologist, an entomologist, a weed scientist and a gender specialist was set up to evaluate the proposals. The following proposals were selected:

1. Development and Delivery of Ecologically-based IPM Packages for Field and Vegetable Cropping Systems in Central Asia. Principal Investigator - Karim Maredia, Michigan State University.
2. Integrated Pest Management: Science for Agricultural Growth in Latin America and the Caribbean. Principal Investigator – Jeffrey Alwang, Virginia Tech.
3. Regional IPM Programs in East Africa: Kenya, Tanzania and Uganda. Principal Investigator – Mark Erbaugh, Ohio State University.
4. West African Regional Consortium for IPM Excellence. Principal Investigator – Donald Mullins, Virginia Tech.
5. IPM CRSP South Asia Regional Program. Principal Investigator – Edwin Rajotte, Penn State University and George Norton, Virginia Tech.
6. Ecologically-Based Participatory IPM for Southeast Asia. Principal Investigator – Michael Hammig, Clemson University.
7. Abating the Weed *Parthenium* (*Parthenium hysterophorus* L.) Damage in Eastern Africa Using Integrated Cultural and Biological Control Measures. Principal Investigator – Wondi Mersie, Virginia State University.
8. The International Plant Diagnostic Network: Gateway to IPM Implementation and Enhanced Trade. Principal Investigator – Sally Miller, Ohio State University.
9. Toward the Effective Integrated Pest Management of Plant Disease Caused by Viruses in Developing Countries: Detection and Diagnosis, Capacity Building and Training, and Formulation of IPM Packages. Principal Investigator – Sue Tolin, Virginia Tech.
10. IPM Impact Assessment for the IPM CRSP. Principal Investigator – George Norton, Virginia Tech.
11. Gender Equity, Knowledge, and Capacity Building. Principal Investigator – Maria Elisa Christie, Virginia Tech.

Losses due to pests, concerns about environmental and health risks associated with pesticides, and problems with pest resistance to pesticides have stimulated the search for alternative pest management strategies. Horticultural crops in particular rely heavily on pesticides, but concerns for human health and the environment, and the need to comply with export market regulations for pesticide use for some crops continue to constrain production of these crops. Worldwide interest in IPM continues to grow as programs such as the IPM CRSP demonstrate that IPM can reduce losses due to pests, minimize reliance on chemical pest control, and, therefore foster

food security and long-term sustainability of agricultural systems. IPM is a management philosophy and decision support system that emphasizes increased information to make pest control decisions. Those decisions are then integrated into sustainable, ecologically-based farming systems. Components of IPM systems include biological, environmental, and economic monitoring; biological control; host plant resistance; grafting; and habitat management through crop rotations, intercropping, antagonistic plants or other organisms, trap crops, refugia, cover crops, and sanitation, among other practices. Ecologically-based IPM involves various combinations of these management tools, with chemical inputs applied only when absolutely needed to restrict pests from reaching economically damaging densities.

IPM is needed throughout the developing world. Insects, diseases, weeds, and other pests respect no borders and spread through plant and animal products. Concerns over biosecurity, invasive species, and food security are global issues that require IPM attention in developed and developing countries.

The mission of the IPM CRSP is to implement participatory, farmer-focused, innovative, interdisciplinary research, training, and information exchange programs in IPM that will be adopted in horticultural and other food production systems. The IPM CRSP has been developing a large set of IPM practices for vegetable and other crops in developing countries. While each country has its own

specific mix of pests and agro-climatic conditions, many pest problems are similar around the world. Several techniques developed in one country have been transferred to other countries with efforts to adapt to the local conditions. In some cases, they have been applied singly or in partial packages.

The new phase of the IPM CRSP is implementing an ecologically-based, participatory Integrated Pest Management (EP-IPM) program designed around regional IPM Centers of Excellence (regional programs) and critical cross-cutting global IPM themes. The focus is on maximizing the impact of IPM packages as well as scaling up local successes to national, regional (Africa, Asia, and Latin America/Caribbean) and global stakeholders.

Crops selected for development of IPM packages are tomato, wheat and potato in Central Asia; tomato, okra, onions, crucifers and cucurbits in South Asia; tomato, onion and crucifers in Southeast Asia; tomato, sweet potato, peppers, naranjilla and tree tomato in Latin America and the Caribbean; tomato, pepper, onion, passion fruit and coffee in East Africa; and tomato, cabbage and potato in West Africa. Some of the basic components of the IPM packages addressed are: soil preparation, seed selection, seed treatment, screening of seedlings, seedling selection, physical/mechanical tactics, grafting, trapping, and use of biopesticides and natural enemies. Emphasis has been placed on gender equity, capacity building and technology transfer.