

Livestock and Field Crop IPM Research and Extension Priorities (Modified 1/30/14)

I. Implementation (High Priority)

- provide thorough documentation of program impacts
- coordinated involvement of CCE / IPM staff, faculty, and multipliers, where appropriate
- linkage to ongoing educational and research programs
- document increased IPM competence of individual growers, consultants, and agribusiness personnel
- document location-specific economic and environmental impacts of critical biological, cultural, or least toxic IPM methods in side-by-side comparison with conventional practice
- document increased IPM competence of individual growers, consultants, and agribusiness personnel
- evaluate scouting and integrated management strategies for new or emerging pests (e.g. WBCW, Bt tolerant rootworm, etc.) and/or commodities (e.g., small grains, soybean, biofuel feedstocks, stored commodities, livestock) on multiple farms
- IPM Educational Outreach to enhance knowledge, use and adoption of IPM approaches to better managing pests of field crop and livestock in New York.
- Development of an Online IPM educational programs to better meet the needs of NY producers

II. Multidimensional Demonstrations (High Priority)

- improve grower awareness and confidence in comprehensive IPM strategies (cultural, biological, least toxic/reduced pesticide/ and/or organic) that minimize impact of all major pests in production system while optimizing net profitability and environmental impact
- strong linkage to ongoing research and educational programs including integrated management of:
 - flies and external parasites of dairy cattle and poultry
 - weeds, insects, and diseases of corn-based cash crop rotations
 - weeds, insects, and diseases of corn/alfalfa-based dairy rotations

Commodity/pest priorities are listed below based on current or anticipated widespread application of pesticides against these targets and / or potential economic losses associated with insect, disease, weed and vertebrate pests.

Field Crops:

Alfalfa (& Grass Mixtures) IPM

- potato leafhopper and alfalfa weevil
- annual and perennial broadleaf and grass weeds (including herbicide resistant species)
- currently under-managed diseases (leaf blights, root and crown rots, brown root rot)
- determine the value (disease control, yield and economic return) of foliar fungicides
- alfalfa snout beetle
- clover root curculio/*Fusarium* complex

- leaf & stem blight complex (especially spring black stem & leaf spot and *Leptosphaerulina* leaf spot)
- determine the need, value and potential impacts of fungicide treatments to alfalfa and other forages
- *Sclerotinia* crown and stem rot
- brown root rot of alfalfa
- *Fusarium* wilt of birdsfoot trefoil
- fundamental pest survey and impact assessment of forage grass foliar diseases and insect pests.

Field Corn IPM

- pesticide resistance management strategies against weed, disease and insect pests of field corn including resistance to genetically engineered plant-incorporated protectants
- annual and perennial broadleaf and grass weeds (including herbicide resistant species)
- foliar disease issues in field corn (northern corn leaf blight and gray leafspot)
- determine the value (disease control, yield and economic return) of foliar fungicides
- evaluation of risk potential and impacts of new invasive or exotic pests such as western bean cutworm
- slug issues in field corn
- evaluation of potential pest risks associated with use of cover crops and green manures
- Research on organic weed control methods
- European corn borer, armyworm, cutworm, and wireworm
- seedling diseases in stand establishment
- leaf blight diseases (northern leaf blight, gray leaf spot, anthracnose, eyespot, and northern leaf spot)
- stalk rot diseases (anthracnose and *Gibberella* stalk rots)
- toxigenic molds in grain and silage
- insecticide seed treatments and seed and root feeding insect control
- Education on resistance management for both Corn Rootworm insecticidal seed treatments and Bt transgenic corn for CRW.
- Education on the importance of selecting corn hybrids and soybean varieties with disease resistance in order to help alleviate disease issues with the increase in conservation/zone tillage systems.

Oat IPM

- fundamental pest survey and assessment
- assessment of current status of cereal leaf beetle and it's natural enemies

Pastures IPM

- fundamental insect, disease, weed, and vertebrate pest survey and assessment

Soybean IPM

- determine the value (disease control, yield and economic return) of foliar fungicides

- integrated soybean aphid management
- evaluation of alternative chemical, cultural, and biocontrol methods for management of white mold
- weed control methods including those appropriate for organic soybeans
- virus diseases (especially soybean vein necrosis and thrips vectors)
- fundamental pest survey and assessment
- varietal and cultural management of Sclerotinia stem rot and Phytophthora rot.
- varietal and cultural management of Soybean vein necrosis virus
- Seed treatments for insect and disease management, slug management, glyphosate resistance management
- Education on the importance of selecting corn hybrids and soybean varieties with disease resistance in order to help alleviate disease issues with the increase in conservation/zone tillage systems.

Stored Commodity IPM

- fundamental pest survey and assessment of pests affecting stored grains and silage
- innovative pest control methods for stored commodities

Switchgrass and other Bioenergy Feedstocks IPM

- Evaluate potential resistance in varieties or use of polyculture for management of prevalent diseases and insect pests of perennial grasses
- switchgrass diseases (smut, rust, leaf blights)
- Weed management in the establishment of perennial grasses

Wheat IPM

- foliar fungal disease complex of wheat (Stagonospora nodorum blotch, Septoria tritici blotch, tan spot, powdery mildew, leaf rust, stripe rust)
- determine the value (disease control, yield and economic return) of foliar fungicides applied at different growth stages
- integrated management of Fusarium head blight to reduce levels of deoxynivalenol
- survey of corn and other commodities in NYS for different mycotoxins and genetic variability (for toxin production) in populations of mycotoxigenic fungi
- virus diseases (yellow dwarf, aphid vectors, wheat spindle streak mosaic, soilborne wheat mosaic)
- cereal leaf beetle of wheat and oats
- varietal resistance to soilborne viruses in winter wheat
- develop / evaluate management strategies for stripe rust of wheat
- pest survey for wheat soilborne mosaic virus
- development of an IPM resource for malting barley production
- Armyworm management
- Education on the use of fungicides for control of Fusarium Head Blight and foliar diseases in Wheat

Livestock:

Dairy Cattle IPM

- fly pests affecting animals in barns (house and stable) or on pasture (face and horn)
- external parasites (cattle lice and mange mites)
- research on organically approved methods for control of dairy nuisance and biting fly pests
- cattle grubs, other arthropod pests and poisonous/noxious plants affecting cattle on pasture
- fly pests affecting animals on pasture (horse and deer flies)
- research to enhance management of pasture fly pests such as natural enemies, dung beetles and traps

Poultry IPM

- flies, external parasites, and other arthropod pests affecting poultry
- insect pests destructive to poultry housing structures
- vertebrate (bird, rodent) management in/ around poultry facilities

Vertebrate IPM

- fundamental pest survey and assessment
- integrated management to minimize impact of white tail deer on forages
- integrated management to minimize impact of birds (and other mammals crows, turkeys, etc.) on grain crops (small grains, corn)
- vertebrate (bird, rodent) management in/ around dairy facilities
- vertebrate (bird, rodent) management in/ around stored grain facilities

Other:

- Better understanding of relevant impacts of climate change affecting key pests of livestock and field crops and their management in NY
- Threat to IPM principles from misuse of new technologies (stacked trait corn, herbicide resistance): Programs have been effectively promoting IPM principals from some time but a renewed focus on these topics in educational programs and materials. Continued research on BMP's for utilizing and preserving pest management tools.

NYS IPM Program

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