Overview of Meeting Goals and Objectives
Meeting Steering Committee

- Amy Asmus, Asmus Farm Supply, Inc.
- Larry Buss, Harrison County farmer and ICPB
- Ben Gleason, ICGA
- David Holm, Iowa Institute for Co-Ops
- Ed Kordick, IFBF
- Teresa Middleton, ISA and ISU
- Clint Pilcher, Corteva (on behalf of technology providers)

- Gretchen Paluch, IDALS
- Katie Dentzman, ISU
- David Nistler, ISU
- Michael Witt, ISU
- Steve Bradbury, ISU
Workshop Goals
Since 2015, ascertain the extent to which:

a) Levels of pest resistance in Iowa have decreased, increased, or remained constant

b) Current management practices are reducing the development and spread of resistance; and

c) The same or different resistance management approaches should be employed going forward
January 2015 Iowa Resistance Management Meeting
Iowa Pest Resistance Management Program

January 2015: State-wide meeting launches Iowa pest resistance management initiative:
Resistance Management: Whose Problem and Whose Job?

www.ProtectIowaCrops.org
Governance Across Institutions, Space and Time

There is heightened concern about resistance, but perception is it won’t happen on my farm

“There is heightened concern about resistance, but perception is it won’t happen on my farm”

“Need to change the mindset from a short-term view of input costs to a longer view on costs and returns”

2015 Pest Resistance Management Workshop: Findings

“Institutions
US Government
State Governments
Counties
Communities
Individual Farms
Farm Borders
Farm
Field Infestation
Field Pest Pressure
Neighboring Farms
State
State-region
County
Landscape
Short-term planning
Long-term planning

“Need to change the mindset from a short-term view of input costs to a longer view on costs and returns”

“There is heightened concern about resistance, but perception is it won’t happen on my farm

“Need to include socio-economic analyses to inform potential solutions”
2015 Pest Resistance Management Workshop: Recommendation

Institutions
- US Government
- State Governments
- Counties
- Communities
- Individual Farms

Farm Borders
- Farm
- Field Infestation
- Field Pest Pressure

"[Increase] awareness to take action … increase outreach to farmers and their advisors"

"Need to include socio-economic analyses to inform potential solutions"

Space
- County
- Landscape
- State
- State-region

Time
- Now
- Short-term planning
- Long-term planning

“Develop a state strategy, effort should be farmer led and voluntary; require state government [and ISU] to facilitate cross-organizational effort”

“[Increase] awareness to take action … increase outreach to farmers and their advisors”

“Need to include socio-economic analyses to inform potential solutions”

Iowa Pest Resistance Management Program

• January 2015: State-wide meeting launches Iowa pest resistance management initiative:
  o Resistance Management: Whose Problem and Whose Job?

• December 2015 - March 2016: Iowa agriculture leadership approves conceptual framework and plan preparation

• December 2016: Iowa Pest Resistance Management Plan approved

• January 2017: Plan released
Iowa Pest Resistance Management Program

www.ProtectIowaCrops.org
Plan Perspectives

- Pest resistance management is the effort to slow the evolution of pest adaptation to chemical, genetic, and agronomic control practices.

- Major tenants of a state-based effort
  - Voluntary
  - Consistent, coordinated efforts across all ag sectors
  - Community based approach for mobile pests
  - Adaptive management
  - Preserve viability of pest management technologies and farm profitability for the long term
Plan Overview

Main Chapters

• Governance

• State of the Science

• Communication and Outreach

• Pilot Projects

www.ProtectIowaCrops.org
Iowa Pest Resistance Management Plan

• Leadership and coordination within/across organizations
• Local “ownership”
• Different approaches for pests/locations
• Works for farmers – sustainable and cohesive
• Tactical Aspects
  • Including socio-economic dimensions – evaluate individual, community and economic incentives
  • Balance simplicity of approaches with effectiveness; consider emerging technology to help reduce complexity/costs
  • Delivery of consistent information/tools
Land Management Industry Practice & Crop Production

Pest Resistant Population Outcomes

• State of the science
• Leverage existing partnerships, networks and roles within Iowa communities
• Facilitate recognition of individuals, support leaders and “champions” that emerge

**IPRMP Logic Model**

<table>
<thead>
<tr>
<th>Ag Industry</th>
<th>Inputs</th>
<th>Human Behavior (Activities)</th>
<th>Land Management Industry Practice &amp; Crop Production</th>
<th>Pest Resistant Population Outcomes</th>
</tr>
</thead>
</table>
|             | • Education tools  
|             | • Science  
|             | • Pursue funding sources  
|             | • Integrated Pest Management | • Support meetings, workshops, and influencers  
|             | • Compilation of information | • Increase numbers of farmers practicing pest resistance management | • Minimize pest resistance  
|             | • Education and outreach  
|             | • Provide RM practices  
|             | • Socioeconomic analysis | • Education and outreach | • Maintain technologies |
| Farmers, Farm Managers and Land Owners | • Central message (safe, healthy, sustainable food supply) | • Identify agriculture and general-public networks | • Minimize spread and development of pest resistance  
| General Public |                                           |                                           | • Minimize economic impact |
|             |                                           |                                           | • Safe, healthy, and sustainable food supply |
Communication and Outreach

• Audience includes farmers, ag professionals, government, and the public
• Consistent messaging
• Pest resistance management and maintaining productivity
• Preserving pest management technologies and farm profitability
• Pilot projects to engage partnerships
• www.ProtectIowaCrops.org serves as a hub to store progress, resources, and news in one central location
Pilot Projects

Identify incentives that support voluntary, long term implementation of resistance management for insects and weeds in specific parts of the state.

Criteria

• What are the critical features of the pest pressure, and what are their impacts on farm productivity?

• How is the pest currently managed?

• Is a community-based resistance management system/team already in existence?

• Are there currently any incentives (tangible or intangible) available to encourage community participation?
Support

Iowa Corn Growers Association
Iowa Soybean Association
Iowa Farm Bureau Federation
Agricultural Biotechnology Stewardship Technical Committee
Herbicide Resistance Action Committee
Insecticide Resistance Action Committee
ISU/ISA Iowa Soybean Research Center

USDA North Central IPM Center
(2014-70006-22486)
USDA, NIFA/AFRI (2018-09138)
Iowa Pest Resistance Management Program Pilot Projects

Mike Witt
ISU Extension Field Agronomist
witt@iastate.edu
IPRMP Pilot Projects: Community-Based Approach

- Palmer Amaranth and other Weeds in Western Iowa
  - Harrison County Weed Resistance Management
  - Initial and longest running project
- Waterhemp et al. in Central Iowa
  - Story County Resistance Network
- Western corn rootworm (Bt traits) in Northeast Iowa
  - Project in Beginning Stages of Development
- Soybean aphid (pyrethroids) in northwest Iowa
  - Project in Planning Stages
Field Trials and Field Days
Outreach

• Website  www.protectiowacrops.org
• Media articles
• Handouts & brochure
• Speaking events
• Field days highlighting herbicide program comparisons in corn and soybean plots
• Video Projects on YouTube
Figure 7-3. Adopter Categorization on the Basis of Innovativeness