Pest Management Planning

NRCS 595 IPM Standard

&

CAP IPM Plan

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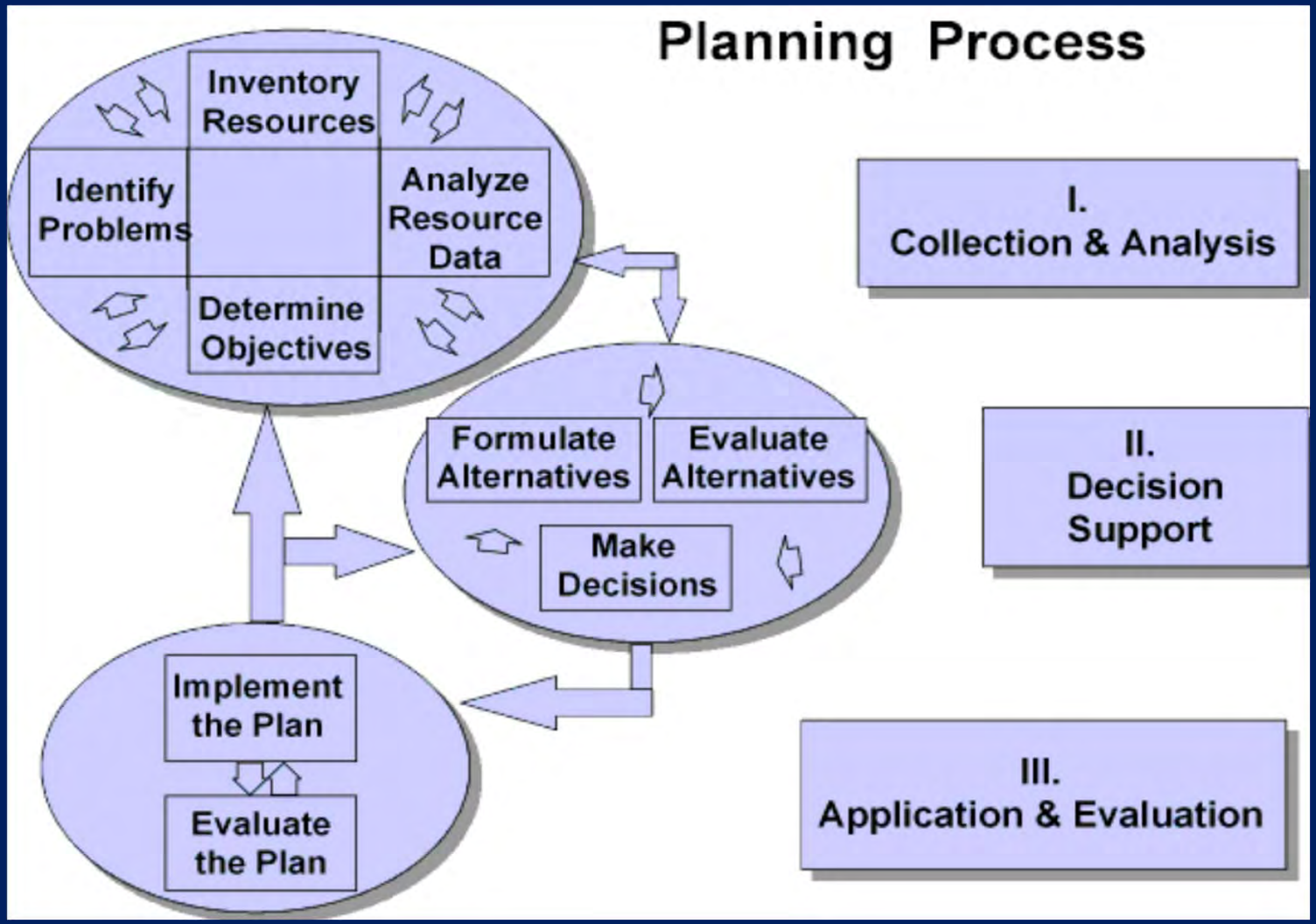
Why IPM Planning?

- The IPM plan is the basis for determining the work needed to be done.

  The foundation of all NRCS pest management planning is based on utilizing environmentally sensitive prevention, avoidance, monitoring and suppression (PAMS) strategies to manage weeds, insects, diseases, animals and other organisms that directly or indirectly cause damage or annoyance to agricultural crops.

Conservation and IPM Planning Basics



Considerations in IPM Planning

- Surrounding land uses including:
  1. Distances to residences;
  2. Distances to sensitive resources such as wells, springs, wetlands and streams;
  3. Existing vegetation on the site and in adjacent areas;
  4. Soil characteristics such as organic material content, pH, slope, surface residue and soil moisture. Utilize tools such as RUSLE2 and SCI (Soil Conditioning Index) to estimate soil loss and soil quality.

Strategies of Integrated Pest Management

Trapping and Pest Monitoring

Reduced Risk Insecticides

Degree Day Data Collection

Mating Disruption

Economic Injury

Disease Forecasting

Conventional Calendar Spray Program → Reducing the Toxicity of Pest Management → Bio-Intensive IPM

Cultural Controls

Broad spectrum insecticides

Disease Resistant Varieties

Protecting Beneficial Insects

P A M S: Prevention & Avoidance

Prevention

- Preventing pest populations.
  - Pest free seeds
  - Cleaning equipment
  - Planting and harvesting schedules

Avoidance

- Avoiding pest populations.
  - Pest resistant or tolerant varieties
  - Crop rotations
  - Trap crops

P A M S: Monitoring & Suppression

Monitoring

- Monitoring the extent of the pest populations and/or the probability of future populations.
  - Pest scouting
  - Soil testing
  - Weather monitoring, e.g. degree days, leaf wetness, temperature and precipitation.

Suppression

- Suppress a pest population or its impacts.
  - Cultural methods
  - Biological controls
  - Chemical controls

Comparison of 595 and CAP Plan

IPM CAP Plan: Planning only

- Conservation practice alternatives for all identified resource concerns;
- Site-specific guidelines for effective IPM;
- CPA 52 required;
- One time payment for plan development, no cost-share and contract duration is one year.

EQIP 595 Plan: Implementation

- Conservation practice alternatives needed to mitigate effects of 595 plan;
- Site-specific guidelines for effective IPM;
- No CPA 52;
- Annual review of plan and performance of IPM adoption to satisfy NRCS EQIP contract.

NRCS IPM CAP Plan

- Integrated Pest Management Conservation Activity Plan (IPM CAP) is an ecosystem-based strategy that is a sustainable approach to manage pests:

✓ Manages pests economically;
✓ Minimizes the risk associated with pest suppression;
✓ Produces quality commodities;
✓ Meets NRCS quality criteria for soil, water, air and plant quality;
✓ Complies with federal, state, tribal, and local laws, regulations and permit requirements;
✓ Addresses operator's objectives

IPM CAP Criteria

- National Environment Policy Act (NEPA) Documentation
  - NRCS (CPA-52) as a checklist
  - NRCS staff complete CPA-52 beginning in 2011

- Cultural resources and other resource concerns and special environmental concerns.

- An IPM plan shall be developed by NRCS partners and certified Technical Service Providers (TSP).

U.S. Department of Agriculture — NRCS-CPA-52
Natural Resources Conservation Service — 4-22-2009

ENVIRONMENTAL EVALUATION WORKSHEET

A. Client Name: Johnny Apple Seed

B. Conservation Plan ID # (as applicable):
Program Authority (optional): EQIP

C. Identification # (farm, tract, field #, etc as required):
50 acres of cropland and field Unit # 1

D. Client's Objective(s) (purpose):
Impliment Integrated Pest Management (IPM) on orchard acreage and mitigation practices on orchard and non-orchard acreage to protect surface and ground water from pesticides and fertilizers, preserve wildlife and beneficial insect habitat, prevent soil errosion and protect cultural resources on the property

E. Need for Action:
1) Pesticide residuals in surface and sub-surface waters from runoff. 2) Degraded habitat for beneficial insects, pollinators and wildlife. 3) Soil contamination from pesticide use.

G. Alternatives

No Action √ if RMS ☐	*Alternative 1* √ if RMS ☐	*Alternative 2* √ if RMS ☑
Continue orchard pest management under 'conventional' pest managemnt practices.	Use Integrated Pest Management (595) which includes the following practices: Field border (386); Filter strip (393); Irrigation (441); herbaceous weeds (315); Habitat mgt. (647)	Integrated Pest Management (595); Field border (386); Filter strip (393); Irrigation (441); Mulching (484); herbaceous weeds (315); Habitat mgt. (647); Forest Stand Improvement (666); Access Road (560); Agrichemical Handling Facility (702)

Resource Concerns & Special Environmental Concerns

In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (For *Resource Concerns* see FOTG Section III - Resource Quality Criteria for guidance. For *Special Environmental Concerns* complete and attach applicable Environmental Procedures Guide Sheets for documentation. Items with a "•" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not [illegible]

H. Effects of Alternatives

F. Concerns and Existing/Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	*No Action* Trend short	*No Action* Trend long	*No Action* Amount, Status, Description	*No Action* √ if meets QC or needs action	*Alternative 1* Trend short	*Alternative 1* Trend long	*Alternative 1* Amount, Status, Description	*Alternative 1* √ if meets QC or needs action	*Alternative 2* Trend short	*Alternative 2* Trend long	*Alternative 2* Amount, Status, Description	*Alternative 2* √ if meets QC or needs action
SOIL												
Erosion (Sheet and Rill)	0	-	Erosion concerns focus on access roads	meets ☐ QC	0	-	Sheet & Rill erosion expected to continue over time.	meets ☐ QC	+	++	Sheet & Rill erosion expected to decrease.	meets ☑ QC
Erosion (Classic Gully)	0	-	Erosion concerns focus on access roads	meets ☐ QC	0	-	Gully erosion expected to continue over time	meets ☐ QC	+	++	Gully erosion expected to decrease.	meets ☑ QC
Erosion (Irrigation Induced)	-	- -	Continued depletion of organic matter.	meets ☐ QC	-	- -	Depletion of organic matter will continue over time	meets ☐ QC	+	++	Rebuild organic matter over time.	meets ☑ QC
				meets ☐ QC				meets ☐ QC				meets ☐ QC
Prime and Unique Farmlands			Not Applicable	☐ds action			Not Applicable because the action would not adversely impact prime and unique farmland	☐ds action			Not Applicable because the action would not adversely impact prime and unique farmland	☐ds action

IPM CAP Criteria: Overview

1. Background and site information;
2. Site specific assessment of environmental risk associated with existing and alternative pest suppression system
3. Monitoring guidelines;
4. State University's IPM guidelines for specific crops (optional);
5. Recordkeeping;
6. Conservation plan (record of decisions) to address the identified environmental risks associated with pest suppression activities with implementation specifications and other resource concerns;
7. References, if needed.

IPM CAP Detailed Criteria

Background and site information

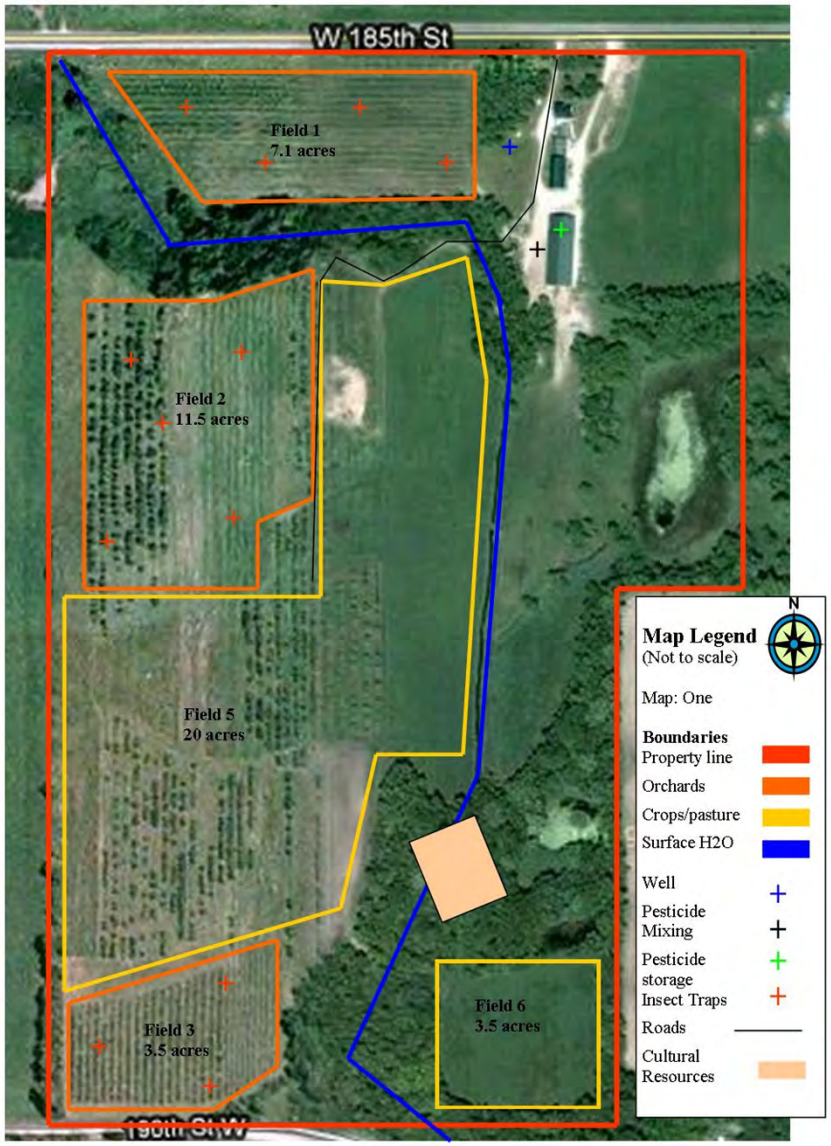
a) Name of owner/operator;
b) Tract and field(s) location;
c) Soil map units;
d) Resource concerns;
e) Present site use and general management being applied;
f) History of pest management activities.

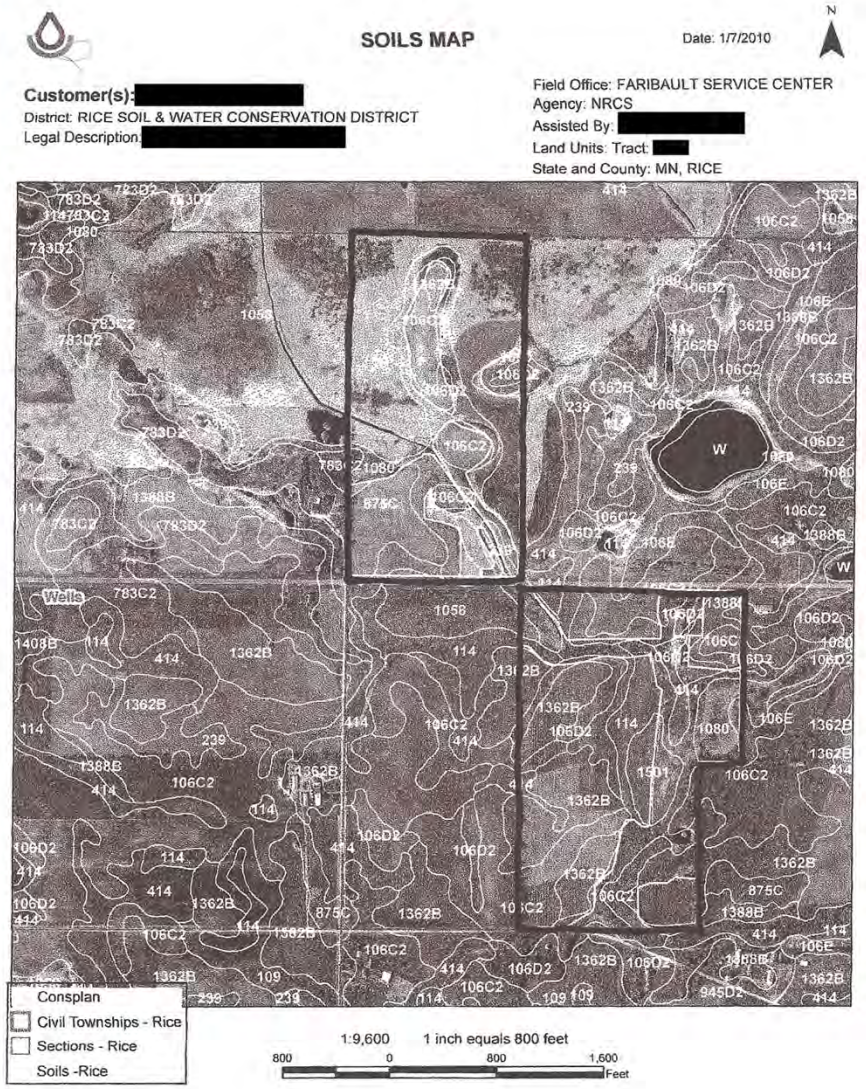
IPM CAP Detailed Criteria (continued)

Site Specific Assessment of Environmental Risks Associated with Existing and Alternative Pest Management System

a) Conservation Plan Map;
b) Field locations of planned areas;
c) Soil type and characteristics; note potential for runoff or permeability;
d) Identification of pests, crop, plant community condition and degree of infestation;
e) Locations of sensitive resource areas identified on the plan map to include: Streams, drains, surface waters, wetlands, wells, groundwater, drains, grassed waterways and existing buffer practices;
f) Sensitive wildlife habitat (on and off-site);
g) Identification of beneficial predators and parasites;
h) Other risk mitigation practices in use.

IPM Plan Maps





EQIP IPM Conservation Activity Plan

Mitigation - 2010

All of the pesticides used in this orchard that are listed with Hazard Ratings pose at least an intermediate threat to Surface Water in some part of the orchard. While groundwater risk is of low concern, the high risk to surface water requires the implementation of one or more mitigation techniques, as listed in the table below.

The Hazard Rating Quick Reference Table results are reiterated below, followed by the mitigation measures employed to reduce the probability of environmental contamination. The Conservation Practices listed are historical practices employed to reduce runoff and soil loss. The management techniques listed have the special emphasis of the included EQIP Pest Management Plan.

Pesticide		**Pesticide Ratings per Subsoil**		**Pesticide Ratings per Subsoil**		**Mitigation Techniques Employed**							
Active Ingredient	**Trade Name**	**"B"**		**"D"**		**Management Technique**				**Conservation Practices**			
		Ground-water	Surface Water	Ground-water	Surface Water	Low Rate	Partial Treatment	Scouting	Substi-tution	330	386	393	600
acetamiprid	Assail	V	V	V	V			Y			Y	Y	
fenpropathrin	Danitol	V	**H-X**	V	**H-X**			Y			Y	Y	
phosmet	Imidan	L	**I-H**	L-**I**	**I-H**	Y		Y			Y	Y	
carbaryl	Sevin	L	**I**	L-**I**	**I**						Y	Y	
captan	Captan	V	L-**I**	V	L-**I**			Y			Y	Y	
metiram	Polyram	L	**I-H**	L-**I**	**I-H**			Y			Y	Y	
trifloxystrobin	Flint	V	**I-H**	V	**I-H**			Y			Y	Y	
thiophanate	Topsin	V	**I-H**	L	**I-H**			Y			Y	Y	
Glyphosate	Round up	V	L	V	L		Y				Y	Y	
2-4-D	Various	L	L	L	L						Y	Y	
paraquat	Gramaxone	L	I-H	L-I	I-H						Y	Y	

L-Low
I-Intermediate
H-High
X-Extra High

Y-Practice Employed
E-Eligible for Practice

IPM CAP Detailed Criteria (continued)

Monitoring Guidelines:

a) List of crops to be maintained
b) Scouting for insects (both beneficial and pest), disease, weeds with dates and results;
c) Soil test results;
d) Weather forecasting;
e) Degree-day prediction of pest life cycle events;
f) Other methods of monitoring and results, such as pheromone traps.

IPM CAP Detailed Criteria (continued)

State University IPM guidelines for specific crops

a) Where available use State Agricultural University issued crop specific Integrated Pest Management guidance for individual crops;

b) Where available, use State Agricultural University issued Integrated Pest Management guidance for individual crops, pests and diseases. These differ from year round programs in that they may only refer to management of a single pest;

c) Note: There are non-state university organization that likewise provide credible guidelines (i.e. Rodale Institute, Kutztown, PA).

IPM CAP Detailed Criteria (continued)

Recordkeeping

a) Date of monitoring;
b) Results of monitoring;
c) Identification of both vertebrate and invertebrate pests;
d) Identification of beneficial insects enlisted;
e) Identification of specific raptors and/or bats enlisted;
f) Identification of crop and/or plant community condition;
g) Threshold of infestation;
h) Strategies implemented with dates;
i) All required records required by state and federal requirements;
j) Records required or needed as part of the State University IPM guidelines being used.

IPM CAP Detailed Criteria (continued)

Conservation plan (record of decisions)

(Utilizing Customer Service Toolkit – Plug-In or MsWord Document)

- To address the identified environmental risks associated with pest suppression activities with implementation specifications and other resource concerns.
- The record of decisions shall include the planned practice(s), schedule for implementation, and site-specific specifications to apply the conservation practice.

IPM CAP Deliverables

- **Deliverables for the Client – a hard copy of the plan that includes:**
  - Cover page – name, address, phone of client and TSP
  - Soils map and appropriate soil descriptions
  - Resource assessment results (wind and soil erosion, WINPST
  - Planned management practices
  - Planned engineering/structural practices
  - Conservation plan map

- **Deliverables for NRCS Field Office:**
  - Complete hardcopy and electronic copy of the client's plan
  - Digital conservation plan map with fields, features, and structural practices located
  - Digital soils map
  - Completed CPA-52 and appropriate worksheets

595 Plan Criteria

- A 595 plan shall consist of:
  - Plan map and soil map of managed site;
  - Location of sensitive resources and setbacks;
  - Environmental Risk Analysis (WIN-PST);
  - Interpretation of risk analysis and identification of appropriate mitigation techniques;
  - Operation maintenance requirements.

595 Deliverables

Deliverables for the Client –

- **Hard copy of the plan that includes:**
  - Cover page – name, address, phone of client and TSP;
  - Soils map and appropriate soil descriptions;
  - Resource assessment results (WINPST);
  - Planned management practices;
  - Conservation plan map;
  - Annual planning priorities.
- **Annual EQIP Contract Update that includes:**
  - Resource assessment results for year of pest management activity;
  - Annual planning priorities for next years pest management activity.

Deliverables for NRCS Field Office–

- **Hard copy of the plan that includes:**
  - Completed hard and electronic copy of clients plan;
  - Conservation plan and soils map;
  - Resource assessment results (WINPST);
  - Planned management practices;
  - Annual planning priorities.
- **Annual EQIP Contract Update that includes:**
  - Resource assessment results for year of pest management activity;
  - Annual planning priorities for next years pest management activity;
  - Pesticide application records
  - Monitoring records;
    - (scouting reports, insect-trap-counts, weather data, degree-day accumulations and etc.).

Additional Resources for IPM Planning

- WIN-PST
  - http://www.wsi.nrcs.usda.gov/products/w2q/pest/winpst31.html
- NRCS Electronic Field Office Technical Guide (EFOTG)
  - http://www.nrcs.usda.gov/technical/efotg/
- USGS Web Soil Survey
  - http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm
- Pesticide Risk Mitigation Engine (PRiME)
  - http://ipmprime.org/cigipm/
- North Central Region Fruit Crop IPM Evaluation Tool
  - http://www.nrcs.ipm.msu.edu/

Questions?