

US EPA ARCHIVE DOCUMENT

USDA-NRCS IPM

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IPM Common Ground

- *Applies to all pests: weeds, insects, diseases*
- *The P-A-M-S approach to IPM:*
 - *Prevent or Avoid pests if you can*
 - *Monitor pests and what affects their population*
 - *Suppress pests only when a threshold is exceeded*
- *IPM Systems should address:*
 - *Efficacy – does it work?*
 - *Economics – is it cost effective?*
 - *Environment – does it protect natural resources?*

NRCS Pest Management

- **Our technical assistance is free and we cover the country with almost 3000 county-level field offices.**
- **Among many other tasks, our Conservation Planners identify site-specific natural resource concerns related to pest management activities:**
 - **Water Quality impacts from pesticide leaching, solution runoff and adsorbed runoff**
 - **Air Quality impacts from pesticide drift and volatilization**
 - **Direct pesticide impacts on pollinators and other beneficial species in or near the application area**
 - **Cultural and mechanical pest suppression risks including erosion/sedimentation from cultivation for weed control and air quality impacts from burning**

Environmental Risk Analysis Tools

- Cultural and Mechanical pest control risks
 - Soil Erosion & Soil Quality Impacts
 - Revised Universal Soil Loss Equation (RUSLE2)
 - Wind Erosion Equation (WEQ)
 - Soil Conditioning Index (SCI) – O.M.
- Pesticide risks
 - Water Quality Impacts
 - Windows Pesticide Screening Tool (WIN-PST) for potential risks to human drinking water and aquatic habitat
 - Leaching
 - Solution Runoff
 - Adsorbed Runoff

Pesticide Environmental Risk

- **EPA carefully regulates pesticide uses nationally**
 - Mitigation requirements are on the pesticide label
 - But it's difficult to address site-specific risks to sensitive areas
- **In contrast, NRCS starts at the field level to identify site-specific natural resource concerns**
 - For example, for water quality concerns:
 - Is ground or surface water the primary concern?
 - What are the water body characteristics and what is it used for?
 - What are the watershed characteristics?
 - What is the flow path to the water body?
 - Vadose zone characteristics for ground water
 - Overland flow characteristics for surface water
 - What are the field characteristics that affect pesticide losses?

Pesticides and IPM

- **Some sites require nothing more than “follow the label”**
 - We try to help producers understand how mitigation requirements on the pesticide label apply to their site and we try to integrate those requirements into the overall conservation plan
- **Some sites may benefit from management techniques that can reduce off-site pesticide losses**
 - For example, incorporation (mechanical or with irrigation) to reduce surface losses or a very targeted application that reduces overall exposure
- **Some sites may benefit from additional mitigation to protect sensitive natural resources**
 - For example, a Filter Strip or a Riparian Forest Buffer

NRCS IPM (Code 595)

➤ Definition

- A site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies.

➤ Criteria:

- An IPM plan will be utilized with specific techniques that prevent or mitigate risks to natural resources

➤ IPM Techniques:

- Application Timing based on:
 - probability of rainfall that drives leaching and runoff
 - temperature, relative humidity, wind speed and direction
- Formulations and Adjuvants that reduce exposure
- Monitoring plans
- Suppression based on economic thresholds

IPM (Code 595)

➤ IPM Techniques:

- **Partial treatment**
- **Precision application**
- **Set-backs**
- **Soil incorporation**
- **Spray Nozzle Selection, Maintenance and Operation**
- **Partial Substitution – Cultural, Mechanical or Biological Controls**
- **Partial Substitution – Lower Risk Pesticides**
- **Partial Substitution – Semiochemicals (e.g., mating disrupting pheromones)**

IPM (Code 595)

➤ Criteria

- We work with published IPM recommendations, Extension specialists, and crop consultants
- NRCS cannot make pesticide recommendations
- 595 prescribes minimum mitigation levels for water quality resource concerns
 - Based on Windows Pesticide Screening Tool (WIN-PST) Soil/Pesticide Interaction Hazard Ratings:
 - Low or Very Low - No Mitigation Needed
 - Intermediate – 20 points
 - High - 40 points
 - Extra High - 60 points

IPM (Code 595)

➤ Criteria

- **IPM techniques and conservation practices each receive mitigation credits based on their relative effectiveness**
- **Mitigation credits specific to pesticide loss pathway:**
 - **Leaching**
 - **Solution runoff**
 - **Adsorbed runoff**
 - **Drift**
- **Mitigation credits for IPM techniques are combined with mitigation credits for other conservation practices applied to meet the minimum criteria**

NRCS Programs

- **Environmental Quality Incentives Program (EQIP)**
 - **Conservation Activity Plans (CAPs)**
 - **Developed by Technical Service Providers (TSPs)**
 - **IPM and IPM Resistant Weed Management**
 - **Cropping system; likely pests; pest prevention, avoidance, monitoring, and suppression techniques; environmental risk evaluation (WIN-PST, RUSLE2, etc.)**
 - **Includes conservation practices that will be applied to address site-specific natural resource concerns:**
 - **Cover Crop (340), Conservation Crop Rotation (328), Field Border (386), Filter Strip (393), IPM (595), Irrigation Water Mgt. (449), Mulching (484), Residue Mgt - Ridge Till (346), etc.**
 - **NRCS pays producers 75% of the cost of developing IPM CAPs (90% for traditionally underserved clients)**
 - **Over \$1000 per plan**

NRCS Programs

- **Environmental Quality Incentives Program (EQIP)**
 - **595 Integrated Pest Management**
 - **Implements prevention, avoidance, monitoring and suppression techniques that prevent or mitigate:**
 - **Pesticide risks to human drinking water**
 - **Pesticide risks to aquatic habitat**
 - **Pesticide risks to air quality**
 - **Pesticide risks to pollinators and other beneficial species**
 - **Erosion risks from tillage for weed control**
 - **Air quality risks from burning for weed control**
 - **NRCS pays producers up to 75% of the cost of implementing IPM techniques that help to prevent or mitigate site-specific risks to identified natural resource concerns (SWAPA+H)**
 - **Payments range from a few dollars per acre for simple commodity crops to hundreds of dollars per acre for complex specialty crops**

NRCS Programs

- **Conservation Stewardship Program (CSP)**
 - Addresses natural resource concerns more comprehensively
 - Activities that go “above and beyond” our minimum conservation practice standard criteria
 - The whole farm must be enrolled to qualify
 - **High Level IPM to Reduce Pesticide Environmental Risk (WQL13)** is focused on prevention and avoidance with only lowest risk pesticides available when necessary
 - **Integrated Pest Management for Organic Farming (WQL21)** is focused on high level IPM with appropriate mitigation for selected suppression techniques
 - Enhancement payments up to \$20 per acre on cropland