United States Department of Agriculture

Natural Resources Conservation Service

Integrated Pest Management (IPM)

Georgia

Conservation Practice Job Sheet – 595 (10/21/16)

Producer _____ County _____ Date_____

Farm # _____ Tract # _____ Assisted By _____

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

Purposes The purposes of this practice are to focus on mitigation and prevention although IPM also includes monitoring and suppression strategies.

Identify one or more purposes listed below. However, it is likely that the first two will apply in most conservation planning applications:

- **Prevent or mitigate** off-site pesticide risks to soil, water, air, plants, animals and humans from drift and volatilization losses
- **Prevent or mitigate** on and off-site pesticide risks to pollinators and other beneficial species through direct contact
- **Prevent or mitigate** off-site pesticide risks to water quality from leaching, solution runoff and adsorbed runoff losses
- **Prevent or mitigate** cultural, mechanical and biological pest suppression risks to soil, water, air, plants, animals and humans

Conditions where the practice applies
On all lands where pests will be managed

Conservation Management System
Generally, multiple conservation practices are implemented to address resource concerns. Conservation management systems are a combination of practices and techniques that achieve the desired level of treatment for soil, water, air, energy, plant and animal resources.

General Information
Conservation planners should work with extension agents and other cooperators to develop IPM plans.

Practice Lifespan 1 year

Prevention and Mitigation of Risks to Water and Air Quality to Humans, Fish, Pollinators and Beneficial Insects

Conservation planners evaluate potential risks to human health and the environment during the planning process with input from producers and IPM specialists. This information is documented in the Environmental Evaluation Worksheet (CPA-52). The NRCS assessment tool, WIN-PST, is used to evaluate potential threats to humans, aquatic life, pollinators, and beneficial insects. The WIN-PST tool focuses on leaching, solution and adsorbed runoff pathways. Threats due to drift in general during application are also addressed. Post-application volatilization is assessed in the planning process although not with WIN-PST.

Planners must consider all pesticide transport pathways when evaluating exposure risks identified in the planning process and take into account local physiographic (landform) conditions when considering the application of IPM prevention and mitigation practices. Threats to humans and fish by leaching (ILP, abbreviation in WIN-PST) and solution runoff (ISRP) may be mitigated <u>only</u> in the physiographic regions of Georgia's Coastal Plain Provence (Table 1 and Figure 1). Likewise, threats to fish through adsorbed runoff (IARP) may be mitigated <u>only</u> in the Coastal Plain Provence, and not in physiographic regions north of the Coastal Plain Provence. Address volatilization and drift, especially effects of drift on pollinators, <u>throughout the state.</u>

Conservation planners may use existing IPM plans or work with Certified Crop Advisors, University of Georgia Cooperative Extension Agents or other professionals, recommended in advance by the Georgia NRCS State Agronomist, to develop a new IPM plan or modify an existing plan when implementing this practice.

IPM plans may include monitoring and suppression as well as prevention and mitigation. This practice standard only includes prevention and mitigation practices and techniques as discussed below and Technical Notes 5 and 9.

Conservation planners have the option of using the information in this jobsheet or independently acquiring the ability to use the National 595 IPM Excel Jobsheet 2.2 to obtain the mitigation values and mitigation practices and techniques identified during the planning process.

Humans and fish. The ratings for the categories of resource concerns for humans or fish (ILP, ISRP and IARP in Table 2) were obtained from the WIN-PST interaction report for specific combinations of active ingredients and soils. Mitigate a WIN-PST hazard value of 20 or more, corresponding to a hazard rating of intermediate or greater, respectively, shown in Table 3. Select mitigation values corresponding to existing and planned IPM techniques and practices found in Tables 1 and 2 of Agronomy Technical Note No. 5, respectively. Note, the example discussed below (Figure 2), obtained from Technical Note 5, only address the highest hazard rating for a single soil.

Conservation planners must evaluate whether potential threats to humans and fish identified in a WIN-PST analysis in The Coastal Plain Provence are actually exist. This information is illustrated for the example for a threat to fish through the pathway of solution runoff. The results of this WIN-PST analysis would be addressed in the Tifton Upland and

four other physiographic regions (Y), but not in the majority of the physiographic regions of the Coastal Plain (N) (Table 1).

Mitigate verified potential threats by selecting techniques and practices identified during the planning process. For the example in Figure 2, mitigation of the intermediate 20 index values could be achieved for this pathway by applying the IPM techniques of timing applications of the pesticide to avoid rain (Figure 3, 15 mitigation index value points) and changing the formulation and the addition of adjuvants (Figure 3, 5 mitigation index value points). As mentioned above, a complete list of techniques and practices are found in the technical note. These results are documented in Table 4 in this jobsheet.

Many other options are usually available for mitigation, especially when conservation planners include practices along with techniques. Selecting another pesticide is also another option to consider during the planning process.

I. Volatilization and drift. Threats are described in pesticide labels or other technical documents.

1. **Volatilization.** Pesticide volatilization may contribute to air quality concerns by releasing volatile organic compounds (VOCs). Address any level of potential hazard from volatilization by applying at least one of the techniques listed on pg. 6 of Agronomy Technical Note No.5. Eliminating the use of emulsifiable concentrates, when other formulations are available, and employing techniques to result in more efficient pesticide applications are two of the most frequently used practices to mitigate the effects of VOCs.

   Drift. Address risks to humans, crops, organic crops and wildlife (other than pollinators and beneficial insects which are discussed below in Section III) due to off-site drift during pesticide application.

   Drift is significant when the wind speed reaches 10 mph. Drift is described in more detail on page 5 in Tech Note 5 and through this link (http://www.caes.uga.edu/commodities/spray/pubs/documents/reducing.PDF). Current weather conditions are available for a limited number of sites from the University of Georgia (http://weather.uga.edu/). Regional wind maps are available from other weather services (http://www.intellicast.com/National/Wind/Current.aspx).

   The minimum level of mitigation required for drift is also a score 20. See the IPM techniques and practices in Tables 1 and 2, respectively, in the Agronomy Technical Note No.5, that conservation planners may apply to mitigate the effect of drift. Some of the IPM techniques and mitigation index values are shown in Figure 3 that is copied from the technical note.

III. Pollinators. NRCS conservation planners can help clients identify potential pesticide hazards to pollinators, incorporate pollinator protection into IPM plans, and coordinate other conservation practices that prevent or mitigate identified hazards to pollinators and beneficial insects. Conservation planners can determine whether pesticides used on a farm or ranch poses a potential hazard to pollinators or beneficial insects by following the

steps below. They are described in more detail in Agronomy Technical Note No. 9. Furthermore, all tables and figures mentioned in this section are in this technical note.

1. Identify the potential risks to pollinators and beneficial insects, such as the toxicity or persistence of a pesticide. Use WIN-PST to establish potential threats to pollinators. Assume a threat to honey bees also applies to native bees and other wild pollinators. A sample report is shown in Figure 3, page 4. Planners may obtain additional information regarding the effects of a pesticide on bees by consulting the product label or other sources of information (http://www.greenbook.net/), including Extension publications. The label that accompanies the pesticide container is the definitive source of information regarding the application a product and should in all cases be consulted before a pesticide is applied.
2. Identify the specific exposure pathways (drift, pesticide residues, etc. in Table 1 pgs. 6-7) and determine if they are likely to cause an adverse impact. Specific pathways are identified in the tables along with techniques and practices discussed below.
3. Develop a prevention or mitigation plan with IPM specialists. Existing and planned mitigation may be used in these plans.
4. Apply mitigation techniques onsite (within the application area, Table 2) and conservation practices offsite (drift outside the application area, Table 3) to obtain a minimum of 10 and 20 mitigation index points, respectively. Assistance of an IPM professional is required to select, plan and implement practices and techniques shaded in grey.

II. Documentation of the reduction in risks. Risks will be reduced, rather than eliminated, as a result of addressing resource concerns identified in the planning process. Document mitigation for all resource concerns and pathways in Table 4 of this jobsheet. Copy the table below for additional active ingredients, pathways or species at risk.

III. Other information. Conservation planners should keep in mind that the installation of a new conservation practice probably will not actually affect the resource concern until the following year.

Operation and Maintenance

The IPM plan shall include appropriate operation and maintenance items for the client. These may include:

- Review and update the plan periodically in order to incorporate new IPM strategies, respond to cropping system and pest complex changes, and avoid the development of pest resistance
- Maintain mitigation techniques identified in the plan in order to ensure continued effectiveness
- Calibrate application equipment according to Extension and/or manufacturer recommendations before each season of use and with each major chemical change

  http://www.caes.uga.edu/publications/pubDetail.cfm?pk_id=6348
- Maintain records of pest management for at least two years. Pesticide application records shall be in accordance with USDA Agricultural Marketing Service's Pesticide Recording Keeping Program and site specific requirements

Table 1. The interpretation of WIN-PST results of resource concern and pathway in the physiographic regions of Georgia's Coastal Plain (Wharton, est. 1989). See attached map for locations of the regions (Figure 1).

	Resource Concern and Pathway		
	Humans and Fish		**Fish**
Physiographic Region	**Percolation**	**Runoff**	**Adsorption to Clay**
Atlantic Plain			
Coastal Plain Province			
A. Fall Line Sandhills	Y	Y	Y
M1. Fall Line Red Hills	N	Y	Y
M2. Fort Valley Plateau	Y	N	N
N1. Dougherty Plain	Y	N	N
N2. Pelham Escarpment	Y	N	N
O1. Tifton Upland	N	Y	N
O2. Vidalia Upland	N	Y	N
P. Tallahassee Hills	Y	Y	Y
Q. Valdosta Limesink Region	Y	N	N
R1. Coastal Marine Flatlands	Y	N	N
R2. Okefenokee Basin	Y	N	N
R3. Trail Ridge	Y	N	N
R4. Tidal Marine Area	Y	N	N

Source Dr. George Vellidis, UGA, Tifton, Ga.

N = do not address the effect of the results of WIN-PST evaluation of a pesticide on a resource concern
Y = address the effect of the results of WIN-PST evaluation of a pesticide on a resource concern

Reference for physiographic regions, Wharton, C.H. approx. 1989. The Natural Environments of Georgia. Georgia State University, Atlanta, Ga. pgs. 8-10.

Table 2. Mitigate WIN-PST **MINIMUM** hazard rating values for fish and humans (from WIN-PST Interaction Report) and pollinators/beneficial insects (using the procedure above) for each active ingredient of a pesticide. Also, address drift and the release of volatile organic compounds (VOCs) into the air.

Resource Concern/Pathway WIN-PST	**Min. Hazard Rating Value**	
Human – leaching (ILP)	20[1]	Enter the pathway for on- and off-site risk to pollinators below from Table 1, pgs. 6-7 Agronomy Tech. Note 9
Human – solution runoff (ISRP)	20[1]	
Fish - leaching (ILP)	20[1]	
Fish - solution runoff (ISRP)	20[1]	
Fish - adsorbed runoff (IARP)	20[1]	
Drift – general [2]	20[1]	
Air - volatile organic compounds	NA[3]	
Onsite risk to pollinators and beneficial insects	10[4]	
Risk to pollinators and beneficial insects due to drift outside application area	20[4]	

[1] See Tables I and II Agronomy Technical Note No. 5 for risk mitigation values for techniques and practices
[2] Resource concerns due to drift include crops, such as organic crops, wildlife (other than pollinators and beneficial insects) and humans
[3] One technique pg. 6 Agronomy Technical Note No. 5 required when volatilization is identified as pathway for risk to a resource concern
[4] See Tables II and III Agronomy Technical Note No. 9 for risk mitigation values for techniques and practices to be applied inside and outside the field, respectively.

Table 3. Minimum mitigation index score level associated with WIN-PST rating that requires action.

WIN-PST Identified Hazard Rating	**Minimum Mitigation Index Score**
Low or Very Low	No Action Needed
Intermediate	20
High	40
Extra High	60

Table 4. Document mitigation value(s) for existing/planned IPM practice(s) and/or technique(s) for humans or fish (from the results of a WIN-PST analysis and Tables 3 and 4 above) or for drift on pollinators or volatilization (from Tables 3 and 4 above). EXAMPLE Figure 2, desired mitigation index value 20

Pesticide active ingredient: Unknown

Species at risk: Fish

Pathway: Runoff

Practice or Technique	Mitigation Value
Timing the pesticide application to avoid rain (practice)	15
Changing the formulation or adding adjuvants (practice)	5
Desired total mitigation index value	20

Pesticide active ingredient _____

Species at risk _____

Pathway _____

Practice or Technique	Mitigation Value

Table 4. Review of IPM plan

Date	IPM Notes

For More Information Contact your local NRCS Office and Soil and Water Conservation District

Jobsheet Certifications

Prepared by

_____Title_____Date_____

Approved by

_____Title_____Date_____

Installation Meets NRCS Standards and Specifications

Certified by

_____Title_____Date_____

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