

Wisconsin Conservation Planning Technical Note

WI-2

Companion Document to NRCS FOTG Standard 595 Pest Management July 2007

Introduction

Definition of Pest Management:

Utilizing environmentally sensitive prevention, avoidance, monitoring and suppression strategies to manage weeds, insects, animals and other organisms (including invasive and non-invasive species) that directly or indirectly cause damage or annoyance.

Purpose

This Technical Note has been developed in order to provide guidance for pest management planning. Conservation Practice Technical Standard 595, Pest Management provides specific criteria in Section V for pest management planners. The standard is located in USDA-NRCS Wisconsin Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications (<http://www.wi.nrcs.usda.gov>). The minimum components of a pest management plan are found in Section VII, Plans and Specifications, of the standard. Operation and maintenance criteria of the practice are listed in Section VIII. Federal, state and local laws may provide additional requirements.

This technical note provides detailed guidance on the following:

- Part I:** Minimum Requirements for a Pest Management Plan.
- Part II:** Table I - Wisconsin Mitigation Effectiveness Guide – Reducing Pesticide Impacts on Water Quality, 3 pp.
- Part III:** Pest Management Inventory Worksheet (NRCS-WI-1)
- Part IV:** Chemical Control Selection for Pest Management (NRCS-WI-2)
- Part V:**
1. Pest Management Plan (NRCS-WI-3) **or**
 2. 595 Pest Management Plan (NRCS-WI-4)
 3. Pest Management Plan (PMP) Checklist (8/18/04)

Appendix 1: Wisconsin County Location Codes

Appendix 2: Example WIN-PST Soil/Pesticide Interaction Loss Potential and Hazard Report

Appendix 3: Wisconsin WIN-PST Hazard Rating Quick Reference Table
Wisconsin WIN-PST Hazard Rating Quick Reference Table for Apple Production
Wisconsin WIN-PST Hazard Rating Quick Reference Table for Cherry
Production

Appendix 4: Pest Management for Wisconsin Cranberry Production

Part I: Minimum Requirements for a Pest Management Plan

The pest management component of a conservation plan shall be prepared in accordance with the criteria of the current 595 Pest Management practice standard and shall describe the requirements for applying the practice to meet its intended purpose(s).

As a minimum, the pest management component of a conservation plan shall include documentation of:

- Plan map and soil map of the managed site.
 1. Aerial photographs and /or maps of the farm should contain field boundaries, identification numbers and acreage for all crop fields, pastures, woodlands and any other land use areas with a pest management plan.
 2. If possible, maintain consistent field identification with the conservation plan and nutrient management plan. When field identification numbers are not consistent, provide a cross reference summarizing field identification numbers.
- Location of sensitive species, ground water and surface water risk areas, and setbacks, if applicable.
 1. Follow pesticide label restrictions regarding soil organic matter, soil pH, soil texture, and depth to water table. Follow application setback distances from intermittent and perennial streams, waterways, other surface water bodies, wetlands and sinkholes.
 2. Locate all pesticide mixing, loading, storage and supply areas (tanks) at least 100 feet from any well or surface water body, and down slope of wells, unless mixing and loading is conducted over a spill containment surface.
- IPM practices used and pest management practices planned based, in part, on prior year' crops and pest conditions. Items include:
 1. Documenting last years crops and pest pressure.
 2. Proposed field scouting schedule for monitoring pest infestations and crop conditions.
 3. Preliminary strategy to identify pest treatment thresholds. When available, use economic thresholds for determining need for treatment, including WeedSOFT.
 4. Evaluate alternatives and select an appropriate tactic.
 5. Rotating herbicides with different modes of action from year to year.

- If the plan includes chemical pest controls, it must identify:
 1. Fields where the pesticide application will occur
 2. The crop planted (or to be planted)
 3. Targeted pest
 4. Pesticide formulation and carrier
 5. Application rate
 6. Method of application
 7. Document date and time of application
 8. Any variations from the planned treatment

- If the plan includes chemical pest controls, an environmental risk analysis shall be completed for each crop and pest control chemical using the (1) Windows Pesticide Screening Tool (WIN-PST) **or** (2) the WIN-PST Hazard Rating Quick Reference Table.
 1. WIN-PST can be accessed and downloaded at the following website: <http://www.wcc.nrcs.usda.gov/pestmgmt/winpst.html>. The Wisconsin WIN-PST soils data base for use with WIN-PST can be accessed and downloaded at the same website. The soils data base is listed by county and the numerical identification codes for each county can be found in the Appendix 1. An example WIN-PST soil/pesticide report for selected pesticides applied to Kewaunee and Manawa silt loam soils in Adams County can be found in Appendix 2.
 2. A WIN-PST Hazard Rating Quick Reference Table provides surface and groundwater hazard ratings by subsoil group for all soils and most pesticides found in Wisconsin and is shown in Appendix 3. This table provides information similar to the WIN-PST website. In order to identify the subsoil group of a specific soil, see UWEX publication A2809, “Soil Test Recommendations for Field, Vegetable, and Fruit Crops”, Table 10, pp 25-32.
 3. Interpretation of Hazard Ratings. Hazard Ratings are divided into five classes. These are:
 - X – Extra High
 - H – High
 - I - Intermediate
 - L - Low
 - VL – Very Low

Implementing one or more mitigation techniques is required for pesticide options having Hazard Ratings of “Extra High”, “High” or Intermediate”. Hazard Ratings of “Low” or “Very Low” require no further action as long as they are used according to the label and meet quality criteria for Resource Management Systems (RMSs). Hazard ratings of “Intermediate” or “High” require mitigation techniques to meet quality criteria for a RMS. “High” ratings warrant more extensive mitigation measures than “Intermediate” rating. Mitigation measures may not be effective for “Extra High” hazard ratings if resources are highly sensitive or a high degree of resource protection is desired. In these cases, an effective, economically acceptable pesticide with a lower risk or an alternative method of pest control may be required to meet quality criteria for an RMS.

- A Wisconsin Mitigation Effectiveness Guide listing management techniques and conservation practices for reducing pesticide impacts on water quality is located in Part II.
- Document the pest management plan for crop fields by completing one of the following: (1) Chemical Control Selection for Pest Management (NRCS-WI-2) and a Pest Management Plan Worksheet (NRCS-WI-3), **or** (2) 595 Pest Management Plan (NRCS-WI-4) based on WI WIN-PST Hazard Rating Quick Reference Table **or** (3) equivalent documentation. A Pest Management Inventory Worksheet (NRCS-WI-1) can be used as part of the initial planning process. If a certain pesticide is selected for use on a given field, and if hazard ratings are Intermediate, High or Extra high, then mitigation practices used must also be listed in the plan.
- Complete a Pest Management Plan (PMP) Checklist to certify that the PMP meets the minimum requirements of Wisconsin's 595 Pest Management Standard (6/03).

Part II: Wisconsin Mitigation Effectiveness Guide, 12/20/2004

Pest Management (595) requires environmental risk evaluation and appropriate mitigation for all identified resource concerns. The following table identifies management techniques and conservation practices that have the potential to mitigate pesticide impacts on water quality. Not all techniques will be applicable to a given situation. Relative effectiveness ratings by pesticide loss pathway are “no effect” (blank), “slight effect” (+/-), “moderate effect” (++)/(-), and “significant effect” (+++/---). A general rule of thumb is that +'s generally have the potential to reduce losses by 10 -15%., ++'s have the potential to reduce losses by about 25% and +++'s have the potential to reduce losses by about 50%.

This table also identifies how the techniques function. Effectiveness of any mitigation technique can be highly variable based on site conditions and how it is designed. Therefore, with guidance provided by the table, site-specific selection and design of mitigation techniques that are appropriate for identified resource concerns is left to the professional judgement of the conservation planner.

TABLE I – Mitigation Effectiveness Guide - Reducing Pesticide Impacts on Water Quality

Pest Management Mitigation Techniques	Pesticide Loss Pathways			Function
	Leaching	Solution Runoff	Adsorbed Runoff	
Management Techniques ^{1/}				
Lower Application Rates	+++	+++	+++	Reduces exposure potential - use lowest effective rate
Partial Treatment	+++	+++	+++	Reduces exposure potential - spot treatment, banding and directed spraying reduce amount of pesticide applied
Scouting and Integrated Pest Management (IPM) Thresholds	+++	+++	+++	Reduces exposure potential - reduces the amount of pesticide applied
Set-backs	+	++	+	Reduces exposure potential - reduced application area reduces amount of pesticide applied, can also reduce inadvertent pesticide application and drift to surface water
Substitution – <ul style="list-style-type: none"> ▪ Alternative pesticides ▪ Cultural controls ▪ Biological controls 	+++	+++	+++	Reduces hazard potential - use alternative pesticides with low environmental risk, substituting cultural (including burning and mechanical controls) and biological controls can reduce the need for pesticides
Conservation Practices ^{3/}				
Constructed Wetland (656)	+	+	++	Captures pesticide residues and facilitates their degradation
Conservation Crop Rotation (328)	++	++	++	Reduces the need for pesticides by breaking pest lifecycles
Contour Buffer Strips (332)		++	++	Increases infiltration, reduces soil erosion
Contour Farming (330)	-	+	+	Increases infiltration and deep percolation, reduces soil erosion
Contour Stripcropping (585)		++	++	Increases infiltration, reduces soil erosion
Diversion (362)	+	+	+	Reduces exposure potential – water is diverted
Field Border (386)		+	++	Increases infiltration and traps adsorbed pesticides, often reduces application area resulting in less pesticide applied, can provide habitat for beneficial insects which reduces the need for pesticides, can provide habitat to congregate pests which can result in reduced pesticide application, also can reduce inadvertent pesticide application and drift to surface water

TABLE I - (continued)

Mitigation Technique	Pesticide Loss Pathways			Function
	Leaching	Solution Runoff	Adsorbed Runoff	
Filter Strip (393)		++	+++	Increases infiltration and traps adsorbed pesticides, often reduces application area resulting in less pesticide applied, can provide habitat for beneficial insects which reduces the need for pesticides, can provide habitat to congregate pests which can result in reduced pesticide application, also can reduce inadvertent pesticide application and drift to surface water
Grassed Waterway (412)		+	++	Increases infiltration and traps adsorbed pesticides (should be applied with Filter Strips at the outlet and on each side of the waterway)
Irrigation Water Management (449)	+++	+++	+++	Reduces exposure potential - water is applied at rates that minimize pesticide transport to ground and surface water, promotes healthy plants which can better tolerate pests
Residue Management, No-till and Strip-Till (329A)		++	+++	Increases infiltration, reduces soil erosion, builds soil organic matter
Residue Management, Mulch-Till (329B)		++	+++	Increases infiltration, reduces soil erosion, builds soil organic matter
Residue Management, Ridge Till (329C)		++	+++	Increases infiltration, reduces soil erosion, builds soil organic matter
Sediment Basin (350)			++	Captures pesticide residues and facilitates their degradation
Stripcropping, Field (586)		+	+	Increases infiltration, reduces soil erosion
Terrace (600) (no PTO)	--	++	+++	Increases infiltration and deep percolation, reduces soil erosion
Water and Sediment Control Basin (638)	-	++	+++	Captures pesticide residues and facilitates their degradation, increases infiltration and deep percolation

^{1/} Additional information on pest management mitigation techniques can be obtained from Extension pest management publications, pest management consultants and pesticide labels.

^{2/} The pesticide label is the law - all pesticide label specifications must be carefully followed, including required mitigation. Additional mitigation may be needed to meet NRCS pest management requirements for identified resource concerns.

^{3/} Details regarding the effects of Conservation Practices on ground and surface water contamination by pesticides are contained in the Conservation Practice Physical Effects matrix found in the National Handbook of Conservation Practices.

^{4/} Mitigation applies to adsorbed pesticide losses being carried to surface water by wind.

TABLE I Mitigation Effectiveness Guide - Reducing Pesticide Impacts on Water Quality is based on available research specific to the technique, related research, and the NRCS Northwest Climate Center (NWCC) Pest Management Team's best professional judgement. The ratings are relative index values as opposed to absolute values, much like the Conservation Practice Physical Effects (CPPE) matrix. They are intended to help planners choose the best combination of techniques for their identified resource concerns. The ratings are based on the relative *potential* for a technique to provide mitigation. The technique has to be specifically designed, implemented and maintained for the mitigation potential to be realized. Varying site conditions can result in a great deal of variation in actual mitigation effectiveness, but our relative index values indicate which techniques will generally provide more or less mitigation under a given set of conditions.

The original matrix was developed by the EPA-sanctioned Aquatic Dialogue Group and published by SETAC. The original reference is: *Aquatic Dialogue Group: Pesticide Risk Assessment and Mitigation*, Baker JL, Barefoot AC, Beasley LE, Burns LA, Caulkins PP, Clark JE, Feulner RL, Giesy JP, Graney RL, Griggs RH, Jacoby HM, Laskowski DA, Maciorowski AF, Mihaich EM, Nelson Jr HP, Parrish PR, Siefert RE, Solomon KR, van der Schalie WH, editors. 1994. *Society of Environmental Toxicology and Chemistry, Pensacola, FL., pages 99-111 and Table 4-2*. They provided ranges of effectiveness for various mitigation techniques. With their permission, we expanded their work for the NEDC *Nutrient and Pest Management Considerations in Conservation Planning* course materials. Richard Aycock from Louisiana was the first to put a mitigation matrix into an NRCS Pest Management (595) standard, based in large part on Table 6.2 (pages 67 - 68), and Table, 6.4 (pages 71 - 72) in *Module 6, Part C-Integrating Nutrient and Pest Management with Other Conservation Practices* in our *Nutrient and Pest Management Considerations in Conservation Planning* course materials. Table 1 was built from the Louisiana matrix by adding additional management techniques and conservation practices. If you have any questions, please contact the NWCC Pest Management Team.

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Part III:

Pest Management Inventory Worksheet

Producer _____ Date _____

Who Will Develop Your Pest Management Plan?

Name _____ Occupation _____

Company Name _____ Location _____

Who Assists You with Pest Management Decisions?

Are Fields Scouted Regularly for Pests?

Weeds Yes No By Whom? _____ How Often? _____

Insects Yes No By Whom? _____ How Often? _____

Diseases Yes No By Whom? _____ How Often? _____

Are pesticides with different modes of action rotated to control the same weeds in a crop? Yes No

How are Pesticides Handled on Your Farm including Application, Transportation, Storage, Loading, and Disposal?

Do You Have Any Pesticide Applicator Licenses? Yes No

Do You Calibrate Your Sprayer? Yes No When? _____

Pest Concerns

Pests	Crop(s) and/or Fields		
<u>Weeds</u>			
Grasses Wee			
<u>Foxtail</u>			
<u>W. Proso Millet</u>			

Broadleaves			
<u>Lambsquarters</u>			
<u>Pigweed</u>			
<u>Ragweed</u>			
<u>Velvetleaf</u>			

Perennials			
<u>Quackgrass</u>			

Insects			
<u>Corn Rootworms</u>			
<u>E. Cornbowers</u>			

Diseases			
<u>White Mold</u>			

d Density*

Insect and Disease Thresholds Exceeded?

Denote H = High M = Moderate L = Low

Notes _____

Pest Control Practices

Crop _____ Fields _____

Weed Control Practices

Herbicides Used		Application Information				
Trade Name/Formulation	Common Name	Rate	* Lbs. of a.i.	Timing	Band	Method Broadcast

Cultural Practices

Cultivation Yes No Crop Rotation Yes No
 Other _____ Other _____

Notes _____

Insect Control Practices

Insecticides Used		Application Information				
Trade Name/Formulation	Common Name	Rate	* Lbs. of a.i.	Timing	Band	Method Broadcast

Cultural Practices

Crop Rotation Yes No Other _____

Notes _____

*computing pounds of active ingredient applied is optional

Pest Management Inventory Worksheet

Producer Ned Flanders Date 3/5/2004

Who Will Develop Your Pest Management Plan?

Name Bill Jones Occupation Independent Crop Consultant

Company Name BJ Consulting Location Friendship, WI

Who Assists You with Pest Management Decisions?

Bill Jones

Are Fields Scouted Regularly for Pests?

Weeds Yes No By Whom? Bill How Often? Weekly in Spring
Insects Yes No By Whom? _____ How Often? _____
Diseases Yes No By Whom? _____ How Often? _____

Are pesticides with different modes of action rotated to control the same weeds in a crop? Yes No

How are Pesticides Handled on Your Farm including Application, Transportation, Storage, Loading and Disposal?

I have farmer's elevator apply herbicides on my farm. I do some spot spraying. These herbicides are mixed away from the well. I have anti-siphoning devices on my well. Herbicides are stored in a locked building.

Do You Have Any Pesticide Applicator Licenses? Yes No

Restricted Use Pesticide Applicator's License

Do You Calibrate Your Sprayer? Yes No When? In the spring before I begin

spraying weeds.

Pest Concerns

Pests	Crop(s) and/or Fields		
<u>Weeds</u>	<u>Corn on home fields</u>	<u>Corn on Rented gr</u>	<u>Soybeans</u>
Grasses Wee		d Density*	
Foxtail	<i>High</i>	<i>Medium</i>	<i>High</i>
<u>W. Proso Millet</u>	<i>Low</i>	<i>High</i>	<i>Low</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Broadleaves			
Lamb squarters	<i>H</i>	<i>M</i>	<i>M</i>
Pigweed d	<i>L</i>	<i>L</i>	<i>M</i>
R agweed	<i>L</i>	<i>L</i>	<i>M</i>
Velvetleaf	<i>M</i>	<i>L</i>	<i>H</i>
<u>Cocklebur</u>	<i>L</i>	<i>L</i>	<i>H</i>
_____	_____	_____	_____
_____	_____	_____	_____
Perennials			
Quac kgrass	<i>L</i>	<i>H</i>	<i>M</i>
_____	_____	_____	_____
_____	_____	_____	_____
Insects	Insect and Disease Thresholds Exceeded?		
<u>Corn Rootworms</u>	<i>Y</i>	<i>Y</i>	_____
E. <u>Combowers</u>	<i>Y</i>	<i>Y</i>	_____
_____	_____	_____	_____
Diseases			
White Mold	_____	_____	<i>Y</i>
_____	_____	_____	_____
_____	_____	_____	_____

Denote H = High M = Moderate L = Low

Notes W. Proso Millet Pressure is a major concern on rented land, as are rootworms. These fields were continuous corn for 10 years.

Pest Control Practices

Crop Corn Fields T-3168 (home farm) 1, 2, 3

Weed Control Practices

Herbicides Used		Application Information				
Trade Name/Formulation	Common Name	Rate	* Lbs. of a.i	Timing	Band	Method Broadcast
<i>Dual II Magnum</i>	<i>Metolachlor</i>	<i>1.33 pts</i>		<i>PRE E</i>		<i>X</i>
<i>Atrazine 90 DR</i>	<i>Atrazine</i>	<i>1.1 lbs.</i>	<i>0.99</i>	<i>PRE E</i>		<i>X</i>
<i>Accent 75sp</i>	<i>Nicsulfuron</i>	<i>2/3 oz.</i>		<i>POST</i>	<i>Spot app</i>	

Cultural Practices

Cultivation Yes No Crop Rotation Yes No

Other _____ Other _____

Notes _____

Insect Control Practices

Insecticides Used		Application Information				
Trade Name/Formulation	Common Name	Rate	* Lbs. of a.i	Timing	Band	Method Broadcast
<i>Thimet 20G</i>	<i>Phorate</i>	<i>6 oz/1000'</i>		<i>Planting</i>	<i>X</i>	

Cultural Practices

Crop Rotation Yes No Other _____

Notes Thimet is used when corn is the previous crop. Have noticed a problem with skips in control.

Planter Boxes may be worn.

*computing pounds of active ingredient applied is optional

Disease Control Practices

Chemical Control

Trade Name/Formulation	Common Name	Rate	Application Information			Method Broadcast
			* Lbs. of a.I	Timing	Band	
<i>None used</i>						

Cultural Control Practices

Crop Rotation Yes No Variety Selection Yes No

Other _____ Other _____

Notes I have some problems with white mold on soybeans. I have been selecting resistant varieties.

EXAMPLE

Notes I plan to switch to no till soybeans, including some roundup ready soybeans. I will be trying some IR corn on 20 acres.

*computing pounds of active ingredient applied is optional

Part V:

PEST MANAGEMENT PLAN

Operator _____

Crop Year _____

The goal of the pest management plan for this farm is to manage agricultural pest infestations including weeds, insects and diseases in a manner that improved plan growth and crop production while minimizing negative environmental impacts.

Crop _____ Field & Soils Maps?: Y N IPM Scouting Records?: Y N

Target Pest(s) **Weeds** _____

Insects _____

Diseases _____

Planned Control Practices: When control practices are applied, include date. Otherwise revise plan with alternative actions and dates.

CHEMICAL CONTROL (HERBICIDES, INSECTICIDES, FUNGICIDES)

Field(s)	Product Name/Formulation	Rate	Timing			Placement		
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot

CULTURAL CONTROL

Field(s)	Cultivation	Crop Rotation	Resistant Varieties

BIOLOGICAL CONTROL

WIN-PST & MITIGATION ANALYSIS SHOW ADEQUATE PRACTICE? YES NO

CROP: _____ FIELD No. _____ ACRES: _____ SOIL TYPES: _____

SENSITIVE FEATURES REQUIRING ADDITIONAL MITIGATION FOR PESTICIDE ALTERNATIVES

FEATURES	PESTICIDE ALTERNATIVES							
WIN-PST anal. & other sens. Soils	1. 2.				3. 4.			
Human/Fish HR: X,H,I?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Soil Leaching/Runoff HR: X,H, I?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
< 1 ft. soil over water table*?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
<1.7 ft. soil over fractured bedrock*?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Adjacent to Surface Waters								
Wetlands?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Lakes?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Streams?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Other Sensitive Features								
Wells?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Tile Inlets?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Sinkholes?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Exposed Aquifers?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						
Waterways?	<input type="checkbox"/> Yes	<input type="checkbox"/> No						

* See WI Cons. Planning Tech Note 1, Appendix 1, for a list of soils with high leaching potential

Pesticide Treatment Planned: _____

One or more Conservation Practices and Management Techniques are required to mitigate pesticide impacts on water quality when one or both of the following conditions occur as determined by WIN-PST analysis:

1. An I, H, or X toxicity Human Hazard or Fish Hazard Rating: _____ Human HR _____ Fish HR
2. An I, H, or X potential to move off-site: _____Leaching HR and/or _____Runoff HR.

From the list below, select management techniques and conservation practices that has the potential to mitigate pesticide impacts on water quality for each pesticide treatment planned for this field. A more complete list of techniques and practices is found in Part II, Mitigation Effectiveness Guide, Technical Note 2.

- | | | |
|-------------------------------|-----------------------------|-----------------------|
| _IPM | Application Timing | Lower Appl. Rates |
| Partial Treatment | Filter Strip (393) | Setbacks |
| Substitution | Diversion (362) | Cons. Crop Rot. (328) |
| Crop Residue Mgt (329a, b, c) | Terraces (600) | Field Border (386) |
| Irr Water Mgt (449) | Sediment Basin (350) | Contour Farming (330) |
| Contour Buffer Strip (332) | Grassed Waterway (412) | Other |
| Grassed Waterway (412) | Contour Stripcropping (585) | Other |

PEST MANAGEMENT PLAN

Operator Ned Flanders

Crop Year 2004

The goal of the pest management plan for this farm is to manage agricultural pest infestations including weeds, insects and diseases in a manner that improved plan growth and crop production while minimizing negative environmental impacts.

Crop 40 ac. NT Soybeans Field & Soils Maps?: Y N IPM Scouting Records?: Y N

Target Pest(s) Weeds Foxtail, Wild Proso Millet, Lambsquarters, Cocklebur

Insects _____

Diseases White Mold

Planned Control Practices: When control practices are applied, include date. Otherwise revise plan with alternative actions and dates.

CHEMICAL CONTROL (HERBICIDES, INSECTICIDES, FUNGICIDES)

Field(s)	Product Name/Formulation	Rate	Timing			Placement		
1, 2, 3	<i>Extreme or</i>	3 pt	PPI	PreE	Post	Band	BC	Spot
1, 2, 3	<i>Raptor and</i>	5.0 oz	PPI	PreE	Post	Band	BC	Spot
1, 2, 3	<i>Poast Plus</i>	1.5 pt	PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot
			PPI	PreE	Post	Band	BC	Spot

CULTURAL CONTROL

Field(s)	Cultivation	Crop Rotation	Resistant Varieties
8, 9	No	Yes	Partially resistant
			50% acres Roundup
			Ready Sb

BIOLOGICAL CONTROL

WIN-PST & MITIGATION ANALYSIS SHOW ADEQUATE PRACTICE? YES NO

CROP: NT SOYBEAN FIELD No. 1, 2, 3 ACRES: 40 SOIL TYPES: KNB

SENSITIVE FEATURES REQUIRING ADDITIONAL MITIGATION FOR PESTICIDE ALTERNATIVES

FEATURES	PESTICIDE ALTERNATIVES							
	Cobra Extreme				Raptor		Poast Plus	
WIN-PST anal. & other sens. Soils								
Human/Fish HR: X,H,I?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Soil Leaching/Runoff HR: X,H, I?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
< 1 ft. soil over water table*?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<1.7 ft. soil over fractured bedrock*?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Adjacent to Surface Waters								
Wetlands?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Lakes?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Streams?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Other Sensitive Features								
Wells?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Tile Inlets?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Sinkholes?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exposed Aquifers?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Waterways?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

* See WI Cons. Planning Tech Note 1, Appendix 1, for a list of soils with high leaching potential

Pesticide Treatment Planned: Extreme, or Raptor + Poast Plus

One or more Conservation Practices and Management Techniques are required to mitigate pesticide impacts on water quality when one or both of the following conditions occur as determined by WIN-PST analysis:

- An I, H, or X toxicity Human Hazard or Fish Hazard Rating: _____ Human HR _____ Fish HR
- An I, H, or X potential to move off-site: X (Extreme) Leaching HR and/or X Runoff HR.

From the list below, select management techniques and conservation practices that has the potential to mitigate pesticide impacts on water quality for each pesticide treatment planned for this field. A more complete list of techniques and practices is found in Part II, Mitigation Effectiveness Guide, Technical Note 2.

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> IPM | <input type="checkbox"/> Application Timing | <input type="checkbox"/> Lower Appl. Rates |
| <input checked="" type="checkbox"/> Partial Treatment | <input type="checkbox"/> Filter Strip (393) | <input type="checkbox"/> Setbacks |
| <input type="checkbox"/> Substitution | <input type="checkbox"/> Diversion (362) | <input checked="" type="checkbox"/> Cons. Crop Rot. (328) |
| <input checked="" type="checkbox"/> Crop Residue Mgt (329a, b, c) | <input type="checkbox"/> Terraces (600) | <input type="checkbox"/> Field Border (386) |
| <input type="checkbox"/> Irr Water Mgt (449) | <input type="checkbox"/> Sediment Basin (350) | <input type="checkbox"/> Contour Farming (330) |
| <input type="checkbox"/> Contour Buffer Strip (332) | <input checked="" type="checkbox"/> Grassed Waterway (412) | <input type="checkbox"/> Other |
| <input type="checkbox"/> Grassed Waterway (412) | <input type="checkbox"/> Contour Stripcropping (585) | <input type="checkbox"/> Other |

595 Pest Mgt Plan based on WI WIN-PST Hazard Rating Quick Reference Table. Name _____

YEAR		PREVIOUS YEAR'S PEST MANAGEMENT PRACTICES				
Field (s) ID					Total acreage:	
Crop: corn						
Targeted pest(s)	Pesticide (s) and rate used	Pesticide application type	Mode of action (MOA)	Rotation interval (<i>months and crop</i>)		
Insects						
Disease						

YEAR		CURRENT YEAR PEST MANAGEMENT OPTIONS						
Field (s) ID					Total acreage			
Crop					----- Pesticide Label Restrictions -----			
Targeted pest(s)	Pesticide (s) and rate used	Pesticide application	*RUP?	MOA	Rotation interval (<i>months and crop</i>)	**PHI	Setbacks	Prohibitions
Weeds –								
Insects and thresholds								
Disease								

WIN-PST HAZARD RATINGS			MITIGATION PRACTICES
Pesticide	Water Resource		List practices if WIN-PST hazard rating is Intermediate, High, or eXtra high
	Surface	Groundwater	

*RUP = Restricted Use Pesticide. **PHI = Pre-harvest interval.

595 Pest Management Plan Narrative

Describe, briefly, what non-pesticide options were evaluated during the pest management planning period. Record any changes from the pest management plan that occurred. Attach pesticide application records to this document.

595 Pest Mgt Plan based on WI WIN-PST Hazard Rating Quick Reference Table. Name _____

YEAR 2003		PREVIOUS YEAR'S PEST MANAGEMENT PRACTICES		
Field (s) ID Field 1,2, 3		Total acreage: 40 ac		
Crop: corn				
Targeted pest(s)	Pesticide (s) and rate used (1)	Pesticide application type	Mode of action (MOA)	Rotation interval (months and crop)
Weeds - Foxtail, W.P. Millet, Cocklebur, Lambsquarter	1.1 # Atrazine 90DF, 1.33 pts Dual, & 2/3 oz. Accent 75 sp	Pre e, Pre e, & Post	Atrazine – photosyn. Inhib, metolachlor – s. sh. Inhib., nicosulfuron -ALS	Atrazine: Sb – 1 year, alf. – 2 year; Dual: none, Accent: Sb – 15 day, alf. – 10 mo.
Insects				
Disease				

YEAR 2004		CURRENT YEAR PEST MANAGEMENT OPTIONS						
Field (s) ID		Total acreage 40 ac (20 ac + 20 ac)						
Crop		----- Pesticide Label Restrictions -----						
Targeted pest(s)	Pesticide (s) and rate used (1)	Pesticide application	*RUP?	MOA	Rotation interval (months and crop)	**PHI	Setbacks	Prohibitions
Weeds – Foxtail, W.P. Millet, Cocklebur, Lambsquarter	3 pint Extreme (glyphosate, imazethapyr) 5 oz. Raptor + 1.5 pint Poast Plus	Extreme: post; brdcst Raptor:post, brdcast Poast Plus: spot	No No No	ALS ALS ACC-ace	8.5 mo.: corn alfalfa: 4 mo. 18 mo.: oats & sweet corn	85 days 85 days 85 days	None	None
Insects and thresholds – soybean aphid								
Disease – white mold								

WIN-PST HAZARD RATINGS			MITIGATION PRACTICES
Pesticide	Water Resource		List practices if WIN-PST hazard rating is Intermediate, High, or eXtra high
	Surface	Groundwater	
Extreme (glycophate)	L	L	
Extreme (pursuit)	L	L	
Raptor	L	L	
Poast Plus	L	L	

(1) See UWEX Publication A3646 “Pest Management in Wisconsin Field Crops” 2004 or label
 *RUP = Restricted Use Pesticide. **PHI = Pre-harvest interval.

595 Pest Management Plan Narrative

Describe, briefly, what non-pesticide options were evaluated during the pest management planning period. Record any changes from the pest management plan that occurred. Attach pesticide application records to this document.

1. Soybean varieties were planted that are partially resistant to white mold disease.
2. Twenty acres (50%) were planted to Roundup Ready soybeans and then treated with 3 pints/ac of Extreme herbicide. The other 20 acres were treated with 5 oz./ac of Raptor and 1.5 pint/ac of Poast Plus.
3. IPM scouting for soybean aphid was done according to procedures outlined in UWEX Publication A3646 "Pest Management in Wisconsin field Crops".
4. A Plan map and soil map of Fields 1, 2 and 3 are attached.

PEST MANAGEMENT PLAN (PMP) CHECKLIST

For Following Wisconsin's NRCS 595 Pest Management Standard (6/2003)

County name: _____ Date Plan Submitted: _____ Growing season year PMP is written for _____

Township (T. _____, S. _____) – (R. _____ E., W.) Initial Plan or Update (check one)

Name of qualified pest management planner Circle the planner's qualification: 1-NAICC; 2-CCA; 3-ARCPACS – Agronomist, Crop Specialist, Crop Scientist, Soil Specialist, Soil Scientist, or Weed Scientist. 4-NRCS - TSP	Planner's business name, address, phone: 	
	Cropland acres	Name of farmer receiving pest management plan:

Wisconsin PMP Requirements based on NRCS 595 Pest Management Standard (6/2003) and WI Planning Technical Note 2, Part 1.

	Responsible party	Yes	No	Comments
1. Farm Aerial Photographs or Maps a. Photos or maps indicate field boundaries, field ID, acreage, for crop fields, pastures, woodlands, etc. with a pest management plan? b. Field ID consistent with conservation plan and nutrient management plan. If not, is a cross list provided? c. Have the locations of sensitive species, ground and surface water risk areas, and setbacks been identified? d. Are all permanent pesticide mixing, loading, storage and supply areas identified? e. Are all pesticide mixing, loading, storage and supply areas at least 100 feet from any well or surface water body (unless mixing and loading is conducted over a spill containment surface)?	Conservation staff	a.	a.	
2. Planned Pest Management Practices a. Are the crop and targeted pests documented? b. Are the fields scouted for pests and crop conditions? c. Have pest thresholds been identified? d. Have other pest management alternatives been considered? e. Do herbicide modes of action differ from the prior year?	Farmer/Planner	a.	a.	
3. If the plan includes pesticide use, does it identify; a. Fields where the application will occur? b. Crop planted? c. Target pest? d. Pesticide formulation, rate and method of application? e. Date and time of application will be recorded? f. Are changes from planned treatments documented?	Farmer/Planner	a.	a.	
4. Pesticide Risk Assessment a. Has NRCS WIN-PST been used for the risk analysis? b. If not, was the WI WIN-PST Quick Reference Table used? c. If appropriate, are mitigation techniques identified on the plan?	Farmer/Planner	a.	a.	

I certify that the PMP *does / does not* meet the minimum requirements of Wisconsin's NRCS 595 pest management standard (6/03). *Signature of certified pest management planner* _____

Date: _____

Appendix 1

Wisconsin County Codes

County	Location Codes	
Adams	55	001
Ashland	55	003
Barron	55	005
Bayfield	55	007
Brown	55	009
Buffalo	55	011
Burnett	55	013
Calumet	55	015
Chippewa	55	017
Clark	55	019
Columbia	55	021
Crawford	55	023
Dane	55	025
Dodge	55	027
Door	55	029
Douglas	55	031
Dunn	55	033
Eau Claire	55	035
Florence	55	037
Fond du Lac	55	039
Forest	55	041
Grant	55	043
Green	55	045
Green Lake	55	047
Iowa	55	049
Iron	55	051
Jackson	55	053
Jefferson	55	055
Juneau	55	057
Kenosha	55	059
Kewaunee	55	061
La Crosse	55	063
Lafayette	55	065
Langlade	55	067
Lincoln	55	069
Manitowoc	55	071

County	Location Codes	
Marathon	55	073
Marinette	55	075
Marquette	55	077
Menominee	55	078
Milwaukee	55	079
Monroe	55	081
Oconto	55	083
Oneida	55	085
Outagamie	55	087
Ozaukee	55	089
Pepin	55	091
Pierce	55	093
Polk	55	095
Portage	55	097
Price	55	099
Racine	55	101
Richland	55	103
Rock	55	105
Rusk	55	107
St. Croix	55	109
Sauk	55	111
Sawyer	55	113
Shawano	55	115
Sheboygan	55	117
Taylor	55	119
Trempealeau	55	121
Vernon	55	123
Vilas	55	125
Walworth	55	127
Washburn	55	129
Washington	55	131
Waukesha	55	133
Waupaca	55	135
Wausara	55	137
Winnebago	55	139
Wood	55	141

Appendix 2

WIN-EST SOIL / PESTICIDE INTERACTION LOSS POTENTIAL and HAZARD RATINGS REPORT

Soils Data Table: SOIL_WI Sort Order: NOSYM
Pesticide Data Table Sort Order: NAME

SOILS

PESTICIDES	KnB: KEWAUNEE SIL 100%	MbA: MANAWA SIL 100%
	HYDRO: C	HYDRO: C
	Adams County,	Adams County,
	Wisconsin: WI001	Wisconsin: WI001

2,4-D AMINE 6 REG_NO: 0427500021

66.20% Dimethylamine 2,4-dichlorophenoxyacetate

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L	L	V	H (w)	L	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	I		V	I		V

AATREX NINE-0 HERBICIDE REG_NO: 00010000585

88.20% Atrazine (ANSI)

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	I	H	I	H (w)	H	I
Solution Runoff (ISRP):	H	H	I	H	H	I
Adsorbed Runoff (IARP):	H		L	H		L

ACCENT GOLD HERBICIDE REG_NO: 00035200593

51.70% Clopyralid (ANSI)

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	I	V	V	H (w)	L	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	I		V	I		V

6.50% Nicosulfuron (ANSI)

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
pH 7						
Leaching (ILP):	I	V	V	H (w)	L	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	I		V	I		V

6.50% Rimsulfuron (ANSI)

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	L	V	V	H (w)	L	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	I		V	I		V

19.10% Flumetsulam (ANSI)

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
pH 7						
Leaching (ILP):	I	V	V	H (w)	L	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	H		L	H		L

BICEP MAGNUM REG_NO: 00010000886

33.70% Atrazine (ANSI)

	Loss Potential	Human Hazard
Leaching (ILP):	I	H
Solution Runoff (ISRP):	H	H
Adsorbed Runoff (IARP):	H	

26.10% S-Metolachlor (ISO Approved common name)
Missing Data.

COBRA 25 HERBICIDE REG_NO: 05963900113

25.00% Lactofen (ANSI)

	Loss Potential	Human Hazard
Leaching (ILP):	L	I
Solution Runoff (ISRP):	I	H
Adsorbed Runoff (IARP):	H	

DUPONT HARMONY HERBICIDE REG_NO: 00035200446

75.00% Thifensulfuron methyl

	Loss Potential	Human Hazard
pH 6		
Leaching (ILP):	L	L
Solution Runoff (ISRP):	H	L
Adsorbed Runoff (IARP):	I	

EXTREME CP HERBICIDE REG_NO: 00024100406

20.50% Glyphosate, isopropylamine salt

	Loss Potential	Human Hazard
Leaching (ILP):	V	V
Solution Runoff (ISRP):	H	L
Adsorbed Runoff (IARP):	H	

35.00% Imazethapyr (ANSI)

13.00% Sethoxydim

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
pH 7						
Leaching (ILP):	L	V	L	I (w)	V	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	I		L	I		L

PURSUIT HERBICIDE REG_NO: 00024100310

22.87% Imazethapyr, ammonium salt

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	I	V	V	H (w)	L	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	H		L	H		L

RAPTOR HERBICIDE REG_NO: 00024100379

12.10% Imazamox

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	I	V	V	H (w)	L	L
Solution Runoff (ISRP):	H	L	L	H	L	L
Adsorbed Runoff (IARP):	H		L	H		L

REFLEX HERBICIDE REG_NO: 00010000993

22.80% Fomesafen Sodium

	Loss Potential	Human Hazard	Fish Hazard	Loss Potential	Human Hazard	Fish Hazard
Leaching (ILP):	I	H	V	H (w)	H	L
Solution Runoff (ISRP):	H	H	L	H	H	L
Adsorbed Runoff (IARP):	H		L	H		L

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X -- eXtra high
 H -- High
 I -- Intermediate
 L -- Low
 V -- Very low

SPISP II I-Ratings:

ILP -- Soil / Pesticide Interaction Leaching Potential
 ISRP -- Soil / Pesticide Interaction Solution Runoff Potential
 IARP -- Soil / Pesticide Interaction Adsorbed Runoff Potential

Conditions that affect ratings:

(none) -- Broadcast application (default); applied to more than 1/2 the field
 b -- Banded application; applied to 1/2 the field or less

(none) -- Surfaces applied (default); applied to the soil surface
 i -- Soil incorporated; with light tillage or irrigation
 f -- Foliar application; directed spray at nearly full crop/weed canopy

(none) -- Standard application rate (default); greater than 1/4 lb/acre
 l -- Low rate of application; 1/10 to 1/4 lb/acre
 -- Ultra Low rate of application; 1/10 lb/acre or less

m -- There are macropores in the surface horizon deeper than 24"
 w -- The high water table comes within 24" of the surface during the growing season
 s -- The field slope is greater than 15%

r -- Residue management

<hl> -- High probability of rain, Low efficiency irrigation
 <lh> -- Low probability of rain, High efficiency irrigation
 <ln> -- Low probability of rain, No irrigation

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Wisconsin WIN-PST Hazard Rating Quick Reference Table

Pesticides		Hazard Ratings of Pesticides by Subsoil Group (A2809) ⁽¹⁾									
		“A” southern forested medium and fine textured soils		“B” southern prairie medium and fine textured soils		“C” red medium and fine textured soils		“D” northern medium and fine textured soils		“E” sandy coarse textured soils	
		Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
Active ingredient common name	Trade name example	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
HERBICIDES^(2,3)											
2,4-D	various	L	L	L	L	L	L	L	L	L	L
2,4-DB	various	L	L	L	L	L	L	L	L	L	L
acetochlor	Harness	I	I	L-I	I	L-I	I	L-I	I	I	L
acifluorfen	Ultra Blazer	*	*	*	*	*	*	*	*	*	*
alachlor	Lasso	H	H	I-H	I-H	H	H	I-H	H	H	I
aminopyralid	Milestone	V	V	V	V	V	V	V	V	V	V
atrazine	Aatrex	H	H	H	H	H	H	H	H	H	H
bensulide	Prefar	I	I	L-I	I	L-I	I	L-I	I	I	L
bentazon	Basagran	*	*	*	*	*	*	*	*	*	*
bromoxynil	Buctril	V	I	V	I-H	L	I-H	L	I-H	L	I
carfentrazone	Aim	V	V	V	L-I	V	L-I	V	L-I	V	L
chlorimuron	Classic	V	L	V	L	V	L	V	L	L	L-I
clethodim	Select	V	L	V	L	L	L	L	L	L	L
clopyralid	Stinger	V	V	V	V	L	V	L	V	L	V
cloransulam	FirstRate	V	V	V	V	V	V	V	V	V	V
clomazone	Command	V	V	V	L	L	L	L	L	L	V
cycloate	Ro-Neet	I	I	L-I	I	L-I	I	L-I	I	I	I
dicamba	Banvel	L	V	L	L	L	L	L	L	L	L
diflufenzopyr in	Distinct	V	V	V	V	V	V	V	V	V	V
dimethenamid	Outlook	I	I	L-I	I	L-I	I	L-I	I	I	L
diquat	Reglone	V	L	V	L-I	L	L-I	L	L-I	L	L
EPTC	Eptam	V	V	V	V	V	V	V	V	V	V
fenoxaprop in	Fusion	V	L	V	L-I	L	L-I	L	L-I	L	L
fluzifop	Fusilade	V	L	V	L	L	L-I	L	L	L	L
flufenacet	Define	I	I	I	I	I	I	I	I	I	I
flumetsulam	Python	V	V	V	V	V	V	V	V	V	V

⁽¹⁾ To identify the subsoil group of a specific soil name, see UWEX publication A2809 “Nutrient application guidelines for field, vegetable and fruit crops in Wisconsin”, table 4.1, pp 12-21.

⁽²⁾ WIN PST hazard ratings: V = very low, L = Low, I = intermediate, H = high, and X = extra high

⁽³⁾ * = Missing data from WIN-PST

Wisconsin WIN-PST Hazard Rating Quick Reference Table

Pesticides		Hazard Ratings of Pesticides by Subsoil Group (A2809) ⁽¹⁾									
		“A” southern forested medium and fine textured soils		“B” southern prairie medium and fine textured soils		“C” red medium and fine textured soils		“D” northern medium and fine textured soils		“E” sandy coarse textured soils	
Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
HERBICIDES^(2,3) -continued											
flumiclorac	Resource	V	L	V	L	V	L	V	L	V	L
flumioxazin	Valor	V	L	V	L-I	V	L-I	V	L-I	V	L
fluroxypyr	Starane	V	V	V	L	V	L	V	L	V	V
fomesafen	Flexstar	H	H	I-H	H	I-H	H	I-H	H	H	I
foramsulfuron	Option	V	V	V	V	V	V	V	V	V	V
glyphosate	Roundup	V	V	V	L	V	L	V	L	V	V
glufosinate	Liberty	V	V	V	V	V	V	V	V	V	V
halosulfuron	Permit	V	V	V	V	V	V	V	V	V	V
hexazinone	Velpar	L	L	L	L	L	L	L	L	L	V
imazamox	Raptor	V	V	V	V	V	V	V	V	V	V
imazapic	Plateau	V	V	V	V	V	V	V	V	V	V
imazapyr	in Lighting	V	V	V	V	V	V	V	V	V	V
imazethapyr	Pursuit	V	V	V	V	V	V	V	V	V	V
lactofen	Cobra	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
linuron	Lorox	H	H	I-H	H	I-H	H	I-H	H	H	H
MCPA	various	I	I	I	I-H	I-H	I-H	I-H	I-H	H	I
MCPB	Thistrol	V	L	V	L	L	L	L	L	L	L
mesotrione	Callisto	I	L	L-I	L-I	L-I	L-I	L-I	L-I	I	L
metholachlor	Dual	L	I	L	I	L	I	L	I	L	I
metribuzin	Sencor	L	L	L	L	L	L	L	L	L	V
metsulfuron	Cimarron	V	V	V	V	V	V	V	V	V	V
napropamide	Devrinol	V	V	V	L	L	L	L	L	L	V
naptalam	Alanap	L	V	L	V	L	V	L	V	L	V
nicosulfuron	Accent	V	V	V	V	V	V	V	V	V	V
oxyfluorfen	Goal	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
paraquat	Gramoxone	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I

⁽¹⁾ To identify the subsoil group of a specific soil name, see UWEX publication A2809 “Nutrient application guidelines for field, vegetable and fruit crops in Wisconsin”, table 4.1, pp 12-21.

⁽²⁾ WIN PST hazard ratings: V = very low, L = Low, I = intermediate, H = high, and X = extra high

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Wisconsin WIN-PST Hazard Rating Quick Reference Table

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Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
HERBICIDES^(2,3) -continued											
pendimethalin	Prowl	L	H	L	H	L	H	L	H	L	I
primisulfuron	Beacon	L	L	L	L-I	L-I	L-I	L-I	L-I	I	L
prometryn	Caparol	V	L	V	L	L	L	L	L	L	V
pro sulfuron	Peak	V	V	V	V	V	V	V	V	V	V
pyrazon	Pyramin	V	V	V	L	L	L	L	L	L	V
quizalofop	Assure	L	I*	L	I-H*	L-I	I-H*	L-I	I-H*	I	I*
rimsulfuron	Matrix	V	V	V	V	V	V	V	V	V	V
sethoxydim	Poast	V	L	V	L	V	L	V	L	V	L
simazine	Princep	H	H	H	H	H	H	H	H	H	H
s-metolachlor	Dual II	L	I	L	I	L	I	L	I	L	I
sulfentrazone	Authority	L	L	L	L	L	L	L	L	L	L
sulfuric acid	various	*	*	*	*	*	*	*	*	*	*
tebuthiuron	Spike	V	V	V	V	V	V	V	V	V	V
terbacil	Sinbar	L	L	L	L	L	L	L	L	L	L
thifensulfuron	Harmony GT	V	L	V	L	L	L	L	L	L	L
topramezone	Impact	L	L	L	L-I	L-I	L-I	L-I	L-I	I	L
tribenuron	Express	L	I	L	I-H	L-H	I-H	L-I	I-H	I	I
triclopyr	Garlon	V	V	V	L	L	L	L	L	L	V
trifluralin	Treflan	I	I-H	I	H-X	I-H	H-X	I-H	H-X	H	H
INSECTICIDES^(2,3)											
abamectin	Agri-Mek	L	H	L	H-X	L-I	H-X	L-I	H-X	I	H
acepahte	Orthene	L	I	L-I	I-H	L-I	I-H	L-I	I-H	I	I
acetamiprid	Assail	V	V	V	V	V	V	V	V	V	V
azadirachtin	Azatin, Neemix	V	I	V	I-H	V	I-H	V	I-H	V	I
azinphos-methyl	Guthion	V	H	V	H-X	L	H-X	L	H-X	L	H
Bt	Agree, Xen Tari	V	L	V	L	V	L	V	L	V	L

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Wisconsin WIN-PST Hazard Rating Quick Reference Table

Pesticides		Hazard Ratings of Pesticides by Subsoil Group (A2809) ⁽¹⁾									
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Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
INSECTICIDES^(2,3) - continued											
bifenazate	Acramite	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
bifenthrin	Capture	V	H	V	H-X	L	H-X	L-I	H-X	L	H
carbaryl	Sevin	L	I	L	I	L-I	I	L-I	I	I	L
carbofuran	Furadan	I	H	L-I	H	L-I	H	L-I	H	I	I
chlorpyrifos	Lorsban	V	H	V	H-X	L	H-X	L	H-X	L	H
clothianidin	Poncho	L	L	L	L	L	L	L	L	L	L
cyfluthrin	Baythroid	V	H	V	H-X	V	H-X	V	H-X	V	H
cypermethrin	Ammo, Cymbush	L	H	L	H-X	L-I	H-X	L-I	H-X	I	H
deltamethrin	Decis	V	H	V	H-X	L	H-X	L	H-X	L	H
diazinon	various	H	X	H	X	H-X	X	H-X	X	X	X
dimethoate	Cygon	H	H	H-X	H-X	H-X	H-X	H-X	H-X	X	H
disulfoton	Dsyston	H	H-X	H	X	H-X	X	H-X	X	X	H
emamectin benzoate	Proclaim	L	I	L	I-H	L	I-H	L-I	I-H	I	I
endosulfan	Thiodan	V	L*	V	L-I*	L	L-I*	L	L-I*	L	L*
esfenvalerate	Asana	V	V*	V	V*	V	V*	V	V*	V	V*
ethoprop	Mocap	I	H	L-I	H-X	L-I	H-X	L-I	H-X	I	H
etoxazole	Zeal	V	L	V	L-I	V	L-I	V	L-I	V	L
fenpropathrin	Danitol	V	H	V	H-X	V	H-X	V	H-X	V	H
fipronil	Regent	I	H	I	H-X	I-H	H-X	I-H	H-X	H	H
imadacloprid	Gaucho/Leverage	V	V	V	L	L	L	L	L	L	V
indoxacarb	Avaunt	V	I	V	L-H	V	I-H	V	I-H	V	I
lambda-cyhalothrin	Warrior	L-I	H	L	H-X	L-I	H-X	L-I	H-X	I	H
lindane	Lindane	I	H	I	H-X	I-H	H-X	I-H	H-X	H	H
malathion	Various	V	H	V	H-X	L	H-X	L	H-X	L	H
methamidophos	Monitor	I	I	I	I-H	I-H	I-H	I-H	I-H	H	I
methomyl	Lannate	V	L	V	L-I	L	L-I	L	L-I	L	L

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Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
INSECTICIDES^(2,3)-continued											
methoprene	Diacon II	V	L	V	L-I	V	L-I	V	L-I	V	L
methoxyfenozide	Intrepid	V	V	V	L	L	L	L	L	L	V
methyl parathion	PennCap-M	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
naled	Dibrom	V	L	V	L-I	L	L-I	L	L-I	L	L
oxmyl	Vydate	V	L	V	L	V	L	L	L	L	L
oxydemeton-methyl	Metasystox-R	H	I	I-H	I-H	I-H	I-H	I-H	I-H	H	I
permethrin	Pounce/Ambush	V	H	V	H-X	L	H-X	L	H-X	L	H
phorate	Thimet	L	X	L	X	L-I	X	L-I	X	I	H
phosmet	Imidan	L	I	L-I	I-H	L-I	I-H	L-I	I-H	I	I
piperonyl butoxide	Incite	*	*	*	*	*	*	*	*	*	*
pymetrozine	Fulfill	L	I	L-I	I-H	L-I	I-H	L-I	I-H	I	I
pyrethrin	Pyrenone	V	I	V	I-H	L	I-H	L	I-H	L	I
pyridazinone	Pyramite	*	*	*	*	*	*	*	*	*	*
rotenone	Rotenone	V	I	V	I-H	L	I-H	L	I-H	L	I
spinosad	Tracer	V	V	V	V	V	V	V	V	V	V
tebufenozide	Confirm	V	L	V	L	L	L	L	L	L	L
tebuprimphos	in Aztec	*	*	*	*	*	*	*	*	*	*
tefluthrin	Force	V	H	V	H-X	L	H-X	L	H-X	L	H
terbufos	Counter	I	H	I	H-X	I-H	H-X	I-H	H-X	H	H
thiamethoxam	Cruiser	I	I	I	I-H	I-H	I-H	I-H	I-H	H	I
thiodicarb	larvin	V	I	V	I	L	I	L	I	L	L
zeta-cypermethrin	Mustang	L	H	L	H-X	L-I	H-X	L-I	H-X	I	H
FUNGICIDES^(2,3)											
avermectin B1	Agri-Meko	*	*	*	*	*	*	*	*	*	*
azoxystrobin	Quadris, Amistar	V	L	V	L	V	L	V	L	V	L
boscalid	Endura	V	L	V	L	V	L	V	L	V	L

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Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
FUNGICIDES^(2,3)-continued											
captan	Captan	V	L	V	L-I	V	L-I	V	L-I	V	L
chlorothalonil	Bravo/Echo	V	I	V	I-H	L	I-H	L	I-H	L-I	I
copper hydroxide	Champ./Kocide	V	I	V	I-H	V	I-H	V	I-H	V	I
copper sulfate	Cuprofix	V	H	V	H	V	H	V	H	V	I
cyazofamid	Ranman 400SC	V	L	V	L	V	L	V	L	V	L
cymoxanil	in Curzate, Tanos	V	L	V	L-I	L	L-I	L	L-I	L	L
cyprodinil	in Switch	V	L	V	L	V	L	V	L	V	L
dimethomorph	Acrobat	V	I	V	I	V	I	V	I	V	L
famoxadone	in Tanos	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
fentin hydroxide	Super Tin	I	X	I	X	I-H	X	I-H	X	H	H
fluzazinam	Omega	V	H	V	H-X	L	H-X	L	H-X	L	H
fludioxonil	in Maxim MZ	V	L	V	L-I	V	L-I	V	L-I	V	L
fluxastrobin	Evito	V	I	V	I	V	I	V	I	V	L
flutolanil	Moncoat	V	L	V	L	V	L	V	L-I	V	L
iprodione	Rovral	L	H	L-I	H	L-I	H	L-I	H	I	I
mancozeb	in Dithane Manzate Penncozeb Gavel	L	H	L	H	L-I	H	L-I	H	I	I
maneb	Manex	L	H	L	H	L-I	H	L-I	H	I	I
mefenoxam	Ridomil Gold	V	L	V	L-I	V	L-I	V	L-I	V	L
metalaxyl	Ridomil	V	V	V	V	V	V	V	V	V	V
metam sodium	Vapam	H	I-H	I-H	I-H	I-H	I-H	I-H	I-H	H	I
myclobutanil	Nova	V	L	V	L	V	L	V	L	V	L
metiram	Polyram	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
PNCB	Blocker	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
propamcarb hydrochloride	Previcur Plus	V	V	V	V	V	V	V	V	V	V

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Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
FUNGICIDES^(2,3) - continued											
propiconazole	Tilt	I	H	I	H	I-H	H	I-H	H	H	I
pyraclostrobin	Headline	V	H	V	H	V	H	V	H	V	I
pyrimethanil	Scala	L	L	L	L-I	L	L-I	L	L-I	L	L
streptomycin sulfate	Agri-mycin 17	V	V	V	V	V	V	V	V	V	V
tebuconazole	in Raxil-Thiram	L	I	L	I	L-I	I	L-I	I	I	L
tetraconazole	Domark	L	L	L	L-I	L-I	L-I	L-I	L-I	I	L
thiabendazole	Mertect	*	L*	*	L-I*	*	L-I*	*	L-I*	*	L*
thiophanate	Topsin M	V	I	V	I-H	L	I-H	L	I-H	L	I
thiram	Thiram	V	H	V	H-X	L	H-X	L	H-X	L	H
trifloxystrobin	Flint, Gem	V	I	V	I-H	V	I-H	V	I-H	V	I
triflumizole	Procure	V	L	V	L-I	V	L-I	V	L-I	V	L
zoxamide	in Gavel	V	I	V	I-H	V	I-H	V	I-H	V	I

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Wisconsin WIN-PST Hazard Rating Quick Reference Table for Apple Production

Pesticides		Hazard Ratings of Pesticides by Subsoil Group (A2809) ⁽¹⁾									
		“A” southern forested medium and fine textured soils		“B” southern prairie medium and fine textured soils		“C” red medium and fine textured soils		“D” northern medium and fine textured soils		“E” sandy coarse textured soils	
Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
HERBICIDES^(2,3)											
2,4-D	various	L	L	L	L	L	L	L	L	L	L
carfentrazone	Aim	V	L	V	L-I	V	L-I	V	L-I	V	L
clethodim	Select	V	L	V	L	V	L	V	L	V	L
dichlobenil	Casaron, Norosac	H	H	I-H	H	I-H	H	I-H	H	H	H
diquat	Reglone	V	L	V	L-I	L	L-I	L	L-I	L	L
fluzifop	Fusilade	V	L	V	L	L	L	L	L	L	L
flumioxazin	Valor	V	L	V	L-I	V	L-I	V	L-I	V	L
glufosinate	Liberty	V	V	V	V	V	V	V	V	V	V
napropamide	Devrinol	V	L	V	L	L	L	L	L	L	V
norflurazon	Evital, Solicam	V-I	I	L-I	I	L-I	I	L-I	I	I	I
oryzalin	Surflan	L	L	L	L	L	L	L	L	L	L
oxyfluorfen	Goal	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
paraquat	Gramoxone	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
pendimethalin	Prowl	L	H	L	H	L	H	L	H	L	I
sethoxydim	Poast	V	L	V	L	V	L	V	L	V	L
simazine	Princep	H	H	H	H	H	H	H	H	H	H
terbacil	Sinbar	L	L	L	L	L	L	L	L	L	L
INSECTICIDES^(2,3)											
abamectin	Agri-Mek	L	H	L	H-X	L-I	H-X	L-I	H-X	I	H
acetamiprid	Assail	V	V	V	V	V	V	V	V	V	V
azinphos-methyl	Guthion	V	H	V	H-X	L	H-X	L	H-X	L	H
bifenazate	Acramite	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
Bt	Agree, Xen Tari	V	V	V	L	V	L	V	L	V	V
carbaryl	Sevin	L	I	L	I	L-I	I	L-I	I	I	L
chlorpyrifos	Lorsban	L	H	L	H-X	L-I	H-X	L-I	H-X	I	H
clofentezine	Apollo	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I

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		Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
Active ingredient common name	Trade name example	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
INSECTICIDES^(2,3) - continued											
diazinon	various	I	X	I	X	I-H	X	I-H	X	H	H
dimethoate	Cygon, many	H	H	H	H-X	H-X	H-X	H-X	H-X	X	H
endosulfan	Thiodan	V	L*	V	L-I*	L	L-I*	L	L-I*	L	L*
esfenvalerate	Asana	V	V*	V	V*	V	V*	V	V*	V	V*
etoxazole	Zeal	V	L	V	L-I	V	L-I	V	L-I	V	L
fenbutatin-oxide	Vendex	V	H	V	H-X	V	H-X	V	H-X	V	H
fenpropathrin	Danitol	V	H	V	H-X	V	H-X	V	H-X	V	H
hexythiazox	Savey	V	L	V	L-I	L	L-I	L	L-I	L	L
imadacloprid	Admire, Provado	V	V	V	L	L	L	L	L	L	V
indoxacarb	Avaunt	V	I	V	I-H	V	I-H	V	I-H	V	I
lambda-cyhalothrin	Warrior	L	H	L	H-X	L-I	H-X	L-I	H-X	I	H
methidathion	Supracide	L	H	L	H-X	L-I	H-X	L-I	H-X	I	H
methomyl	Lannate	V	L	V	L-I	L	L-I	L	L-I	L	L
methoxyfenozide	Intrepid	V	V	V	L	L	L	L	L	L	V
permethrin	Pounce/Ambush	V	H	V	H-X	L	H-X	L	H-X	L	H
phosmet	Imidan	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
pyrethrin	Pyrenone, Pyganic	V	I	V	I-H	L	I-H	L	I-H	L	I
pyridaben	Nexter	V	H	V	H-X	L	H-X	L	H-X	L	H
pyriproxyfen	Esteem	V	I	V	I-H	V	I-H	V	I-H	V	I
spinosad	Entrust, SpinTor	V	V	V	V	V	V	V	V	V	V
tebufenozide	Confirm	V	L	V	L	V	L	V	L	L	L
thiamethoxam	Actara	I	I	I	I-H	I-H	I-H	I-H	I-H	H	I
thiacloprid	Calypso	V	L	V	L-I	L	L-I	L	L-I	L	L
FUNGICIDES^(2,3)											
boscalid	Endura	V	L	V	L	V	L	V	L	V	L
captan	Captan, many	V	L	V	L-I	V	L-I	V	L-I	V	L

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		Water Resource		Water Resource		Water Resource		Water Resource		Water Resource	
Active ingredient common name	Trade name example	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
FUNGICIDES^(2,3)-continued											
cyprodinil	in Switch, Vangard	V	L	V	L	V	L	V	L	V	L
dodine	Syllit	V	L	V	L-I	L	L-I	L	L-I	L	L
fenarimol	Rubigan	V	L	V	L	V	L	V	L	V	L
fenbuconazole	Indar	V	L	V	L-I	L	L-I	L	L-I	L	L
Ferbam	Carbamate	V	I	V	I-H	V	I-H	V	I-H	V	I
Foestyl-Al	Aliette	V	V	V	V	V	V	V	V	V	V
kreosoxim	Sovran	V	L	V	L	V	L	V	L	V	L
mancozeb	in Dithane Manzate Penncozeb	L	H	L	H	L-I	H	L-I	H	I	I
mefenoxam	Ridomil Gold	V	I	V	I	V	I	V	I	V	L
metiram	Polyram	L	I	L	I-H	L-I	I-H	L-I	I-H	I	I
myclobutanil	Nova	V	L	V	L	V	L	V	L	V	L
pyraclostrobin	Cabrio	V	H	V	H	V	H	V	H	V	I
pyrimethanil	Scala	L	L	L	L-I	L	L-I	L	L-I	L	L
streptomycin sulfate	Agri-mycin 17	V	V	V	V	L	V	L	V	L	V
sulfur	Kumulus	*	V	*	L	*	L	*	L	*	V
thiophanate	Topsin M	V	I	V	I-H	L	I-H	L	I-H	L	I
triadimefon	Bayleton	L	I	L	I	L-I	I	L-I	I	I	L
trifloxystrobin	Flint, Gem	V	I	V	I-H	V	I-H	V	I-H	V	I
triflumizole	Procure	V	L	V	L-I	V	L-I	V	L-I	V	L
ziram	Ziram	I	X	I	X	I-H	X	I-H	X	H	H

⁽¹⁾ To identify the subsoil group of a specific soil name, see UWEX publication A2809 “Nutrient application guidelines for field, vegetable and fruit crops in Wisconsin”, table 4.1, pp 12-21.

⁽²⁾ WIN PST hazard ratings: V = very low, L = Low, I = intermediate, H = high, and X = extra high

⁽³⁾ * = Missing data from WIN-PST

Wisconsin WIN-PST Hazard Rating Quick Reference Table For Cherry Production									
Pesticides		Hazard Ratings of Pesticides by Subsoil Group (A2809) ⁽¹⁾							
		“A” southern forested medium and fine textured soils		“B” southern prairie medium and fine textured soils		“C” red medium and fine textured soils		“D” northern medium and fine textured soils	
Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
HERBICIDES^(2,3)									
2,4-D	various	L	L	L	L	L	L	L	L
carfentrazone	Aim	V	L	V	L-I	V	L-I	V	L-I
clethodim	Select	L	L	L	L	L	L	L	L
clopyralid	Stinger	L	V	L	V	L	V	L	V
dichlobenil	Casoron/Norosac	H	H	H	H	I-H	H	I-H	H
diquat	Reglone	L	L	L	L-I	L	L-I	L	L-I
fluaizifop	Fusilade	L	L	L	L	L	L	L	L
flumioxazin	Valor	V	L	V	L-I	V	L-I	V	L-I
napropamide	Devrinol	L	L	L	L	L	L	L	L
norflurazon	Evital/Solicam	I	I	I	I	L-I	I	L-I	I
oryzalin	Surflan	L	L	L	L	L	L	L	L
oxyfluorfen	Goal	L-I	I	I	I-H	L-I	I-H	L-I	I-H
paraquat	Gramoxone	L-I	I	I	I-H	L-I	I-H	L-I	I-H
pendimethalin	Prowl	L	H	L	H	L	H	L	H
sethoxydim	Poast	V	L	V	L	V	L	V	L
simazine	Princep	H	H	H	H	H	H	I-H	H
INSECTICIDES^(2,3)									
azinphos-methyl	Guthion	L-I	H-X	L	H-X	L	H-X	L	H-X
Bt	Agree, Xen Tari	V	V	V	L	V	L	V	L
carbaryl	Sevin	L-I	I	I	I	L-I	I	V-I	I
chlorpyrifos	Lorsban	L-I	H	I	H-X	L-I	H-X	V-I	H-X
clofentezine	Apollo	L-I	I	I	I-H	L-I	I-H	L-I	I-H
diazinon	various	I-H	X	H	X	I-H	X	I-H	X
dimethoate	Cygon	H-X	H	X	H-X	H-X	H-X	I-X	H-X
endosulfan	Thiodan	L	L*	L	L-I*	L	L-I*	L	L-I*

⁽¹⁾ To identify the subsoil group of a specific soil name, see UWEX publication A2809 “Nutrient application guidelines for field, vegetable and fruit crops in Wisconsin”, table 4.1, pp 12-21.

⁽²⁾ WIN PST hazard ratings: V = very low, L = Low, I = intermediate, H = high, and X = extra high

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Wisconsin WIN-PST Hazard Rating Quick Reference Table For Cherry Production									
Pesticides		Hazard Ratings of Pesticides by Subsoil Group (A2809) ⁽¹⁾							
		“A” southern forested medium and fine textured soils		“B” southern prairie medium and fine textured soils		“C” red medium and fine textured soils		“D” northern medium and fine textured soils	
Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
INSECTICIDES^(2,3) - continued									
esfenvalerate	Asana	V	V*	V	V*	V	V*	V	V*
fenbutatin-oxide	Vendex	V	H	V	H-X	V	H-X	V	H-X
hexythiazox	Savey	L	L	L	L-I	L	L-I	L	L-I
imadacloprid	Admire/Provado	L	V	L	L	L	L	L	L
lambda-cyhalothrin	Warrior	L-I	H	I	H-X	L-I	H-X	L-I	H-X
malathion	Various	L	H	L	H-X	L	H-X	L	H-X
methidathion	Supracide	L-I	H	I	H-X	L-I	H-X	L-I	H-X
methoxyfenozide	Intrepid	L	V	L	L	L	L	L	L
permethrin	Pounce/Ambush	L	H	L	H-X	L	H-X	L	H-X
phosmet	Imidan	L-I	I	I	I-H	L-I	I-H	L-I	I-H
pyrethrin	Pyrenone	L	I	L	I-H	L	I-H	L	I-H
pyridaben	Nexter	L	H	L	H-X	L	H-X	L	H-X
pyriproxyfen	Esteem	V	I	V	I-H	V	I-H	V	I-H
spinosad	Tracer	V	V	V	V	V	V	V	V
thiacloprid	Calypso	L	L	L	L-I	L	L-I	L	L-I
FUNGICIDES^(2,3)									
boscalid	Endura	V	L	V	L	V	L	V	L
captan	Captan	V	L	V	L-I	V	L-I	V	L-I
chlorothalonil	Bravo/Echo	L	I	L	I-H	L	I-H	L	I-H
cyprodinil	in Switch	V	L	V	L	V	L	V	L
dodine	Syllit	L	L	L	L-I	L	L-I	L	L-I
fenarimol	Rubigan	V	L	V	L	V	L	V	L
fenhexamid	Elevate	V	L	V	L	V	L	V	L
ferbam	Carbamate	V	I	V	I-H	V	I-H	V	I-H
iprodione	Rovral	L-I	H	I	H	L-I	H	L-I	H

⁽¹⁾ To identify the subsoil group of a specific soil name, see UWEX publication A2809 “Nutrient application guidelines for field, vegetable and fruit crops in Wisconsin”, table 4.1, pp 12-21.

⁽²⁾ WIN PST hazard ratings: V = very low, L = Low, I = intermediate, H = high, and X = extra high

⁽³⁾ * = Missing data from WIN-PST

Wisconsin WIN-PST Hazard Rating Quick Reference Table For Cherry Production									
Pesticides		Hazard Ratings of Pesticides by Subsoil Group (A2809)⁽¹⁾							
		“A” southern forested medium and fine textured soils		“B” southern prairie medium and fine textured soils		“C” red medium and fine textured soils		“D” northern medium and fine textured soils	
Active ingredient common name	Trade name example	Water Resource		Water Resource		Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface	Groundwater	Surface	Groundwater	Surface
FUNGICIDES^(2,3)-continued									
mefenoxam	Ridomill Gold	V	I	V	I	V	I	V	I
myclobutanil	Nova	V	L	V	L	V	L	V	L
propiconazole	Tilt	I-H	H	H	H	I-H	H	L-H	H
pyraclostrobin	Headline	V	H	V	H	V	H	V	H
pyrimethanil	Scala	L	L	L	L-I	L	L-I	L	L-I
sulfur		*	V	*	L	*	L	*	L
tebuconazole in	Raxil-Thiram	L-I	I	I	I	L-I	I	V-I	I
thiophanate	Topsin M	L	I	L	I-H	L	I-H	L	I-H
trifloxystrobin	Flint, Gem	V	I	V	I-H	V	I-H	V	I-H
triflumizole	Procure	V	L	V	L-I	V	L-I	V	L-I
ziram	Ziram	I-H	X	H	X	I-H	X	L-H	X

⁽¹⁾ To identify the subsoil group of a specific soil name, see UWEX publication A2809 “Nutrient application guidelines for field, vegetable and fruit crops in Wisconsin”, table 4.1, pp 12-21.

⁽²⁾ WIN PST hazard ratings: V = very low, L = Low, I = intermediate, H = high, and X = extra high

⁽³⁾ * = Missing data from WIN-PST

Appendix 4

Pest Management for Wisconsin Cranberry Production

This appendix to the Wisconsin Conservation Planning Technical Note WI-2 (“the technical note”) has been developed in order to provide guidance for pest management planning on cranberry production systems. A cranberry pest management plan that meets the criteria included in this appendix should satisfy the requirements of the Wisconsin NRCS Pest Management Conservation Practice Technical Standard (“the 595 standard”) and the technical note. Reference is made to particular sections of the 595 standard and the technical note, where special attention may be needed.

The guidance and instructions included in this appendix are in addition to those found in the 595 standard. Implementation of a plan developed based upon the guidance included in this document must be in accordance with the 595 standard. Federal, state, and local laws may provide additional requirements.

This document provides detailed guidance on the following:

- Section I** Criteria Unique to Cranberry Pest Management Planning
- Section II** *Win-PST* Surface and Ground Water Risk Ratings for Cranberry Production
- Section III** Cranberry Pest Management Plan Outline and Optional Forms

Section I: Criteria Unique to Cranberry Pest Management Planning

- I. Pest management activities shall be in accordance with UW-Extension publication A3276 – *Cranberry Pest Management in Wisconsin*. Refer to UW-Extension and other appropriate publications, including those published in the Wisconsin Cranberry Crop Management Library (<http://www.hort.wisc.edu/cran/>), for information and management recommendations for specific pests.
- II. Pesticide application decisions shall be based on weekly crop scouting, in accordance with the procedures outlined in the *Wisconsin State Cranberry Growers Association (WSCGA) Cranberry Grower Resource Notebook*, which may be downloaded from the following website: www.wiscran.org/WholeFarmPlanning. At a minimum, weekly scouting shall be performed on at least 20% of the area, within each pest management unit, throughout the growing season or during periods of potential pest outbreaks. Records of crop scouting results shall be maintained, and kept with the pest management plan.
- III. An environmental risk analysis shall be conducted for each of the pesticides that are likely to be used during the year. The surface and ground water risk ratings for some commonly used pesticides are included in Section II.
- IV. Where a pesticide selected for use has a significant potential to negatively impact water resources, either an appropriate set of mitigation techniques shall be put in place or an alternative pest management strategy shall be developed to address the risk(s) to water resources and non-target organisms. Those pesticides with a *Win-PST* rating of “Intermediate”, “High”, or “Extra High” are considered to pose a significant risk to water resources. Part II, of the technical note, lists mitigation techniques or conservation practices that may be selected to address the identified risks. Refer to the **Wisconsin Cranberry Pesticide Chart* for recommended mitigation techniques for commonly used cranberry pesticides.

The *Wisconsin Cranberry Pesticide Chart* is an annual publication of the Cranberry Institute, 3203-B Cranberry Highway, East Wareham, MA 02538.

Wisconsin WIN-PST Hazard Rating Quick Reference Table for Cranberry Production⁽¹⁾					
		Sandy Soils		Organic Soils	
Active ingredient common name	Trade name example	Water Resource		Water Resource	
		Groundwater	Surface	Groundwater	Surface
HERBICIDES^(2,3)					
2,4-D	Weed-Rhap, etc.	L	L	L	L
clethodim	Select	L	L	V	L
clopyralid	Stinger	L	V	V	V
dichlobenil	Casoron, Norosac	H	H	H	H
fluazifop	Fusilade	L	L	V	L
glyphosate	Roundup, etc.	V	V	V	V
napropamide	Devrinol	L	L	V	V
norflurazon	Evital	I	I	I	I
simazine	Princep	H	H	H	H
sethoxydim	Poast	V	L	V	L
INSECTICIDES^(2,3)					
acephate	Orthene	L-I	I	L	I
Bt	<i>Bt</i> products	V	V	V	V
carbaryl	Sevin	L	L	V	L
chlorpyrifos	Lorsban	L	H	V	H
diazinon	Many	I-H	H-X	I	H
imidacloprid	Admire	L	L	L	V
methoxyfenozide	Intrepid	L	L	L	L
phosmet	Imidan	I-H	I-H	I	I
spinosad	Entrust, Spin Tor, Success	V	V	V	V
tebufenozide	Confirm	L	L	V	L
thiamethoxam	Actara	I-H	I	I	I
FUNGICIDES^(2,3)					
azoxystrobin	Abound	V	L	V	L
chlorothalonil	Bravo, Echo, Equus	L	I	V	I
copper ammonium carbonate	Copper-Count-N	I	I	I	I
copper hydroxide	Champ, Kocide, Nu-Cop	V	I	V	I
ferbam	Carbamate, Ferbam	V	I	V	I
fosetyl-Al	Aliette	V	V	V	V
mancozeb	Dithane, Manzate, Penncozeb	L-I	I-H	L	I
mancozeb + copper hydroxide	Mankocide	L-I	I-H	L	I
maneb	Maneb, Manex	L-I	I-H	L	I
mefenoxam	Ridomil Gold	V	L-I	V	L
propiconazole	Orbit	I-H	I-H	I	I

⁽¹⁾ These ratings are for the production of cranberries where the soil texture within the root zone is as identified. The results displayed in this table assume the following conditions: pesticides are broadcast applied to producing cranberry beds at rates recommended in UW-Extension publication A3276 – *Cranberry Pest Management in Wisconsin*; there is a low probability of rainfall following application; and the efficiency of irrigation is low. If actual conditions vary from these assumed conditions, Win-PST (*Windows Pesticide Screening Tool*) should be used to determine actual hazard risk ratings.

⁽²⁾ WIN PST hazard ratings: V = very low, L = Low, I = intermediate, H = high, and X = extra high

⁽³⁾ * = Missing data from WIN-PST

Section III: Cranberry Pest Management Plan Outline and Optional Forms

A cranberry pest management plan shall be developed according to the 595 standard, as well as the criteria included in this technical note. The following outline should be used as a guide in the development of a cranberry pest management plan. The attached forms may be useful tools when developing a plan. These forms are not required. [Bracketed references to individual forms are included, for guidance, within this outline.] Note: Completing the optional forms may satisfy some of the items listed below. However, use of the optional forms will not preclude the need to develop a plan narrative, as some items will require further explanation.

Consider organizing the plan around pest management units. *Pest management units are groups of fields or beds that are managed similarly. A single management unit may include a group of beds planted to the same variety or similar varieties, or a group of beds with similar historical pest pressures, soil conditions, production status, or other considerations, which may allow the unit to be managed as a whole.* Dividing the marsh into pest management units may not be necessary if no significant differences exist between beds or if the distinctions are temporary (i.e., new plantings).

A cranberry pest management plan should satisfy the requirements of the 595 standard by satisfying the following items, as well as the criteria outlined in Section I of this appendix:

I. Plan Narrative:

The purpose of the narrative is to provide an overview of the operation and describe the pest management strategies for the growing season, including descriptions of how the plan will be implemented and why the proposed strategies were selected. The narrative should provide an overview of the operation, identify the pest management units on the marsh, explain past practices and results, explain how current strategies have been developed or refined, and discuss potential factors that may cause deviation from the intended strategies. The narrative should explain how the pest management plan will be implemented, with an explanation of how pest management decisions will be made.

A. Identify pest management units and include the following information:

[Management Unit Identification Worksheet]

- 1 Current production status of each bed (i.e., processed fruit, fresh fruit, new planting, out of production, etc.).
- 2 A general description of the soil, including subsoil characteristics and soil characteristics within the rooting zone. Focus on those characteristics and past activities that may influence pest populations or pest management. For example, differences in the original soil types, construction/renovation history, and/or history of sanding may influence the mobility of pesticides in the soil.

B. Summarize pest management activities from previous years. If available, records from the most recent four years should be summarized in the narrative and either included with the plan or referenced if available in another format or easily accessible location. Include the following details per individual management unit:

1. Pests encountered, including distribution and/or relative densities. Relate these to treatment thresholds, if available.

[Summary of Previous Pest Concerns worksheet]

2. Describe scouting and/or monitoring efforts made in support of pest management.
3. Applications of pesticides (herbicides, insecticides, fungicides, etc.), including the form, rate, timing, and targeted pests.
4. Non-chemical pest management activities, including a summary of their effectiveness.

C. Summarize planned pest management activities (refer to Standard 595, Section VII):

[Planned Pest Management Practices worksheets]

1. Describe planned pest scouting and monitoring efforts [for insects, weeds, diseases, and other pests of concern]
2. Identify treatment thresholds for pests, as appropriate.
3. List the pesticides planned for use, including the rate, form, timing, and targeted pests.
4. Explain how pesticides will be applied, and describe the steps that will be taken to minimize overspray and spray drift (refer to Standard 595, Section V.E.).
5. Explain planned non-chemical control efforts, including the strategy, timing, and targeted pests.

II. Aerial photographs and/or maps of the farm containing:

A. Boundaries, identification numbers, and acreage for all beds and pest management units. The Wisconsin DNR has a free, internet mapping program, which may be used to generate marsh maps based on aerial photography or topographic maps:

<http://maps.dnr.state.wi.us>.

B. Locate and identify features that require protection. Delineate boundaries for pesticide application restriction areas, if necessary. Include a legend of map symbols used.

1. These may include groundwater risk areas (i.e. abandoned wells), surface water risk areas (i.e. water conveyance ditches, reservoirs, streams or lakes, wetlands, etc.), or other sensitive areas.

2. These may also include the location of sensitive species and/or their habitat.

Note: Many Wisconsin cranberry marshes are located within the potential range of the federally endangered Karner blue butterfly. Be aware of the habitat requirements of the Karner blue butterfly, and work with a conservation planner to ensure that these areas have been identified and mitigation techniques have been developed, as appropriate. Refer to the following website for more information:

<http://www.dnr.state.wi.us/org/land/forestry/karner/>.

- C. Identify areas where pesticide products are stored and routinely mixed prior to application.
- D. Identify surface water control points that may be used to manage the movement of water out of areas treated with pesticides or to respond to pesticide spill emergencies.

III. Documentation of pest management activities:

Pest management activities made during the season shall be documented per individual pest management unit (refer to Standard 595, Section VII.B. for specific criteria). Use of the “Worksheet for Pesticide Application Records,” developed by Ocean Spray Cranberries, Inc., or similar form, is sufficient, provided that notes are recorded where deviations are made from the original plan.

[Actual Pest Management Practices worksheet]

*****Cranberry Pest Management Optional Forms are included on the following pages*****

Marsh: _____ Plan Year: _____

PEST MANAGEMENT PLAN

Landowner: _____

Address: _____

Contact Person: _____ Title: _____

Telephone No.: _____ Email: _____

County: _____ Township: _____

Legal Description: _____

Basic Safety/Emergency Information

In case of accidental release of pesticides: Wisconsin DNR Spill Hotline, (800) 943-0003

Nearest treatment center for pesticide exposure: _____

Nearest poison control center (telephone #): _____

In the event a pesticide is swallowed: Poison Center of Wisconsin, (800) 815-8855

Non-emergency information: National Pesticide Telecommunications Network (NPTN);
Corvallis, Oregon; (800) 424-7378; M-F, 8:30 a.m. to 6:30 p.m., Central Time

Pest Management Plan Acceptance

I/we have reviewed and do accept the attached plan. I/we agree to implement this plan, for the crop year identified in the plan. I/we agree that implementation of this plan shall be in accordance with the NRCS Conservation Practice Standard 595, Pest Management. I/we recognize that this is a management plan that should be reviewed and updated annually, with the help of a qualified technical specialist.

Signed: _____ Date: _____

Developed by: _____ Date: _____

Approved by: _____ Date: _____

Planner's/Review's Qualifications: _____

Marsh: _____ Plan Year: _____

Plan Narrative Supplemental Worksheet

Cropland to be scouted by: _____

Describe scouting efforts, including frequency, locations, and total area scouted: _____

Describe pesticide handling practices (mixing/loading sites and procedures, method of application, storage/disposal of unused pesticides, disposal of packaging wastes, etc.):

List Certified Pesticide Applicators and their license numbers:

Describe how and when pesticide application equipment is calibrated: _____

Do you chemigate? Yes No

If you do chemigate, please explain the procedures and list the chemicals used: _____

Marsh: _____ Plan Year: _____

Summary of Previous Pest Concerns

Management Unit(s): _____

Weeds	Density	Notes

Insects	Abundance	Notes <i>(Exceeds Threshold?)</i>

Diseases	Distribution	Notes

Notes: _____

Marsh: _____

Plan Year: _____

Planned Pest Management Practices

Management Unit(s): _____

Total Acres: _____

Chemical Control

Targeted Pest(s) [Include weeds, insects, diseases, etc.]	*Pesticide Product and Rate of Application	Method of Application and Form of Product	Timing of Application and/or Pest Threshold

* Summarize pesticide product information on the following page(s)

Marsh: _____

Plan Year: _____

Planned Pest Management Practices

Management Unit(s): _____

Total Acres: _____

Biological/Cultural Control

Targeted Pest(s)	*Control Practices	Beds Applied To	Timing/Strategy

* May include sanding, flooding, the use of nematodes, the application of *Bacillus thuringiensis* pesticides (*Bt* 's), etc.

Notes (including pesticide mitigation techniques):

Marsh: _____

Plan Year: _____

Actual Pest Management Practices

Management Unit(s): _____

Method of Application: A = Air, G = Ground, S = Sprinkler, W = Wipe

Pesticide Product <i>or</i> Cultural/Biological Control Practice	Rate	^ Method	Acres Treated	Date	Beds or Mgt. Units	Targeted Pest(s) / Notes
EPA Registration No.:						
EPA Registration No.:						
EPA Registration No.:						
EPA Registration No.:						
EPA Registration No.:						
EPA Registration No.:						