

**TABLE 1 – Pest Management (595) Mitigation Effectiveness Guide
Reducing Pesticide Impacts on Water Quality**

Note: This table identifies pest management mitigation techniques, rates their relative effectiveness by pesticide loss pathway, and identifies how the techniques function. Mitigation techniques with three pluses are generally more effective than techniques with two pluses, and techniques with two pluses are generally more effective than techniques with one plus. Techniques without a plus or minus generally have no appreciable effect. Techniques with a minus generally have a negative effect. Effectiveness of any mitigation technique can be highly variable based on site conditions. Therefore, with guidance provided by the table, site-specific selection of appropriate mitigation techniques for identified resource concerns is left to the professional judgement of the conservation planner.

Pest Management Mitigation Techniques	Pesticide Loss Pathways			Comments
	Leaching	Solution Runoff	Adsorbed Runoff	
Management Techniques ^{1/}				
Application Timing	+++	+++	+++	Reduces exposure potential - application must be delayed when significant rainfall events are forecast, application when conditions are optimal reduces pesticide application
Formulations/Adjuvants	++	++	+	Reduces exposure potential - formulations and/or adjuvants that increase efficacy allow lower application rates
Lower Application Rates	+++	+++	+++	Reduces exposure potential - use lowest effective rate
Partial Substitution	+++	+++	+++	Reduces hazard potential - use alternative pesticides with less broad spectrum activity and lower environmental risk
Partial Treatment	+++	+++	+++	Reduces exposure potential - spot treatment, banding and directed spraying reduce amount of pesticide applied
Pesticide Label Environmental Hazard Warnings and BMPs	Required _{2/}	Required _{2/}	Required _{2/}	Reduces exposure potential - label guidance must be carefully followed for pesticide applications near water bodies and on soils that are intrinsically vulnerable to erosion, runoff, or leaching
Scouting and Integrated Pest Management (IPM) Thresholds	+++	+++	+++	Maintains pest populations below economically damaging levels with minimum disruption to the environment. May reduce exposure potential and pesticide application
Set-backs	+	+	+	Reduces exposure potential - reduced application area reduces amount of pesticide applied and the increased distance between the application area and surface water reduces drift and inadvertent direct application to surface water
Soil Incorporation – mechanical or irrigation	-	+++	+++	Reduces exposure potential for surface losses, but increases exposure potential for leaching losses
Conservation Practices ^{3/}				
Conservation Cover (327)	+++	+++	+++	Retiring land from annual crop production often reduces the need for pesticides and builds organic matter
Constructed Wetland (656)	+	+	++	Captures and degrades pesticide residues
Conservation Crop Rotation (328)	++	++	++	Reduces the need for pesticides by breaking pest lifecycles

TABLE 1 - (continued)

Mitigation Technique	Pesticide Loss Pathways			Comments
	Leaching	Solution Runoff	Adsorbed Runoff	
Contour Farming (330)	-	++	++	Increases infiltration
Cover & Green Manure Crop (340)	++	++	++	Increases infiltration, reduces soil erosion and builds organic matter
Critical Area Planting (342)	+++	+++	+++	Retiring land from annual crop production often reduces the need for pesticides, often planted in erosive areas reducing soil loss and may trap sediment and adsorbed pesticides
Cross Wind Stripcropping (589B)				Reduces wind erosion, decreases sediment delivery that may have pesticides or residues attached, decreases wind speeds and potential pesticide drift
Field Border (386)		+	++	Increases infiltration and traps adsorbed pesticides, often reduces application area resulting in less pesticide applied, increases distance between the application area and surface water to reduce drift and inadvertent direct application to surface water, 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
Field Windbreaks (392)				Reduces wind erosion, decreases sediment delivery that may have pesticides or residues attached, decreases wind speeds and potential pesticide drift
Filter Strip (393)		++	+++	Increases infiltration and traps adsorbed pesticides, often reduces application area resulting in less pesticide applied, increases distance between the application area and surface water to reduce drift and inadvertent direct application to surface water, 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
Grade Stabilization Structure (410)			+++	Traps adsorbed pesticides (only those structures with water storage)
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 because water is applied at rates that minimize pesticide transport to ground and surface water
Mulching (484)	++	++	+++	Reduces competition from weeds, reduces soil erosion, increases infiltration
Nutrient Management (590)				Adequate plant nutrients, including favorable pH and soil conditions improve plant vigor, reduce plant stress, and increases plant's ability to tolerate pests
Pasture and Hay Planting (512)	+++	+++	+++	Retiring land from annual crop production often reduces the need for pesticides, builds organic matter
Prescribed Burning (338)	+++	+++	+++	Reduces the need for pesticides
Prescribed Grazing (528A)	+++	+++	+++	Improves plant health and reduces the need for pesticides
Residue Management, No-till and Strip-Till (329A)	+	++	+++	Increases infiltration, reduces soil erosion and builds organic matter

TABLE 1 - (continued)

Mitigation Technique	Pesticide Loss Pathways			Comments
	Leaching	Solution Runoff	Adsorbed Runoff	
Residue Management, Mulch-Till (329B)	+	++	+++	Increases infiltration, reduces soil erosion and builds organic matter
Residue Management, Ridge Till (329C)	+	++	+++	Increases infiltration, reduces soil erosion and builds organic matter
Residue Management, Seasonal (344)	+	+	+	Increases infiltration, reduces soil erosion and builds organic matter
Riparian Forest Buffer (391)	+	+++	+++	Increases infiltration, traps sediment and builds organic matter
Subsurface Drainage (606)	+	++	++	Increases surface infiltration and aerobic pesticide degradation in the rootzone *Note – avoid direct outlets to surface water
Terrace (600)	-	++	+++	Increases infiltration, reduces soil erosion
Tree and Shrub Establishment (612)	+++	+++	+++	Retiring land from annual crop production reduces the need for pesticides and builds organic matter
Waste Storage Facility (313)	+	++	++	Captures pesticide residues
Waste Treatment Lagoon (359)		+++	+++	Captures and degrades pesticide residues
Waste Utilization (633)	++	++	++	Increases organic matter
Water and Sediment Control Basin (638)	-	+	++	Captures and degrades pesticide residues, increases infiltration
Well Decommissioning (351)	+++			Eliminates point source contamination
Wetland Creation (658)	+	+	+	Captures and degrades pesticide residues
Wetland Enhancement (659)	+	+	+	Captures and degrades pesticide residues
Wetland Restoration (657)	+	+	+	Captures and degrades pesticide residues
Windbreak/Shelterbelt Establishment (380)				Reduces wind erosion, decreases sediment delivery that may have pesticides or residues attached, decreases wind speeds and potential pesticide drift
Windbreak/Shelterbelt Renovation (650)				Reduces wind erosion, decreases sediment delivery that may have pesticides or residues attached, decreases wind speeds and potential pesticide drift

^{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 addressing identified natural 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.