Animal Waste

FIELD SHEET $2B_1$: ANIMAL WASTE
INDICATORS FOR PASTURE OR RANGE ANIMALS

Evaluator _____ County/State _____ Date _____
Field Evaluated _____ Field Location _____ Total Score/Rank _____

(Circle one number among the four choices in each row which BEST describes the conditions of the field or area being evaluated. If a condition has characteristics of two categories, you can "split" a score.)

Rating Item	Excellent	Good	Fair	Poor	Practices from Appendix E
1. Runoff Potential	Low: Runoff Curve Number (RCN) 61-70. Very flat to flat terrain (0-5% slope). Dry, low rainfall (less than 20") with rainfall erosivity (R) factor less than 50. Even, gentle impact (scattered shower-type) of rainfall. OTHER 10	Moderate: RCN 71-80. Flat to gently sloping (0.5-2.0% slope). Semidry (20-30") with R 50 to 100. Even, gentle to moderate intensity rainfall. OTHER 8	Considerable: RCN 81-90. Gently to moderately sloping (2-5% slope). Semiwet (30-40") with R 100 to 200. Even but intense rainfall. OTHER 4	High: RCN greater than 90. Moderately sloping to steep (greater than 5%). Wet (more than 40" rain) with R greater than 200. Intense uneven rainfall in seasons when soil is exposed. OTHER 0	14,16,17 18,19,20, 25,27,29, 33,38,40, 91,92,93 95,97
2. Ungrazed Buffer Zone	Pasture or range with a strip of intervening vegetation greater than 200 ft. OTHER 9	Pasture or range with 50 to 200 ft. strip of intervening vegetation. OTHER 7	Pasture or range with 10 to 50 ft. of intervening vegetation. OTHER 3	Pasture or range in close proximity to edge or adjacent to water course. OTHER 2	5,25,27
3. Rate of Waste Decomposition	Rapid decomposition of waste due to hot, sunny climate. OTHER 9	Moderate to rapid decomposition due to warm sunny climate. OTHER 7	Slow to moderate decomposition due to cooler, more overcast climate. OTHER 3	Slow decomposition due to cold climate with little direct solar radiation. OTHER 2	

4. Pasture or Range Management	Excellent: 90% cover. Proper grazing. Animal numbers within the carrying capacity of vegetation. No fertilization or pH adjustment and application of recommended amounts of fertilizer for maximum forage utilization based on soil tests. OTHER 9	Good: 70-90% cover. Occasional bare areas. Animals exceed carrying capacity only 1 to 2 times per year. No fertilization or recommended amounts for maximum forage utilization. OTHER 6	Fair: 50-70% cover. Some bare spots. Animals exceed carrying capacity over 25% of the year. Fertilization at greater than recommended amounts for forage utilization. OTHER 3	Poor: 50% or less cover. Numerous bare spots. Animal numbers exceed carrying capacity 100% of year. Significant over-application of animal waste or commercial fertilizer close to water's edge. OTHER 0	5,15,18, 19,20,24, 25,27,29, 30,31,32, 33,38,40, 52,54,61, 65,69,70, 75,76,78, 79,92,95, 99,102, 105,106 107,108
5. Potential for ground water contamination	Low: Soils rich to very rich in organic matter (greater than 3%). Slow to very slow percolation in light textured soils such as clays, silty or sandy clays, or silty clay loams. Perched water table present. In protected bedrock areas (50 ft. of soil & shale cap), well depth is 75-100 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is greater than 150 ft. In shallow bedrock areas (25-50 ft. soil & shale cap), well depth greater than 200 ft. In Karst areas, well depth is greater than 1,000 ft., if aquifier is "confined." OTHER 9	Moderate: Soils rich to moderate in organic matter (3.0 to 1.5%). Slow to moderate percolation in clay loams or silts. Perched water table present. In protected bedrock areas, well depth is 30-74 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 100-149 ft. In shallow bedrock areas, well depth is 50-199 ft. In Karst areas, well depth is 500-999 ft. OTHER 6	Considerable: Soils moderate to low in organic matter (1.5 to 0.5%). Moderate to rapid percolation in silty loams, loams, or silts. In protected bedrock areas, well depth is 15-29 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 50-99 ft. In shallow bedrock areas, well depth is 25-49 ft. In Karst areas, well depth is 100-499 ft. OTHER 4	High: Soils low to very low in organic matter (less than 0.5%). Rapid percolation in coarse textured loamy sands or sands. In protected bedrock areas, well depth is less than 15 ft. In protected bedrock 50 ft. of sand or areas overlain with gravel, well depth is less than 50 ft. In shallow bedrock areas, well depth is less than 25 ft. In Karst areas, well depth is less than 100 ft. OTHER 0	14,16,19, 25,27,30, 31,32,38, 40,45,54, 58,61,65, 97,102, 103,104, 105,106

TOTAL [ ]

1. Add the circled Rating Item scores to get a total for the field sheet.
2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 40. Check "good" if the score falls between 25 and 39, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor," find the practices in the right-hand column to help remedy the conditions.

RANKING Excellent (40-46 [ ] Good (25-39) [ ] Fair (10-24) [ ] Poor (9 or less) [ ]

Animal Waste Page 1 of 2

FIELD SHEET $2B_2$: ANIMAL WASTE
INDICATORS FOR TOTALLY OR PARTIALLY CONFINED ANIMALS

Evaluator _____ County/State _____ Date _____
Field Evaluated _____ Field Location _____ Total Score/Rank _____

(Circle one number among the four choices in each row which BEST describes the conditions of the field or area being evaluated. If a condition has characteristics of two categories, you can "split" a score.)

Rating Item	Excellent	Good	Fair	Poor	Practices from Appendix E
1. Runoff Potential	Low: Runoff Curve Number (RCN) 61-70. Very flat to flat terrain (0-0.5% slope). Dry, low rainfall (less than 20") with rainfall erosivity (R) factor less than 50. Even, gentle impact (scattered shower-type) of rainfall. OTHER 10	Moderate: RCN 71-80. Flat to gently sloping (0.5-2.0% slope). Semidry (20-30") with R 50 to 100. Even, gentle to moderate intensity rainfall. OTHER 8	Considerable: RCN 81-90. Gently to moderately sloping (2-5% slope). Semiwet (30-40") with R 100 to 200. Even but intense rainfall. OTHER 4	High: RCN greater than 90. Moderately sloping to steep (greater than 5%). Wet (more than 40" rain) with R greater than 200. Intense uneven rainfall in seasons when soil is exposed. OTHER 0	25,27,38, 69,70,78
2. Animal waste yield to water body; proportion of waste to leave the site	Site is 600 ft. from water body with intervening vegetation. Rapid decomposition of waste due to hot, sunny climate or low pH soils. OTHER 10	Site is between 200-500 ft. from water with intervening vegetation. Moderate to rapid decomposition due to warm, sunny climate. OTHER 8	Site 200 ft. from water. Slow to moderate decomposition due to cooler, more overcast climate. OTHER 4	Site is on bank of water body; or in close proximity to it. Slow decomposition due to cold climate with little direct solar radiation or high pH soils. OTHER 0	24,25,27, 38,40, 102,103, 104,105, 106
3. Animal access to water	None to very little. Watering areas located far from naturally occurring water bodies. OTHER 9	Very limited. Watering away from stream or pond. Stream used only as access path. OTHER 7	Access limited to watering. OTHER 3	Unlimited access for both watering and cooling. OTHER 0	1,40,54, 61,102

4. Runoff Management	Excellent management: Runoff is completely diverted away from concentrated waste. BMPs used as needed, such as surface water diversions, including guttering.	Good management: A good portion of clean runoff is diverted from waste. Runoff from feedlot, barns, etc. is diverted to holding pond.	Fair management: Only a partial runoff management system. Evidence of contaminated runoff going directly to streams or ponds.	Poor management: Little or no runoff management. Natural runoff removes most of the waste or little to no mgmt. of lagoons results in recurrent overflows. Evidence of lagoon overflows, manure-caked flow paths, etc.	25,27,38, 69,70,76, 78,102, 103,104, 105,106
	OTHER 10	OTHER 7	OTHER 3	OTHER 0	

Animal Waste Page 2 of 2

FIELD SHEET $2B_2$: ANIMAL WASTE

INDICATORS FOR TOTALLY OR PARTIALLY CONFINED ANIMALS

5. Waste handling and utilization practices	Excellent mgmt. always with: Established collection schedule. Application at proper rates & times. Control of odor & pests. Regular sampling & record keeping. More than sufficient acreage for waste utilization. OTHER 10	Good management most of the time (80%) with some of the following: Established collection schedules. Application at proper rates and times. Control of odor and pests. Sufficient acreage for waste utilization. OTHER 8	Haphazard management common: Collection random. Applies waste anytime even before predicted rainfall. Odor and pests as occasional problems. Insufficient acreage for waste utilization. OTHER 4	No or little management: A real mess most of the time. Continual odor and waste accumulation problems. OTHER 0	102,103, 104,105, 106
6. Potential for ground water contamination	Low: Soils rich to very rich in organic matter (>3.0%). Slow to very slow percolation in light textured soils such as clays, silty or sandy clays, or silty clay loams. Perched water table present. In protected bedrock areas. (50 ft. of soil & shale cap), well depth is 75-100 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is greater than 150 ft. In shallow bedrock areas (25-50 ft. soil & shale cap), well depth greater than 200 ft. In Karst areas, well depth is greater than 1,000 ft., if aquifier is "confined." OTHER 9	Moderate: Soils rich to moderate in organic matter (3.0 to 1.5%). Slow to moderate percolation in clay loams or silts. Perched water table present. In protected bedrock areas, well depth is 30-74 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 100-149 ft. In shallow bedrock areas, well depth is 50-199 ft. In Karst areas, well depth is 500-999 ft. OTHER 6	Considerable: Soils moderate to low in organic matter (1.5 to 0.5%). Moderate to rapid percolation in silty loams, loams, or silts. In protected bedrock areas, well depth is 15-29 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 50-99 ft. In shallow bedrock areas, well depth is 25-49 ft. In Karst areas, well depth is 100-499 ft. OTHER 4	High: Soils low to very low in organic matter (less than 0.5%). Rapid percolation in coarse textured loamy sands or sands. In protected bedrock areas, well depth is less than 15 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is less than 50 ft. In shallow bedrock areas, well depth is less than 25 ft. In Karst areas, well depth is less than 100 ft. OTHER 0	14,16,19, 25,27,30, 31,32,38, 40,45,54, 58,61,65, 97,102, 103,104, 105,106

1. Add the circled Rating Item scores to get a total for the field sheet. TOTAL [ ]
2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 51. Check "good" if the score falls between 33 and 50, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor," find the practices in the right-hand column to help remedy the conditions.

RANKING Excellent (51-58) [ ] Good (33-50) [ ] Fair (11-32) [ ] Poor (10 or less) [ ]

Nutrients

FIELD SHEET 3A: NUTRIENTS
INDICATORS FOR RECEIVING WATERCOURSES AND WATER BODIES*

Evaluator _____ County/State _____ Date _____
Water Body Evaluated _____ Water Body Location _____ Total Score/Rank _____

(Circle one number among the four choices in each row which BEST describes the conditions of the watercourse or water body being evaluated. If a condition has characteristics of two categories, you can "split" a score.)

Rating Item	Excellent	Good	Fair	Poor
1. Total amount of aquatic vegetation at low flow or in pooled areas. Includes rooted and floating plants, algae, mosses & periphyton	Little vegetation, uncluttered look to stream or pond. OR What's expected for good water quality conditions in your region. Usually fairly low amounts of many different kinds of plants. OTHER 10	Moderate amounts of vegetation. OR What's expected for good water quality conditions in your region. OTHER 6	Cluttered weedy conditions. Vegetation sometimes luxurious and green. Seasonal algal blooms. OTHER 3	Choked weedy conditions or heavy algal blooms or no vegetation at all. Dense masses of slimy white, greyish green, rusty brown or black water molds common on bottom. OTHER 0
2. Color of water due to plants at base or low flow	Clear or slightly greenish water in pond or along the whole reach of stream. OTHER 9	Fairly clear; slightly greenish. OTHER 6	Greenish. Difficult to get pond sample without pieces of algae or weeds in it. OTHER 3	Very, very green pond scums. Pea green color or pea soup condition during seasonal blooms of microscopic algae in ponds. "Oily-like" sheen when pea soup algae die off. OTHER 0
3. Fish behavior in hot weather fish kills, especially before dawn	No fish piping or aberrant behavior. No fish kills. OTHER 9	In hot climates, occasional fish piping or gulping for air in ponds just before dawn. No fish kills in last two years. OTHER 5	Fish piping common just before dawn. Occasional fish kills. OTHER 3	Pronounced fish piping. Pond fish kills common. Frequent stream fish kills during spring thaw. Very tolerant species (e.g. bullhead, catfish). OTHER 0

4. Water use impacts; health effects for whole sub-watershed	None. OTHER 8	Minimal, such as reduced quality of fishing. OTHER 7	A couple of the following: Algal clogged pipes. Algal related taste, color, or odor problems with human or livestock water supply. Cattle abortion. Reduced recreational use due to weedy conditions, decay, odors, etc. OTHER 4	Several of the following: Algal clogged pipes. Algal related taste, color, or odor problems with human or livestock water supply. Cattle abortion. Reduced quality of fishery. Reduced recreational use due to weedy conditions, decay, odors, etc. Blue babies—incidence of methemoglobinemia due to high nitrate levels. Property devaluation. OTHER 2
5. Bottom-dwelling aquatic organisms	Intolerant species occur: mayflies, stonefiles, caddisflies, water penny, riffle beetle. High diversity. OTHER 9	Intolerants common. A mix of tolerants: shrimp, damselflies, dragonflies, black flies. Moderate diversity. OTHER 7	Mainly tolerants: snails, shrimp, damselflies, dragonflies, black flies. Mainly tolerants, but some very-tolerants. Intolerants rare. Reduced diversity with occasional upsurges of tolerants, e.g. tube worms, and chironomids. OTHER 3	Mainly very-tolerants: midges, craneflies, horseflies, rat-tailed maggots, or no organisms at all. Very reduced diversity, upsurges of very-tolerants common. OTHER 1

*The effects of nutrients may be "masked" by high sediment loads, creating sufficient turbidity to shade light-dependent aquatic vegetation. This may cause aquatic vegetation, a water quality indicator, to die and disappear from the watercourse. To obtain accurate nutrient levels in high sediment situations, chemical testing may be necessary. Under these circumstances you should contact a local or other water quality specialist.

1. Add the circled Rating Item scores to get a total for the field sheet. TOTAL [ ]
2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 38. Check "good" if the score falls between 23 and 37, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor," complete Field Sheet 3B.

RANKING Excellent (38-45) [ ] Good (23-37) [ ] Fair (9-22) [ ] Poor (8 or less) [ ]

Nutrients Page 1 of 2

FIELD SHEET 3B: NUTRIENTS
INDICATORS FOR CROPLAND, HAYLAND, OR PASTURE

Evaluator _____ County/State _____ Date _____
Field Evaluated _____ Field Location _____ Total Score/Rank _____

(Circle one number among the four choices in each row which BEST describes the conditions of the field or area being evaluated. If a condition has characteristics of two categories, you can "split" a score.)

Rating Item	Excellent	Good	Fair	Poor	Practices from Appendix E
1. Erosion Potential	Not significant. Less than T (tolerance) little sheet & rill erosion, no gullies. Blocky, platy or massive soil structure. OTHER 10	Some erosion evident. About T, some sheet & rill erosion. Very few gullies. Coarse granular to medium granular soils. OTHER 6	Moderate erosion. T to 2T, gullies from heavy storm events obvious. Fine granular soils. Potentially highly erodible soils. OTHER 3	Heavy erosion. More than 2T, many gullies and critical erosion areas. Very fine granular soils, highly erodible. OTHER 0	7,9,10, 14,15,16, 17,18,20, 25,27,29, 30,45,61, 77,79,85, 87,97
2. Runoff Potential	Low: Soils hydraulic Group A. Very flat to flat terrain (0-0.5% slope). Dry, low rainfall (less than 20") with rainfall erosivity (R) factor less than 50. Even, gentle impact (scattered shower-type) of rainfall. OTHER 10	Moderate: Soils Group B. Flat to gently sloping (0.5-2% slope). Semidry (20-30") with R 50 to 100. Even, gentle to moderate intensity rainfall. OTHER 8	Considerable: Soils Group C. Gently to moderately sloping (2-5% slope). Semiwet (30-40") with R 100 to 200. Even but intense rainfall. OTHER 4	High: Soils Group C. Moderately sloping to steep terrain (greater than 5%). Wet (more than 40" rain) with R greater than 200. Intense uneven rainfall in seasons when soil is exposed. OTHER 0	6,9,52, 88,95
3. Resource Management Systems on whole farm (combined value for all agricultural areas—pastureland, cropland, or animal holding areas	Excellent management. RMSs always used as needed. OTHER 9	Good management. Most (80%) of the needed RMSs installed. Predominance of farming practices diverting runoff away from receiving waters (terraces without tile drains). OTHER 7	Fair management. About 50% of the needed RMSs installed. Cropping confined to proper land class. Predominance of farming practices diverting runoff toward receiving waters (tile drains and field ditches). OTHER 3	Poor management. Few, if any, needed RMSs installed. Cropping not confined to proper classes. No diversion of runoff water; water flowing directly into receiving waters. OTHER 0	All Practices

4. Buffer Zone	Cropland is more than 600 ft. from water with intervening herbaceous vegetation (grass) Cropland is more than 100 ft. from water with intervening woody vegetation (trees). OTHER 10	Cropland is less than 600 ft. but more than 200 ft. from water with intervening herbaceous vegetation (grass). Cropland is less than 100 ft., but more than 50 ft. from water with intervening vegetation (trees). OTHER 7	Cropland is less than 200 ft. but more than 15 ft. from water with intervening herbaceous vegetation (grass). Cropland is less than 50 ft., but more than 15 ft. from water with intervening woody vegetation (trees). Little bank (riparian) vegetation. OTHER 2	Cropping up to the water's edge. No bank (riparian) vegetation. OTHER 0	25,26,27, 32,38

Nutrients Page 2 of 2

5. Fertilizer management practices	Excellent management. No fertilizer necessary. Well defined schedule as to frequency & timing for inorganic or organic fertilizer depending on crop type, height of growth, etc. Application of exactly the proper (recommended) amounts according to soil tests. Pays close attention to weather forecasts. Never applies before a storm. Fertilizer is incorporated into the soil. OTHER 9	Good management. Mainly follows a schedule but sometimes misses the best timing for the maximum utilization by the crop. Usually follows directions for proper dosages of fertilizer and has soil tested regularly. Follows weather forecasts but once in a while will risk applying when rain is forecast. Fertilizer is mainly of the incorporated slow-release type. OTHER 7	Haphazard management. Follows a schedule about half the time. Application is based on convenience. Tends to "overfertilize" by using more than the recommended dose as "insurance." Occasionally loses much of application in a washout. More than half the fertilizer is applied to the surface. OTHER 3	Little or erratic mgmt. Seldom follows a schedule. Applications without heed to weather forecasts. Often loses most of the applied fertilizer in a washout. Applies usually too little, sometimes too much. Most of the fertilizer is surface applied without incorporation, e.g., in the North nitrogen application in the Autumn for some crops. OTHER 0	7,8,9,12, 14,16,17, 25,27,30, 38,41,45, 52,60,69, 70,73,78, 79,80,81, 82,84,96

6. Potential for ground water contamination	Low: Soils rich to very rich in organic matter (> 3.0%). Slow to very slow percolation in light textured soils such as clays, silty or sandy clays, or silty clay loams. Perched water table present. In protected bedrock areas (50 ft. of soil & shale cap), well depth is 75-100 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is greater than 150 ft. In shallow bedrock areas (25-50 ft. soil & shale cap), well depth greater than 200 ft. In Karst areas, well depth is greater than 1,000 ft., if aquifier is "confined." OTHER 9	Moderate: Soils rich to moderate in organic matter (3.0 to 1.5%). Slow to moderate percolation in clay loams or silts. Perched water table present. In protected bedrock areas, well depth is 30-74 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 100-149 ft. In shallow bedrock areas, well depth is 50-199 ft. In Karst areas, well depth is 500-999 ft. OTHER 6	Considerable: Soils moderate to low in organic matter (1.5 to 0.5%). Moderate to rapid percolation in silty loams, loams, or silts. In protected bedrock areas, well depth is 15-29 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is 50-99 ft. In shallow bedrock areas, well depth is 25-49 ft. In Karst areas, well depth is 100-499 ft. OTHER 4	High: Soils low to very low in organic matter (less than 0.5%). Rapid percolation in coarse textured loamy sand or sands. In protected bedrock areas, well depth is less than 15 ft. In protected bedrock areas overlain with 50 ft. of sand or gravel, well depth is less than 50 ft. In shallow bedrock areas, well depth is less than 25 ft. In Karst areas, well depth is less than 100 ft. OTHER 0	7,9,10,20, 25,27,30, 37,38,44, 60,64,80, 81,82,84, 87,96

1. Add the circled Rating Item scores to get a total for the field sheet. TOTAL [ ]
2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 49. Check "good" if the score falls between 30 and 48, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor," find the practices in the right-hand column to help remedy the conditions.

RANKING Excellent (49-57) [ ] Good (30-48) [ ] Fair (9-29) [ ] Poor (8 or less) [ ]

Pesticides

FIELD SHEET 4A: PESTICIDES
INDICATORS FOR RECEIVING WATERCOURSES AND WATER BODIES

Evaluator _____ County/State _____ Date _____
Water Body Evaluated _____ Water Body Location _____ Total Score/Rank _____

(Circle one number among the four choices in each row which BEST describes the conditions of the watercourse or water body being evaluated. If a condition has characteristics of two categories, you can "split" a score.)

Rating Item	Excellent	Good	Fair	Poor
1. Presence of pesticide containers	No containers in or near water. OTHER 9	No containers in or near water. OTHER 9	Containers located near the water. OTHER 5	Containers in the water. OTHER 3
2. Appearance of non-target vegetation	No leaf burn. No vegetation dieback. OTHER 9	Some leaf burn. No vegetation dieback. OTHER 6	Significant leaf burn. Some vegetation dieback. OTHER 4	Severe dieback of vegetation. OTHER 1
3. Overall diversity of insects, ("fish bait")	High diversity including dragonflies, stoneflies, mayflies, caddisflies, water mites or beetles. OTHER 10	Average diversity of insects—some of those listed under excellent. OTHER 8	Occasional insect kills. Reduced numbers and kinds. Upsurges of blackflies & chironomids. OTHER 3	Insect kills common. Not many fish-bait types such as hellgrammites (the larvae of dobsonflies), alderflies, or fishflies. OTHER 1
4. Overall diversity of fish	Excellent fish diversity—what's expected in the area. Presence of intolerants such as brook, brown or rainbow trout, salmon or stickleback. OTHER 9	Good fish diversity. Native salmonids (trout & salmon) begin to die out first. The least tolerant centrarchids (longear sunfish, rock bass, smallmouth bass, crappie, redfinned pickerel and bluegill) begin to decline. OTHER 7	Reduced fish diversity. The more tolerant centrarchids die off—blacknosed dace, common shiner, sculpin, creekchub, madtom, golden shiner, large mouth bass, blueback herring, and alewives. Larger proportion of green sunfish. Occasional (once every 1-2 years) pond fish kills. OTHER 4	Extremely reduced fish diversity. Only very tolerant species of cyprinids & ictalurids (such as brownhead carp, bullheads, white sucker, shad, and catfish). Some highly polluted waters (usually ponds) may lack fish entirely. OTHER 1

5. Fish kills; animal teratology (birth defects & tumors in fish & other animals)	No fish kills in last 2 years. No birth defects of tumors. OTHER 9	Fish kills rare in last 2 years. Minimal birth defects & tumors occurring in the population randomly. OTHER 5	Occasional fish kills. Some birth defects & tumors. OTHER 3	Fish kills common in last couple of years. Frequent fish kills during spring thaws. Yearly pond fish kills following aquatic vegetation dieback not uncommon. Considerable numbers of birth defects & tumors. OTHER 0
OPTIONAL 6. Fish behavior in hot weather; fish kills, especially before dawn	Normal behavior, e.g. fish seen breaking the surface for insects. No evidence of disease, tumors, fin damage or other anomalies. No fish piping or aberrant behavior. No fish kills. OTHER 9	Behavior as expected, e.g. evidence of fish, such as water rings or bubbles. Little if any evidence of disease, tumors, fin damage, or other anomalies. In hot climates, occasional fish piping or gulping for air in ponds just before dawn. No fish kills in last 2 years. OTHER 7	Behavioral changes in fish—swimming near surface, uncoordinated movements, convulsive darting movements, erratic swimming up & down or in small circles, hyperexcitability (jumping out), difficulty in respiration. More likely seen in ponds. Fish piping common. Occasional fish kills. OTHER 4	Fish avoidance or behaviors, such as erratic swimming near surface & gulping for or piping for air. More likely seen in ponds. Pond fish kills common. Frequent stream fish kills during Spring thaw. Very tolerant species (e.g., bullhead, catfish). OTHER 0

1. Add the circled Rating Item scores to get a total for the field sheet. TOTAL [ ]
2. Check the ranking for this site based on the total field score. Check "excellent" if the score totals at least 40. Check "good" if the score falls between 27 and 39, etc. Record your total score and rank (excellent, good, etc.) in the upper right-hand corner of the field sheet. If a Rating Item is "fair" or "poor," complete Field Sheet 4B.

RANKING	Excellent (40-46) [ ]	Good (27-39) [ ]	Fair (12-26) [ ]	Poor (11 or less) [ ]
OPTIONAL RANKING	Excellent (48-55) [ ]	Good (32-47) [ ]	Fair (14-31) [ ]	Poor (13 or less) [ ]

Pesticides Page 1 of 2

FIELD SHEET 4B: PESTICIDES
INDICATORS FOR CROPLAND, HAYLAND, OR PASTURE

Evaluator _____ County/State _____ Date _____
Field Evaluated _____ Field Location _____ Total Score/Rank _____

(Circle one number among the four choices in each row which BEST describes the conditions of the field or area being evaluated. If a condition has characteristics of two categories, you can "split" a score.)

Rating Item	Excellent	Good	Fair	Poor	Practices from Appendix E
1. Erosion Potential	Not significant. Less than T (tolerance), little sheet, rill, or furrow erosion. No gullies. OTHER 10	Some erosion evident. About T; some sheet, rill, or furrow erosion. Very few gullies. OTHER 7	Moderate erosion. T to 2T. Gullies or furrows from heavy storm events obvious. OTHER 3	Heavy erosion. Greater than 2T. Many gullies or furrows & presence of critical erosion areas. OTHER 0	7,9,10,16, 17,27,29, 39,45,46, 55,74,77, 79,87,95
2. Buffer Zone	Intervening vegetation between cropland & water-course greater than 200 ft. Type of intervening vegetation ungrazed woodland, brush, or herbaceous plants. OTHER 8	Intervening vegetation between cropland & watercourse 100 to 200 ft. Type of intervening vegetation grazed woodland, brush, or herbaceous plants or range. OTHER 6	Intervening vegetation between cropland & watercourse 50 to 100 ft. Type of intervening vegetation high density cropland. OTHER 4	Cropping from less than 50 ft. up to water's edge. Type of intervening vegetation low density cropland or bare soil. OTHER 2	25,27,38
3. Appearance of non-target vegetation	No leaf burn. No evidence of dieback. OTHER 9	Some leaf burn. No dieback. OTHER 6	Significant leaf burn. Some vegetation dieback. OTHER 4	Severe dieback of vegetation. OTHER 1	2,4,34,41, 42,43,48, 49,50,51, 66,72
4. Runoff Potential	Low: Runoff Curve Number (RCN) 61-70. Very flat to flat terrain (0-0.5% slope). Dry, low rainfall (less than 20") with rainfall erosivity (R) factor less than 50. Even, gentle impact (scattered shower-type) of rainfall. OTHER 10	Moderate: RCN 71-80. Flat to gently sloping (0.5-2.0% slope). Semidry (20-30") with R 50 to 100. Even, gentle to moderate intensity rainfall. OTHER 8	Considerable: RCN 81-90. Gently to moderately sloping (2-5% slope). Semiwet (30-40") with R 100 to 200. Even but intense rainfall. OTHER 4	High: RCN greater than 90. Moderately sloping to steep (greater than 5%). Wet (more than 40" rain) with R greater than 200. Intense uneven rainfall in seasons when soil is exposed. OTHER 0	6,9,52, 88,95

5. Type of pesticide	Narrow spectrum, species specific. Water soluble, very rapidly degrading. OTHER 8	Fairly narrow range of toxicity. Water soluble, rapid-to-moderate degradation. OTHER 5	Persistent, not species specific. Fat soluble, nonbio-degradable. OTHER 3	Persistent, wide spectrum biocide (harms "any living thing"). Fat soluble, nonbiode-gradable. OTHER 1	2,49,66