Pesticides Page 2 of 2

6.	Pesticide management including amount of pesticide applied per acre; the frequency of application, timing & manner of application; and clean-up practices	Application according to a well defined pest management program such as integrated Pest Management (IPM) with close supervision by professional. Insecticides applied once every two years. One herbicide treatment per year. Careful nonaerial spraying or incorporating into the soil. Spraying on dry, hot, windless days. Follows instructions on pesticide label. Discards containers at appropriate disposal centers. Uses a professional applicator. OTHER 10	Application of recommended dosages by certified applicators based on scouting by professionals. Insecticides applied twice per year. Two herbicide treatments per year. *OR* Insecticides & herbicides applied as needed. Careful non-aerial or aerial spraying. Spraying on calm, dry days. Careful to avoid spills. Careful to keep containers away from water body. OTHER 7	Application based on scouting done by the landowner; extra pesticide beyond the recommended dosage to insure pest control. Insecticides applied 2 to 5 times per year. 2 to 3 herbicide treatments per year. Casual non-aerial or aerial spraying. Spraying with minimal concern about weather. Containers discarded haphazardly. Containers washed in a water body or in close proximity to the water, so that contamination is likely. OTHER 3	Application by a schedule that meets the needs of the landowner. No scouting. Landowner strives for zero pests (complete eradication) by doubling or more than doubling the application rate. Insecticides applied more than 5 times per year. More than 3 herbicide treatments per year. Application almost exclusively aerial. Spraying with no heed to the weather. Application on windy, rainy, days common. Careless discarding of containers in water bodies or sinkholes. Doesn't heed warnings for human safety with regard to application, cleanup, and disposal. OTHER 0	2,4,9,10, 13,16,17, 20,21,25, 27,29,33, 34,38,41, 42,43,45, 47,48,49, 50,51,55, 59,66,72, 77,80,87

7. 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

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 54. Check "good" if the score falls between 35 and 53, 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 (54-64) [ ] Good (35-53) [ ] Fair (14-34) [ ] Poor (13 or less) [ ]

Salinity

FIELD SHEET 5A: SALINITY
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. Geology of area and geochemistry of water	Agricultural area overlies formations of igneous or metamorphic origin. Few fractures or faults in the area. Very low to low mineral content—soft waters of the East and Southeast. OTHER 10	Agricultural area primarily overlies formations of igneous or metamorphic origin with occasional areas above marine deposits. Few fractures or faults. Low to moderate mineral content—soft waters. OTHER 7	Agricultural area overlies marine deposits. Faulting common. Moderate to high mineral content—hard waters of mountain states, deserts, and Great Plains. OTHER 3	Agricultural area overlies marine deposits of recent origin. Fractures and faulting very common in the area. High to very high mineral content. Soils of marine origin. Salty ground water & springs. Mineral springs. OTHER 0
2. Precipitation and irrigation requirements	Average crop water consumption is equal to or less than average precipitation. Minimal irrigation required. OTHER 8	Average crop water consumption is between 5 & 10% more than average precipitation. Moderate irrigation req'd. OTHER 6	Average crop water consumption is between 10 & 25% more than precipitation. Considerable irrigation required. OTHER 4	Average crop water consumption exceeds average precipitation by more than 25%. Maximal irrigation required. OTHER 0
3. Location of watercourse in watershed	Near headwaters. OTHER 9	Not far from headwaters. OTHER 7	Moderate distance from headwaters. OTHER 5	Far from headwaters. OTHER 3
4. Appearance of water's edge (shoreline or banks)	No evidence of salt crusts. OTHER 9	Some evidence of white, crusty deposits on banks. OTHER 6	Numerous localized patches of white, crusty deposits on banks. OTHER 4	Most of the pond or stream bank covered with a thick, white, crusty deposit. Salt "feathering" on posts abundant. OTHER 1

5. Appearance of aquatic vegetation	No evidence of wilting, toxicity, or stunting. OTHER 10	Minimal wilting and toxicity, bleaching, leaf burn. Little if any stunting. OTHER 7	Stream or pond vegetation may show wilted and toxic symptoms—bleaching, leaf burn. Presence of some salt-tolerant species. OTHER 3	Evidence of severe wilting, toxicity, or stunting. Presence of only the most salt-tolerant species or complete absence of vegetation. OTHER 0
6. Streamside vegetation	Very few species. OTHER 8	Few salt tolerant species. Refer to list below*. OTHER 7	Increasing dominance of salt-tolerant species. OTHER 5	Vegetation almost totally salt-tolerant species or absence of vegetation. OTHER 3
OPTIONAL 7. Animal teratology (birth defects & tumors in fish and other animals)	No birth defects or tumors. OTHER 10	Minimal birth defects & tumors occuring in the population randomly. OTHER 6	Some birth defects & tumors. OTHER 1	Considerable numbers of birth defects & tumors. OTHER 0

*Salt-tolerant species include greasewood, alkali sacaton, fourwing saltbush, shadscales, saltgrass, tamarisk (salt cedar), galleta, western wheatgrass, crested wheat, mat saltbush, reed canarygrass, and rabbitbrush.

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 47. Check "good" if the score falls between 32 and 46, 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 $5B_1$ or $5B_2$.

RANKING	Excellent (47-54) [ ]	Good (32-46) [ ]	Fair (15-31) [ ]	Poor (14 or less) [ ]
RANKING (OPTIONAL)	Excellent (55-64) [ ]	Good (35-54) [ ]	Fair (16-34) [ ]	Poor (15 or less) [ ]

Salinity Indicators Page 1 of 2

FIELD SHEET 5B$_1$: SALINITY INDICATORS

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. Length of off-farm delivery system from headgate to farm boundary	Less than ¼ mile. OTHER 10	Between ¼ and ½ mile. OTHER 7	Between ½ and 1 mile. OTHER 3	Greater than 1 mile. OTHER 0	
2. Irrigation management practices, including: seepage potential of delivery system, overall irrigation rating, and timing of irrigation	All canals lined or piped. Excellent maintenance. Clay soil texture. Seepage rate of 0.1 to 1.0 cu. ft. of water per sq. ft. of surface per day ($ft^3/ft^2/day$). Sediment ponds, fertilizer management, monitoring flow, and other BMPs used as needed. Irrigation scheduling based on crop needs and testing by tensiometer, moisture block or neutron probe. OTHER 10	Canals are partially lined. Moderate maintenance. Sandy clay soil texture. Seepage rate of 0.2 to 1.1 $ft^3/ft^2/day$. Most (80%) of needed practices installed. Timing based on crop needs and maximum allowable deficiency (e.g., testing by wet ball or soil probe). OTHER 7	Vegetated canals. Little maintenance. Sandy, silty, clay loams. Seepage rate 0.3 to 1.3 $ft^3/ft^2/day$. About 50% of needed practices installed. Irrigation tied to traditional irrigation scheduling with little regard to crops' water requirements. OTHER 3	Earthen canals. Maintenance leading to disturbed canal bottom. Sands, loams, & silty loams. Seepage rate 0.5 to 1.5 $ft^3/ft^2/day$. Poor management. Few needed practices installed. Continuing increase in number of evaporation ponds. Excessive irrigation based on convenience & traditional irrigation scheduling. No consideration of crop needs. OTHER 0	21,35,36, 37,38,44, 53,59,62, 67,68,69, 70,71,73, 98,101, 108,109

3.	Kind & properties of soils; permeability (adjusted Sodium Adsorption Ratio-SAR)	Coarse textured particles. Deep topsoil—excellent tilth.	No restrictive properties—good tilth.	Clay soils with high sodium & high salt. Reduced tilth. Several of the characteristics listed under poor. Montmorillonite clay with SAR = 8. Illite clay with SAR of 12-15. Kaolinite clay with SAR of 20-23.	High montmorillonite clays with high sodium & high salt. Black soils with dissolved organic matter. Poor tilth. Puddling, soggy soils, poor infiltration and drainage. Slick spots and white crust. Montmorillonite clay with SAR 9. Illite clay with SAR 16. Kaolinite clay with SAR 24.
		OTHER 9	OTHER 6	OTHER 3	OTHER 0
4.	Soil salinity (mmhos/cm) or (Decisiemans/meter)	Less than 0.8 (mmhos/cm).	Between 0.8 & 1.5 (mmhos/cm)	Between 1.5 & 2.5 (mmhos/cm).	Greater than 2.5 (mmhos/cm).
		OTHER 9	OTHER 6	OTHER 3	OTHER 0

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Salinity Indicators Page 2 of 2

5. Crop type. Productivity and appearance, including specific ion toxicity (varies with species sensitivity to particular toxin)	Crop type relatively non-tolerant to salt. Refer to Appendix. High productivity. Prolific growth. None. OTHER 9	Moderately salt-tolerant species predominate. Average productivity—what's expected in the region. Some wilting. OTHER 6	Less salt-tolerant crops die out. Replacement by relatively salt-tolerant species. Less than expected productivity. Some stunting. Wilted & noticeable toxic symptoms—tip and marginal leaf burn, chlorosis (bleached areas), defoliation. Deep blue-green foliage. Thickened waxy coating on leaves. OTHER 3	Only highly salt-tolerant crops can be grown. Plants of variable size. Stunted growth. Reduced production. Toxic symptoms & dieoff of crops sensitive to given ions. OTHER 1	17,22
6. Animal productivity and health	No reduction in productivity. No incidence of disease. OTHER 9	Minimal reduction in productivity. Minimal incidence of disease. OTHER 6	Some reduction in total growth, milk production, etc. Moderate incidence of disease symptoms such as diarrhea. OTHER 3	Greatly reduced growth, milk production, etc. With sudden salinity changes, livestock may reject water. High incidence of disease symptoms such as diarrhea. OTHER 1	24,40,54, 64,71,72, 83

7. 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	21,35,36, 37,53,62, 64,68,70, 73,91,92

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 54. Check "good" if the score falls between 31 and 53, 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 (54-65) [ ] Good (33-53) [ ] Fair (12-32) [ ] Poor (11 or less) [ ]

Salinity

FIELD SHEET $5B_2$: SALINITY

INDICATORS FOR SALINE SEEPS

Evaluator _____ County/State _____ Date _____

Saline Seep Evaluated _____ Seep 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. Geology	Agricultural area overlies formations of igneous or metamorphic origin. Few fractures or faults in the area. OTHER 10	Agricultural areas primarily overlies formations of igneous or metamorphic origin with occasional areas above marine deposits. Few fractures or faults. OTHER 7	Agricultural area overlies marine deposits. Faulting common. OTHER 3	Agricultural area overlies marine deposits of recent origin. Fractures and faulting very common in the area. OTHER 0	
2. Precipitation & irrigation requirements	Average crop water consumption is equal to or less than average precipitation. OTHER 8	Average crop water consumption is between 5 and 10% more than average precipitation. OTHER 6	Average crop water consumption is between 10 and 25% more than precipitation. OTHER 4	Average crop water consumption exceeds average precipitation by more than 25%. OTHER 0	
3. Cropping system	Crop rotation consists of annual crops with maximum consumptive water use. OTHER 8	Crop rotation consists of annual crops. OTHER 6	Crop rotation contains a biannual fallow period. Crops with maximum water consumptive use grown. OTHER 4	Crop rotation contains a biannual fallow period. OTHER 2	17,37,68, 72
4. Field appearance, including salt crusts	Downslope fields exhibit even-appearing crop growth. High yields are common for the area. OTHER 9	Downslope areas of field or downslope fields exhibit even crop growth, but of reduced yield for the area. OTHER 7	Downslope areas of field or downslope fields have uneven growth of crops with patches of crops significantly stunted. Occasionally white crust occurs in these patches. OTHER 3	Downslope areas of fields have bare spots not accounted for by soil variations. Bare spots occur in highly saline soils. White crust common. OTHER 1	

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 30. Check "good" if the score falls between 20 and 29, 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 (30-35) [ ] Good (20-29) [ ] Fair (8-19) [ ] Poor (7 or less) [ ]