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Crop Production
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Cropland Health Worksheet

An Interim Tool For Field Use
In Montana

INTRODUCTION

Purpose

This worksheet is an optional tool that may be used by field personnel for an initial screening to assess and identify cropland condition. It may also serve as a training aid for individuals with limited experience in resource assessment and/or in identifying resource conditions or problems in cropland.

When to Use the Worksheet

The worksheet should be used during the growing season. As the crop develops and conditions change, results of the worksheet may change. For most consistent results, the worksheet should be used more than once on each field during the growing season. When using the worksheet to evaluate before-and-after effects of conservation treatment, the second evaluation should be performed at approximately the same time during the growing season as the initial evaluation.

How to Use the Worksheet

The worksheet contains a series of **Attributes** related to cropland health. Based, primarily on visual observations and an occasional measurements, the user will place each Attribute into one of five **Categories** (I-V). A description of possible observations is provided for each Category. The user will indicate the Category that most closely resembles the field/farm observed. Since no field/farm will contain indicators identical to those provided in the worksheet, the user will make notes to explain his/her reasoning for choosing a particular Category and explain any unusual circumstances. In cases where an Attribute cannot be ranked due to lack of information or resources (for example, there is no access to a sweep net or conductivity meter), the attribute may be left blank. The user should make a note of the reason the attribute was left blank.

The worksheet does not provide an overall ranking for the cropland. Attributes in the highest Categories need closest attention to management and will probably require further evaluation. Suggested sources of information for the worksheet evaluation and possible tools for further evaluation will be provided where possible. Often sources of information must be locally obtained. As information sources become known they should be added to the text accompanying the worksheet.

Each grouping of Attributes contains a blank line to allow the user to develop additional Attributes and accompanying Categories appropriate in their area. A detailed definition of each Category is provided below to help the user identify observable characteristics that might fit each Category.

DESCRIPTION OF CATEGORIES

Category I: "Functional, Approaching Sustainability"

Cropland in this category is productive, economically viable, and environmentally friendly. Nonrenewable energy resources and external inputs are conservatively used. Soil, water, air, plants, animals and cultural resources are maintained or enhanced.

Category II: "At Risk"

Cropland in this category can sustain productive yield for an extended period of time, but it may be vulnerable to environmental or economic. Cropland in this category should readily respond to improved conservation management.

Category III: "Degraded, Easily Recoverable"

Cropland in Category III requires management improvements and/or installation of some conservation practices to be both economically productive and environmentally friendly. Attributes that fall into Category III can be moved to Category II or I by implementing standard conservation practices.

Category IV: "Degraded, Recoverable with Difficulty"

Cropland in this Category should respond to treatment but may require a significant investment in accelerating conservation practices to become economically productive and environmentally friendly. An extended recovery period may be required.

Category V: Degraded, Land Use Change Advisable"

Cropland in this Category is environmentally sensitive or vulnerable to mismanagement and is severely degraded. A change in land use (for example, enrollment in CRP) is generally advisable. For some Attributes a major change in crop rotation may be sufficient to facilitate recovery. However, in many cases, a more drastic change is needed.

DESCRIPTION OF ATTRIBUTES

A. EROSION ATTRIBUTES

WIND EROSION

Definition: Visual evidence of air-borne soil movement onto or off the field. Such evidence may include crop damage, wind-blown soil deposits, and smooth soil surfaces.

Considerations: In well vegetated, humid areas evidence of wind erosion is seldom if ever visible. In these cases Category I would be selected, or the attribute would be left blank. In areas where wind erosion is common, the user may be familiar with evidence

not listed in the table. In this case the evidence observed should be described in the observations column along with the user's reason for selecting a particular category for this attribute.

PREDICTED WIND EROSION

Definition: Soil loss (T/Ac/Year) due to wind erosion as determined with NRCS approved wind erosion prediction technology.

Considerations: Information for predicting wind erosion is located in Sections I and II of the NRCS Field Office Technical Guide.

WATER EROSION

Definition: Visual evidence of water-borne soil movement from or within a cropland field. Such evidence includes sediment deposition within or below the field, rock pedestals, ephemeral gullies, and/or classic gullies.

Considerations: In some parts of the country, the only water erosion of concern may be irrigation-induced erosion. In this case, Category I would be selected, or the attribute would be left blank. In areas where water erosion is a significant issue, the user may observe evidence of water erosion not listed in the worksheet.

PREDICTED WATER EROSION

Definition: Soil loss (T/Ac/Year) due to sheet and rill erosion as determined by NRCS approved water erosion prediction technology.

Considerations: Information for predicting sheet and rill erosion is located in Sections I and II of the NRCS Field Office Technical Guide.

IRRIGATION INDUCED EROSION

Definition: Water-borne soil movement within and from a cropland field caused by irrigation (as opposed to natural rainfall). Indications of the severity of this process may be visual or calculated. The worksheet relies on visual evidence of water erosion.

Considerations: Observable evidence of irrigation induced erosion is significantly different for furrow vs. sprinkler irrigation. These are therefore listed separately. Information to assist in assessing the Irrigation Induced Erosion Attribute may be found in Section II of the NRCS Field Office Technical Guide, State Irrigation Guides, and the RCA III report, "Irrigation Induced Erosion...."

The user may identify other evidence of irrigation induced erosion and may add this to the worksheet as appropriate. Use the "observations" column to describe additional

evidence of irrigation-induced erosion and your reasoning for selecting a particular Category for this Attribute.

B. CROP STRESS ATTRIBUTES

PLANT VIGOR

Definition: Health and strength of crop as evidenced by crop size, color, leaf area, and turgor.

Considerations: See your State Agronomist or local university for guides (including photographs) on visual evidence of crop vigor for various crops in your region. Several Internet sources are also available. Photographs taken during the test phase of this worksheet may serve as guides for others using the worksheet.

CROP YIELD

Definition: This worksheet relies on the ratio of the actual crop yield to its expected yield based on a 5-year county average. This ratio can only be obtained at the end of the growing season, or yields from the previous growing season may need to be used.

Considerations: Yields may depend on crop variety, soil type, and other factors that do not necessarily relate to the health of the farm. This attribute must therefore be considered only in conjunction with other crop stress indicators and should not be the only attribute used to indicate crop responses to stress. This attribute may be more or less useful depending on the data available. Section II of the FOTG may contain updated information on yield potential of individual soil series in your area. If updated information is available it may be used augment county averages or in lieu of average county data.

INSUFFICIENT NUTREINTS

Definition: The application of insufficient nutrients to meet crop needs or application of nutrients in such a manner that they cannot be utilized by the crop when they are needed.

Considerations: Nutrient deficiencies have different appearances in different crops. See your local extension office for descriptions or photographs of the most common nutrient deficiencies affecting crops in your area.

EVIDENCE OF SALT ACCUMULATION

Definition: Salt accumulation in the rooting zone. This is most likely a problem in irrigated fields or areas of the field where seeps occur.

Considerations: The visual indicators provided in the worksheet are evidence of an inverted salinity profile where salinity increases with depth, caused by the net water flux

upward in the soil profile. Where net water flux is downward, salinity can increases with depth, and in some cases salinity may be uniform throughout the profile. In the latter cases, salt crystals may not be visible, even though salinity is high in the rooting zone. Evidence of salinity within a field may take the form of spotty crop growth. If salinity problems are suspected, a more detailed salinity assessment should be conducted, whether or not salt crystals are visible at the soil surface.

Stress due to salinity is crop specific. A general list of salt sensitive and salt tolerant crops may be found in the following reference:

> Tanji, K.K. (ed). 1990. Agricultural Salinity Assessment and Management. Chapter 13-Crop Salt Tolerance. ASCE Manuals and Reports on Engineering Practice No. 71. ASCE.

Electrical conductivity readings should be taken or other measures of salinity should be made if salinity is suspected and salt sensitive crops are being grown.

C. PESTS AND DISEASES

WEEDS

Definition: Undesirable plants (plants other than the crop or cover crop) growing within the field. Weeds growing along field borders, fence rows, etc. are excluded from this definition.

Considerations: Some weeds are more detrimental to crops than others. Additional information about the specific weeds in the field and their relative impact on crop yields, if available, may be used able to refine these categories to reflect potential crop loss due to specific weed pests. Weeds are more likely to damage crop yield if they appear early in the growing season and are not controlled. If state listed noxious weeds are present in the field or along field borders, move one category to the left. For information on weed identification and/or potential crop damage, see your state agronomist or local university. A good guide for the Great Plains is a 1998 University of Nebraska publication entitled "Herbicide Use in Nebraska."

INSECTS OR DISEASE

Definition: This attribute refers to visible crop damage from insect or disease pests and the presence or absence of "beneficial insects". Beneficial insects are arthropods (insects, spiders and mites) that help pollinate the crop or destroy other insects or pests. Examples include honeybees that pollinate many flowering crops, the insect-eating praying mantids, ladybugs, and a variety of wasps that are parasites on other insects.

Considerations: Pest damage will vary with the pest and the crop. Additional information may be needed to categorize this attribute. There are a number of World Wide Web pages that contain information on different crop pests and diseases and what

they look like. See also the attached information on diagnosing plant damage (Attachment 1).

To identify beneficial insects it may be necessary to collect them by moving at least 30 paces into the field and sweeping a net through the crop 20 times. See the attached sheet for pictures of a few major beneficial insect groups and identifying characteristics. More information may be obtained through your local university. **NOTE**: If you collect a variety of insects during your sweeps, it is likely that many of them are beneficial insects. Pests usually become a problem when they dominate the field or an area of the field.

D. CROPLAND RESILIENCE

SPATIAL DIVERSITY (non-crop areas)

Definition: This attribute refers to the different species and growth habits of plants growing in field borders, hedgerows or buffers.

Considerations: Spatial diversity benefits wildlife and beneficial insects and may also add to the effectiveness of buffers that are designed to remove pollutants that leave the crop field by filtering, adsorption, or plant uptake. Some plants are more effective than others in performing these functions. For example, stiff grasses may serve as excellent filters for sediment and sediment-bound pollutants, while trees may be more effective in taking up nutrients that have been leached into the soil.

SITE RESILIENCE

Definition: This attribute refers to the ability of the cropland to recover from damaging influences, including drought or flooding.

Considerations: Site resilience is the closest thing we have to an overall rating of the cropland. It is an integration of the other attributes. If the other attributes are healthy, then the site will readily respond to improved conservation management or no additional conservation management may be necessary.

CROPPING SYSTEM

Definition: This attribute refers to the tillage system(s) used in the field, the type of crops grown, and the diversity of crops grown. This attribute has been subdivided into three parts. To obtain a rating for cropping system each part is rated separately (1 being the best rating). The categories are summed. A total score of 3-4 fits Category I, 5-7 fits Category II, 8-10 fits Category III, 11-13 fits Category IV, and greater than 13 fits Category V.

Considerations: This attribute is to be designed locally. Much of the information required to categorize this attribute may be obtained through field observations. For example, the tillage system used with the current crop and the previous crop may often be

determined in the field. However, in some instances it may be necessary to consult with the land manager. This is probably the case when the cropping sequence involves more than two crops.

E. OFF-SITE RISKS

EXCESS NUTRIENTS

Definition: The application of nutrients that cannot be used by the crop, either because they are improperly applied or applied in excess amounts. Application of excess nutrients can sometimes cause crop damage and may ultimately lead to contamination of surface and/or groundwater bodies.

Considerations: Fertilizer burn may occasionally be confused with other crop diseases. Contact your local extension specialist for assistance if fertilizer burn is suspected. Also, excess nutrients are not always apparent. If manure is applied to the field or excess nutrients are suspected, a soil test to determine the nutrient status of the soil is strongly recommended. Suggested categories based on soil test results are provided on the worksheet. The P level is based on an established threshold level above which P may only legally be applied at the same rate in which it is taken up by the crop. Threshold P levels have not been established in many states, however. If P levels test HIGH or VERY HIGH, P applications have probably been excessive historically.

MISAPPLIED PESTICIDES

Definition: Pesticides (insecticides, fungicides, nematicides, herbicides) applied in such a way that the crop is damaged either directly by the pesticide (e.g., through an accidental spill or misapplication of an herbicide) or indirectly, by providing inadequate control of the pest of concern.

Considerations: The effect of inadequate pest control due to pesticide misapplication may be captured under the INSECTS OR DISEASE attribute. Crop damage from pesticides may occasionally be confused with damage from other sources and may need to be confirmed by consulting with the land manager. Information on pesticides and proper pesticide application is found on pesticide labels. . If consultation with the land manager indicates that pesticide damage occurred even though the pesticides were not misapplied, check pesticide application equipment for faulty nozzles or other problems and consult a pest management specialist.

SEDIMENT

Definition: Potential off- site movement of soil due primarily to erosion from cropland.

Considerations: Off-site sediment movement is likely if erosion is high and buffers are not present, inadequately located or inadequately maintained.

Cropland Health Worksheet

Draft: 4/29/99

Date: Observer:

Location: Crop:

ATTRIBUTE	CATEGORY V* (Severely degraded, land use change advised)	CATEGORY IV (Degraded, recoverable with difficulty)	CATEGORY III (Degraded, easily recoverable)	CATEGORY II (At risk)	CATEGORY I (Functional, approaching sustainability)	NOTES
EROSION ATTRIBUTES						
EVIDENCE OF WIND EROSION	Smooth, wind blown soil surfaces. Substantial crop loss from wind erosion in part or all of field.	Leaf shredding due to wind damage evident in parts of field. Obvious root exposure. Deposits around plants, lee side of ridges, fence rows, and/or field boundaries	Plants show evidence of wind damage; some root exposure; wind blown deposits around obstructions and the lee side of depressions and ridges	No evidence of active soil movement in field; deposits present on lee side of obstructions, depressions, and at undisturbed field edge.	No evidence of active movement of soil by wind; wind blown deposits not evident. Topsoil in place.	
PREDICTED WIND EROSION (Ton/Ac/Year)	Predicted wind erosion using accepted erosion prediction technology >4T	Predicted wind erosion using accepted erosion prediction technology is >3T ≤4T	Predicted wind erosion using accepted erosion prediction technology is >2T ≤ 3T	Predicted wind erosion using accepted erosion prediction technology is >T ≤ 2T	Predicted wind erosion using accepted erosion prediction technology is ≤ T	*Requires calculation*
EVIDENCE OF WATER EROSION	Rock pedestals present and gravels occupy > 50% of soil surface; or ephemeral gullies (rills >3" deep) present.	Rock pedestals present and gravels occupy 20- 50% of soil surface; or ephemeral gullies (rills 1-3" deep) present	Rock pedestals present and gravels occupy 10-20% of soil surface; or ephemeral gullies (rills <1" deep) present	Rock pedestals present and gravels occupy <10% of soil surface. No ephemeral gullies.	No evidence of heavy water movement.	
PREDICTED WATER EROSION (Tons/Ac/Yr)	Predicted sheet and rill erosion using accepted erosion prediction technology >4T	Predicted sheet and rill erosion using accepted erosion prediction technology is >3T ≤ 4T	Predicted sheet and rill erosion using accepted erosion prediction technology is >2T ≤ 3T	Predicted sheet and rill erosion using accepted erosion prediction technology is >T ≤ 2T	Predicted sheet and rill erosion using accepted erosion prediction technology is ≤ T	*Requires calculation*
IRRIGATION INDUCED EROSION (furrow)	Head ditches significantly higher than field. Significant soil movement in furrows.	Crop roots visible. Significant soil movement observed in furrows.	Major erosion plumes at end of field.	Minor silting at end of furrows.	Clean water. Very little turbidity. No visible erosion. Furrows and corrugates maintain shape.	
IRRIGATION INDUCED EROSION (sprinkler or drip)	Soil deposition at edge of field, u-shaped and v-shaped channels formed. Reshaping is necessary for continued use. Channels and gullies cannot be obliterated by ordinary tillage.	Major, highly visible rill and interrill activity (channels approaching gullies formed), caused by irrigation system. Channels (rills) can be obliterated by tillage.	Minor rill and interrill development caused by irrigation system. Tillage can easily obliterate the channels.	Visual soil detachment (movement) and soil splach onto crop caused by irrigation system.	No visual erosion caused by irrigation system.	

ATTRIBUTE	CATEGORY V++	CATEGORY IV	CATEGORY III	CATEGORY II	CATEGORY I	NOTES
CROP STRESS ATTRIBUTES						
PLANT VIGOR	Crops severely stunted, spindly, chlorotic (yellow leaves) and/or wilted from both management and climatic effects; dead plants common. Poor emergence Failed stand.	Crops severely stunted, spindly, chlorotic and/or wilted from both management and climatic effects; some dead plants. Stand is uneven, spotty.	Crops somewhat stunted, spindly, chlorotic, and/or wilted from either management or climatic effects. Some dead plants.	Crops show some signs of short-term stress (such as slightly curled leaf margins indicating early drought or herbicide stress).	Crops show no visual signs of any stress. Vigorous growth; healthy stand. Normal growth and color.	
CROP YIELD	Actual/expected crop yield ratios are < 0.5 of the 5-year county average.	Actual/expected crop yield ratios are 0.5-0.7 of the 5-year county average	Actual/expected crop yield ratios are 0.7-0.9 of the 5-year county average	Actual/expected crop yield ratios are 0.9-1.0 of the 5-year county average	Actual/expected crop yield ratios are > the 5-year county average	NOTE: *County average may not account for soil capability in the field. Section II of the FOTG may help indicate relative soil capabilities*
INSUFFIC. NUTRIENTS	Crop failure due to insufficient nutrient availability	Evidence of severe nutrient deficiency on > 20% of cropland. Significant biomass reductions on >50% of the field.	Evidence of one or more nutrient deficiencies on 5-20% of cropland.	Evidence of one or more nutrient deficiencies on <5% of cropland.	No evidence of nutrient deficiencies.	NOTE: *Identify nutrient deficiencies or pesticide damage.*
EVIDENCE OF SALT ACCUMULATION (irrigated fields or seeps)	Electrical Conductivity (EC) (dS/m) ≥ 16. Salt crystals visible on soil surface	EC (dS/m) < 16 ≥8. Salt crystals visible on soil surface	EC (dS/m) < 8 ≥ 4. Salt crystals visible on soil surface	EC (dS/m) <4 ≥ 2. No salt accumulation observed on soil surface	EC (dS/m) <2. No salt accumulation observed on soil surface.	*NOTE: If salt accumulation is suspected, EC reading should be taken. See Cropland Health Worksheet Guidance.*
PESTS AND DISEASES						
WEEDS (excluding those observed in field borders, fence rows, etc.)	Weeds occupy > 50% of canopy cover in the vegetated field. Crop growth severely restricted due to weed competition. Noxious weeds are present. >30% potential yield loss from weed competition	Weeds occupy 20-50% of canopy cover in the vegetated field. Crop may show signs of stress from weed competition. 20-30% potential yield loss from weed competition	Weeds occupy 10-20% of canopy cover in the vegetated field. Crop may show signs of stress from weed competition. 10-20% potential yield loss from weed competition	Weeds occupy 5-10% of canopy cover in the vegetated field. Crop shows no signs of stress from weed competition. 5-10% potential yield loss from weed competition	Weeds occupy <5% of canopy cover in the vegetated field. Crop shows no signs of stress from weed competition. No yield loss from weed competition	NOTE: *If state-listed noxious weeds are present, move one category to the left.* NOTE: *weeds beneath crop canopy may be insignificant competitors and may provide added soil protection..*

ATTRIBUTE	CATEGORY V++	CATEGORY IV	CATEGORY III	CATEGORY II	CATEGORY I	NOTES
PESTS AND DISEASES						
INSECTS OR DISEASE	Crops show signs of severe insect or disease infestation. Many plants are dead or dying. Economic threshold levels exceeded. No beneficial insects observed in field.	Crops show moderate signs of insect and/or disease. Many plants have significant leaf, stem and/or root damage. Economic threshold levels exceeded. No beneficial insects observed in field.	Crops show signs of insect or disease infestation. Some leaf, stem, and/or root damage is observable on many plants. Economic threshold levels exceeded. No beneficial insects observed in field	Insects or disease are present in field. Damage to crops is visible but limited to small, isolated areas. At or approaching economic threshold levels. Beneficial insects observed in field.	Little or no evidence of insect and/or disease damage to crops. Insect and/or disease levels in field are well below economic threshold levels. Beneficial insects abundant in field.	*Beneficial insect observation based on 20 sweeps with insect net.*
CROPLAND RESILIENCE ATTRIBUTES						
SPATIAL DIVERSITY (non-crop areas)	No field borders or buffers (i.e., areas or strips of permanent vegetation, including riparian areas) are present.	Vegetation along field borders or buffers, where present, is monoculture	Native vegetation is present along some field edges. Field borders and buffers contain a single canopy herbaceous layer with at least 2 species; or field borders occupy 1-2% of the field area.	Native herbaceous and/or woody vegetation is present on the farm. Field borders contain a single canopy herbaceous layer with more than 2 species; or field borders occupy 2-4% of the land area.	Field borders contain multiple canopy layers. Field borders occupy 5%+ of the field area. In areas of adequate rainfall, woody vegetation has been included in farm design.	NOTE: *If within-field crop diversity (e.g., alley cropping, strip cropping or inter-cropping) is present, move one category to the right.*
SITE RESILIENCE	Standard cons. mgt. is insufficient to bring site productivity to economic level. Inputs required to elevate productivity exceed economic yield benefits.	Standard cons.mgt. alone is insufficient to bring site productivity to economic level. Accelerating practices necessary. Degree of response unknown.	Standard conservation mgt. practices, in combination with accelerating conservation practices will bring site back to economic production level	Site will respond to improved conservation mgt.; accelerating conservation practices will enhance and hasten predictable response.	Site will readily respond to improved conservation mgt., or no response required.	
CROPPING SYSTEM I (Tillage) EXAMPLE	Clean-tilled summer fallow with extensive fall tillage (plowing, heavy disking). <20% ground cover after planting.	Fall tillage (non-inversion) is used. 20-30% groundcover is maintained annually.	Some form of conservation tillage leaving 30-40% ground cover is maintained annually	Conservation tillage is used to maintain 40-50% ground cover.	Conservation tillage is used to maintain >50% ground cover.	Note: *Cropping system rating is a combination of 3 parts that must be summed for an over all rating.*
CROPPING SYSTEM II (High Residue Crops) EXAMPLE	High residue crops planted <25% of the time.	High residue crops planted 25% of the time.	High residue crops planted 50% of the time.	High residue crops planted 75% of the time.	High Residue crops planted >75% of the time.	
CROPPING SYSTEM III (Diversity) EXAMPLE	Monoculture	Crop rotation consists of 2 crops	Crop rotation consists of 2 crop including a legume	Crop rotation consists of 3 or more crops.	Crop rotation consists or 3+ crops including a legume or sod forming crop.	Note: *Fallow does <u>not</u> contribute to cropping system diversity.*
CROPPING SYSTEM (overall rating)	Sum of I-III above > 13.	Sum of I-III above is 11-13.	Sum of I-III above is 8-10.	Sum of I-III above is 5-7.	Sum of I-III above is 3-4.	

ATTRIBUTE	CATEGORY V++	CATEGORY IV	CATEGORY III	CATEGORY II	CATEGORY I	NOTES
OFF-SITE RISKS						
EXCESS NUTRIENTS	Severe crop damage due to excessive fertilizer salt accumulation AND eutrophication of immediately adjacent water bodies, or downstream water supplies contaminated from excessive or improper nutrient applications OR *any soil nutrient* tests HIGH or VERY HIGH	Fertilizer burn, lodging, or other evidence of improper placement or use of nutrients on at least 20% of crops; OR eutrophication of immediately adjacent water bodies due to excess or improper nutrient application.	Fertilizer burn, lodging, or other evidence of improper placement or use of nutrients on at least 10% of crops. Elevated nutrient levels in adjacent water bodies. Nutrients applied in excess of crop use.	Crop damage due to improper placement or use of nutrients on < 5% of crops. Nutrients applied in excess of crop needs.	No water body or underground source at risk. No risk to desirable plants and/or fauna. Nutrients applied in accordance with crop needs, accounting for soil tests, nutrients from previous crop, and other nutrient sources.	NOTE: *Since excess nutrients are not always visually evident, if manure is applied or excess nutrients are suspected, a soil test should be performed.*
EXCESS NUTRIENTS (soil test)	Soil test P is > established threshold value OR soil test NO_3>100 ppm	Soil test P is 75-100% of established threshold value OR soil test NO_3 is 75-100 ppm.	Soil test P is 50-75% of established threshold value OR soil test NO_3 is50-75 ppm.	Soil test P is 20-50% of established threshold value OR soil test NO3 is 30-50 ppm	Soil test P is < 20% of established threshold value OR soil test NO3 is < 30 ppm.	*Soil test recommended if excess nutrients (or insufficient) are suspected.*
MISAPPLIED PESTICIDES	Crop and/or adjacent vegetation failure due to misapplication of pesticides.	Heavy damage to crop and/or adjacent vegetation due to improper application of pesticides	Moderated damage to crop and/or adjacent vegetation due to improper placement or use of pesticides	Slight damage to crop and/or adjacent vegetation due to improper placement or use of pesticides	No evidence of crop damage due to improper application of pesticides. Pests maintained below economic threshold levels.	NOTE: *Identify nutrient deficiencies and symptoms of over-fertilization or pesticide damage.*
SEDIMENT	More than 2" of sediment deposition within the field or along field borders or culverts <u>or</u> >4T erosion is evident and buffers are absent.	1- 2" of sediment deposition within the field or along field borders or culverts <u>or</u> 3-4T erosion is evident. Buffers absent.	0.5-1" of sediment deposition within the field or along field borders or culverts. Buffers absent or not maintained.	Some evidence (<0.5") of sediment deposition within the field or along field borders or culverts in low lying areas below field	No evidence of sediment deposition in culverts or road ditches	

GENERAL INSTRUCTIONS:

1. On the data sheet, indicate the category that most closely resembles the field/farm observed for each attribute.
2. Use Field Observation Notes to explain any unusual circumstances or describe any indications not listed in the worksheet.
3. In cases where an attribute cannot be ranked due to lack of information, leave that attribute blank.
4. There is no overall ranking for this worksheet. Attributes in the highest categories need closest attention to management.
5. For most comprehensive results, use the worksheet several times during the growing season.

CROPLAND HEALTH DATA SHEET (example)

COOPERATOR:_____ TRACT:_____ OBSERVER:_____ DATE:_____

Enter Category Score for applicable cropland attributes for each field in the column below the field number.

	FIELD NUMBERS						
ATTRIBUTES							**COMMENTS**
EROSION							
Wind Erosion (Visual Observation)							
Predicted Wind Erosion							
Water Erosion (Visual Observ.)							
Predicted Water Erosion							
Irrigation Induced Erosion (furrow)							
Irrigation Induced Erosion (sprink.)							
Other							
CROP STRESS							
Plant Vigor							
Crop Yield							
Insufficient Nutrients							
Salt Accumulation (irrigated fields)							
Other							
PESTS OR DISEASE							
Weeds (Observed)							
Insects or Disease							
Other							
CROPLAND RESILIENCE							
Spatial Diversity							
Site Resilience							
Cropping System							
Other							
OFF-SITE RISKS							
Excess Nutrients							
Excess Nutrients (soil test)							
Misapplied Pesticides							
Sediment							
Other							

Additional Field and/or Site Information:

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_____

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_____