

Data Collection Worksheet for the Minnesota Agricultural Water Quality Certification Program



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Part 1: Collecting Information Needed for Field Physical Factors

Step 1: Provide Producer Information

Operator Name: _____ County: _____

Tract and Field #: _____ T. _____ R. _____ Sect. _____ Forty: _____

Field Size (Area in Acres): _____ Rotation Description: _____

Step 2: Determine Field Specific Measures

Weighted Average Slope from Web Soil Survey: <2% 2-5% >5-10% >10-15% >15% Actual: _____

Hydrologic Soil Group*: A, B, C, or D (includes A/D, B/D, and C/D)

K Factor**: <=0.10 0.11-0.20 0.21-0.32 0.33-0.43 0.44-0.64 Actual: _____

Organic Matter** (Soil Test or Web Soil Survey?): >8%, <8-6%, <6-4%, <4-2%, or <2% Actual: _____

* Hydrologic Soil Group – if a dual designation (eg. B/D) is the dominant hydrologic group or dominant critical area and the area is well drained by artificial means, use the lesser designation (B rather than D).

** K Factor and Organic Matter can be determined by either a weighted average from Web Soil Survey or by selecting a dominant critical area that is at least 20% of the field, whichever best captures the erosion potential of a field.

Determine Vegetative Cover throughout the calendar year. The following chart may be used for estimating residue. For non-fragile residue use the corn/small grain column, for fragile residue use the soybeans column.

Guide to estimated percentage of soil covered by crop residue after field operations. Predict the effect your till/plant system will have on crop residues by multiplying the percentages for each operation you use. These are broad ranges. Speed, depth, and soil moisture can affect the amount of residue left.

Tillage operation	Corn/Small Grain	Soybeans
After harvest	90-95	60-80
Over-winter decomposition	80-95	70-80
Moldboard plow	0-10	0-5
Paraplow	80-90	75-85
Combination secondary tillage tool	50-75	30-60
Chisel (twisted points)	50-70	30-40
Chisel (straight points)	60-80	40-60
Disk (off-set, primary >9" spacing)	40-70	25-40
Disk (tandem, finishing 7"-9" spacing)	30-60	20-40
Anhydrous applicator	75-85	45-70
Field cultivator (as secondary operation)	60-90	35-75
Row Planter	85-95	75-95
No-till drill	55-75	40-60

Here is an example of how to estimate how much residue cover will be left after each tillage operation.

$$95\% \left\{ \begin{matrix} \text{after corn} \\ \text{harvest} \end{matrix} \right\} \times 90\% \left\{ \begin{matrix} \text{after} \\ \text{winter} \end{matrix} \right\} \times 70\% \left\{ \begin{matrix} \text{spring chisel} \\ \text{straigt fit points} \end{matrix} \right\} \times 45\% \left\{ \begin{matrix} \text{spring disk} \\ \text{tandem} \end{matrix} \right\} \times 85\% \left\{ \begin{matrix} \text{planting} \end{matrix} \right\} \\ = 23\% \left\{ \begin{matrix} \text{residue cover} \\ \text{after planting} \end{matrix} \right\}$$

Source: Farming with Crop Residues, NRCS

Step 3: Determine Nutrient Management

Crop	Nitrogen Applied lbs	BMP Recommendation	% Over/Under	Source	Timing	Placement

Crop	Phosphorus Applied lbs	BMP Recommendation	% Over/Under	Source	Timing	Placement

Manure Information:

Determine whether incorporated/injected, season applied and soil temperature (+/- 50 or frozen)

Step 4a: Calculate STIR using tillage information from Table 1

Step 4b: Determine Pest Management:

Does Producer:

Apply Atrazine, Acetochlor, Chlorpyrifos, Metolachlor, and or Metribuzin?

Follow minimum label restrictions?

Use less than maximum label rates?

Scout for weeds or pests?

Use precision application methods?

Use vegetative buffers or application setbacks?

Map infestations?

Use yield benefit threshold in determining pest suppression?

Pesticides selected using loss ratings for soil runoff (WinPST)?

Rotates pesticides?

Adjusts planting rates, timing, crop rotations or irrigation schedules?

Cleans field machinery to minimize spread?

Step 5: Irrigation and Drainage

Does the field?

Have drainage tile?

Does the tile have open inlets?

Does the producer use drainage water management, bioreactors, saturated buffers or a treatment wetland?

Is the field irrigated and what type?

Does the producer use irrigation water management?

Step 6: Conservation Practices

List conservation practices on Table 2

Table 1: Specify applicable operations for the associated crop along with appropriate date of operation for each year. Make additional copies for use for multi-year crop rotations.

Field:	Crop to be Grown/Rotation:	Year:
Estimated Date of Operation	Operation include equipment Specifications i.e. depth, spacing,)	Comments/Notes
	After Harvest (baling, grazing, cover crop)	
	Fall Fertilizer (anhydrous, manure, other)	
	Fall Tillage (chisel point types, disk)	
	Manure Application (Method of application)	
	Spring Tillage (disk, field cultivate, rotary hoe, sprayer)	
	Plant (Drill, planter w/single/double disk opener, row width)	
	Row Cultivation	
	Harvest (grain, silage, etc.)	
	Other	
	Other	

Table 2: Conservation practices as applicable to management unit or field.

Specifications (Include number, width, location etc.)
Practice 1
Practice 2
Practice 3
Practice 4
Other