

# 3 Reference Data

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## Introduction

The HU/WQ Tool requires both collected attribute data and an internal set of reference data. Collected attribute data generally consists of both site resource information, such as soils, and management information like crop rotations. Chapter 2 discusses collected data. The Reference data is default parameter values for crops, tillage practices, land use, etc. The internal set of reference data is not collected or entered by the user and is supplied at the time of software installation. Specialists are encouraged to modify the reference data for local conditions. The reference data installed with the Tool was primarily developed from the smallest common subset of data from EPIC crop and tillage files; GLEAMS crop, tillage and pesticide files, RUSLE crop and tillage files; and the ARS/CES/NRCS Pesticide Selected Properties Database.

## Purpose

This chapter describes each reference attribute data table and defines the data elements contained in each table. This chapter is an extension of the HU/WQ Tool data dictionary and can be viewed as a layperson's hardcopy presentation of the dictionary. This chapter does not attempt to describe the reliability of, or how to collect/modify, the data.

## Reference Data Tables

The nine reference data tables used by the HU/WQ Tool are presented in alphabetical order in Table 3.1.

**Table 3.1 Reference Data Tables.**

<b>HU/WQ TOOL TABLE NAME</b>
1. Animal Waste Characteristics
2. Crop Characteristics
3. Equipment/Operations Effects
4. Non-Crop Land Use Characteristics
5. Nutrient Source Characteristics
6. Pesticide Characteristics
7. Runoff Cover Conditions
8. Runoff Curve Number Data
9. USLE LS Factors

Each of the nine reference tables is presented in the following format in this chapter:

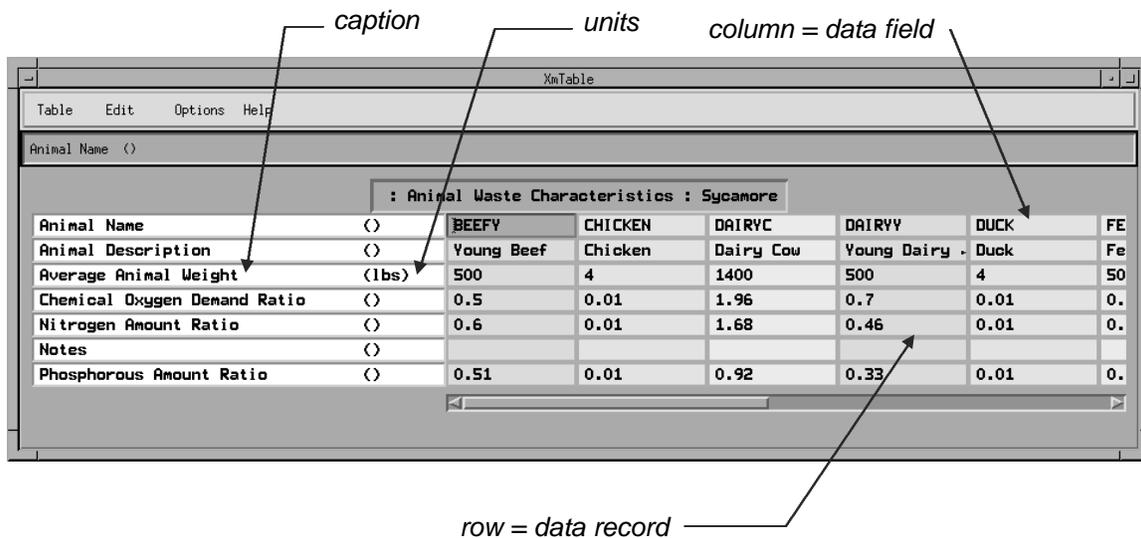
- A description of the type of data contained in the table.
- The data definitions table describes each data element along with the appropriate labels and data ranges. There are several important categories used to define a data element. Each category appears as a column in the data definition tables. These categories are described in Table 3.2.

**Table 3.2. Categories Used to Define Data Elements.**

Category	Description
Caption	The title of the data element as seen on the input screen.
Descriptive Name	A longer descriptive name up to 60 characters.
Units	The units of the variable.
Default Value	The default value used by the HU/WQ Tool if the user does not enter a value.
Data type	The type of data. Valid data types are: <b>char</b> (character), <b>decimal</b> , <b>int</b> (integer).
Domain	A set of predefined values that the data element can have or the maximum and minimum values outside of which the data value would be in error.
Definition	A narrative definition of the data element.
Use Notes	Notes on how the HU/WQ Tool uses the value.

With the HU/WQ Tool, the user can view and edit data in each table using a spreadsheet-type interface where the caption and units appear in the left most columns. Figure 3.1 is an example of what the reference data would look like in the HU/WQ Tool Animal Waste Characteristics table

**Figure 3.1 Example Reference Table.**



# Animal Waste Characteristics Table

## Description

Reference animal waste nutrient production by animal type. Nutrient amounts are all relative to those produced by a 1,000 lb steer. Reference data used by AGNPS.

Elements uniquely identifying data.

- **Animal Name**

## Data Definitions

<b>Animal Name</b>			
<b>Long Name:</b>	Animal Name		
<b>Units:</b>		<b>Default:</b> enterValue	<b>Data Type:</b> char
<b>Domain:</b>	10 characters		
<b>Description:</b>	Text code for animal. May include a distinguishing letter or a different name indicating more than one entry for an animal. Generally, more than one entry is due to animal weight.		
<b>Notes:</b>			
<b>Animal Description</b>			
<b>Long Name:</b>	Animal Description		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> char
<b>Domain:</b>	20 characters		
<b>Description:</b>	Narrative that describes the animal name.		
<b>Notes:</b>			
<b>Average Animal Weight</b>			
<b>Long Name:</b>	Average Animal Weight		
<b>Units:</b>	lbs	<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	0 to 10,000		
<b>Description:</b>	Average weight of the named animal.		
<b>Notes:</b>			
<b>Phosphorous Amount Ratio</b>			
<b>Long Name:</b>	Phosphorous Amount Ratio		
<b>Units:</b>	ratio	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 to 10		
<b>Description:</b>	Phosphorus amount produced by the named animal expressed as a ratio to that produced by a 1,000 lb. steer.		
<b>Notes:</b>			

<b>Nitrogen Amount Ratio</b>			
<b>Long Name:</b>	Nitrogen Amount Ratio		
<b>Units:</b>	ratio	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 to 10		
<b>Description:</b>	Nitrogen amount produced by the named animal expressed as a ratio to that produced by a 1,000 lb. steer.		
<b>Notes:</b>			
<b>Chemical Oxygen Demand Ratio</b>			
<b>Long Name:</b>	Chemical Oxygen Demand Ratio		
<b>Units:</b>	ratio	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 to 10		
<b>Description:</b>	Chemical oxygen demand ratio to that of a 1,000 lb. steer for the named animal.		
<b>Notes:</b>			
<b>Notes</b>			
<b>Long Name:</b>	Notes		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> char
<b>Domain:</b>	72 characters		
<b>Description:</b>	Any narrative information pertaining to the animal not captured in the other data elements.		
<b>Notes:</b>	Optional.		



<b>Vegetation Type</b>			
<b>Long Name:</b>	Vegetation Type		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	1 or 2		
<b>Description:</b>	Code indicating if crop is annual or perennial.		
<b>Notes:</b>	Acceptable entries: 1 - annual, 2 - perennial.		
<b>Crop Yield Unit Code</b>			
<b>Long Name:</b>	Crop Yield Unit Code		
<b>Units:</b>	code	<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	0 to 6		
<b>Description:</b>	Code for English unit equivalent.		
<b>Notes:</b>	The codes are: 1 - bushels/acre, 2 - pounds/acre, 3 - LB. / acre, 4 - CWT. /acre, 5 - animal unit month/ acre, 6 - tons/acre.		
<b>Crop Category Number</b>			
<b>Long Name:</b>	Crop Category Number		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	1.0 to 7.0		
<b>Description:</b>	Crop category number.		
<b>Notes:</b>	Used only by EPIC. Acceptable values are: 1 - warm season annual legume, 2 - cold season annual legume, 3 - perennial legume, 4 - warm season annual, 5 - cold season annual, 6 - perennial, 7 - tree crop.		
<b>Average USLE C Factor</b>			
<b>Long Name:</b>	Average USLE C Factor		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.001 to 1.0		
<b>Description:</b>	Average value of USLE C Factor for water erosion for the crop.		
<b>Notes:</b>			
<b>Minimum USLE C Factor</b>			
<b>Long Name:</b>	Minimum USLE C Factor		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.001 to 1.0		
<b>Description:</b>	Minimum value of USLE C Factor for USLE erosion for the crop.		
<b>Notes:</b>			
<b>Minimum Residue</b>			
<b>Long Name:</b>	Minimum Residue		
<b>Units:</b>	lbs/acre	<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	0 or greater		
<b>Description:</b>	The amount of residue in lb/acre that will cause the Runoff Curve Number to increase to account for the effect of residue left on the surface of the ground.		
<b>Notes:</b>			

<b>Start of Leaf Area Index Decline</b>			
<b>Long Name:</b>	Start of Leaf Area Index Decline		
<b>Units:</b>	frac Heat Un	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Fraction of growing season when the leaf area index starts to decline. Ratio of the accumulated heat units for the growing season to the heat units accumulated between planting and maturity.		
<b>Notes:</b>	Grain crops generally are in the range 0.5 to 0.8 while forage crops are near 1.0.		
<b>Crop Yield Unit Conversion Code</b>			
<b>Long Name:</b>	Crop Yield Unit Conversion Code		
<b>Units:</b>	lbs/unit meas	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Code for crop yield unit conversion. Metric to English unit indicator. The value indicates conversions from pounds per acre.		
<b>Notes:</b>			
<b>Optimal Leaf Area Index Point 1</b>			
<b>Long Name:</b>	Optimal Leaf Area Index Point 1		
<b>Units:</b>	%.%	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	First point on the optimal leaf area index development curve.		
<b>Notes:</b>	Left of decimal is the % of growing season and right of decimal is the % of maximum potential leaf area index.		
<b>Optimal Leaf Area Index Point 2</b>			
<b>Long Name:</b>	Optimal Leaf Area Index Point 2		
<b>Units:</b>	%.%	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Second point on the optimal leaf area index development curve.		
<b>Notes:</b>	Left of decimal is the % of growing season and right of decimal is the % of maximum potential leaf area index.		
<b>Frost Damage Point 1</b>			
<b>Long Name:</b>	Frost Damage Point 1		
<b>Units:</b>	Celcius.%	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	First of two points on the frost damage curve.		
<b>Notes:</b>	Left of decimal is the minimum temperature (negative sign implied) and right of decimal is the % of biomass lost each day the specified minimum temperature occurs.		
<b>Frost Damage Point 2</b>			
<b>Long Name:</b>	Frost Damage Point 2		
<b>Units:</b>	Celcius.%	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Second of two points on the frost damage curve.		
<b>Notes:</b>	Left of decimal is the minimum temperature (negative sign implied) and right of decimal is the % of biomass lost each day the specified minimum temperature occurs.		

<b>Phosphorus in Yield</b>			
<b>Long Name:</b>	Phosphorus in Yield		
<b>Units:</b>	grams/gram	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of Phosphorus in yield. Estimated values from Morrison`s Feeds and Feeding. Morrison`s value adjusted to a dry weight by dividing by fraction of dry matter in total yield.		
<b>Notes:</b>			
<b>Chemical Oxygen Demand Factor</b>			
<b>Long Name:</b>	Chemical Oxygen Demand Factor		
<b>Units:</b>	mg/l	<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Chemical Oxygen Demand of runoff water for the crop. COD is a measure of the amount of oxygen required to oxidize the organic and inorganic material.		
<b>Notes:</b>			
<b>Nitrogen Equation Coefficient</b>			
<b>Long Name:</b>	Nitrogen Equation Coefficient		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 10.00		
<b>Description:</b>	Coefficient in the growth ratio (actual LAI / potential LAI) power equation used to determine the optimal nitrogen content of a crop. Required by GLEAMS.		
<b>Notes:</b>			
<b>Critical Aeration Factor</b>			
<b>Long Name:</b>	Critical Aeration Factor		
<b>Units:</b>	frac porosity	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Critical aeration factor. Fraction of soil porosity where poor aeration starts limiting plant growth.		
<b>Notes:</b>	Values set to .855 for most crops, with rice (1.0) being the major exception.		
<b>Potential Yield</b>			
<b>Long Name:</b>	Potential Yield		
<b>Units:</b>	kg/ha	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Harvestable portion of crop. For some crops it may include both the normally harvested portion plus the above ground forage.		
<b>Notes:</b>			
<b>Flat Residue Wind Erosion Factor</b>			
<b>Long Name:</b>	Flat Residue Wind Erosion Factor		
<b>Units:</b>	wind eros frc	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Wind erosion factor for flat residue. It is based on the Manhattan wind erosion equations for this or a similar crop.		
<b>Notes:</b>			

<b>Dead Crop Wind Erosion Factor</b>			
<b>Long Name:</b>	Dead Crop Wind Erosion Factor		
<b>Units:</b>	wind eros frc	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Wind erosion factor for standing dead crop residue. Based on the Manhattan wind erosion equations for this or a similar crop .		
<b>Notes:</b>			
<b>Phosphorous at Maturity</b>			
<b>Long Name:</b>	Phosphorous at Maturity		
<b>Units:</b>	frac P	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of Phosphorus in crop biomass at maturity.		
<b>Notes:</b>			
<b>Phosphorous at Midseason</b>			
<b>Long Name:</b>	Phosphorous at Midseason		
<b>Units:</b>	frac P	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of Phosphorus in crop biomass at midseason.		
<b>Notes:</b>			
<b>Phosphorous at Emergence</b>			
<b>Long Name:</b>	Phosphorous at Emergence		
<b>Units:</b>	frac P	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of Phosphorus in crop biomass at emergence.		
<b>Notes:</b>			
<b>Nitrogen at Maturity</b>			
<b>Long Name:</b>	Nitrogen at Maturity		
<b>Units:</b>	frac N	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of Nitrogen in crop biomass at maturity.		
<b>Notes:</b>			
<b>Nitrogen at Midseason</b>			
<b>Long Name:</b>	Nitrogen at Midseason		
<b>Units:</b>	frac N	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of Nitrogen in crop biomass at midseason.		
<b>Notes:</b>			
<b>Nitrogen at Emergence</b>			
<b>Long Name:</b>	Nitrogen at Emergence		
<b>Units:</b>	frac N	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of N in crop biomass at emergence.		
<b>Notes:</b>			

<b>Biomass Wind Erosion</b>			
<b>Long Name:</b>	Biomass Wind Erosion		
<b>Units:</b>	wind eros frc	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Wind erosion factor for standing live biomass. Based on the Manhattan wind erosion equations for this or a similar crop .		
<b>Notes:</b>			
<b>Nitrogen in Yield</b>			
<b>Long Name:</b>	Nitrogen in Yield		
<b>Units:</b>	grams/gram	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Normal fraction of Nitrogen in yield. Estimated values from Morrison`s Feeds and Feeding. Morrison`s value is adjusted to a dry weight by dividing by the fraction of dry matter in total yield.		
<b>Notes:</b>			
<b>Maximum Root Depth</b>			
<b>Long Name:</b>	Maximum Root Depth		
<b>Units:</b>	meters	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Maximum root depth based on research or observation.		
<b>Notes:</b>			
<b>Water Stress Yield Factor</b>			
<b>Long Name:</b>	Water Stress Yield Factor		
<b>Units:</b>	index	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Water stress yield factor. Fraction between 0 and harvest index representing the lowest harvest index expected due to stress.		
<b>Notes:</b>			
<b>Plant Moisture Content at Harv.</b>			
<b>Long Name:</b>	Plant Moisture Content at Harvest.		
<b>Units:</b>	frac water	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Fraction of water in yield. Values estimated from Morrison`s Feeds and Feeding.		
<b>Notes:</b>			
<b>Radiation Decline Rate</b>			
<b>Long Name:</b>	Radiation Decline Rate		
<b>Units:</b>	kg/m**2/Ha/Mg/k	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.0 or greater		
<b>Description:</b>	Rate of decline in radiation use efficiency per unit increase in vapor pressure deficit. A value of 6 to 8 is suggested as an approximation for most crops.		
<b>Notes:</b>			

<b>CO2 Effect on Growth Rate</b>			
<b>Long Name:</b>	CO2 Effect on Growth Rate		
<b>Units:</b>	ul/l.t/ha/MJ/m	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Carbon dioxide concentration in future atmosphere or resulting biomass energy ratio value. Used to describe the effect of CO2 concentration on the biomass energy ratio. Value to left of decimal is CO2 concentration higher than ambient, and right of decimal is the corresponding value of WA at the given level of CO2 concentration.		
<b>Notes:</b>	This is an EPIC parameter that describes the effect of CO2 concentration on the crop parameter WA, potential energy to biomass conversion factor.		
<b>Growth Rate Potential</b>			
<b>Long Name:</b>	Growth Rate Potential		
<b>Units:</b>	t/Ha/MJ/m**2	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 or greater		
<b>Description:</b>	Biomass energy ratio. Unstressed growth rate (including roots) per unit of intercepted photosynthetically active radiation. Changes to this value should be based on data with no drought, nutrient, or temperature stress.		
<b>Notes:</b>			
<b>Vapor Pressure Deficit Threshold</b>			
<b>Long Name:</b>	Vapor Pressure Deficit Threshold		
<b>Units:</b>	kPa	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 or greater		
<b>Description:</b>	Threshold vapor pressure deficit above which leaf conductance is sensitive.		
<b>Notes:</b>			
<b>Vapor Pressure Deficit</b>			
<b>Long Name:</b>	Vapor Pressure Deficit		
<b>Units:</b>	kPa.frc cond	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Vapor pressure deficit.		
<b>Notes:</b>	Left of decimal is the vapor pressure deficit greater than the threshold value (vpth) and to the right maximum leaf conductance for the vapor pressure deficit.		
<b>Minimum Plant Growth Temperature</b>			
<b>Long Name:</b>	Minimum Temperature		
<b>Units:</b>	Celsius	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 or greater		
<b>Description:</b>	Minimum temperature for plant growth.		
<b>Notes:</b>			
<b>Optimal Plant Growth Temperature</b>			
<b>Long Name:</b>	Optimal Temperature		
<b>Units:</b>	Celsius	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 or greater		
<b>Description:</b>	Optimal temperature for plant growth.		
<b>Notes:</b>			

<b>Surface Condition Constant</b>			
<b>Long Name:</b>	Surface Condition Constant		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	The adjustment factor for the time it takes overland flow to channelize for the crop.		
<b>Notes:</b>			
<b>Root Weight at Maturity</b>			
<b>Long Name:</b>	Root Weight at Maturity		
<b>Units:</b>	frc root wt	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Fraction of plant weight at maturity that are roots.		
<b>Notes:</b>			
<b>Carbon to Nitrogen Ratio</b>			
<b>Long Name:</b>	Carbon to Nitrogen Ratio		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 or greater		
<b>Description:</b>	Carbon to Nitrogen ratio for the crop Required by GLEAMS.		
<b>Notes:</b>			
<b>Leaf Area Index Decline Rate</b>			
<b>Long Name:</b>	Leaf Area Index Decline Rate		
<b>Units:</b>	LAI/frac seas	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Leaf area index decline rate factor. Relative decline rate of the leaf area index from its maximum value to harvest.		
<b>Notes:</b>	A value of 1 indicates a linear decline. Values greater than 1 indicate accelerated decline and those less than 1 retard decline.		
<b>Nitrogen Equation Exponent</b>			
<b>Long Name:</b>	Nitrogen Equation Exponent		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	-1.00 to 0.00		
<b>Description:</b>	Exponent in the growth ratio (actual LAI / potential LAI) power equation used to determine the optimal nitrogen content of a crop. Required by GLEAMS.		
<b>Notes:</b>			
<b>Biomass Decline Rate</b>			
<b>Long Name:</b>	Biomass Decline Rate		
<b>Units:</b>	rate	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Biomass - energy decline rate which reduces the efficiency of conversion of intercepted photosynthetically- active radiation to biomass due to production of high energy products like seeds and/ or transduction of N from leaves to seeds.		
<b>Notes:</b>			

<b>Pest Damage Factor</b>			
<b>Long Name:</b>	Pest Damage Factor		
<b>Units:</b>	frac of yield	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.0 to 1.0		
<b>Description:</b>	Pest damage factor. Fraction of yield remaining after damage.		
<b>Notes:</b>			
<b>Manning`s Roughness Coefficient</b>			
<b>Long Name:</b>	Manning`s Roughness Coefficient		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.000 to 1.000		
<b>Description:</b>	Manning`s roughness coefficient (n) for the crop.		
<b>Notes:</b>			
<b>Max. Potential Leaf Area Index</b>			
<b>Long Name:</b>	Maximum Potential Leaf Area Index		
<b>Units:</b>	m**2-leaf/m**2	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Maximum leaf area index based on average plant densities in dry land (rain fed) agriculture. Values may need to be adjusted for drought prone regions where planting densities are much smaller, or for irrigated conditions where densities are much greater.		
<b>Notes:</b>			
<b>Maximum Crop Height</b>			
<b>Long Name:</b>	Maximum Crop Height		
<b>Units:</b>	meters	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Maximum crop height based on observation.		
<b>Notes:</b>			
<b>Harvest Index</b>			
<b>Long Name:</b>	Harvest Index		
<b>Units:</b>	yield/biomass	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.01-0.95 typical, 0-1.5 absolute		
<b>Description:</b>	Harvest index is the ratio of the dry weight yield to the dry weight of the total above ground biomass and is based on experimental data where crop stresses have been minimized to allow the crop to attain its potential.		
<b>Notes:</b>			
<b>Maximum Stomatal Conductance</b>			
<b>Long Name:</b>	Maximum Stomatal Conductance		
<b>Units:</b>	m/sec	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.000 to 1.000		
<b>Description:</b>	Maximum stomatal conductance (air velocity) at high solar radiation and low vapor pressure deficit.		
<b>Notes:</b>			

<b>Nitrogen to Phosphorus Ratio</b>			
<b>Long Name:</b>	Nitrogen to Phosphorus Ratio		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 or greater		
<b>Description:</b>	Nitrogen to Phosphorus ratio. Required by GLEAMS.		
<b>Notes:</b>	Can be computed using Nitrogen in Yield and Phosphorus in Yield.		
<b>Legume Indicator</b>			
<b>Long Name:</b>	Legume Indicator		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	int
<b>Domain:</b>	1 or 2		
<b>Description:</b>	Code indicating if crop is a legume.		
<b>Notes:</b>	Acceptable entries are: 1 - crop is not a legume, 2 - crop is a legume.		
<b>Dry Matter Ratio</b>			
<b>Long Name:</b>	Dry Matter Ratio		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Ratio of total dry matter production to harvestable portion of crop. Required by GLEAMS.		
<b>Notes:</b>			
<b>Aluminum Tolerance</b>			
<b>Long Name:</b>	Aluminum Tolerance		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	1.0 to 5.0		
<b>Description:</b>	Index of crop tolerance to aluminum saturation.		
<b>Notes:</b>	Range is from 1 to 5 with 1 being sensitive and 5 being tolerant.		
<b>Root Weight at Emergence</b>			
<b>Long Name:</b>	Root Weight at Emergence		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Fraction of plant weight at emergence that are roots.		
<b>Notes:</b>			

# Equipment/Operations Effects Table

## Description

Tillage operations. In general, the tillage data describes the effects of the tillage operation on the surface of the ground. The tillage operation names were primarily taken from RUSLE implement names. Reference data used by all models.

Elements uniquely identifying data.

- **Operation Name**

Cross References in the Crop Operations Schedule table.

- **Operation Name**

## Data Definitions

<b>Equipment/Operation Name</b>			
<b>Long Name:</b>	Equipment/Operation Name		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	enterValue char
<b>Domain:</b>	15 characters		
<b>Description:</b>	Name of the equipment to be used or the operation to be performed.		
<b>Notes:</b>	Pointer between Crop Operations Schedule table and Equipment/Operations Effects table.		
<b>Equipment/Operation Number</b>			
<b>Long Name:</b>	Equipment/Operation Number		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	int
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Equipment/Operation Number associated with a Equipment/Operation Name. Only used by EPIC.		
<b>Notes:</b>			
<b>Equipment/Operation Description</b>			
<b>Long Name:</b>	Equipment/Operation Description		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	char
<b>Domain:</b>	40 characters		
<b>Description:</b>	Narrative description of the equipment used or the operation performed.		
<b>Notes:</b>			

<b>Tillage Depth</b>			
<b>Long Name:</b>	Tillage Depth		
<b>Units:</b>	mm	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	-1,000.0 to 10,000.0		
<b>Description:</b>	Depth of tillage for the tillage operation. Also used as lower limit of grazing height. A positive value is the depth of tillage from the operation. A negative value is the lower limit of an operation that does not break the surface of the ground (e.g., -10 for a burn would mean 10 mm of vegetation is left above the ground level).		
<b>Notes:</b>			
<b>Mixing Efficiency</b>			
<b>Long Name:</b>	Mixing Efficiency		
<b>Units:</b>	frac mixed	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Mixing efficiency. Fraction of applied materials that are mixed uniformly over the tillage depth for the tillage operation.		
<b>Notes:</b>			
<b>Harvest Efficiency</b>			
<b>Long Name:</b>	Harvest Efficiency		
<b>Units:</b>	frac of harvest	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Harvest efficiency. Ratio of the dry weight of crop yield removed from a field to total dry weight of crop yield.		
<b>Notes:</b>			
<b>Incorporation Efficiency</b>			
<b>Long Name:</b>	Incorporation Efficiency		
<b>Units:</b>	fraction	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Incorporation efficiency. Efficiency of soil residue incorporation by the tillage operation.		
<b>Notes:</b>			
<b>Operation Code</b>			
<b>Long Name:</b>	Operation Code		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	-2 through 8		
<b>Description:</b>	EPIC code for the operation type that describes the effect of the tillage operation.		
<b>Notes:</b>	Acceptable codes are: -2 = destroys furrow dikes, -1 = builds furrow dikes, 1 = terminates the crop, 2 = harvests without killing, 3 = irrigation operation, 4 = fertilization operation, 5 = plant in row, 6 = plant with drill, 7 = apply pesticide, 8 = plow.		

<b>Ridge Interval</b>				
<b>Long Name:</b>	Ridge Interval			
<b>Units:</b>	meters	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 to 10.0			
<b>Description:</b>	The distance between the top of a ridge to the top of the adjacent ridge for the tillage operation.			
<b>Notes:</b>				
<b>Ridge Height</b>				
<b>Long Name:</b>	Ridge Height			
<b>Units:</b>	mm	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.0 to 1000.0			
<b>Description:</b>	Height of ridge for the tillage operation measured from the top of ridge to the bottom of the furrow.			
<b>Notes:</b>				
<b>Surface Roughness</b>				
<b>Long Name:</b>	Surface Roughness			
<b>Units:</b>	mm	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 1000.00			
<b>Description:</b>	Surface roughness created by the tillage operation.			
<b>Notes:</b>				
<b>Harvest Index Override</b>				
<b>Long Name:</b>	Harvest Index Override			
<b>Units:</b>	none,kg/ha	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.01-0.95 typical, 0-1.5 absolute			
<b>Description:</b>	Override of Harvest Index retrieved from the Crop Characteristics table. Note values that are greater than 1 are biomass removed per day (kg/ha) by grazing.			
<b>Notes:</b>				
<b>Furrow Dike Interval</b>				
<b>Long Name:</b>	Furrow Dike Interval			
<b>Units:</b>	meters	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0 to 10			
<b>Description:</b>	Furrow dike interval. The distance from the top of the dike to the top of the adjacent dike. Applies only to tillage operations that create furrow dikes.			
<b>Notes:</b>				
<b>Furrow Dike Height</b>				
<b>Long Name:</b>	Furrow Dike Height			
<b>Units:</b>	mm	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0 to 1000			
<b>Description:</b>	Height of furrow dikes. Applies only to tillage operations that create furrow dikes.			
<b>Notes:</b>				

# Non-Crop Land Use Characteristics Table

## Description

Non-crop land use characteristics. Reference data used by AGNPS and SWRRBWQ.

Elements uniquely identifying data.

- **Land Use Name**

Cross References in Field Data.

- **Land Use Name**

## Data Definitions

<b>Land Use Name</b>			
<b>Long Name:</b>	Land Use Name		
<b>Units:</b>		<b>Default:</b> enterValue	<b>Data Type:</b> char
<b>Domain:</b>	10 characters		
<b>Description:</b>	Abbreviated land use name.		
<b>Notes:</b>	Link to the Land Use Name in the Field Data table.		
<b>Water Stress Yield Factor</b>			
<b>Long Name:</b>	Water Stress Yield Factor		
<b>Units:</b>	fraction	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.000 to 1.000		
<b>Description:</b>	Water stress yield factor. Fraction between 0 and harvest index representing the lowest harvest index expected due to stress.		
<b>Notes:</b>			
<b>Biomass Energy Ratio</b>			
<b>Long Name:</b>	Biomass Energy Ratio		
<b>Units:</b>	kg/Ha/MJ	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Biomass energy ratio. Unstressed growth rate (including roots) per unit of intercepted photosynthetically active radiation. Changes to this value should be based on data with no drought, nutrient or temperature stress.		
<b>Notes:</b>			
<b>Vegetation Type</b>			
<b>Long Name:</b>	Vegetation Type		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	1 or 2		
<b>Description:</b>	Code indicating if land use or crop is annual or perennial.		
<b>Notes:</b>	Acceptable entries: 1 - annual, 2 - perennial.		

<b>Surface Condition Constant</b>			
<b>Long Name:</b>	Surface Condition Constant		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	The adjustment factor for the time it takes overland flow to channelize for the land use.		
<b>Notes:</b>			
<b>Cover Type</b>			
<b>Long Name:</b>	Cover Type		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	char
<b>Domain:</b>	40 characters		
<b>Description:</b>	The type of cover represented by the land use.		
<b>Notes:</b>	Links to the cover type in the Runoff Cover Conditions table.		
<b>Manning's Overland Rough. Coef.</b>			
<b>Long Name:</b>	Manning's Overland Roughness Coefficient		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.000 to 1.000		
<b>Description:</b>	Manning's roughness coefficient (n) for overland flow on the land use		
<b>Notes:</b>			
<b>Legume Indicator</b>			
<b>Long Name:</b>	Legume Indicator		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	int
<b>Domain:</b>	1 or 2		
<b>Description:</b>	Indicator of the presence of legumes.		
<b>Notes:</b>	Acceptable entries are: 1 - no legumes present, 2 - legumes present. The Legume Indicator for CROPLAND must remain blank.		
<b>Land Use Description</b>			
<b>Long Name:</b>	Land Use Description		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	char
<b>Domain:</b>	25 characters		
<b>Description:</b>	Short description of the land use.		
<b>Notes:</b>			
<b>Harvest Index</b>			
<b>Long Name:</b>	Harvest Index		
<b>Units:</b>	kg/kg	<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0.01-0.95 typical, 0-1.5 absolute		
<b>Description:</b>	Harvest index is the ratio of the dry weight yield to the dry weight of the total above ground biomass and is based on experimental data where crop stresses have been minimized to allow the crop to attain its potential.		
<b>Notes:</b>			
<b>Leaf Area Index</b>			
<b>Long Name:</b>	Leaf Area Index		
<b>Units:</b>		<b>Default:</b>	
		<b>Data Type:</b>	decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Leaf Area Index. LAI is the leaf area per unit of ground area.		
<b>Notes:</b>			

<b>Crop Number</b>			
<b>Long Name:</b>	Crop Number		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>			
<b>Description:</b>	Ignore this attribute. It is not used.		
<b>Notes:</b>			
<b>COD in Runoff Water</b>			
<b>Long Name:</b>	COD in Runoff Water		
<b>Units:</b>	mg/l	<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	0.00 or greater		
<b>Description:</b>	Chemical Oxygen Demand in runoff water for the land use. COD is a measure of the amount oxygen required to oxidize the organic and inorganic material.		
<b>Notes:</b>			

## Nutrient Source Characteristics Table

### Description

Nutrient source reference characteristics. Reference data used by AGNPS and SWRRBWQ.

Elements uniquely identifying data.

- **Nutrient Name**

Cross References in the Nutrient Schedule table.

- **Nutrient Name**

### Data Definitions

<b>Nutrient Number</b>			
<b>Long Name:</b>	Nutrient Number		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> int
<b>Domain:</b>	1 to 9,999		
<b>Description:</b>	Unique arbitrary number assigned to a Nutrient name. Not used.		
<b>Notes:</b>			
<b>Nutrient Name</b>			
<b>Long Name:</b>	Nutrient Name		
<b>Units:</b>		<b>Default:</b> enterValue	<b>Data Type:</b> char
<b>Domain:</b>	10 characters		
<b>Description:</b>	Short nutrient identifier used to access this table.		
<b>Notes:</b>			

<b>Waste Type</b>				
<b>Long Name:</b>	Waste Type			
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b>	char
<b>Domain:</b>	7 characters			
<b>Description:</b>	Narrative label for the type or kind of waste being applied. Usually identifies animal type and waste consistency.			
<b>Notes:</b>				
<b>Total Elemental Phosphorous</b>				
<b>Long Name:</b>	Total Phosphorous			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is Phosphorus. Sum of mineralized and organic Phosphorus.			
<b>Notes:</b>				
<b>Total Elemental Nitrogen</b>				
<b>Long Name:</b>	Total Nitrogen			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is Nitrogen. Sum of mineralized and organic Nitrogen.			
<b>Notes:</b>				
<b>Soluble Phosphorous</b>				
<b>Long Name:</b>	Soluble Phosphorous			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is soluble Phosphorus.			
<b>Notes:</b>				
<b>Organic Phosphorous</b>				
<b>Long Name:</b>	Organic Phosphorous			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is organic Phosphorus.			
<b>Notes:</b>				
<b>Organic Nitrogen</b>				
<b>Long Name:</b>	Organic Nitrogen			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is organic Nitrogen.			
<b>Notes:</b>				
<b>Organic Matter</b>				
<b>Long Name:</b>	Organic Matter			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is organic matter.			
<b>Notes:</b>				

<b>Nitrate</b>				
<b>Long Name:</b>	Nitrate			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is nitrate.			
<b>Notes:</b>				
<b>Ammonia</b>				
<b>Long Name:</b>	Ammonia			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is ammonia.			
<b>Notes:</b>				
<b>Mineralized Elemental Phos.</b>				
<b>Long Name:</b>	Mineralized Phosphorous			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is mineralized as elemental (inorganic) Phosphorus.			
<b>Notes:</b>				
<b>Mineralizable Ammonia</b>				
<b>Long Name:</b>	Mineralized Ammonia			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Ammonia percent that is mineralized (inorganic) ammonia.			
<b>Notes:</b>				
<b>Mineralized Elemental Nitrogen</b>				
<b>Long Name:</b>	Mineralized Nitrogen			
<b>Units:</b>	%	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0.00 to 100.00			
<b>Description:</b>	Nutrient percent that is mineralized (inorganic) elemental Nitrogen.			
<b>Notes:</b>				
<b>Nutrient Description</b>				
<b>Long Name:</b>	Nutrient Description			
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b>	char
<b>Domain:</b>	30 characters			
<b>Description:</b>	Complete description of the Nutrient name.			
<b>Notes:</b>				

# Pesticide Characteristics Table

## Description

Pesticide characteristics by both trade name and common name. The data characterizes the pesticide behavior in the environment. With exception of foliar values, the pesticide data came from the ARS/CES/SCS Pesticide Selected Properties Database. The foliar values came from data supplied with the computer model “Groundwater Loading of Agricultural Management Systems” (GLEAMS). Reference data used by SWRRBWQ.

Elements uniquely identifying data.

- **Pesticide Trade Name**

Cross References in Pesticide Schedule.

- **Pesticide Trade Name**

## Data Definitions

<b>Pesticide Number</b>			
<b>Long Name:</b>	Pesticide Number		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	int
<b>Domain:</b>	1 or greater		
<b>Description:</b>	Unique arbitrary number assigned to a pesticide name. Used only by EPIC in lieu of pesticide name.		
<b>Notes:</b>			
<b>Pesticide Trade Name</b>			
<b>Long Name:</b>	Pesticide Trade Name		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	char
<b>Domain:</b>	35 characters		
<b>Description:</b>	Trade name for pesticide.		
<b>Notes:</b>			
<b>Water Solubility</b>			
<b>Long Name:</b>	Water Solubility		
<b>Units:</b>	<b>Default:</b>	<b>Data Type:</b>	decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Degree to which a pesticide is soluble in water.		
<b>Notes:</b>			

<b>Wash Off Fraction</b>			
<b>Long Name:</b>	Wash Off Fraction		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0.00 to 1.00		
<b>Description:</b>	Fraction of pesticide that washes off foliage once a threshold value of rainfall (0.1 in) is exceeded.		
<b>Notes:</b>			
<b>Pesticide Common Name</b>			
<b>Long Name:</b>	Pesticide Common Name		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> char
<b>Domain:</b>	32 characters		
<b>Description:</b>	Common scientific name for pesticide active ingredient.		
<b>Notes:</b>			
<b>Metabolite</b>			
<b>Long Name:</b>	Metabolite		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> char
<b>Domain:</b>	3 characters		
<b>Description:</b>	Name of chemical that results from the breakdown of the parent pesticide compound.		
<b>Notes:</b>			
<b>Normalized Soil Part. Coeff.</b>			
<b>Long Name:</b>	Normalized Soil Partitioning Coefficient		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Ratio of pesticide concentration absorbed by the soil to the pesticide concentration in the water normalized for organic carbon.		
<b>Notes:</b>			
<b>Soil Half Life</b>			
<b>Long Name:</b>	Soil Half Life		
<b>Units:</b>	days	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Half life of pesticide applied to soil. Combines the effect of chemical, biological, and physical degradation.		
<b>Notes:</b>			
<b>Foliar Half Life</b>			
<b>Long Name:</b>	Foliar Half Life		
<b>Units:</b>	days	<b>Default:</b>	<b>Data Type:</b> decimal
<b>Domain:</b>	0 or greater		
<b>Description:</b>	Half life of pesticide applied to foliage. Describes the dissipation rate of pesticide residing on the crop and weed canopy or crop.		
<b>Notes:</b>			

# Runoff Cover Conditions Table

## Description

Runoff curve number determination data except for hydrologic soil group. Reference data used by AGNPS.

Elements uniquely identifying data.

- **Cover Number**
- **Cover Type**

Cross References in Runoff Curve Number Data Elements uniquely identifying data.

- **Cover Number**

Cross References in the Field Data table.

- **Hydrologic Condition**
- **Conservation Treatment Type**

Cross References in the Crop Characteristics table.

- **Cover Type**

Cross References in the Non-Crop Land Use Characteristics table.

- **Cover Type**

## Data Definitions

<b>Runoff Curve Number Table Name</b>			
<b>Long Name:</b>	Runoff Curve Number Table Name		
<b>Units:</b>		<b>Default:</b> enterValue	<b>Data Type:</b> char
<b>Domain:</b>	20 characters		
<b>Description:</b>	Runoff Curve Number Data table name. Allows use of localized curve numbers instead of standard Runoff curve numbers. This parameter is not currently used.		
<b>Notes:</b>			
<b>Cover Type</b>			
<b>Long Name:</b>	Cover Type		
<b>Units:</b>		<b>Default:</b> enterValue	<b>Data Type:</b> char
<b>Domain:</b>	40 characters		
<b>Description:</b>	Modifier used with Cover Category to better describe the land cover or use.		
<b>Notes:</b>			

<b>Cover Number</b>			
<b>Long Name:</b>	Cover Number		
<b>Units:</b>		<b>Default:</b> -1	<b>Data Type:</b> int
<b>Domain:</b>	Must exist in the Runoff Curve Number Data table		
<b>Description:</b>	Pointer to record in Runoff Curve Number Data table that corresponds to a specific combination of Cover Category, Cover Type, Conservation Treatment Type, and Hydrologic Condition.		
<b>Notes:</b>			
<b>Cover Category</b>			
<b>Long Name:</b>	Cover Category		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> char
<b>Domain:</b>	60 characters		
<b>Description:</b>	General category of land cover or use.		
<b>Notes:</b>			
<b>Hydrologic Condition</b>			
<b>Long Name:</b>	Hydrologic Condition		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> char
<b>Domain:</b>	Blank, good, fair, poor		
<b>Description:</b>	Condition of the land in relation to hydrologic properties.		
<b>Notes:</b>			
<b>Residue Flag</b>			
<b>Long Name:</b>	Residue Flag		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b>
<b>Domain:</b>			
<b>Description:</b>	A flag that indicates whether the curve number is adjusted for residue on the surface of the ground.		
<b>Notes:</b>	Applies only to Cover Type: Fallow, Row crops, and Small grain. For all other cover types, Residue Flag is blank.		
<b>Conservation Treatment Type</b>			
<b>Long Name:</b>	Conservation Treatment Type		
<b>Units:</b>		<b>Default:</b>	<b>Data Type:</b> char
<b>Domain:</b>	10 characters		
<b>Description:</b>	Conservation treatment name. Cover type modifier describing the management of cultivated agricultural lands.		
<b>Notes:</b>	Applies only to cover type: Fallow, Row crops, Small grain, and Close seeded or broadcast legumes or rotation meadow. For all other cover types, Conservation Treatment Type is blank.		





# USLE LS Factors Table

## Description

USLE LS factor data based on overland land slope. Reference data used by AGNPS and SWRRBWQ.

Elements uniquely identifying data.

- **slope**

The horizontal and vertical resolutions of the Digital Elevation Map (DEM) prevent the Tool from adequately determining slope break locations. As a result, the LS factor cannot be determined by terrain analysis using the DEM. In general, there is a relationship between the overland land slope and the length of that slope for a given geographic region. This table can and should be modified for each project area to characterize the slope, slope length, and LS factor relationships. The USLE LS factor can be computed from the following equation taken from Predicting Rainfall Erosion Losses, *Agricultural Handbook 537* given the slope and slope length:

$$LS = \left( \frac{I}{72.6} \right)^m (65.41 \sin^2 q + 4.56 \sin q + 0.065)$$

where:  $LS$  = USLE LS factor

$I$  = Slope length in feet

$q$  = Slope angle

$m$  = Landslope coefficient determined from the following table indexed by the land slope.

LAND SLOPE COEFFICIENT ( $m$ )	LAND SLOPE ( $S_c$ ) IN PERCENT
0.2	$0.0 \leq S_c < 1.0$
0.3	$1.0 \leq S_c \leq 3.0$
0.4	$3.0 < S_c \leq 4.5$
0.5	$S_c > 4.5$

## Data Definitions

<b>Slope</b> <b>Long Name:</b> Slope <b>Units:</b> % <b>Default:</b> 0 <b>Data Type:</b> int  <b>Domain:</b> 0 to 1000 <b>Description:</b> Lands slope corresponding to the USLE LS-factor. <b>Notes:</b>
<b>Slope Length</b> <b>Long Name:</b> Slope Length <b>Units:</b> ft <b>Default:</b> <b>Data Type:</b> int  <b>Domain:</b> 0 to 1000 <b>Description:</b> Slope length used to determine the USLE LS- factor. Element is only used in the application to derive the USLE LS factor. <b>Notes:</b>
<b>USLE LS Factor</b> <b>Long Name:</b> USLE LS Factor <b>Units:</b> <b>Default:</b> <b>Data Type:</b> decimal  <b>Domain:</b> 0 to 40 <b>Description:</b> Length Steepness (LS) factor used in the USLE equation. <b>Notes:</b>