TABLE 6

RESIDUE REDUCTION

IMPLEMENT	PERCENT RESIDUE REMAINING NONFRAGILE 1/	FRAGILE
PLOWS:		
Moldboard plow	0 - 10	0 - 5
Disk plow	10 - 20	5 - 15
MACHINES WHICH FRACTURE SOIL:		
Paratill/Paraplow	80 - 90	75 - 85
"V" ripper/subsoiler, 12 - 14" deep at 20" spacing	70 - 90	60 - 80
Combination Tools		
Subsoil-chisel	50 - 70	40 - 50
Disk-subsoiler	30 - 50	10 - 20
CHISEL PLOWS with:		
Sweeps	70 - 85	50 - 60
Straight chisel spike points	60 - 80	40 - 60
Twisted points or shovels	50 - 70	30 - 40
COMBINATION CHISEL PLOWS:		
Coulter Chisel plows with:		
Sweeps	60 - 80	40 - 50
Straight chisel spike points	50 - 70	30 - 40
Twisted points or shovels	40 - 60	20 - 30
Disk Chisel plows with:		
Sweeps	60 - 70	30 - 50
Straight chisel spike points	50 - 60	30 - 40
Twisted points or shovels	30 - 50	20 - 30
UNDERCUTTERS:		
Stubble-mulch sweep or blade plows with:		
Sweep/"V" Blade > 30" wide	85 - 95	70 - 80
Sweeps 20" - 30" wide	80 - 90	65 - 75
DISK HARROWS:		
Offset		
Heavy plowing > 10" spacing	25 - 50	10 - 25
Primary cutting > 9" spacing	30 - 60	20 - 40
Finishing 7"-9" spacing	40 - 70	25 - 40
Tandem		
Heavy plowing > 10" spacing	25 - 50	10 - 25
Primary cutting > 9" spacing	30 - 60	20 - 40
Finishing 7"-9" spacing	40 - 70	25 - 40

TABLE 6 (Cont.)

RESIDUE REDUCTION

IMPLEMENT	PERCENT RESIDUE REMAINING NONFRAGILE 1/	FRAGILE
DISK HARROWS:		
Tandem		
Light tandem disk after harvest, before other tillage ...	70 - 80	40 - 50
One-way disk with:		
12"-16" blades	40 - 50	20 - 40
18"-30" blades	20 - 40	10 - 30
Single gang disk	50 - 70	40 - 60
FIELD CULTIVATORS (including leveling attachments):		
Used as the primary tillage operation		
Sweeps 12"-20"	60 - 80	55 -75
Sweeps or shovels 6"-12"	35 - 75	50 - 70
Duckfoot points	35 - 60	30 - 55
Field cultivators as secondary operation following chisel or disk		
Sweeps 12"-20"	80 - 90	60 - 75
Sweeps or shovels 6"-12"	70 - 80	50 - 60
Duckfoot points	60 - 70	35 - 50
FINISHING TOOLS:		
Combination finishing tools with:		
Disks, shanks, and leveling attachments	50 - 70	30 - 50
Spring teeth and rolling basket	70 - 90	50 - 70
Harrows:		
Springtooth (coil tine)	60 - 80	50 - 70
Spiketooth	70 - 90	60 - 80
Flex-tine tooth	75 - 90	70 - 80
Roller harrow (cultipacker)	60 - 80	50 - 70
Packer roller	90 - 95	90 - 95
Rotary Tiller		
Secondary operation 3" deep	40 - 60	20 - 40
Primary operation 6" deep	15 - 35	5 - 15
RODWEEDERS:		
Plain rotary rod	80 - 90	50 - 60
Rotary rod with semi chisels or shovels	70 - 80	60 - 70

TABLE 6 (Cont.)

RESIDUE REDUCTION

IMPLEMENT	PERCENT RESIDUE REMAINING NONFRAGILE 1/	FRAGILE
STRIP TILLAGE MACHINES:		
Rotary tiller, 12" tilled on 40" rows	60 - 75	50 - 60
ROW CULTIVATORS (30" and wider):		
Single sweep per row	75 - 90	55 - 70
Multiple sweeps per row	75 - 85	55 - 65
Finger wheel cultivator	65 - 75	50 - 60
Rolling disk cultivator	45 - 55	40 - 50
Ridge till cultivator	20 - 40	5 - 25
UNCLASSIFIED MACHINES:		
Anhydrous applicator	75 - 85	45 - 70
Anhydrous applicator with closing disks	60 - 75	30 - 50
Subsurface manure applicator	60 - 80	40 - 60
Rotary hoe	85 - 90	80 - 90
Bedders, listers, and hippers	15 - 30	5 - 20
Furrow diker	85 - 95	75 - 85
Mulch treader	70 - 85	60 - 75
DRILLS:		
Hoe opener drills	50 - 80	40 - 60
Semi-deep furrow drill or press drill (7"-12" spacing)	70 - 90	50 - 80
Deep furrow drill with > 12" spacing	60 - 80	50 - 80
Single disk opener drills	85 - 100	75 - 85
Double disk opener drills (conventional)	80 - 100	60 - 80
No-till drills and drills with the following attachments in standing stubble:		
Smooth no-till coulters	85 - 95	70 - 85
Ripple or bubble coulters	80 - 85	65 - 85
Fluted coulters	75 - 80	60 - 80
No-till drills and drills with the following attachments in flat residues:		
Smooth no-till coulters	65 - 85	50 - 70
Ripple or bubble coulters	60 - 75	45 - 65
Fluted coulters	55 - 70	40 - 60

TABLE 6 (Cont.)

RESIDUE REDUCTION

IMPLEMENT	PERCENT RESIDUE REMAINING NONFRAGILE 1/	FRAGILE
DRILLS (Cont.):		
Air seeders: (Refer to appropriate field cultivator or chisel plow depending on the type of ground engaging device used.)		
ROW PLANTERS:		
Conventional planters with:		
Runner openers	85 - 95	80 - 90
Staggered double disk openers	90 - 95	85 - 95
Double disk openers	85 - 95	75 - 85
No-till Planters:		
Smooth coulters	85 - 95	75 - 90
Ripple coulters	75 - 90	70 - 85
Fluted coulters	65 - 85	55 - 80
Strip till planters with:		
2 or 3 fluted coulters	60 - 80	50 - 75
Row cleaning devices (8-14" wide bare strip using brushes, spikes furrowing disks, or sweeps)	60 - 80	50 - 60
Ridge till planter	40 - 60	20 - 40
CLIMATIC EFFECTS:		
Over winter weathering 2/ **		
Following summer harvest	70 - 90	65 - 85
Following fall harvest	80 - 95	70 - 80
Over summer weathering	70 - 90	65 - 85

** In northern climates with long periods of snow cover and frozen conditions, weathering may reduce residue levels only slightly, while in warmer climates, weathering losses reduce residue levels significantly. The higher figure will be used in most cases.

1/ If small grain was harvested with a rotary combine, residue is considered fragile.

Converting to Small Grain Equivalent (SGe)

Small Grain Equivalent (SGe) - The wind erosion control equivalent of vegetative cover, compared to a standard condition used for comparative testing in a wind tunnel. The small grain equivalent value of field residues is a function of kind, amount, and orientation of growing plants or plant residues on the soil surface.

Note: Flat small grain in field condition (randomly distributed) must be converted to small grain equivalent.

After the residue reduction actions (Table 6) have been considered and the amount and orientation of air dry remaining crop residue has been determined for the critical wind erosion period, convert to the small grain equivalent. Use the appropriate Chart 1, Pages C-8 to C-38 to make this conversion.

Photo Method for Determining Small Grain Equivalent (SGe)

The residue photos in "Still Farming With Residue" or similar photos show several crops with various percent ground cover.

Estimating Small Grain Equivalents (SGe) of Mixed Vegetative Cover Consisting of Two or More Components.

Procedure:

1. Describe each major type of vegetative cover and estimate the percentage of total air-dry weight made up of each component.

2. Using the appropriate SGe Chart 1 with the correct curve for each cover type, and using the total air-dry weight of all the vegetative cover on each chart, determine the SGe value of each component type.

3. Multiply the SGe value of each component (from step 2) by that component's percentage of total air-dry weight (from step 1).

4. Add the products (from step 3). The sum of the products is the weighted SGe for the mixed cover.