

TABLE 5.1. Uses of Cover Crops

	Residue Persistence	Pest Control	Nitrogen Fixation	Weed Control	Erosion Control	Compaction Reduction	Nutrient Scavenger	Forage Quality	Attracts Beneficial Insects
Legumes									
Austrian Winter Pea	F	P	E	G	G	F	G	E	E
Cowpea	F	E	E	E	E	F	F	G	E
Crimson Clover	G	P	G	G	G	F	G	G	F
Hairy Vetch	F	P	E	G	G	F	G	G	F
Lupin	F	G	E	G	G	G	F	P	E
Medics	G	F	G	G	G	F	F	G	F
Sunn Hemp	G	E	E	G	G	G	F	P	F
Velvet Bean	F	G	E	G	G	F	F	G	F
White Clover	F	F	E	G	G	F	F	E	E
Cereals									
Barley	E	G	P	G	E	F	G	G	F
Black Oat	G	E	P	E	G	F	G	G	P
Buckwheat	P	P	P	E	F	G	F	P	E
Oat	G	G	P	E	G	F	G	G	P
Rye	E	G	P	E	E	E	E	G	G
Ryegrass	G	G	P	G	E	F	G	G	F
Sorghum-Sudangrass	G	G	P	G	E	E	G	G	F
Triticale	G	F	P	G	G	F	G	G	P
Winter Wheat	G	P	P	G	G	F	G	G	P
Other									
Brassicas	G	E	P	G	G	E	G	G	F

E=Excellent; G=Good; F=Fair; P=Poor/None

Adapted from *Managing Cover Crops Profitably, 3rd Edition*

¹Brassicas commonly planted as cover crops include mustards, forage radish, canola and turnips.

TABLE 5.2. Management scenarios and Soil Conditioning Index (SCI) values for the Southern Piedmont region

Location	Soil series	Soil texture	Slope (percent)	Scenario	SCI
Watkinsville, Ga.	Cecil	Sandy loam	4	Monoculture cotton, spring chisel tillage	-1.1
				Monoculture cotton, fall chisel tillage	-1.8
				Monoculture cotton, no-till	0.12
				Cotton>annual rye, no-till	0.36
				Cotton>corn>corn>tall fescue (pasture years)	0.61
Auburn, Ala.	Marvyn	Loamy sand	3	Monoculture cotton, fall disk tillage	-0.82
				Monoculture cotton, no-till	0.27
				Cotton>grazed rye cover crop, no-till	0.42

Source: [6]

TABLE 5.3. Characteristics of several cover crops used throughout the Southeast

Cover Crop	Variety ¹	Seeding rate (pounds per acre of pure live seed) ²	Seeding depth (inches)	Dry matter (pounds per acre per year)	Comments
Black oats	SoilSaver	50–90	½–1	3,000–7,000	Susceptible to winterkill, so plant in lower Coastal Plain. Excellent early-season weed control.
Oats	VNS ³	D 80–110 B 110–140	½–1½	2,000–8,000	Provides adequate ground cover, but the cover does not persist for as long as other cereals. Select varieties based on university trials and tolerance to cold temperatures.
Rye	Elbon Wrens Abruzzi	D 60–120 B 90–160	¾–2	3,000–10,000	Typically produces the most biomass of the cereals and is well adapted to different soil types. Excellent early-season weed control.
Ryegrass	Gulf Marshall	D 10–20 B 20–30	0–½	2,000–9,000	Excellent soil builder, but can create problems for cash crop establishment. Excellent early-season weed control.
Wheat	VNS	D 60–120 B 60–150	½–1½	3,000–8,000	Typically the most inexpensive and plentiful seed. Concerns with Hessian fly if wheat for grain is also in the rotation.
Austrian winter peas	VNS	D 50–80 B 90–100	1½–3	3,000–5,000	Not tolerant of wet soil or drought and prefers well-drained heavy soils.
Crimson clover	AU Robin AU Sunrise Dixie	D 15–20 B 25	¼–½	3,500–5,500	Has reseeding potential due to early maturity. Can fix up to 150 pounds N per acre.
Hairy vetch	VNS	D 15–20 B 25–40	½–1½	4,000–7,000	More cold tolerant than clovers, but residue is less persistent. Can fix up to 200 pounds N per acre.

¹Variety name is given when reported.

²“D” means drilled and “B” means broadcast.

³“VNS” means variety not stated.

TABLE 5.4. Recommended planting dates for several summer and winter cover crops across select states¹

	ALABAMA [3]			GEORGIA [8]			TENNESSEE [4]	
Cover crop	North	Central	South	Limestone Valley	Piedmont	Coastal Plain	SPRING	FALL
SUMMER								
American jointvetch							Apr 15– July 1	
Buckwheat				Apr 15– June 15	Apr 15– June 15	Apr 15– June 15	May 15– Aug 1	
Chufa						May 15– June 30		
Clover alyce						May 15– June 15		
Cowpeas				May 1– June 15	May 1– June 15	May 1– June 15	April 15– July 1	
Lablab (hyacinth beans)							Apr 15– July 1	
Lespedeza (kobe), common				Feb 15– Mar 15	Feb 15– Mar 15		Feb 15– Apr 15	
Millet, browntop				May 15– Aug 1	Apr 15– Aug 1	Apr 15– Aug 15	May 15– June 15	
Millet, foxtail	May 1– Aug 1	Apr 1– Aug 15	Apr 1– Aug 15	May 15– Aug 1	Apr 15– Aug 1	Apr 15– Aug 15	May 15– June 15	
Millet, Japanese				May 15– Aug 1	Apr 15– Aug 1	Apr 15– Aug 15		

	ALABAMA [3]			GEORGIA [8]			TENNESSEE [4]	
Cover crop	North	Central	South	Limestone Valley	Piedmont	Coastal Plain	SPRING	FALL
SUMMER								
Millet, pearl	Apr 20– Jul 1	Apr 15– Jul 1	Apr 1– Jul 15			April 15– July 15	May 15– June 15	
Millet, proso	May 1– Aug 1	Apr 1– Aug 15	Apr 1– Aug 15	May 15– Aug 1	April 15– Aug 1	April 15– Aug 15		
Partridge peas					Mar 15– May 1	Mar 15– May 1		
Rhizoma peanuts						Dec–early March		
Sesame						May 15– June 15		
Sesbania						May 15– June 15		
Sorghum, forage	Apr 20– May 15	Apr 20– May 15	Apr 20– Jul 1				May 15– June 15	
Sorghum-sudangrass	May 1– Aug 1	Apr 15– Aug 1	Apr 1– Aug 15	May 15– Aug 1	April 15– Aug 1	April 15– Aug 15		
Soybeans							May 15– June 15	
Sudangrass	May 1– Aug 1	May 1– Aug 1	May 1– Aug 1	May 15– Aug 12	May 15– Aug 12		Apr 20– June 15	
Sunn hemp	Apr 1– Sept 1	Apr 1– Sept 1	Apr 1– Sept 15					
Teff grass							May 15– June 15	
WINTER								
Alfalfa				Aug 25– Sept 10	Sept 15– Oct 10	Sept 20– Oct 20	Mar 15– May 15	Aug 15– Sept 15
Barley	Sept 1– Nov 1	Sept 15– Nov 1	Sept 15– Nov 15	Sept 15– Oct 15	Sept 15– Oct 15			Sept 15– Nov 1
Black oats	n/a	n/a	Sep 15– Nov 1					
Caley peas (rough/winter)				Sept 15– Oct 30	Sept 15– Oct 30	Sept 15– Oct 30		
Canola	Aug 25– Oct 1	Sep 1– Oct 15	Sep 1– Oct 15					
Clover, arrowleaf				Aug 25– Sept 10	Sep 15– Sept 20	Sep 10– Oct 10		Aug 15– Oct 1

	ALABAMA [3]			GEORGIA [8]			TENNESSEE [4]	
Cover crop	North	Central	South	Limestone Valley	Piedmont	Coastal Plain	SPRING	FALL
WINTER								
Clover, ball	Sept 1– Oct 31	Sept 1– Oct 31	Sept 1– Oct 31					
Clover, berseem						Oct 15– Nov 1		
Clover, crimson	Aug 25–Oct 1	Sept 1– Oct 15	Sept 15– Nov 15	Aug 25– Sept 10	Sept 15– Sept 20	Sept 10– Oct 10		Aug 15– Oct 1
Clover, red	Sept 15–Nov 15 Feb 2–Apr 1	Sept 15–Nov 15 Feb 2–Apr 1	Sept 15– Nov 15	Sept 15– Oct 15	Sept 15– Oct 15		Feb 15– Apr 1	Aug 15– Oct 1
Clover, subterranean	Aug 25– Oct 1	Sept 1– Oct 31	Sept 1– Oct 31	Sept 15– Oct 10	Sept 15– Oct 10	Sept 15– Oct 10		
Clover, white (ladino)				Sept 15– Oct 15	Sept 15– Oct 15	Sept 15– Oct 15	Feb 15– Apr 1	Aug 15– Oct 1
Lupine (blue, white)	Aug 25–Oct 1 Apr 1–15	Sept 1–Oct 15 Apr 1–15	Sept 1–Oct 15 Apr 1–15	Sept 15–30	Sept 15– Oct 15	Oct 15– Nov 15		
Mustard	Aug 25– Oct 1	Sept 1– Oct 15	Sept 1– Oct 15					
Oats	Sept 1– Nov 1	Sept 15– Nov 1	Sept 15– Nov 15	Sept 15– Oct 15	Sept 15– Oct 15	Sept 15– Oct 15	Feb 20– Apr–1	Sept 15– Oct 1
Radish	Aug 25– Oct 1	Sept 1– Oct 15	Sept 1– Oct 15					
Rye	Sept 1– Nov 1	Sept 15– Nov 1	Sept 15– Nov 15	Sept 15– Oct 15	Sept 15– Oct 15	Sept 15– Oct 15		Aug 15– Oct 1
Ryegrass	Aug 25– Oct 1	Sept 1– Oct 15	Sept 15– Nov 1	Sept 15– Oct 15	Sept 15– Oct 15	Sept 15– Oct 15	Feb 20– Apr 1	Aug 15– Oct 15
Sweetclover				Sept 15– Oct 10	Sept 15– Oct 10		Feb 20– Apr 1	Aug 15– Oct 1
Triticale	Sept 1– Nov 1	Sept 15– Nov 1	Sept 15– Nov 15			Oct 15– Nov 15		
Turnips	Aug 25– Oct 1	Sept 1– Oct 15	Sept 1– Oct 15				Apr 15– June 1	Aug 15– Oct 1
Vetch, common					Sept 15– Oct 15	Sept 15– Nov 1		
Vetch, hairy	Sept 1– Oct 15	Sept 1– Oct 15	Sept 15– Nov 1	Sept 15– Oct 15 C	Sept 15– Oct 15	Sept 15– Nov 1		Aug 15– Oct 15
Wheat	Sept 1– Nov 1	Sept 15– Nov 1	Sept 15– Nov 15	Sept 15– Oct 15	Sept 15– Oct 15	Oct 15 – Nov 1		Aug 15– Nov 1
Winter peas	Sept 1– Oct 15	Sept 1– Oct 15	Sept 1– Oct 15	Sept 15– Oct 30	Sept 15– Oct 30	Sept 15– Oct 30		Aug 15– Oct 1

³ Sources for each state are in bracketed numbers.

TABLE 5.5. Effects of early and late cover crop termination timing

EARLY TERMINATION	LATE TERMINATION
Less biomass	More biomass
Increases time for replenishment of soil water	Higher soil moisture retention throughout the growing season
Early-season soil warming is enhanced	Cooler soils throughout the growing season
Reduces phytotoxic effects from decomposing residues	Weed control from shading and allelopathic compounds enhanced
Decreases survival of disease inoculum	Greater N contribution from legumes
Longer decomposition time for residue that improves some equipment operation	Cover crop reseeding enhanced, if applicable
Improves short-term N mineralization from low C:N ratio cover crops	Cover crop residue, particularly grasses, will persist for longer periods of time

TABLE 5.6. Tillage and residue effects on infiltration in a Southern Coastal Plain soil following a simulated 2-inch rainfall

Tillage treatment	Infiltration (percent)	Available water remaining (days) ¹
Conservation tillage with residue	95	5.4–7.6
Conservation tillage without residue	58	3.3–4.6
Conventional tillage; No deep tillage	28	1.6–2.2

¹Based on a water use rate for a cotton crop during peak bloom (0.25 to 0.35 inches per day). Assumes no evaporative losses for illustrative purposes.