## Grain, Forage, and Cover Crop Guide for Kentucky



Websites for more inform	, ,		du/Ag/Forage; http://sc	outherncovercrops.org/				Cooperativ	e Extension Service   Agric	ulture and Natural Resources   Family and Consumer Sciences   4-H Youth Development   Community and Economic Development
Species			Desired Plant	Seeding Rate	Seeding Depth			Harvest/ Termination	Approx. Annual Yield/ac [tons (T)	
Scientific Name  Alfalfa	Uses <sup>1</sup> hay, silage,	Common Units 60 lb/bu	<b>Density</b> 25 to 40/sq ft	Pure Live Seed/ac 15 to 20 lb	(inches) 1/4 to 1/2	Main Cover Crop Benefit	Seeding Date Mar 15 to May 1	<b>Timing</b> May 1 to Sep 15		Comments Correct soil acidity before seeding. Inoculate seed. Monitor for alfalfa weevil and leafhopper and
Medicago sativa	pasture	227,000 seeds/lb	(in seeding year)				Aug 1 to Sep 15		40.001	spray as recommended. Spring seeding: seed after risk of hard freeze (26°F). Fall seeding: seed early to reduce risk of <i>Sclerotinia</i> .
<b>Barley</b> Hordeum vulgare	grain, hay, silage	48 lb/bu 14,000 seeds/lb	35/sq ft	1,500,000 to 2,000,000 seeds 2 to 3 bu	1 to 2		Oct 1 to 15 Sep 15 to 30	Jun 5 to 15 Apr 25 to May 15	40 to 80 bu 5 to 8 T (65% moisture)	Most varieties in KY are 6-row barley for grain. There are some 2-row malting type barleys being developed in the region. Control loose smut with proper seed treatment. Earliest small grain for double cropping. Very sensitive to acid soils. Not as winter hardy as wheat. Best adapted to fertile,
Bermudagrass,	hay, pasture	40 lb/bu		5 to 8 lb (hulled seed)	1/4 (hulled seed)		May 15 to Jun 15	May 15 to Sep 15	2 to 6 T	well-drained soil with a pH above 6.0.  Warm season perennial. Harvest 5 times per season for hay. Seed when the soil temperature has
<b>Seeded</b> <i>Cynodon dactylon</i>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2,071,000 seeds/lb		10 to 12 lb (coated seed)	, , , , , , , , , , , , , , , , , , , ,		,	,		reached 60 to 65°F and there is no risk of frost. Ensure seeded variety is winter-hardy in KY. Increase seeding rate when using coated seed.
Bermudagrass, Sprigged	hay, pasture			15 to 20 bu of sprigs/ac	1 to 3		May 15 to Jun 15	May 15 to Sep 15	3 to 7 T	Very high yielding during summer with adequate nitrogen. Due to high yields, nutrient removal can be high when hayed. Can provide good summer pasture.
Cynodon dactylon Birdsfoot Trefoil	pasture	60 lb/bu		6 to 12 lb	1/4 to 1/2		Mar 1 to Apr 15	May 1 to Sep 15	1 to 3 T	Special type inoculum. Permits natural reseeding. Marginally adapted to KY.
Lotus corniculatus <b>Bluestem, Big</b> Andropogon gerardii	hay, pasture, wildlife	370,000 seeds/lb 165,000 seeds/lb		9 to 11 lb	1/4 to 1/2		Apr 15 to Jun 1	Jun 15 to Jul 15	2-1/2 to 3-1/2 T	Light, fluffy seed. Sensitive to overgrazing. Slow to establish. Seed after risk of frost in the spring.
Andropogon gerardii <b>Bluestem, Little</b> Schizachyrium scoparium	pasture,	260,000 seeds/lb		7 to 9 lb	1/4		Apr 15 to Jun 1	Jun 15 to Sep 15	1-1/2 to 2 T	Primarily used in native grass mixtures at rates of 1 to 2 lb per acre. Sensitive to overgrazing. Upright, bunchgrass similar in appearance to broomsedge ( <i>Andropogon virginicus</i> ). Slow to
Bromegrass, Smooth	hay, pasture	14 lb/bu		15 to 20 lb	1/4 to 1/2		Primary: Aug 20 to Sep 20	May 5 to 25	1-1/2 to 3-1/2 T	establish.  Slow regrowth after first hay harvest. Sensitive to overgrazing. Drought tolerant. Slow to establish,
Bromus inermis <b>Buckwheat</b>	summer cover	135,000 seeds/lb		30 lb (drilled)	1	rapid biomass production,	Secondary: Feb 15 to Apr 1 Jun to Jul	see comment		but good longevity once established.  Residue will not persist long. Must terminate at the first sign of flowers or viable seed can be
Fagopyrum spp.	crop			50 lb (broadcast) <sup>3</sup>		pollinator resource (see comments)				produced. Excellent quick growing summer cover crop.
Canola Brassica napus	grain	50 lb/bu	5 to 7/sq ft	6 to 9 seed/sq ft 261,000 to 392,000 seeds	1/2 to 1		Sep 15 to Oct 1	May 25 to Jun 15	40 to 80 bu	Primarily used for vegetable oil. Canola refers to low glucosinolate, low erusic acid rapeseed.
Clover, Alsike Trifolium hybridum	hay, pasture	60 lb/bu 728,000 seeds/lb		4 to 6 lb	1/4		Feb 1 to Apr 15 Aug 1 to Sep 10	Jun 1 to Sep 15	1 to 2 T	Inoculate. Better adapted to poorly drained soils than red clover. Little advantage over white clover in KY. Can cause photosensitization in horses.
<b>Clover, Crimson</b> Trifolium incarnatum	hay, pasture winter cover	60 lb/bu 150,000 seeds/lb		20 to 30 lb 20 lb (drilled)	1/4 to 1/2 <1/2	nitrogen fixation	Aug 1 to Oct 15 Western KY: Sep 1 to Oct 15	May 1 to 15 Apr 15 to May 10	1 to 2-1/2 T 1 to 2 T	Inoculate. Annual clover. Fall planted for spring forage production or as a plow down crop.  Most biomass is produced in the spring. Can mix with small grains and annual ryegrass. Use a
	crop			30 to 40 lb (broadcast) <sup>3</sup> 10 to 15 lb (in mixtures with winter annual grasses)			Central KY: Sep 1 to Sep 30			higher seeding rate in mixtures to minimize competition. More flexible planting dates than for other legumes. Kentucky Pride variety has more reliable over-wintering, but other southern varieties may produce more biomass earlier in the season.
<b>Clover, Red</b> Trifolium pratense	hay, pasture	60 lb/bu 272,000 seeds/lb		8 to 12 lb	1/4 to 1/2		Primary: Feb 1 to Apr 15 Secondary: Aug 1 to Sep 10	May 1 to Sep 15	2 to 5 T	Inoculate. Don't graze or clip after Sep 15 until after freeze. Use improved varieties for 2 to 3 year stands. Frost seed 6 to 8 lb per acre + 1 to 2 lb per acre ladino clover ( <i>Trifolium repens</i> ) in February.
	winter cover crop					nitrogen fixation	before Sep 15	Apr 15 to May 10		
<b>Clover, Sweet</b> <i>Melilotus</i> spp.	summer cover crop	60 lb/bu 259,000 seeds/lb		10 to 15 lb	1/4 to 1/2	nitrogen fixation	Feb 1 to Apr 1			Inoculate. Used mainly as a plow down crop. Use only low coumarin varieties. Can be mowed before flowering to encourage biomass production. Other summer cover crops, such as sunn hemp
		CO II- /I		1 + 2   - ('	1/4		F-l- 1 +- A 15	h 1 to Co 10	1 t- 2 T	( <i>Crotalaria juncea</i> ), may be a better option, since sweet clover can become a weed if allowed to seed.
Clover, White (Ladino and Dutch or Common types)	pasture	60 lb/bu 768,000 seeds/lb		1 to 3 lb (in mixtures)	1/4		Feb 1 to Apr 15	Jun 1 to Sep 10	1 to 3 T	Inoculate. Good for all permanent pasture mixtures. Use ladino type for higher forage yield. Intermediate types have been selected for grazing tolerance.
types) Trifolium repens Corn	grain	56 lb/bu	24,000 to 42,000/ac	24,000 to 36,000 seeds	1-1/2 to 3		Apr 1 to May 30	Sep 15 to Oct 30	140 to 280 bu	Populations vary according to soil depth and water holding capacity. Lower seed rates for drought-
Zea mays	9			(non-irrigated) 32,000 to 42,000 seeds	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		φ		15 to 25 T (65% moisture)	prone soils. Higher seed rates for deep soils and irrigated fields.
	silage,			(irrigated grain) 24,000 to 36,000 seeds	1-1/2 to 3			Aug 15 to Sep 15		Ensile when moisture is: Horizontal bunker silos, 65 to 70%; Bag Silos, 60 to 68%; Tower Silos, 62 to
	stockpile grazing			(non-irrigated) 32,000 to 42,000 (irrigated silage)						67%. Can be grazed as needed during the growing season or saved for winter grazing.
<b>Cowpeas</b> Vigna unguiculata	hay	60 lb/bu 4,000 seeds/lb		1 to 2 bu	1 to 3		May 15 to Jul 1	Aug 1 to Oct 1	2 T 1-1/2 to 2-1/2 T	Inoculate. Short term summer legume. Sometimes mixed with warm season annual, like sorghum x sudangrass hybrids.
rigina angancalata	summer cover crop	1,000 32243,10		60 lb (drilled) 100 lb (broadcast) <sup>3</sup>	1	nitrogen fixation, biomass production	Jun to Jul	see comment	1 1/2 (3 2 1/2 1	A small fraction of seeds will have a hard seed coat and will germinate in subsequent years.
<b>Crabgrass</b> <i>Digitaria</i> spp.	grazing, hay	25 lb/bu 825,000 seeds/lb		3 to 6 lb	1/8 to 1/4	, and a	May 1 to Jul 1	Jun 15 to Sep 30	2 to 4 T	Double seeding rate for coated seed. Uncoated seed should be mixed with a carrier such as fertilizer or pelleted lime. Seed when soil temperatures exceed 60°F.
<b>Crownvetch</b> Coronilla varia	summer cover crop	55 lb/bu		20 lb	1/2	nitrogen fixation	Apr 1 to May 15			Inoculate. Used mainly for roadbanks.
<b>Eastern Gamagrass</b> <i>Tripsacum dactyloides</i>	grazing, hay			10 to 12 lb	1/2 to 1		Apr 15 to Jun 15	Jun 1	4 to 6 T	Highest quality native warm season perennial. High levels of seed dormancy. Use cold or chemically stratified seed. Slow to establish.
<b>Fescue, Tall</b> Festuca arundinacea	hay, pasture	22 lb/bu 227,000 seeds/lb		15 to 25 lb	1/4 to 1/2		Primary: Aug 20 to Oct 1 Secondary: Feb 15 to Apr 15	May 1 to May 20	2 to 4 T	KY31 variety contains fungal endophyte that causes toxicity in livestock. Toxins accumulate in seedheads so clipping can help mitigate toxicity. Add clover to increase animal performance and
<b>Grama, Side Oats</b> <i>Bouteloua curtipendula</i>	pasture, wildlife	190,000 seeds/lb		8 to 10 lb	1/4 to 1/2		Apr 15 to Jun 1	Jun 15 to Sep 15	1-1/2 to 2 T	mitigate toxicity. Use low endophyte or novel endophyte varieties.  Primarily used in mixtures at 1 to 2 lb per acre. Sensitive to overgrazing. Slow to establish.
Indiangrass Sorghastrum nutans	hay, pasture, wildlife	175,000 seeds/lb		8 to 10 lb	1/4 to 1/2		Apr 15 to Jun 1	Jul 15 to Sep 15	2 to 4 T	Light, fluffy seed. Needs special drills for no-till seeding. Can be mixed with a carrier to enhance flow in drill or seeder. Latest maturity of native grasses. Sensitive to overgrazing and slow to
Kentucky Bluegrass	pasture	14 lb/bu		10 to 15 lb (alone)	1/4		Primary: Aug 15 to Sep 15	May 1 to 15	1 to 3 T	establish.  Tolerant to close grazing. Lower forage yield than other cool season grasses. Goes dormant during
Poa pratensis Lespedeza, Annual	hay, pasture	1,400,000 seeds/lb 30 lb/bu		4 to 6 lb (in mixtures) 20 to 25 lb (alone)	1/4		Secondary: Feb 15 to Apr 15 Feb 15 to Apr 1		1 to 2-1/2 T	the hot summers. Normally planted as part of a mixture.  Inoculate. Annual warm season legume. Can be frost seeded with red and white clover. Tolerant to
Kummerowia stipulacea (Korean; K. striata - Kobe	<i>7.</i> 1	240,000 seeds/lb		10 to 15 lb (in mixtures)			·	J		low pH and low P.
or Striate types)  Lespedeza, Perennial	hay, pasture	60 lb/bu		20 lb	1/4		May 1 to Jun 1	May 15 to Sep 15	1 to 3 T	Inoculate. Used mainly for soil conservation purposes. Harvest or graze at an immature stage of
(Sericea) Lespedeza cuneata Millet, Foxtail	hay, pasture	372,000 hulled seed/lb 50 lb/bu		15 to 20 lb (drilled)	1/4 to 1/2		May 1 to Aug 1	(hay) Aug 15 to Oct 1	1 to 3 T	growth to maintain quality (12 – 14" high).  Main use for wildlife feed. Can be used as an emergency hay crop or pasture. Used as a smother
( <b>German</b> ) Setaria italicum	nay, pasture	215,000 seeds/lb		20 to 30 lb (broadcast) <sup>3</sup>	1/4 (0 1/2		May 1 to Aug 1	Aug 13 to Oct 1	1 10 3 1	crop when reestablishing pasture. Produces single cutting with no regrowth 50 to 60 days after planting.
Japanese Millet Echinochloa esculenta	summer cover crop			10 lb (drilled) 20 lb (broadcast) <sup>3</sup>	1/4 to 1/2	biomass production, ground cover <sup>4</sup>	Jun to Jul	see comment	2-1/2 to 4 T	Avoid late summer plantings as this species will flower and produce seed quickly as day length shortens. May have seeding rate restrictions if fields will be used for dove hunting.
<b>Millet, Pearl</b> Pennisetum glaucum	silage, pasture	50 lb/bu 82,000 seeds/lb		15 to 20 lb (drilled) 25 to 30 lb (broadcast) <sup>3</sup>	1/2 to 1		May 1 to Aug 1	Jun 15 to Oct 15	2 to 4 T	Good for summer pasture. Does not produce prussic acid. Is not a host for sugarcane aphid. Potential for nitrate problems. Refer to ID-217.
	summer cover crop			10 lb (drilled) 20 lb (broadcast) <sup>3</sup>	1/2	biomass production, ground cover <sup>4</sup>	Jun to Jul	see comment	2-1/2 to 5 T	Avoid late summer plantings as this species will flower and produce seed quickly as day length shortens. May have seeding rate restrictions if fields will be used for dove hunting.
Oats, Winter and Spring	grain	32 lb/bu 15,000 seeds/lb	20 to 30/sq ft	60 to 90 lbs	1 to 2		Oct 1 to 15	Jul 1 to 10	50 to 80 bu 4 to 8 T	Spring oats are seeded as a grain crop, or as emergency hay or silage. Winter oats are least winter hardy of small grains. Oats for grain are mostly used on-farm and currently not recommended for
Avena sativa	hay, silage			2-1/2 to 3 bu			Mar 1 to Apr 1	May 20 to Jun 10	(65% moisture)	commercial production in KY.  Preferred companion crop when seeding perennial forages since they are the least competitive small grain. If using for a companion crop reduce cooling rate by 2/3. Fall planted winter parts will
	cover crop			80 lb (drilled)	1/2 to 1-1/2	rapid biomass production	Sep 15 to 30  Mar to Apr	see comment	1-1/2 to 3 T	small grain. If using for a companion crop, reduce seeding rate by 2/3. Fall planted winter oats will winter kill about one out of two years.  Can be planted in spring or late summer. In KY, will winter kill in most years.
	cover crop			120 lb (broadcast) <sup>3</sup>	1/2 (0 1-1/2	in cooler conditions, weed control	OR Aug to Sep	see comment	1-1/2 to 3 1	can be planted in spring of late summer. In K1, will writter kill in most years.
<b>Orchardgrass</b> Dactylis glomerata	hay or pasture	14 lb/bu 416,000 seeds/lb		15 to 20 lb	1/4 to 1/2		Primary: Aug 20 to Sep 20 Secondary: Feb 15 to Apr	May 1 to 20 Jul 1 to 15	2 to 4 T	High quality, high yielding cool season grass. Preferred grass for mixtures with alfalfa. Can become clumpy over time. Do not mow closer than 3 to 4 inches.
Oilseed Radish	winter cover			10 lb (drilled)	1/4 to 3/4	loosening of compacted soils,	15 Before Sep 15	not winter hardy	1/2 to 1-1/2 T	Will winter kill in most KY locations in most years. Decomposes quickly, so scavenged N can be lost
Raphanus sativus Rapeseed, Winter	crop forage	50 lb/bu		15-20 lb (broadcast) <sup>3</sup> 4 to 6 lb (drilled)	1/8 to 3/8	N scavenging	Sep 1 to Oct 1	May 25 to Jun 15	20 to 25 bu	readily if not planted in a mixture. Use low glucosinolate varieties for forage. Be cautious when grazing brassicas. Refer to ID-223.
Brassica napus	winter cover crop	156,000 seeds/lb		6 to 9 lb (broadcast) 6 lb (drilled) 8 lb (broadcast) <sup>3</sup>	1/4 to 3/4	loosening of compacted soils, N scavenging	before Sep 15	Apr 1 to Apr 15	1 to 2-1/2 T	Difficult to terminate chemically. Recommended termination when less than 12" tall.
Reed Canarygrass Phalaris arundinacea	hay	47 lb/bu 480,000 seeds/lb		8 to 12 lb	1/4 to 1/2	iv scaveliging	Primary: Aug 20 to Sep 20 Secondary: Feb 15 to Apr 15	May 25 to Jun 10	2 to 4 T	Difficult to establish. Does well in poorly drained areas. Low quality at maturity. Use low alkaloid varieties.
Rye, Cereal Secale cereale	grain	56 lb/bu 18,000 seeds/lb	16 to 18/sq ft	700,000 to 800,000 seeds	1 to 2		Oct 1 to Oct 30	Jun 15 to 30	30 to 90 bu 4 to 10 T	Newer hybrid ryes may be an option for grain production. Historically test weight has been quite low for rye grown in KY. Earlier planting appears to be required on rye for grain.
	silage, pasture	.,	20 to 30/sq ft	90 to 150 lb			Aug 15 to Oct 15	Apr 20 +4	(65% moisture)	Cut for hay or silage in boot stage. Excellent for grazing and no-till mulch. Best small grain for fall grazing.
	winter cover crop		15 to 30/sq ft	30 to 70 lb (drilled) 100 to 150 lb (broadcast) <sup>3</sup>	3/4 to 1	nitrogen scavenging, ground cover, weed suppression	Sep 1 to Nov 15 <sup>2</sup>	Mar 15 to May 10	1 to 4 T	Considered to have the best winter growth of winter grains. The fibrous root system helps hold soil in place. Excellent cover crop. Good for weed suppression while growing and after terminated.
	·									Can grow rapidly in the spring, so termination should be timed to desired amount of residue. Most biomass production occurs in the spring. Can immobilize N after termination.
<b>Ryegrass, Annual</b> Lolium multiflorum	pasture, silage or hay	24 lb/bu 224,000 seeds/lb		20 to 30 lb	1/4 to 1/2		Aug 15 to Oct 1	Mar 15 to May 15	2 to 4 T	Used mainly as cover crop or for grazing. Increased use for round bale silage. Use Italian types for spring seedings. See forage variety reports for winter-hardy varieties.
	winter cover crop			10 to 20 lb (drilled) 20 to 40 lb (broadcast) <sup>3</sup>	< 1/2	nitrogen scavenging, ground cover	Aug 15 to Oct 1	Mar 30 to Apr 30	1 to 2 T	Can be very difficult to terminate with herbicides and is thus only recommended for experienced cover croppers. Wheat growers should avoid this species as it can become a weed and can cross with similar weedy plants.
Ryegrass, Perennial Lolium perenne	hay, pasture	24 lb/bu 330,000 seeds/lb		15 to 25 lb	1/4 to 1/2		Primary: Aug 20 to Oct 1 Secondary: Feb 1 to Apr 15	Apr 20 to May 10	2 to 4 T	Use winter hardy varieties. Average stand length in KY is two years. High fertility soils and/or irrigation can extend stand life.
Sorghum, Forage Sorghum bicolor	silage	56 lb/bu 13,000 to 20,000		60,000 to 90,000 seeds	1 to 1-1/2		May 1 to Jul 1	Aug 15 to Sep 20	15 to 30 T (65% moisture)	Susceptible to sugarcane aphid damage. More drought tolerant than corn.
Sorghum, Grain (Milo)	grain	seed/lb 56 lb/bu	60,000/ac	60,000 to 80,000 seeds	3/4 to 1-1/4		May 1 to Jun 10	Sep 20 to Oct 20	50 to 110 bu	Plant when soil temperatures are above 60-65°F. Row spacing of 15" or less has less potential for
Sorghum bicolor Sorghum, Sweet	food	24,000 seeds/lb 50 lb/bu		2-1/2 to 3 lb	1		May 1 to Jun 10	Sep 1 to Oct 15	150 to 250 gal	lodging problems than wider row spacings. May need to spray to control sugar cane aphid.  Harvest earlier by transplanting using float system. May need to spray to control sugar cane aphid.
(Syrup) Sorghum bicolor	·	21,000 seeds/lb	100 000 k	2 to 3 seed/sq ft	1 +- 2		March	Con 15 to O 155	25 +- 00	Inoculate with Pradurbizabium ignorioum if falal background (
<b>Soybean</b> Glycine max	grain	60 lb/bu 2,500 to 3,000 seeds/lb	100,000 harvested plants/ac	120,000 to 175,000 seeds	1 to 2		May 1 to Jul 1	Sep 15 to Oct 30	35 to 90 bu	Inoculate with <i>Bradyrhizobium japonicum</i> if field has been out of soybean for 3 to 5 years. Seed size varies by variety. Maturity Groups III to early IV best suited for KY. Higher seed rate for later planting, such as double crop behind wheat, and more challenging environments. Row widths less than 30
	hay, silage	2.27.00	100,000 to 160,000/	1 to 1-1/2 bu			May 1 to Jul 1	Aug 1 to Sep 30	2 to 4 T	inches provide a yield increase.  If cutting for a forage, target the R6 (full seed) growth stage and wrap bales or ensile for best
			ac				·	(hay)		quality.
	summer cover crop			60 lb (drilled) 100 lb (broadcast) <sup>3</sup>		nitrogen fixation, biomass production	May to August	see comment	1-1/2 to 4 T	Cannot utilize on prevented plant acres planned for soybean. Watch for herbicide resistant traits when planning termination strategy. Will winter kill if planted later in the season. Watch rotation with soybean harvested for grain
<b>Sudangrass</b> Sorghum bicolor var.	hay, silage, pasture	40 to 50 lb/bu 55,000 seed/lb		20 to 30 lb (drilled) 20 to 30 lb (broadcast) <sup>3</sup>	1/2 to 1		May 10 to Aug 1	Jun 10 to Oct 1	2 to 5 T	with soybean harvested for grain. Excellent warm season annual pasture or silage crop. Smaller stemmed sudangrass preferred for hay production over sorghum x sudangrass hybrid. Potential for prussic acid and nitrate problems.
sudanese  Sorghum x	hay, silage,	40 to 50 lb/bu		20 to 30 lb (broadcast) <sup>3</sup> 20 to 30 lb (drilled)	1/2 to 1		May 10 to Aug 1	Jun 15 to Oct 15	2 to 5 T	Refer to ID-220 and ID-217.  Excellent warm season annual pasture or silage crop. Potential for prussic acid and nitrate problems.
<b>Sudangrass Hybrids</b> <i>Sorghum bicolor x S.</i>	pasture summer cover	20,000 seeds/lb		30 to 40 lb (broadcast) <sup>3</sup> 15 lb (drilled)	1/2 to 1	rapid biomass production,	Jun to Sep	see comment	4 to 5 T	Refer to ID-220 and ID-217.  With other grasses listed, can be mowed and more biomass will be produced. Watch for sugarcane
bicolor var. sudanese	crop			30 lb (broadcast) <sup>3</sup>		weed suppression, ground cover <sup>4</sup>	·			aphids.
<b>Sunflowers</b> Helianthus annuus	bird feed summer cover	30 lb/bu	17,000 to 20,000/ac	18,000 to 22,000 seeds 20 lb (drilled)	1 to 2 1	biomass production	Apr 1 to May 10 Jun to Jul	Sep see comment	0-1/2 to 1 T 1 to 2 T	Not recommended for oil crop production in KY.  Stems can get woody and take longer to decompose. Residue can be difficult to manage. Check for
Sunn Hemp	crop summer cover			30 lb (drilled)	1/2 to 1	rapid biomass production, N	Jun to Jul	see comment	2 to 7-1/2 T	planting rate restrictions if fields are hunted.  Stems can get woody and take longer to decompose. Residue can be difficult to manage. This
Crotalaria juncea	crop	200.000		50 lb (broadcast) <sup>3</sup>		fixation				species may be limited in some states due to pest issues and toxicity (when consumed in large amounts) to birds.
<b>Switchgrass</b> Panicum virgatum	hay, pasture, wildlife	389,000 seeds/lb		8 to 10 lb (alone) 4 to 6 lb (in mixtures)	1/4 to 1/2		May 1 to Jun 15	Jun 1 to Sep 15	3 to 5 T	Slick, free-flowing seed. Most tolerant of wet soils of all native grasses. Sensitive to overgrazing. Slow to establish. Upland types suited for pasture. Use lowland types for hay or biomass production.
<b>Timothy</b> <i>Phleum pratense</i>	hay	45 lb/bu 1,152,000 seeds/lb		8 to 10 lb (alone) 4 to 6 lb (in mixtures)	1/4 to 1/2		Aug 20 to Oct 1	May 20 to Jun 10	1 to 3 T	Timothy is desired by some horse owners. It is essentially a one-cut hay crop in KY. Average stand length is 2 years.
Triticale Triticum x Secale	grain	50 lb/bu 15,000 seeds/lb	35/sq ft	1,500,000 to 2,000,000 seeds	1-1/2 to 2		Oct 1 to 30	Jun 10 to 25	40 to 70 bu	Hybrid between wheat and rye. Use winter varieties. Newer varieties have yields greater than wheat and quality greater than cereal rye.
	silage	,	20 to 30/sq ft	2 to 2-1/2 bu	1 to 2		Oct 1 to 30	May 10 to Jun 1	4 to 10 T (65% moisture)	Cut for silage in boot (Feekes 10) growth stage.
	winter cover crop			30 to 70 lb (drilled) <sup>2</sup> 100 to 150 lb (broadcast) <sup>3</sup>	3/4 to 1	nitrogen scavenging, ground cover	Sep 1 to Nov 15	Mar 15 to May 10	1 to 3 T	Produces more biomass than wheat but less than cereal rye and benefits are intermediate between the two.
Turnips and related brassicas	pasture	55 lb/bu		3 to 6 lb	1/4		Apr 1 to Jun 1 Aug 1 to Sep 1	Jun 15 to Nov 15	2 to 4 T	Very high quality pasture (85% digestibility). Often dry hay is fed when grazing to add fiber or seeded in mixtures with small grains. Choose grazing types for improved regrowth. Be cautious
Brassica spp.  Vetch, Big Flower  Vicia grandiflora	forage	60 lb/bu		20 to 30 lb (alone)	1 to 2		Aug 1 to Sep 10	Apr to May	1-1/2 to 2-1/2 T	when grazing brassicas. Refer to ID-223. Annual.
Vicia grandiflora  Vetch, Hairy  Vicia villosa	forage	32,000 seeds/lb 60 lb/bu 16,000 seeds/lb		15 to 20 lb (in mixtures) 20 to 30 lb (alone) 15 to 20 lb (in mixtures)	1 to 2		Aug 1 to Sep 10	Jun 20 to Jul 5	0 to 600 lb seed 400 to 600 lb seed	Annual. Not as palatable as annual clover. Mainly planted as a cover crop.
Vicia villosa	winter cover crop	16,000 seeds/lb		15 to 20 lb (in mixtures)  10 lb (drilled)  20 lb (broadcast) <sup>3</sup>	1/2 to 1	nitrogen fixation	Before Sep 15	Apr 15 to May 10	1 to 2-1/2 T	A small fraction of seeds will have a hard seed coat and will germinate in subsequent years. Avoid when wheat is in the rotation.
<b>Wheat</b> Triticum aestivum	grain	60 lb/bu 11,000 seeds/lb	30 to 35/sq ft	1,500,000 to 2,000,000 seeds	1-1/2 to 2		Oct 1 to 30	Jun 10 to 25	50 to 110 bu	Excellent grain crop for soil quality when grown in rotation with corn and soybeans. Soft red winter wheat is grown for pastries, cookies, crackers and similar foods. Grain is also used for animal feed.
	silage		20 to 30/sq ft	2 to 2-1/2 bu			Oct 1 to 15	May 10 to Jun 1	6 to 10 T (65% moisture)	Excellent quality silage or feed grain. Cut for silage shortly after heading (Feekes 10.5 growth stage). Seed size varies by variety.
	winter cover crop			50 to 70 lb (drilled) 100 to 150 lb (broadcast) <sup>3</sup>	3/4 to 1	nitrogen scavenging, ground cover	Oct 1 to Nov 15	Mar 15 to May 10	0-1/2 to 2 T	Fibrous root system and durability over the winter makes wheat an excellent cover crop. Watch Hessian fly free dates. Doesn't produce as much biomass as cereal rye, though can still immobilize N
<sup>1</sup> For cover crops. NRCS i	requirements for	seeding rates, plantin	g dates, termination tir	mes should be verified if receivir	ng EQIP funds.					after termination. Generally, not enough biomass for adequate weed suppression after termination.
<sup>2</sup> Amount of cover crop a	aboveground bio	mass is dependent or	the termination date.	e is present or precipitation is im			Educational programs of Kentu	ucky Cooperative Extension serve all p	eople regardless of economic or socia	I status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender

For all larger seeded cover crops, broadcasting is not recommended unless moisture is present or precipitation is imminent.
 All of these summer annual grass species can accumulate nitrate or prussic acid in droughty conditions; grazing or feeding is not recommended in these situations.