

Establishing Vegetative Practices in Kentucky

(A complimentary document to KY FOTG 327, 332, 340, 342, 386, 393,
412, 612, 635, 643 & 645 practice standards)

March 1, 2013

Introduction

KY NRCS has many vegetative practices that serve different purposes and apply to different situations. The specificity of each individual practice is described in detail in the respective standard. Seeding recommendations for all vegetative practices and some species information are found in tables within this document.

List of Tables

Table 1. Omitted	
Table 2. Information for Temporary Cover Establishment.	3
Table 3. Information for Nurse Crop planting to aid in the establishment of permanent cover.	4
Table 4. Species, seeding dates, and seeding rates for Cover Crops (340) in rotations of annual crops.....	4
Table 4A. Species, seeding dates, and seeding rates for Summer Annual Cover Crops (340).....	7
Table 5. Species, seeding dates, and seeding rates for Cover Crops (340)/Conservation Cover (327) in vineyards, orchards and other permanent crop situations.....	8
Table 6. Species, seeding dates, and seeding rates for Establishing a Herbaceous Nurse Crop for Tree/Shrub Plantings.	9
Table 7. Species and seeding rate information for Conservation Cover (327), Field Borders (386), and Upland Wildlife Habitat Management (645) practices.	10
Table 8. Species and seeding rate information for optimizing wildlife habitat with native grass/forb plantings.	11
Table 9. Forb four-species mixes and seeding rate information.....	12
Table 10. Forb seven-species mixes and seeding rate information.	13
Table 11. Native perennial species that may be used for forb plantings in Kentucky.....	14
Table 12. Species, seeding dates, and seeding rates for Food Plots.	16
Table 13. Species and seeding rates for Critical Area Plantings (342).....	17

Table 14. Species and seeding rates for Grassed Waterways (412) and Vegetated Treatment Area (635). 18

Table 15. Species and seeding rates for Filter Strips (393) and Contour Buffer Strips (332). 19

Table 16. Species and seeding rates for pollinator planting mixes completed under Conservation Cover (327).20

Table 17. KY Seeding Rates for Forage and Biomass Planting (512).22

Table 1. Generalized Planting Dates - Omitted

Table2. Information for Temporary Cover Establishment.

PLANT SPECIES	DURATION	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Spring Oats	<75 days	64	For short duration seeding, it may not be necessary to fertilize unless the soil test result indicates extremely poor soil conditions. Oats should be used for native grasses due to the possible allelopathic effects from other species used for temporary cover.
Winter Oats	45-365 days	90	Oats should be used for native grasses due to the possible allelopathic effects from other species used for temporary cover.
Wheat*	45-365 days	90	Due to a potential allelopathic effect, avoid using wheat or rye for a temporary cover when planning native grasses as the permanent cover. <u>*Avoid planting wheat until after the Hessian Fly Free Date. A map with specific Hessian Fly Free Dates is available at www.ca.uky.edu/entomology/entfacts/ef101.asp</u>
Cereal Rye	45-365 days	90	Due to a potential allelopathic effect, avoid using wheat or rye for a temporary cover when planning native grasses as the permanent cover. Rye is more tolerant than wheat to herbicide carryover
Annual ryegrass	45-365 days	20	Low cost and quick cover.
Hairy Vetch	45-120 days	20 - 30	Vetch has a rapid growth rate and will cover the soil surface quickly. Care should be taken to kill vetch prior to seed maturation to avoid volunteer vetch growth in the future.
Bell Beans (40%), Magnus Peas (20%) and Vetch (40%)	45-120 days	70 - 120	Primarily for high biomass production and high nitrogen production. Terminate before vetch reaches maturity to avoid volunteer vetch in crops.
Bell Beans (40%), Triticale (40%) and Vetch (20%)	45-120 days	70 - 120	Primarily for high biomass production and high nitrogen production. Terminate before vetch reaches maturity to avoid volunteer vetch in crops.

Table3. Information for Nurse Crop planting to aid in the establishment of permanent cover.

PLANT SPECIES	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Spring Oats	32	For use with spring seeded vegetative practices.
Winter Oats	45	For use with fall seeded vegetative practices
Wheat*	20	Due to a potential allelopathic effect, avoid using wheat or rye for a temporary cover when planning native grasses as the permanent cover. <u>*Avoid planting wheat until after the Hessian Fly Free Date. In KY, it is typically 10-4 in the Northern most regions and 10/15 in the southern most regions. A map with specific starting seeding is available at http://www.ca.uky.edu/endomology/entfacts/ef101.asp</u>
Aroostook Rye	25	Will germinate at colder temperature. Use for later seeding dates. Faster germination and more canopy at cooler temperatures than wheat, rye, or oats.
Annual ryegrass	10	Timely mowing to prevent seeds from maturing will help avoid spreading annual ryegrass to sensitive areas such as waterways and streams. If appropriate management cannot be performed, avoid using this species in sensitive areas.
Perennial ryegrass	10	Suitable for well drained sites but will not tolerate poorly drained sites.

Table 4. Species, seeding dates, and seeding rates for Cover Crops (340) in rotations of annual crops. Use the heavier seeding rates when seedbed or seeding conditions are not ideal or when outside the preferred seeding dates.

PLANT SPECIES	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Cereal Rye	9/15 – 10/30	65	Rye is more tolerant than wheat to herbicide carryover. Due to a potential allelopathic effect, avoid using wheat or rye for a temporary cover when planning native grasses as the permanent cover. <u>*Avoid planting wheat until after the Hessian Fly Free Date. In KY, it is typically 10-4 in the Northern most region and 10/15 in the southern most regions. A map with specific starting seeding is available at http://www.ca.uky.edu/endomology/entfacts/ef101.asp</u>
Wheat *	10/04 – 10/30	90	
Oats	9/15 – 10/15 3/1 – 4/1	64 - 90	
Aroostook Rye	10/15 – 11/15	112	Will germinate at colder temperature. Use for late seeded cover crops. Faster germination and more canopy at cooler temperatures than wheat, rye, or oats.
Annual Ryegrass	8/15 – 10/1	18 - 25	Due to a potential allelopathic effect, avoid using annual ryegrass for a temporary cover when planning native grasses as the permanent cover.

PLANT SPECIES	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Cereal Rye Crimson Clover Red Clover Diakon Radish	East of I-65 9/1 – 9/15 West of I-65 9/10 – 9/30	35 10 8 1.5	Soil Quality Cover Crop recommended for the entire state of KY. For maximum nitrogen fixation, cover crop mixture should not be killed before April 15 th West of I-65 or April 30 th East of I-65.
Cereal Rye Austrian Winter Pea Crimson Clover Diakon Radish	East of I-65 9/1 – 9/15 West of I-65 9/10 – 9/30	35 28 10 1.5	Soil Quality Cover Crop recommended for the entire state of KY. For maximum nitrogen fixation, cover crop mixture should not be killed before April 15 th West of I-65 or April 30 th East of I-65.
Cereal Rye Crimson Clover Hairy Vetch Diakon Radish	East of I-65 9/1 – 9/15 West of I-65 9/10 – 9/30	35 10 12 1.5	Soil Quality Cover Crop recommended for the entire state of KY. For maximum nitrogen fixation, cover crop mixture should not be killed before April 15 th West of I-65 or April 30 th East of I-65.
Cereal Rye Red Clover Austrian Winter Pea Diakon Radish	East of I-65 9/1 – 9/15 West of I-65 9/10 – 9/30	35 8 28 1.5	Soil Quality Cover Crop recommended for the entire state of KY. For maximum nitrogen fixation, cover crop mixture should not be killed before April 15 th West of I-65 or April 30 th East of I-65.
Cereal Rye Hairy Vetch Austrian Winter Pea Diakon Radish	East of I-65 9/1 – 9/15 West of I-65 9/10 – 9/30	35 12 28 1.5	Soil Quality Cover Crop recommended for the entire state of KY. For maximum nitrogen fixation, cover crop mixture should not be killed before April 15 th West of I-65 or April 30 th East of I-65.
Cereal Rye Hairy Vetch Red Clover Diakon Radish	East of I-65 9/1 – 9/15 West of I-65 9/10 – 9/30	35 12 8 1.5	Soil Quality Cover Crop recommended for the entire state of KY. For maximum nitrogen fixation, cover crop mixture should not be killed before April 15 th West of I-65 or April 30 th East of I-65.
Bell Beans (~40%) Magnus Peas (~20%) Hairy Vetch (~30%) Oats or Cereal Rye (~10%)	3/1 – 4/15	38 – 19 28.5 9.5	Primarily for high biomass production and high nitrogen production. Care should be taken to kill vetch prior to seed maturation to avoid volunteer vetch growth in the future. When grown during the normal growing season (i.e. planted according to the dates recommended) the biomass should be rolled down and no-till planted through with a fall cereal cover crop to receive maximum benefits from this summer annual cover crop mixture. Terminate September 1-30 with a winter cover crop sown no later than 10/15. If cover crop is grazed only take 50% of biomass and leave 50% of biomass on the soil surface to increase soil health and feed soil microbial food web.
Cereal Rye (~50%) Winter Peas (~30%) Hairy Vetch (~10%)	9/1 – 9/30 (West of I-65 9/10 – 9/30) (East of I-65 9/1 – 9/15)	47.5 – 28.5 9.5	Primarily for high biomass production and high nitrogen production. Care should be taken to kill vetch prior to seed maturation in the spring of the year to avoid volunteer vetch growth in the future. When grown during the normal growing season (i.e. planted according to the dates recommended) the biomass

PLANT SPECIES	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Crimson Clover (~10%)		9.5	should rolled down in the spring and no-till planted through with a cash crop to receive maximum benefits from this cover.
Cereal Rye Diakon Radish	9/1 – 10/1	60 – 75 2 - 5	Effective cover crop mixture to sequester fall N left in the soil from cash crop production. Early sowing of cover crop mixture will insure better establishment of diakon radish and better N sequestration.
Hairy Vetch	8/1 – 9/10	20 - 30	Hard seeds may germinate later and pose a problem in wheat or soybeans. May also be used with tobacco.
Tall fescue or Orchard grass	2/1 – 4/15 & 8/20 – 10/1	10 - 15 10 - 15	These grasses may be seeded with red clover, alsike clover, or ladino clover as indicated below. Use orchard grass over fescue when wildlife is a concern.
Red Clover or Alsike Clover or Ladino Clover	2/1 – 4/15 & 8/1 – 9/10	8 - 12 4 - 6 1 - 3	These legumes should be included in a mix with fescue or orchard grass. Inoculate the legume seeds with proper inoculant.
Crimson Clover	8/1 – 10/15	20 - 30	Winter annual legume. Good canopy. Not suited to poorly drained soils. Will produce more forage at low temps. than other clovers. Not as winter hardy as other cover crop options.
Wheat* or rye and ladino clover	9/15 – 10/30	90 1	Lime and fertilize according to soil test. Mulch around trees or cultivate during growing season to suppress growth of clover and conserve moisture. <u>*Avoid planting wheat until after the Hessian Fly Free Date. In KY, it is typically 10-4 in the Northern most region and 10/15 in the southern most regions. A map with specific starting seeding is available at http://www.ca.uky.edu/endomology/entfacts/ef101.asp</u>
Austrian Winter Pea	8/1 – 10/1	48	Winter annual Legume with wildlife benefits. High Nitrogen Fixation/High Biomass crop. Not as winter hardy other cover crop options.
Cereal Rye Crimson Clover	9/1 – 10/1	35 20	This cover crop mixture is designed to be sown in late summer/early fall to fix nitrogen naturally in the soil system for the following cash crop while controlling erosion.
Cereal Rye Red Clover	9/1 – 9/15	35 10	This cover crop mixture is designed to be sown in late summer to fix nitrogen naturally in the soil system for the following cash crop while controlling erosion.
Cereal Rye Austrian Winter Pea	9/1 – 10/1	35 40	This cover crop mixture is designed to be sown in late summer/early fall to fix nitrogen naturally in the soil system for the following cash crop while controlling erosion.
Cereal Rye Hairy Vetch	9/1 – 9/10	35 20	This cover crop mixture is designed to be sown in late summer to fix nitrogen naturally in the soil system for the following cash crop while controlling erosion.

NOTE: When aerial sowing cover crop (or cover crop mixtures) increase seeding rate by 25% and insure aerial seeding of cover crop is performed before leaf drop of cash crop.

Table 4A. Species, seeding dates, and seeding rates for Summer Annual Cover Crops (340).

Use the heavier seeding rates when seedbed or seeding conditions are not ideal or when outside the preferred seeding dates. If aerial seeding sow before cash crop leaf fall and increase seeding rate by 25%. Note: ALL PLANT SPECIES LISTED IN BELOW TABLE SHOULD BE SOWN AS A COMPLETE MIXTURE.

PLANT SPECIES	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs/Ac)	REMARKS
Pearl Millet	6/1 – 6/15	1	Summer annual cover crop mixtures are excellent for increasing diversity in the soil microbial food web. If any species in the summer annual cover crop mixture is already being grown in the existing crop rotation it may be deleted from the summer annual cover crop mixture with a corresponding increase in another like kind species. For example: Delete soybeans due to rotation already containing soybeans- a corresponding increase in another legume should be made.
Proso Millet		2	
Sudan		4	
Soybean		15	
Cowpea		20	
Sunflower		1	
Radish		1	
Corn		1	

NOTE:-No-till drill is the preferred method of seeding.

-Other species that could be added into mixture include: Phacelia (1 lb/ac), Sunn hemp (5 lbs/ac), etc.

-When aerial sowing cover crop (or cover crop mixtures) increase seeding rate by 25% and insure aerial seeding of cover crop is performed before leaf drop of cash crop.

Table 5. Species, seeding dates, and seeding rates for [Cover Crops \(340\)](#)/[Conservation Cover \(327\)](#) in vineyards, orchards and other permanent crop situations. Use the heavier seeding rates when seedbed or seeding conditions are not ideal or when outside the preferred seeding dates.

PLANT SPECIES	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Annuals – No-tilled orchards and vineyards			
Cereal Rye Wheat* Oats Triticale	9/15– 10/30	90 90 64 - 90	Allow seeds to mature before mowing so as to create a new seed source for the next year or reestablish by seeding with a no-till drill. *Avoid planting wheat until after the Hessian Fly Free Date. A map with specific starting seeding is available at www.ca.uky.edu/endomology/entfacts/ef101.asp
Aroostook Rye	10/15 – 11/15	112	Allow seeds to mature before mowing so as to create a new seed source for the next year or reestablish by seeding with a no-till drill. Will germinate at colder temperature. Use for late seeded cover crops. Faster germination and more canopy cover at cooler temperatures than wheat, rye, or oats.
Annual Ryegrass	8/15 – 10/1	18 - 25	Allow seeds to mature before mowing so as to create a new seed source for the next year or reestablish by seeding with a no-till drill.
Perennials – No-tilled orchards and vineyards			
Tall fescue or Orchardgrass	2/1 – 4/15 & 8/20 – 10/1	45 - 55	May be seeded with red clover, alsike clover, or ladino clover as indicated below. High mowing frequency. Moderate cut height: 3"- 4"
Perennial ryegrass	2/1 – 4/15 & 8/20 – 10/1	10	Quick to establish.
Red Clover or Alsike Clover or Ladino Clover	2/1 – 4/15 & 8/1 – 9/10	5 - 10 3 - 10 1	These legumes should be included in a mix with fescue or orchard grass. Inoculate the legume seeds with proper inoculants.
Kentucky bluegrass	2/1 – 4/15 & 8/20 – 10/1	30 - 40	Moderate mowing frequency. Low cut height: 2"- 3"
Creeping red fescue	2/1 – 4/15 & 8/20 – 10/1	25 - 35	Creeping fescue that does well in shaded or partially shaded areas and also does well in wetter soils. May work best in areas where tree/vine crop shades the ground for the majority of the day. Relatively slow to establish and spread by short rhizomes.
Mix of Creeping red fescue, Chewings fescue, Sheep fescue and Hard fescue	2/1 – 4/15 & 8/20 – 10/1	20 - 30	The mix allows for several types of "fine fescues" to be present, making the mix more adaptable to the site. Somewhat slow to establish but competitive once it has established.
Virginia wild rye	8/1 – 10/15	10 - 12	Native cool-season grass. Moderate mowing frequency. High cut height: 5"- 7"
Buffalo grass	4/1 – 6/15	60 - 90	Native (Western U.S.) warm-season grass. A low maintenance grass that if left un-mowed will only grow to 6 inches tall. Can be mowed to very short lengths (1.5") if necessary for weed control.

Table 6. Species, seeding dates, and seeding rates for Establishing a Herbaceous Nurse Crop for [Tree/Shrub Establishment \(612\)](#). This information is associated with the [Tree/Shrub Establishment \(612\)](#) and [Field Border \(386\)](#) practices where shrubs are being established. Seeding mixtures from the table below must include at least one grass species. Legumes may be excluded from the planting when determined that they may cause increased tree herbivory by deer. If legumes are excluded from the planting, use the higher grass seeding rates.

PLANT SPECIES	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)
Orchard Grass	3/1 – 5/15 8/1 – 10/15	10 - 15*
Red Top	3/1 – 5/15 8/1 – 10/15	3 - 5*
Virginia wildrye	3/1 – 5/15 8/1 – 10/15	6 - 8*
Kobe or Korean lespedeza	3/1 – 5/15	3
Red clover	3/1 – 4/15 8/1 – 10/ 15	2
Ladino clover	3/1 – 4/15 8/ 1 – 10/15	2

* If legumes are excluded from the planting, use the higher grass seeding rates.

Table 7. Species and seeding rate information for Conservation Cover (327), Field Borders(386), and Upland Wildlife Habitat Management (645) practices.

Conservation Cover must be established with at least one grass species. Plantings for wildlife habitat shall be established with at least three species including at least one grass and one legume or forb. See Table 8. for seeding mixtures and rates for optimizing the wildlife benefits of these practices AND for plantings completed under the Restoration and Management of Rare and Declining Habitat (643) practice standard. Introduced grass mixtures must include at least 10 pounds of grass PLS/acre. Native grass mixtures planned with this table must include a minimum of 5 pounds grass Pure Live Seed (PLS) per acre. Grass seeding rates may be increased by 25% when site conditions warrant, however, species maximums still apply.

PLANT SPECIES	EROSION CONTROL RATING ^{1/}	WILDLIFE RATING ^{1/}	SINGLE SPECIES SEEDING RATE (Minimum PLS lbs./Ac.)	MULTIPLE SPECIES SEEDING RATE (Minimum PLS lbs./Ac.)
<u>Introduced Grasses</u>				
Orchardgrass	F	G	15	5
Red Top	F	G	5	0.5
Timothy	G	G	10	5
<u>Native Grasses</u>				
Big Bluestem	G	E	5	Minimum & Maximum 0.5
Composite Dropseed	F	E	5	0.5
Eastern Gama Grass	P	E	5	3
Indiangrass	G	E	5	Minimum & Maximum 0.5
Little Bluestem	G	E	5	0.5
Prairie Dropseed	P	E	5	0.5
Purpletop Tridens	F	G	5	0.5
Splitbeard Bluestem	F	E	5	0.5
Side Oats Grama	P	E	NA	0.5
Switchgrass	G	G	5	Minimum 0.5 to 1.0 Maximum
Native Wild Rye Species	F	E	NA	0.5
<u>Legumes</u>				
Alsike Clover	F	G	2	1
Ladino Clover	F	F	1	0.5
Kobe Lespedeza	F	G	3	1.5
Korean Lespedeza	F	G	3	1.5
Partridge Pea	P	G	1.0 – 2.0	1.5
Red Clover	F	F	3	2.5
White Clover	F	F	1	0.5
<u>Native Forbs</u>				
Single Species	P	E	1 to 5 lbs.	
Multiple Species	P	E	1 to 5 lbs. ^{2/}	

^{1/} - Erosion Control and Wildlife ratings are: E – Excellent, G – Good, F – Fair and P – Poor.

^{2/} - See Table 9 or 10 for recommended forb mixtures

Table 8. Species and seeding rate information for optimizing wildlife habitat with native grass/forb plantings. Plantings will include three pounds pure live seed of at least three native grass species when the mixture contains Big Bluestem, Indiangrass, or Switchgrass. Five pounds PLS is required in the seeding mix when it does not contain Big Bluestem, Indiangrass, or Switchgrass. Between 2 and 5 pounds of 4 native forb species are required according to table 9. For the [Restoration and Management of Rare and Declining Habitat \(643\)](#) practice under the Conservation Reserve Program (CP-25), use the 7 species forb mixtures in Table 10.

PLANT SPECIES	WILDLIFE RATING ^{1/}	MULTIPLE GRASS SPECIES SEEDING RATE (Minimum PLS lbs./Ac.)
Native Grasses		
Big Bluestem	E	Minimum & Maximum 0.5
Composite Dropseed	E	0.5
Eastern Gama Grass	E	1
Indiangrass	E	Minimum & Maximum 0.5
Little Bluestem	E	0.5
Prairie Dropseed	E	0.5
Purpletop Tridens	G	0.5
Side Oats Grama	E	0.5
Splitbeard Bluestem	E	0.5
Switchgrass	G	Minimum 0.5 lb. to 1.0 lb. Maximum
Native Wild Rye Species	E	0.5
Native Forbs		
Multiple Species	E	2 to 5 lbs; See table 9 or 10 for recommended forb mixtures

^{1/} - Wildlife ratings are: E – Excellent, G – Good, and F – Fair.

Table 9. Forb four-species mixes and seeding rate information. The following forb mixes were developed based on 4 native forb species at 2 pounds/acre total rate. If only a pound of forbs per acre is desired, decrease the seeding rate for each species in the mix by half. These mixes are suitable for dry to moist settings except mix 7, 8 and 9 which are also suitable for wet sites. If a higher forb seeding rate is desired or if other species are desired, work with a biologist to develop the seeding mixture based on a similar number of seeds per pound for each species in the mix. See Table 10 for mixes that include 7 forb species. Other eligible forb species and information regarding their historical ranges are located in Table 11.

MIX #	COMMON NAME	SCIENTIFIC NAME	SEEDING RATE (PLS ounces/Ac.)
Mix 1	Partridge Pea	<i>Cassia fasciculata</i>	12
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	4
	False Sunflower	<i>Heliopsis helianthoides</i>	8
	Purple Coneflower	<i>Echinacea purpurea</i>	8
Mix 2	Partridge Pea	<i>Cassia fasciculata</i>	14
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	7
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Purple Coneflower	<i>Echinacea purpurea</i>	10
Mix 3	Partridge Pea	<i>Cassia fasciculata</i>	12
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	5
	Roundhead Lespedeza	<i>Leasedeza capitata</i>	6
	False Sunflower	<i>Heliopsis helianthoides</i>	9
Mix 4	Partridge Pea	<i>Cassia fasciculata</i>	16
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Roundhead Lespedeza	<i>Leasedeza capitata</i>	6
	False Sunflower	<i>Heliopsis helianthoides</i>	9
Mix 5	Partridge Pea	<i>Cassia fasciculata</i>	16
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	3
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Purple Coneflower	<i>Echinacea purpurea</i>	12
Mix 6	Spiked Blazing Star	<i>Liatris spicata</i>	10
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	4
	Purple Coneflower	<i>Echinacea purpurea</i>	17
Mix 7*	New England Aster	<i>Aster novae-angliae</i>	1
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	7
	Spiked Blazing Star	<i>Liatris spicata</i>	8
	Swamp Milkweed	<i>Asclepias incarnata</i>	16
Mix 8*	Partridge Pea	<i>Cassia fasciculata</i>	14
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	6
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	False Sunflower	<i>Heliopsis helianthoides</i>	11
Mix 9*	Partridge Pea	<i>Cassia fasciculata</i>	12
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	5
	False Sunflower	<i>Heliopsis helianthoides</i>	8
	Showy Tickseed	<i>Bidens aristosa</i>	7
Mix 10	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	False Sunflower	<i>Heliopsis helianthoides</i>	14
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	4
	Purple Coneflower	<i>Echinacea purpurea</i>	13

* - mix suitable for mesic to wet sites

Table 10. Forb seven-species mixes and seeding rate information. The CP-25 practice under CRP shall include between 2 and 5 pounds of 7 native forb species. The following forb mixes were developed based on 7 native forb species at 2 pounds/acre total rate. These mixes are suitable for dry to moist settings, if a seven forb mix is need for a wet site contact a biologist for assistance. If a higher forb seeding rate is desired or if other species are desired, develop the mixture based on a similar number of seeds per pound for each species in the mix. Other eligible species and their historical ranges are located in Table 11.

MIX #	COMMON NAME	SCIENTIFIC NAME	SEEDING RATE (PLS ounces/Ac.)
Mix 1	Partridge Pea	<i>Cassia fasciculata</i>	8
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	4
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	2
	Roundheaded Lespedeza	<i>Lespedeza capitata</i>	4
	False Sunflower	<i>Heliopsis helianthoides</i>	6
	Purple Coneflower	<i>Echinacea purpurea</i>	7
Mix 2	Partridge Pea	<i>Cassia fasciculata</i>	9
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	4
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	2
	False Sunflower	<i>Heliopsis helianthoides</i>	6
	Spiked Blazing Star	<i>Liatris spicata</i>	4
	Purple Coneflower	<i>Echinacea purpurea</i>	6
Mix 3	Partridge Pea	<i>Cassia fasciculata</i>	8
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	4
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	2
	False Sunflower	<i>Heliopsis helianthoides</i>	8
	Bergamot	<i>Monarda fistulosa</i>	1
	Purple Coneflower	<i>Echinacea purpurea</i>	8
Mix 4	Partridge Pea	<i>Cassia fasciculata</i>	10
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	4
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	2
	Roundhead Lespedeza	<i>Leasedeza capitata</i>	6
	Purple Coneflower	<i>Echinacea purpurea</i>	8
	Rigid Goldenrod	<i>Solidago rigida</i>	1
Mix 5	Partridge Pea	<i>Cassia fasciculata</i>	10
	Illinois Bundleflower	<i>Desmanthus illinoensis</i>	4
	Greyhead Coneflower	<i>Ratibida pinnata</i>	2
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Purple Coneflower	<i>Echinacea purpurea</i>	8
	Spiked Blazing Star	<i>Liatris spicata</i>	6
	Rigid Goldenrod	<i>Solidago rigida</i>	1
Mix 6	Partridge Pea	<i>Cassia fasciculata</i>	8
	Blackeyed Susan	<i>Rudbeckia hirta</i>	1
	Greyheaded Coneflower	<i>Ratibida pinnata</i>	2
	False Sunflower	<i>Heliopsis helianthoides</i>	6
	Spiked Blazing Star	<i>Liatris spicata</i>	3
	Purple Coneflower	<i>Echinacea purpurea</i>	8
	Tall Coreopsis	<i>Coreopsis tripteris</i>	4

Table 11. Native perennial species that may be used for forb plantings in Kentucky. The table below contains species suitable for field plantings that are available from wildflower vendors, however, the mixes in Table 10 are preferred. Work with the NRCS State Biologist to develop a suitable mixture that contains a similar number of seed for each species in the mix. Review herbicide labels to determine which species are compatible with planned rates and application timing.

COMMON NAME	SCIENTIFIC NAME	ECOLOGICAL GROUP*	MOISTURE	SUN	HEIGHT
Swamp Milkweed	<i>Asclepias incarnata</i>	1	W,M	Full	3'-- 5'
Purple Milkweed	<i>Asclepias purpurascens</i>	1	M,D	Full/Part.	2' - 3'
Common Milkweed	<i>Asclepias syriaca</i>	1	M,D	Full	3'-- 5'
Butterfly Milkweed	<i>Asclepias tuberosa</i>	1	D,M	Full	2' - 3'
New England Aster	<i>Aster novae-angliae</i>	1	M,D	Full	3' - 6'
Aromatic Aster	<i>Aster sagittifolius</i>	1	D,M	Full	1' - 3'
Maryland Senna	<i>Cassia marilandica</i>	1	M,D	Full	4'-8'
Common Boneset	<i>Eupatorium perfoliatum</i>	1	W	Full	3' - 5'
Biennial Bee	<i>Gaura biennis</i>	1	M,W	Full	4'-- 7'
Sawtooth Sunflower	<i>Helianthus grosseserratus</i>	1	M,D	Full	5'-- 8'
Jerusalem Artichoke	<i>Helianthus tuberosus</i>	1	M,W	Full/Part.	5'-- 7'
Oxeye Sunflower	<i>Heliopsis helianthoides</i>	1	M,W	Full	2' - 3'
Great Blue Lobelia	<i>Lobelia siphilitica</i>	1	M,W	Full/Part.	1' - 4'
Wild Bergamot	<i>Monarda fistulosa</i>	1	D,M	Full/Part.	2' - 5'
Foxglove Beard-	<i>Penstemon digitalis</i>	1	M,W	Full/Part.	3' - 4'
Fall Phlox	<i>Phlox paniculata</i>	1	M,W	Full/Part.	3'-- 5'
Orange Coneflower	<i>Rudbeckia fulgida vars.</i>	1	D,M	Full	2' - 4'
Black-eyed Susan	<i>Rudbeckia hirta var. pulcherrima</i>	1	D,M	Full	1' - 3'
Brown-eyed Susan	<i>Rudbeckia triloba</i>	1	M	Full/Part.	3'-- 5'
Cup Plant	<i>Silphium perfoliatum</i>	1	M,W	Full/Part.	5' - 10'
Purple	<i>Thaspium trifoliatum</i>	1/2 (local)	M	Full/Part.	3'-- 4'
Giant Ironweed	<i>Vernonia gigantea</i>	1	M,W	Full/Part.	4' -- 7'
Golden Alexanders	<i>Ziza aurea</i>	1	M,W	Full/Part.Shade	2' - 4'
Smooth Aster	<i>Aster laevis</i>	3	D	Full	2' - 4'
False Blue Indigo	<i>Baptisia australis</i>	3	M	Full/Part.	2' - 5'
Pale Indian Plantain	<i>Cacalia plantaginea</i>	2	W	Full/Part.	4' - 6'
Partridge Pea	<i>Cassia fasciculata</i>	2	D,M	Full	2' - 3'
Maryland	<i>Chrysopsis mariana</i>	2	D,M	Full	1'-- 3'
Tall Tickseed	<i>Coreopsis tripteris</i>	2	D,M	Full	4'-- 7'
White Prairie Clover	<i>Dalea candidum</i>	3 (local)	D,M	Full	1' - 2'
Purple Prairie Clover	<i>Dalea purpureum</i>	3 (local)	D,M	Full	1' - 2'
Illinois Bundleflower	<i>Desmanthus illinoensis</i>	3 (W) local	D,M	Full	1' - 2'
Pale Purple	<i>Echinacea pallida</i>	3 (local)	D	Full	3' - 5'
Purple Coneflower	<i>Echinacea purpurea</i>	3	M,D	Full/Part.	3' - 4'
Rattlesnake Master	<i>Eryngium yuccifolium</i>	3	D,M	Full	3' - 5'
Blue Mistflower	<i>Eupatorium coelestinum</i>	2	M,W	Full/Part.	1' - 3'
Joe-Pye Weed	<i>Eupatorium fistulosum</i>	2	M,W	Full/Part.	5' - 8'
Sweet Joe-Pye	<i>Eupatorium purpureum</i>	2	M,W	Full/Part.	4' - 6'
Slenderstalk	<i>Gaura filipes</i>	3 (W) local	D	Full	2'-- 3'
Giant Sunflower	<i>Helianthus giganteus</i>	2	M,W	Full	5'-- 8'
Hairy Sunflower	<i>Helianthus hirsutus</i>	3	D	Full	2'-- 5'
Ashy Sunflower	<i>Helianthus mollis</i>	3 (W) local	D,M	Full	2' - 3'
Western Sunflower	<i>Helianthus occidentalis</i>	3 (W) local	D,M	Full	3' - 4'
Hairy Lespedeza	<i>Lespedeza hirta</i>	2	D,M	Full/Part.	3'-- 5'
Slender Lespedeza	<i>Lespedeza virginica</i>	3	D,M	Full	2' - 3'

COMMON NAME	SCIENTIFIC NAME	ECOLOGICAL GROUP*	MOISTURE	SUN	HEIGHT
Tall Blazing Star	<i>Liatris aspera</i>	3	D,M	Full	2' – 5'
Scaly Blazing Star	<i>Liatris squarrosa</i>	3	D	Full	1'-- 2'
Cardinal Flower	<i>Lobelia cardinalis</i>	2	W	Full/Part.	2' – 5'
Broadleaf Scurfpea	<i>Orbexilum onobrychis</i>	3 (local)	D,M	Full/Part.	2'-- 4'
Pale Beardtongue	<i>Penstemon pallidus</i>	3	M,D	Full/Part.	2'-- 3'
Wild Sweetwilliam	<i>Phlox maculata</i>	2	M,W	Full/Part.	2' – 4'
Prairie Phlox	<i>Phlox pilosa</i>	3 (local)	D,M	Full/Part.	-- 1'
Obedient Plant	<i>Physostegia virginiana ssp.</i>	3 (local)	D	Full	1' – 2'
Hoary/Southern Mint	<i>Pycnanthemum incanum/</i>	2	M	Full/Part.	2'-- 4'
Narrowleaf Mint	<i>Pycnanthemum tenuifolium</i>	2	D,M	Full	2' – 3'
Grayheaded	<i>Ratibida pinnata</i>	3	D,M	Full	3' – 6'
Sweet Black-eyed	<i>Rudbeckia submentosia</i>	3 (local)	M,W	Full/Part.	4' – 6'
Royal Catchfly	<i>Silene regia</i>	3 (local)	D,M	Full	2'– 2.5'
Fire Pink	<i>Silene virginica</i>	3	D,M	Full/Part.	9"– 16"
Tansy Rosinweed	<i>Silphium pinnatifidum</i>	3 (local)	D,M	Full	5'--10'
Prairie Dock	<i>Silphium terebinthinaceum</i>	3 (local)	D,M	Full	3'–10'
Whorled Rosinweed	<i>Silphium trifoliatum</i>	3 (local)	D,M	Full/Part.	4'-- 7'
Early Goldenrod	<i>Solidago juncea</i>	2	M,W	Full	2'-- 4'
Gray Goldenrod	<i>Solidago nemoralis</i>	3	D	Full	1' – 2'
Stiff Goldenrod	<i>Solidago rigida</i>	3	D,M	Full	3' – 5'
Showy Goldenrod	<i>Solidago speciosa</i>	3 (local)	D,M	Full	1' – 3'
Swamp Verbena	<i>Verbena hastata</i>	2	M,W	Full	4'-- 6'
Missouri Ironweed	<i>Vernonia missurica</i>	3 (W) local	M,W	Full/Part.	4' -- 6'
Culver's Root	<i>Veronicastrum virginicum</i>	3	M,W	Full/Part.	3' – 6'
Largeleaf Wild Indigo	<i>Baptisia alba var. macrophylla</i>	4 (local)	D,M	Full	2'-- 5'
New Jersey Tea	<i>Ceanothus americanus</i>	4	D,M	Full/Part.	2' – 3'
Swamp Sunflower	<i>Helianthus angustifolius</i>	4 (W) local	M,W	Full	3'-- 6'
Roundhead	<i>Lespedeza capitata</i>	4	D,M	Full	3' – 5'
Dense Blazing Star	<i>Liatris spicata</i>	4	D,M	Full	3'-- 5'
Appalachian Blazing	<i>Liatris squarrosa</i>	4	D	Full/Part.	3'-- 5'
Wild Quinine	<i>Parthenium integrifolium</i>	4	D,M	Full/Part.	2' – 4'
Wholeleaf	<i>Silphium integrifolium</i>	4 (W) local	M,W	Full/Part.	2' – 6'
Compass plant	<i>Silphium laciniatum</i>	4 (local)	D,M	Full	5' – 8'
Goat's Rue	<i>Tephrosia virginiana</i>	4	D	Full	1' – 2'

* Ecological Groups are designed to guide selection for particular sites. Most species do best in one of these habitat classes, but some have wide ranges and can perform adequately in other habitats. In nature, there is much intermixing between these groups, and botanical advice should be sought for more detailed plans.

Group 1. Typical of moist base-rich soils across Kentucky. The following species are generally appropriate for the Bluegrass Region and other moist fertile base-rich areas in the state, especially bottomlands and upland swales. They are generally NOT suitable for infertile soils of Appalachian regions or Shawnee Hills and other sandy, cherty or deeply weathered acidic uplands.

Group 2. Typical of moist acidic soils across Kentucky. These species are generally appropriate for the Appalachian regions and Shawnee Hills, but also in sections of other regions (e.g., cherty, deeply weathered soils of Pennyrile, many sections of Knobs and its transitions).

Group 3. Typical of seasonally dry base-rich soils with native grassland remnants. These species are particularly appropriate on karst plains of the Mississippian Plateaus and loess plains of the Coastal Plain; also some sections of the Knobs Region, western fringes of the Appalachian Plateaus, and broader uplands/terraces of the Shawnee Hills; only a few of these species occur in the Bluegrass Region.

Group 4. Typical of seasonally dry acidic soils with native grassland remnants. These are appropriate species for former grassy areas on the southern Appalachian Plateaus and for former sandy or cherty grassland areas further west. These species could be used to supplement Group 2 on sites that have some historical association with native grasslands.

Other notes under Ecological Groups

Local: these species are relatively rare or restricted to small sections of the state; only local genotypes should be used since there are often significant differences between separate plant populations.

E: mostly restricted in nature to southeastern regions of the state; not appropriate elsewhere.

W: mostly restricted in nature to southwestern regions of the state; not appropriate elsewhere.

TABLE 12. SPECIES, SEEDING DATES, AND SEEDING RATES FOR FOOD PLOTS. FOOD PLOT PLANTINGS INCLUDE PURE STAND LEGUME PLANTINGS, ANNUAL GRAIN PLANTINGS, OR MIXTURES. WHEN PLANNING A MIXTURE, SEEDING RATES MAY BE REDUCED BY DIVIDING THE INDIVIDUAL SPECIES SEEDING RATE BY THE NUMBER OF SPECIES IN THE MIXTURE.

PLANT SPECIES	PLANTING DATES		SEEDING RATE (PLS lbs./Ac.)
	Spring	Fall	
<u>Legumes</u>			
Alfalfa	3/1 – 4/15	8/1 – 9/15	12 – 20
Alsike Clover	2/1 – 4/15	8/1 – 9/10	4 – 6
Austrian Winter Pea	3/1 -4/ 15	8/1 – 10/1	25 – 35
Birdsfoot Trefoil	3/1 – 4/15	8/1 – 9/10	6 – 12
Cow Peas	5/15 – 7/1	N/A	60
Korean or Kobe Lespedeza	2/15 – 4/1	N/A	15 – 25
Ladino Clover	2/1– 4/15	8/1 – 9/10	1 - 3
Partridge Pea	2/15 – 4/15	N/A	10 – 15
Red Clover	2/1 – 4/15	8/1 – 9/10	8 – 12
White Dutch Clover	2/1 – 4/15	8/1 – 9/10	4
<u>Annual Grains</u>			
Browntop Millet	5/1 – 8/1	N/A	20 – 25
Buck Wheat	4/1 – 7/20	N/A	30 – 60
Corn	4/1 – 5/30	N/A	10 – 18
Foxtail Millet	5/1 – 8/1	N/A	20 – 25
Grain Sorghum	5/1 – 6/10	N/A	6 – 9
Japanese Millet	5/1 – 8/1	N/A	20 –25
Oats	3/1 – 4/1	9/1 – 10/15	64 – 96
Pearl Millet	5/1 – 8/1	N/A	20 – 25
Proso Millet	5/1 – 8/1	N/A	20 – 25
Soybeans	5/1 – 7/1	N/A	12 – 15
Sunflower	4/1 – 5/10	N/A	10 – 15
Wheat*	N/A	*10/4 – 11/1	60 – 120

*Refer to Hessian Fly Free Dates mentioned throughout this document.

Note: Refer to (Table#3 Nurse Crops) to aid with establishment of these plantings.

Table 13. Species and seeding rates for Critical Area Plantings (342).

PLANT SPECIES	Ditch, Channel, Spoil, Streambank	Levee, Dike, Embankment, Spillway, Borrow Areas, Diversions	Steep Bank, Cut/Fill Areas, Severely Gullied Areas	Acid Mine Refuse, Slurry Pit Areas, Acid Overburden Material	Firebreak, Forest Trails & Landings, Road/Trail/Landing Closure and Treatment	SEEDING RATE (PLS lbs./Ac)	ph SUITABILITY
Tall Fescue	✓	✓	✓		✓	50	5.5 – 8.3
Tall Fescue Birdsfoot trefoil			✓	✓	✓	50 10	5.8 – 7.5
Tall Fescue 'Lathco' Flatpea		✓	✓	✓	✓	50 30	5.5 – 7.5
KY Bluegrass			✓			35	5.5 – 7.0
Tall Fescue Redtop or Timothy Alsike or Red Clover			✓	✓	✓	50 3 8	6.0 – 7.0
Orchardgrass Redtop Alsike or Red Clover	✓	✓	✓	✓	✓	50 5 8	6.0 – 7.0
Tall Fescue Crownvetch			✓	✓		25 10	5.5 – 8.3
Tall Fescue Perennial Ryegrass Alfalfa			✓			20 10 10	6.0 – 7.5
Tall Fescue 'Lathco' Flatpea Deertongue 'Tioga'			✓	✓		20 20 10	4.5 – 8.0
Switchgrass	✓	✓	✓			10	5.5 – 7.0
Switchgrass Big Bluestem Indiangrass	✓	✓	✓			2 4 4	5.5 – 7.0

*Refer to (Table#3 Nurse Crops) to aid with establishment of these plantings.

Table 14. Species and seeding rates for Grassed Waterways (412) and Vegetated Treatment Area (635).

PLANT SPECIES	SEEDING RATES (PLS lbs./Ac)	COMMENTS
KY Bluegrass	35	Requires well drained sites.
Tall Fescue	50	Prefers well drained sites but will tolerate poorly drained sites.
Tall Fescue Red Top	50 4	Prefers well drained sites but will tolerate poorly drained sites.
Tall Fescue Timothy	50 5	Prefers well drained sites but will tolerate poorly drained sites.

*Refer to (Table#3 Nurse Crops) to aid with establishment of these plantings.

Table 15. Species and seeding rates for Filter Strips (393) and Contour Buffer Strips (332). (Not to be considered a complete list). Use the middle column for establishing single species stands and the column on the right for establishing multiple species stands. Mixtures of introduced species grasses must include a minimum of ten pounds PLS (pure live seed)/acre. Mixtures of native species grasses must include a minimum of eight pounds PLS/acre. The minimum seeding rates on this table may be exceeded by 25 % as needed to accommodate site specific situations. The seeding rates in this table are high for filtering purposes. If the selected purpose of the Contour Buffer Strip is solely to reduce sheet and rill erosion then, the seeding rates can be reduced by up to 20%.

PLANT SPECIES		SINGLE SPECIES SEEDING RATE (Minimum lbs/Ac)	MULTIPLE SPECIES SEEDING RATE (Minimum lbs/Ac)
COMMON NAME	SCIENTIFIC NAME		
GRASSES – Native Species			
Big Bluestem	<i>Andropogon gerardii</i>	8	2
Indiangrass	<i>Sorghastrum nutans</i>	8	2
Little Bluestem	<i>Schizachyrium scoparium</i>	8	2
Side Oats Gama	<i>Bouteloua curtipendula</i>	N/A	1
Switchgrass	<i>Panicum virgatum</i>	8	1
Virginia Wild Rye	<i>Elymus virginicus</i>	N/A	2
GRASSES – Introduced Species			
Bermudagrass*	<i>Cynodon dactylon</i>	40 (bu/ac)	N/A
Kentucky Bluegrass	<i>Poa pratensis</i>	15	10
Orchardgrass	<i>Dactylis glomerata</i>	15	10
Red Top	<i>Agrostis alba</i>	8	4
Ryegrass	<i>Lolium perenne</i>	20	10
Smooth Brome**	<i>Bromus inermis</i>	20	10
Tall Fescue	<i>Festuca arundinacea</i>	25	10
Timothy	<i>Phleum pratense</i>	10	5
LEGUMES			
Birdsfoot Trefoil	<i>Lotus corniculatus</i>	N/A	3
Clover, Alsike	<i>Trifolium hybridum</i>	N/A	2
Clover, Ladino	<i>Trifolium repens</i>	N/A	1
Clover, New Zealand	<i>Trifolium repens</i>	N/A	5
Clover, Red	<i>Trifolium pratense</i>	N/A	5
Clover, Sweet	<i>Melilotus spp.</i>	N/A	5
Clover White	<i>Trifolium repens</i>	N/A	1
Lathco Flat Pea	<i>Lathyrus sylvestris</i>	N/A	5
Lespedeza, Kobe	<i>Kummerowia striata</i>	N/A	5
Lespedeza, Korean	<i>Kummerowia stipulacea</i>	N/A	5
Partridge Pea	<i>Cassia fasciculata</i>	N/A	3

* Applicable to MLRA 131, 134, 120 and 122 only.

** Applicable to MLRA 121 and 125 only.

Table 16. Species and seeding rates for pollinator planting mixes completed under Conservation Cover (327) practice standard. If not planted in whole fields, block plantings are preferred over strips. If planted in strips, each strip should be a minimum of 20 feet wide. If possible, pollinator plantings should be at least 0.5 acres in size.

Pollinator Mix 1					
Native Wildflowers			Grasses		
<u>Common Name</u>	<u>Scientific Name</u>	<u>Oz/Ac.</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Pounds. PLS/Ac.</u>
Blackeyed Susan	Rudbeckia hirta	2	Little Bluestem	Schizachyrium scoparium	1
Bergamot	Monarda fistulosa	2	Side-oats Grama	Bouteloua curtipendula	1
Purple Coneflower	Echinacea purpurea	15	Virginia Wildrye	Elymus virginicus	1
Ohio Spiderwort	Tradescantia ohioensis	9		Sum Of Pounds PLS	3
Rigid Goldenrod	Solidago ridida	5			
Greyheaded Coneflower	Ratibida pinnata	7			
New England Aster	Symphotrichum novae-angliae	2			
Spiked Blazing Star	Liatris spicata	12			
Smooth Aster	Aster laevis	2			
	Sum Of Ounces	56			
Pollinator Mix 2					
Native Wildflowers			Grasses		
<u>Common Name</u>	<u>Scientific Name</u>	<u>Oz/Ac.</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Pounds. PLS/Ac.</u>
Blackeyed Susan	Rudbeckia hirta	2	Little Bluestem	Schizachyrium scoparium	1
Bergamot	Monarda fistulosa	2	Side-oats Grama	Bouteloua curtipendula	1
Purple Coneflower	Echinacea purpurea	17	Virginia Wildrye	Elymus virginicus	1
White Beardtounge	Penstemon digitalis	5		Sum Of Pounds PLS	3
Rigid Goldenrod	Solidago ridida	3			
Greyheaded Coneflower	Ratibida pinnata	8			
New England Aster	Symphotrichum novae-angliae	2			
False Sunflower	Heliopsis helianthoides	15			
Smooth Aster	Aster laevis	2			
	Sum Of Ounces	56			
Pollinator Mix 3					
Native Wildflowers			Grasses		
<u>Common Name</u>	<u>Scientific Name</u>	<u>Oz/Ac.</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Pounds. PLS/Ac.</u>
Blackeyed Susan	Rudbeckia hirta	2	Little Bluestem	Schizachyrium scoparium	1
Bergamot	Monarda fistulosa	2	Side-oats Grama	Bouteloua curtipendula	1
Purple Coneflower	Echinacea purpurea	10	Virginia Wildrye	Elymus virginicus	1
Illinois Bundleflower	Desmanthus illinoensis	10		Sum Of Pounds PLS	3
Rigid Goldenrod	Solidago ridida	3			
Greyheaded Coneflower	Ratibida pinnata	5			
New England Aster	Symphotrichum novae-angliae	2			
Partridge Pea	Cassia fasciculata	10			
False Sunflower	Heliopsis helianthoides	12			
	Sum Of Ounces	56			
Additional pollinator mixes on next page.					

Pollinator Mix 4					
Native Wildflowers			Grasses		
<u>Common Name</u>	<u>Scientific Name</u>	<u>Oz/Ac.</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Pounds. PLS/Ac..</u>
Blackeyed Susan	Rudbeckia hirta	2	Little Bluestem	Schizachyrium scoparium	1
White Beardtounge	Penstemon digitalis	4	Side-oats Grama	Bouteloua curtipendula	1
Purple Coneflower	Echinacea purpurea	8	Virginia Wildrye	Elymus virginicus	1
Illinois Bundleflower	Desmanthus illinoensis	10		Sum Of Pounds PLS	3
Rigid Goldenrod	Solidago ridida	3			
Greyheaded Coneflower	Ratibida pinnata	5			
New England Aster	Symphyotrichum novae-angliae	2			
Partridge Pea	Cassia fasciculata	10			
False Sunflower	Heliopsis helianthoides	12			
	Sum Of Ounces	56			

Pollinator Mix 5 – shrubs in combination with mix 1, 2, 3 or 4.

Shrub Planting – An equal mixture of 3 species from the list below (only one sumac species). Shrubs for this purpose will be planted on an 8'x8' spacing. No more than 50% of each pollinator planting should be planted to shrubs.

<u>Species</u>	<u>Bloom period</u>	<u>Shade tolerance</u>	<u>Site Condition Range **</u>
Crabapple (M. angustifolia)	March-April	Full sun	Moist, well drained
Dogwood, silky (C. amomum)	March-May	Shade tolerant	Moist to poorly drained
Dogwood, rough-leaf (C. drummondii)	March-May	Shade tolerant	Moist to well drained
Plum, American or Chickasaw	March-May	Shade tolerant	Dry, well drained
Spicebush (L. benzoin)	April	Prefers shade	Moist, somewhat poorly drained
Indigobush (A. fruticosa)	April-June	Full sun	Moist, moderately well drained
Sumac, fragrant (R. aromatica)	April-June	Partial shade	Dry, well drained
Sumac, winged (R. copallina)	June-July	Full sun	Dry, well drained
Sumac, staghorn (R. hirta)	June-July	Shade tolerant	Dry, well drained
Elderberry (S. canadensis)	May-July	Partial shade	Moist, somewhat poorly drained
Viburnum, native species	May-August	Shade tolerant	Moist, well drained to dry

** Moist = wetter than moderately well drained soil; good moisture holding capacity; generally not hydric.

Dry = Drier than a well drained soil, tending toward droughty.

Poorly drained = generally a hydric soil due to persistent high water table sometime in growing season.

Somewhat poorly drained = Wetness limited soil (2w or 3w) but usually not hydric.

Table17. KY Seeding Rates for Forage and Biomass Planting (512). Mixtures of introduced grasses must include a minimum of ten (10) pounds grass per acre. Mixtures of native grasses must include a minimum of eight (8) pounds PLS.

Forage Species	Single Species Seeding Rate Minimum lbs/ac	Multiple Species Seeding Rate Minimum lbs/ac	Optimum Seeding Dates	
			Spring	Fall
GRASSES – Cool Season Introduces Species				
Ky Bluegrass	15	10	2/15-3/15	8/20 - 9/20
Orchardgrass	15	10	2/15–3/15	8/20 - 9/20
Redtop	8	4	2/15–3/15	8/20 –9/20
Tall Fescue	25	15	2/15–3/15	8/20 - 9/20
Timothy	10	5	2/15–3/15	8/20 -9/20
Legumes				
Alfalfa	20	15	2/15–3/15	8/20– 9/20
Alsike Clover	4	2	2/15–3/15	8/20- 9/20
Annual Lespedeza	10	5	2/15–3/15	
Ladino Clover	3	1	2/15–3/15	8/20- 9/20
Red Clover	10	5	2/15–3/15	8/20- 9/20
White Clover	3	1	2/15–3/15	8/20 - 9/20
Warm Season Grasses				
Bermudagrass	40 bu/ac	n/a	4/14–5/15	
Big Bluestem	8	2	4/15–6/01	
Eastern Gama Grass	8	3	4/15–6/01	
Indiangrass	8	2	4/15–6/01	
Switchgrass	8	1	4/15–6/01	
Annual Forages				
Annual Ryegrass	30	15	2/15–3/15	8/20 - 9/20
Millet, (Pearl)	30	n/a	4/15–5/15	
Sorghum-Sudangrass	30	n/a	4/15–5/15	
Small Grains	90	30	9/20-10/10	
Bold dates indicates primary Optimum seeding dates. See Conservation Practice Standard Forage and Biomass Planting (512) page 3 for acceptable and dormant seeding dates. * When wildlife is a primary concern and erosion is moderate/slight risk all seeding rates for grasses may be reduced by 50%.				