

Establishing Vegetative Practices in Kentucky

(A complimentary document to KY eFOTG 340 standard)*

Introduction

KY NRCS has many vegetative practices (327, 332, 340, 342, 386, 393, 412, 512, 601, 612, 635 & 645) that serve different purposes and apply to different situations. The specificity of each individual practice is described in detail in the respective standard. However, much of the site preparation work for each of these different vegetative practices is quite similar and that similarity is described here in this document so as to avoid repetition in each individual practice standard. Additionally, the seeding recommendations for all vegetative practices and some species information will eventually be found in tables within this document.

Soil Fertility

In establishing a good stand of vegetation, the soil fertility of the site must be tested and amended to adequate levels for the plants that will be grown. Agricultural lime will be applied to adjust soil pH levels as necessary for the species to be established. If a soil test is not available...get one!

For temporary seedings, fertilizer may be applied at the rate of up to 60 lbs/Ac each of N, P₂O₅ and K₂O as needed, within AGR-1 guidelines. For permanent seedings (greater than 365 days), fertilizer should be applied according to the soil test results and within AGR-1 guidelines, up to 120 lbs/Ac each of N, P₂O₅ and K₂O. For the higher rates of N application it is suggested to split the application to increase plant-use efficiency. No N will be applied on pure stands of

legumes and a reduced rate of N may be applied for seed mixes that have legumes in them.

Site Preparation and Seeding Methods

Site preparation shall be done to provide a firm, weed-free seedbed that ensures good seed-to-soil contact. The type of site preparation that is required will depend on site conditions such as distance to water ways, soil erodibility, current cover at the site, available equipment, etc. The NRCS planner will recommend the most appropriate site preparation method that will have the least impact offsite and the highest probability of successful stand establishment.

Conventional Tillage

A seedbed may be prepared by disking two or more times to make a clean, firm seedbed. Roll or culti-pack immediately prior to and after seeding to ensure good soil-to-seed contact. Seeds are usually broadcast.

Reduced Tillage

A seedbed may be prepared with a chisel, disk or other similar implement that leaves a significant amount of residue on the surface of the soil. Herbicides are normally used to kill existing vegetation prior to tillage. If using a broadcast seeder, roll or culti-pack immediately prior to and after seeding to ensure good soil-to-seed contact. If using a seed drill, rolling and culti-packing are not necessary. Make sure that the depth of seeding is set correctly for the species being planted.

* Later to be adapted to compliment KY eFOTG 327, 332, 342, 386, 393, 412, 512, 601, 612, 635 & 645 standards

No Tillage

Herbicides are normally used to kill existing vegetation prior to planting however; mowing, grazing and/or prescribed grazing can also be used to control vegetation prior to herbicide applications that kill all above-ground growth. More than one herbicide application may be necessary to kill existing vegetation so as to control competing vegetation during the establishment period. In no-tillage planting, a seed drill is used to place seed at a prescribed depth (usually between ¼ and ½ inch below the soil surface) with minimal soil disturbance.

Temporary Cover

Sometimes, because of certain factors the desired vegetation cannot be planted at the right time (Table 1). In these cases it may be necessary to protect the planting area temporarily until the desired vegetation can be planted. For these situations, a selection of temporary vegetation can be made from Table 2. The temporary cover should be killed in the appropriate manner (e.g. mowed, sprayed, rolled/crimped, frost killed, etc.) at the appropriate time to allow seeding of the permanent cover at the next available time.

Nurse Crops

Even when timely planting can be accomplished, the planted vegetation may not become well-established in time to achieve the goal of the practice. Such is the case with grassed waterway plantings where concentrated flows can occur prior to seedling establishment and destroy portions of the planted area. In these instances, a fast growing nurse crop can be planted with or prior to the permanent vegetation in order to provide quick, temporary protection of the planted area. The nurse crop should be

killed in the appropriate manner (e.g. mowed, sprayed or frost killed) at the appropriate time to allow the emerging seedling of the permanent cover to become established.

Cool-Season or Warm-Season Grasses?

The terms cool-season and warm-season are generic terms that are used to describe the time the year when a grass experiences the majority of its growth. However, each species has its own specific growth habits, environmental tolerances and management requirements. Although some generalizations can be made about cool-season and warm-season grass stands, be aware that each species is distinct.

Generally, cool-season grasses provide nutrient-uptake benefits in spring and fall when actively growing but warm season grasses provide this benefit in the warm summer months. So, no one species alone can provide nutrient-uptake benefits all year-round. However, a complementary planting of each type of stand in series would provide year-round benefits.

Cool-Season Grasses

Cool-season grasses are plants that grow best in the spring and fall when soil temperatures are cooler relative to summer temperatures. Cool-season grasses either go dormant or cease growth during the warm summer months.

Cool-season grasses can take up to two years to become fully established. During that time, weeds can become significant competitors and must be managed so that the weeds do not suppress or delay the establishment of the cool-season grass stand. Mowing at appropriate times and the judicious use of selective herbicides are the most common methods of reducing weed

pressures in establishing stands of cool-season grasses.

Because of the longer growing period during the year, cool-season grasses generally establish quicker than warm-season grasses thus providing erosion and water quality benefits much sooner than warm-season grasses.

Warm-Season Grasses

Warm-season grasses are plants that grow best in the warmer summer temperatures, mostly June through August. Warm-season grasses usually go dormant in the fall and do not come out of dormancy until the next spring (late spring).

Warm-season grasses can take up to three or four years to become fully established. During that time, weeds can become significant competitors and must be managed so that the weeds do not suppress or delay the establishment of the warm-season grass stand. Mowing at appropriate times and the judicious use of selective herbicides are the most common methods of reducing weed pressures in establishing stands of warm-season grasses and this will be done more intensively than in a cool-season grass, especially in the springtime.

Once successfully established, the enormous above- and below-ground biomass produced during the summer months by warm-season grasses can uptake large quantities of soil nutrients making warm-season grass stands effective in providing water quality benefits as the cool-season grass stands. Additionally, native wildlife species prefer stands of native warm-season grass over stands of cool-season grass.

Selecting the Correct Vegetation and Seeding Rate for the Appropriate Practice

Information about species characteristics, species management and seeding rates is described in the following tables. Use these tables to make a decision on species type and management required for the practice that will be installed.

[Questions or comments about this document are to be directed towards the KY State Office Ecological Sciences Staff.](#)

Table 1. Generalized Planting Dates for Cool- and Warm-Season Species.

TYPE OF SEEDING	COOL-SEASON SPECIES	WARM-SEASON SPECIES
Spring	3/1-5/15	4/15-6/30
Late Summer/Fall	8/1-10/15 ¹	Not recommended
Dormant ²	12/10-2/28	Not recommended

¹ Grassed Waterways: 8/1-9/15

² Liming, fertilizing, seedbed preparation and mulching may be completed ahead of the dormant seeding, with seed being broadcast on top of the mulch.

Table 2. Information for [Temporary Cover](#) Establishment.

PLANTS	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.
Winter Oats	45-365 days	90	
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.
Rye grain	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	
Hairy Vetch	45-120 days	20 - 30	Vetch has a rapid growth rate and will cover the soil surface quickly. Must be tilled-in 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. Biomass must be tilled into the soil to receive the full benefit of the nitrogen fixing capacity of this mix. Must be tilled-in prior to vetch seed maturation to avoid volunteer vetch growth in the future.
Bell Beans (40%), Triticale (40%) and Vetch (20%)	45-120 days	70 - 120	Primarily for high biomass production and high nitrogen production. Biomass must be tilled into the soil to receive the full benefit of the nitrogen fixing capacity of this mix. Must be tilled-in prior to seed vetch maturation to avoid volunteer vetch growth in the future.

Table 3. Information for Nurse Crop planting to aid in the establishment of permanent cover.

PLANTS	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Spring Oats	32	For use with spring 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.
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	

Table 4. Below are species, seeding dates, and seeding rates for Cover Crops 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.

PLANTS	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Rye Wheat Oats	9/15 – 10/30	90 90 64 - 90	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.
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. Can be hayed or grazed in winter/spring.
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.
Hairy Vetch	8/1 – 9/10	20 - 30	Use only in a continuous corn operation because hard seeds may germinate later and pose a problem in wheat or soybeans. May also be used with tobacco.
Tall fescue or Orchardgrass	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 orchardgrass over fescue when wildlife is a concern.
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 orchardgrass. 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 temperature than other clovers. Can be hayed or grazed.
Wheat or rye and ladino clover	9/15 – 10/30	90 1	Lime and fertilize according to soil test. Prepare seedbed and incorporate lime and fertilizer. Mulch around trees or cultivate during growing season to suppress growth of clover and conserve moisture.

Table 5. Below are species, seeding dates, and seeding rates for [Cover Crops in vineyards, orchards, tree plantings 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.

PLANTS	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)	REMARKS
Annuals – No-tilled orchards and vineyards			
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.
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 orchardgrass. 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 wildrye	8/1 – 10/15	10 - 12	Native cool-season grass. Moderate mowing frequency. Moderate cut height: 3”- 5”
Buffalo grass ¹	4/1 – 6/15	60 - 90	Native (Western U.S.) warm-season grass. A low maintenance grass that if left unmowed will

PLANTS	PREFERRED SEEDING DATES (Month/Day)	SEEDING RATE (PLS lbs./Ac.)	REMARKS
			only grow to 6 inches tall. Can be mowed to very short lengths (1.5") if necessary for weed control.

¹ Information on buffalo grass establishment can be found at www.stockseed.com, www.nativegrasses.com, www.outsidepride.com and www.ext.colostate.edu among other places.