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Seeding Cover Crops in Kentucky

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The most common reason for seeding a cover crop is to establish cover onto a tilled area following harvest of the previous crop, or onto a disturbed area for a "critical seeding", as soon as possible after tillage or disturbance. The reason for establishing the cover crop is to stabilize the exposed surface of bare soil to prevent erosion.

The need for cover crops most commonly occurs after a crop is

harvested in a system where the field is not likely to be cropped again for several weeks or months after crop harvest. This commonly occurs in Kentucky following harvest of tobacco or other summer grown crops on fields which lay idle during the late summer, fall, and winter until the following spring when they will be prepared for the next sequence of crops. "Critical seeding" areas such as waterways, stream bank stabilization, terraces, diversion

ditches, and other such areas which are mechanically re-formed are also areas on which cover crops are commonly sown in order to stabilize the soil surface until permanent vegetation can be established. Establishment of cover crops on such areas for this purpose is a recommended best management practice of proven value for erosion control.

Dates For Seeding Cover Crops

There is no absolute date or range of dates for seeding cover

crops. This is because the date of seeding should be determined by date of the previous crop removal or when an area is tilled or disturbed for a "critical seeding". There is a wide range of time in which tillage or disturbance may be done, depending on the specific situation involved and existing climatic conditions. The critical objective for seeding a cover crop is to establish a vegetative cover as soon as possible after tillage or disturbance. While sowing a cover crop following tobacco harvest may not occur until mid-August or later, sowing cover crops onto "critical seeding" areas may be done whenever mechanical preparation of the site is completed.

Generally, this may occur from March through November.

The seeding of winter small grains (wheat, barley, rye, oats, and triticale) to be harvested as grain, silage, hay, or grazing is a cropping practice which serves a dual purpose. While the intent for such seedings is to produce a crop for harvest, it also provides soil protection against erosion during the fall, winter, and early spring months, between the harvest of one summer annual crop until establishment of the next summer annual crop. If the primary purpose of seeding wheat is for producing a grain crop, seeding is not recommended until after threat of Hessian fly infestation has passed. This would normally occur around the middle

of October in Kentucky.

Species Used for Seeding Cover Crops

Since the objective for seeding a cover crop is to re-establish vegetative cover as rapidly as possible, species whose seeds rapidly germinate serve the best. For this reason, small grains, especially wheat and rye, are often used since with adequate soil moisture, they will germinate and seedling growth will be initiated within 7 days at soil temperatures around 65°F. Germination takes longer as soil temperature becomes cooler, being about 14 days at a soil temperature of 50°F.

Methods of Seeding Cover Crops

The agronomic principle involved in seedings is to

establish seed-soil contact so that enough soil moisture can be absorbed by the seed from the soil to initiate germination.

Methods range from simply broadcasting the seeds over the disked field or area by hand or by use of a hand-powered or mechanically powered cyclone seeder, or by mechanical drills specially designed to place seeds in rows at a precise depth and to firm the soil around the seeded row. The degree of seed-soil contact obtained by

the seeding method used is important in establishing a cover thick enough to provide erosion control. The most risky practice is to broadcast seeds on top of the soil with no further tillage to incorporate them into the soil. The risk for poor stands in this situation can be lowered somewhat by increasing seeding rates by about 50% of that normally used if seeds are incorporated into the soil. A light disking of the soil surface following broadcast seedings is commonly used to

provide for better seed-soil contact and to require less seed. Use of mechanical drills to place seeds in rows at a proper depth in soil is the least risky method of establishing a satisfactory vegetative cover.

Seeding Rates For Small Grain Species

The following table shows recommended seeding rates and resultant seeds per square foot or foot of drill row.

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Table 1. Seeding Rates and Densities for Small Grains^{1/}

| Species | lbs/bu | seeds/lb ^{2/} | seeding rates recommended (bu/a) ^{3/} | | Forage Seeding Density ^{4/} | |
|-----------|--------|------------------------|--|-------|--------------------------------------|-----------------------------------|
| | | | forage | grain | broadcast (seeds/ft) | 7" drilled rows (seeds/ft of row) |
| wheat | 60 | 14,500 | 2-2.5 | 1-1.5 | 36-44 | 21-26 |
| rye | 56 | 18,000 | 2-3 | 1-1.5 | 41-62 | 24-39 |
| barley | 48 | 13,000 | 2.5-3 | 1.5-2 | 32-38 | 19-22 |
| oats | 32 | 14,000 | 2.5-3 | 2-3 | 23-28 | 14-16 |
| triticale | 50 | 11,000 | 1.5-2 | -- | 17-23 | 10-13 |

^{1/} Grain and Forage Crop Guide for Kentucky. UK Coop. Ext. Serv. Publ. AGR-18 (rev March 1995).

^{2/} number/lb may vary as seed size varies.

^{3/} for cover crop seedings where seed will be incorporated into soil, use the forage seeding rate. If seeds are not incorporated into soil, increase seeding rates by 50%.

^{4/} based on forage seeding rates and 90% germination.