

Seed Production of Tall Fescue

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Tall fescue seed production in the U. S. is concentrated primarily in Oregon and Missouri. Most certified and proprietary cultivar seed production comes from Oregon. Seed grown in Missouri and surrounding states, including Arkansas, goes mainly to the turfgrass market. Most fescue in Arkansas is the endophyte-infected KY-31 cultivar.

Many Arkansas producers view a fescue seed crop as a bonus to their livestock operation. Fescue seed yields in Arkansas average 180 to 200 pounds per acre. Average seed yield is low because fields are managed mainly for producing livestock forage instead of seed production.

Yields of 400 to 600 pounds of seed per acre can be produced by using improved management practices. Seed yields as high as 1,000 pounds per acre have been reported. In Oregon, the average seed yield is about 1,100 pounds per acre, and yield can be as high as 1,800 to 2,000 pounds per acre. There fescue is grown in rows, and the climate is ideal for seed production and harvest. In Arkansas, hot temperatures, late spring thunderstorms and high humidity are challenges for producing a high-yielding seed crop.

The fescue seed market is widely variable. In some years, the price of fescue seed at harvest time may be extremely attractive while seed prices the next year may be extremely depressed. Farmers who anticipate producing a fescue seed crop should

first locate fescue seed buyers and check on market demand.

Fescue Seed Production Management Practices

Seed yield is determined by three factors:

- Number of reproductive tillers per acre
- Seeds per tiller
- Weight per seed

Of those factors, the main one that can be influenced by management is the number of reproductive tillers per acre. The number of seed per tiller and weight per seed are more dependent on temperature and moisture conditions at flowering and during seed fill than on producer management.

Two management practices are critical to increase the number of reproductive tillers for high seed yields:

- Clipping fescue residue soon after the seed stalks are mature or the seed crop is harvested.
- The application of nitrogen fertilizer during the very late fall or winter.

Effect of Clipping After Seed Harvest on Seed Yield

Clipping or mowing the fescue stubble for hay after seed harvest is necessary for the development of new tillers. Sunlight penetration into the canopy stimulates basal crown bud

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development. Reproductive tillers that are responsible for the following year's seed crop grow from those basal buds.

The most active bud development period is July to October. Tillers grown during fall are far more likely to produce seedheads than tillers produced during spring. A short-day and cold-temperature stimulus is required for a tiller to produce a seedhead. Research has shown that 75 percent of fall-produced tillers produced seedheads the following year, but less than 10 percent of tillers that emerged in February or March produced seedheads.

To promote tiller development, fescue stubble should be clipped to a height of 3 to 4 inches immediately after harvesting the seed crop. Fields of tall fescue not harvested for seed the previous year but designated for seed production the next year should be clipped by the time the seed stalks are mature. It is best to remove the residue if possible. Failure to clip and remove the stubble can reduce the following year's seed crop by 40 to 45 percent.

Effect of Fertilization and Nitrogen Timing on Seed Yield

Timing and rate of nitrogen fertilization has a positive effect on seed yield. Fields managed for seed production should be topdressed with 70 to 100 pounds per acre of nitrogen during December or January. If seed fields will be grazed in fall and winter, nitrogen fertilizer can be applied at a rate of 40 to 60 pounds of nitrogen per acre in late August to early September. This application timing promotes forage growth for fall grazing and increases potential tillers for seed yield the following year. An additional 40 to 60 pounds per acre of nitrogen should be applied in December or January for seed production.

Nitrogen applied in February or March influences leaf growth more than seed production and may cause excessive vegetative growth and lodging, which negatively affect seed yield.

Phosphorus and potassium levels should be maintained at least in the medium range of soil fertility based on current soil test results. Potassium fertility is especially important when forage residue is baled and removed after seed harvest. Fescue hay removes large amounts of potassium, which must be replaced by proper fertilization to maintain forage and seed yield.

Managing for Forage and Seed Production

Since most fescue fields used for seed production are grazed during the fall or winter, cattle management becomes an important factor. Seed production

may decline after a few years on solid stands that are not grazed due to a condition known as "sod-bound." This is associated with thickening of the stand, which causes competition for new tillers. Skim-plowing can reduce this problem. Solid stands of fescue grazed during the fall do not show this decline in production.

Fall grazing results in greater tillering because of greater light penetration into to plant crowns. To maximize seed production, fields should only be lightly or moderately grazed during September, October and November. After November, grazing pressure may be increased so the forage is removed by January or February. Cattle should be removed from seed fields by March 1 to prevent grazing of new seed-producing stems. Grazing too late after spring greenup will reduce seed yield.

Fescue Seed Harvest

Fescue seed may be harvested by direct combining or fescue may be mowed, windrowed and then combined. Fescue seed is mature when the straw in the head turns yellow, but moisture content will be too high for direct harvest with a combine. Excessive seed moisture will cause heating during storage, weaken seed vigor and cause poor germination.

Direct combining can usually begin when the straw is yellow about 6 inches below the seedhead. About 5 to 15 percent of the seeds may be immature at this stage. In Arkansas, direct harvest with a combine is the most common but also the riskiest method of harvest. Tall fescue seed shatters easily when ripe and must be harvested quickly to avoid high losses. Shattering as a result of rains or high winds can easily reduce yields by 50 percent or more. Any delays in harvest increase the potential seed shatter and yield loss.

If large acreages are to be harvested, windrowing the fescue with a swather allows earlier harvest than direct combining and provides a longer harvest period. Swathing can begin when the straw in the fescue seedheads is yellowing. The seed cures in the windrow and is harvested later with a combine equipped with a pickup header attachment. Swathing can reduce shattering losses significantly over direct combining. The swather should be set to cut high enough to leave much of the grass vegetation. Windrows should be positioned on top of the stubble. Air will circulate through the windrow and decrease drying time. The fescue seed should be combined as soon as the windrows are thoroughly dry.

The combine should be set according to the manufacturer's manual. Aggressive cylinder action is not necessary. Chaff should be examined for seed

from time to time as harvest proceeds. The glumes, which do not contain seed, will often confuse an inexperienced operator and give the impression that seed is being blown out. It is also helpful to consult seed buyers prior to harvest. They may suggest procedures about timing of harvest and handling that will help the producer to save more seed and improve seed quality as well.

Handling the seed after combining to prevent heating is almost always a problem. Direct combined seed can have higher moisture content than windrow-cured seed, and it will require drying. High-moisture seed usually receives a discounted price from the buying station. If seed has a high moisture content, it should be spread out in a covered area or placed in drying bins as soon as possible. Leaving high-moisture seed in a full truck for several days will lead to excessive heating and will ruin the seed. If the seed begins to heat, it should be stirred or turned. If drying bins are used, the circulating air should not exceed 90 degrees Fahrenheit at the flue entrance. Seed

temperatures must not exceed 110 degrees Fahrenheit or loss of germination will occur.

Weed Control for Fescue Seed Production

Fields of fescue intended to be harvested for seed should be monitored for the presence of weeds. Certain winter annual weeds may need to be controlled with a timely application of a recommended herbicide. Annual ryegrass should not be planted in fields intended for fescue seed production. Heavy contamination of fescue seed fields from ryegrass or orchardgrass can make the fescue seed crop completely unacceptable to seed buyers.

Availability of herbicides for individual crops periodically changes. Contact your local county Extension agent for information on currently recommended herbicides, application rates and timing of application for specific weed situations.

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