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Seed Production of Tall Fescue and Other Cool Season Grasses

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Most of the fescue harvested for seed in Missouri is used for fall and winter grazing. This is an excellent way to maximize the total fescue crop, but often results in seed yields that are lower than would be expected if fescue is managed primarily for seed. For highest seed yields, fescue should be seeded in rows and cultivated. However, this is seldom done in Missouri when the seed crop is secondary to the production of forage.

High seed yields depend on two management practices: clipping soon after the seed stalks are mature or a seed crop removed, and applying nitrogen during the very late fall or winter.

The stubble should be clipped to a height of 3 to 4 inches as soon as possible after harvesting the seed crop. If the fescue was not harvested for seed the previous year and is intended for seed the next, clipping should be done by the time the seed stalks are mature.

It is best to remove the residue if possible. This is necessary for the development of tillers. They develop during the fall and early winter and are responsible for the following year's seed crop. Failure to clip the stubble to a height of 3 or 4 inches may reduce the following year's seed crop by as much as 30 percent. The new growth should be grazed only moderately.

While summer clipping determines the number of tillers and seed stalks for the next seed crop, proper nitrogen fertilization determines the number of seeds in the seed heads. In other words, nitrogen is primarily responsible for how well the seed heads "fill." If used only for seed, fescue should be topdressed with 70 to 100 pounds of nitrogen during December or January.

Timing of nitrogen applications affects seed yields. Nitrogen applied in the early fall or late summer may not be available at the time it is needed. It may have been metabolized by fall growth or lost through leaching. Nitrogen applied too late in the winter (often as early as Feb. 1 in southern Missouri) causes lodging and excessive vegetative growth rather than heavier seed heads.

In Missouri, determining the proper amount of nitrogen for a seed crop is often complicated by using late summer (Aug. 1) nitrogen to encourage fall growth for winter grazing. Some additional nitrogen should be applied in December or January for seed production, but the amount will depend upon how much was applied in the late summer or early fall (August and September), amount of vegetative fall growth, grazing intensity, amount of clover present, rainfall before freezing, etc.

A rule of thumb is that if no nitrogen was applied in the fall, 70 to 100 pounds should be topdressed during the winter; if 50 to 60 pounds were used in the fall, use 40 to 60 pounds in the winter; if 80 to 100 pounds were applied in the fall, then an additional 30 to 40 pounds put on in the winter may be sufficient.

Phosphorus and potassium levels should be maintained at least in the medium range. Most farmers find it convenient to apply some each year depending upon usage. On straight fescue stands, the salt pH should be

maintained above 5.5.

Since most of the fescue seed fields in Missouri are grazed in the fall or winter, cattle management becomes an important factor in seed production. For maximum seed production, grazing pressures should not be too heavy in August, September and October. Tiller development occurs during this time. After the first of November, grazing pressures may be increased and all growth should be removed by Jan. 15. Cattle should be removed from seed fields before March 15 in southern Missouri and April 1 in northern Missouri, or many of the potential seed heads will be grazed.

Seed production usually will decline after a fescue stand is three or four years old. Solid stands are often "skim" plowed to a depth of 3 or 4 inches to encourage better seed production. Another and better way is to renovate and interseed legumes.

Fescue seed may be harvested by direct combining or mowed, windrowed and then combined.

The seed of tall fescue shatters easily when ripe. Shattering due to delays caused by rains, unavailability of harvesting machines or high winds can easily reduce yields by 50 percent or more. Even under favorable conditions, extreme care and skill by the combine operator is necessary to prevent serious losses.

If the acreage of fescue seed to be harvested is small (it can be combined in one or two days) and a combine is available without delay, then direct combining is a feasible method of harvesting. Combining should begin when 5 to 15 percent of the seeds are immature. Many of the late heads will still be immature at this time. Harvesting with more than 20 percent immature seed usually results in low yields, excessive seed moisture that causes heating in storing, weak seed vigor and low germination.

If the amount of seed acreage is large or delays are expected in obtaining harvesting equipment, then mowing, windrowing and curing the seed in the windrow and using a combine with a pick-up attachment is the best harvest method. Fescue should be mowed at an earlier stage of seed head maturity when windrowed than when harvested directly with a combine. Mowing should be started when the straw in the head is yellowing. At this stage, an occasional seed will shatter from the earliest maturing heads in the field when the stem is tapped below the head.

The mower should cut high enough to leave much of the grass stubble and the windrow placed on top of the stubble. Air will circulate through it and decrease drying time. If large acreages of seed and hay are involved, self-propelled mowers and windrowers are very desirable. The fescue 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 the harvest proceeds. The glumes, which do not contain seed, often will confuse an inexperienced operator and give the impression that seed is being blown out.

It also is helpful to consult seed dealers or buyers before harvest. They may suggest procedures about timing of harvest and handling that will help the producer save more seed and improve seed quality as well.

Handling the seed after combining to prevent heating is almost always a problem. The new seed should be cleaned immediately to remove green material. But the cleaned seed will still need special attention. If the total amount of seed harvested is small, it may be spread out to dry in bins, lofts, etc. If the seed begins to heat, it should be stirred or turned. Seed temperatures must not exceed 110 degrees Fahrenheit or loss of germination will occur. Some operators use drying bins, but the circulating air should not exceed 90 degrees Fahrenheit at the flue entrance.

Fescue seed may be cured in curing yards in the same manner as bluegrass seed was once handled. The seed

should be spread in a mowed grassy area. The seed is placed in windrows with enough space between them to permit passage of a tractor with a mounted blade. The windrows are turned with the tractor blade. A wooden board should be bolted to the blade's cutting edge to prevent cutting into the soil and mixing dirt with the seed. Frequent turning will prevent heating and facilitate drying. Seed handled in this way can withstand surprisingly large amounts of rain without damage.

Other grasses

In general, production practices for seed production of orchardgrass, timothy, brome grass and redtop and reed canarygrass are similar to tall fescue, with the following exceptions.

Brome grass

After harvest of the seed crop, brome grass cannot be grazed as close as fescue. Clip after seed harvest, allow it to recover its growth and do not graze closer than 6 inches through the remainder of the growing season. Brome grass has the capacity to use more nitrogen than fescue and should be topdressed with as much as 120 pounds of nitrogen per acre during the winter months for top seed production. Old stands require more nitrogen than new ones. Brome grass does not shatter its seed as easily as other grasses and usually can be direct combined.

Weeds such as downy brome and hairy chess are often pests in seed fields. If present, they should be removed by roguing before seed harvest. It is nearly impossible to remove these weed seeds from the brome grass seed after harvest.

Timothy

After the seed harvest, the aftermath may be grazed moderately until growth stops in the fall. No more grazing should be done until after seed harvest the following summer. Because of its tendency to lodge, timothy fields should not receive more than 40 to 50 pounds of nitrogen per acre. This should be applied during the winter months. Timothy starts its growth later than the other grasses, so nitrogen may be applied up to March 15 with increases in seed yield.

Orchardgrass

Orchardgrass, like tall fescue, starts its spring growth very early. Nitrogen should be applied during December or January. Nitrogen applied in February gives some response in seed yields, but also results in excessive vegetative growth and lodging. Nitrogen rates for seed yields usually are just slightly lower than for tall fescue. Fifty to 75 pounds of nitrogen per acre usually provides excellent seed yields.

Redtop

Redtop is often grown in association with timothy and harvested for seed. The seed can be readily separated. Nitrogen rates usually are about 40 to 50 pounds per acre. Almost all seed is harvested by direct combining. However, there are only a few days in which to harvest the seed before it begins to shatter. This is because the flowering of a panicle is not uniform and may cover a period of seven to eight days.

Reed canarygrass

The seed head of reed canarygrass matures from the top downward. The first seed on the panicle shatters before the rest of the seed is mature enough to harvest. There is a period of only two or three days between ripening of the first seed and the start of the extreme shattering. Reed canarygrass is one of the most difficult cool season grasses to harvest with high yields of quality seed.

Reed canarygrass responds to higher nitrogen rates than fescue. Use 100 to 125 pounds of nitrogen per acre applied from December through January.

Related MU Extension publications

- G4511, Orchardgrass
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G4511>
- G4646, Tall Fescue
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G4646>
- G4649, Reed Canarygrass, Ryegrass, and Garrison Creeping Foxtail
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G4649>
- G4672, Smooth Bromegrass
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G4672>

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