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The bluegrasses

Howell N. Wheaton and Laurel E. Anderson,
Department of Agronomy, and
C. W. Lobenstein, Department of Horticulture,
College of Agriculture

Kentucky bluegrass, *Poa pratensis*, is the most predominant pasture grass in the northern half of Missouri. It is adapted to well-drained loams and heavier types of soil of medium and better productivity. Bluegrass will be dominant in pastures only if the soil has a ph_s of 5.3 or higher and at least a medium level of phosphorus. Although the grass often becomes dormant during dry weather it will survive severe droughts.

Kentucky bluegrass is a rhizomatous plant that produces a dense sod. Optimum temperatures for growth range from 60 degrees to 90 degrees F. Serious injury will occur if subjected to continuous soil and air temperatures of 100 degrees F. and above. Bluegrass is relatively unproductive in midsummer but yields can be increased and sustained by favorable moisture and nitrogen fertilization.

At comparable stages of growth bluegrass contains more energy per pound of dry matter than smooth bromegrass. It is also extremely palatable during periods of rapid growth. Because of its prostrate growth habit, early clipping studies did not show it to compare in yields with taller growing species such as bromegrass, orchardgrass or reed canarygrass. However, later studies with grazing animals found it to be nearly equal with these grasses in productivity.

Most bluegrass pastures in Missouri have occurred spontaneously. The carrying capacity of these fields can be increased by weed control, addition of legumes, and fertilization.

Many bluegrass fields of north and central Missouri are overgrown with weeds. Weedy bluegrass pastures generally result from overgrazing and under fertilization. These fields can be vastly improved if weeds are eradicated and sound grazing management is practiced. Do not graze bluegrass lower than 2 or 3 inches. Overgrazing opens the sod to weeds and reduces the vigor and growth rate of bluegrass. Overgrazing causes very poor root and rhizome development.

Controlling pasture weeds

Pasture weeds are of three general groups: **Annuals, biennials** and **perennials.**

Annual species such as ragweed, fleabane, and sunflower originate from seed each year and die after the seed has matured in the summer or fall.

Biennials require two years to complete their life cycle. Most thistles found in Missouri pastures and wild carrot are biennials.

Perennials originate from well established root systems that survive for many years. Seeds of perennials also produce new infestations. Ironweed, goldenrod, dock, thoroughwort and vervain are examples of this most difficult group to eradicate.

Repeated mowing or clipping may gradually reduce a stand of weeds. However, mowing must be timed properly for good results. The early bud stage is most favorable for effective control of biennials or perennials. Root reserves are low during the bud stage and consequently weeds are under stress. Weeds mowed at this time have a slow recovery rate.

Annual weeds should be mowed before seed heads mature to prevent seed production. The optimum stage for mowing annual and perennial weeds usually does not occur at the same time.

In many cases spraying with a weedicide is the most effective way to control broadleaved weeds growing in bluegrass pastures.

2,4-D is highly effective in controlling broadleaf weeds. Two types of 2,4-D are available. The low-volatile ester form is the more expensive, but more effective than the amine form. However, the amine form doesn't injure lespedeza.

The best time to spray for weed control is when the weeds are making rapid growth and in the vegetative stage. Apply 2,4-D (low volatile ester) at a rate of 1 acid equivalent per acre. If perennial weeds are predominant, then the rate should be increased to 2 pounds per acre.

If 2,4-D amine is used the rate should be 1 to 2 pounds per acre. Using 2,4-D amine and mowing or clipping is an excellent way of controlling weeds while maintaining lespedeza in a bluegrass sod.

Use extreme care when highly sensitive crops such as tobacco, tomatoes, soybeans or alfalfa are growing near the area of application. In such situations the amine form may be safer to use. Apply at low pressure using nozzles that discharge a coarse spray. Do not apply 2,4-D if the wind is blowing toward a sensitive crop.

Bluegrass and other forages

Legumes are often established in existing bluegrass fields to improve production and strengthen the production curve during the summer months. Bluegrass with a legume may be expected to produce nearly as much beef as orchardgrass, timothy or fescue with the same legumes.

Birdsfoot trefoil, ladino clover, lespedeza, red clover or alfalfa may be seeded in bluegrass sods. Trefoil is probably the best suited companion crop with bluegrass because of its heavy summer production when bluegrass is semi-dormant. Trefoil-bluegrass pastures can be expected to produce twice as much as straight bluegrass fertilized with 60 pounds of nitrogen. Production with trefoil will also be much more uniform throughout the growing season than on heavily fertilized straight bluegrass pastures.

In one seven-year test, bluegrass-trefoil produced 35 pounds more beef per year than straight bluegrass fertilized with 120 pounds of nitrogen annually. The increase was mostly due to the increased carrying capacity in the summer.

Legumes may be added to existing bluegrass fields by tilling the grass sod during late fall, winter or very early spring. The sod should be tilled enough to kill approximately one-half the sod. The trefoil or other legumes should be band-seeded using a high analysis phosphate fertilizer such as 0-45-0.

The legume seeding should be done during January or February if it is broadcast. If it is band-seeded with a drill it may be done as late as March. Seedings made after April 1 suffer competition from the grass.

Fertilizing bluegrass

Pure bluegrass sods should be fertilized annually with at least a 60-20-20 fertilizer. In fields with medium to high potash levels the potash may be omitted. If legumes are to be maintained in a stand, the nitrogen should be omitted and a higher level of potash and phosphate used. For example, a 0-30-60 fertilizer is well suited to bluegrass-lespedeza or trefoil pastures.

Although Kentucky bluegrass usually appears spontaneously it is occasionally seeded as a pasture grass. When bluegrass is seeded for this purpose, common or commercial seed is used. It is usually sown in mixture with other grasses and legumes. Usually 2 to 4 pounds of bluegrass seed are added to a normal forage mixture. Fall seed is best.

Canada bluegrass, *Poa compressa*, is also seen in many Kentucky bluegrass fields in Missouri. This is usually a signal that the field is lacking in lime or phosphate or both because Canada bluegrass is more tolerant of acid, low phosphate soils than Kentucky bluegrass.

Canada bluegrass has a bluer foliage than Kentucky bluegrass, matures later, is less productive and makes very slow or little recovery after it is grazed. It is an inferior species and fields infested with it should have a soil test taken and the soil nutrient deficiencies corrected.

Re-establishing a bluegrass pasture

Although sod stripped from bluegrass pastures is usually inferior to that produced under specialized management it is sometimes used for commercial sodding purposes.

After bluegrass has been stripped from a field it is desirable to reseed in order to re-establish the sod. Sometimes enough rhizomes (underground stems) may remain in the soil to regenerate a sod, but this is a slow process and the stand is often spotty for many years. If some rhizomes remain, 20 pounds of seed per acre may be adequate. If not, the rate should be increased up to 60 pounds per acre. Use quality seed free of weeds.

Seeding in mid-August to mid-September is preferred. Moderate discing provides enough seedbed preparation. Pack the seedbed with a roller or cultipacker before and after seeding. Bluegrass seed is very small and in a loose seedbed it will be covered too deeply. The seed should never be covered deeper than one-quarter inch. The following season it may be pastured, but avoid trampling and overgrazing.

When sod is stripped from a field a large amount of plant nutrients is usually removed. Use a soil test to guide fertilizer application when reseeding bluegrass. If soil test results are not available work 120 pounds of phosphate and 100 pounds of potash into the seedbed. An additional 60 pounds of phosphate and 30 pounds of potash plus 40 pounds of nitrogen should be used as a starter. The starter may be applied in a drill at seeding time, or if seed is broadcast, disc it into the top 2 inches of soil. The following spring topdress with an additional 60 to 80 pounds of nitrogen.

Follow Missouri law

Under provisions of the Missouri Nursery Law all sod, either native or nursery, must be inspected and an inspection certificate issued before it is sold and transported. Make application for inspection and certificate to the Office of State Entomologist, State Board of Agriculture, Jefferson City, Missouri.

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