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Use More Bromegrass

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By MAURICE E. HEATH

Necessary to build fertility and prevent serious soil losses. The bromegrass-alfalfa combination provides for a longer period of grazing than other pasture grasses and legumes and not only furnishes an abundance of forage but is an economical source of protein.

It is best to pasture the bromegrass-alfalfa judiciously, not closer than 5 to 8 inches, so as to prevent injury to the alfalfa stand. Bromegrass is a heavy user of nitrogen and therefore should always be grown with a legume, preferably alfalfa. Unless considerable alfalfa can be maintained with the bromegrass, it soon becomes less productive. A stand of bromegrass when grown alone for 3 or more years without a legume often becomes unproductive. This condition is commonly referred to as being "sod-bound." Bromegrass can be grown with alfalfa on any soil properly treated and suited to the growing of alfalfa. The meadow should be allowed to recover sufficiently in the fall to furnish adequate winter protection.

**In Rotations**

A mixture of bromegrass-alfalfa is especially useful on the more rolling to steeply rolling cropland fields which are subject to serious sheet erosion. On such land, rotations may vary from 4 to 8 years in length. These rotations usually provide 1 to 2 years of corn and 2 to 4 years of bromegrass-alfalfa.

The seeding rate of alfalfa can be reduced from one-third to one-half when sown with bromegrass. Greater yields of clean-tilled crops can be expected following bromegrass-alfalfa if plowed before the alfalfa disappears or becomes too thin.

In the Knox-Marshall soil area in western Iowa, where alfalfa grows very vigorously, 4 to 6 pounds of alfalfa and 12 to 15 pounds of bromegrass seed per acre has been a desirable mixture for rotation pasture. If it is to be cut for hay, it may be desirable to use a little less grass and more alfalfa seed. In other areas of the state where bromegrass grows more vigorously, the seeding rate may range from 5 to 10 pounds with 6 to 10 pounds of alfalfa seed per acre. Where the land is more gently rolling, greater use should be made of the shorter rotations which provide not less than 2 years of bromegrass-alfalfa.

If such a combination is desired for a longer period, wilt resistant strains of **Use More Bromegrass**

It Does Best Seeded With a Legume and Alfalfa Seems to Be the Most Desirable

Bromegrass (Bromus inermis) can probably make its greatest contribution in Iowa as either a pasture or hay crop if used in combination with alfalfa. Bromegrass-alfalfa is highly nutritious and palatable to all classes of livestock when used as a rotation pasture. Alfalfa used alone for pasture is a bloat hazard, but when bromegrass makes up from one-third to one-half of the forage mixture, bloat is practically if not completely eliminated.

In 1942, Iowa passed its first million-acre mark of alfalfa, or an average of about 5 acres per farm. We believe this acreage should be doubled or increased to an average of 10 acres per farm to help meet the present livestock feed requirements. Much of this acreage should be seeded in combination with bromegrass on the more rolling fields where longer rotations are necessary to build fertility and prevent serious soil losses. The bromegrass-alfalfa combination provides for a longer period of grazing than other pasture grasses and legumes and not only furnishes an abundance of forage but is an economical source of protein.

In this period, when we are trying to make every acre of land produce to capacity, we need to look into the possibilities of providing more productive pastures.

**With Alfalfa**

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It is best to pasture the bromegrass-alfalfa judiciously, not closer than 5 to 8 inches, so as to prevent injury to the alfalfa stand. Bromegrass is a heavy user of nitrogen and therefore should always be grown with a legume, preferably alfalfa. Unless considerable alfalfa can be maintained with the bromegrass, it soon becomes less productive. A stand of bromegrass when grown alone for 3 or more years without a legume often becomes unproductive. This condition is commonly referred to as being "sod-bound." Bromegrass can be grown with alfalfa on any soil properly treated and suited to the growing of alfalfa. The meadow should be allowed to recover sufficiently in the fall to furnish adequate winter protection.

In the Knox-Marshall soil area in western Iowa, where alfalfa grows very vigorously, 4 to 6 pounds of alfalfa and 12 to 15 pounds of bromegrass seed per acre has been a desirable mixture for rotation pasture. If it is to be cut for hay, it may be desirable to use a little less grass and more alfalfa seed. In other areas of the state where bromegrass grows more vigorously, the seeding rate may range from 5 to 10 pounds with 6 to 10 pounds of alfalfa seed per acre. Where the land is more gently rolling, greater use should be made of the shorter rotations which provide not less than 2 years of bromegrass-alfalfa.

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as bromegrass when used with alfalfa produces very effective protection against sheet erosion. When a good bromegrass-alfalfa sod is plowed, the effect of the bromegrass roots is immediately apparent—they hold the plowed soil together. This binding effect also carries over to a considerable extent the second year when the field is in clean-tilled crops.

**Waterways, Terrace Outlets**

The spreading root system of brome­grass together with the surface protection it produces make it an excellent grass for use in terrace outlets and grassed waterways. Where the soil is low in fertility, especially nitrogen, an application of barnyard manure following seeding is highly recommended. Care should be taken during the seedling year to prevent the concentration of water in the waterway or terrace outlet channel. A good time to seed bromegrass in waterways is when the field is going to small grain in the spring. Oats have considerable seedling vigor and furnish field and waterway protection while the bromegrass is becoming established.

**For Special Uses**

Field borders of bromegrass sufficiently wide on which to turn with ordinary farm equipment are recommended where contour farming is practiced. This will eliminate end rows of clean-tilled crops. The bromegrass may be cut for hay or used for early spring and late fall pasture. Such areas may also be a source of bromegrass seed.

Bromegrass is well adapted for use on spoilbanks along drainage ditches, and should be included in all the mixtures seeded for such purposes. It not only furnishes bank protection but it stops spreading at the waterline. The Iowa Highway Commission is using bromegrass extensively in all its grass and legume mixtures in the revegetation of sloping right-of-ways on state and federal roads. When establishing vegetation on slopes from 3 to 1 to as steep as 1½ to 1, an application of mulch such as straw or strawy manure has many times been the difference between success and failure. The mulch increases infiltration, reduces run-off, decreases sheet erosion, and assures better stand and growth of vegetation.

In fence rows where there is little or no grass, the weeds may be practically eliminated by establishing such areas to
bromegrass. Fence rows in bromegrass not only reduce the labor of cutting weeds, but such areas are a source of grazing in late fall and early spring.

Of Adapted Strains

In an attempt to determine why many farmers in western and southern Iowa have been unable to obtain bromegrass stands, we obtained bromegrass seed from many sources as far south as Kansas and north to Canada. We compared this seed in a test in southern Iowa at the Albia Pasture Farm, in southwest Iowa at the Clarinda Experiment Station, in western Iowa on the George Lee Farm, in Monona County, and in central Iowa on the Agronomy Farm, Ames.

Observations from these plantings showed the western Iowa area was the most difficult in which to establish a stand. Bromegrass from northern sources such as Canada and northern commercial firms were much inferior in forage yield and stand establishment to the so-called southern strains from Kansas and Nebraska. The northern strains produced very weak seedlings which showed more susceptibility to injury from hot weather. The bromegrass strains from northern sources were highly susceptible to disease. The observations of the different bromegrass strains in western Iowa are similar to the results obtained in eastern Nebraska.

At Ames, the southern strains were somewhat superior in forage yields to those from northern sources, with satisfactory stands resulting from all strains. In southern Iowa, on the Albia Pasture Farm, the variation in yields and stand establishment was intermediate between that of western Iowa and the results obtained at Ames.

Until more seed of the southern strains of bromegrass is available, north-central and north-eastern Iowa farmers can well continue to use commercial seed of northern origin. Farmers in southern and western Iowa can expect to increase their chances of obtaining stands and expect greater production from the use of the southern strains of bromegrass. (Southern strains of adapted bromegrass being certified in Iowa at the present time by the Iowa Agricultural Improvement Association are Lincoln, Fischer and Achenbach.)

Right: One of the two original fields of the Fischer strain of bromegrass. It's located 3 miles east of Shenandoah.

Below: Note the difference in growth of the Lincoln bromegrass at the right where the car is standing as compared with the northern strain at the left.
This is a close-up of bromegrass and alfalfa, one of the best combinations for use either for pasture or for hay.

But there are other factors besides unadapted strains which may contribute to a seeding failure or a thin stand of bromegrass. These include lack of a firm seedbed, prolonged drought in the seedling stage, honey-combing and drying out of seedbed in the spring following a fall seeding, insect damage (grasshoppers and chinch bugs), covering the seed too deep (over 3/4 inch), too late seeding in the spring, and excessive competition from weeds or small grain.

To Produce Seed

We need more farmers producing more high quality seed of adapted bromegrass strains. Until an adequate seed supply is available at a reasonable price, bromegrass will not spread in Iowa as rapidly as it should. When a bromegrass stand is established for seed production, we recommend that it be sown with a light seeding of alfalfa. The stand should show a predominance of bromegrass. Alfalfa seeded at the rate of 3 to 5 pounds, depending on the location, and 10 to 12 pounds of bromegrass seed per acre, has been found a satisfactory mixture for bromegrass seed production. When grown in this manner, it is not unusual to obtain yields of 400 to 700 pounds of bromegrass seed per acre, which is worth $60 to $100 an acre at present prices. Old alfalfa stands that are becoming too thin for hay production may be disked or spring-toothed in the fall and seeded to bromegrass for seed production, pasture, or both.

It is very important that fields selected for the production of bromegrass seed be free of noxious weeds as well as any other weeds that may prove troublesome, such as the annual bromes. Much of the commercial bromegrass from parts of Iowa, Nebraska and Kansas contains weed seed of the annual bromes such as downy bromegrass, chess, Japanese chess and others. If there is a considerable quantity of annual bromes in the field of bromegrass you are planning to save for seed, it may be necessary to pasture and mow such fields for hay until the annual bromes disappear.

Bromegrass may be harvested for seed with a binder and threshed. Probably the simplest and most convenient way to harvest bromegrass for seed is with a combine. Those with a rubber-faced bar type cylinder and concave are preferred because they do not break the stem or straw in so many pieces as do the spike-toothed type of cylinder and concave.

The combine should be set to head the brome above the alfalfa, thus leaving all the stems and leaves for hay or pasture following the seed harvest. Be sure to reduce the wind in the combine to prevent loss of seed, since the seed is almost as light as the straw. Where the yield of bromegrass seed is heavy it may be necessary to reduce the width of the cut to prevent overloading the combine.

Combined bromegrass seed should be spread on a suitable floor space to dry. The seed should be stirred daily the first 3 or 4 days to prevent heating. When thoroughly dry, the seed can be cleaned if necessary by re-running it through the combine or by the use of a small fanning mill.

Certified seed production programs of adapted bromegrass strains have been started in a number of counties which have organized Soil Conservation Districts. This program is cooperative between the District Commissioners of a Soil Conservation District, the Iowa Agricultural Experiment Station and the Soil Conservation Service. The main objective is to produce a sufficient quantity of adapted bromegrass seed in the shortest possible time to meet the local needs of the soil conservation program of the District.

Bromegrass fills a badly needed place in holding the soil on waterways in the more hilly lands of Iowa. It is also used along highway cuts and on ditch banks.