

AGRICULTURAL EXPERIMENT STATION of The Alabama Polytechnic Institute, Auburn, Ala.

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WHITE DUTCH CLOVER-DALLIS GRASS PASTURE for the GULF COAST AREA of ALABAMA

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Good pastures are the foundation of a sound livestock program. They are necessary for the most economical production of good quality livestock or livestock products.

Until about 1940 practically all pastures in the Gulf Coast area of Alabama consisted of native grasses on cut-over lands. Such grasses are poor in feed value. The reason for this is that all soils in the region are naturally low in minerals, which are necessary for the growth of healthy animals.

By 1940 results of experiments conducted at the Gulf Coast Substation had shown that as good pastures could be grown in this area as elsewhere. These results have influenced the planting of thousands of acres of white Dutch clover-Dallis grass pastures by farmers in the Gulf Coast area, particularly dairymen. Milk, beef, and pork are being economically produced from these improved pastures.

While the cost of establishing pastures in this region may be higher than in some other parts of the State, the longer grazing and the additional amount of grazing will usually more than offset the added cost.

Although it is possible to have both winter and summer grazing in this region, experiments thus far have not indicated that year around grazing on the same land is successful.

Pasture Plants

All permanent pasture combinations should include both a legume and a grass. The legume is rich in protein and it supplies nitrogen to the soil, which stimulates the growth of more and better grass. The most profitable combination developed thus far

at the Gulf Coast Substation consists of white Dutch clover and Dallis grass. In the Gulf Coast area of Alabama this combination furnishes succulent grazing from about the first of March to about the first of November. During an average year it should support two cows per acre for about 4 months when moisture is plentiful and one cow per acre during the other 4 months. During the latter 4 months, such temporary crops as sudan grass, millet, and kudzu may be used to supplement the permanent pasture.

Starting the Pasture

In establishing and maintaining a permanent pasture, certain practices have been found to be necessary. Therefore, it is very important that each of these practices be followed very carefully in order to insure success in so far as is possible.

Soil. For white Dutch clover and Dallis grass, a heavy soil is necessary for best results. A light soil may result in somewhat earlier grazing in spring, but growth will not be satisfactory during hot, dry seasons. Low land, such as gallberry flats where water stands only a few hours following heavy rainfalls, or heavy crop land underlaid by a clay subsoil is desirable.

Preparation. Amount and length of grazing from pastures as a rule vary in proportion to the care used in preparing the land before planting. Thorough seedbed preparation is one of the musts for establishing a good pasture. On new land it is desirable but not absolutely necessary to break and grow another crop a year before planting to pasture. In case the land is not suitable for other crops, it is broken several months in advance of planting, so that the turf can be well pulverized just before planting. Deep breaking is especially

important where carpet grass is present. If this grass is left near the surface, it will come back after a year or so and will tend to choke the clover and desirable grasses.

Fertilizers. Any one of the following fertilizer treatments is satisfactory (per acre rates):

- (1) 1 to 2 tons of lime and 700 to 800 pounds of 0-14-10;
- (2) 1 to 2 tons of lime, 600 pounds superphosphate and 150 pounds of muriate of potash; or
- (3) 1 to 2 tons of lime, 1,000 pounds of basic slag and 150 pounds of muriate of potash.

On lands in a very low state of fertility, the rates should be somewhat increased.

If the foregoing fertilizer ingredients are not available, 4-10-7 may be used with lime. However, the rate should be increased to 1,000 pounds per acre, in order to supply about the same amounts of phosphorus and potash that are contained in 700 pounds of 0-14-10.

The lime may be applied before breaking even though it may be a year before planting. A lime spreader is pulled more easily on unbroken land.

The fertilizer is applied and disked into the soil 2 or 3 weeks before planting. A drag is attached behind the disk to leave the surface as smooth as possible. Following a rain around October 1, when soil moisture is right, the area is then disked and dragged as shallow as possible to freshen the surface, on which the Dallis grass and clover seed is broadcast and rolled. The clover seed must be well inoculated.

Inoculation. Inoculant is made up of bacteria, or "germs," which live on clover roots and take nitrogen from the air. Without these germs the clover must obtain its nitrogen from the soil; unless the soil contains a lot of nitrogen, the clover seeds will germinate and the plants will not have normal color or make satisfactory growth.

Inoculation may be done in several ways.

It may be done by the use of soil from a field where the same kind of legume has been making good growth. This method, however, is not always successful. The most common material now in use is commercial inoculation, which is sold at most seed stores. Be sure to examine the date on package to make certain that material is still fresh and that it is for white clover and not some other legume. Experiments have shown that it pays to use 2 or 3 times as much of the inoculating material as is recommended by the manufacturer.

One of the most satisfactory ways to inoculate seed is to place them in a tub or bucket and to sprinkle with water, to which enough syrup has been added to make it sticky. Stir until all seed are moistened with this solution. Break up all lumps in the inoculant and sprinkle over the seed. Then stir thoroughly until all seed are well coated. If too much liquid has been used and the seed are too sticky to plant, stir in enough dry dirt, cottonseed meal, or similar material to take up the excess moisture. Following inoculation the seed must be kept in the shade until planted; sunlight will kill the inoculation.

Planting. The pasture is seeded about October 1. Plantings are sometimes successful when made as late as December, but the earlier planting means earlier spring grazing. Also weather conditions as a rule are more favorable for early plantings.

Weather charts for this area show that normally there is plenty of rainfall at the autumn equinox, or the last week in September. Thus, planting should be done just after these rains. Otherwise, moisture for planting may not be sufficient for a month or more.

The per acre seeding rate found most satisfactory is:

6 pounds of white Dutch clover seed (Louisiana strain), and

10 to 15 pounds of Dallis grass seed (75 per cent germination or better).

If Dallis grass seed runs less than 75 to 80 per cent germination, the rate of seeding per acre should be increased accordingly.

Dallis grass seed and clover seed are

broadcast in two separate operations, because they do not distribute well if mixed. Dallis grass seed are sown first because they do not require inoculation and are not affected by sunlight. Usually Dallis grass seed are broadcast by hand. The clover seed may be sown by a cyclone seeder. A more uniform stand will be obtained if half of the seed is sown in one direction and the other half cross-seeded. The roller should follow as closely as possible behind the clover seeding, in order to press the inoculated seed into the soil and protect them from sunlight.

A cultipacker is the most satisfactory implement for covering the seed. The land should not be rolled before planting. The seed are planted directly on a seedbed, which has just been lightly disked and smoothed. It is a good practice to roll and cross-roll following planting.

If a cultipacker is not available, a satisfactory job may sometimes be done with a log, other heavy roller, or a brush drag. A spiked-tooth harrow is not desirable because it covers some of the seed too deep. Disking following sowing is almost certain to put the seed too deep, which will result in a poor stand.

Clover seed will germinate soon after planting if the soil contains enough moisture. Dallis grass seed may germinate either in the fall or the following spring; it will afford little grazing until mid-summer. Dallis grass plants live over winter, and after the first year will give some grazing soon after the last frost in the spring. Even with continuous grazing of two cows per acre, both clover and Dallis grass may

be expected to make plenty of seed. Also they will stand dry weather better if kept grazed fairly close.

Maintenance

For best results the pasture is mowed often enough to control weeds and to improve the quality of grazing. This usually requires two to four mowings per year. It is better to mow fairly high the first time, in order that the second mowing may be set below where weeds sprout.

Each fall, about November 1, 500 pounds of 0-14-10 or its equivalent per acre are applied. No disking or other practice is necessary.

Where no carpet grass is present, the pasture should result in satisfactory grazing for 5 or 6 years. If carpet grass is present, the clover will be choked within 3 or 4 years. The only way now known to rejuvenate a pasture where such a condition exists is to break deep enough to turn under all sod. This is done around the first of September. Following breaking, the area is thoroughly disked. About September 15, 500 pounds of 0-14-10 or its equivalent per acre are applied and disked into the smooth soil. The Dallis grass stand, which will follow this breaking and disking, is ordinarily satisfactory. Sometimes a good stand of clover will come without additional seeding. However, it is safer to plant about 3 pounds of white Dutch clover seed and roll it after disking in the fertilizer, just as is done at the original planting. No inoculation is necessary if there was a fair stand of clover on this land the year before.

