THE ESTABLISHMENT OF COMMON BAHIA GRASS FROM SEED

During the past few years a number of cattlemen in Florida and South Georgia have purchased and planted seed of common Bahia grass. Most of this seed has not been scarified. It has been broadcast usually in fair to poor seedbeds and no effort has been made to cover the seed. Although some good Bahia grass pastures have been established in this manner, several years are required and some failures have been experienced. Research on this problem at the Georgia Coastal Plain Experiment Station at Tifton indicates that if high quality seed of Bahia grass is scarified and planted properly, it can be established from seed as readily as other grasses grown in this area. The following recommendations are based on these studies:

PLANT ONLY IN THE LOWER COASTAL PLAIN

Common Bahia grass comes from the West Indies and South America. In severe winters plantings in the northern part of the Coastal Plain usually are completely killed by cold. Therefore common Bahia grass is recommended only for the lower part of South Georgia. Reports indicate that it is also adapted to Florida and the lower portions of some of the Gulf States.

BUY GOOD SEED

No treatment of planting method will make poor seed grow. Since practically all common Bahia grass seed is imported, it is subject to test in accordance with the 1939 Federal Seed Act and should carry a tag indicating its purity and germination. Only 60 pounds of a 100-pound bag of Bahia grass seed having a purity of 70 per cent and a germination of 75 per cent could be expected to develop Bahia grass plants. Empty glumes that appear to be good seeds are responsible for the low purity of most Bahia grass seed.

Study the seed tag and insert the information on it in the following formula to determine the cost per pound of live seed:

\[
\text{Price} \times 100 \quad \frac{\text{Purity} \times \text{germination}}{80 \times 75} = \text{cost of live seed}
\]

Example \[ \frac{24}{80} \times \frac{100}{75} = 40\% \text{ per pound} \]

SCARIFY THE SEED

Numerous greenhouse studies have demonstrated the live Bahia grass seed germinating less than 5 per cent in 3 months can be made to germinate over 50 per cent in 10 days when properly scarified with sulfuric acid. In field tests, scarified seed of common Bahia produced up to ten times as many plants per 100 seeds planted as the same seed not scarified.
An inexpensive machine that will greatly simplify the acid scarification of Bahia grass seed can be made from an empty 100-pound drum, a piece of 16 or 18 mesh galvanized screen wire, 5 feet of half-inch pipe, several square feet of 26 gauge galvanized iron for the acid pan, and a little lumber. After the drum is thoroughly cleaned, most of the sides are cut out and the screen wire attached to the inside with drops of solder. A piece of half-inch pipe is bent to form a handle and is inserted through the center of the drum to act as a support for the drum in the acid pan and to facilitate rotating it. If the drum and pan are washed carefully with water after using, they will last a long time.

**CAUTION** - Since sulfuric acid will destroy clothing it contacts and will cause flesh burns if not washed off at once with water, great care must be exercised in handling it. Plenty of water to remove spilled acid from clothes or flesh should always be available when working with sulfuric acid.

In scarifying the seed the drum is filled about 4/5 full of seed, the lid is attached, and the drum is placed in the support as indicated above. Crude sulfuric acid, used in the manufacture of superphosphate fertilizers (specific gravity 1.69) and available at fertilizer plants where superphosphate is made for 50c to $1.00 per hundred pounds, is poured over the seeds and into the pan in sufficient quantity to wet all the seeds and fill the acid pan nearly full. The drum should be rotated slowly until the outer hulls and most of the inner hulls covering the seed are eaten away, usually 30 to 45 minutes. Don't treat the seeds so long that the hulls are completely removed from portions of the seed, for such treatment will kill them.
After scarification, drain the excess acid into the acid pan and wash the acid from the seed in the drum by running water from a hose through the screen wire windows in the drum while it is in a horizontal position. The seed should then be emptied into a drum or tank of water in which there are several pounds of hydrated lime. Stir the seed in the lime water occasionally for an hour or more until the acid that has penetrated the seeds has been neutralized. (Soaking the seed in lime water after treatment makes it possible to keep the seed for several months after treatment without any appreciable loss in viability.) The seeds should then be cut and dried.

A GOOD SEED BED PAYS

In well prepared seed beds 10 pounds per acre of properly scarified live seed drilled from 1/4 to 1 inch deep should give a satisfactory stand of grass. Under average conditions where a good stand is desired the first year, at least 20 pounds of seed should be planted.

On poor land or on new land not previously fertilized, on initial application of 200 to 400 pounds of commercial fertilizer (a 4-8-4 is good) should aid the establishment of the grass.

PLANT IN THE SPRING

The susceptibility of small seedling plants of Bahia grass to drought and cold injury makes it highly desirable to plant the grass in March or early April. Although May and June plantings have been made with success at Tifton, they are less likely to succeed than earlier seedings.

COVER THE SEED

Experiment Station tests indicate that 1 pound of seed properly covered may be worth as much as 4 pounds broadcast, but not covered. Manufacturers of cultipackers, corrugated rollers or soil pulverizers are making seeding attachments that may be recommended highly. The cultipacker, with the seeding attachment, firms the seed bed, distributes the seed uniformly and covers the seed at a uniform depth, making conditions ideal for the germination and establishment of every seed. Where such a machine is not available the seed should be broadcast and covered lightly with a peanut weeder. Do not cover them with more than 1 inch of soil.

ESTABLISHMENT OF PENSACOLA BAHIA GRASS FROM SEED

Pensacola Bahia grass differs from common Bahia in many ways. It is more cold tolerant and therefore may be grown farther north with success. It is tougher than common Bahia and is less palatable but if grazed close and continuously cattle eat it well. If the grass is allowed to grow up very tall it becomes tough the animals eat it sparingly. Although its value as a pasture plant has not been established, a number of farmers are planting it and are requesting information concerning its establishment. The following suggestions should help them to obtain stands.

SCARIFICATION PAYS BUT NOT NECESSARY FOR GOOD STANDS

In a typical greenhouse experiment, acid scarified seed of Pensacola Bahia germinated 65% in 9 days and 83% at the end of 21 days, while unsacarified seed germinated 1% in 9 days and 31% at the end of 21 days. Therefore, scarification will result in more plants per pound of seed and they will have a better chance to live because they get started ahead of the weeds. However, reasonably good stands have been obtained by planting unsacarified seed at heavier rates and in many instances,
this may be the practical thing to do.

Pensacola Bahia seeds are smaller than common Bahia seeds and will pass thru a 16 mesh screen as they are scarified. Consequently a scarifying drum for Pensacola Bahia seed must use much finer screen in the windows. The windows may be reduced to two in number and made much smaller so that less of the fine screen will be need-
ed.

Pensacola Bahia seeds require less scarification than common Bahia seeds. If 20 to 45 minutes of scarification is correct for common Bahia, then 20 to 30 minutes should adequately scarify Pensacola Bahia seed.

SEEDING RATES LOWER THAN COMMON

A pound of Pensacola Bahia seed contains twice as many seeds as a pound of common Bahia. Consequently as little as 5 pounds of properly scarified live seed planted with a cultipacker seeder should give a satisfactory stand of grass. If the seed must be broadcast under average conditions, it should be planted at heavier rates. At least 20 pounds of unscarified seed should be planted per acre to give good stands.