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Grass-Legume Mixtures for Higher Production

During the period 1949-51, a fescue grass-Madrid clover mixture produced an average of 4,050 pounds of forage per acre the first year of growth and 4,950 pounds the second season at the Blackland Experiment Station, Temple, Texas. This is more than six times the amount of forage produced by fescue grass planted alone.

These results were obtained on blackland soils. The plots were fertilized with 40 to 60 pounds of phosphoric acid per acre in the fall when the grass and legume were planted.

Fescue grass is one of the newer strains of grasses introduced in the South and Southwest to improve the production of forage from pastures. Like most grasses, it is a perennial plant, growing year after year once a stand has become established. It has proved to be quite well adapted to conditions in most of the Southwest, being more productive than many of the native grasses.

Madrid clover is a biennial legume, also recently introduced to the Southwest. It has been grown extensively as a cover crop and for forage and seed production in rotation with cotton. It is especially well adapted to the blackland soils of Texas.

It is generally recognized that a grass-legume mixture is more productive than either crop grown alone. The legume furnishes some nitrogen for the grass, and the grass adds to the volume of forage produced. During the past

4 years the Blackland Experiment Station at Temple has conducted tests to determine the value of certain grass and legume mixtures. Of the three tested, the fescue grass-Madrid clover combination was the most productive.

Other legumes used in mixtures with fescue grass were vetch and hubam clover. The fescue-hubam mixture produced forage yields the first year that were comparable with the fescue-Madrid mixture, but since hubam clover is an annual plant, forage production dropped sharply the second year after planting.

In addition to the forage produced, grasses and legumes aid in restoring organic matter to the soil. The tests conducted at Temple also measured the volume of root material produced by the plants, and it was found that the fescue-Madrid mixture produced nearly twice as many pounds of root material per acre as did fescue grass alone.

In other tests the amount of forage produced by a mixture of fescue and alfalfa was compared with that produced on a plot seeded only to fescue. Hereford steers were grazed on these pastures, and their weights were used in measuring the results. During the first year, steers grazing the fescue grass gained 1.4 pounds per head per day, while steers grazing the fescue-alfalfa mixture gained only 1 pound per head per day. However, the second year the rate of gain on the fescue dropped to 1.1 pounds, while the fescue-alfalfa mixture produced a gain of 1.6 pounds per head per day.

On the basis of these tests, specialists at the experiment station point out that fescue by itself appears to hold little promise as a pasture grass for the southern Texas Blacklands. However, when grown in combination with Madrid sweet clover or alfalfa, it can be a highly productive forage crop.

Growing such a mixture for 2 or 3 years reduces materially the infestation of cotton root rot. Also, the value of legumes and grasses as a soil-building crop is most important in judging their value in the farm program. The addition of more than a ton of organic matter in the form of roots, even if all of the top growth is harvested for hay or pasture, is an important step in maintaining soil productivity. Yields of cotton following 2 or 3 years of such a grass-legume mixture are frequently double those grown on similar fields without any soil-building crop in the rotation.

Other grass-legume mixtures are being tested by several experiment stations in the Southwest, and farmers will find it profitable to study the results of these tests and find a grass-legume mixture that is suitable to their farm conditions.

Build Reserve Feed Supplies

Many stockmen are tempted to increase the number of livestock when the flush spring growing season arrives. But southwestern farmers and ranchers have learned that, if herds are to be maintained throughout the year, supplemental feed must be provided for periods of drought or stormy weather when livestock cannot obtain feed from pastures and ranges.

Now is the time to make plans for storing a reserve supply of feed. The next few months usually provide the greatest growth of forage crops, and the farmer or rancher who stores some of the surplus feed produced in the spring can reduce materially his feed bill later in the year.

There are many types of roughage and several methods of storing them. Pastures that

produce more feed than the livestock eat can be divided and a part of the acreage cut for hay. Plantings of sudan grass will furnish supplemental pasture later in the season and also may be cut and baled for hay. Johnson grass, if cut in the early boot stage, produces a very high-quality hay.

Silage crops, such as corn, sorghum, grasses, and legumes, can be stored in trench or upright silos to provide succulent feed when no green grazing is available.

Another, but no less important, method of "storing" feed reserves is in giving ranges and pastures time to recuperate from the severe drought. Ted Trew, Extension pasture specialist of Texas A. & M. College, suggests that grasses, such as Bermuda and Dallis, that were heavily grazed or severely injured last fall should be given from 4 to 6 weeks' rest this spring before grazing.

Ranchers are encouraged to go slow in restocking their pastures, in order that the native grasses can develop new root systems and become firmly established. Heavy grazing the first season following a drought may kill most of the productive grasses.

Size and Shape of Seed Corn Unimportant

Large round, medium-sized flat, or other irregularly shaped kernels of corn are just as good for seed as the uniform large flat kernels, says E. C. Coffey, associate agronomist for the Texas A. & M. Extension Service.

Many farmers insist on the grade of seed corn labeled "large flat"; as a result, this grade of seed corn is higher priced and, in many cases, the supply may be exhausted early in the planting season.

One reason farmers have insisted on the large flat kernels is that they are easier to use in most corn planting machines. Mr. Coffey points out that although changing to another size or shape of seed may necessitate some ad-

justment in the planter in order to give a uniform stand, these changes are usually very minor and inexpensive. Their cost and inconvenience are more than offset by the saving in the cost of seed corn that can be obtained by the use of the smaller, more irregular kernels.

In addition to the lower cost of the seed, a bushel will plant about 40 percent more land than will a bushel of the large flat kernels, because there are more seeds per bushel in the smaller size.

Another corn planting tip is offered by W. B. Coke, Extension agronomist of Texas A. & M. College. Mr. Coke says not to plant corn more than 1 to 1½ inches deep. Planting at deeper levels retards germination and, contrary to popular opinion, does not give the corn plant a deeper root system.

Control Southern Corn Rootworm

Each year the southern corn rootworm causes considerable damage to corn. The worm injures the young seedling plant, frequently resulting in a loss of from 20 to 30 percent of the stand. Some years the entire stand has been lost due to this pest.

Tests by the Texas Agricultural Experiment Station show that insecticides applied at planting time in the furrow ahead of the planter have given satisfactory control. Several of the newer organic insecticides were tested and found satisfactory. One of the more effective materials was chlordane applied at the rate of 2½ pounds per acre. Parathion applied at the rate of .17 pounds per acre also gave good control.

Preventive measures must be used to control the rootworm, because no treatment is effective after the corn begins to show damage.

Prepare a Deep Seed Bed for Cotton

Breaking cotton land to a depth of 6 to 10 inches increased yields by 163 pounds of seed

cotton per acre in tests in Richland Parish, Louisiana, during 1952.

In one test, the deep breaking of the seed bed was done in the fall, and in another, in the spring. The spring operation gave a slightly larger increase in yield.

Specialists working with these tests believe that the deep breaking need not be done each year but probably should be carried out once every 3 years.

Tractors Need Clean Air

In burning 5 gallons of fuel, the tractor engine uses as much air as would be contained in a silo 15 feet in diameter and 30 feet high. Hence, W. L. Ulich, Extension agricultural engineer of Texas A. & M. College, urges all farmers to service air cleaners on their tractors after each 10 hours of operation.



Mr. Ulich points out that failure to service the air cleaners properly results in excessive wear on bearings, pistons, rings, and other moving parts of the tractor engine. Eventually, this causes excessive oil consumption, loss of power, and waste of fuel.

Directions for servicing the air cleaners are given by the manufacturers. Nearly all directions include removing the oil cup from the container, pouring out the dirty oil, washing the cup with fuel oil or kerosene, refilling with clean oil, and replacing on the tractor.

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Most insecticides are poisonous to humans; hence, extreme care should be used in their handling. Always follow carefully the directions of the manufacturer. Keep all insecticides well out of reach of children and animals.

Plant the Best

It always pays to plant the best seed. Good certified seed of guaranteed quality, properly labeled and described, costs only a little more than the poorest seed on the market. The difference in yield in favor of the high-quality seed is worth many times the additional cost. Protect your investment in labor and other costs of growing a crop by planting only high-quality seed.

Make Your Own Wind Gauge

A homemade wind gauge can be constructed easily in the farm shop or by a local blacksmith by following plans prepared by the Texas Agricultural Experiment Station.

The importance of knowing the wind velocity stems from the fact that the Texas Herbicide Law requires that a record be kept of wind velocity and direction during the application of 2,4-D and similar growth-regulator-type herbicides. This law applies to all of central and east Texas and to certain counties in the southern and western portions of the State.

The wind gauge described in the Texas Agricultural Experiment Station's plans is simple in construction, sufficiently rugged to withstand normal use, compact, and does not require batteries or other accessories.

Copies of the plans for building this instrument can be obtained from county agricultural agents or by writing to the Texas Agricultural Experiment Station and asking for Progress Report 1466.

Improper Fertilizer Costly

The importance of using the right combination of fertilizer materials is shown in tests conducted last year by the Louisiana Agricultural Experiment Station.

Application of 600 pounds of an 0-8-8 fertilizer (containing no nitrogen) increased the

per acre yield of seed cotton only 88 pounds over an unfertilized plot. However, application of the same amount of a fertilizer containing only nitrogen increased the yield 221 pounds over the unfertilized plot.

On a third plot, the application of 600 pounds of 12-8-8 fertilizer increased the yield by 1,142 pounds. Adding 220 pounds of limestone and 600 pounds of 8-8-8 fertilizer per acre increased yields by 1,324 pounds per acre.

These results emphasize the need for having the soil tested to determine the plant food needed for maximum crop production and then applying the proper fertilizer to correct deficiencies of the soil.

Heat-resistant tomato varieties that will set fruit throughout the summer include the Porter and the Summer Prolific.

USDA Needs Twin Calves

A long-time research program being carried out by the United States Department of Agriculture in cooperation with several state universities requires a large number of identical twin calves. The Department recently announced that it is in need of more calves to continue the experiment.

To be useful in the test, the calves must be identical twins and of dairy breeding, but they may be either grade or purebred. They should be less than 4 months old, free of disease, and in reasonably good condition.

Owners of calves meeting these requirements are asked to contact the Louisiana State University Dairy Department at Baton Rouge. Age, sex, breed, health, color, and price of the animals should be given.

The *Agricultural News Letter* is prepared in the Research Department under the direction of CARL H. MOORE, Agricultural Economist.