

FARM AND RANCH BULLETIN

Vol. 15, No. 4

April 15, 1960

"SURE KILL" FOR MESQUITE

Hand-grubbing is the most economical method for killing mesquite—a plant that can take over, and virtually destroy use of, the range — says Dr. Carlton Herbel, Agronomist with the Federal Agricultural Research Service at New Mexico State University. This method is a "sure kill" for mesquite if the root is cut below the budding zone, about 4 inches beneath the ground surface. On the other hand, 3 years are required to determine whether the kill from chemical treatment is certain.

In 1959 — the second year of the grubbing project on the United States Department of Agriculture's Jornada Experimental Range, near Las Cruces, New Mexico — the total average cost of the operation was 67 cents per acre, which is much less than the cost for chemical control. The per acre cost in 1958 was 44 cents. A total of 8,565 acres in three Jornada pastures was grubbed during the past 2 years.

The honey, or many-stemmed, mesquite grows on an estimated 10 million acres in New Mexico, but there is no estimate as to how much of it is grubbable. Only plants with a crown width of less than 36 inches are suitable for grubbing.

As a result of the work performed in 1959, Dr. Herbel believes that, before grubbing is undertaken, there should be twice as much grubbable as nongrubbable mesquite. If this ratio is smaller, a chemical treatment should be used.

There are three stages of mesquite invasion of the ranges:

1. Young plants which are hidden among the grasses.
2. Older plants with sand blowouts around them.
3. The disastrous mesquite dunes.

When the invasion reaches the third stage, the range is beyond reclamation under present economic conditions. In this stage, the carrying capacity of the range usually has been reduced to three or fewer head of cattle per section annually, contrasted with 18 head to a section in the first stage of the invasion.

The only economic benefit of mesquite is that the plant's beans are eaten by some cattle. However, Dr. Herbel says that the cattle which eat the beans disseminate the seed over good grassland and offset any feed value of the beans.

Mesquite grubbing is a range conservation measure. Although grubbing may not result in additional forage, a rancher may lose much of the forage on his range in 10 to 15 years if no control is carried out.

In 1959, mesquite grubbing on the experimental ranges was begun in January and completed in early March. There are two advantages in doing the work early in the year: It is a cool part of the year, and it is the off-season for cotton farm labor. Crews of 10 or more men were used, and the laborers commented that grubbing was relatively easy work. At the rate of 65 cents an hour for a laborer, the average cost was 55 cents per acre. The average cost for the supervisor, who was paid \$1.25 per hour, was

12 cents per acre. The total time on the 4,300 acres was 3,666 man-hours. The number of plants grubbed per acre in 1959 was about 25, the number missed was approximately 3, and plants which were too large to be grubbed totaled about 13 per acre.

A small part of the grubbed area was treated with chemicals in 1958, and more extensive chemical treatments were applied in June and July of 1959. No hand-grubbing is planned for 1960 because chemicals will be used on the plants that were missed and those which were too large to be grubbed on the 8,565 acres.

Hand-grubbing on the Jornada Range was done systematically. The grubbers were spaced at 30-foot intervals and were kept in line by a system of flagging. Several different colors of flagging material were fastened to lath stakes in order that no workman would be confused as to which was his guide flag.

The rows of flags were placed about one-fourth of a mile apart; however, the distance varied somewhat according to the topography of the land. As the grubbers passed a row of flags, the guides were moved over so that they would be in place for the return swath. Changing the flags required the full time of one man with a pickup truck. A supervisor followed closely behind the grubbers to check their work and to grub occasional plants which had been missed.

Plant Diseases Can Cut Livestock Profits

Prevention and control of plant diseases are important in livestock production since profits depend on maximum yields from pastures and crops, says Harlan E. Smith, Extension Plant Pathologist with the Texas Agricultural Extension Service.

In many instances, weather, soils, or planting seed are blamed for low crop output when plant diseases actually cause the losses. In addition, poor-quality feed or forage often results from damages caused by plant diseases. Such feed does not contain the vitamins, minerals, and other elements necessary for good animal health.

The fungi, bacteria, or other germs which cause plant diseases cannot be seen with the naked eye; and the diseases are difficult, if not impossible, to control once they have infected a crop. However, many plant diseases can be prevented. For example, treating of planting seed with a good fungicide will help in controlling some feed and forage crop diseases.

The pathologist recommends the planting of good, carefully selected seed which is dry, sound, and free from combine-injured seed coats. The seed should be planted in a warm, mellow soil because cold, wet soil favors seedling diseases.

Growing the same crop on the same land year after year tends to increase plant disease problems; therefore, annual feed and forage crops should be rotated. If available, disease-resistant crop varieties or hybrids should be used.

New Blackberry for East Texas

Brazos is a new, erect-type blackberry which is adapted to the east Texas area, according to the Texas Agricultural Experiment Station. The large, attractive fruit should find acceptance on the fresh market.

The Brazos blackberry —

- ★ Matures early.
- ★ Produces good yields and large fruits.
- ★ Maintains fruit size longer throughout the season.
- ★ Is softer than the Lawton variety.

Plants and cuttings of the new blackberry may be obtained from commercial sources; no supplies are available from the Texas Agricultural Experiment Station.

Southern Peas Gaining Popularity

Southern peas — a favorite vegetable in the South for many years — are gaining fast in popularity, points out the Texas Agricultural Extension Service. Since World War II, Southern peas have become a welcome addition to the diet of many people in the North. Eaten as green snaps, green shell peas, dried peas, and canned

Safety Hints for Handling Farm Chemicals

With the new crop year under way, both farmers and city folks should keep in mind these safety hints from the Louisiana Agricultural Extension Service.

1. Read the labels on the containers, follow instructions, and take the recommended precautions when using insecticides or herbicides.
2. Store pesticides and other chemicals where children or careless adults are not likely to get into them. Keep the chemicals in a locked shed or closet, away from feed and food.
3. Keep pesticides and other agricultural chemicals in their original labeled containers so that everyone will be able to tell exactly what material he is using.
4. Dispose of empty containers promptly and in such a manner that no dangers to human beings, animals, or valuable plants will be created.

or frozen peas, they are a leading staple in the diet of many families.

The following are the groups of principal horticultural importance which are included in the classification "Southern peas": black-eye, purple hull, crowder, black crowder, speckle crowder, brown-eye crowder, brown-eye, spotted crowder, brown crowder, cream crowder, and cream groups. The yard-long bean and the lady cream pea are also members of the Southern pea group.

Feed Milk Cows Enough

Research by Cornell University shows that most dairy farmers do not give their cows enough to eat. The average cow will produce up to 5 pounds more milk a day if her daily menu includes 20 pounds of good grain, but the Cornell studies indicate that most dairymen give their cows less than 15 pounds.

The amount of grain a cow should get depends partly on the animal's inherited potential and partly on the quality of the forage she is getting, according to Professor J. K. Loosli at Cornell. Some cows should get even more than 20 pounds of grain, especially if the hay is of low quality. Cows brought to Cornell University for study gave 1,000 to 3,000 pounds more milk a year when their feed was increased.

Other research at Cornell shows that cows give more milk and gain more weight on concentrate mixtures containing distillers' grains than some other protein feeds. For example,

milk production averaged 42.4 pounds daily for cows fed corn distillers' grain, while cows given linseed meal produced only 39.7 pounds daily.

Liquid Versus Dry Fertilizers

Liquid fertilizers are proving to be a good source of plant nutrients, and their use is becoming widespread. However, W. F. Bennett, Extension Soil Chemist with the Texas Agricultural Extension Service, says that liquid and dry fertilizers generally are of equal value in improving crop yields.

Little difference was noted in the results of 27 experiments in which liquid and solid, or dry, fertilizers were compared. The experiments covered a wide area, and the same methods of application were used. In only three instances were higher yields obtained with liquid fertilizers. In one case, greater yields resulted from the use of solid fertilizers. In all four instances, differences in yields were small and were not apparent on the same soil type in succeeding years.

The major considerations in determining which type of plant food to use are the relative costs and the ease of handling and application. In some areas, the costs are comparable, while price differences prevail in others. If proper equipment is available, liquid fertilizers usually are easier to handle and apply than are dry fertilizers. On the other hand, storage tanks and special applicators are required for liquid fertilizers but are not needed for dry fertilizers.

Screwworm Eradication Program

An all-out eradication program against the screwworm in the southwestern section of the Nation and adjacent parts of Mexico does not appear feasible at the present time, according to the United States Department of Agriculture. Further research and field trials will be conducted to ascertain whether the use of sterile male flies or other techniques may be feasible. Lack of natural barriers—which would deter the migration of the fly in the vast infested areas of the Southwest and Mexico—was a key factor in deciding against an all-out eradication program.

The average overwintering area of the screwworm in the Southwest includes about 70,000 square miles in Texas, 40,000 square miles in California, 34,000 square miles in Arizona, and 1,000 square miles in New Mexico, plus several hundred thousand square miles in adjacent sections of Mexico. In the southeastern United States, where the eradication program was quite satisfactory, the average overwintering area is less than 50,000 square miles.

In the Southeast, the ocean and gulf form an extensive fly-free boundary, thus providing an effective natural barrier against reinfestation. In the southwestern parts of the country, numerous valleys through mountain ranges result in corridors that facilitate migration of the fly. Some type of permanent buffer zone would be needed in order to protect the United States and adjoining areas of Mexico from infestation from farther south.

Centennial Sweet Potato Best Producer



The Louisiana Agricultural Experiment Station has developed a new sweet potato variety that produces more than any other sweet potato ever grown in the State. The new variety is being named "Centennial" in recognition of Louisiana State University's 100 years of service to the State and also because it has yielded, in 30 tests over a 3-year period, approximately 100 bushels more per acre than commercial varieties now being grown.

The Centennial sweet potato was developed by Dr. Julian C. Miller, Head of Horticultural Research at the Louisiana Agricultural Experiment Station; Dr. Teme P. Hernandez and Travis P. Hernandez of the Horticulture Department; and Dr. Weston J. Martin of the Plant Pathology Department.

Light and Plant Development

A discovery by United States Department of Agriculture scientists promises to be the key to man's complete control of plant growth from seed germination through plant flowering and fruiting. Drs. Harry A. Borthwick and Sterling B. Hendricks at the Agricultural Research Center at Beltsville, Maryland, have determined how light triggers plant development processes.

Pigment forms have been recovered from corn plants, and some of the impurities have been removed. The isolated material is a protein and functions as an enzyme. The selective absorption of various colors of light by the different kinds of pigment forms apparently governs many phases of a plant's development, including flowering, germination, and elongation. The pigment forms can be converted from one to the other outside the plant, and this action can be detected by laboratory instruments. In the past, conversion of one particular form to another was detected only by plant responses.

As the pigment forms are purified further, the scientists believe that they will be able to identify and modify the forms at will, thereby influencing the character of plant growth. The discovery opens the door to further research of this triggering action in order to enable man to tailor plants for his needs. Possible results are crops of special heights for better harvesting, flowering of plants at times convenient to man, or plants less susceptible to damage from plant pests.

Six Texas plants produce American cheese, according to a recent survey of the Agricultural Marketing Service.

The FARM AND RANCH BULLETIN is prepared in the Research Department under the direction of J. Z. Rowe, Agricultural Economist.