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DESTRUCTION OF SOUTHWEST RANGES THREATENED BY BRUSH

One of the most serious problems in the range areas of the Southwest is the continued spread of noxious brush such as mesquite, cedar, and scrub oak. This infestation has reduced greatly the amount of forage on the ranges and has lowered the quality of that which remains. It has rendered a considerable amount of forage unavailable to livestock and has impeded ranchmen in the handling of their herds and flocks. Thus, millions of acres of once productive grassland have lost all or part of their usefulness in supporting the large livestock industry of this area. This infestation spreads to ranges where the dense grasses which once held mesquite and other noxious brush in check have been depleted by over-grazing. Other contributing factors include droughts, floods, fires, and hard winters.

Range experts of the United States Department of Agriculture estimated in 1943 that cedar and mesquite, alone, on about 51,000,000 acres of Texas range land reduced the State's potential meat production some 400,000,000 pounds annually. It is estimated that if the land infested with noxious brush had been available for full utilization in livestock production, Texas farmers and ranchmen during 1947 could have obtained an additional income of \$37,000,000. In addition, ranchers are faced with losses in their investments in range lands. Such reductions in potential income and depreciation of capital investments are also being experienced by ranchmen in other states of the Southwest due to deterioration of livestock ranges.

The problems of range deterioration resulting from the growth of noxious plants are set forth clearly in a recent publication entitled *Brush Problems on Texas Ranges*, prepared by the Department of Range and Forestry at

the Texas Agricultural Experiment Station. The bulletin points to mesquite and prickly pear as two of the most common and detrimental of noxious plants infesting southwestern ranges. In Texas alone, some 55,000,000 acres of the potential range land have growths of mesquite, while an estimated 60,000,000 acres are infested with prickly pear. Results of research indicate that the rapid spread of mesquite in this part of the country is due to its growth habits. Mesquite forms a bud zone which lies anywhere from a few inches to as much as a foot or more below the ground level and which contains a number of eyelets, much like those of the common potato. An injury to the upper part of the tree—such as cutting of the trunk or burning—seems to bring about a sprouting of the eyelets, sending up a dozen or more shoots from a single stump. Hence, it is most difficult to kill mesquite by burning after it has reached a year or more of age.

Although mesquite has been so destructive of valuable range land, it is defended by some ranchmen on the grounds that the beans, which are edible by livestock, may on occasion prove invaluable in feeding a herd through a critical period, while the larger mesquite are frequently considered desirable as shade trees. Somewhat the same feeling exists for prickly pear, which may be fed during periods of drought. These views, however, are not held by range management specialists nor by the majority of ranchmen who have observed the deterioration of the ranges.

While mesquite and prickly pear are perhaps the two most common of the noxious brush on Southwest ranges, there are others which are present over large areas. Among these is the scrub oak, which appears in such

forms as liveoak, Spanish oak, red oak, post oak, blue oak, and the poisonous shinnery oak. Oak infestation poses a unique problem in that there is a tendency for it to be accompanied by an infestation of cedar as well as a number of minor types of noxious under-growths, which, together with the oak, may make an area almost impenetrable. Southwest farms and ranges are also infested with creosote, tarbush, whitebrush, blackbrush, agarita, yaupon, catclaw, hog plum, persimmon, huisache, Brazil bush, soapbush, and McCartney rose.

Methods currently employed in the removal of these and other brush from the ranges include burning and the use of machinery and chemicals. These methods have been used with moderate success by numbers of ranchers, but none of them have proved entirely satisfactory, and further study is needed to determine fully their effectiveness and to develop more efficient means of brush eradication. While fire has been used extensively in destroying range brush, results indicate that it may be more harmful than beneficial to ranges.

A considerable quantity of brush is removed through the use of machinery. One of the earliest heavy machines used was the bulldozer, but this machine sweeps up surface growth only, leaving the roots to sprout; and in sweeping the debris across the surface of the range it scatters the beans of the mesquite, causing an infestation of relatively clean areas. However, a number of improvements on the bulldozer have been made in recent years, such as the "tree dozer," which has been used with some success against mesquite. Other kinds of mechanical devices in operation for brush control include various types and sizes of brush cutters, root cutters, root plows, power saws, and cabling devices. All of these vary in effectiveness and, in the main, are improvements over the simple bulldozer; but because they destroy the grass or leave roots to sprout, or for other reasons, they do not meet standards set by range conservationists.

Although, up to the present, mechanical means of combating noxious brush have led

the way in practical field application, range specialists are now looking to chemistry for a solution to this problem. A number of chemical agents have been found which operate with some degree of efficiency as noxious brush eradication and control measures. Chief among these is kerosene, both pure and mixed with various fuel oils such as motor (crank case) oil or Diesel oil, which has been used for eradicating mesquite, post oak, blackjack oak, and other noxious plants. Other chemicals used on smaller scale or in experimental work only include ammonium sulfamate (sold under the trade name "ammate"); sodium chlorate, zinc chloride, and other chlorides and chlorates; sodium arsenite and other arsenic compounds; and 2, 4-D and 2, 4, 5-T.

The Experiment Station bulletin states that the campaign to control and eradicate range brush has only begun. While federal, state, and local agencies are working to free the range lands of noxious brush and to restore the ranges to their earlier productive capacities, the infestation of ranges is spreading and additional lands are being lost each year. More extensive use of some of the present methods of brush eradication would help to retard the loss of range lands, but there is great need for an expansion in the research work now being carried on in order to develop more satisfactory methods for removing noxious brush from ranges. The information thus obtained, together with other proved facts and principles, must be incorporated into an effective program of range conservation and improvement if the productivity of the ranges of the Southwest is to be restored. Without a well-planned and properly executed research program and a carefully correlated educational program based on experiment findings, say the writers of the bulletin, the multi-million dollar livestock industry of the Southwest appears doomed to slow deterioration.

FARM MANAGEMENT

Hubam Clover Seed Crop Benefits Cotton

A hubam clover seed crop that was produced in 1947 paid dividends in 1948 to a cotton farmer in Ellis County, Texas, through

increased cotton yields per acre, according to the Texas A. & M. College Extension Service. Weights were kept on four rows of cotton following hubam clover and on four other rows in the same field of cotton following cotton. Both plots were planted and cultivated the same way. The records show that the cotton following hubam clover yielded at the rate of 750 pounds of seed cotton per acre, whereas the cotton following cotton yielded only 540 pounds per acre, a difference of 210 pounds.

In order to examine more closely the effects of the clover, the cottonseed were taken to a laboratory and analyzed. The analyses showed that seed grown on the hubam land contained 19.9 percent oil and graded 110.5, compared with 18.9 percent oil content and a grade of 104.5 for seed produced on land following cotton.

Fumigants Protect Seed Corn

The effects of insect injury may be considerably more serious on seed corn than on corn to be used for feed, according to the Bureau of Entomology and Plant Quarantine, because the germ of the seed, with its high food value, is particularly attractive to insects.

The cadello, almond moth, Indian meal moth, and the flat grain beetle are some of the insects particularly destructive to seed corn, because they make their first attack on the germ. Research and practical tests show that a three-to-one mixture of ethylene dichloride and carbon tetrachloride is the safest fumigant to use in protecting seed corn from insect damage. Entomologists also have worked out fumigation schedules and dosages for other fumigants, such as hydrocyanic gas, methyl bromide, and chloropicrin. All fumigants are highly toxic to man, and it is necessary to apply them according to instructions on their containers.

Protect Stock from Small Metal Objects, Veterinarian Urges

From time to time dairymen should check on foreign objects around the dairy cow's

feed trough and on stall ledges as well as other handy places, states Dr. C. H. McElroy, Oklahoma A. & M. College veterinarian. Cows have been known to swallow horseshoe nails, pocket watches, pocket knives, bailing wire, rings, rusty nails, sections of barbed wire, and other objects dangerous to the animal's health, the veterinarian says. He cautions that all such objects should be out of reach of the farm livestock.

Foreign objects in the cow's first stomach or paunch sometimes pierce the animal's stomach wall, but more often such objects pass on to the second stomach. From there the object may penetrate the surrounding tissues and work its way toward the liver or heart. In many cases, the foreign object may damage the heart severely or even work its way into the heart and cause death.

After an animal has swallowed such an object there is little that can be done unless the diagnosis is such that an experienced veterinarian can remove the object by surgery. This is not always feasible and will not be successful at all unless a highly trained veterinarian does the work.

Cabbage Looper Control Measures

Recommendations for control of the cabbage looper are contained in the current issue of *Texas Farming and Citriculture*. The cabbage looper attacks not only cabbage, but also cauliflower, broccoli, English peas, lettuce, turnips, spinach, and other crops. This pest can be brought under control with a 5 percent DDT dust applied at 20 pounds per acre with ground machines or 30 pounds per acre with airplane dusters. As the loopers are on the underside of the leaves, the plants must be covered completely with the dust in order to obtain good results.

Angleton Bluestem Grass Withstands Drought

Angleton bluestem, an imported relative of the native bluestem prairie grasses, is becoming popular as a pasture and hay grass in central and southern Texas because of its resistance to drought, reports the Texas Extension Service. However, there has been a shortage

of seed, and farmers wanting to grow angleton bluestem usually have found it necessary to plant sprigs of the grass.

The Angleton Experiment Station reports that this type of grass has a four-year average yield of eight tons per acre. It grows in tufts of tall, leafy stems and spreads by runners 6- to 10-feet long. Experimental plots at College Station analyzed 8.7 percent protein.

Robert R. Lancaster, extension pasture specialist of Texas A. & M. College, reports that a farmer near Port Lavaca has 28 acres of this grass which, after the intense heat and drought of last summer, yielded two and one-half tons of hay per acre early last September. Another crop harvested in November yielded two tons of good hay to the acre. Reports from throughout south Texas indicate that farmers are showing increasing interest in this grass and that it may be very useful in meeting the drought problem.

TECHNOLOGICAL DEVELOPMENTS

Hay Improved by Crushing

When slow-curing hay crops such as sudan grass, Johnson grass, and soybeans have to remain in the field several days to cure, the quality is reduced because most of the color is lost, the carotene content is lowered, and the leaves begin to shatter. An attempt to meet this problem has been made in experiments with hay crushing which have been under way for a number of years at the Mississippi Agricultural Experiment Station. A machine has been developed which crushes the stems of the hay as it is cut, permitting the moisture to escape and thereby reducing the time required for field-cure. The machine is an attachment to the regular tractor mower and enables the farmer to mow and crush the hay in one process without materially slowing down the operation. Stems and leaves of the plants dry at a fairly uniform rate, resulting in a cured hay of better color, carotene content, and quality and a much higher percentage of leaves. In a test with Johnson grass the mower-crusher reduced the drying and curing time from 53 hours to 29 hours;

in another test with Sudan grass, from 76 hours to 30 hours.

ANNOUNCEMENTS

Meetings

The Wichita Falls Area Baby Beef Show will be held at the 4-H Club Calf Barn, Wichita Falls, on February 23-25.

The 1949 Amarillo Fat Stock Show will take place March 1-4.

The San Angelo Fat Stock Show and Rodeo will be held March 3-6.

The Sand Hills Hereford Show is scheduled for March 9-12 at the Show Barns in Odessa, Texas.

The Annual Meeting of Texas Flying Farmers will convene at Texas A. & I. College, Kingsville, March 17-19.

Publications

Texas Agricultural Experiment Station, College Station, Texas:

Drying Rice in Sacks, Progress Report 1138, by J. W. Sorenson, Jr., William C. Davis, and J. P. Hollingsworth.

Peach Varieties for the West Cross Timbers, Progress Report 1143, by Tom E. Denman.

Fertilizer Requirements for Rice of the Gulf Coast Prairie of Texas, 1947-48, Progress Report 1144, by R. H. Wyche, R. L. Cheaney, and W. F. Turner.

Oklahoma Agricultural Experiment Station, Stillwater, Oklahoma:

A Forest Industries Survey of Oklahoma, Bulletin No. B-325, by Ed. R. Linn.

Fertilizer Recommendations for Oklahoma Crops, Bulletin No. B-326, by H. J. Harper and others.

Irrigation for Oklahoma, Circular No. C-131, by H. B. Cordner and others.

Copies of these publications may be secured by request to their respective publishers.