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GOATS CONTROL REGROWTH OF BRUSH

Much of the rangeland in Texas has been infested by noxious brush, trees, and other plants which have reduced its carrying capacity. Ranchmen in the Grand Prairie area of the State have found Angora goats an effective and profitable way to control regrowth of brush on recently cleared pasture, according to a study by A. C. Magee of the Texas Agricultural Experiment Station.

Bulldozing and cabling or chaining are the two methods commonly used for mechanical eradication of noxious plants. Bulldozing is fairly effective in clearing land of above-ground growth, although there is considerable sprouting of regrowth afterwards, particularly of oaks. Cabling or chaining is an economical and effective method of clearing large trees; but small trees and brush often bend without breaking or without being uprooted, and hand work usually is needed to clear remaining underbrush. When cabling or chaining is used, there also is a large amount of sprouting and regrowth from roots left in the ground.

Since land clearing is a relatively expensive operation, an economical and effective means of controlling regrowth is needed. Information on the costs of brush removal and control was obtained from 15 ranchers in the Grand Prairie area of Texas from 1950 to 1955. The average cost for bulldozing on the 15 ranches was \$8.37 an acre, and that for cabling or chaining was \$5 per acre. All 15 of the ranchmen kept cattle, but none had goats before starting on a brush-control program.

On 11 of the 15 ranches studied by Professor Magee, Angora goats were used on the cleared pastures to control regrowth.

Browse from woody plants furnished forage for the goats. Sprouts were eaten soon after they emerged, since the newly cleared areas were heavily stocked with goats. Such close grazing tends to weaken the roots of the undesirable brush.

On the 11 ranches adding the goat enterprise after land clearing, goats did not replace cattle but were kept to utilize browse and did not compete greatly with the cattle for grass. The addition of the goat enterprise on the 11 ranches — on the basis of six goats equaling one animal unit — more than doubled the average number of animal units maintained.

Four of the ranches studied did not add goats to control regrowth. On these ranches, cattle ate limited amounts of tender browse but did not keep sprouting and regrowth under control. Reinvansion of undesirable brush was becoming a problem toward the end of the 6-year period covered by the Texas Experiment Station study.

The total investment in land clearing by the four ranchers who did not add goats averaged \$1,405 per ranch, exclusive of \$214 reimbursed under the cost-sharing Agricultural Conservation Program. All of the ranchers' investment over a 3-year period was for the mechanical clearing of underbrush.

For the 11 ranches which used the goats for control of regrowth, the total added investment for clearing, fencing, and shelters and for the purchase of goats averaged \$6,582 per ranch during the 6-year period. Over half of this investment was made during the first year, primarily as a result of the purchase of goats and other costs coincident with starting the enterprise.

The cost of mechanical clearing on ranches using goats averaged \$2,809 per ranch, exclusive of \$1,063 received by the ranchers under the cost-sharing Agricultural Conservation Program. The increased investment per ranch for land clearing for ranches using goats, as compared with ranches which did not add goats, resulted from the larger amount of acreage cleared and higher per acre clearing costs.

An average of 4.4 miles of goat-proof fence, at an average cost of \$1,192, was needed for each ranch adding the goat enterprise. Although shed space was available on some ranches, the cost of additional goat shelter per ranch was \$300. An average of 359 goats per ranch was purchased by the 11 ranches. Except for land-clearing costs, this was the largest single investment expense incurred, averaging about \$2,281.

Within 5 years, income from the goat enterprise through the sale of mohair and goats repaid the additional investment needed for the original purchase of goats, the added fencing and shelter, and the annual expenses incurred in maintaining the enterprise. Furthermore, the earnings from the goats during this period were almost large enough to pay for the ranchers' cost of clearing the pasture land. As a result of the addition of kids raised on the ranch, the average size of the goat flock studied was increased to 463 head, and the value of the goats averaged \$2,579 per ranch.

High-Efficiency Turkey Rations

Turkey producers soon may be using high-efficiency turkey starter rations if tests continue producing outstanding results, according to the Oklahoma Agricultural Experiment Station at Stillwater.

In studies conducted at the Oklahoma station, a 13-percent increase in body weight and a 30-percent decrease in the amount of feed required per pound of body weight have been achieved in an 8-week turkey nutritional trial.

At 18 weeks of age, control turkeys weighed an average of 12.7 pounds and required 2.8 pounds of feed per pound of gain, while experimental birds averaged 13.5 pounds and required only 2 pounds of feed per pound of gain. Rations supplemented with amino acids gave the best results. Additional research is necessary before the high-efficiency poultry rations can be recommended for practical usage.

Rats destroy as much food as is produced on one out of every 25 farms, according to Louisiana State University specialists. In addition, they contaminate food, destroy property, start fires, and carry disease germs on their feet and fur. Diseases carried by rats have killed more human beings than all the wars in history. Rats and mice should be killed with modern, effective poisons that will not endanger human beings, pets, or other animals.

Multiple Management Profitable for East Texas Forest Rangeland

"Multiple management" is the key to profitable use of forest rangeland in the east Texas timber area, asserts G. O. Hoffman, range specialist with the Texas Agricultural Extension Service. He points out that a threefold program for developing maximum production of timber, livestock, and wildlife definitely will pay big dividends in this 10 million-acre section of the State.

Mr. Hoffman says that the east Texas farmer should consider the three enterprises as interdependent and should use management practices with this in mind. Timber is the most important enterprise since east Texas trees produce more total income than either livestock or wildlife. The problem is how to attain higher, more efficient timber output.

The specialist points out that properly managed cattle grazing is a partial answer. The cattle will eat the grass, thereby reducing fire hazards; and under good manage-

ment practices, goats will consume practically all of the small green brush. With a well-manged timber and livestock program, wildlife has a much better natural environment.

Millions of young pines in east Texas are being crowded out by worthless hardwoods and brush. Mr. Hoffman makes the following recommendations for starting a multiple management program in the area.

1. Step up pine seedling and grass growth through chemical control of brush and hardwood.
2. Use properly supervised stand thinning, improvement cuttings, and prescribed burning.
3. Plan forest range grazing for spring and early summer, when grass is most nutritious.
4. Control livestock parasites and follow a sound breeding program, so that calving coincides with best grass growth.

Systemic Insecticide for Cattle-Grub Control

Extensive experiments during the past 3 years by Federal, state, and industry entomologists, chemists, and veterinarians have shown that ET-57, a systemic insecticide, is an effective means of controlling cattle grubs, according to the United States Department of Agriculture. These pests cause annual losses which frequently exceed \$100 million in damaged meat and perforated animal hides.

ET-57 is administered to cattle orally in the form of a large pill or as a liquid by the use of a dose syringe. It circulates with the body fluids of a treated animal and destroys the grubs that have burrowed into the flesh. ET-57 is the first systemic insecticide which has proved capable of destroying grubs in an animal's body.

Cattlemen are cautioned to use ET-57 strictly according to the dosages, methods,

and precautions recommended on the package label. Treatments must not be made later than 60 days before slaughter of the animals, and lactating cows should not be treated in order to avoid residues of the pesticide in the milk. The USDA recommends that the compound be administered to cattle after the adult heel-fly season ends but before the grubs appear on the backs of the animals. Treated cattle should have free access to regular feed and water.

Storing Farmers' Stock Peanuts



Results of studies conducted during the past 5 years indicate that losses due to deterioration of peanuts stored (under ordinary warehouse conditions) for more than 6 months after harvest are greater than any gains in prices received for the nuts, according to the United States Department of Agriculture. Different types of peanuts and storage sites representative of the varying climatic conditions were used in the research.

The study showed that, as the length of storage increased, there was a decrease in the proportion of sound, mature kernels, particularly after the peanuts had been in storage for 6 months or longer. The quality of the nuts remained about the same during the first few months of storage.

Save Good Cotton Planting Seed!

Good cotton planting seed with high germination may be scarce next spring as a result of late plantings in 1957 and the wet weather during the harvest season, according to Fred C. Elliott, Extension cotton specialist with the Texas Agricultural Extension Service.

Mr. Elliott advises cotton growers to save and store carefully good-quality seed of known varieties and to maintain a continuous check on the stored seed. The special-

ist makes the following suggestions for handling the cottonseed.

1. Check seed closely for damage before storing, and store only seed with high germination (80 percent is very good) and with low free-fatty acid content.

2. Cure large quantities of bulk-stored seed by aeration, in order to maintain quality. A portable fan and duct system can be used to draw air through the seed. Every effort should be made to bring the moisture content of stored seed down to 10 or 11 percent. Drawing air through the seed must be done in daylight hours (preferably between 10:00 a.m. and 4:00 p.m.) and only in fair weather.

3. Run a germination test on cottonseed before planting to determine how much seed to plant. No germination test should be made until the seed has been in storage for at least 30 days.

4. Contact the local county agricultural agent for more details on cottonseed storage problems.

Percent Protein in Pig Rations



Trials at the Oklahoma Agricultural Experiment Station have shown that a slight difference in the percentage of protein in a swine ration goes a long way toward determining the margin of profit from pigs. The tests compared the performance of two groups of pigs fed different levels of protein as the animals progressed in weight from 50 pounds to 200 pounds.

One group of pigs was given a 16 percent crude protein ration when they weighed from 50 pounds up to 150 pounds and a 14 percent ration when they weighed 150 to 200 pounds. The other group received a 14 percent protein ration when the pigs weighed from 50 to 100 pounds and a 12 percent ration when they weighed 100 to 200 pounds.

At the end of the trials, the pigs on the "high-protein" ration had gained an average of 1.57 pounds per day, and the other group had gained an average of only 1.37 pounds per day. Pigs on the "low-protein" ration consumed 73 pounds more feed than the other group. Feed costs for the test period averaged \$15.45 per pig for the animals on the high-protein ration and \$17.70 per pig for those on the low-protein ration.

Shirts continued to be cotton's best customer during 1956. Sheets and drapery and upholstery fabrics ranked a close second.

Grain Aeration Cuts Maintenance Costs

The use of recently developed aeration systems can result in a savings of 60 percent of the normal costs of turning stored grain, according to the United States Department of Agriculture. Preliminary findings on methods of moving air through stored grain indicate that motor-driven aeration systems maintain grain quality at a considerably lower cost than moving the grain through the air on conveyers.

The new aeration system performs the following functions equally as well as and at less cost than moving the grain through the air: prevents mold growth and insect activity, equalizes grain temperatures, prevents moisture movement and accumulation, and removes odors.

According to the report, the total annual cost of turning grain ranges from 1 cent to 3 cents per bushel, while aeration costs average less than 1 cent per bushel. Costs of installing aeration systems range from 1 cent to 5 cents per bushel of capacity, depending upon the size of the storage, type of system, and other factors.

The *Agricultural News Letter* is prepared in the Research Department under the direction of J. Z. ROWE, Agricultural Economist.