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COSTS OF ROOTPLOWING AND SEEDING RANGELANDS — TEXAS RIO GRANDE PLAIN

The invasion by woody plant species of more than 15 million acres of rangelands in the Rio Grande Plain of Texas has decreased forage production to such an extent that many ranchmen have bought additional rangeland or invested in range improvement in order to maintain or increase family incomes.

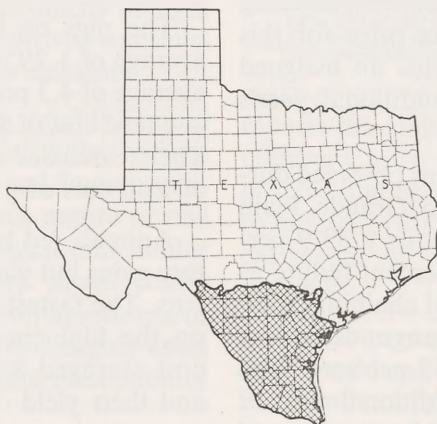
According to Calvin C. Boykin, Jr., formerly with the Texas Agricultural Experiment Station, rootplowing and seeding, in the same operation, with blue panic and buffel grasses have resulted, in many instances, in excellent brush kill (especially mesquite) and in successful grass stands.

The cost of this method of range improvement was determined on the basis of personal interviews with 29 ranchmen in Frio, LaSalle, McMullen, and Medina Counties, together with information obtained from other sources. These counties are representative of most of the range areas in the Rio Grande Plain.

The size of the ranches in the Texas A. & M. College study ranged from 163 acres to more than 18,000 acres and averaged 2,010 acres. The total area rootplowed and seeded per ranch ranged from 10 acres to almost 1,200 acres, with an average of 241 acres. As much as 40 percent of the total acreage on some of the

smaller ranches was treated, while only 3 to 5 percent of the total acreage was treated on some of the larger ranches. Nearly all of the ranches were owner-operated and had a cow-calf system of livestock management.

A common sequence of the range improvement operation was to (1) chain the brush, (2) rootplow and seed, and (3) defer grazing on the treatment area. Although the chaining operation was often eliminated, over half of the ranchers interviewed indicated their ranges had been chained before rootplowing and seeding.



Chaining involves the dragging of a large anchor chain over the area between two large crawler-type tractors. The chain uproots or breaks the large brush. A rootplow is a horizontal V-shaped blade, with attached fins, mounted on or

pulled by a large crawler-type tractor. The blade cuts a 12-foot swath 10 to 20 inches below the surface of the soil. Seeder boxes are mounted on the rootplow, and the seed are broadcast by the tractor exhaust.

In most cases, these operations were contracted by local equipment operators. The most frequent contract prices quoted were \$3 per acre for chaining and \$10 per acre for rootplowing and seeding. The time required and

resulting costs varied according to the range site treated, density and types of brush, acreage in the treatment area, and the distance the machinery had to be moved for use. Treatment dates ranged from early spring to late summer, but March-May is the period generally recommended for obtaining the best results from reseeding.

Deferment of grazing on the treated area for at least 1 year has long been advocated by range technicians and others to increase the chances of obtaining adequate grass stands. This period of nonuse represents an immediate cost to the ranchman since he foregoes the opportunity to add to his income from grazing the range during this time. Thus, a cost approximating the lease value of the land for the period must be included. The assigned cost for nonuse of the land for 1 year in the Texas A. & M. College study was \$1 per acre.

In cases of failure to obtain adequate grass stands, re-treatment by use of a rootrake and attached grass seeder is becoming widespread. The rootrake pulls out much of the remaining brush and prepares the land for the reseeding operation. A common contract price for this operation was \$6 per acre, plus an assigned cost of \$1 per acre for an additional year's deferment.

Of the 490 contract operations observed during 1953-58 in the Texas Rio Grande Plain area, 166 grass stands resulted, or a 33.9 percent success. Using the 66.1 percent failure as a risk factor, the average cost of chaining, rootplowing and seeding, and range deferment would be approximately \$18.63 per acre. This figure does not include any additional costs of fencing, water facilities, grubbing, and weed control. Many of the ranchmen interviewed received cost-sharing assistance, through the agricultural conservation program, of up to 50 percent of the cost of the treatment.

Most of the ranchmen reported gains in the livestock carrying capacity on acreages that were treated successfully. Among other benefits were increases in calf weights, fewer insects, and reduced handling costs. On many acreages where the reseeded species of blue panic and buffel grasses failed to make adequate stands, a better cover of native grasses resulted.

Corn-and-Cob Meal for Lean Pork

Pigs fed experimentally on corn-and-cob meal made from whole ears of corn produced higher percentages of lean cuts of pork at lower feed costs per pound of animal gain than did pigs fed a normal corn ration, according to United States Department of Agriculture scientists.

In the experiments, 42 weanling pigs were fed a high-energy diet until they reached a weight of about 125 pounds. They were then given high-fiber, low-energy rations as a possible means of producing lean pork more economically.

Five groups of pigs were fed different high-fiber, low-energy rations: corn-and-cob meal, barley, oats, wheat bran, or alfalfa. For comparison purposes, a sixth group remained on the high-energy diet. All fiber-containing rations were essentially equal in protein, total digestible nutrients, and fiber content. The pigs were slaughtered when they reached weights of approximately 210 pounds.

The pigs on corn-and-cob meal gained an average of 1.29 pounds daily and consumed an average of 4.3 pounds of feed per pound of gain—a feed cost of \$10.15 per 100 pounds of gain. Their carcasses yielded more than 54 percent of lean cuts of pork.

Animals fed barley also made very satisfactory gains but yielded only 52.5 percent of lean cuts. The fastest gaining pigs were the animals on the high-energy diet; however, their feed cost averaged \$10.52 per 100 pounds of gain, and their yield of lean cuts averaged only 51 percent.

Studies indicate that corn-and-cob meal promises to be an economical and useful source of fiber for hog feed, but further research is needed to determine its long-term effectiveness.

"Nectaryless" Cotton Discourages Insects

Better control of several cotton insects may result from the development of cotton varieties with reduced ability to produce nectar, reports the United States Department of Agriculture.

Experiments with several selections of cotton bred especially to reduce the number of nectar glands in the plants indicate that such plants support much smaller populations of pink bollworms, cotton leaf worms, and cabbage loopers than do present commercial cotton varieties. In one insect-feeding test, there were 7 to 10 times as many leaf worms and loopers on Empire cotton — a popular commercial variety — as on one of the new selections. In another test, there were twice as many pink bollworms on Empire cotton as on the research-developed selection.

Several acres of the new “nectaryless” cottons are being grown at Brownsville, Texas, to test their effectiveness against free-moving insect populations under ordinary growing conditions.

Poultry Cancer Contagious

Recent research by United States Department of Agriculture scientists provides a new insight into the behavior of poultry cancer that may aid in the battle against other types of animal and human cancer. Rous sarcoma, a virus-caused poultry cancer previously thought to be noncontagious, has been proved transmissible by direct contact between chickens.

The USDA poultry studies establish more firmly the belief of many scientists that viruses cause some forms of animal and human cancers. By showing the contagious nature of one of these viruses, the studies suggest that similar virus-caused cancers also may prove contagious. Indications are that the contagiousness of a virus-caused disease may depend largely upon the virulence of the virus and the susceptibility of the host.

Trends in Meat Consumption

One-fourth of the money spent by United States households for food used at home is for meat, and almost one-third of the total cash receipts from farming is derived from the sale of meat animals, points out the United States Department of Agriculture in a bulletin entitled *Meat Consumption Trends and Patterns*.

Per capita meat consumption today is about the same as it was 50 years ago but is much higher than in the mid-1930's, according to the

report. Meat consumption has increased since the 1930's concurrently with the rising consumption of dairy products, eggs, poultry, and processed fruits and vegetables.

During the past quarter century, meat supplies in the United States increased faster than the population. Greater purchasing power resulted in increased meat buying. The meat-packing industry is one of the major food-manufacturing industries in this country, ranking second only to bakeries in the number of employees and third in the value added by manufacture.

A copy of *Meat Consumption Trends and Patterns*, Agriculture Handbook 187, may be obtained from the Office of Information, United States Department of Agriculture, Washington 25, D. C.

Crown Rust-Resistant Oats?



Superior disease resistance in a type of wild oat and a “lucky break” in genetics have brightened the prospect for development of oat varieties resistant to crown rust, reports the United States Department of Agriculture. Crown rust is the most serious disease of oats, and breeding of new varieties resistant to different rust races has been the only practical means of preventing disastrous losses to growers.

The source of the crown rust resistance is Saia, a wild oat variety that resists the attack of the new rust races from the seedling stage through maturity. Saia also resists stem rust and smut — other fungus diseases of oats.

Experiments by Drs. K. Sadanaga and Marr D. Simons of the USDA's Agricultural Research Service, in cooperation with the Iowa Agricultural Experiment Station, have resulted in the difficult transfer of a desirable characteristic of the wild oat Saia to a cultivated species.

Aberdeen 101, the genetic lucky break, resulted from a cross between Saia and an oat containing a different number of chromosomes. The original cross was made only to test the

possibility of crossing oats with different chromosome counts. In the third generation of this cross, a trick of nature occurred, when one fully fertile plant was found which contained Saia's resistance to crown rust. The chance of obtaining this resistance, in addition to full fertility, in the third generation was so remote that it was thought virtually impossible, according to plant scientists.

Texas Third in Tree Farm Numbers

With 1,339 certified Tree Farms, Texas ranks third in the Nation in the number of these farms, points out William A. Smith, Extension Forestry Specialist with the Texas Agricultural Extension Service. Mississippi is the leading Tree Farm state, and Alabama is second.

A Tree Farm is a privately owned, tax-paying woodland dedicated to continuing the growth of forest crops for man's use. The words "Tree Farm" mean that the owner is recognized for performing a good job of woodland management.

Texas ranks sixth in terms of Tree Farm area, with over 3.7 million acres devoted to the production of timber and other forest crops. There are still over 60,000 timberland owners, with approximately 8.8 million acres, in the piney woods of east Texas who could improve their woodlands and become tree farmers, according to Mr. Smith. Most of these lands are growing less than one-third of the timber they are capable of producing.

In order to receive certification of their Tree Farms, timberland owners must perform certain practices to maintain high rates of timber growth and quality, as well as to protect the land. These practices include protecting the woodlands from wildfire, insects, disease, and destructive grazing; harvesting trees when they are mature or ready for thinning; and planting tree seedlings on idle acres.

Piney woods landowners may obtain information on how they can become members of the Texas Tree Farm Program from county agricultural agents, Texas Forest Service district foresters, or foresters employed by the wood-using industry in east Texas.

Improved Pastures for Year-round Grazing

Improved pastures in southeastern Oklahoma offer important advantages over native grass for management and feeding of beef cattle, according to the Oklahoma Agricultural Experiment Station. One of the major advantages of improved pastures is their ability to carry animals through the winter with a minimum of supplemental feed. In 3-year trials at Coalgate, Oklahoma, improved pastures produced twice as much beef per acre annually as did unimproved native grass.

Each pasture in the study was 150 acres in size. The improved pasture contained 65 acres of Bermuda grass-legume mixture and 40 acres of fescue, brome grass, alfalfa, and white and ladino clover. Thirty steers were grazed on the native grass pasture, while 64 were placed on the improved pasture.

At the time of establishment, the improved pasture received 2 tons of lime per acre and 150 pounds of a complete fertilizer per acre. Each year thereafter, the cool-season grass-legume pasture received 400 to 500 pounds of a complete fertilizer per acre. The Bermuda grass-legume pasture received 100 to 200 pounds of a complete fertilizer per acre annually.

Beef gains from the improved pasture averaged 112 pounds per acre annually, while those from native grass pasture averaged only 50 pounds an acre per year. A further benefit from the improved pasture was an average of 107 tons of hay harvested annually. No hay was harvested from the native grass pasture. During the winter months, steers grazing native grass pasture consumed an average of 228 pounds of cottonseed cake and about 1 ton of prairie hay per head. The steers on improved pasture consumed no cake and less than three-fourths of a ton of hay per head annually. The hay fed this group was cut from the improved pasture that the steers grazed.

Farmers who plant second-generation hybrid seed corn from their cribs may lose from 20 percent to 30 percent in corn yields, points out A. G. Killgore, Agronomy Specialist with the Louisiana Agricultural Extension Service.