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INCOME POSSIBILITIES FROM IRRIGATED CASTOR BEANS — TEXAS HIGH PLAINS

Farmers in the Texas High Plains, like those in many other areas, continue to search for profitable new uses for their land and other farm resources. In recent years, there has been a growing interest in the production of irrigated castor beans, according to William F. Hughes and A. C. Magee, Agricultural Economists with the United States Department of Agriculture and the Texas Agricultural Experiment Station, respectively.

The economists made a study (1) to obtain information on yields of castor beans and the labor, power, and materials used in their production and (2) to compare the returns from castor beans with those from grain sorghums and cotton.

Among the factors contributing to an increase in castor-bean production are the recent introduction of high-yielding dwarf castor-bean varieties which are well adapted to irrigation, the development of an efficient harvester-huller, and interest on the part of commercial processors. The acreage of irrigated castor beans on the Texas High Plains rose from approximately 2,000 acres in 1957 to about 20,000 acres in 1960. Production is concentrated mainly in southern Swisher, northeastern Floyd, and northern Hale Counties.

Data on production practices, materials, and services used in castor-bean output, together with yield information, were secured from 17 growers in 1960. The size of their farms ranged from about 200 acres to 1,200 acres and averaged 524 acres. The average percentage dis-

tribution of cropland on these farms was: castor beans, 37 percent; cotton, 27 percent; grain sorghums, 23 percent; wheat, 10 percent; and other crops and fallow land, 3 percent. In general, castor beans have replaced grain sorghums on the farms included in the study. The growers planted about 3,300 acres of castor beans in 1960, or nearly 200 acres per farm and about one-sixth of the estimated total acreage seeded on the High Plains.

Land preparation and planting practices for castor beans are essentially the same as those for cotton. However, castor beans grow somewhat faster than cotton and require only three cultivations, contrasted with five for cotton. Castor beans require less hand labor for weed control than cotton but considerably more hand labor than grain sorghums. There is no particular competition for labor between grain sorghums and castor beans. The crops are planted, cultivated, and harvested at different times.

Nitrogen was the only fertilizer used on castor beans in the High Plains study. Substantially more nitrogen was used per acre on irrigated castor beans than ordinarily is used on cotton and grain sorghums in the area.

The number and frequency of irrigations and the quantity of water used on the castor beans were approximately the same as for high-yielding grain sorghums. As is the case with all irrigated crops, seasonal rainfall affects the number of times castor beans are irrigated. The farmers reported that castor beans generally received two more irrigations than cotton. In-

sect control costs for castor beans were much lower than those for cotton but were higher than such costs for grain sorghums.

The 1959 castor-bean yields on the farms in the study ranged from 1,200 pounds to 2,005 pounds per acre and averaged 1,687 pounds of clean castor beans per acre. *Alternaria* leaf spot damage was present in all fields where per acre yields were 1,500 pounds or less. Although yields approaching 3,000 pounds an acre have been reported on some farms, authorities believe that a per acre yield of 2,000 pounds of clean castor beans represents a reasonably attainable yield for irrigated castor beans in the High Plains, according to Messrs. Hughes and Magee.

On the basis of the costs, prices, and yields reported in the Texas A. & M. study, it is estimated that per acre returns on irrigated castor beans were \$30 less than for cotton but were \$21 more than for grain sorghums.

Neither castor beans nor grain sorghums require special equipment, other than harvesting machinery. Much of the harvesting of both crops is performed on a custom basis. Consequently, the relative profitability of the two crops on an individual farm depends largely on yields and prices.

Parent Seed Stock of New Hybrid Spinach Released

Parent seed stock of Savoy Hybrid 612, a new hybrid spinach with resistance to both blight and blue-mold disease, has been released by the United States Department of Agriculture and the Arkansas and Texas Agricultural Experiment Stations. The new hybrid has been developed for fall and winter spinach production and is well adapted for machine harvesting because of its upright growth. The variety has dark-green leaves and develops rapidly. Limited quantities of Savoy Hybrid 612 will be available to growers this fall.

Rust Control for Southwest Cotton

Rust on cotton in the far Southwest can be controlled with zineb fungicide if the chemical is applied before the plants become infected with this fungus disease, according to plant

pathologists with the United States Department of Agriculture and the Arizona Agricultural Experiment Station.

A zineb spray, consisting of 2 pounds of fungicide in 40 gallons of water per acre, should be applied in early July, before the rainy season starts, and should be used at 10- to 12-day intervals until mid-August. The plant pathologists report that, once the rust is established on cotton plants, zineb will neither eradicate the rust fungus nor alter its normal development.

The frequency of destructive rust outbreaks on cotton in the Southwest has increased since 1950, along with the expansion of cotton production on land newly brought into cultivation. When the fungus disease becomes severe, cotton yields may be reduced as much as 25 to 30 percent.

Cotton rust spores infect and overwinter in grama grass which grows on rangelands adjacent to new cotton-producing areas. Rainy weather in July and August creates moist conditions favoring release of rust spores that infect nearby cotton.

Fertilizers Do Affect Cotton Diseases

When properly applied in the correct amounts, fertilizer nutrients reduce losses from cotton diseases, says Harlan E. Smith, Plant Pathologist with the Texas Agricultural Extension Service.

Adequate quantities of available potassium help prevent *Fusarium* wilt and *Verticillium* wilt. Excessive use of nitrogen should be avoided in soils where these diseases are present. Unbalanced availability of nitrogen, phosphorus, and potash causes plants to be more susceptible to attack by disease organisms. Moreover, unbalanced fertility created by improper application of fertilizer can lead to disease losses which will nullify fertilizer benefits. Boll rots may be more severe when excessive nitrogen causes tall, rank cotton.

Cotton plants utilize fertilizer much more effectively when they are free of seedling diseases and nematodes, according to the plant pathologist. High fertilizer rates generally should be lowered somewhat once seedling diseases and nematodes are under control.

Mr. Smith says that a sound fertilizer program must be based on many factors, including the possibility of plant damage by cotton diseases. Cotton fields should be checked, at regular intervals, for disease damage. Although relatively little can be done to control diseases after the crop is planted, the farmers should know the diseases that are likely to cause losses, in order to plan the best preventive control program for next year's cotton. Deep plowing during hot, dry weather will reduce root rot, root knot, nematodes, bacterial blight, *Ascochyta* blight, and seedling disease.

The proper use of measures to control cotton disease tends to result in healthier plants, and healthier plants make better use of soil fertilizer nutrients. Therefore, farmers should fertilize for yield, quality, and disease control to realize greater profits from the use of fertilizer, according to Mr. Smith.

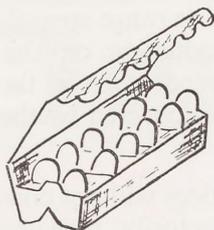
Select Fence Posts with Care

A mile of good fence costs about \$500, according to Bill Smith, Extension Forester with the Texas Agricultural Extension Service. Since they are a major item in this investment, fence posts should be selected with care. Commercial pressure-treated pine posts are a sound investment, because they give superior service at the lowest cost per year of effective fence life.

Mr. Smith points out that some landowners may lower their fencing costs by home treatment of pine fence posts obtained from their own timberlands when trees are thinned out. Pentachlorophenol is the recommended preservative for home treatment of fence posts. The chemical may be mixed with fuel oil to prepare the solution in which the posts are soaked. This method, known as cold-soaking, can be used satisfactorily only on pine.

Some woods — such as cedar, mulberry, bois d'arc, and locust — are naturally durable and do not require treatment. The heartwood, or generally darker-colored center, is the durable portion of these woods. The sapwood, or lighter-colored portion, is not durable and will decay readily. The forester emphasizes that untreated posts must have a high percentage of heartwood in order to be a good investment.

Egg Production Becoming Big Business



Commercial egg production is no longer a backyard operation, according to the Texas Agricultural Extension Service. More and more, commercial egg production in Texas, as well as in the rest of the Nation, is taking on the aspects of big business. One of these assumed traits is the vertical integration of the enterprise.

Four of the more important arrangements in the vertically integrated Texas egg industry are the open account, flat fee, guaranteed price, and share plan. Under the open account plan, the contracting agent usually is a feed dealer. He provides a substantial part of the financial requirements on "open account." The producer furnishes the land, buildings, most of the equipment, and all of the labor. In addition, he makes most managerial decisions and assumes all of the risk.

The flat fee plan is much more formal than the open account. Under this plan, the contractor owns the birds and provides all supplies and services. The producer furnishes the land, buildings, equipment, and labor. His pay is based on the number of eggs produced.

In the guaranteed-price plan, the contracting agent agrees to pay the producer a minimum price for Grade A or better quality eggs or for a specified quality related to a particular market quotation. In this type of operation, the producer provides everything necessary for the egg production enterprise and makes all managerial decisions.

The share plan is actually a partnership, according to the Texas Agricultural Extension Service. Both the contractor and the producer share in the costs, making of managerial decisions, and risk-bearing.

Macartney Rose Can Be Controlled

The Macartney rose is an introduced plant species that has become a pest, according to the Texas Agricultural Extension Service. This

rose, which was introduced from China for use as a hedge fence, is found on approximately 400,000 acres of fertile land in east Texas and on the Gulf Coast. Extension range specialists report that livestock production on this acreage is substantially reduced because the animals cannot graze the grass covered by the thorny canes.

Although mechanical practices will not control the Macartney rose satisfactorily, repeated annual applications of chemicals are effective. The spray solution recommended is 4 pounds of 2,4-D amine mixed in 100 gallons of water, with 2 to 8 ounces of liquid laundry detergent added as a spreader-sticker. Early spring or fall is the best time to spray.

The chemical solution must be applied when the wind velocity is less than 10 miles per hour and before cotton is planted or after it is harvested, in order to avoid possible damage to nearby crops. Grazing should be deferred on treated areas until native grasses have re-established themselves.

High-Moisture Grain for Better Livestock Gain

In a test conducted by the Texas Agricultural Experiment Station, steers fed sorghum grain with a high moisture content made better gains than those fed dry grain of the same quality. The animals fed the wet ground grain with 23 percent moisture made gains of 2.42 pounds per day, compared with gains of only 2.29 pounds for steers fed dry grain.

The test also showed that unground grain sorghums with 23 percent moisture do not produce as high gains as either ground grain containing 23 percent moisture or ground dry grain. The sorghum grain, RS 610, was harvested successfully, with a standard self-propelled combine, at an average moisture level of 25 percent to 30 percent. The moist grain was then stored without spoilage or loss in an airtight, glass-lined silo.

Steers fed the moist grain required 18 percent less dry matter from the grain and 12 percent less total dry matter per 100 pounds of gain than animals fed ground dry grain. Both types of ground grain were palatable, and consump-

tion by the livestock was essentially the same. No difficulty was encountered in grinding the grain or in keeping the steers on feed. Additional tests are being run to determine if cattle consistently will perform more efficiently on high-moisture sorghum grain.

The selling price was the same for both groups of steers fed ground grain, and the dressing percentages and carcass grades did not differ significantly. However, a profit of \$18.86 per head was made on the steers fed moist grain, contrasted with a profit of only \$8.78 per head for the animals fed dry grain.

Ranchmen Alerted on Poisonous Plant Spread

Ranchmen in the western half of Texas are advised to be on the alert for threadleaf, or wooly groundsel — a plant invader which is spreading. According to G. O. Hoffman, Range Specialist with the Texas Agricultural Extension Service, when the gray-green, yellow-flowered plant is about 18 inches tall, the flowers are too developed for effective chemical control since the seed would mature after the chemical application.

The plant, a member of the Senecio family, is especially toxic to cattle. The Senecios contain an alkaloid poison which causes abnormal births, and sometimes abortions, in cattle. Heifers with their first calves usually are the heaviest grazers of the plant. Mr. Hoffman suggests moving the animals to a pasture that is free of the poisonous plants.

If the infestation is light, a sharpshooter shovel or a grubbing hoe can be used to dig up the plants. They should be hauled immediately from the pasture, stacked, and burned in order to kill the seed.

A well-lighted yard and walkway are desirable for accident prevention and convenience. One or two yard lights located near the driveway or on the corner of the house will provide illumination for the entire area and will help provide nighttime security, says W. S. Allen, Extension Agricultural Engineer with the Texas Agricultural Extension Service.