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TRENDS IN CITRUS FRUIT PRODUCTION

Production of citrus fruits in the United States nearly tripled from the 1935-36 season to the 1956-57 season, rising from about 3 million tons to a high of 8.3 million tons. Although outturn has been reduced by unfavorable weather in recent years, citrus fruit production totaled 8 million tons in 1959-60 and is expected to reach new highs in the 1960's, according to the Agricultural Marketing Service.

The Southwest accounted for about 7 percent of the 1959-60 national output of citrus fruits. Among southwestern states, Texas was the leading producer, accounting for more than one-half of the region's output; Arizona, with about 40 percent of the outturn, ranked second. Grapefruit comprised about four-fifths of the total citrus fruit production in the Southwest.

Between 1935 and 1960, national production of the more important citrus fruits — oranges, grapefruit, lemons, tangerines, tangelos, and limes — trended upward, with most of the gains occurring in the first half of the period. Oranges, the leader in volume of citrus fruits produced, have shown the sharpest advances. Production of grapefruit, which ranks second in volume, also increased sharply until the late 1940's. Subsequently, outturn declined abruptly to the level of the early 1940's as a result of freeze damage to fruit and trees in Texas. Since 1935, national output of lemons and tangerines has more than doubled, with most of the increases occurring in the first half of the period.

From 1935-36 to 1944-45, California led in the output of oranges. Since the latter season, however, California production has declined, mainly because of the removal of orange groves to make way for urban and industrial expansion, airfields, highways, and the like.

Orange production in Florida trended sharply upward from 1935-36 to 1953-54 but has not changed substantially since. Outturn in Florida surpassed that in California in 1945-46 and, in recent years, has been about two to three times the California figure.

The 1959-60 orange crop in the United States amounted to about 127 million boxes — the equivalent of 5.5 million tons. Of this tonnage, Florida produced 75 percent; California, 22 percent; and Texas, Arizona, and Louisiana combined, 3 percent.

In Florida — the leading grapefruit-producing state — output of grapefruit trended upward from 1935-36 to 1953-54 and then tended to decline. The reductions in recent years were due partly to the freeze of 1957-58. In Texas, which ranks second in grapefruit production, output trended upward until the freezes of 1948-49 and 1950-51 and then declined abruptly. Production has increased slowly since 1951-52 as newly planted trees have started to bear.

The 1959-60 grapefruit crop in the Nation totaled about 42 million boxes, or 1.6 million tons. Proportionate production of this crop, by state, was as follows: Florida, 75 percent;

FEDERAL RESERVE BANK OF DALLAS
DALLAS, TEXAS

Texas, 13 percent; and Arizona and California combined, 12 percent.

According to the Agricultural Marketing Service, a striking feature of the citrus industry of this country during the past quarter century was the strong upward trend in the use of citrus in processed form, such as concentrated juices and fruit segments. About 57 percent of the total citrus crop was processed in 1959-60, contrasted with only 9 percent in 1935-36. Processing accounted for the following proportions of the Nation's 1959-60 citrus crops: Oranges, 64 percent; grapefruit, 42 percent; lemons, 48 percent; tangerines, 19 percent; tangelos, 16 percent; and limes, 38 percent.

The increased use of citrus for processing since 1935-36 has been accompanied by larger packs of various types of citrus products and a rising trend in per capita consumption of processed citrus. Per capita consumption of fresh citrus increased until 1944-45 and subsequently has declined. In 1960, per capita consumption of processed citrus was about 53 pounds (fresh equivalent basis), and that of fresh citrus was about 34 pounds.

1960 Texas Cotton Crop Sharply Reduced by Diseases

Plant diseases caused an estimated $156 million reduction in the 1960 Texas cotton crop, according to Harlan Smith, Extension Plant Pathologist with the Texas Agricultural Extension Service. An estimated 1,116,000 bales of cotton never reached the market because of these diseases.

In addition to the loss to producers, businesses related to the cotton industry were also adversely affected. Diseases were a major factor in reducing grades and lowering yields.

In 1960 the major cotton diseases and the estimated losses caused by each were: Bacterial blight, 5.64 percent; root rot, 5.22 percent; seedling disease, 2.68 percent; Pseudomonas wilt, 2.10 percent; root knot, 2.04 percent; Verticillium wilt, 2.03 percent; and boll rots, 0.63 percent. Other diseases causing losses were Fusarium wilt and Ascochyta blight. Texas ranked second among cotton-producing states in percentage loss from diseases.

Mr. Smith points out that average figures do not always give a true picture because, in areas where diseases were the most severe, losses amounted to ruinous figures. For example, root rot caused an estimated 30-percent loss in the central Blacklands in 1960. Bacterial blight continues to be the most important disease, although it does not kill plants.

The plant pathologist advises cotton growers to check their fields carefully in 1961 for disease damage. He points out that it is necessary to know the diseases present in order to plan a preventive program for future years.

Increased Income from Wildlife

Texas farmers and ranchers may increase their incomes through the efficient management of the wildlife resources on their land, according to the Texas Agricultural Extension Service.

There is one important point to remember, however. All wild animals in Texas are the property of the people living in the State. Game animals — including birds, fish, and mammals (either dead or alive) — cannot be sold, but landowners may lease their land for hunting and fishing privileges.

The better the hunting or fishing, the more money people will be willing to pay for the privilege. By providing adequate food and cover for the land animals and by properly stocking and managing ponds or lakes, landowners can insure a plentiful population of game, fish, and waterfowl.

Other factors which help to determine the price of the lease are (1) the number of people to be accommodated, (2) facilities available, and (3) accessibility. Many landowners — especially those with fishing waters — have found it profitable to make additional facilities available to sportsmen. Boat and cabin rental, bait selling, and other extras can increase the landowner's income.

Another important point to remember is the matter of licenses. A person who sells hunting leases is required to purchase a shooting preserve license, and one who sells bait is required to obtain a bait dealer's license. These may be secured from the Texas Game and Fish Commission at Austin, Texas.

Hints on Protein Supplements

Feeds which supply low-cost protein and low-cost energy are of vital interest to beef producers, according to U. D. Thompson, Extension Animal Husbandman with the Texas Agricultural Extension Service. Grain is the least expensive source of energy, and protein supplements should be selected on the basis of their protein content and cost.

Mr. Thompson says that stockmen considering the purchase of a supplemental protein feed for beef cattle should study the price per 100 pounds, the percentage of crude protein supplied by the oilseed protein meals, the percentage of equivalent protein supplied by such sources as urea, and the crude fat and fiber content. Feed with higher fiber content should be less expensive than others.

Other factors are also important in choosing a supplement. Mixtures containing ingredients which limit consumption are advantageous because they save labor and distribute consumption more evenly among the herd. Mixtures of salt and cottonseed meal have been used extensively for feeding; however, water must be readily available when the livestock consume excessive amounts of salt.

The amount and quality of roughages fed may also influence selection of a supplement. Larger amounts of feed are needed when forage is limited; therefore, a feed supplement which contains both protein meal and grain may be more useful than a straight protein supplement. The possibility of vitamin deficiency also has a bearing upon the choice of feed supplements.

Mr. Thompson points out that the individual feeder must decide which supplement to feed in his particular operation, inasmuch as no one supplement fills all needs or is economical to all beef producers.

Controlling Field Mold on Sorghum Seed

Texas seedmen frequently encounter difficulty in producing mold-free hybrid sorghum seed because of high relative humidity and intermittent rainfall during the time sorghums are maturing. According to the Texas Agricultural Extension Service, moldy grain sorghum seed result in lower incomes to seed growers, since farmers and seed buyers demand bright seed. In an attempt to solve this problem, the Texas Agricultural Experiment Station made studies to determine whether fungicides could be used to produce mold-free seed.

In the studies, control plots of Combine Kafir-60 were treated with Arasan 42-S during the milk and hard-dough stages. In experiments at Prairie View in 1958, the sorghum that received 1 gallon of the fungicide per acre during the milk growth stage had less mold than did the check sample, but no differences were observed in the treated and check samples when the fungicide was applied in the hard-dough stage. The lower rates of ½ gallon and ¼ gallon did not reduce mold growth significantly at either stage of application as compared with the nontreated control plots.

On the basis of the Prairie View experiment, additional tests were made near College Station in 1959. The rates of Arasan 42-S used in these studies were ¾ gallon and 1¼ gallons per acre. Both rates applied at either the milk or the dough growth stages inhibited some mold development. Bright, natural-colored seed were obtained on the treated sorghum heads, but the untreated plants had discolored seed, with mold mycelia covering the kernels.

For further evaluation of the Arasan 42-S treatment, a cold-soil germination test was conducted to determine seedling vigor and resist-

1961 Texas Cotton Insect Control Guides

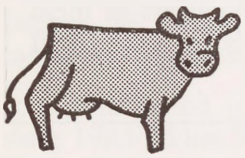
The 1961 revision of L-218, *Texas Guides for Controlling Cotton Insects,* has been released by the Texas Agricultural Extension Service. Copies of the revised leaflet are available at county agricultural agents' offices.

In addition, the 1961 edition of L-508, *Guide for Controlling Cotton Insects in the High Plains and Trans-Pecos Areas of Texas,* is available to producers in these areas. This publication is for use in boll weevil-free areas only.

ance to soil fungi. Although the percentage germination of treated and untreated seed was essentially the same for the Prairie View test, a higher percentage of seedling emergence was obtained with the treated seed at College Station.

In laboratory weathering tests, field-treated and nontreated seed deteriorated at about the same rate. On the other hand, field-treated seed receiving additional Arasan 42-S after harvest were more resistant to deterioration.

Better Dairy Cattle for the South?



Heat tolerance found in some animals of the high-producing European breeds of dairy cattle is being tested in an effort to develop cattle with superior milk-producing ability in the southern states, reports the United States Department of Agriculture. Studies by dairy husbandmen of the USDA's Agricultural Research Service and several state agricultural experiment stations in the South show that a few Jersey cows used in the experiments had as good tolerance to heat as did crosses between Jerseys and heat-tolerant Sindhi cattle from India.

The scientists are selecting such animals from European breeds to make within-breed improvements for heat tolerance. In addition, they are attempting crosses between European breeds. Hybrid vigor resulting from these crosses is being evaluated as an aid in developing dairy animals that are better suited to southern climates.

Crossing Jerseys and Sindhis produced hybrids that could withstand hot weather better than most Jerseys. However, experiments to develop these hybrids have been discontinued because the animals proved unsatisfactory for commercial herds. The crosses give less milk, are more temperamental, are slower eaters and milkers, have shorter lactation periods, and convert feed less efficiently than purebred Jerseys.

Results of the Jersey-Sindhi experiments have caused scientists to discard the belief that Sindhis and other Indian breeds are more heat tolerant because of their humps, hanging dewlaps, and loose skin coverings. These appendages provide greater skin area and were once believed to give the animals more cooling surfaces. The studies show that Sindhis withstand heat better than do European cattle because they breathe faster, take less air into their lungs, and produce less body heat.

High Temperatures Improve Cotton Quality

The strength of cotton fiber — and, consequently, its spinning quality — is improved when the temperatures at which bolls mature are kept high as a result of infrequent irrigation or wide spacing between plants and rows, according to the United States Department of Agriculture.

Experiments indicate that high boll temperatures late in the growing season result in cotton fiber of greater strength without affecting fiber thickness, length, or yield. On the other hand, fiber strength was reduced either when air around the bolls was cooled by evaporation of water from the soil or because of heavy shade from closely placed plants.

USDA irrigation experiments show that cotton plants receiving slightly restricted amounts of water during the growing season produced higher-quality fiber than those receiving optimum amounts of water. Temperatures of bolls were 7 to 8 degrees higher in plots receiving infrequent irrigation than in frequently irrigated plots. Moreover, restricted water reduced the leaf area of cotton plants so that the bolls received more direct heat from the sun.

Plant Disease Detectives Busy

Plant disease detectives are using rust trapping nurseries to discover new races of small grain rust, and their work is paying off, according to Harlan Smith, Extension Plant Pathologist with the Texas Agricultural Extension Service.

A rust trapping nursery is a small area where many varieties of oats and wheat are grown for detecting new rust races. There are 10 such nurseries in Texas and 5 in Mexico, operated by Texas A. & M. College, the United States Department of Agriculture, and Mexican state agricultural experiment stations.