

# FARM AND RANCH BULLETIN

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## COTTON VARIETY RECOMMENDATIONS FOR TEXAS

Cotton has been the leading agricultural crop in Texas for many years. The crop's adaptability has been increased by the continued efforts of plant breeders to develop varieties more specifically suited to various climatic conditions and production systems. According to the Texas Agricultural Experiment Station, new cotton varieties are continually being released as possible replacements for older, less suitable types. Several dozen cotton varieties are offered for sale in Texas, although many of them are varietal forms of certain basic types.

Performance testing of cotton varieties has been conducted by the Texas Agricultural Experiment Station for 60 years. The program has been continually improved and expanded, and variety testing is now carried on at more than 24 locations throughout the State. Measurements are made of yield, boll size, lint percentage, earliness, staple length, grade, and fiber fineness.

Consistency in varietal performance of cotton frequently is influenced by the effects of weather and location; thus, varieties can be evaluated most reliably when their performance is considered over a period of years or at several locations, or both. Three years is the minimum time in which varietal performance of cotton can be evaluated adequately in Texas, according to the Texas Agricultural Experiment Station.

Recently, the fourth in a series of 3-year summaries presented data obtained from cotton variety tests conducted in Texas during

1957-59. In previous summaries, varietal recommendations made by the Texas Agricultural Experiment Station were based mainly on test performance data, although consideration was also given to less objective factors, including plant and boll characteristics, disease tolerance, adaptability to certain production systems, farmer preference, and availability of seed. Resulting recommendations were more or less arbitrary (depending on the region or area where the cotton varieties were tested) and reflected a compromise between the use of test data and personal judgment. The experiment station has questioned the practical value of suggesting specific cotton varieties for individual production areas in Texas; consequently, recommendations now are being made in terms of varietal types, rather than specific varieties.

The inherent growth and fruiting behavior of cotton results in considerable variability in its performance in different locations, as well as for different years. With regard to its fruiting behavior, cotton is basically an indeterminant species; that is, it tends to bloom and set fruit over an extended period of time or as long as environmental conditions are favorable.

When favorable growing conditions exist late in the fruiting period, all varieties tend to continue fruiting. In such instances, the differences in performance between "early" and "late" varieties are not evident. When growing conditions result in a shorter than usual fruiting period, the earlier-fruiting varieties may be favored and the contrast with late varieties is

## General Recommendations of Upland Cotton Varietal Types in Texas

Area	Varietal type
East Texas Timberlands .....	Medium-staple Open Boll
Coast Prairie .....	Storm-resistant Big Boll, Medium-staple Open Boll
Blackland Prairies	
Bottomlands, or irrigated uplands .....	Medium-staple Open Boll
Uplands .....	Storm-resistant Big Boll
For machine stripping .....	Texas Stormproof
East Cross Timbers and Grand Prairie .....	Storm-resistant Big Boll, Medium-staple Open Boll
For machine stripping .....	Storm-resistant Big Boll, Texas Stormproof
West Cross Timbers and North Central Prairies .....	Storm-resistant Big Boll, Texas Stormproof, Medium-staple Open Boll
For machine stripping .....	Storm-resistant Big Boll, Texas Stormproof
Rio Grande Plain	
Lower	
Irrigated .....	Medium-staple Open Boll
Dry-land .....	Storm-resistant Big Boll, Medium-staple Open Boll
Upper .....	Storm-resistant Big Boll, Medium-staple Open Boll
Rolling Plains	
Irrigated .....	Storm-resistant Big Boll, Texas Stormproof
Dry-land .....	Storm-resistant Big Boll, Texas Stormproof
High Plains	
Irrigated .....	Storm-resistant Big Boll, Texas Stormproof, Medium-staple Open Boll
Dry-land .....	Storm-resistant Big Boll, Texas Stormproof, Medium-staple Open Boll
Trans-Pecos .....	Trans-Pecos Irrigated, Medium-staple Open Boll

exaggerated. Statistical analysis of data from cotton variety tests often is inconclusive, and difficulty is encountered in determining the varieties that are the most consistently high performers.

Recommendations for specific cotton varieties should take into account not only yield data, boll size, and lint percentage but also factors that are not readily measured in conventional cotton variety tests. For example, seedling vigor, disease tolerance, plant type, leafiness, fruiting pattern, storm resistance, and other similar qualities may be important in judging varieties. However, it is difficult to analyze these qualities objectively, and it is impractical to include all of these quality factors in the present testing program, according to the experiment station.

Selection for yielding ability, earliness of maturity, and efficiency of fruiting has provided cotton varieties that are very similar in their general level of production. The most notable differences between varieties resulted from selection for various plant and boll types, fiber quality, and adaptation to specific growing conditions; but even these differences are quite small among certain varieties.

In order to overcome many of the difficulties involved in formulating specific cotton variety recommendations, the Texas experiment station makes general recommendations by cotton varietal types rather than varieties as such. The varieties included within a type classification generally will be similar in major agronomic and fiber characteristics and, under average conditions, probably will perform in much the

same manner. This system of type classification should afford a better basis for drawing general conclusions concerning agronomic performance and still provide latitude for additional judgment by the individual cotton farmer.

The accompanying table shows the Texas Agricultural Experiment Station's general recommendations of upland cotton varietal types in Texas, based on tests conducted during 1957-59.

### Proper Ration Essential for Profitable Calf Feeding

Dry-lot feeding of calves weighing 250 to 400 pounds requires a much better understanding of feeding principles than does the feeding of heavier calves, according to U. D. Thompson, Animal Husbandman with the Texas Agricultural Extension Service.

Since the stomachs of lighter calves do not hold as much as those of heavier animals, the small amount of feed they consume must contain sufficient nutrients. Moreover, lighter calves have only a small capacity for storing nutrients, which can be held in reserve in their bodies. When a calf is weaned and placed on dry lot, its ration must supply these nutrients. Unless the ration takes care of its needs, a 250- to 400-pound calf can develop a vitamin A deficiency within 45 to 60 days.

Leafy green alfalfa hay, alfalfa leaf meal, or pellets are good sources of vitamin A, says Mr. Thompson. Commercial synthetic vitamin A preparations are also available for mixing with rations.

Although a small quantity of roughage is essential, the calf's diet should consist mainly of high-protein feeds, such as shelled corn, sorghum grain, oats, barley, and cottonseed meal. When it is on full feed, a 300-pound calf on dry lot needs a daily ration of approximately 6 pounds of concentrates and 3 pounds of roughage.

### Improved Cotton Fabrics

Longer-lasting collars and cuffs on men's wash-and-wear shirts and a single treatment that not only imparts wash-and-wear properties

to cotton but also permanently dyes, starches, and adds other finishing agents to the fabric were announced recently by the United States Department of Agriculture.

Divinyl sulfone derivatives are used in the new multipurpose treatment. These chemicals have the unusual ability to react with cotton's cellulose molecules to produce a good wash-and-wear finish and, at the same time, attach other finishing materials permanently to the cellulose molecules.

By adding both dye and starch to a solution of divinyl sulfone derivatives, USDA scientists obtained a permanently starched and colored wash-and-wear fabric. The new treatment can be applied with conventional textile-finishing equipment. The fabric is dipped in the chemical solution, run through squeeze rolls to remove excess solution, and then dried and cured at normal processing temperatures.

### East Texas Forest Fires Reduced



The number of forest fires in east Texas during 1961 decreased 39 percent from the 1960 level, resulting in a near-record year in the history of the Texas Forest Service. A total of 953 fires was brought under control, compared with the 37-year record of 689 fires in 1957.

Careless burning of household and yard trash, fields, and brush piles topped the list of causes of forest fires in east Texas in 1961. In addition, the largest number of acres burned resulted from persons disregarding rules of safe burning. Increased efficiency in the detection and suppression of forest fires helped limit fire losses. Other factors which helped reduce fires were the favorable weather and the excellent cooperation of the public, according to the Texas Forest Service.

Incendiary fires—caused by malicious woods burners—continued to increase in the southern part of the east Texas piney woods, accounting for more than one-fifth of the total fires in 1961. However, the size of these fires was reduced 65 percent from the level of the preceding year.

Law enforcement work of the Texas Forest Service is being stepped up in areas of high incendiarism in an attempt to halt this rising threat to the multipurpose piney woods of east Texas.

Fires threaten more than just recreational values, improved property, soil, water, and timber—human lives are at stake. At least two persons lost their lives as a result of a trash fire in east Texas last year.

An additional 0.5 million acres of commercial timberland in the east Texas piney woods began receiving organized protection in 1961, bringing the total to 9.8 million acres.

### Dairy Merit

The real efficiency of a dairy cow can be expressed as the percentage of digested feed nutrients which appears in the milk pail. This method of expressing dairy cow efficiency is often referred to as dairy merit, according to A. M. Meekma, Dairy Husbandman with the Texas Agricultural Extension Service.

If other conditions are equal, the larger cow will produce more milk than the smaller cow. The question is whether, on the average, a sufficiently higher yield is realized per unit gain in weight to increase dairy profits.

Whether to raise dairy merit of any breed merely by increasing the size of the animals is an important consideration. The average total milk output undoubtedly will rise, but the increase may not be enough to provide a larger profit after taking into account the extra feed needed for maintenance and for growing to the larger size.

According to Mr. Meekma, a recent research study points out several important facts. Devoting too much attention to increasing the size of dairy cows may result in decreased efficiency. In a given herd, the smaller cow often may be the most profitable. Moreover, some sires — particularly those used for commercial artificial breeding — may be proven and retained for extensive use in favor of other bulls because of superior transmittance of high production when, in reality, they are only transmitting increased size. Consequently, the dairy

merit of their daughters may be inferior to that of smaller daughters of other bulls of the same breed.

### New Shattering-Type Sesame

Foundation seed for Oro, a new shattering-type sesame variety, has been released to certified seed producers by the Texas Agricultural Experiment Station. The variety was developed in the cooperative plant-breeding program of the experiment station and the United States Department of Agriculture.

Oro is a branching, white-seeded sesame that is widely adaptable. Its erect branching growth habit enables it to fill out skips in rows and aids in controlling weeds. The plants usually range from 3 to 5 feet in height, depending on whether the crop is grown in dry-land or irrigated areas. Three capsules per leaf axil generally are produced when growing conditions are favorable.

Seed produced by Oro are white in color, high in oil and protein content, and possess a bland to nutty flavor that is acceptable to the bakery trade. In 4 years of tests, Oro consistently produced higher seed yields than either the Margo or the Dulce sesame variety.

Oro is harvested in the same manner as other shattering-type sesames—by binding and shocking. The new variety requires 85 to more than 100 days from planting time to maturity, depending on weather conditions, and is 3 to 5 days later than Margo. The leaves and stem turn yellow when the sesame is mature.

Oro is moderately resistant to bacterial leaf spot when the disease is not severe and, under most conditions, has proved resistant to *Rhizoctonia* root rot.

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Although Texas grain sorghum growers set an all-time record of 2,520 pounds per acre in 1961, output still is far below the 9,384 pounds an acre produced by Bill Cole, a Deaf Smith County 4-H Club boy, according to the Texas Agricultural Extension Service. His yield, obtained from hybrid variety RS 610 with irrigation, topped that of all participants in the 1961 Texas Hybrid Grain Sorghum Production Program.