

# Agricultural

## NEWS LETTER

FEDERAL RESERVE BANK OF DALLAS

Vol. 8, No. 8

DALLAS, TEXAS

August 15, 1953

### *Cotton Defoliation*

The application of chemical sprays or dusts to cause premature shedding of leaves has become an accepted practice in the harvesting of cotton by either mechanical pickers or strippers. Defoliating the cotton plant prior to picking increases the efficiency of mechanical harvesters and improves the quality of ginned cotton.

Defoliation also retards fiber and seed deterioration in rank cotton, lowers population of some insects by removing the source of food, and facilitates hand picking because leaf-free plants dry more quickly, permitting picking earlier in the mornings.

The cost of defoliation is about \$2 per acre for each application, including cost of materials and labor. Many fields require two applications for a satisfactory job of defoliation.

Timing is the key to success in this operation. Normally, the chemical should be applied when the youngest bolls are about 30 days old, or from 7 to 15 days before mechanical harvesting is started. It takes about 7 to 10 days for the leaves to die and fall off. If harvest is delayed too long after defoliation, regrowth of leaves may occur. The ideal time to defoliate will vary from area to area and even from field to field.

The effectiveness of defoliants depends upon condition of the cotton plant at the time of harvest, weather conditions following application of the chemical, the rate of appli-

cation used, and other factors. Cotton that is immature or that has been subject to drought during the growing season is much more difficult to defoliate. Heavily fruited cotton is more easily defoliated than plants with only a few bolls. There is no conclusive evidence that varieties react differently to the same defoliant.

Defoliation achieved under normally favorable conditions can be expected to be from 70 to 90 percent. Application by either ground or air machines is satisfactory, providing adequate amounts of the materials are used. Airplanes are particularly effective in heavy, rank cotton, where adequate coverage sometimes is difficult to obtain with ground machines.

In areas of the Southwest where there usually is no dew, sprays are much more satisfactory than dusts. Some of the defoliants contain chemicals which draw moisture from the plant to start the necessary chemical reaction. However, most defoliants are more effective when there is some moisture on the plant and when the weather following application is relatively warm.

Some of the chemicals that have given satisfactory results in tests by the Texas Agricultural Experiment Station are Endothal, De-Fol-Ate, Shed-A-Leaf, and fortified sodium cyanamid. In most tests these chemicals have been used in sprays, with from 5 to 7 pounds of the chemical in 25 gallons of solution applied per acre.

Farmers planning to use defolianters for the first time should check with their county agents or other agricultural leaders to find the best materials and methods of application for their communities.

### *Cordova — A New Barley Variety for Texas*

Higher yields, earlier maturity, and the ability to stand up well for combine harvesting are some of the characteristics of Cordova, the new barley variety being introduced to Texas farmers this fall. This variety is especially well adapted to northern and central Texas farms.

Cordova is a smooth-awn variety developed by crossing the popular commercial varieties of Texan and Wintex. While these have been grown widely in the State, Wintex has been highly susceptible to mildew and Texan has such a weak straw that it frequently does not stand up well for harvesting operations. The cross between these two has combined the good characteristics of both varieties.

In tests during the past 6 years, Cordova barley has outyielded, by an average of 5 bushels per acre, all other varieties adapted to Texas. Yields at the Denton, Texas, Experiment Station were 36 bushels per acre over a 6-year period. At Iowa Park, yields averaged 47 bushels during the past 5 years. In addition to high yields, the variety is resistant to most of the mildew varieties attacking barley in the State. However, it is not recommended in south Texas, where many leaf diseases are a major factor in lowering barley production. In that area the Goliad variety is recommended.

Cordova is not a true winter variety of barley, and its resistance to winterkilling has not yet been established. Hence, it is not recommended for fall planting in the Panhandle area of Texas; however, it has produced satisfactorily in the Amarillo area when planted in the spring.

### *Cottonseed Stored 15 Years Still Germinates*

Cottonseed stored under controlled conditions of moisture and temperature germinated satisfactorily after a 15-year storage period, according to Fred C. Elliott, cotton specialist for the Texas Agricultural Extension Service. However, results of recent tests also emphasize that germination of the seed may be impaired seriously, even during a relatively short storage period of 3 or 4 months, if moisture and temperature are not controlled properly.

In the tests which were conducted by the United States Department of Agriculture and the Tennessee Experiment Station, cottonseed was stored at moisture levels ranging from 7 to 14 percent and at temperatures of 90°, 70°, and 33° F. Similar lots of seed also were stored at normal, uncontrolled air temperatures at Knoxville, Tennessee. After the 15-year storage period, seeds kept at 33° F. and with moisture contents of 7, 9, and 11 percent germinated satisfactorily. The seed stored at 13 percent moisture showed some deterioration, while those at 14 percent moisture were all dead after 15 years.

Seed stored at a temperature of 70° and 7 percent moisture had a germination of 73 percent. However, all lots of seed stored at 70° but with more than 7 percent moisture were dead at the end of the test period.

Seed with 7 percent or more moisture stored in uncontrolled air temperatures did not survive beyond 3 years. Some seed with less than 7 percent moisture stored in the uncontrolled air temperatures survived as long as 13½ years.

Deterioration of the seed was most rapid at a temperature of 90° F. At this temperature, seed containing 14 percent moisture were dead in 4 months, and those at all other moisture levels were dead or badly deteriorated at the end of 3 years.

## Rice Drying Studies

Several studies were conducted by the Texas Agricultural Experiment Station during the fall of 1952 to determine the effect of certain temperatures for drying rice and the effect of rapid cooling of rice following the drying process.

In these tests, rice was dried at average temperatures of 115.1° and 125.5° F. Following the drying process, germination and milling tests were made to determine whether the difference in temperatures had adversely affected the rice.

In both cases, there was no difference in the milling quality of the rice dried at these temperatures. Germination of the sample dried at the higher temperature was somewhat better, although rice from both lots germinated satisfactorily.

A second study was made to determine the effect of rapid cooling of rice. In these tests, rice that had passed through the drier was cooled rapidly with cold air. The time of exposure was about 15 minutes, with the temperature being reduced to about 32° F. No undesirable effects on milling quality or germination were noted from this treatment.

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*Texas farmers are now using 270,000 farm tractors to provide most of the power required for carrying on their many and varied farming operations. More than two and a half million farm implements are used as attachments.*

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*Now is a good time to collect soil samples to be sent to the Soil Testing Laboratory at College Station, Texas. Samples submitted now will be tested and analyzed and fertilizer recommendations returned to farmers in time for fall seeding of grains and legumes. There is a charge of \$1 per sample for the testing service. Additional information and application blanks should be obtained from county agricultural agents.*

## Individual Cages for Laying Hens

The practice of housing laying hens in individual cages is receiving an increasing amount of attention in the Southwest. Under such a plan, each hen is kept in an individual cage. Feed and water usually are provided in troughs along the sides of the cages.



There are both advantages and disadvantages to this system, according to W. J. Moore, poultry husbandman for the Texas Agricultural Extension Service. The cage system is an intensive method of producing eggs and, as such, requires constant, precise, and detailed attention. Failure of any one piece of equipment or any of the feeding or watering operations can be particularly harmful to egg production.

Among the advantages of the individual cage system are: egg production can be held fairly uniform throughout the year, cannibalism can be eliminated, competition between birds for the feed is eliminated, more freedom is possible from coccidiosis and roundworms, feed efficiency can be improved, and mortality is lowered.

Among the disadvantages Mr. Moore lists the relatively high initial investment in equipment, the greater attention that must be given to details, the problem of controlling flies, and the necessity for providing multiple brooding or replacements.

The manager of a cage system of handling laying flocks should replace each bird whenever it goes out of production. This means that there must be a constant source of replacement birds, in order to maintain full use of the facilities.

Additional details may be obtained from county agricultural agents or by writing the Texas Agricultural Experiment Station, College Station, Texas, and asking for a copy of

Bulletin C-338, entitled "Laying Cage Management."

### *Faster Gains with Creep Feeding*

Creep feeding beef calves puts on extra pounds faster and more efficiently, says U. D. Thompson, animal husbandman for the Texas Agricultural Extension Service.

A creep-feeding program involves the construction of a small enclosure in the pasture with an entrance large enough for the calves but too small for the older animals. Grain is placed inside the enclosure.

Mr. Thompson says that despite high grain prices, creep feeding will pay off this year, because many of the calves were weak when born and need extra feed and care to overcome their slow start. He also points out that this program will give the cow herd a chance to utilize more fully the good range growth available this spring.

Whole oats are recommended as the best grain to use, with some corn or milo added when the calves reach 4 months of age. A suggested ration is 65 pounds of corn or milo and 35 pounds of oats. If the pasture is not providing green grazing, a protein feed, such as cottonseed meal, should be added to the mixture; Mr. Thompson suggests 10 pounds of cottonseed meal, 25 pounds of oats, and 65 pounds of corn or milo.

The young calves can utilize whole grain. However, by midsummer it usually is advisable to crack or grind the grain, in order to get maximum gains.

Bonemeal and salt should be placed in a small feeder near the creep, so that both the cows and the calves can help themselves.

### *Publications*

New Mexico Agricultural Experiment Station, State College:

*Alfalfa Cubes for Fattening Lambs and Wethers*, Bulletin 375, by P. E. Neale.

*How to Build a Portable Livestock Scale*, Circular 238.

*Vitamin Supplements for Dairy Calves*, Bulletin 376, by S. R. Skaggs.

Oklahoma Agricultural Experiment Station, Stillwater:

*Cowpeas As a Protein Feed for Fattening Steer Calves*, Bulletin No. B-399, by L. S. Pope and others.

*Meat-Type Hog Production: Influence of Breeding and Energy Content of the Ration on Pork Carcasses*, Bulletin No. B-398, by James A. Whatley, Jr., and others.

Texas Agricultural Experiment Station, College Station:

*Bin Drying of Rice at Beaumont, 1952-53*, Progress Report 1583, by S. R. Morrison and others.

*Cordova Barley*, Bulletin 760, by I. M. Atkins.

*Effect of Fertilizer Treatments on Yield and on Earworm Damage of Fall-Planted Sweet Corn*, Progress Report 1581, by H. W. Gausman and others.

*Hay Curing and Handling Studies, Beaumont, 1951-52*, Progress Report 1582, by Stanton Morrison.

*Prices Paid for Registered Herefords at Auctions in Texas, 1915-52*, Miscellaneous Publication 91, by Harry L. Williams and John G. McNeely.

Copies of the bulletins may be secured by request to the publishers.

The *Agricultural News Letter* is prepared in the Research Department under the direction of CARL H. MOORE, Agricultural Economist.