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DUST SACKS FOR HORN FLY CONTROL

Beef cattle rubbing against suspended dust sacks were kept relatively free of horn flies for a period of 3 months during the summer in tests conducted by the Mississippi Agricultural Experiment Station in 1961.

A self-treating dust station (with a base of 102 inches by 70 inches and a height of 82 inches) was used in the experiment. Two sacks of insecticidal dusts, which were hung 2 to 3 feet apart and suspended from the roof beams of the structure, served as a self-treatment device for the cattle. The insecticidal materials were an 85 percent Sevin wettable powder and a 5 percent malathion dust.

Two dust stations were located in each pasture, and a burlap feed sack was used for dispensing the dust. The sacks initially were filled with 15 pounds of dust each and were refilled to this weight as the insecticide was depleted. Shorthorn cattle were used in the tests with Sevin, and Herefords were placed in the pastures with malathion dust stations.

According to the experiment station, the reduction in the number of horn flies when the animals had access to the 85 percent Sevin dust sacks was very encouraging. The degree of horn fly control in the herd using the sacks filled with the malathion dust was considerably less than when Sevin was used. A marked increase in the number of horn flies on the herd exposed to malathion dust necessitated direct dusting of the cattle. Since the animals receiving the malathion dust used the sacks less often than did cattle receiving the Sevin dust, indications are that the pungent odor of the malathion may have deterred the animals from more frequent rubbing on these sacks.

The 85 percent formulation of Sevin was changed to a 5 percent formulation in the latter part of the Mississippi study. Fly control remained adequate after this change; however, toward the end of the summer, the 5 percent formulation was not as effective as the more concentrated Sevin dust.

The Mississippi Agricultural Experiment Station says that the following five factors in the 1961 study undoubtedly helped in obtaining very satisfactory control of horn flies from the use of 85 percent Sevin.

1. The Shorthorn herd under observation had used a dust station the previous season; consequently, the animals had become accustomed to the dust sacks.

2. Sevin dust escaped freely from the thickness of only one sack. During the 1960 season, two sacks were used, one within the other, to suspend the dust.

3. Two stations, or a total of four sacks of dust, were used for each herd in 1961 as compared with one station, or two sacks of dust, in the preceding year.

4. Placement of dust stations in certain key locations, such as under trees where the cattle frequently congregate when not feeding, was also a factor in the frequent use of the stations. Fly control probably would be inadequate if

FEDERAL RESERVE BANK OF DALLAS
DALLAS, TEXAS

the stations were placed in pastures containing a large number of trees.

5. Shorthorn breed cattle were used as the test herd. Fly control might have been less effective if Black Angus had been used, since they attract more flies than do Shorthorn cattle.

Although no count was made of houseflies on the herds using dust sacks, only a small number of these insects were noted as compared with the number of houseflies on a control herd without access to a dust station.

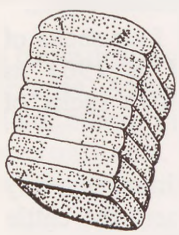
The Mississippi studies show that, disregarding the initial construction cost, dust stations permit a very economical and trouble-free system of horn fly control on beef animals during the summer months.

Prospective New American Crop

Ironweed, an exotic plant whose seeds contain a valuable industrial oil, may become a new farm crop for the United States. Studies by Agricultural Research Service chemists have shown that ironweed (Vernonia anthelmintica) seeds contain 25 percent oil, of which more than 70 percent is epoxy fatty acids. These epoxy fatty acids — which are now made synthetically — are used in plastics, paints, and other industrial products.

This wild plant has been grown experimentally in Nebraska, North Carolina, and Texas. These plantings indicate that ironweed is widely adapted to the climate and soils of the United States.

Cotton Bagging for Cotton Bales



The United States Department of Agriculture recently announced a pilot program to divert low-quality cotton and cotton by-products into bagging material for covering cotton bales. The raw material for the bagging will be derived mainly from the short fibers which are removed from cotton by lint cleaners during ginning. Much of this lint is now burned at the gins; however, it can be combined with other cotton by-products or low-grade cotton to make serviceable cotton bagging.

According to the USDA, the pilot program is expected to encourage the use of low-quality fibers in providing good protective covering and improving the appearance and marketability of American cotton. During the program's operation, studies will be made to determine the practicability and economic feasibility of this bagging.

Under the experimental program, a payment of $1 per bale will be made for the use of all-cotton bagging for a maximum of 100,000 bales. Payment will be from funds provided by Section 32 of Public Law 320.

Missiles for Fighting Forest Fires

The Forest Service may be on the verge of a major breakthrough in forest fire fighting if the radio-controlled glide bomb missile now being developed measures up to expectations, reports the United States Department of Agriculture. The missile, which will carry fire retardant chemicals, is expected to be ready for testing this year.

The new missile will be launched from an airplane and guided to a fire by radio. It will be rigged to drop its 100-gallon fire retardant load before hitting the ground. Foresters expect that they can release the missile from a plane flying as high as 3,000 feet, which would be above turbulence from the fire and usually above the smoke.

According to the USDA, this new method of fire control would supplement and, in time, might replace direct bombing of fires with airtankers. Tanker operations are sometimes dangerous, since the planes must fly at low altitudes over rought terrain and through smoke. Moreover, airtankers cannot be used at night or during strong winds.

Progress Against Insecticide-Resistant Insects

Chemicals that overcome the resistance of some insects to malathion have been found by United States Department of Agriculture scientists. This discovery is an important step in

finding ways of overcoming insect resistance to insecticides.

In laboratory experiments at Corvallis, Oregon, malathion-resistant houseflies and mosquitoes were killed when treated with malathion combined with a synergist (a nontoxic chemical that boosts or restores toxicity to an insecticide).

USDA entomologists are conducting research to find out how organophosphate insecticides such as malathion and parathion kill insects, how insects develop resistance to these insecticides, and how to overcome such resistance.

Maintenance of Eggshell Quality

Maintenance of eggshell quality during the summer is a problem faced by Texas poultrymen. Changes in feeding and management practices are necessary if eggshells are to be kept thick and strong, says Dr. J. H. Quisenberry, Head of the Department of Poultry Science at Texas A. & M. College.

The birds reduce their feed consumption during hot weather, resulting in a lower calcium supply for the eggshells. The fowls must be provided with supplementary oystershell or the calcium content of their ration must be raised, says Dr. Quisenberry.

An increasing number of poultrymen are changing to a complete ration, thereby eliminating the extra labor required for supplementary feeding of oystershell. Moreover, when oystershell is distributed over the feed, some birds — particularly those in laying cages — eat too much shell. During cool months, most poultrymen use a complete ration with 2.25 percent calcium, but this amount should be increased to 2.75 to 3.00 percent during the summer.

Since calcium absorption and metabolism of the birds may be lowered during hot weather, management changes that result in cooler poultry houses and, therefore, more comfortable birds generally reduce the summer eggshell problem. Painting the poultry house roof white, opening up the side walls for ventilation, planting grass around the house to reduce heat reflection, and use of fans or sprays will increase the comfort of the birds.

An extra feeding or stirring of the feed in the troughs each day will encourage consumption by the birds. The higher feed usage not only will increase calcium intake but also will help to maintain egg production at a maximum level.

Dr. Quisenberry points out that these practices of keeping the calcium level high and providing cool housing are the best known and most widely used techniques for maintaining shell strength of eggs in the summer and obtaining the maximum rate of lay of the birds.

Pinkdeal Tomatoes for East Texas

A new tomato variety has been developed for east Texas. Pinkdeal is a crack-resistant tomato variety that is adapted for spring, summer, and fall production. The fruits resist catfacing, puffing, and sunburning, according to the Texas Agricultural Experiment Station.

Plants of the Pinkdeal variety are indeterminate in growth. They have dark-green leaves, bear early, and are prolific. The fruits are smooth and globe-shaped and become progressively and uniformly whitish green, slightly yellow, pink, and finally red as they mature. Many of the tomatoes start to turn pink first on their sides, which makes them easy to recognize for picking.

The fruits ripen with bright red flesh and have a delicious flavor. In the pink stage of maturity, they are sufficiently firm for handling by customary methods. Fruits attain good size; many weigh up to 5 ounces.

Pinkdeal tomatoes are resistant to fruit cracking under conditions which cause severe cracking of old commercial varieties in east Texas. The cracks that do develop generally are shallow and do not substantially reduce the market value of the tomatoes.

Pinkdeal plants set good crops of tomatoes in east Texas during the summer, when com-

mon varieties are almost fruitless. The Pinkdeal tomato has proved to be a good producing variety at Jacksonville, Texas. In addition, it ranked second in the 1960 Southern Tomato Exchange Program tests at 36 locations in 16 states and Puerto Rico and was fourth in the 1961 tests.

Pinkdeal is well adapted to the sandy loam and red soils of east Texas and performed well at Stephenville and Iowa Park; however, the variety did poorly in south Texas tests. For east Texas production, seed should be planted about February 1, May 1, and July 1 to yield fruit from June until November.

The Pinkdeal tomato is moderately resistant to Fusarium wilt. Consequently, a long rotation should be used in order to avoid loss from this disease.

Pinkdeal tomato seed for commercial growers is expected to be available from local seed stores in 1963.

Compacted Soil Hampers Root Penetration

Layers of compacted soil just below the tillage depth restrict or halt plant root growth by interfering with root penetration — not by restricting air or moisture supply to the roots — according to the United States Department of Agriculture.

Scientists previously thought that poor aeration or reduced water transmission rates in compacted soil might be a cause of restricted growth when roots reach these layers. However, the air and water supplies in compacted layers were adequate in experiments conducted by soil scientists with the USDA's Agricultural Research Service. The scientists found that root growth was hindered only when layers of soil had so much resistance to penetration (strength) that roots could not force a passage through 2- to 8-inch compacted layers.

Passage of machinery across cultivated fields and repeated tillage at the same depth are causes of compacted soil layers. These layers are known variously as plowpans, hardpans, tillage pans, pressure pans, or claypans.

The USDA experiments were conducted on Amarillo fine sandy loam soil at Big Spring, Texas. In compacted untilled plots where soil strength measurements were 400 pounds per square inch or higher, root growth was severely restricted. Growth was satisfactory in uncompacted soil with strength measurements of 250 pounds per square inch or lower. In compacted tilled plots, with strength measurements between 250 and 400 pounds per square inch, roots failed to penetrate the compacted layer when the soil was dry but developed normally when it was wet.

Publications

Oklahoma Agricultural Experiment Station, Stillwater:

Soil Fertility Studies for Improved Wheat Production in Eastern Oklahoma, 1957-1960, Bulletin B-594, by O. H. Brensing and J. Q. Lynd.

Effects of a Liquid Urea-Ethyl Alcohol-Phosphoric Acid-Molasses-Mineral-Mix on Feeder Lambs, Technical Bulletin T-94, by David R. Pratt and Milton W. England.

Quantitative Relationships in the Cotton Economy with Implications for Economic Policy, Technical Bulletin T-95, by Leo V. Blakley.

Storageability under Laboratory Conditions of Seed of Blue Grama, Side-Oats Grama, and Smooth Bromegrass, Technical Bulletin T-97, by Robert M. Ahring.

Texas Agricultural Experiment Station, College Station:

Incomes of Migratory Agricultural Workers, Bulletin 950, by William H. Metzler and Frederic O. Sargent.

Residual Toxicities of Insecticides to Cotton Insects, Bulletin 951, by B. G. Hightower and J. C. Gaines.

Copies of these bulletins may be obtained by request to the experiment stations.