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What Do We Know About Dwarfism in Cattle?

The occurrence of dwarf animals in both registered and commercial cattle herds is an economic, as well as a breeding, problem of the cattle industry.

Dwarf animals, which may be only about one-fourth the size of normal animals and seldom reach maturity, sometimes make up 2 or 3 percent of the calf crop and, theoretically, could account for as high as 25 percent in extreme cases. Because of their small size, they have no economic value and represent a complete loss to the rancher.

No major cattle breed or line of breeding is known to be free of dwarfs. The incidence of dwarfism in beef cattle has increased in the past 10 to 15 years, perhaps because in selecting breeding stock that is blocky in conformation, breeders inadvertently have chosen animals carrying the potential for dwarfism.

Research indicates almost conclusively that the occurrence of dwarf animals is due to inherited characteristics. It has not been possible to establish that feeding or the care of breeding stock has any influence on dwarfism, although the abnormalities of dwarf animals resemble those of animals with certain dietary deficiencies.

The dwarf characteristic appears to be transmitted from one animal to another by one or more recessive genes. Genes are the tiny parts of each living cell that give to a plant or an animal its physical characteristics, such as color and height. These bits of living matter always occur in pairs, one of each pair coming from each parent.

Recessive genes are so named because they have little or no influence on the animal or plant unless both genes of the pair are recessive. This fact means that both the dam and the sire must carry the recessive characteristic in order to produce dwarf calves. Stated another way, if the herd sire is dwarf-free (does not carry the gene for dwarfism), none of the calves will be dwarfs, even though the cows are not dwarf-free.

An animal that is entirely normal but carries in its hereditary make-up the recessive gene for dwarfism is commonly referred to as a "carrier of dwarfism." This means that it has the potential capacity, if mated with another carrier, for producing dwarf animals.

If a sire that carries the recessive characteristic for dwarfism is mated with dwarf-free dams, one-half of the calves will be carriers and one-half, dwarf-free. If both the sire and the dam are carriers, half of their offspring also will be carriers, 25 percent will be dwarfs, and 25 percent, dwarf-free. These percentages will not hold exactly true for a small number of animals, but for any large group they will be approximately correct.

These figures emphasize the importance of using only dwarf-free sires. However, the problem of proving that a bull is dwarf-free may

be a long and expensive one. If a dwarf calf is born, it is certain that both the sire and the dam are carriers. But, carriers may be in the herd for years without producing any dwarf calves.

One of the quickest ways of testing a bull for dwarfism is mating him with cows which are known carriers (those which have dropped dwarf calves). If the bull also is a carrier, one-fourth of the calves from the mating could be dwarfs; if he is not a carrier, none of the calves will be dwarfs. In practical application, if 16 normal calves are dropped from matings to carrier cows, the chances are 99 in 100 that the sire is dwarf-free.

A recent release by the United States Department of Agriculture discusses a new technique that may be helpful in reducing or eliminating dwarf carriers from herds. The abnormalities of dwarf calves include a broad, short face, bulging forehead, and stunted growth, and carriers sometimes have slight bulges in their foreheads.

Research specialists have found that by drawing profiles of the heads of suspected animals and comparing them with the profiles of normal animals, they are able to detect carriers with reasonable accuracy. This method of diagnosis has been especially successful with mature, horned Hereford bulls. It has been less successful with other breeds and with younger bulls and cows.

Ranchers who face the problem of dwarfism in their herds are urged to keep careful breeding records and to mark all cows that have dropped dwarf calves. As mentioned, these cows, because they have produced dwarf calves, are proved carriers of dwarfism and can be used to test young bulls to determine if they also carry dwarf-producing genes. Thus, these proved carrier cows can be valuable test animals. Breeders also should study pedigrees carefully and attempt to eliminate bloodlines that have produced a considerable number of dwarf animals.

It would be foolish, however, to disregard all other traits in the attempt to control dwarfism. The problem does not warrant an all-out cleanup campaign. A breeding program that deals with the problem of dwarfism while continuing to build high-quality, fast-gaining beef animals is a sensible approach to the situation.

Gin Trash in Steer-Fattening Rations

Gin trash, another roughage for steer-fattening rations, was tested by the Texas Agricultural Experiment Station at its El Paso Valley Experiment Station, near Ysleta, Texas, in 1953.

Results of the tests indicate that gin trash valued at $12.50 per ton (largely the cost of hauling and grinding) compares favorably with cottonseed hulls as a roughage in the ration for fattening steers. The steers fed the ration containing gin trash gained somewhat slower but, from the standpoint of cost, made more economical gains than those fed a ration containing cottonseed hulls for the principal roughage.

Gin trash varies a great deal in its physical and chemical composition, depending upon the type of cotton ginned, location, and the season of the year. The gin trash used in these tests consisted of 66.1 percent burs and stems, 5.8 percent lint, 5.8 percent immature cottonseed, and 22.3 percent fine trash, dirt, and other material. The chemical composition was as follows: Crude protein, 7.70 percent; fat, 1.65 percent; crude fiber, 27.91 percent; and other materials, 62.74 percent. The fattening ration contained ground sorghum grain, cottonseed meal, ground alfalfa hay, and ground gin trash or cottonseed hulls.

Specialists conducting these tests conclude that ground gin trash may be used to replace cottonseed hulls in combination with alfalfa hay in rations for fattening steers. The financial advantage of ground gin trash will depend on the relative prices of the different roughages and the seed content of the gin trash.

Summer Grasses for South Texas

Two relatively new warm-season grasses gave the best results in tests at the Texas Agricultural Experiment Substation in Dimmit County, Texas, in 1952 and 1953.

Of the nine grasses tested, guinea grass was highest in yield of forage, giving more than 15 tons of air-dry hay per acre in 1953. Coastal Bermuda grass was second, with a yield of just under 14 tons per acre. Blue panic grass gave 11.5 tons, and buffel grass, 11 tons.

Other grasses included in the tests were Rhodes, Australian beard, Angleton, birdwood, and Dallis. In 1953, yields of these grasses ranged from 5 to 9 tons per acre. All grasses in the tests were grown under irrigation.

A comparison of average yields for 1952 and 1953 indicates a similar ranking of the grasses from the standpoint of yield, although buffel grass gave the highest yield during the first year.

On the basis of protein content, blue panic grass was highest, with an average protein content of 18.23 percent. Guinea grass was second, with 15.96 percent, and Coastal Bermuda was third, with 15.25 percent. All grasses were graded fair to good in phosphoric acid content except guinea grass, which was substantially higher than the others.

Specialists conducting the tests list guinea, Coastal Bermuda, blue panic, and buffel as the grasses best adapted to the sandy soils of the south Texas area.

Everybody loses from forest fires! Therefore, it is everyone's job to help prevent this loss by following such precautions as breaking matches before throwing them away, burying cigarette butts and pipe heels, dousing campfires with water, and being extremely careful with trash fires.

Honeybees Aid Cotton Production

The honeybee — well known as an aid in pollinating legumes, fruit trees, and other plant species that rely upon cross-pollination — may play an important role in the production of cotton.

Tests at the Southwestern Bee Culture Laboratory of the United States Department of Agriculture at Tucson, Arizona, indicate that pollination within the cotton bloom is aided by bees, even though the cotton bloom is self-fertile and does not rely on pollinating agents, such as insects, to bring pollen from other blooms.

Yields of lint and seed were increased substantially when bees were permitted to work the cotton blooms. Without bees, only 29 percent of the early blooms developed into bolls; with bees, 48 percent became bolls.

Milk that is exposed to sunlight for only 30 minutes may lose all of its Vitamin C and 20 percent of its Vitamin B. Exposure to sunlight also may cause undesirable flavors to develop.

Plastic-Coated Picksacks

Cotton picksacks with a plastic coating to make them last longer are recommended by the National Cotton Council. This relatively new plastic coating is a substitute for asphalt, which has been used for many years to increase the wearing quality of picksacks.

However, the tar from the asphalt coating is a problem to the ginner and spinner, as it frequently becomes mixed with the seed cotton. Small particles of the asphalt even find their way into the finished cotton goods, causing spots that will not take dyes.

Hot Weather Makes Chickens Lazy, Too

Chickens will not drink sufficient water in hot weather if they have to move more than 10 feet to a water fountain, says E. D. Parnell, professor of poultry husbandry at Texas A. & M. College.

Mr. Parnell points out that fresh, cool water is essential for maximum egg production or for rapid growth of broilers. He advises poultrymen to provide plenty of waterers and keep them well cleaned during the summer months.

Endrin — A New Insecticide

One of the latest insecticides developed for control of cotton insects is endrin. Entomologists report that it comes very close to being an all-purpose cotton insect control material.

A close chemical relative to dieldrin, endrin is now widely used to control bollworms, boll weevils, thrips, cotton leafworms, cotton fleahoppers, and lygus bugs. It will not control pink bollworms, aphids, and spider mites.

Endrin is included in the recommended insecticides for controlling cotton insects in most states. As is the case with respect to other insecticides, users should follow closely the directions of the manufacturer. The material is toxic to human beings and other warm-blooded animals.

Storage Houses Profitable for Sweet Potatoes

The use of storage houses for sweet potatoes has increased rapidly in recent years and has done much to stabilize the marketing phase of the industry. Properly stored sweet potatoes will maintain their quality for several months; hence, marketing can be extended virtually throughout the year.

Louisiana State University specialists urge sweet potato growers to clean out their storage houses as soon as last year's crop is sold. All rotten potatoes and trash should be removed. After cleaning the house, the walls, floors, bins, and crates should be sprayed with a mixture of DDT and bluestone, using 4 pounds of 50-percent wettable DDT and 2 pounds of bluestone to 50 gallons of water.

Growers who do not have adequate storage facilities available for this year's crop should investigate the possibility of constructing such houses on their farms.

Publications

Texas Agricultural Experiment Station, College Station:

Texas Watermelon Variety Trials, 1951-53, Progress Report 1645, by H. C. Mohr and others.

Influence of Nitrogen, Phosphorus, and Potassium on the Yield of Sweet Potatoes on Hockley Fine Sandy Loam Soil, Progress Report 1646, by J. M. Coruthers and D. R. Paterson.

Beef Cattle Management on Brazos River Bottomland, Miscellaneous Publication 103, by F. A. Wolters and others.

Control of Insects and Diseases Attacking Peaches in East Texas, Progress Report 1656, by D. R. King and H. F. Morris.

Grain Sorghum Fertilizer Trials in South Texas, 1953, Progress Report 1655, by Flake L. Fisher and others.

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

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