

# FARM AND RANCH BULLETIN

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## BETTER SHEEP THROUGH PERFORMANCE TESTING OF RAMS

The sheep industry is confronted with the problem of maintaining its position in a competitive economy, according to Maurice Shelton, Associate Animal Husbandman and Geneticist with the Texas Agricultural Experiment Substation at McGregor, and Fred Campbell, Assistant Animal Husbandman with the Substation at Sonora. Increased productive efficiency through continued improvement in breeding flocks is one of the best ways to solve this problem, and selection of animals is the only method yet demonstrated that results in breeding flock improvement.

Recent studies have shown that selection of breeding animals is accomplished most effectively through the use of production records, especially on rams, as a supplement to the current practice of selecting animals by visual appraisal. Visual selection is a useful method for obtaining the desired length and quality of wool, amount of face covering, and skin fold characteristics in the sheep; however, undue or excessive emphasis on these characteristics can result in the sacrifice of other desirable traits. Simultaneous selection should be practiced for the most important traits in sheep breeding, with emphasis on each in proportion to its contribution to income or to economy of production. As the over-all quality of the breeding flock increases, progress in herd improvement becomes more difficult; therefore, newer, more effective selection procedures should be followed.

Important differences are found in the performance of individual animals, and these

differences cannot be predicted accurately by visual appraisal. Since inheritance partially controls differences in performance of sheep, the collection and proper use of performance records will result in continued flock improvement, point out the animal husbandmen.

Data obtained under feed-lot conditions at the Texas Agricultural Experiment Substation at Sonora indicate that some rams gained weight at almost twice the rate of others. Similar, although less marked, differences occurred when animals were tested under pasture conditions. Some of the variations in individual ram performance resulted from uncontrollable environmental factors, such as size and health of the individual ram; however, a significant number of the differences in individual animals are due to heredity. The degree of hereditary control over any characteristic may be measured or estimated.

Estimates of the effect of heritability on performance have been obtained from records on 45 rams at various experiment stations. These and other studies have shown that the heritability of staple length of wool, face covering of the animals, and skin folds is quite high. Growth rate and wool production usually are moderately heritable, while heritability of body conformation is quite low.

Studies involving high-performing rams indicate that these animals are capable of siring lambs of substantially greater value than those sired by low-performing rams. In 1958, weaning records were made on four ranches where tested, high-performing rams were compared

with visually selected, good-quality rams. At weaning time the lambs from the tested rams outweighed the others by 2.2 pounds to as much as 7.4 pounds. On three of the four ranches, staple length of the wool ranged from 7 percent to 9 percent longer. Differences in other characteristics — such as conformation, face covering, and skin folds of the animals — generally were slight.

Progress in animal breeding depends entirely on the selection differential (superiority of the selected animals over the general average of the flock). Most sheep producers, especially commercial producers with large flocks, find it impossible or impractical to collect records on every animal. Fortunately, this procedure is not necessary, since most of the progress in sheep breeding is a result of proper selection of rams. Messrs. Shelton and Campbell indicate that 75 percent to 90 percent of the progress in sheep breeding probably will be made through ram selection.

Commercial producers, as a practical matter, can restrict the collection of performance records to rams, where major improvements can be obtained with relatively little effort. However, producers maintaining stud flocks — especially those producing rams for sale — should consider keeping more intensive records on their entire stud flocks.

Messrs. Shelton and Campbell list the following suggested procedures for performance testing of ram lambs.

1. Select the most promising ram lambs at weaning time and make postweaning performance tests on the ranch or at established testing stations.
2. Identify, shear, and weigh each animal.
3. Place the rams on a good range or pasture or self-feed in dry lot.
4. Weigh the rams periodically in order to determine the rate of gain.
5. Shear the animals a second time at the next regular shearing or after about 6 months.
6. Measure or score animals for rate of gain, wool production, staple length, face covering, and skin folds.

7. Select only the animals that rate high in all of these characteristics and conform to acceptable standards as to body type and wool quality.
8. Dispose of sheep that are low performers.

## Egg Spoilage Mystery Solved

Washing eggs in water containing a high concentration of iron (5 to 10 parts per million in solution) has been found to increase the rate and extent of egg spoilage, according to the United States Department of Agriculture. This discovery helps solve a mystery that has plagued egg producers for years: why washing seems to increase egg spoilage in some instances but not in others.

USDA studies show that wash water containing excess iron carries the iron through the shell and shell membrane into the inner egg tissue. Here, the iron reverses the protective action of an egg's conalbumin—the iron-binding protein in egg white — and accelerates spoilage.

## Stockmen Alerted for Livestock Sunburn



Photosensitization, a non-contagious livestock disease, has been widespread in northeast and east Texas and parts of Louisiana, according to veterinarians with Texas A. & M. College and Louisiana State University. The disease is caused by a combination of three factors: green forage, mold growth, and sunlight.

The condition develops when, because of the effects of certain molds, the liver is unable to eliminate toxic agents from the animal's body, causing it to be more susceptible to sunlight. Direct sunlight on an animal that has an above-normal amount of light-sensitive products in its system will cause the disorder to develop.

Cattle, sheep, goats, horses, and swine may be affected by photosensitization. The first noticeable symptoms are kicking and scratching, switching of the tail, shaking of the head, rubbing against stationary objects, and licking and biting the affected parts. Animals become



extremely sensitive to sunlight, and they may become yellow in color when afflicted with the disease. Milk production is lowered rapidly. The death rate of affected animals ranges from 2 percent to 10 percent.

The disorder may be prevented by moving animals from the pastures where they are grazing to other pastures or dry lots. Adequate protection from direct sunlight, together with supplemental feeding and treatment of the affected animals, will be very beneficial in reducing the severity of the condition.

### **Sugar Mixed Into Soil Kills Nematodes**

Ordinary sugar mixed into the soil is an effective killer of nematodes (microscopic soil-infesting eelworms), reports the United States Department of Agriculture. Nematodes exist in soils everywhere and are among the world's most destructive pests. They are believed to damage virtually every crop each year, and uncontrolled infestations often make cropland unfit for economical production.

The usefulness of sugar as a nematocide was discovered by Dr. W. A. Feder, Plant Pathologist with the USDA, and his associates. Sugar is the first nematode-killing material discovered that is nontoxic to warm-blooded animals and leaves no residue in the soil.

Sugar mixed into soil infested with these crop-damaging pests — at rates of 1 part sugar to every 20 to 100 parts soil — killed up to 100 percent of the nematodes within 24 hours in USDA tests. Dr. Feder explained that the nematodes died from dehydration, rather than from any toxic effects of the sugar. The sugar could not pass into the nematodes' bodies, but water passed out of their bodies to dilute the sugar solution in the soil.

Experiments in which sugar was added to nematode-infested soil of varying moisture levels showed that as moisture content was reduced, sugar concentration and nematode mortality were increased. From these experiments, Dr. Feder concluded that predictable percentages of nematode kill would result from the addition of specific amounts of sugar to

nematode-infested soils of known moisture content.

The experimental sugar-soil treatment is subject to further research to determine its potential value as a practical means of nematode control.

### **Chigger Bites Can Lower Turkey Grades**

Chiggers, or red bugs, have been causing trouble with turkeys produced on the range, says Bill Cawley, Assistant Poultry Husbandman with the Texas Agricultural Extension Service. Chigger bites cause a severe irritation which leaves a red blemish on the fowl's skin. A few such blemishes can significantly reduce the market grade of a bird, and large numbers of bites can result in condemnation of the turkey's carcass.

Mr. Cawley says that Texas processing plants have reported the presence of chiggers on turkeys that are to be marketed this year, and he suggests that producers treat infested ranges for control of the pests. One control measure recommended is a 5-percent malathion dust applied at the rate of 15 pounds to 20 pounds per acre, or a spray using 1½ pints of 57-percent emulsifiable malathion concentrate per acre. If the spray is used, the amount of water needed will depend on the quantity of liquid the sprayer discharges in covering an acre. Turkeys should be removed from the range before the malathion is applied and should not be returned for 24 hours afterward.

Another control measure is the application of 25 pounds to 50 pounds of sulfur dust per acre, depending upon the amount of vegetation. Birds do not have to be removed from the range when sulfur dust is used.

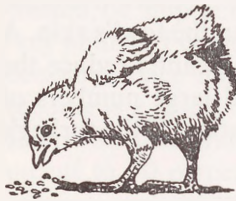
### **New Publication on Beef Grades**

A recent study released by the United States Department of Agriculture tells how well USDA beef grades measure the characteristics of beef that are important to consumers — tenderness, juiciness, and flavor. The publication, "Beef Muscle Characteristics as Related to Carcass Grade, Carcass Weight, and Degree of Aging," demonstrates a positive and consist-

ent relationship between grade and palatability of the meat. The study shows that the higher grades of beef are significantly more tender, juicy, and flavorful than lower grades.

Single copies of the publication, USDA Technical Bulletin No. 1231, may be obtained without charge from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

### Early Vaccination of Broilers For Fowl Pox



Fowl pox vaccination of broilers — using the wing-stab method—at 2, 4, and 6 weeks of age had a slightly depressing effect on the growth rate of the birds, according to a recent study by the Texas Agricultural Experiment Station.

Vaccination of broilers at 2 weeks of age depressed their growth rate during the first 4 weeks about 4.6 percent as compared with a nonvaccinated control group. Vaccination at the age of 4 weeks decreased the growth rate 3.2 percent during the birds' first 6 weeks, compared with the growth rate of untreated birds; and vaccination at 6 weeks decreased body weight 2.8 percent as compared with the nonvaccinated birds. By the time they were 9 weeks old, the birds which were vaccinated at 2 weeks and 4 weeks of age had almost recovered from the systemic effects of vaccination as measured by body weight.

The market grades and feathering of the nonvaccinated birds were significantly better than those of the vaccinated lots. No differences in feed efficiency and livability were noted.

The Texas A. & M. study points out that, although there may be slight effects from early fowl pox vaccination of broilers, losses from a natural outbreak of fowl pox probably would be considerably more than losses incurred as a result of vaccination. With good management, the amount of depression from vaccination should be relatively small.

### Land Purchase Contracts

More and more young people are having difficulty entering the farming business because of the high initial investment and large amount of operating capital required, says C. H. Bates, Farm Management Specialist with the Texas Agricultural Extension Service. These potential farmers may have the necessary capital for one of these expenses but not enough for both.

Land purchase contracts—sometimes called deferred payment contracts—are being used increasingly to overcome this obstacle. Since they cover a long period of time and involve a considerable amount of money, the contracts should be prepared by an attorney.

Many factors about land contracts favor both the buyer and the seller. From the buyer's standpoint, land contracts are desirable because only a small downpayment is necessary; thus, the buyer is able to devote greater capital resources to operating or production needs. Interest payments are deductible for income tax purposes.

The seller benefits from the longer terms because capital gains taxes are spread over a number of years. Selling by land contract increases the number of potential buyers and permits retention of the deed by the seller until substantial payments are made. Moreover, less delay and expense are necessary in case of repossession.

Land contracts have some drawbacks, however. They are unfavorable to the buyer because of relatively high interest payments on a large unpaid balance. The purchaser faces risk of termination of contract and loss of contract rights when a temporary decrease in earnings prevents regular payments. From the seller's viewpoint, a smaller downpayment is received, and there is a greater risk of damage to property before the purchaser acquires the deed.

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The National Safety Council points out that accidents kill one farm resident every 45 minutes, and every 32 seconds a farm resident suffers an injury which disables him for more than one day.