



← A group of sire prospects at the conclusion of a six-months performance test in the feed lot.

# Performance Test Selects Faster Gaining Cattle

There's a Difference in Ability Of Calves to Gain Weight Quickly

By O. F. Pahnish

In the feed-lot performance testing of prospective Hereford sires during the past two years, the University of Arizona has recorded appreciable differences in individual gaining ability and in feed utilization. Variations in average daily gain, over a six-months feeding period, have ranged from 2 pounds to 3.3 pounds. The differences in individual feed requirement per 100 pounds of gain varied approximately 20 percent in each of the two tests that have been completed.

The animals tested each year were a select group picked from an experimental herd on the basis of breedings, beef conformation and weaning weight for age. Therefore, it is possible that animals selected at random from a given herd might exhibit even greater variations in rate of gain and in efficiency of feed utilization.

The Arizona tests were conducted as part of a national beef-cattle improvement program emphasizing beef-cattle development through breeding. This program was prompted by experimental evidence indicating that growth rate or gaining ability and other associated characteristics are inherited.

The United States Range Livestock Experiment Station at Miles City, Montana, has found, for example, that approximately 72 percent of the variations in feed-lot gains are of hereditary origin. Further evidence, including the results of type studies made over a five-year period by the University of Arizona, has shown that the conformation of beef animals is not indicative of the ability to make rapid and efficient gains.

Recognition of the benefits that might be derived from additional investigation, along the lines previously described, has resulted in an expanded beef-cattle improvement program. This program now includes the agricultural colleges and experiment stations of the North Central, Southern and Western States.

Present investigations involve all of the popular beef breeds. Attention has been devoted to the evaluation of breeding systems, to the improvement of carcass quality and yield, and to the development of methods by which genetically superior breeding stock may be selected.

The results of the investigations will provide the breeders of purebred cattle an opportunity to develop breeding stock that will produce even more efficiently than at present. Commercial beef producers will benefit

through heavier market weights. Beef-cattle feeders will be provided an opportunity for greater returns from animals of desirable type that will make higher average gains and consume less feed per unit of gain.

The University of Arizona established a breeding project under the beef-cattle improvement program in December, 1948. This project is designed to provide data that will contribute to the over-all program and that will be of ultimate benefit to the beef cattle breeders and feeders of Arizona.

The participation of the Arizona station in the breeding program was dependent upon several major prerequisites. Beef cattle numbers that would partially compensate for the relatively slow rate of maturity and reproduction were essential. Purebred individuals of known breeding were of great importance, and the maintenance of the experimental herd under Arizona range conditions was highly desirable. Therefore, the participation of the Arizona institution was dependent upon cooperation with a private concern.

The Chiricahua Ranches Company of Sonoita, Arizona, generously offered the use of a purebred herd and maintenance facilities to which the experimental program could be adapted. A long-term project was begun, and data has been accumulated over a period of two years. Definite experimental procedures were made by the Animal Husbandry Department in 1948, and these procedures have been continued since that time.

## A Basis for Culling

Weights and conformation scores were initially assigned all individuals in the four-sire herd. The birth dates of all calves are recorded. These data combined with weaning weights and conformation scores provide a basis for culling the cow herd.

Individual weaning weights and conformation scores of all heifer calves, combined with additional weights and scores recorded for each animal at 18 months of age, serve as a basis for selecting female replacement stock.

Replacement sires are selected on the basis of individual weaning records, combined with the results of a six-months feed-lot performance test.

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**Daily (Except Sunday)**

KRUX, Glendale, 6:55 a.m.—Farm Front—Maricopa County Extension Agent.

**Sundays**

KOY, Phoenix, 9:05 a.m.—Demonstration Garden (County Agent) Program.

**Wednesdays**

KYUM, Yuma, 6:45 a.m. — Yuma County Agricultural Extension Service Radio Program.

**Fridays**

KCKY, Coolidge - Casa Grande, 4:30 p.m.—Pinal County Farm and Home Program.

**Saturdays**

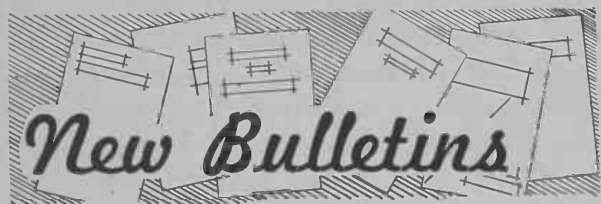
KGLU, Safford, 11:30 a.m.—Stepping Along with the Agricultural Extension Service.

**Mondays, Wednesdays and Fridays**

KGPH, Flagstaff, 12:45 p.m.—County Agent Program.

**Second Monday of Each Month**

KCLF, Clifton, 10:15 a.m. — The Homemakers' Program.



Here are new circulars and bulletins available without cost from your County Agricultural Agent's office:

**Agricultural Extension Service**

Color in Your Hands, Circular 178.  
4-H Activities Make Your Club Work Sparkle, Circular 187.

Grasshopper Control on Arizona Ranges, Circular 188.

Control Grasshoppers on Crop Land, Circular 189.

**Experiment Station**

**General Bulletins**

No. 234—Cotton Fertilization.  
No. 235—Cotton Cultivation with Tractors.

**Technical Bulletins**

No. 122—Absorption of Gypsum by Semi-Arid Soils.

**Seepage Losses In Farm Ditches**

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On four ditches, the seepage loss amounts to less than 4 percent of in-flow per quarter mile. If the same volume of water were carried in these ditches as in number 1, the annual seepage loss per one-fourth mile would amount to less than \$34, compared with the \$135 in ditch number 1. The majority of the ditches in the Salt River Valley undoubtedly would fall between these two extremes.

Every farmer has to determine at just what point between these two extremes seepage-control measures become economically feasible. A systematic method of arriving at this point is included in a manuscript entitled "Management of Field Margins on Arizona Irrigated Farms," proposed for publication by the University of Arizona later this year.

—Rex D. Rehnberg is Assistant Agricultural Economist.

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At the present time two bulls that were so selected are in use in the purebred herd.

A breeding program, of the type described, is essentially a long-term proposition, as the procedures must be evaluated in terms of the progress evidenced by each succeeding livestock generation. However, data accumulated by various experiment stations over a period of years provide evidence to justify a long-range beef cattle breeding program.

—O. F. Pahnish is Assistant Animal Husbandman.

**What About Those Neps?**

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web and the yarn appearance. The following table shows that the number of neps in 100 square inches of card web increased from 6 for hand-ginned samples to 64 for commercially ginned samples where lint cleaners were used. The yarn appearance index decreased from 123 to 85. One hundred is average. (See table below.)

As long as the present cotton shortage exists, Arizona growers may be able to sell to fair advantage regardless of neps. However, this condition may change in the future, and we will again face keen competition with Delta cotton. If we are still throwing

the maximum number of neps into our cotton when that time arrives, we will either not be able to sell at all, or will have to take the old discount again.

Irrigated cottons now have the advantage of greater yarn strength over most rain-grown varieties. If by breeding and careful harvesting and ginning, we can improve our position a little more from the standpoint of yarn appearance, we should be able to sell at a premium at all times.

—E. H. Pressley is Associate Plant Breeder; W. I. Thomas is Assistant Agronomist.

**Results From Spinning Tests**

	Type of Ginning				
	Experimental		Commercial		
	Hand	25-Saw Gin	No. 1 Without Lint Cleaner	No. 2 Without Lint Cleaner	No. 2 With Lint Cleaner
<b>Nep count in 100 sq. in. card web</b>	6	22	24	37	64
<b>Yarn Appearance Index—100 is average</b>	123	100	94	93	85