

## Research Seeks Better Alfalfa

Alfalfa seedlings are under scrutiny for varietal differences at the Agricultural Experiment Station, the Pennsylvania State University. All alfalfa seed look alike, Guy W. McKee superintendent of the Station Seed Service comments, but plants of certain varieties have measurable and observable differences.

Much alfalfa seed is sold under variety names but is not Certified. If particular varieties or mixtures could be recognized while growing in the field much misunderstanding and some times downright deception could be prevented, he believes. Certified seed is best because it

must come from a field that has been inspected by disinterested officials, in Pennsylvania supplied by the State Dept of Agriculture.

The value of improved forage crop varieties may be largely lost if varietal mixture and hybridization are not controlled, Dr. McKee emphasizes. Field trials, such as those under way with alfalfa, are necessary to verify evaluations made in laboratories, greenhouses, and growth chambers. Seedling plants of some alfalfa varieties are recognizable while quite small, he points out. Others must be allowed to flower before identification can be positive.

Dr McKee's work in alfalfa identification is part of a project in which scientists at the New York, Rhode Island, Maryland, and Maine sta-

tions are cooperating. Varieties under study include Vermont, Narragansett, DuPuits, and Williamsburg.

Comparable observations of flower color, time of flowering, plant type, height, leaf color, coarseness of stem, disease infestation, spring vigor, and fall dormancy will be made. In a fall management experiment, effects of three cutting dates, Sept. 15, 22 and 29, will be compared under varying climatic conditions.

Elmstone Major's Mary Rose, a ten-year-old Ayrshire cow owned by Masonic Farm Elizabethown, has a record of 12,465 lbs milk and 518 lbs butterfat on 2x, 305 days.

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## Use Superior Sires Don't Cull Low Producers

The value of superior progeny-tested bulls in raising dairy herd production is demonstrated by a recently completed 35-year Holstein-Friesian breeding experiment, the U. S Department of Agriculture reports.

Experiment records indicate that production by the progeny of low-producing dairy cows will rise to the herd average in a few generations if good transmitting sires are used. On the basis of this finding, Milton H Fohrman, leader of the trials at USDA's Agricultural Research Center, Beltsville, Md, advises dairymen to save the daughters of low-producing cows, if the herd sires used are production proved. No important benefit to herd production seems to result from culling these daughters, he says, although it is wise to cull their low-producing mothers.

This long-term experiment covered eight generations of un-culled, unselected cows. Only sires were selected. All heifers were raised and developed, regardless of their appearance or producing ability. They were housed, fed, and managed uniformly during the entire test period.

Use of proven sires resulted in rapid improvement in butterfat production (the basis of comparison in this herd) for the first five generations. The herd's yearly fat production increased from an average of 530 lbs. per cow to 703 lbs in the first five generations, but increased to only 711 lbs. in the last three generations.

Transmission of production characteristics from dam to daughter is not always consistent, test records show. Even when using proved bulls, the highest producing cows do not always have the highest producing daughters. In the experiments only 15 per cent of the daughters attained the same production class as their dams. There were 193 daughters of cows that produced more than 650 pounds of butterfat each during their best production year. These daughters ranged in production from 200 to 900 pounds, with an average of 693 pounds. The 194 daughters of cows that produced less than 650 pounds of butterfat ranged

in production from 200 to 900 pounds in their best year, with a group average of 617 pounds.

An estimate was made of the herd production that would have been possible if low-producing cows and their descendants had been culled. Twenty-one cows produced less than 425 pounds of butterfat during their best years. Culling all their daughters would have removed 176 cows that averaged 661 lbs. of fat. The 215 cows that would have remained in the herd averaged 651 lbs. of fat. The theoretically - culled herd actually outproduced the remaining herd, demonstrating again that heifer selection is not very effective when based on the level of dam production.

The Beltsville Holsteins are now among the highest producing uncullers in the world. New experiments are underway at Beltsville to see if further improvement in herd production is possible. A search is being made also for breeding methods that will increase their production.

Some of the cows are being mated to the very best Holstein proved sires in the U.S. and Canada through artificial insemination. Formerly, the herd sires were limited to bulls at the Agricultural Research Center or in nearby artificial insemination organizations. By searching over most of North America for sires, the USDA scientists hope to find some whose genes will amplify the production characteristics of the herd.

Another new experiment involves the use of the best sires of other dairy breeds to find out if cross-breeding will increase production in the herd. Still another experiment involves use of selected progeny-tested bulls, which are off-spring of the Beltsville cows. In these experiments, production comparisons will be made on the basis of whole milk rather than butterfat production.

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