

What Does *DHIA* Mean to Arizona?

Dairymen's Group Uses Cow Records

By W. R. VAN SANT

The primary purpose of a Dairy Herd Improvement Association is to afford the dairymen members an economical method of obtaining information they can use in improving the producing efficiency of their herds. The records of production, feed cost, and income enable the herd owner to cull the least profitable cows, to feed the rest according to their production requirements, and to select the most suitable animals for breeding up the inherent producing ability of the herd.

Dairy Herd Improvement Associations are organized by dairymen and are operated as agricultural extension demonstration projects under the supervision of the state extension dairyman and county agricultural agents, in cooperation with the Bureau of Dairy Industry.

The DHIA program was started in Arizona in 1916 and has been continuous except for the years of 1919 and 1920. The lowest number of cows on test since 1925 was 756 cows in 1933. During the month of March 1950, ten DHIA supervisors in four associations reported 12,845 cows in 234 herds on test. On January 1, 1950 Arizona ranked first in the nation on the percentage of the dairy cows in the state on test in DHIA with 25.6 percent.

The first step that any member of a dairy-herd-improvement association can do to improve the profitableness of his herd is to discard those cows that do not produce enough milk or butterfat to pay a return of twice their feed cost. Not only does this include the low-production cows, but also those that become unprofitable due to health and other reasons.

The records obtained each month show each cow's production and along with a close checkup of health and other factors, the dairyman is able to cull those that are not profitable. Therefore, the records will reveal the efficiency or inefficiency of every



Freeman Woods (right), dairyman near Tucson, discusses with his DHIA supervisor Bernard Law (left), the production records of daughters of his herd sire in evaluating his breeding program.

cow in the herd and the dairyman can take steps to replace the poorest ones with better cows as rapidly as they can be obtained. During the last association year, Arizona dairymen culled 1,895 cows out of an average of 10,505 cows on test each month.

Butterfat Per Cow Increased

There has been an increase of 72 pounds of butterfat per cow since 1930. Over the same period the Bureau of Agricultural Economics has reported an increase of 15 pounds of butterfat per cow for all dairy cows

in Arizona. This trend indicates that those dairymen in the DHIA make a more rapid progress in the development of higher production than the dairymen that do not test. However, since the dairymen in the DHIA do furnish breeding stock to other dairymen, they are able to help in the increased production of all dairy cows.

Studies made in past years of DHIA members have shown that dairymen who have tested ten or more years have increased their average production over 100 pounds of butterfat per

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Dairyman Woods (left) and the DHIA supervisor use the herd book to discuss production records and the feeding program for the cows in the herd. Mr. Woods is president of the Pima-Pinal Dairy Herd Improvement Association. He is a graduate in Dairy Husbandry of the College of Agriculture, University of Arizona.



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cow. Also, a study was made by comparing the herds on test for one year against those on test for 5 years or more. The difference was 36 pounds of butterfat per cow year more for the herds on test five years or more. Undoubtedly the increase in production is due to the use of the DHIA records to cull out the low producers, feed the better cows more and the development of a sound breeding program.

High-producing cows convert feed into milk and butterfat more efficiently and profitably than do low-producing cows. More production per pound of feed consumed means lower feed costs and greater returns above feed costs. For example, the average cow in the nation produces 200 pounds of butterfat with an income of \$110.00 over feed cost and \$.66 to produce a pound of butterfat. Whereas, the average dairy cow in DHIA in the nation produces 350 pounds of butterfat with an income of \$223.00 over feed cost and \$.47 to produce a pound of butterfat.

The quickest and surest way to improve the inherent producing capacity of a herd is through the use of a series of good herd sires. In one generation the herd sire contributes 50 percent to the genetic make up of the new heifers in the herd. By the fifth generation 97 percent of the genetic makeup of the new heifers in the herd is based on the sires selected. On an average, for every sire that improved the herd there have been two others that either failed to improve the herd or actually reduces practically all the improvement made by the good sire.

In order to get more basic information which will enable the dairymen to make better herd sire selection, the Bureau of Dairy Industry, in cooperation with State Extension Services began collecting individual lactation records in 1935 to "prove" large numbers of association sires. The records are also used in analyzing the breeding progress that is being made in many individual herds, with a view to finding improved strains and families from which desirable breeding stock may be selected.

Arizona herds in Dairy Herd Improvement Associations may be looked upon as a part of a mammoth breeding herd of national importance—one that is being improved constantly and

one from which breeding stock is gradually disseminated to improve the thousands of other herds that make up the nation's dairy cattle population.

—W. R. Van Sant is Extension Specialist in Poultry and Dairying.

Southwestern Bee Laboratory

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serious loss of beneficial honey bees if proper precautions are taken. This important problem will receive major attention as a part of the research program of the new Arizona laboratory.

Study Pollination of Melons

Todd and McGregor are now engaged in a study of the role of the honey bee in the pollination and set of melons grown in the Salt River Valley in cooperation with the Arizona Vegetable Growers Association and Orin A. Hills of the U. S. Department of Agriculture, Vegetable Insect Research Laboratory at Phoenix. Pollination and insecticidal factors which may favor an earlier and heavier set of fruit are being investigated. When this study is completed, the results will be of interest to all growers and shippers of melons.

A close, cooperative relationship is being created between the Southwestern Bee Culture Laboratory and the Department of Entomology of the University of Arizona. This will be reflected in cooperative research work and the sharing of laboratory facilities.

Beekeepers to Meet in Arizona

Because of the increased interest in beekeeping in relation to the pollination of agricultural crops in the southwest, the University of Arizona has invited the American Beekeeping Federation to hold its annual conference on pollination on the campus at Tucson during the last week of October 1950. This will be a national meeting with prominent speakers to discuss problems common to the beekeeper, farmer, and seed producer. All interested persons are invited to attend. Further details concerning the program will be released later.

—Laurence A. Carruth is Professor of Entomology and Head of the Department.

Chlorosis in Arizona Affects Many Crops

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fur must hit a certain percentage of the roots. In old trees a large part of the root system has retired to the subsoil where it is difficult to reach them.

Field tests with sulfur-manure mixtures have given excellent response on chlorotic sorghum and pinto beans. In these tests the sulfur-manure mixture was applied at rates of 250 and 500 pounds per acre. In the case of field crops it may be best to delay the treatment until the chlorosis develops, because the fields are usually spotted with green and chlorotic plants and in such cases it is not advisable to go to the expense of treating the entire field.

For old trees where the roots cannot be reached, a cure has been effected by plugging an iron salt into the trunk of the tree. Tests of this nature have been conducted in Santa Cruz, Cochise, Pima, Yavapai, Maricopa, and Graham counties on chlorotic apple, peach, and pear trees and for chlorotic grape vines in Yavapai county. A heavy irrigation immediately preceding or following the injection of the iron salt into the trunk promoted a quicker response. In one case the leaves greened up in 10 days.

It should be mentioned that all yellow leaves are not chlorotic leaves. Yellowing may result from a nitrogen deficiency, nematode injury on the roots, and other causes. In these, the yellow color is usually spread quite uniformly over the leaf. In chlorosis the veins are green and the area between the veins turns yellow to form quite distinctive patterns.

—W. T. McGeorge is Agricultural Chemist.

What Is "Crude Fiber?"

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The present method of feed analysis involving the crude-fiber determination is unsatisfactory. For research purposes this determination has been replaced by a detailed analysis of the various chemical fractions occurring in the feed. However, these analyses are long and expensive so are not suitable for routine use.

The perfection of a suitable method of analysis to replace the crude-fiber determination for commercial and general use is one of the big problems confronting animal nutritionists at the present time.

—B. P. Cardon is Associate Animal Husbandman and Associate Animal Pathologist.