Barley Improvement Pays Off

Breeding and Testing Program Adds Value to Important Crop

By HOWARD P. CORDS

Foundation Improved Arivat at the University Farm, Mesa.

A record 1950 barley crop in Arizona is almost a certainty, with predictions running as high as 175,000 tons of grain. Cotton acreage restrictions and water shortages have contributed to the increased popularity of barley in Arizona. Also the University Experiment Station, through breeding and testing, has helped make barley a more profitable crop.

This Experiment Station project got under way in 1930 when A. T. Bartel took over a newly formed small-grain improvement program set up cooperatively between the Bureau of Plant Industry of the U. S. Department of Agriculture and the Arizona Agricultural Experiment Station. In 1930, Common Six Row Barley was recommended for southern Arizona, though everyone recognized its many shortcomings, the chief one being an extremely weak straw. Today, it is doubtful if a single field of Common Six Row exists in Arizona.

Bartel's first move was to start a comprehensive testing program including varieties from neighboring states. Several of these yielded higher than Common Six Row. One of them, Vaughn, not only yielded 16 percent higher than the old variety, but also had a good stiff straw badly needed on some of the Arizona soils. Vaughn was released to Arizona growers in 1935. Later, this variety proved superior for pasturing as well.

The search for better varieties continued. In 1934 the Experiment Station received about fifty selections from an Atlas-Vaughn cross made by Dr. V. H. Florell in 1927. This cross was made at Davis, California, under the regional barley-improvement program of the U. S. Department of Agriculture.

After several years of testing, one of these proved superior to Vaughn in yield of grain and stiffness of straw. It was released to farmers in 1940 under the name Arivat. Today almost the entire barley acreage of southern Arizona is seeded to Vaughn and Arivat, the latter being far in the lead.

But wait! The story isn't finished yet. A slight mixture was detected in Arivat, and in 1940 a number of selections were made from the parent seed field. Two of these proved definitely superior in yield to the old Arivat, although almost identical in every other characteristic. One of these was released to farmers in 1948 under the name "Improved Arivat." To date, insufficient seed supplies have prevented most farmers from planting this new variety, but it is expected to replace Arivat through the seed-certification program of the Arizona Crop Improvement Association.

Under experimental conditions, Vaughn has averaged 16 percent higher yields than Common Six Row, while the yields of Arivat have averaged 9 percent more than Vaughn and 27 percent more than Common Six Row.

Using the 175,000-ton estimate for the 1950 crop and assuming the same percentage gain obtained experimentally, the extra grain which could be attributed to the use of Arivat, if that variety had been used exclusively, would be slightly more than 37,000 tons. At the current market price of $1.85 per cwt., this extra yield would be worth $1,370,000 to Arizona farmers. And this is for only one year!

—Howard P. Cords is Assistant Agronomist.

Use New Feeds for Arizona Cattle

(From page 8)

Chopped straw is recommended to facilitate removal of the silage from the trench silo. An analysis of this product indicated a value equal to hegari silage. Considerable loss due to shrinkage and spoilage can be expected in processing this mixture into a desirable feed.

Potato Meal

A surplus accumulation of Irish potatoes during World War II was salvaged for possible use as stock feed. They were dehydrated by drying in the sun and subsequently ground and packed. This product was made available for experimental stock feeding.

The results of one test are indicative that potato meal when used in an otherwise palatable and succulent ration, is equivalent in value to barley when fed as a partial replacement of this grain in the ratio of 60 parts barley and 40 parts potato meal.

Molasses

While not a locally produced feed, molasses is being incorporated in some cattle rations principally to improve their palatability and as a partial replacement of grain. This feed finds its most effective use in rations exclusive of silage and when its cost does not exceed 50 to 60 percent of the cost of barley.

For further details of cattle-fattening tests write to the Department of Animal Husbandry, University of Arizona, Tucson.

—E. B. Stanley is Animal Husbandman and Head of the Department.