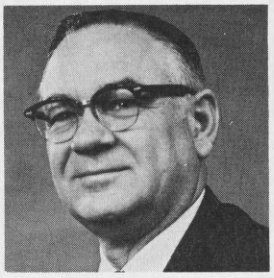
From the DIRECTOR



A. G. HAZEN

Several phases of the barley research being conducted by the North Dakota Agricultural Experiment Station are directed toward barley improvement regardless of classification, whether malting or feed varieties. Research emphasizes the characteristics desired in feed and malting varieties such as high grain yield, strong straw, adaptation to our diverse environment but able to respond to optimum conditions, plump kernels, ease of handling, and disease resistance (see article by Dr. Timian in this issue).

Such dual purpose barleys as Dickson and Larker yield as well as any present variety available. These barleys can always be used for feed, and for malting only if certain physical and chemical standards of the grain are met.

Dr. Arnold Schooler has crossed wild barleys with our cultivated types to introduce better disease resistance and other favorable traits into germ plasm which is directly usable as parents in the conventional barley breeding program. Short, stiff straw and leaf spot resistant lines have resulted from Dr. Schooler's program. These lines have been crossed with many other barleys in the regular barley breeding program. Researchers are now evaluating progenies for semi-dwarf, stiff straw and high yield characteristics.

The ultimate goal of Dr. Earl Foster's research is to develop hybrids which will out-perform self-fertilized barley varieties. The first hybrids grown commercially will probably be feed barleys, since they have fewer standards of performance to meet than malting hybrids.

Research on feed barleys and malting barleys has been carried on concurrently in the regular barley breeding program. Breeding materials that have agronomic potential for our area have not been discarded for lack of malting quality characteristics. If the opportunity exists, lines that combine feed and malting characteristics are selected, but potential feed barleys are not discarded at the expense of this dual type.

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In This Issue

ON THE COVER: Dr. Roland G. Timian, plant pathologist, United States Department of Agriculture, cooperative with the North Dakota Agricultural Experiment Station, inoculates barley seedlings with barley stripe mosaic virus. He reports results of some of his research in this issue.

NORTH DAKOTA
Farm Research
Bimonthly Bulletin

Vol. 28, No. 5 **May - June, 1971**

A BIMONTHLY progress report published by the
Agricultural Experiment Station, North Dakota State University of Agriculture and Applied Science
Fargo, North Dakota 58102

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From The Director . . . .

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In addition to research with short, stiff-strawed, high-yielding types, several crosses and backcrosses of adapted barleys have been made with Hiproly, an unadapted, disease susceptible, two-row, hulless (naked) barley. This barley reportedly contains the favorable combination of independently inherited high protein and high lysine, the essential amino acid deficient in cereals. Successful transfer of these traits should enhance the feeding value of barley, especially to non-ruminant animals such as poultry and young pigs that need high-energy feeds.

Some of the introduced two-row barleys have performed well in western North Dakota areas. Researchers hope to develop improved two-row types which will outyield present barley varieties in that area and for potential irrigated or higher rainfall areas. The two-row barleys offer greater and more uniform kernel size plus better stability under stress conditions for kernel size than six-row types.

Researchers have made several crosses recently with spring and winter barley varieties which have been outstanding performers in other parts of the country. This has helped widen the germplasm base. For several years, North Dakota research also has emphasized breeding for resistance to diseases such as loose smut, stripe mosaic and stem rust. This resistance is essential for the stability and productivity of both feed and malting barleys.

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of Agriculture and Applied Science
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Fargo, North Dakota 58102
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to

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United States Department of Agriculture

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