

third dimension | progress through research

# Wheat breeders look for high protein and taste

John Schmidt, UNL agronomy professor, is looking for a strain of winter wheat that can stand cold winter temperatures, resist disease and insects, have a high yield-per-acre and will still taste good when baked into a loaf of bread.

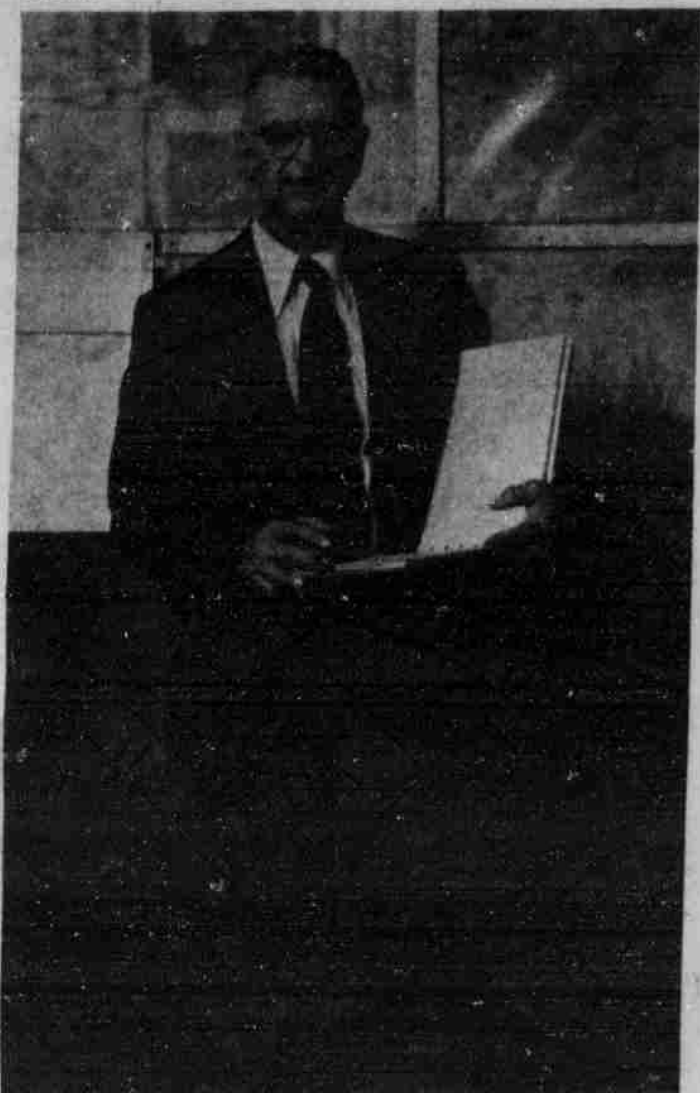


Photo by Steve Boerner

John Schmidt, agronomy professor at UNL, is one of several state and federal wheat breeders working to develop improved strains of wheat for Nebraska.

Schmidt is one of several wheat breeders from across the state and the nation who annually shift some 50,000 strains of winter wheat to obtain 25 varieties which have a chance of acquiring the characteristics listed above.

"Every year we throw away 90 to 95 per cent of a generation (of wheat)," Schmidt said. "The trick is finding the few strains that might have value."

These few selected strains are planted on test plots from Canada to Texas, he said.

Both state and federal breeders at UNL cooperate in the annual search for improved strains of wheat.

This year UNL will receive a \$530,000 grant from the Agency for International Development (AID), a division of the U.S. State Dept.

This grant will be used to improve the nutritional value of Nebraska wheat, which is distributed all over the world in foreign aid programs, according to Paul Mattern, UNL cereal chemist.

Mattern said AID test nurseries in approximately 40 countries grow winter wheat samples sent from Nebraska. Then, UNL wheat breeders check the grain for its nutritional quality, he said, including tests for absorption, rising time, loaf volume and protein content.

Before a test strain of wheat is pronounced successful, Mattern said, it is grown at four or five locations across the state to obtain a composite sampling of its various properties.

The wheat then is milled at Kansas State University (KSU) Manhattan, Kan., and returned to Lincoln. KSU has the largest experimental mill in the region, Schmidt said.

If the milled wheat passes baking tests, it is sent to the Small Grain Crop Variety Committee, comprised of members of UNL's Institute of Agriculture and Natural Resources, Schmidt said. It decides whether to plant the wheat strain on Nebraska farms, he said.

When selecting strains of wheat, he emphasized, breeders consider farming techniques as well as nutritional needs in the next ten years.

"If the farmer won't be able to use it, it's no good," Schmidt said.

UNL has experimented with new wheat strains since about 1890, Schmidt said, and made their first "break-through" about 10 years later when they proved that winter wheat, rather than spring wheat, was better suited to

Nebraska weather.

Today, about 7 state and federal wheat breeders conduct UNL's breeding experiments, Schmidt said. They are aided by several technicians, graduate students and undergraduate students.



Photo courtesy of Institute of Agriculture and Natural Resources

John Schmidt (left), agronomy professor and Paul Mattern, cereal chemist, study several varieties of Nebraska wheat annually.

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