

Northern Crops Institute: BREAKING NEW GROUND

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Ask people around the world what they know about North Dakota crops and from many you will get a very short answer.

That's a problem.

Part of the solution may be the newly organized Northern Crops Institute which soon will be teaching world food industry leaders how to purchase, process and use the crops of North Dakota and adjacent parts of Montana, South Dakota and Minnesota.

Operating from a new building on the campus of North Dakota State University, the Institute will offer educational programs to all manner of food industry professionals, from brewers and bakers and pasta makers to millers and commodity traders. The purpose of the programs: to attract new buyers of northern crops in developing areas of the world, particularly in Africa, Asia and South America, and to provide better service to established buyers at home and abroad.

**1981 Ranking Among All States of
North Dakota, Minnesota, South Dakota and Montana
in production of commodities
to be addressed by the
Northern Crops Institute***

Commodity	North Dakota	Minnesota	South Dakota	Montana
All wheat	1	7	—	4
Hard red spring wheat	1	2	4	3
Durum	1	6	5	4
Barley	1	3	5	4
Sunflower	1	2	3	—
Pinto beans	1	7	—	10
Flax seed	1	3	2	—
Navy beans	2	3	—	—
Dry edible beans	2	8	—	—
Sugar beets	4	2	—	9
Rye	4	2	1	—
Oats	5	1	2	—
Potatoes	6	8	—	—
**Mustard seed	1	—	—	—
**Buckwheat	1	2	—	—
**Rapeseed	1	—	—	—
**Canary seed	1	2	—	—

*Rankings below top ten not listed. Data from *North Dakota Agricultural Statistics*, 1982, compiled by North Dakota Crop and Livestock Reporting Service.

**Specialty crop, data from private communication of industry estimates.

Attracting buyers requires making people aware of what crops the northern plains region has to offer. It is common knowledge that California has grapes, Iowa has corn and Hawaii has pineapples, but not so commonly known that North Dakota leads the United States in production of barley, sunflower, pinto beans, flax, durum and hard red spring wheat. The Northern Crops Institute will inform prospective customers what crops are available in the region and will teach them how these crops may be efficiently purchased, processed and adapted for specific uses. It will aim to solve problems of present and potential customers which, unsolved, might cause them to opt for crops from other regions of the world.

What kinds of problems? Take, for example, a foreign grain buyer who requires high-protein wheat to mix with locally grown low-protein varieties. North Dakota grows high-protein wheat to suit his needs, but he has a problem if he hasn't the expertise to mill that wheat and mix it with other wheats to serve the particular baking requirements of his company or country.

He also faces problems when he goes to buy the Dakota wheat he needs. For one thing, he must master the intricacies of the Federal Grain Inspection Service grading system. If he doesn't, he is not likely to get the quality he thought he'd bargained for, and his disappointment when his shipment arrives will do neither him nor Dakota growers any good.

For another thing, buying American means he cannot deal with a single governmental office which handles all foreign grain sales, as he could if he bought from Canada or Argentina. Buying American means finding his way through a strange landscape of futures, selling short, hedging, selling long, and so forth. Though theoretically it may be possible for him to get the best and cheapest wheat by buying in the competitive American market, he can do so only if he understands the system.

Training him to understand the system, and to effectively process the commodities he purchases, is part of the mission of the Northern Crops Institute.

The Institute will also provide better service to established buyers of northern crops. Mel Maier, administrator of the North Dakota Wheat Commission, be-

lieves "we need to greatly expand our ability to provide technical and marketing assistance to our customers, both domestic and foreign, not only for wheat but for all other commodities. We need a focal point in the state to do this, a facility that has access to research and that is able to demonstrate in a laboratory setting the various methods of handling and various uses of the crops we grow."

Maier has been instrumental in getting the Institute established, largely because he expects it to be just such a focal point.

One way the Institute will carry out educational programs is through two-day to two-week short courses designed to meet whatever buyer, processor or consumer needs come up. Presently five courses have been developed. These include *Management of spring grains procurement for importers*, *Barley malt and beer quality evaluation*, and *Durum wheat production, marketing and utilization*.

Courses will emphasize practical application and will be taught through lectures, case histories, tours and laboratory demonstrations. Experts from the faculty of North Dakota State University and from private industry will serve as course instructors and as consultants for a number of other Institute programs, including the preparation of publications for distribution in the U.S. and abroad, on-site consultations to solve crop problems, identification of marketing problems abroad, and short-term research to solve all kinds of crop problems.

The director of the new Institute is Dr. Brendan Donnelly. Before coming to the Institute he was manager of the North American Plant Breeders cereal quality lab in Colorado and affiliate professor in the department of food science and nutrition at Colorado State University. Prior to that he was associate professor in the department of cereal chemistry and technology at NDSU. Like Maier, Donnelly sees the Institute as a place for bringing into clear focus the agricultural products of the entire region, both to solve problems relating to them and to publicize them.

"In the past, trade teams have shown a great deal of interest in the traditional crops of our region, in hard red spring wheat and durum, and when they came to campus we dealt with those crops only. Now we'll be able to call their attention to other crops as well, to say to them, 'While you're here, have a look at this display of edible beans, or potatoes, or buckwheat.' We'll have an excellent opportunity, in convenient surroundings, to tell the right people about the wide range of quality crops available in the Dakotas, Minnesota and Montana."

Donnelly believes he is promoting high-quality products. To do this he intends to provide high-quality educational programs. He considers it important that trade teams know they are dealing with high quality from the moment they enter the Institute.

At present the three-story building stands barricaded and desolate. The only sign of life is the twinkle of construction lights seen through an expanse of glass above the entrance. By February the barricades will be down, the Institute will be open. By early fall it should be fully operational.

Visitors will approach it across a patio of red brick. On entering they will find themselves in a professionally-designed display room where all commodities of the region are presented to view in glass cabinets. The walls will be hung with large color photographs of agricultural scenes.

"We want people to feel almost as if they are entering an art gallery," says Donnelly. "And we want this same sense of solid quality to be evident to them as they visit all areas of our facility."

The flags of forty or fifty nations will hang under a skylight just to the right of the display room, and whenever a national group visits the Institute their nation's flag will be highlighted. Hard to the right of the display room is the director's office and reception area.

Behind the display room a tiered and carpeted auditorium is under construction. Designed for formal intimacy, it will seat thirty people at executive-style desks. Each wooden desk will be trimmed with brass and equipped with headphones for listening to simultaneous translations of lectures, films and slide/tape presentations. Two booths for translators and a projection booth are at the rear of the auditorium.

The second floor of the Institute features a conference room which on one side looks out through an ex-



Dr. Brendan Donnelly, director of the Northern Crops Institute, looks over one of the demonstration laboratories under construction at the new facility.

pense of glass to the street and on the other side looks in through a glass wall to the bake shop and the food and pasta processing laboratory. Also located on the second floor will be a library and reading room.

On the top floor two analytical labs and a commodity grading lab are being built. Like the bake shop and the food and pasta processing laboratory, these will be used to demonstrate the handling and processing of northern crops. Office space also will be located here.

At all three floors the Institute will adjoin the old cereal chemistry building — appropriately enough, since the Institute will depend heavily on personnel from the cereal chemistry department to carry out its programs. In fact, the Institute evolved from a program begun more than ten years ago when the department of cereal chemistry and technology at NDSU began hosting foreign trade teams on campus and began sending faculty abroad to report to customers on the quality of the spring and durum wheat crops, and to help them solve problems in the use of these wheats. Trade team traffic to Fargo grew heavy over the years (last year thirteen teams came to NDSU), and in 1980 department chairman Orville Banasik requested funds for an addition to the cereal tech building so that visiting trade teams could be accommodated more easily and effectively. His request was denied by the state Board of Higher Education.

But in November of 1980 his idea was taken up by a Durum Growers Association meeting in Rugby, and enlarged. Soon commodity groups throughout North Dakota and Minnesota took hold of it and decided they wanted not merely an addition to the cereal tech building, but an independent crops institute. A bill was drafted, was sent to the North Dakota State Legislature in January 1981, and was passed in March. Nine months later ground was broken for the new Northern Crops Institute building.

The Northern Crops Institute is the first separate and distinct facility of its kind in the U.S. Similar in function to the Canadian International Grains Institute in Winnipeg, and to the International Grains Program which is housed within the department of grain science and industry at Kansas State University, its programs will deal with far more crops (see chart) than either of those institutions.

The director of the Institute is responsible to the director of the North Dakota State University Agricultural Experiment Station in matters administrative, and to the Northern Crops Council in matters of policy. Dr. Roald Lund is director of the Experiment Station. The Northern Crops Council is made up of northern crop producers plus state, university and commodity group officials.

Producer members of the first Northern Crops Council are chairman George Sinner, Ed Ross, Jim Johnston, Art Grandalen and Wes Tossett. Ross is from Minnesota and represents Minnesota wheat growers' interests

Crops of the Four-state Region— Percent of Total 1981 U.S. Production*

All wheat	26.4
Hard red spring wheat	89.7
Durum	82.3
Barley	50.2
Sunflower	99.3
Pinto beans	32.6
Flax seed	100
Navy beans	25
Dry edible beans	19.2
Sugar beets	21.7
Rye	46.5
Oats	41.3
Potatoes	10.7
**Mustard seed	100
**Buckwheat	100
**Rapeseed	100
**Canary seed	100

*Data from *Crop Production: 1981 Annual Summary*, SRS/USDA.

**Specialty crop, data from private communication of industry estimates.

on the council. The rest are from North Dakota. Other council members are Kent Jones, North Dakota commissioner of agriculture (or his designee, Dina Butcher); Dr. Joseph Stanislaw, NDSU acting vice president of agricultural affairs; George Howe, chairman of the North Dakota State Wheat Commission; and Marv Klevberg, chairman of the National Sunflower Association.

To get the Northern Crops Institute project started, the Legislature appropriated \$1.5 million to construct the new Institute building and committed \$60,000 to defray operating expenses in the 1981-82 biennium, but did not commit funds for staff. Commodity groups, farmer organizations, market development organizations, private industry and other organizations have provided approximately \$100,000 to support the Institute till July 1983 when the new budgeted biennium begins. Efforts are under way to have wheat producers in South Dakota and Montana be active participants in the Northern Crops Institute, and the Institute is seeking three-quarters of a million dollars from the North Dakota Legislature to cover initial equipment purchases plus operating expenses and staff salaries for the 1983-84 biennium.

Donnelly hopes the Legislature will grant the Institute permanent salary funding for a director, assistant director, technician and secretary.

What will be the return for this expense?

Probably no one will ever know, exactly. Mel Maier points out that "in order to be competitive in marketing you've got to be price competitive, you've got to be quality competitive, and you've got to be competitive in trade service. And the effect of trade servicing is probably the hardest to measure."

But one thing is certain. If prospective customers don't know what northern crops are available, or how to use them, or how to acquire them, they won't buy many.

acre and a value of 10 cents per pound, the value was \$250 million. The USDA and NDSU cooperative breeding programs have produced most of the superior disease resistant and productive sunflower inbreds used in hybrid sunflower production in this region. If hybrids produce 200 pounds more per acre than open pollinated varieties that might have been grown in the state, the research benefit would have added \$20 per acre or \$50 million to the sunflower crop value in 1980 alone.

The Fish and Wildlife Service, in their last evaluation, placed sunflower losses to birds at 1.2 percent of the crop in North Dakota and Minnesota, about 12 pounds per acre overall. Birds accounted for over 40 million pounds of seed in 1979 when 3.4 million acres were harvested. With oilseed prices at 10 cents per pound, North Dakota farmers lost about \$4 million. The bird

resistance program is budgeted at about 1 percent of the estimated annual loss of sunflower seed to birds.

Inbred lines with bird resistance can be incorporated into hybrid breeding programs. Additional studies are being performed to identify physical or chemical characteristics of sunflower that could provide resistance to bird attack.

The Seedstocks Project also is initiating research into production of dry edible bean seed in western North Dakota as a means of replacing the need for increase fields in Colorado, Idaho and Washington. If this research is successful, the savings to dry bean producers in terms of seed costs could be in the range of \$2 to \$3 million per year in addition to increased incomes from the sale of seed.

continued from page 5

The northern plains region has a whole lot of agricultural produce to offer, but for every crop raised on the northern plains which may interest a prospective customer, there is a competitive or alternative crop raised somewhere else that might interest him instead. North Dakota raises wheat, but so do Canada and Argentina and Brazil — and at the moment Canada can offer lower freight rates than the U.S., most countries have more favorable exchange rates than the U.S., and a good many countries have come to enjoy reputations as more reliable commodity suppliers than the U.S. All this means that it is more important than ever for North Dakota region producers to be certain that prospective buyers fully understand the advantages of purchasing high-quality products of the northern plains.

In offering educational programs, the Northern Crops Institute will work closely with the Foreign Agricultural Service of the USDA through U.S. Wheat Associates, a promotional organization with offices in Chile, China, Egypt, Holland, Hong Kong, India, Japan, Korea, Mexico, Morocco, Philippines, Singapore and Taiwan. U.S. Wheat Associates is supported by commodity groups in North Dakota and twelve other

states. Donnelly expects to use its vast network to make initial contact with a number of the trade teams that will come to Fargo for training. Because wheat is the best-known crop of the northern plains, it is a very good starting point for introducing the world to other crops of the region. Later, the Institute hopes to work with market development organizations such as the U.S. Feed Grains Council.

Donnelly is optimistic about what the Northern Crops Institute will accomplish for agriculture in North Dakota, Minnesota, Montana and South Dakota over the long term. He gets a little nervous, however, when anyone suggests that the Institute is going to turn up quick bucks for northern plains farmers. Education does not turn up quick bucks. It isn't a quick fix.

"Running a crops institute," says Donnelly, "is rather like running a farm. You cultivate, you sow, you wait. Maybe you make money the first year and maybe you don't. But if you do the job right, you expect to come out ahead over the long haul. We intend to do a good job of informing the world about northern crops, and in the long run we expect this to pay off."

continued from 9

Weiser hopes to set up tests this winter in which he can grind bean flour, inoculate it with bacteria and measure the gas produced. The information gained may be specific enough that he can then select bean lines and

modify through plant genetics. And of all the work done with flatulence in the past, none has been done from the plant genetics standpoint.