



NORTH DAKOTA Farm Research

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Guest Column

J.L. Ozbun
President



Mention the word biotechnology to the average citizen and you are likely to get one of two reactions: A, a glazed look will almost instantly cloud the person's eyes, or B, a look of total noncomprehension will appear--or some combination of the two.

Admittedly, biotechnology is one of those \$4.50 scientist/engineer words that rarely turn up in the lexicons of ordinary mortals.

And yet, among discoveries that will profoundly affect our everyday lives, biotechnology, or genetic engineering, as it is sometimes called, ranks right alongside splitting the atom and putting a man on the moon. It's a subject we all need to know and care a great deal about.

In the broadest sense, crops research at NDSU, which dates back nearly 100 years, was a primitive form of biotechnology. Breeding and crossbreeding plants to create stronger, more productive, disease-resistant varieties was an exercise in genetic engineering. One at which the NDAC's early scientists, and those who would come after them, became very proficient.

Today, however, through the use of highly sophisticated biotechnological techniques, plant breeders are able to carry on that pioneering work on a much higher plane. If we use that ability wisely, civilization as we know it can become the beneficiary.

Our state, nation, and the entire world rely so heavily on crops for food. Through the application of biotechnology, entire new crops may be created. Varieties of existing crops may become dramatically higher in productivity and/or animal nutrition, more resistant to the ravages of drought, disease and insects...the possibilities appear to be virtually limitless.

Appealing as these goals may be, however, they carry with them sobering responsibilities. Such dramatic changes in the production of food--both plant and animal--will have far-reaching implications for our methods of farming, size of farms, the environment, our economy and society. Thus, the implementation of biotechnological techniques in plant and animal research must be accompanied by studies of their ultimate effects on all of those facets of human life.

Nearly 30 years ago a conference was held on the NDSU campus that looked into the morality, the "bioethics" as it were, of manipulating the basic processes that determine how living organisms, both plant and animal, develop.

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On the Cover: Ed Deckard and Gary Secor examine some of the first transgenic plants developed at NDSU, potato plants which have been modified by selective insertion of specific genes. Biotechnology allows plant science researchers to find and move beneficial genes from many organisms into plants for selective improvement. In this issue, Deckard and Secor discuss plant biotechnology at NDSU.

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Gary Moran

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Scientists and science philosophers of international reputation came to the campus. In light of more recent developments, that conference was ahead of its time. Its proceedings remained in demand by other institutions through several reprintings for more than a decade.

Today biotechnology has become almost commonplace in both industrial research and at major research universities. If NDSU is to maintain its long-standing reputation in scientific plant and animal research, biotechnology must become an integral part of both its research programs and curricula.

The last issue of *North Dakota Farm Research* dealt with biotechnology in animal research. This one deals with plants. We invite you to read about the exciting work that is going on in NDSU classrooms and laboratories. That work will keep this university and the users of the knowledge generated here in the forefront of one of humankind's most profoundly significant discoveries.

Correction: A photo caption in the July-August issue of *North Dakota Farm Research* incorrectly referred to Kindred squash as an NDSU variety. Kindred squash was named and introduced by Ben Gilbertson of Kindred and received an All-America Selections Award at the time of introduction.

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