



Dr. Norman Borlaug.

The procedure is now at the first backcross stage and Larter predicts that five backcrosses will be needed to obtain a high-yielding hybrid corn with cold tolerance. By using growth chambers during the winters, the breeding program can be compressed to about three years. He expects that the improved corn varieties could be available for commercial production by 1990, about the same time as the new winter wheats. But Dr. Larter cautions that "trying to fit what is essentially a warm season crop into our cold season climate is going to take some tailoring."

Program's Progress

From 1979 to 1982, primary support for the University of Manitoba's cold crop program came from a Natural Sciences and Engineering Research Council (NSERC) strategic grant of over \$430 000. According to

program head Dr. Walter Bushuk, the achievements to date have been noteworthy. He points out, however, the difficulty of planning the financing of a crop breeding program that extends over a decade on NSERC strategic grants which ran for only 3-year terms, and are not necessarily renewed.

Nevertheless, Bushuk is satisfied with his program's progress. Some eastern Prairie farmers have already begun using zero tillage to produce winter wheat, although without rust resistant varieties the danger of an epidemic will preclude the practice becoming widespread. Both the wheat and corn breeding projects have developed promising lines which should eventually lead to the production of valuable new crops on the Prairies.

Another successful project is the selection and testing of strains of nitrogen-fixing root bacteria suitable for promoting the growth of legumes under prairie conditions. A company has been formed to manufacture these bacteria for inoculating legume crops. The program has also received an additional vote of confidence from NSERC which has given individual three-year grants annually to both Drs. Evans and Larter to continue their breeding projects.

Conventional agricultural research like the cold crop program lacks the glamour of research into areas of high technology such as computers and genetic engineering. Nevertheless, it could well be our best bet for meeting the food needs of the 8 billion people that will be living on our planet 40 to 50 years from now. This at least is the opinion of Dr. Norman Borlaug, winner of the 1970 Nobel Peace Prize for wheat breeding work which led to the recent dramatic increases in production in the Third World. Borlaug believes that the promise of genetic engineering for crop improvement has been overstated and that most funds should be dedicated to conventional plant breeding which represents, he says, "the major line of defense today on the food front." If Borlaug is right, there is perhaps no more important area of scientific research. ☞

Mr. Tisdall, a freelance science writer working out of Edmonton, Alberta, is the 1982 winner of the Canadian Science Writers' Association award for best article of the year written in the Science and Health category.