# More reduced tillage corn research needed

DES MOINES, Ia. — Do some corn hybrids really perform better under reduced tillage than those for which no such claims are made? All available studies say "no", according to Bob Seifert, Director of Corn Breeding for Pioneer Hi-Bred International, Inc. However, it should be possible to develop hybrids with superior performance potential in conservation tillage environments, he said.

In a paper presented at the 1983 annual meeting of the American Society of Agronomy in Washington, D.C., Seifert said the absence of any real differences should not be considered surprising.

"While hybrids currently being grown were selected and evaluated under conventional tillage systems", he said, "breeders have been working for years to improve germination, seedling vigor, disease resistance, insect resistance — all traits which are important to plants grown under conservation tillage."

Still, Seifert pointed out, there is an opportunity to develop genotypes which could be superior in reduced tillage system to those available today. And, given the continuing growth in conservation tilled-acreage, there is a definite need for additional research in this area.

The two most important traits on which corn breeders should concentrate are high germination and strong seedling vigor, Seifert said. Those characteristics equip the plant to handle several of the additional stresses associated with reduced tillage. The most common of these are the colder, wetter conditions that result from additional plant residue on the soil surface. But strong germination and early growth can also be a distinct advantage in competing with potential weed problems in conservation tillage environments.

One area of research which has received little attention but which could provide important information is in the area of roots.

"Given the whole environmental package of wetter soils, lower temperatures, and different fertilizer placement", Seifert said, "we might theorize that a horizontal, spreading, fibrous root system would have some advantages over a more vertical root system in a no-till system."

Corn hybrids with roots that grow rapidly in cold soils would also appear to be a fruitful area for study, Seifert added, even though there are currently no data suggesting any advantage.

He acknowledged that there may be special problems with diseases and insects under conservation tillage, but cautioned breeders against assuming that relationships are simple and straightforward.

"It's important to recognize that surface residue has the potential to increase some diseases, but the incidence and severity of others may decrease or not change. The same principle applies to corn insects. Additionally, there are interactions in which one disease may predispose corn to another disease. The result is that these relationships are a complex of various interacting factors rather than one of simple cause and effect."

Seifert concluded his remarks by listing his recommendations for conservation tillage corn breeding:

1. Set priorities on amount of effort to be put into breeding and testing for conservation tillage hybrids.

2. Set priorities on the hybrid characteristics which are most important for your area of responsibility.

3. Use special evaluations for germination and seedling vigor - plant early, use untreated seed, and laboratory cold tests.

4. Use special evaluations for diseases and insects - artificial inoculation/infestation and special nurseries where diseases/insects are present.

5. Consider doing a part of both breeding and testing effort under a conservation tillage system - no-till preferred.

6. For breeding and testing effort under conservation tillate use proper research equipment, good agronomic practices, and select fields carefully.

# Gordon gets agri-loan post

HARRISBURG — Commonwealth National Bank announces the appointment of Alma A. Gordon, Lancaster, as agri-loan credit and operations manager in the bank's Agri-Loan Department; she previously was Lancaster Region commercial lending administrator. Her office will remain at the bank's Lancaster Region headquarters, 28 Penn Square.

Gordon joined the bank in a clerical post in 1959 and by accepting posts with increasing responsiblity was promoted to loan administrator in 1970. She was named operations manager for the Lancaster Region commercial loan area in 1972, and commercial lending administrator in 1977.

A 1973 graduate of the Pennsylvania Bankers Association's School of Banking at Bucknell University, Gordon attended Penn State and has pursued studies through the American Institute of Banking. She is a 1958 graduate of Lampeter Strasburg High School.

Gordon is chairman of the Lancaster-Lebanon Chapter of the National Association of Bank Women.

A native of Lancaster County, Gordon resides in West Lampeter Township.