

PENNSYLVANIA MASTER CORN GROWERS ASSOCIATION

Between The Rows

Dr. Greg Roth
Penn State Agronomy Associate Professor

HIGH OIL CORN GETS MIXED REVIEWS IN 1997

During the past several years, high oil corn hybrids or blends have been introduced by the seed industry and marketed on a limited basis in our region.

The potential of these of added value corns is that they can be utilized by our poultry and livestock industry and could provide premium opportunities for corn producers as well.

Basically three factors influence the adoption of specialty corn as these high oils: markets, price, and agronomic performance. During 1997, we saw some activity in the development of local markets for high oil corn in addition to on farm feeding. That was a positive. We also saw some premiums offered for high oil corn, dependent on the oil content, in the 30 to 35 cents/bushel range. That too was a positive.

The difficulty was in the area of agronomic performance. There we saw some problems. These problems generally were centered on mediocre pollination in some, but not all, fields. The high oil corns on the market now are either hybrids or blends that utilize TOPCROSS technology. Historically, high oil hybrids have been difficult to develop that yielded competitively with normal hybrids.

A breeding method called TOPCROSS was developed by Dupont recently to introduce grain quality traits into corn without causing the yield drag. In the TOPCROSS technology,

a high yielding hybrid is converted to a male sterile version (one that produces no viable pollen) and then this seed is blended with a high oil pollinator line. About 8-10 percent of the seed in the bag is the high oil pollinator line and these plants eventually are responsible for pollinating the entire field. The pollen from these plants causes the grain on all of the plants to have a larger than normal germ and an oil content of 7-7.5 percent compared to 3.5 percent for normal corn.

It may seem that relying on 8 percent of the plants for pollination is risky, but in most cases it is not, since the pollinator lines are heavy pollen producers and they shed pollen over a longer period than normal corn hybrids. The technology has been growing rapidly with over a million acres of TOPCROSS corn grown in 1997 in the U.S. and more acres expected in 1998.

The TOPCROSS blends are available from Dupont to many seed companies. Most have at least some experimental lines and some have had commercial products on the market for several years. Recently, Dupont acquired part of Pioneer, so now Pioneer has access to this technology as well. Performance studies are more difficult to conduct with the TOPCROSS blends since you need about 40 rows of isolation from normal corn. This makes it difficult to conduct many tests in our region where normal corn is everywhere and even more difficult to replicate TOPCROSS and normal corn comparisons.

Studies by my colleagues in Ohio and Wisconsin have shown that TOPCROSS blends perform comparable to normal corn, anywhere from about 10 percent lower to about 5 percent better. Industry data from Pennsylvania seemed to generally corroborate these results. Based on this information, it appears if we can get the TOPCROSS hybrids to yield similarly to the normal hybrids and get about a 10 percent premium, we should be able to come out ahead. This year, performance suffered since we encountered more pollination problems in some TOPCROSS fields than usual. Yields in some of these fields were off more like 30 percent compared to normal. These fields showed signs of poorer pollination than normal corn in adjacent fields, although in most of the situations I saw the normal corn did not have great pollination either. The poor pollination appeared to be a result of severe drought stress during July and rootworm beetle feeding on silks and tassels. In general, the pollinator plants were shorter than the grain parent plants and appeared tolerate the drought and rootworm damage less than the grain parent hybrid. Pollen shed may have been reduced or delayed more from the pollinator plants under these extreme conditions. Similar problems were reported in Ohio this year. We should also note that there were some good TOPCROSS fields throughout the state where pollination was good and yield appeared to be comparable to normal corn.

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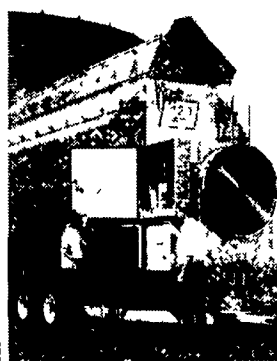
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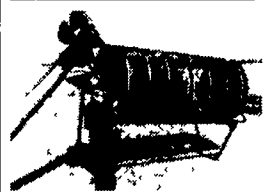
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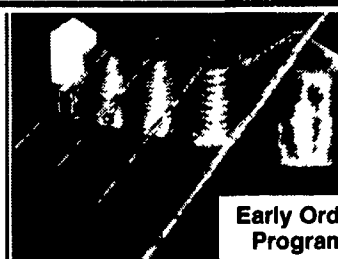
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