

On-farm Drought-tolerant Corn Hybrid Trials

RFR-A1303

Methods

Testing for drought tolerance was appropriate in 2013 due to below normal summer rainfall in much of the state. The AQUAmax™ drought-tolerant hybrids from DuPont Pioneer were tested against equivalent hybrids without drought tolerance. Trials were conducted in Monona, Crawford, and Story counties (Table 1).

Results

In Trials 2 and 3, AQUAmax™ hybrids produced statistically greater yields of about 20 bushels/acre than conventional hybrids (Table 2). In Trial 1, the AQUAmax™ hybrid also yielded about 10 bushels/acre more than the conventional hybrid ($P=0.06$). However, none of the drought-tolerant hybrids produced statistically greater yields than the conventional hybrid in the three Story County trials. Drought conditions were present during the summer at all sites, so it is unknown why there was no advantage seen with the drought-tolerant hybrids in the Story County trials. These results show that drought-tolerant hybrids can be advantageous in drought years, but the yield advantages may not always occur.

Table 1. Row spacing, planting date, planting population, previous crop, and tillage practices in drought-tolerant hybrid trials.

Exp. No.	Trial	County	Row spacing (in.)	Planting date	Planting population (seeds/A)	Previous crop	Tillage
130322	1	Monona	30	5/15/13	32,316	Corn	No-till
130323	2	Monona	30	5/14/13	32,316	Soybean	No-till
130324	3	Crawford	30	5/14/13	29,500	Soybean	No-till
130502	4	Story	36	5/15/13	25,000	Soybean	Conventional
130503	5	Story	36	5/16/13	25,000	Corn	Conventional
130504	6	Story	36	5/16/13	25,000	Corn	Conventional

Table 2. Yield from corn drought-tolerant hybrid trials.

Exp. No.	Trial	Treatment	Yield (bu/A)	Response (bu/A)	P-value
130322	1	Pioneer 34F07 (conventional)	147.5	10.6	0.06
		Pioneer 1151AM (drought tolerant)	158.1		
130323	2	Pioneer 34F07 (conventional)	204.0	18.6	<0.01
		Pioneer 1151AM (drought tolerant)	222.6		
130324	3	Pioneer 34F07 (conventional)	171.4	23.4	<0.01
		Pioneer 1151AM (drought tolerant)	194.8		
130502	4	Pioneer 34F07 (conventional)	183.9	1.5	0.80
		Pioneer 1151AM (drought tolerant)	185.4		
130503	5	Pioneer 34F07 (conventional)	180.5	- 4.1	0.46
		Pioneer 1151AM (drought tolerant)	176.4		
130504	6	Pioneer 621 (conventional)	168.6	2.0	0.83
		Pioneer 636 (drought tolerant)	170.6		