



Information

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2005 Double Crop Corn Hybrid Performance Test

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Introduction

Corn is a grain crop of major importance in the mid-Atlantic region. The region has a better than average demand for corn supported by the large poultry broiler industry on the Delmarva and by a sizable dairy industry scattered across the region. Demand for feed corn by the poultry industry alone has been estimated to exceed Maryland's average annual production by 50%. Recent developments have raised speculation that the region's demand for feed grains may grow even more.

Three separate entities have been actively researching the feasibility of fuel ethanol production in the region. Penn-Mar Ethanol, consisting of interested members from Pennsylvania and Maryland and Garden State Ethanol, a New Jersey based organization, have both been studying the feasibility of ethanol plants that would use corn as their primary feedstock. The Maryland Grain Producers' Utilization Board (MGPUB) is evaluating the construction of an ethanol plant that would use both corn and barley as feedstocks. Based upon plant size projections, if these three plants are built, the demand for corn in the region may increase by as much as 50 million bushel annually.

The Maryland group chose barley as one of its feedstocks for a number of reasons. First, there already exists a better than average corn market supported by the poultry industry that is concentrated in the Delmarva area. Second, barley has been considered a more suitable crop to precede double crop soybeans because of the relatively early date that barley can be harvested. Third, barley planted in the fall can function as a winter cover crop helping Maryland increase the number of acres that are planted to a winter small grain. Since barley is harvested throughout much of the Delmarva by mid-June and because there is a better than average corn market in the region, interest in the potential for corn as a double crop has increased.

The recent identification of Asian soybean rust in the United States has also fueled interest in double crop corn. Since soybean rust spores will not over-winter in the region, the disease will have to be introduced to the region each year via air currents and weather events carrying them from the south. It is expected that rust spores will not

likely arrive until mid- to late-summer. If this is the correct scenario for Asian rust, predictions are that the later planted double crop soybean crop will be damaged more by the disease than full season soybean. If Asian soybean rust proves to be an annual pest problem for the mid-Atlantic region, the costs associated with managing this disease in double crop soybean, a crop that is often marginally profitable, may influence farmers to choose another double crop option like double crop corn.

Seventeen corn hybrids representing three seed corn companies were submitted for testing. Plots were established following barley at Wye Research and Education Center and Lower Eastern Shore Research and Education Center-Poplar Hill Facility. Production information pertinent to each site can be found in Table 1. There was adequate soil moisture for germination when the corn was planted following barley harvest and stand establishment was good at both locations. Early to mid summer precipitation was above normal (Table 2) supporting rapid growth through the vegetative growth stages. Rainfall continued to be timely and sufficient at Wye until mid-late August allowing for good pollination and grain fill. However, at Poplar Hill, rainfall was in short supply from early August through September affecting the yield at that location. Dry conditions during September, at both locations, pushed the crop to physiological maturity by late September and allowed for a relatively early harvest at both locations.

One disadvantage to later planted corn was observed at Wye this year. Since the double crop corn was still in the milk and dough stages during early September at the same time flocks of birds were beginning to gather for fall migration, some of the hybrids at this location became the target of substantial bird feeding damage (Table 3). At Poplar Hill, another potential disadvantage to late-planted corn was observed. Late summer droughty periods are not an uncommon occurrence. The effects of the late summer drought at Poplar Hill can be seen with the reduced yield for that location (74 bu acre⁻¹) compared to the Wye (139 bu acre⁻¹) (Table 4). There was no apparent hybrid stability across the two locations during 2005. Hybrids that performed well at one location were often those that performed poorly at the other location.

Double crop corn is certainly an option in this region and there have been years when it produced well in hybrid trial situations, however, there are also a number of potential yield limiting stresses that can occur for this cropping system practice.

Acknowledgments

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Table 1. Production information for 2005 double crop corn hybrid performance tests.

<u>Production Practice</u>	<u>Wye</u>	<u>Poplar Hill</u>
Soil type:	Matapeake silt loam	Mattapex silt loam
Planting date:	17 June	16 June
Row Width:	30 inches	30 inches
Previous Crop:	Barley	Barley
Fertilizer:	Sidedress = 141 lb a ⁻¹ from 30% UAN @ G.S. V5-V6; No P or K fertilizer was used.	Pre-emerge = 35 lb N a ⁻¹ from 30% UAN; Side-dress = 88 lb N a ⁻¹ from 30% UAN @ G.S. V4-V5. No P or K fertilizer was used.
Lime:	None	None
Herbicide:	Pre-emerge = AAtrex 4L @ 1 qt a ⁻¹ ; Dual Magnum @ 1.5 pt a ⁻¹ ; Basis @ .33 oz a ⁻¹ ; Glystar Plus (glyphosate) @ 1.5 qt a ⁻¹	Pre-emerge = Roundup Ultra Max @ 28 oz a ⁻¹ + Bicep II Magnum @ 2 qt a ⁻¹ Post-emerge = Accent @ 0.66 oz a ⁻¹ + Banvel @ 0.50 pt a ⁻¹ @ G.S. V8-V9
Plots:	4 rows, 26 feet long	4 rows, 26 feet long
Seeding rate:	24,500 seeds a ⁻¹	24,500 seeds a ⁻¹
Tillage:	No-till	No-till
Harvest date:	17 October	17 October

Table 2. Monthly precipitation (inches) received during the growing season at the two locations where the test was conducted.

Month	Wye	Poplar Hill
May	4.94	4.94
June	2.41	3.84
July	5.06	5.01
August	5.05	1.86
September	1.68	0.39
Total	19.14	16.04

Table 3. Performance of double-cropped corn hybrids evaluated at Wye Research and Education Center, Queenstown, MD during 2005.

Brand/Company	Hybrid	Yield (bu/A)¹	Moisture %	Lodging² %	Bird Damage %	Population (pl/A)
Trisler by Augusta	T5240CB	179.3*	20.6	0.0	2.7	21912
Trisler by Augusta	T05-113CBRR	157.6*	26.8	1.5	0.7	24349
Trisler by Augusta	T05-108CB	154.0*	23.4	0.0	9.4	20328
Trisler by Augusta	T5160CB	151.6*	21.4	1.6	8.2	20998
Augusta	5244RRCB	147.1*	18.7	3.1	20.1	21222
Trisler by Augusta	T0553CB	145.7	22.2	0.8	5.7	21522
Trisler by Augusta	T05-110CB	145.1	23.2	0.0	14.9	21110
Trisler by Augusta	T03-80CB	144.5	22.4	0.0	19.3	22003
Trisler by Augusta	T03-84CB	142.0	27.0	2.0	13.9	21445
Trisler by Augusta	T05-107CB	141.2	24.6	1.2	2.4	19993
Augusta	2375CB	139.2	17.2	0.5	12.9	21668
Trisler by Augusta	T05-111CB	134.4	23.4	0.0	19.9	20998
Augusta	2744CB	128.8	22.6	1.2	5.9	19323
Trisler by Augusta	T05-109CB	128.8	21.9	0.6	21.1	20676
NK Brand	N45-A6	118.4	19.2	1.0	6.3	22003
Doebler's	494RYG	109.7	14.7	4.4	16.8	18541
Augusta	5232BT	101.7	25.2	2.9	21.4	19099
	Trial Mean	139.0	22.0	1.2	12.0	21005
	LSD _{0.10}	32.2	5.2	2.8	17.8	2328
	CV%	16.8				

¹Yields are reported at 15.5% moisture content.

²Lodging is recorded as the percentage of plants broken below the ear and/or leaning 45° or greater.

*Hybrids with an asterisk are not significantly different for yield from the top hybrid at this location.

Table 4. Performance of double-cropped corn hybrids evaluated at Lower Eastern Shore Research and Education Center-Poplar Hill Facility, Quantico, MD during 2005.

Brand/Company	Hybrid	Yield (bu/A)¹	Moisture %	Lodging² %	Population (pl/A)
Trisler by Augusta	T05-111CB	125.0*	18.6	3.0	15658
Trisler by Augusta	T05-109CB	103.0*	15.5	4.1	19137
Doebler's	494RYG	97.5*	20.3	0.7	17703
Trisler by Augusta	T05-110CB	94.0*	21.5	1.9	20998
Augusta	2744CB	93.1*	24.3	0.0	20775
Trisler by Augusta	T03-84CB	91.9*	29.2	1.2	18690
Trisler by Augusta	T05-113CBRR	88.0*	28.7	0.6	18373
Trisler by Augusta	T05-107CB	71.9	25.7	1.0	19230
Augusta	5232BT	70.9	29.3	0.6	17629
Trisler by Augusta	T05-108CB	65.9	24.5	2.3	16828
Augusta	5244RRCB	59.2	36.2	3.6	19434
Trisler by Augusta	T03-80CB	57.8	33.2	2.8	18950
Trisler by Augusta	T-0553CB	53.7	40.3	4.8	20514
Trisler by Augusta	T5160CB	53.0	38.7	4.4	18895
Trisler by Augusta	T5240CB	52.1	35.7	0.8	18597
NK Brand	N45-A6	50.4	34.9	2.7	21743
Augusta	2375CB	45.9	29.9	2.6	20998
	Trial Mean	73.8	28.8	2.2	19136
	LSD _{0.10}	39.6	13.1	2.1	3763.0
	CV%	38.8			

¹Yields are reported at 15.5% moisture content.

²Lodging is recorded as the percentage of plants broken below the ear and/or leaning 45° or greater.

*Hybrids with an asterisk are not significantly different for yield from the top hybrid at this location.