

IRRIGATED CORN RELATIVE MATURITY BY PLANTING DATE

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An experiment was conducted at the Carrington Research Extension Center in 2003 to evaluate the influence of planting date and hybrid maturity on irrigated corn grain yield, test weight, and harvest moisture. Treatments consisted of nine hybrids with relative maturity ratings ranging from 78 to 92 planted at three planting dates; April 30, May 21, and June 5 (Table 1). Two pairs of conventional hybrids and their corresponding, near isogenic, Bt lines were included to determine if there was a yield advantage of Bt compared to non-Bt hybrids. The two conventional lines and corresponding Bt iso-lines were: 1) 35-50 RR and 35-51 RR/YGCB (Yield Guard Corn Borer) and 2) 39-47 RR and 39-48 RR/YGCB. The corn was planted in 30-inch rows at 28,000 seeds/acre in an irrigated site previously cropped to soybean. The trial was harvested October 19.

Table 1. Seed company and relative maturity rating for each hybrid.

Hybrid ^a	Seed company	Relative maturity rating
6378 RR	Integra	78
2791 RR	Seeds 2000	79
184 RR	Croplan	80
32-59 RR	Dekalb	82
35-50 RR	Dekalb	85
35-51 RR/YGCB	Dekalb	85
39-47 RR	Dekalb	89
39-48 RR/YGCB	Dekalb	89
42-95 RR/YGCB	Dekalb	92

^aRR=Roundup Ready, YGCB=Yield Guard Corn Borer.

Accumulated growing degree days from planting until the first fall frost (September 24) were 2021, 1908, and 1737 for the April 30, May 21, and June 5 planting dates, respectively. Moisture content of the grain at harvest typically increased when planting was delayed (Figure 1). The moisture content increased substantially when the 89 and 92 day hybrids were planted June 5. Test weight tended to decrease as the relative maturity rating increased (Figure 2). For each hybrid except 42-95 RR/YGCB, test weights were similar at the April 30 and May 21 planting dates. When planting was delayed until June 5, test weight was reduced for each hybrid. Grain yields were similar among hybrids at each planting date (data not shown).

When averaged over hybrids, each delay in planting resulted in a decrease in grain yield and an increase in plant height and ear height (Table 2)

Table 2. Number of European corn borer larva and larva tunnels per plant, plant and ear height, and grain yield averaged over hybrids.

Planting date	Larva		Plant height	Ear height	Grain yield
	Larva	tunnels	inches		bu/acre
	# / plant				
May 1	0.3	0.7	108.6	45.0	178.8
May 21	0.2	0.7	111.6	47.7	167.6
June 5	0.2	0.6	114.0	49.4	145.7
LSD (0.05)	NS	NS	1.6	1.5	7.5

Planting date did not affect European corn borer larva presence (Table 2). The Bt hybrids did have a lower number of larva and larva tunnels per plant but European corn borer incidence was relatively low resulting in no broken stalks or dropped ears (Data not shown). Grain yield of Bt hybrids were similar to those of their non-Bt-hybrid counterparts (Data not shown).

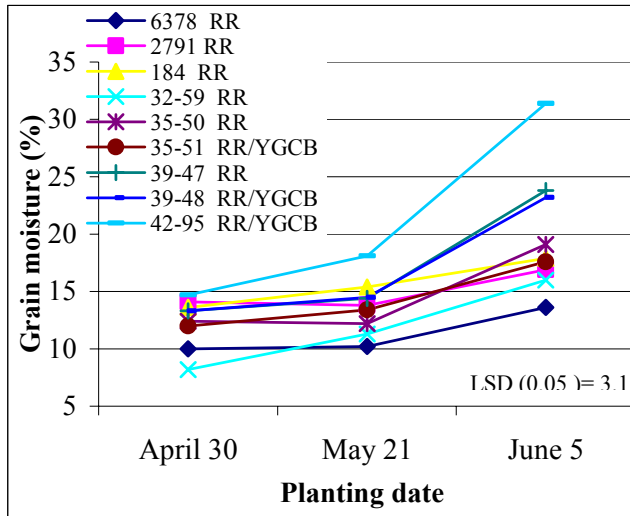


Figure 1. Grain moisture content at harvest as affected by planting date.

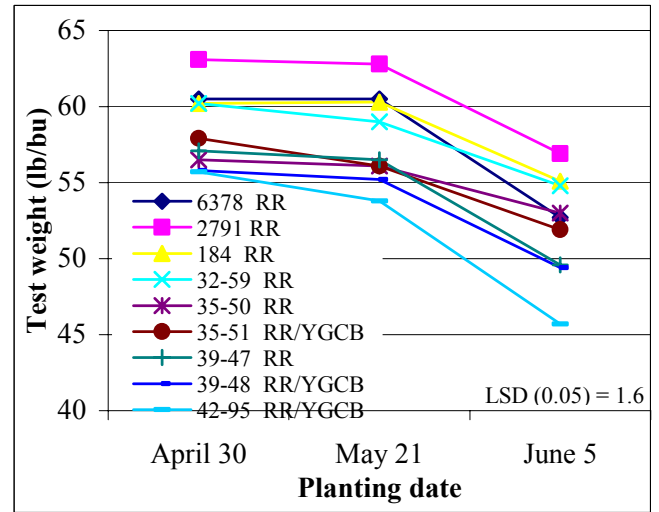


Figure 2. Test weight of corn at harvest as affected by planting date.