

2010 Kings-Tulare Silage Corn Variety Trial

Cooperators: M.F. Rosa Dairy (owner); Bo Champlin, (grower)

Soil type: Grangeville fine sandy loam, partially drained

Planted: June 1

Fertilizer:

Pre-plant - dairy manure at 20 tons/acre

Harvested: September 17 by Bob Headrick

June 16th - UN-32, side dress (177 units N)

Plot size: Six 38-inch rows by the length of the field (1240 feet)

July 22nd - UN-32, water run (30 units N)

Field variety: DeKalb 940

August 4th - UN-32, water run (13 units N)

Previous crop: Wheat

Pest control: July 5th; 2.5 pints Comite, 8 oz. Clarity, 1 oz. Option

Brand	At Harvest												
	Plants/Acre ¹	Tassel Rating ²	%Dry Matter ³		% Moisture	Tons/ Acre @ 70 %		% Lodging		Lbs./Ear ²⁻² @ 60%			
	6/16/2010	7/30/2010				Tons/ Acre	Moisture ¹⁻¹	Plant	Ear	Dry Matter			
NC+7373RB	33,833	0.30	27.2	fg	72.8	36.4	a	33.0	12.7	6.5	0	0.51	g
Cropland 9009 RH	31,611	0.60	26.5	g	73.5	35.0	ab	30.9	12.3	6.5	0	0.53	fg
Dekalb 940 (field)	31,334	0.70	29.8	ef	70.2	34.3	abc	33.9	13.0	6.7	0	0.62	abcdef
Eureka Seeds 7615 RR	31,945	1.70	30.6	e	69.4	34.2	abc	34.6	12.8	6.8	0	0.57	defg
TechAg TG 5600	32,222	1.80	30.6	e	69.4	32.6	abcd	33.6	12.8	6.3	3.3	0.59	cdefg
TMF2L844 (Mycogen)	32,278	0.20	30.3	e	69.7	32.1	abcde	32.4	13.0	6.5	0	0.54	fg
Dekalb 940 (field)	29,667	0.70	30.6	e	69.4	31.1	bcde	31.7	12.5	6.6	0	0.6	bcdefg
Blue River 73B33	32,389	2.80	32.0	de	68.0	30.2	bcde	32.2	12.3	6.3	0	0.67	abc
Golden Harvest 9690	31,389	3.70	36.5	ab	63.5	30.0	cde	36.4	12.8	6.0	0	0.68	a
Pioneer 31G70	33,333	1.60	32.4	cde	67.6	30.0	cde	32.4	12.8	6.2	11.7	0.62	abcdef
Dekalb 6788	33,389	3.30	35.4	bc	64.6	29.0	de	34.2	12.7	6.0	0	0.68	ab
NuTech 3A717	31,444	4.20	35.2	bcd	64.8	27.2	e	31.8	12.2	5.8	0	0.63	abcde
Integra 9650	32,389	3.80	36.6	ab	63.4	26.1		31.8	12.2	5.7	0	0.63	abcde
Masters Choice	32,555	3.20	34.2	bcd	65.8	25.8		29.3	12.0	5.5	0	0.55	efg
Northrup King N82-VGT	31,722	3.40	38.6	a	61.4	25.4		32.5	13.2	6.3	0	0.64	abcd
Baglietto 5408	31,667	4.20	32.9	cde	67.1	24.6		27.0	12.1	6.0	0	0.59	cdefg
Coefficient of variation			5.4			8.6		9.5	4.33	5.71	174.4	8.19	
LSD @ 5% (Fishers)			2.9			4.3		NS	NS	P=0.004	P=0.000	0.082	

Values within a column followed by the same letter do not differ significantly at the 5% level of probability using Duncan's Multiple Range Test.

1 Plant population based on 6 measurements (each 1/1000th of an acre per plot)

2 Tassel rating - 0=none; 5=complete

3 DM= Dry Matter (portion of plant that is not water). DM% + Moisture% = 100

1-1 Adjusted yield = (%DM/30) X yield as harvested

2-2 Ear weight is average of 10 ears harvested per plot on Sept.12.

2010 Kings-Tulare Silage Corn Variety Trial
C. Collar, C. Frate and N. Silva-del-Rio

UC Cooperative Extension in Kings and Tulare counties conducted a variety trial east of Hanford with M.F. Rosa Dairy and grower Bo Champlin. There were 15 corn varieties represented in the trial, including some hybrids that were glyphosate resistant (RR), one hybrid with the Bt trait for ear worm resistance, and one hybrid that had no genetic modifications (GMO) or conventional seed treatment (for organic markets). DeKalb 940 was the grower's field variety. Planting took place on June 1st and harvest occurred on September 17th. Each variety was replicated three times, and the plots were six rows wide running the entire length of the field (about ¼ mile). At harvest, each plot was chopped into a silage truck and weighed. Samples of each variety were collected at the silage pile when the truck unloaded. The samples were analyzed for moisture and nutrients.

Yield information and other field data are presented in Table 1. The first column shows the brand and number of all 15 entries. Our intent was to have 16 entries, but one arrived late, so DeKalb 940 was planted in plots designated for the "no show". This is why the field variety appears twice in this list. Statistical analyses of all field measurements were performed to determine the significance of any differences among varieties for each parameter measured. The alphabetical letters shown beside a measured value and within a column denote which varieties differ from one another in that parameter. If the letter following a value is the same for a number of varieties, then those varieties do not differ significantly for that parameter. The last two rows of the table are other statistical measures; the Coefficient of

variation, and the LSD or least significant difference.

In the second column one can see the stand count for each variety. We measured stand count at six locations in each plot by counting the plants in 1/1000th of an acre on June 16th when the plants were about one foot tall. Seed size and shape varies among different corn hybrids which can complicate obtaining similar plant population in a variety trial. Although there were some differences, overall the stand counts were within standard recommendations and most fell within the target of 30,000 to 32,000 plants per acre at planting.

An assessment of tassel emergence was made on July 30th. This information provides an indication of the relative maturities of the corn hybrids and is shown in the third column. A score of 0 is no tassel emergence, and a score of 5 is complete tassel emergence. In organizing our trials, we try to obtain hybrids that match the maturity of the field variety as closely as possible because harvest is scheduled on the basis of the maturity of that field variety (DK 940 in this case). Looking at the tassel scores, one can see that there were large differences, meaning that some of the corn hybrids matured more quickly than others and were well ahead of the field variety. The differences in maturity are also reflected in the % dry matter (DM) at harvest, shown in the fourth column. Varieties that were more mature were drier and sometimes too dry at harvest. The recommended range for DM at harvest is 28% to 32% (72% to 68% moisture). Seven varieties in this trial were drier and two were wetter than recommended, while the field variety was at the desired DM.

Yield (tons per acre as harvested) is shown in column 6. Yield range was from 24.6 to 36.4 tons per acre. The highest yield numerically was produced by the NC + variety, but by noting the letter “a” next to the column, one can see that the yield for the five varieties directly below NC+ are also followed by the letter “a”. That means these five varieties do not differ in a significant way from the top variety, and their ranking in this list could be due to chance alone. The two entries of the field variety in this trial also help to illustrate variability when there really is no true difference. Look at the yield of DeKalb 940 for both entries. Even though they came from the same bag of seed, they did not produce identical yield. Look also at the letters that follow the yield for these two entries. The letter “b” follows both, so that tells us that there was not a significant difference.

The tons per acre adjusted to a common moisture (70% moisture; 30% DM) is in column 7. Standardizing yields for corn varieties so that they are all expressed at the same dry matter content is a common practice. In theory, this helps to compare varieties by removing the variability of moisture – wetter hybrids weigh more and drier hybrids weigh less. The formula used for adjustment adds weight to hybrids above, and subtracts weight from hybrids below 30% DM. While this may be useful for a group of hybrids within a narrow DM range, it is less helpful for comparing a trial

like this one with several overly mature, dry hybrids. An example of how the adjusted yield may be misleading can be seen with the Golden Harvest and the NK varieties. At almost 37% DM, the Golden Harvest variety was far too dry. The “as harvested” yield was a respectable 30 tons/acre, but the adjusted yield was 36 tons per acre, which would place it at the top of the list if hybrids were ranked by adjusted yield. The same situation applies to the NK variety. One should use caution when comparing yield data among different hybrids. Standardizing the yield is usually helpful, but it is a good idea to make note of the actual moisture (or DM) at harvest in addition to the adjusted yield.

Plant and ear height at harvest, as well as lodging are shown in the next three columns. Ear weight, expressed as pounds per ear (standardized to 60% DM) is listed in the last column. Samples for ear weight were collected several days before field harvest. A sample of 10 consecutive ears was hand harvested in each plot and weighed. Two ears were held for dry matter determination. Among the heaviest ears was the Golden Harvest variety – this and the other more mature varieties had heavier ears as one might expect.

Results of nutrient analyses will be provided in the coming weeks.