

2009 Minnesota Hybrid Corn Silage Performance Trials

The Minnesota Hybrid Corn Silage Evaluation Program evaluates the silage potential of corn hybrids in Minnesota. The goal of the program is to provide unbiased forage yield and quality information for educational and marketing programs.

The program is financed in part by entry fees from private seed companies that chose to enter hybrids for testing. These companies are listed in this publication. Results presented are from corn silage performance trials in regions of extensive corn silage use: southeastern, central, and west-central Minnesota. The locations are in important dairy regions of Minnesota.

TEST SITES

Silage hybrids entered in the southeast or central region trials were tested at two sites within each region. Hybrids entered in the west-central region were tested at one site. Sites within regions were as follows:

Southeast Dairy Region:

LaCrescent, MN (Houston County)
Rochester, MN (Olmsted County)

Central Dairy Region:

Paynesville, MN (Stearns County)
Melrose, MN (Stearns County)

West-central Dairy Region:

Ottertail, MN (Otter Tail County)

TEST PROCEDURE

(Southeast and Central Regions)

Design: Plots were established at LaCrescent, Rochester, Paynesville and Melrose in randomized complete block designs with 4 replications. Hybrids were planted at 33,000 seed per acre with 30-inch row spacing at the SE sites, LaCrescent and Rochester, on April 27 and April 24, respectively. The Central MN sites, Paynesville and Melrose, were both planted on May 7 this year. Plant nutrients as manure or inorganic fertilizer were applied according to University of Minnesota recommendation. Cultivation and herbicides applied by University of Minnesota recommendation were used to control weeds.

Harvesting: Plots were harvested and whole-plant herbage sampled for dry matter and forage quality analysis at each site. Each test site was harvested when the average whole-plant moisture across entries was estimated to be 65%. In 2009, harvest dates at LaCrescent, Rochester, Paynesville and Melrose were September 18, September 23, September 24 and September 29, respectively.

(West-central Region)

Design: Plots were established May 5 near Ottertail, MN under center pivot irrigation in a randomized complete block design with 3 replications. Hybrids were planted at 35,700 seeds per acre with 30-inch row spacing. Fertilizer was fall applied liquid manure at 8000 gallons per acre plus 150 pounds of urea in 2009. Pre-emergent herbicide was applied to control weeds.

Harvesting: Plots were harvested and whole-plant herbage sampled for yield and forage quality analysis on September 30.

RESULTS PROVIDED

Tables 1-5 summarize hybrid yield and forage quality results from LaCrescent, Rochester, Paynesville, Melrose and Ottertail, respectively. Moisture content, whole-plant dry matter (DM) yield and silage yield are listed, and hybrids are ranked in descending order of milk yield per acre (Milk Yield, lb/acre). Genetic trait information is supplied by companies entered in the hybrid corn silage performance trial.

Whole-plant forage quality traits listed include crude protein (CP), neutral detergent fiber (NDF), 48-hour *in vitro* digestibility (IVD), 48-hour neutral detergent fiber digestibility (NDFD), and starch concentration. With the exception of NDFD, all forage quality traits are expressed as a percent of dry matter. NDFD is expressed as a percent of NDF.

Milk production potentials per ton (lb milk/ton forage) and per acre (lb milk/acre forage) of forage were calculated using the MILK2006 spreadsheet developed by the University of Wisconsin. MILK2006 approximates animal performance based on a standard cow weight and milk production level (1350 lb body weight and 90 lb/day at 3.8% fat). Field values for moisture and DM yield at harvest; laboratory values for CP, NDF, NDFD, starch, oil and ash concentration; and book values for NDFCP (1.3%) were used for spreadsheet calculations. For MILK2006 predictions, we assumed that kernel processing occurred. Milk production (lb milk/ton and lb milk/acre) values can be used as a quick reference for relative comparison of hybrids within test locations.

HOW TO USE RESULTS

NDF is a negative indicator of forage intake potential; higher NDF concentration generally implies lower animal performance potential. IVD provides an estimate of forage dry matter digestibility, and NDFD estimates digestibility of the fiber fraction. Starch concentration is positively associated with digestibility because it is assumed to be 100% digestible. Relatively higher IVD, NDFD and/or starch concentrations generally imply greater animal performance potential. Milk yield per acre represents the combined effects of yield and quality.

Corn hybrids differed in yield, forage quality, and milk production potential at all sites. Means and least significant difference (LSD) values at the 10% probability level are shown for each parameter at each site. Where the difference between two hybrids for a particular yield or quality trait is greater than the LSD value, there is a 90% probability that there is a significant difference between the two hybrids for that parameter (i.e. moisture, yield, quality concentration, or milk production).

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PARTICIPATING COMPANIES

Companies participating in the 2009 hybrid corn silage performance trials are listed below:
AgriGold Hybrids www.agrigold.com

Anderson Seeds, 37825 County Rd 63, St Peter, MN 56082

Channel Seeds	www.monsanto.com
Dahlco Seeds	www.dahlcoseeds.com
Dairyland Seed Co, Inc.	www.dairylandseed.com
Dekalb (Monsanto Co)	www.dekalb.com
Dyna-Gro Seeds	www.dynagroseed.com
G2 Genetics	www.yieldleader.com
Hyland Seeds	www.hylandseeds.com
Legacy Seeds, Inc.	www.legacyseeds.com
Mycogen Seeds	www.mycogen.com
Nu Tech Seed Co.	www.yieldleader.com
Pioneer Hi-Bred, Int'l.	www.pioneer.com
Producers Hybrids	www.producershybrids.com
Renk Seed Co.	www.renkseed.com
Trelay Seeds	www.trelay.com
Wensman Seed Co.	www.wensmanseed.com