

**THE MANAGER**

**CROPPING STRATEGIES**

By Bill Cox, Jerry Cherney & Phil Atkins

Research looks at whether hybrids with new traits should be planted at the same seeding rates as older hybrids

# New hybrids require higher seeding rates

Since 2000, Cornell University has recommended seeding rates of about 34,000 kernels per acre on most soils in New York. This recommendation is based on studies evaluating 25 hybrids from 1997 to 1999.

Over the last 10 years, however, seed costs have increased significantly, reaching about \$100 an acre.

Given that, we wanted to determine if hybrids with new traits, such as BT and Roundup Ready, require similar seeding rates as hybrids from the 1990s.

Our two-year research evaluated these hybrids: Pioneer (34T55 and 34A89), DeKalb (DKC61-69 and DKC63-42), leafy (TMF2Q716 and 2W587, Mycogen) and brown midrib (F2F566 and F2F610, Mycogen). Planting rates were 25,000, 30,000, 35,000 and 40,000 kernels per acre at the Aurora Research Farm.

We planted during the last week of April in 2008 and 2009 and harvested during the first week of September. Precipitation and temperatures averaged close to normal in both growing seasons.

**Research results**

When averaged across growing seasons, Pioneer hybrids yielded best at 40,000 kernels per acre; the DeKalb, leafy and brown midrib hybrids did best at 35,000 kernels per acre (**Table 1**). Planting rates did not affect moisture at harvest (**Table 1**).

As planting rates increased, neutral detergent fiber (NDF) showed a linear increase, and crude protein (CP) showed a linear decrease (**Table 2**). CP probably decreased because the increased yield at

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**Table 1. Planting rate effects on moisture and yield averaged across 2008 and 2009 growing seasons at Aurora Research Farm**

PLANTING RATE	HYBRIDS							
	Pioneer	DeKalb	Leafy	BMR	Pioneer	DeKalb	Leafy	BMR
	MOISTURE				YIELD			
Kernels/acre	-----%-----				-----Tons/acre (65% H <sub>2</sub> O)-----			
25,000	67.1	67.9	66.3	69.0	25.3	25.5	23.2	22.2
30,000	66.7	67.9	66.6	68.9	26.0	25.6	24.3	24.0
35,000	66.5	68.1	66.1	68.7	26.6	26.0	25.7	24.8
40,000	67.3	67.9	66.4	69.2	27.6	25.8	25.8	24.8
<b>Avg.</b>	<b>66.9</b>	<b>67.9</b>	<b>66.3</b>	<b>69.0</b>	<b>26.4</b>	<b>25.7</b>	<b>24.8</b>	<b>23.9</b>

**Table 2. Planting rate effects on silage quality averaged across 2008 and 2009 growing seasons at Aurora Research Farm**

PLANTING RATE	HYBRIDS							
	Pioneer	DeKalb	Leafy	BMR	Pioneer	DeKalb	Leafy	BMR
	NDF				NDFd (30 hr)			
Kernels/acre	-----%-----				-----%-----			
25,000	39.8	39.5	40.1	41.3	58.7	58.3	58.7	71.2
30,000	40.8	39.9	41.4	41.1	59.3	57.7	59.1	72.3
35,000	40.9	39.9	40.4	41.1	57.9	57.2	59.6	72.2
40,000	41.4	40.6	42.0	42.5	59.3	57.4	59.5	73.0
<b>Avg.</b>	<b>40.7</b>	<b>39.9</b>	<b>40.9</b>	<b>41.5</b>	<b>58.8</b>	<b>57.6</b>	<b>59.2</b>	<b>72.2</b>
	CP				STARCH			
25,000	8.9	8.6	8.8	8.8	33.3	34.6	34.6	33.3
30,000	8.5	8.3	8.6	8.6	34.2	34.6	34.5	32.1
35,000	8.3	8.3	8.4	8.5	33.9	34.9	34.8	32.6
40,000	8.2	8.1	8.2	8.4	33.8	34.7	34.0	31.5
<b>Avg.</b>	<b>8.5</b>	<b>8.3</b>	<b>8.5</b>	<b>8.6</b>	<b>33.8</b>	<b>34.7</b>	<b>34.5</b>	

**FYI**

- Bill Cox is a professor in Cornell's Department of Crop and Soil Sciences. Reach him at [wjc3@cornell.edu](mailto:wjc3@cornell.edu)
- Jerry Cherney is the E.V. Baker Professor of Agriculture in the Department of Crop and Soil Sciences. Email: [jhc5@cornell.edu](mailto:jhc5@cornell.edu)
- Phil Atkins is a research support specialist in Cornell's Department of Crop and Soil Sciences. Email: [pma3@cornell.edu](mailto:pma3@cornell.edu)

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higher plant populations diluted the amount of nitrogen (N) or CP in the plant.

NDF usually increases as populations increase because of less grain in plants at higher populations. But in this study, starch concentrations, which represent 80% or so of the grain, did not change. If NDF went up because there was less grain at the higher populations, we would expect starch to go down. That didn't happen, and it's unclear why NDF went up. It's related to the grain but didn't show up in the starch values.

Most importantly, plant populations did not affect NDF digestibility (NDFd).

#### Research recs

Based on the results of this study, we recommend planting rates



**Based on research, planting rates should be about 35,000 kernels per acre on most soils in New York.**

of about 35,000 kernels per acre on most soils in New York. The DeKalb, leafy and brown midrib hybrids had their highest yield at 35,000 kernels per acre with no effect on NDFd and starch concentrations, the major determinants of silage quality.

The Pioneer hybrids, however, yielded best at 40,000 kernels per acre. Corn silage producers may wish to experiment with higher seeding rates for Pioneer hybrids, especially with these two hybrids on soils or in regions where drought doesn't occur often. □

### Corn silage alters after ensiling *continued from page 33*

**2. Microbiology of silage.** During the past few years, we have anecdotally associated elevated counts of yeasts in corn silage or high-moisture cereals with milk fat depression. It's important to note up front that these "wild yeasts" are different from the yeast or yeast culture included in rations. Those used in feed additives typically have either no effect or potentially increase milk fat test.

Danish researchers recently monitored the microbiology of silage piles on 20 dairies in Denmark. They took samples at two-month intervals about 3 feet in from the bunk silo face. The researchers found that yeast counts increased over time and peaked at five to seven months after ensiling. This seems to correspond with the milk

fat issues that some dairies appear to experience starting in March or April. The explanation: Yeast counts are potentially higher in the silage, and warmer days give yeast on the feeding surface a chance to grow.

How can you guard against issues with "wild yeast" in silages? First, get the basics right: harvest at the right moisture and chop length, and pack properly. Using a silage defacer and paying attention to proper bunk management at feedout are important. If you're storing silage for a long time, consider using some of the new plastics with low oxygen permeability to cover bunks or piles. Also, some silage inoculants – those based upon  $\beta$  – will help decrease yeast counts in silages and improve feedout.

We still have much to learn in this area. But clearly that pile, bunk, bag or silo contains a crop whose attributes change over time and can affect herd performance. □