



Kentucky Corn Silage Hybrid Performance Report, 2021

Richard C. Kenimer, Philip W. Shine, and Chad Lee, Plant and Soil Sciences;
 and Nick Roy, Extension Agent for Agriculture and Natural Resources

Objective

The objective of the Silage Corn Hybrid Performance Test is to provide unbiased forage yield and quality data for corn hybrids commonly grown for silage in Kentucky.

General Procedures

Corn hybrids were evaluated for silage performance on cooperating farms. Representatives from seed companies submitted hybrids of their choosing. Most companies submitted only two (2) hybrids.

University of Kentucky personnel planted the hybrid seeds. Farmers applied the soil amendments and pest management. University of Kentucky personnel harvested, weighed, chopped and packaged corn for quality analysis. University personnel conducted the statistical analyses and final reporting of hybrid performance.

Every effort was made to conduct the tests in an unbiased manner according to accepted agronomic practices. Corn hybrids were arranged in a randomized complete block design with three replications at each farm. Hybrid seed was planted in four row plots with Wintersteiger Dynamic Disk precision planter that planted each plot at 36,000 seeds per acre. Fields were monitored for pests.

When most hybrids were near 35% dry matter (65% moisture), the two center rows of each plot were harvested with a John Deere 5400 modified for small plots. The entire harvested corn sample was weighed, and a subsample was collected.

Forage quality analyses and dry matter determination were from composite chopped samples of each hybrid at each

Table 1 - All location average, 2021.

| Hybrid | Tons/A at 35% DM ¹ | | | Forage Quality ³ | | | | Milk Yield ⁴ | |
|-------------------------|-------------------------------|-------------|-------------------|-----------------------------|-----------|-----------|-----------|-------------------------|--------------|
| | 2021 | 2020-21 | IVTD ² | CP | ADF | aNDF | TDN | lb/T | lb/A |
| NuTech 77A5 | 26.0 | 26.0 | 84 | 8.5 | 22 | 38 | 75 | 3459 | 29724 |
| Dyna-Gro D55VC80 | 25.6 | 20.9 | 87 | 8.4 | 20 | 35 | 79 | 3621 | 32415 |
| Pioneer P1637YHR | 25.1 | 21.0 | 86 | 8.8 | 22 | 38 | 77 | 3569 | 30435 |
| Channel 219-77VT2PRIB | 25.0 | 21.0 | 85 | 8.5 | 22 | 38 | 76 | 3540 | 30366 |
| Armor A1575 | 24.5 | 19.8 | 87 | 8.3 | 20 | 36 | 78 | 3522 | 30554 |
| DEKALB DKC67-66 | 24.3 | 24.3 | 83 | 8.8 | 24 | 42 | 74 | 3448 | 29457 |
| NK Seeds NK1523-3220 | 23.6 | 23.6 | 86 | 8.4 | 22 | 38 | 76 | 3588 | 29076 |
| Partners Brand PB 11702 | 23.6 | 23.6 | 84 | 8.6 | 25 | 42 | 74 | 3405 | 28729 |
| Croplan CP5700S | 23.6 | 20.2 | 83 | 8.4 | 23 | 41 | 74 | 3443 | 29627 |
| Channel 220-98 STX | 23.6 | 23.6 | 83 | 8.5 | 24 | 42 | 74 | 3415 | 29664 |
| Partners Brand PB 8580 | 23.1 | 23.1 | 86 | 8.8 | 22 | 39 | 76 | 3556 | 29520 |
| DEKALB DKC64-44RIB | 23.0 | 23.0 | 87 | 8.8 | 20 | 37 | 78 | 3650 | 28786 |
| Croplan CP5900S | 23.0 | 19.5 | 84 | 8.3 | 24 | 42 | 74 | 3415 | 26690 |
| Partners Brand PB 8600 | 22.9 | 22.9 | 84 | 8.8 | 25 | 42 | 75 | 3454 | 27116 |
| Average | 24.1 | 22.3 | 85 | 8.6 | 23 | 39 | 76 | 3506 | 29440 |
| C.V. (%) ⁵ | 6.1 | 6.5 | | | | | | | |
| LSD ⁶ | 1.8 | 1.7 | | | | | | | |

Shaded cells are not significantly different from top yield (0.10)

¹ Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM.

² In vitro true digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk yield was calculated through Dairy One Forage Laboratories. Milk per ton (milk yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

location and were analyzed by Dairy One Forage Lab, which also calculated milk yield.

Hybrid performance reported here includes silage yield adjusted to 35% dry matter, milk yield per ton and per acre, in vitro true digestibility, crude protein, acid detergent fiber, neutral detergent fiber, and total digestible nutrients.

Silage yield was separated using the least significant difference (or LSD). The LSD is a method of separating hybrid performance from field variability. Hybrids with yields within one (1) LSD of each other have a very good chance of performing similarly to each other next year.

2021 Season Comments

Corn silage trials were planted in Caldwell, Fayette, and Adair counties. The 2021 growing season started wet, delaying planting.

We thank our farmer cooperator David Hutchison for allowing us access to his farm to conduct this trial. Also, special thanks to Dr. Kiersten Wise, Plant Pathology, for taking disease ratings, even though disease levels were too low to give a rating.

Table 2. Adair County, 2021.

| Hybrid | Tons/A at 35% DM ¹ | | | Forage Quality ³ | | | | Milk Yield ⁴ | |
|-------------------------|-------------------------------|-------------|-------------------|-----------------------------|-----------|-----------|-----------|-------------------------|--------------|
| | 2021 | 2020-21 | IVTD ² | CP | ADF | aNDF | TDN | lb/T | lb/A |
| Partners Brand PB 8600 | 29.7 | | 88 | 8.7 | 20.1 | 34.6 | 79 | 3808 | 39564 |
| Pioneer P1637YHR | 28.0 | 24.4 | 85 | 9.2 | 22.5 | 36.8 | 77 | 3661 | 35853 |
| NuTech 77A5 | 27.8 | | 87 | 8.8 | 21.7 | 37.4 | 78 | 3729 | 36322 |
| DEKALB DKC67-66 | 27.6 | | 84 | 8.3 | 22.3 | 39.9 | 75 | 3544 | 34249 |
| NK Seeds NK1523-3220 | 27.6 | | 86 | 8.7 | 23.2 | 39.6 | 77 | 3622 | 34971 |
| Croplan CP5900S | 27.4 | 23.6 | 85 | 8.9 | 23 | 38.3 | 76 | 3574 | 34307 |
| Dyna-Gro D55VC80 | 27.2 | 23.5 | 86 | 9.8 | 23.5 | 38.8 | 77 | 3643 | 34670 |
| Partners Brand PB 8580 | 27.1 | | 86 | 8.7 | 21 | 37.5 | 78 | 3690 | 34988 |
| Channel 220-98 STX | 26.7 | | 85 | 9 | 22.9 | 38 | 76 | 3582 | 33464 |
| Croplan CP5700S | 26.5 | 23.4 | 82 | 8.8 | 24.2 | 41.2 | 73 | 3339 | 31003 |
| Channel 219-77VT2PRIB | 26.5 | 23.2 | 82 | 8.9 | 27.5 | 45.7 | 72 | 3244 | 30038 |
| Partners Brand PB 11702 | 26.1 | | 87 | 9 | 20.8 | 35.3 | 78 | 3747 | 34256 |
| DEKALB DKC64-44RIB | 25.7 | | 85 | 9 | 23.3 | 39.6 | 76 | 3543 | 31808 |
| Armor A1575 | 25.6 | 21.8 | 84 | 8.3 | 23.6 | 41.2 | 75 | 3477 | 31123 |
| Average | 27.1 | 23.3 | 85 | 9 | 23 | 39 | 76 | 3586 | 34044 |
| C.V. (%) ⁵ | 2.3 | 3.8 | | | | | | | |
| LSD ⁶ | 1.5 | 1.2 | | | | | | | |

Shaded cells are not significantly different from top yield (0.10)

¹ Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM.

² In vitro true digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk yield was calculated through Dairy One Forage Laboratories. Milk per ton (milk yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

Table 3. Caldwell County, 2021.

| Hybrid | Tons/A at 35% DM ¹ | | | Forage Quality ³ | | | | Milk Yield ⁴ | |
|-------------------------|-------------------------------|-------------|-------------------|-----------------------------|-----------|-----------|-----------|-------------------------|--------------|
| | 2021 | 2020-21 | IVTD ² | CP | ADF | aNDF | TDN | lb/T | lb/A |
| Pioneer P1637YHR | 28.9 | 23.0 | 85 | 8.8 | 22.9 | 39.6 | 76 | 3433 | 34723 |
| NuTech 77A5 | 28.4 | | 84 | 9.2 | 22.5 | 39.5 | 75 | 3443 | 34273 |
| Dyna-Gro D55VC80 | 27.8 | 22.1 | 87 | 9.1 | 19.7 | 35.6 | 78 | 3547 | 34476 |
| Channel 219-77VT2PRIB | 27.3 | 22.0 | 85 | 8.8 | 22.4 | 38.7 | 75 | 3396 | 32481 |
| Croplan CP5700S | 27.3 | 22.4 | 80 | 8.9 | 25.6 | 43.9 | 70 | 3159 | 30196 |
| Croplan CP5900S | 26.9 | 21.6 | 84 | 8.8 | 23.1 | 39.6 | 75 | 3468 | 32630 |
| Partners Brand PB 11702 | 26.8 | | 84 | 8.9 | 24.1 | 40.8 | 73 | 3374 | 31611 |
| DEKALB DKC64-44RIB | 26.5 | | 87 | 9.3 | 19.6 | 36.1 | 78 | 3604 | 33449 |
| NK Seeds NK1523-3220 | 25.6 | | 87 | 8.7 | 20.4 | 36.4 | 77 | 3573 | 32006 |
| Armor A1575 | 25.5 | 20.5 | 85 | 8.8 | 23.1 | 41.2 | 76 | 3378 | 30132 |
| Channel 220-98 STX | 25.2 | | 79 | 8.8 | 27.5 | 45.7 | 69 | 3076 | 27183 |
| Partners Brand PB 8580 | 25.2 | | 85 | 9.1 | 22.7 | 40.1 | 74 | 3329 | 29411 |
| DEKALB DKC67-66 | 25.0 | | 82 | 8.8 | 24.9 | 43.2 | 72 | 3306 | 28956 |
| Partners Brand PB 8600 | 22.9 | | 84 | 9.4 | 26.7 | 44.9 | 74 | 3332 | 26741 |
| Average | 26.4 | 21.9 | 84 | 9 | 23 | 40 | 74 | 3387 | 31305 |
| C.V. (%) ⁵ | 7.6 | 7.7 | | | | | | | |
| LSD ⁶ | 4.2 | 2.1 | | | | | | | |

Shaded cells are not significantly different from top yield (0.10)

¹ Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM.

² In vitro True Digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk Yield was calculated through Dairy One Forage Laboratories. Milk per ton (Milk Yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

Table 4. Fayette County, 2021.

| Hybrid | Tons/A at 35% DM ¹ | | | Forage Quality ³ | | | | Milk Yield ⁴ | |
|-------------------------|-------------------------------|-------------|-------------------|-----------------------------|-----------|-----------|-----------|-------------------------|--------------|
| | 2021 | 2020-21 | IVTD ² | CP | ADF | aNDF | TDN | lb/T | lb/A |
| Armor A1575 | 20.8 | 16.5 | 88 | 7.5 | 17.9 | 32.2 | 79 | 3379 | 24639 |
| NuTech 77A5 | 20.8 | | 87 | 7.4 | 19.4 | 33.3 | 78 | 3596 | 26196 |
| Dyna-Gro D55VC80 | 20.6 | 16.7 | 89 | 7.4 | 17.8 | 31.6 | 80 | 3627 | 26165 |
| Channel 219-77VT2PRIB | 20.5 | 17.3 | 85 | 7.5 | 21.7 | 38.9 | 75 | 3564 | 25595 |
| DEKALB DKC67-66 | 20.0 | | 82 | 7.7 | 23.6 | 42.8 | 73 | 3396 | 23827 |
| Channel 220-98 STX | 18.8 | | 84 | 8 | 23.1 | 42.4 | 74 | 3440 | 22588 |
| Pioneer P1637YHR | 18.2 | 15.3 | 89 | 9.2 | 18.2 | 33.4 | 80 | 3798 | 24156 |
| Partners Brand PB 11702 | 17.7 | | 85 | 8.1 | 22.5 | 39.2 | 76 | 3597 | 22313 |
| NK Seeds NK1523-3220 | 17.4 | | 86 | 7.5 | 22.6 | 39.7 | 76 | 3610 | 22037 |
| Partners Brand PB 8580 | 17.1 | | 86 | 8.3 | 22.2 | 41.1 | 77 | 3593 | 21445 |
| Croplan CP5700S | 16.8 | 14.8 | 86 | 8.1 | 22.4 | 40.3 | 77 | 3626 | 21324 |
| DEKALB DKC64-44RIB | 16.5 | | 89 | 8.2 | 18.8 | 35.7 | 80 | 3771 | 21809 |
| Partners Brand PB 8600 | 16.5 | | 84 | 8.1 | 23.6 | 42.8 | 75 | 3486 | 20115 |
| Croplan CP5900S | 14.9 | 13.4 | 81 | 7.4 | 26.8 | 46.7 | 71 | 3154 | 16463 |
| Average | 18.3 | 15.7 | 86 | 8 | 21 | 39 | 77 | 3546 | 22762 |
| C.V. (%) ⁵ | 8.7 | 8.8 | | | | | | | |
| LSD ⁶ | 3.5 | 1.8 | | | | | | | |

Shaded cells are not significantly different from top yield (0.10)

¹ Percent dry matter (DM) represents the corn forage sample at harvest. Silage yields were adjusted to 35% DM.

² In vitro true digestibility (IVTD) estimates digestibility from anaerobic fermentation by incubating samples in rumen fluid.

³ Quality measurements are based on dry weight and calculated from composite samples at each site. Higher crude protein (CP) and total digestible nutrients (TDN) values indicate better forage quality. Lower acid detergent fiber (ADF) and acid neutral detergent fiber (aNDF) indicate better forage quality.

⁴ Milk yield was calculated through Dairy One Forage Laboratories. Milk per ton (milk yield, lb/T) was calculated from DM yields and milk yield per acre (lb/A) was the product of milk yield per ton by silage yield per acre.

⁵ Coefficient of variation.

⁶ Least significant difference.

Table 5. Agronomic practices, 2021.

| Management | Caldwell County | Fayette County | Adair County |
|------------|------------------|------------------|---------------------|
| Planting | 5/12/2021 | 4/20/2021 | 5/13/2021 |
| N/P/K | 182/0/70 | 182/0/70 | 200/0/0 |
| Soil | Crider Silt Loam | Lanton Silt Loam | Pricetown Silt Loam |
| Harvest | 8/28/2021 | 9/2/2021 | 8/27/2021 |

