

2020 SILAGE GUIDE

PRESENTED BY DEKALB® BRAND AND DAIRY HERD MANAGEMENT



DEKALB

PLAN TO PLANT:

Corn Silage Hybrid Selection Matters

Selecting the right hybrid for corn silage is critical, as yield and nutritive values vary greatly among hybrids under different growing environments.

1. YIELD: Although forage quality is important, planting a high-yielding corn silage hybrid is also very important. If yield is low, but forage quality is high, then dairy producers may need to buy more energy supplements because of the low crop biomass. Also, lower corn silage yield may require more acres to meet dairy feed requirements. In addition, reviewing regional yield results from unbiased and replicated trials on your farm are essential when choosing the best silage hybrid for your fields.

2. QUALITY: For dairy, forage quality is very sensitive and a critical factor directly affecting milk yield and quality, reproduction and herd health, which ultimately determine farm profitability and sustainability. Fiber varies among corn silage hybrids. Selecting corn silage hybrids with high values for both NDFD and starch digestibility imply greater performance potential.

Milk/ton (focusing more on quality) and milk/acre (focusing more on yield) developed at the University of Wisconsin are used as an

Doohong Min, Ph.D.,
forage agronomist,
Kansas State University



overall indication of silage quality. The goal is to identify silage hybrids with high values for both milk/ton and milk/acre.

3. MATURITY: Selecting corn silage hybrids with a range in relative maturity may be useful by widening the harvest window and providing greater harvest flexibility. However, hybrid maturity should also fit your regional climate.

CORN SILAGE HYBRID CHOICE IMPACTS PROFITABILITY

Corn silage provides an energy source for the cow; and if a corn silage hybrid has a lower energy value, then more energy sources must be purchased to meet the dairy herd's nutritional requirements.

"A combination of low yield and quality in a corn silage hybrid will definitely reduce farm profitability," said Doohong Min, Ph.D., forage agronomist at Kansas State University. "Thus, selecting the right hybrid with both high yield and quality traits can increase farm profitability by reducing the need for supplemental feeds."

"In a corn silage hybrid, we look for fiber digestibility first, but starch and yield are also important."

- Bruce Verhasselt, Verhasselt Farms, Freedom, Wisconsin

PLAN TO GROW:

Ensure Nutrient Levels to Maximize Yield

Carrie Laboski, professor
of soil science, University
of Wisconsin-Madison



Those who nurture the soil will reap the benefits of a sound soil fertility program that supplies the right level of nutrients to grow a healthy crop with added benefits, like reduced erosion and improved water infiltration and nutrient availability.

"A producers' goal is to grow a high-quality silage crop with enough tonnage to easily see them through the year," said Carrie Laboski, soil scientist at University of Wisconsin-Madison. "A soil fertility program is the foundation to growing a healthy crop."

The first step to ensuring adequate nutrient levels is to take a soil sample and send it to a soil testing lab. If you plan to use the data for a nutrient management plan, the lab must be appropriately certified for your state. Requirements vary; contact your extension agent with questions.

When your soil test report comes back, here's what to look at:

LIME

The soil pH will tell you if you need to add lime. For corn silage, the target pH is 6.0; but if alfalfa is in the rotation, it has a target pH of 6.8.

"We always 'lime up' for the crop with the highest need in the rotation; so if you're growing corn silage in rotation with alfalfa, you're going to need to 'lime up' to pH 6.8," said Laboski. "Get your soil pH right because it's the cornerstone of a soil fertility program."

PHOSPHOROUS AND POTASSIUM

Look at the phosphorous and potassium values and compare them to your local land grant university guidelines to determine if they are in the optimum range.

"Corn silage and alfalfa can remove a lot of potassium, and it's a nutrient that tends to get overlooked," she said. "Potassium can limit yield if it gets low."

NITROGEN

Follow your land grant university guidelines for nitrogen fertilization for corn silage. Typically, nitrogen rates that are profitable for grain corn will also be profitable for corn silage. Also, don't forget to take nutrient credits for all nutrients, but especially nitrogen.

NUTRIENTS TO APPLY, POUNDS PER ACRE

| | |
|--|-----|
| Nitrogen – high yield potential soil | 165 |
| Nitrogen – medium yield potential soil | 120 |
| Phosphorus | 100 |
| Potassium | 230 |

Selection Traits for Corn Silage

FEED QUALITY TRAITS

| | |
|-------------------|-----------------------------|
| Crude protein | In vitro digestibility |
| NDF | Starch content availability |
| NDF digestibility | Kern texture |
| | Milk/ton |

AGRONOMIC TRAITS

| | | |
|-------------|--------------------|----------------------|
| Total yield | Standability | Herbicide resistance |
| Grain yield | Disease resistance | Drydown rate |
| Maturity | Insect resistance | Staygreen |

TOP DEKALB® CORN SILAGE PRODUCTS FOR 2021



| DEKALB® Corn Silage Products | | Value-Added Trait | Silage Yield @ 65% Moisture | NDFD30 | % Starch | Milk per Ton | Milk per Acre | GDUs to Mid-Pollination | Emergence | Seedling Growth | Root Strength | Plant Height | Staygreen |
|------------------------------|------------------------------------|-------------------|-----------------------------|--------|----------|--------------|---------------|-------------------------|-----------|-----------------|---------------|--------------|-----------|
| | DKC39-07RIB BRAND BLEND | VT2PRIB | 2 | 4 | 3 | 3 | 3 | 1,200 | 2 | 1 | 4 | T | 4 |
| | DKC45-07RIB BRAND BLEND | SSRIB | 2 | 1 | 3 | 2 | 2 | 1,195 | 3 | 3 | 3 | M-T | 2 |
| | DKC48-56RIB BRAND BLEND | SSRIB | 2 | 2 | 3 | 2 | 2 | 1,200 | 2 | 3 | 3 | M-T | 2 |
| | DKC53-45RIB BRAND BLEND | SSRIB | 2 | 1 | 2 | 2 | 2 | 1,265 | 3 | 3 | 3 | M | 4 |
| | DKC54-38RIB BRAND BLEND | SSRIB | 2 | 3 | 1 | 2 | 2 | 1,300 | 1 | 2 | 2 | M | 3 |
| | DKC55-37RIB BRAND BLEND | SSRIB | 2 | 3 | 2 | 2 | 2 | 1,300 | 3 | 3 | 2 | M-T | 3 |
| | DKC57-97RIB BRAND BLEND | SSRIB | 2 | 3 | 2 | 3 | 2 | 1,305 | 3 | 3 | 2 | T | 2 |
| | DKC58-06RIB BRAND BLEND | SSRIB | 3 | 3 | 3 | 3 | 3 | 1,249 | 2 | 2 | 2 | M | 2 |
| | DKC59-07RIB BRAND BLEND | SSRIB | 2 | 1 | 2 | 2 | 1 | 1,320 | 2 | 2 | 2 | M-T | 2 |
| | DKC62-08RIB BRAND BLEND | SSRIB | 3 | 3 | 3 | 3 | 3 | 1,365 | 3 | 3 | 3 | M | 3 |
| | DKC64-34RIB BRAND BLEND | SSRIB | 2 | 2 | 2 | 2 | 2 | 1,377 | 5 | 3 | 1 | M-T | 1 |
| | DKC64-44RIB BRAND BLEND NEW | SSRIB | 1 | 2 | 3 | 2 | 1 | 1,350 | 3 | 3 | 3 | M | 2 |
| | DKC67-42RIB BRAND BLEND | SSRIB | 2 | 3 | 3 | 3 | 2 | 1,372 | 3 | 2 | 5 | M-T | 3 |
| | DKC68-26RIB BRAND BLEND | VT2PRIB | 1 | 3 | 2 | 2 | 1 | 1,329 | 2 | 2 | 3 | M-T | 1 |
| | DKC69-16RIB BRAND BLEND | SSRIB | 3 | 3 | 3 | 2 | 3 | 1,380 | 2 | 2 | 3 | M-T | 3 |
| | DKC70-64RIB BRAND BLEND | SSRIB | 1 | 3 | 3 | 3 | 2 | 1,410 | 3 | 3 | 5 | T | 2 |



Silage Choice: Products classified as Silage Choice are bred specifically for silage success with outstanding digestibility, nutritional quality and high tonnage potential. All Silage Choice products are Silage Proven.



Silage Proven: Products classified as Silage Proven meet a high standard of nutritional value of milk per ton and milk per acre and percentage starch with a 1, 2 or 3 rating.

Rating Scale: 1 = Excellent; 9 = Poor

Value-Added Traits: VT2PRIB = VT Double PRO® RIB Complete® corn blend; SSRIB = SmartStax® RIB Complete® corn blend

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PLAN TO HARVEST:

Tips to Maximize ROI at Harvest

When it's time to harvest silage, losses can eat up your silage crop. All totaled, unavoidable losses from respiration and the fermentation process can reduce the crop by 5% to 15%.

"How you harvest in the field and pack during ensiling can make a huge difference to silage losses throughout fermentation," said Dr. Luiz Ferraretto, assistant professor and ruminant nutrition extension specialist at University of Wisconsin-Madison.

TIPS TO REDUCE DRY MATTER LOSS

Rate of harvesting. The key is to harvest fast enough to limit exposure to air, so the faster you ensile the forage and seal the silo, the better. However, it's also very important to pack well to avoid other issues.

- Avoid packing with muddy tractor tires. Mud in the silo increases the ash content and reduces the nutritive value of the silage.

Pack silage tight. Look online for guidelines to calculate how long to pack to achieve the desired density. The goal is to limit oxygen being trapped in the silage through weight and time.

- Put down five to eight inches, pack that layer, then put down and pack again.

Dr. Luiz Ferraretto, assistant professor and ruminant nutrition extension specialist, University of Wisconsin-Madison



- If time is short, you'll need heavier tractors to remove the air from in-between the particles.
- Oxygen-limiting barriers are helpful at reducing respiration loss.

Particle size and plant maturity. Often, these two factors are associated. The longer the particle, the harder it is to pack because there is more air entrapped by any given particle. Ferraretto recommends a theoretical length of cut at ¾ inch.

- If harvesting longer particles or drier material, then pack for a little longer.
- If harvesting more mature material, like 38% to 40% dry matter, consider reducing the particle size to help with fermentation.

Apply a microbial inoculant.

- **Homolactic acid bacteria inoculants** Speed up fermentation early in the process and reduce pH.
- **Heterolactic acid bacteria inoculants** Use *Lactobacillus buchneri* to improve aerobic stability by using lactate to make enough acetic acid to limit yeast and molds which will reduce aerobic spoilage.

PLAN TO FEEDOUT:

Maintaining Quality at the Bunker for High Energy Feed

Making silage takes a lot of time, management and effort. Once it's in the silo and fermenting, you want to plan for the best quality feedout.

In a bunker or pile, assess the silage right around the ramp first. It isn't usually packed as tight as the middle which can damage quality. Assess it visually and by smell, and determine its temperature.

"Take the time to assess your silage quality before beginning feedout," said Dr. Limin Kung Jr., professor of dairy nutrition and head of the Silage Fermentation Laboratory at the University of Delaware. "If you are mixing poor quality silage with the good stuff, it doesn't take much poor quality silage to have a negative effect on the animal."

A dramatic change in a cow's diet can send rumen microbes into a bit of a shock, leading to reduced intake and a dip in production. Blend new silage with last year's silage and increase the percent over a week or more.

Take a silage sample and send it to the lab for analysis. Be safe - do not ever walk up to the silo face and take a sample. Take your silage sample from the TMR (total mixed ration) wagon.

Dr. Limin Kung Jr., professor of dairy nutrition and head of the Silage Fermentation Laboratory, University of Delaware



Next, assess the crust, the very top of the bunker or pile. There could be a few inches or as much as a foot of poor-quality silage that may need to be disposed.

FEEDOUT TIPS

- Know how much feed you need per day and only remove the six to 12 inches of silage that will be used.
- If silage is slightly to moderately compromised, consider feeding to heifers or dry cows.
- If you can't feed your silage fast enough, add an organic acid additive to limit further spoilage.
- Use a defacer to create a flat face. Avoid a cookie cutter block face with more surface area exposed to oxygen.
- Remove silage that's markedly spoiled and or completely black.

"Packing is the most critical part the harvest. If silage is packed well and put up at the right moisture, it can make really nice feed. But if you don't do it right, you can mess it up pretty easily. So, it's important to stay focused."

- Bruce Verhasselt, Verhasselt Farms, Freedom, Wisconsin

COST OF FORAGE HARVEST LOSS?

| | | | | |
|---|---------------------------------|---------|---------|---------|
| Assumption – corn silage costs US \$40/ton Depending on losses, how much it cost 1 ton of silage feed? | LOSS | | | |
| | Cost of ton adjusted for losses | 10% | 20% | 30% |
| | | \$44.44 | \$50.00 | \$57.14 |

If nutritive value is affected, other costs with loss of milk production or other concentrate feeds may apply.
Adapted from slide by Dr. Limin Kung, University of Delaware

COST OF FORAGE LOSS

| Silage harvested | 10% | 20% | 30% |
|------------------|----------|----------|----------|
| 1,000 tons | \$4,000 | \$8,000 | \$12,000 |
| 3,000 tons | \$12,000 | \$24,000 | \$36,000 |
| 5,000 tons | \$20,000 | \$40,000 | \$60,000 |

YIELD. FEED. SUCCEED.

A history of success starts with the strong fundamentals of DEKALB® brand silage. Featuring outstanding digestibility, nutritional quality and high tonnage potential to help you maximize your herd's productivity and realize a future of performance.



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