

**Mycogen**<sup>®</sup>  
SEEDS



**BMR CORN SILAGE  
MANAGEMENT GUIDE**

## YOUR GUIDE TO SUCCESSFUL USE OF MYCOGEN® BRAND BMR CORN HYBRIDS

Mycogen® brand BMR corn hybrids deliver superior results. What sets Mycogen brand BMR apart from other BMR and conventional corn hybrids is a significant increase in fiber digestibility. Due to a naturally occurring *bm3* gene in Mycogen brand BMR, stalk lignin content is reduced by up to 39 percent and fiber digestibility is improved, on average, eight to 14 points.

Higher digestibility means not only increased dry matter intake (DMI), higher milk production and, in many rations, the ability to feed less grain — but also it requires additional management to grow, harvest and feed.

This guide is designed to help you make the most of the benefits of Mycogen brand BMR corn silage in your operation. For further information, contact your Mycogen Seeds sales representative, agronomist or nutritionist or visit [www.Silage-Specific.com](http://www.Silage-Specific.com).

## HOW BMR CAN WORK FOR YOU

To take full advantage of the benefits of BMR, plan how you will incorporate it into your operation.

- Meet with your nutritionist well before planting BMR to review feeding guidelines. Ask for a sample diet with BMR corn silage to predict its impact on DMI, grain savings and milk production.
- Understand how BMR differs from conventional corn silage: lower lignin levels, higher Neutral Detergent Fiber digestibility (NDFD) and increased rate of digestibility, and how these differences will affect herd management.
- Consider how you will feed BMR for the highest return on investment. If you are able to feed BMR to only part of your herd, high-producing groups generally will show the most dramatic response.
- Whether you feed BMR corn silage only to early lactation cows or to the entire herd, added intake will increase your tonnage requirements. Make plans for additional acreage and storage as needed to compensate for the additional intake.
- Determine how BMR corn silage will be stored on your operation.

## SELECT THE BEST SOILS TO MAXIMIZE YIELD

Agronomically speaking, growing BMR corn hybrids is no different from growing other corn silage hybrids. However, because BMR corn hybrids produce a high-value crop, it's important to maximize silage yield and quality by paying close attention to management.

- Plant BMR corn hybrids in your best fields.
- Choose highly fertile, well-drained fields with adequate moisture-supplying capacity.
- BMR corn hybrids perform best in corn/alternate crop rotations under conventional tillage or continuous corn under reduced tillage systems.

## MONITOR FERTILITY ON BMR FIELDS

As with any crop, proper fertilization is crucial to maximizing yields with BMR silage corn hybrids.

- Test soil and manure to develop a comprehensive nutrient management plan.
- Additional fertilization may be beneficial.
- Consider increasing potassium 5 percent to 20 percent to improve water regulation and stalk strength and to increase resistance to stalk and ear diseases.
- Increasing nitrogen (N) slightly and split-timing N application will increase protection where leaf disease may be an issue.
- Sidedress N for maximum efficiency.

## DETERMINE IDEAL PLANT POPULATIONS

Optimum plant populations for BMR hybrids vary by geography, soil type, moisture availability and the specific hybrid being planted.

- In some areas, BMR corn hybrids produce the greatest yield when planted at low to moderate populations, usually 34,000 or fewer plants per acre.
- Highly productive soils under full irrigation can support final plant populations as high as 36,000 to 38,000 plants per acre.
- Dryland BMR populations should be 10 percent to 15 percent lower than non-BMR corn.
- If your conventional corn seeding rates are lower than 26,000 plants per acre, plant your BMR corn hybrids at the same lower rate.
- BMR performs well in narrow rows (15", 20" or twin rows), but don't increase planting population more than 10 percent over wide rows. Be sure to fertilize for the increased population.
- These are general guidelines. Consult with your Mycogen Seeds representative for the recommended local population ranges for each BMR variety.

## PROTECT BMR ROOTS AND STALKS

Mycogen® brand BMR corn hybrids are available with the latest trait technologies for in-plant insect protection.

- SmartStax® technology provides broad-spectrum protection from both above- and below-ground pests, with multiple modes of action and a reduced refuge requirement. Some hybrids are available as SmartStax Refuge Advanced® to simplify refuge compliance and eliminate the need for a separate structured refuge in the Corn Belt.<sup>1</sup>
- Herculex® RW *Rootworm Protection* or Herculex XTRA *Insect Protection* protects roots from corn rootworms or secondary pests.
- Herculex I *Insect Protection* protects stalks against European corn borer, black cutworm and western bean cutworm.

<sup>1</sup>In cotton-growing regions, a separate 20 percent structured refuge is still required for Refuge Advanced.

## CROP PROTECTION

- Timely weed control is important. Start with a good foundation for a herbicide program.
- In geographies where spider mites are a concern, scout early in the cropping season. Be proactive to successfully control spider mites.
- If infestations are active, apply an approved miticide, using adequate amounts of water for good plant coverage.
- If spider mite pressure is heavy, monitor plant moisture closely to harvest at the optimum plant moisture.
- A fungicide is highly recommended in areas with high disease pressure.



## PROPER MOISTURE LEVEL AT HARVEST IS CRUCIAL

Harvesting silage at the appropriate moisture content is one of the keys to success. Silage that's too wet loses soluble nitrogen and carbohydrates due to leaching. Silage that's chopped too dry may lose leaves, usually won't pack as well and typically won't ferment or store well.

Follow these guidelines to ensure proper BMR fermentation and performance:

Recommended moisture levels for harvesting BMR corn silage	
Storage Type	Recommended Whole-plant Moisture
Upright/stave	63% to 67%
Bunk/pit	66% to 70%
Bag	66% to 68%
Bottom unloading	Not recommended

## CONTROL RUMEN FERMENTATION WITH LONGER PARTICLE SIZE

Because it contains less lignin than conventional corn silage, BMR corn silage is digested and passes through the rumen more quickly.

- Maintaining adequate effective Neutral Detergent Fiber (eNDF) will help control the passage rate of BMR corn silage and prevent digestive upset.
- Most producers get best results by setting the chopper for a minimum of 1-inch theoretical length of cut (TLC).
- During chopping, check the actual cut length frequently and adjust as necessary.
- Consult with your nutritionist for specific chop length recommendations for your farm and equipment.

## PROCESS BMR LESS AGGRESSIVELY TO MAINTAIN FIBER

Mechanical processing of corn silage can improve ensiling characteristics and starch digestion by exposing the corn kernel for rumen bacteria to digest. Processed silage not only offers the potential for better nutrient utilization but also reduces silage particle size.

- Because BMR hybrids have moderately textured kernels, in most situations less-aggressive processing is required, especially when moisture levels are 68 percent or greater. However, as the plants mature and whole plant moisture declines, monitor kernel-processed silage closely to achieve the desired result. Most nutritionists recommend kernels be broken into four or more pieces with no whole kernels visible.
- Processing will likely be beneficial with advanced maturity and lower silage moisture levels.
- Work with your nutritionist to determine the optimum kernel processing levels for your situation.
- Check frequently throughout corn silage harvesting to monitor particle size and kernel quality.

## SELECT THE BEST LOCATION TO STORE BMR

Although BMR corn silage can be mixed with other forages in the ration, it's important to store BMR corn silage separately to maintain the benefits of a higher level of digestibility.

- Store BMR corn hybrids only in bunkers, piles, bags, or upright stave or concrete silos. Storage in bottom-unloading structures is not recommended.
- Develop a system for identifying where BMR is stored so you can evaluate results at feeding time.
- Proper packing soon after harvesting provides the anaerobic environment for effective fermentation. More densely packed silage will have less dry matter loss and higher feeding quality than less densely packed silage.
- Do not feed BMR corn silage until it has fermented for at least 45 days — 60 days is preferred. This gives the kernels in the silage time to reabsorb moisture and soften, making them easier to digest.
- Feeding unfermented or partially fermented silage will not provide the full economic or production benefits possible from BMR corn silage.

## FOLLOW FEEDING GUIDELINES

Work closely with your nutritionist when feeding BMR corn silage.

- With proper management, dairy producers usually can feed at least 60 percent of the dry matter (DM) in the form of high-quality forages like BMR corn silage.
- BMR can be mixed with other forages in the ration, but for maximum benefit, feed at least 15 pounds DM of BMR corn silage per cow.
- Dairy producers who feed BMR corn silage generally are able to feed 2 to 4 pounds less grain per cow per day.
- Keep an eye on total ration starch, Neutral Detergent Fiber (NDF) and eNDF levels.
- As with any ration change, add BMR corn silage gradually to dairy rations to allow the rumen environment time to adjust.

## TEST BMR BEFORE FORMULATING RATIONS

Because of the unique characteristics of BMR corn silage, forage testing is an important first step in ration formulation.

- Make sure your lab is able to measure NDFD using *in-vitro* or “wet chemistry” method. Some labs use near infrared (NIR) spectrometry measurement, which is an approximation of NDFD based on calibration equations and might not accurately reflect the true NDFD for BMR.
- Once you have selected a lab for forage testing, stick with the same lab for consistent results.
- Test forages one to two times per month to aid in ration formulation and management.
- In addition to NDFD, test for DM, crude protein, starch, net energy, NDF, calcium, phosphorus, magnesium and potassium.

## CONSIDERATIONS FOR TRANSITION COWS

With their higher energy and nutrient requirements, transition cows generally respond well to the higher feed intakes made possible with BMR rations.

- Due to high NDFD levels in BMR corn silage, rations should be formulated with 2 to 4 pounds more forage DM in early lactation cows.
- Adjust the total NDF level to between 31 percent and 33 percent.
- Balance your transition-cow ration for predicted DMI, not for what the cows are currently eating, and increase the forage portion by 10 percent for that group.
- As with any ration change, add BMR corn silage gradually to transition rations to allow the rumen environment time to adjust.

## MONITOR YOUR HERD FOR ADAPTATION

Any ration change requires proper planning, timing and implementation. Monitor cows to make sure they are adapting well to BMR corn silage. Watch these parameters and work with your nutritionist to fine-tune the diet if any red flags emerge.

- **Manure consistency** — If feed is passing through the rumen too quickly, you may notice loose or inconsistent manure. Adding more eNDF will likely remedy the issue.
- **DMI** — Expect DMI to increase no more than 2 to 4 pounds per cow per day. If DMI increases more than this or varies significantly, increase eNDF.
- **Milk components** — A drop in butterfat percentage may indicate the forage particle size is too small and more eNDF must be added.
- **Cud chewing** — If less than 50 percent of the cows are ruminating while resting after eating, eNDF is likely too low. Look for ways to add fiber through dry hay or finely chopped straw.



## SIX STEPS FOR SUCCESS WITH BMR

Follow these steps to maximize the benefits of Mycogen® brand BMR corn silage in your operation:

1. Plan how you will incorporate BMR into your ration — even before the first seed is planted.
2. Select your best fields for planting BMR and provide adequate fertility.
3. Harvest at the proper moisture level and cut length.
4. Pack thoroughly and securely cover BMR silage for proper fermentation.
5. Work closely with your nutritionist to formulate rations.
6. Monitor cow health and performance and evaluate results from feeding this highly digestible forage.



Bred for maximum digestibility and high milk production, BMR silage corn features higher digestibility and greater DMI, allowing reduced grain content in many rations. BMR delivers an average of 4.8 pounds higher milk production per cow per day and a return on investment of up to 10:1.



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