Swapping Your Silage

Across the Corn Belt of the United States, farmers are battling the newly found disease, tar spot. With no known totally effective preventative, it continues infecting the leaves and stalks of corn, leaving farmers desperate to find ways of saving the yield and quality of their corn, especially those producing corn silage for ruminant consumption. Many fungicides are being used as a preventative but can quickly dissipate, so what about changing the type of forage silage instead.

Tar spot is a fungal pathogen called Phyllachora maydis. In 2015, this pathogen was first confirmed in Indiana corn fields but quickly spread to other corn fields in surrounding states. Tar spot severity is determined by the weather. For example, tar spot enjoys temperatures ranging from sixty-three to seventy-two degrees Fahrenheit, with a humidity level at approximately seventy-five percent. In extreme conditions, tar spot can be detrimental to corn. It weakens the stalk quality of the corn which increases the chance of stalks falling, reducing the yield. One important effect of tar spot in corn silage is the increase of nondigestible fiber. This fiber is produced due to insufficient moisture level in the corn. It will not provide energy once consumed since it cannot be properly digested. This suboptimum moisture content can cause loose packing in storage, slow fermentation, and a higher than ideal pH. If there is improper packing or fermentation of corn silage, the likelihood of mold will increase and possibly cause disease to ruminants consuming it. This one fungal pathogen has a domino effect in the production of corn silage, and still affects the forage throughout its use. So, what is a potential replacement?

When comparing the components of corn silage and sorghum silage, one notices the only major difference is the energy content, with sorghum silage providing less energy; however, by adding an energy supplement such as molasses, the energy content can be increased, making sorghum silage a possible replacement. While there are many positive aspects of replacing corn silage with sorghum silage, there are still some concerns; for example, what are negative effects it could have regarding production of ruminants, especially dairy cows. An experiment conducted by M. Khosravi, Y. Rouzbehan, M. Rezaei, and J. Rezaei (10/10/2018), tested the effects of total replacement of corn silage with sorghum silage and displayed no undesirable effects on milk production or lack of nutrients for the cattle. Another concern of sorghum is the production of prussic acid, which occurs after environmental factors cause plant cells to rupture. Any animal consuming it will die within twenty minutes after consumption. While this is a valid concern, prussic acid is no longer a worry after fermentation of sorghum occurs, meaning that it is safe for sorghum silage use.

Since fungicides for tar spot can be unreliable, farmers can continue feeding quality silage by replacing corn silage with sorghum silage. It is a potentially safe alternative that delivers similar nutrients and is not a large concern as tar spot destruction.

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