Cornell CALS College of Agriculture and Life Sciences

PRO DAIRY Education & Applied Research

Forage Management **August 2019**

Wet corn silage can be an environmental challenge

By Karl Czymmek, Peter Wright and Joe Lawrence

With the late planting of many corn silage fields, managing fall silage harvest will be especially critical this year. Don't add to fall challenges by overlooking the potential serious impacts from extra silage leachate that may result from immature crops. A whole plant moisture of less than 70 percent moisture will provide the best opportunity for proper silage making and around 65 percent is considered optimal.

Several articles offer how to chop, store and feed immature corn silage in the event the crop has to harvested at a less than ideal timing.

- Wet Forage Harvest - Tom Kilcer, Advanced Ag Systems
- Management Considerations for Immature and Frosted Corn Silage - Larry Chase, Cornell University

Many of the practices suggested, such as longer cutting length and removing the kernel processor, also have the benefit of reducing leachate. Regardless of your strategy to deal with wet corn silage, it is also smart to be prepared to deal with extra leachate in case some chopping strategies produce less than optimal results.

Why be concerned?

Silage leachate is as nutrient rich as manure and has up to five times the energy content. Leachate runoff into a stream can quickly use up oxygen in the water, and leachate caused fish kills and death of other aquatic life. Silage bunks placed near a stream or watercourse are especially prone if leachate flow can reach the waterbody. High pressure exerted in a tower silo as it fills can expel a lot of leachate juice. A tower silo located near a stream can be a concern, especially if there is a footer drain. For farms with grass filter areas to treat bunk runoff, concentrated leachate can create kill zones in the filter, reducing the effectiveness of the filter until the soil can be leached of the excessive nutrients. This can create an immediate compliance issue, as well as a long-term maintenance issue for farms operating under a NYS CAFO permit.

What to do?

When dealing with a less than ideal harvest scenario, it is important to work with your nutritionist and other key advisors to balance the harvest factor that will minimize any potential storage losses and environmental impacts, while resulting in a feedstuff that has value in your feeding program. In addition to making harvest adjustments recommended elsewhere, farms should inspect low flow collection systems before harvest begins, then during harvest and again up to two months after.

- Ensure that the low flow diversions are working properly. Set low flow collection to catch all the high strength leachate.
- Check that pumps are in good working order.
- Assess volume of low flow collection capacity. If maintaining good low flow collection separation has been difficult in the past, then consider adding more storage, more pumping capacity, frequency or a combination.

- Short-term low-cost solutions may include carefully managing the leachate collection, changing low flow leachate management protocols to pump more frequently or place a tanker and additional pump nearby to serve if added pumping and storage capacity is needed. This is critical during rain events that cause runoff from the bunk but don't increase flow from the watershed.

The idea of blending absorbent materials such as dry grain or straw have been suggested as a means to increase overall DM of an immature crop. While this can work in theory, it has been reported in Managing Immature and Frosted Corn Silage that it takes 30 pounds of dry material per ton of silage to change the DM one percent. So significant changes in silage DM would require substantial additions of dry materials. This will also change the nutrient profile of the silage, so consulting with your nutritionist on the desired usage of this feed will be important.