July, 2009: it’s time to review harvesting tips to maximize the feeding value and yield of your corn silage crop!

1. *Harvest at 40% whole plant dry matter (WPDM)*
   This is the most important information to know for making good corn silage. Bacteria present on the corn plants in the field ferment plant sugars contained primarily in the stalk to produce fermentation acids that preserve the corn silage.

   To ensure a vigorous and successful bacterial fermentation the dry matter (DM) content of the whole corn plant material at harvest is very important. The proper DM content for optimum fermentation is between 30% and 40%. If corn silage is wetter than 70% moisture (30% DM) excessive fermentation acids can reduce palatability and feed intake. Wetter silage is more likely to result in effluent loss, which is a huge potential environmental concern for Michigan dairy farms.

   If corn silage is drier than 40% DM there might not be enough sugars available for adequate fermentation increasing DM losses and resulting in heating at feed-out. In addition, if corn silage is too dry, kernels become hard and starch digestibility is reduced.

   Determining the whole plan DM at the beginning and during harvest is the most critical and important harvest management practice to implement. Dry matter can be determined using a Koster™ moisture tester or microwave oven. A publication for using a microwave for moisture testing can be obtained at: http://ianrpubs.unl.edu/range/g1168.htm

   Kernel milk line has been used in the past as an indicator of when to harvest corn for silage. Kernel milk line is an indicator of kernel maturity but is not a good indicator of whole plant DM.

2. *Harvest at chop height of 4 to 6 inches*
   Some publications suggest chopping at 12 to 16 inches from the ground, which will increase the grain concentration and reduce the concentration of fodder in the silage. Implementing this 12 to 16 inch concept would increase the energy density but decrease the fiber content of the silage.

   While this practice might make sense when the price of corn grain greatly exceeds the cost of growing and feeding corn silage, many producers are concerned that dairy cow diets do not contain sufficient fiber and they purchase dry hay or straw to increase dietary fiber.

   This doesn’t make sense because corn plant fodder is a good source of fiber and leaving 12 to 16 inch stalks and leaves containing potentially digestible fiber in the field while purchasing other perhaps less digestible fiber sources is a costly venture. MSU’s recommendation is to harvest corn at 4 to 6 inches for silage.

3. *Chop length-theoretical length of cut (TLC) of ¼ to ½ inch*
   Kernels and cobs need to be broken. To accomplish this, chop length may need to vary between ¼ and ½ inch TLC for choppers without a processor depending on WPDM. A chop length of ¼ inch should be used only for very dry corn plants to ensure that the kernels are nicked. Short chop to length silage will require inclusion of another forage source in the ration for adequate effective fiber. For choppers with a processor a ¾ inch TLC is recommended when WPDM is 30 to 40%. Processing when WPDM is less than 30% may result in mashing of the kernels and stalk and the processor rollers should be back-off to prevent mashing.

4. *Filling and packing*
To prevent spoilage between filling layers, fill bunkers as rapidly and continuously as possible. Stopping for a day or more may result in spoilage layers that can depress feed intake. Pack bunkers continuously during filling to expel air that is trapped between plant particles.

5. **Covering**
Cover bunkers and tower silos as soon as filling is completed. Plastic covering will prevent exposure of the top silage surface to air and water and control the extent of spoilage in the top layers. Tucking the plastic around bunker sidewalls will prevent water from seeping into the silage which will help prevent sidewall spoilage.

6. **Preventing potential leachate problems**
Harvesting at 30 to 40% WPDM is the first step in preventing silage seepage. Harvesting at less than 30% WPDM for horizontal silos increases the potential for seepage.

Vertical silos require higher WPDM to prevent leaching. After filling and covering is completed take care to clean up plant material from around the bunker, bags, piles or tower silo. Implement a plan to direct water from the silage bunk area to a properly designed system to prevent possible environmental problems.