

## Wide Swath Results in Better Forage

When alfalfa is cut and placed in a thick and narrow swath, relatively little forage is exposed to air and sunshine. As a result, the outside of the swath dries while the inside remains wet longer. To achieve a moisture level that is on average in the optimal range, a long wilting period must occur.

Ensiling alfalfa efficiently requires the crop to wilt to about 55-65% moisture. When a crop is cut and the wilting process commences the plant continues to breathe and other chemical processes also continue. Because plant respiration continues, sugars and other water-soluble carbohydrates are lost as they are broken down into water and carbon dioxide. The physical damage to the crop from cutting and conditioning causes the ruptured cells to release enzymes that further breakdown protein into ammonia nitrogen. These factors all lead to losses associated with wilting. In order to minimize losses, a fast field dry down is very important.

Enter the wide swath concept. The definition of a wide swath is when the width of the swath is close to the cutting width of the mower. By making the swath as wide as possible more plant material is exposed to air and sunshine, allowing for a faster dry down. Therefore, the forage will be in the optimal moisture range faster. Consequently, the forage can be harvested and ensiled quicker and losses that occur during wilting are reduced. Figure 1 clearly shows the accelerated drying of the alfalfa in a wide swath compared to a narrow swath.

Often the limiting factor for good fermentation in an alfalfa crop is sugar content. With a wide swath, more sugars are retained because drying time is reduced. These sugars are converted into organic acids that reduce the pH and preserve the crop. (The sooner an anaerobic (without air) environment is established, the faster the fermentation begins.)

Tom Kilcer, Cornell University agricultural extension agent, completed research documenting the differences between the wide swath method and the narrow swath method. Producers that implement the wide swath method generally ensile 6-8 hours after the alfalfa is cut. According to Kilcer, one of the main challenges is getting your mower to make a wide swath. Most equipment is not set up to leave a swath that is almost as wide as the cutter bar.

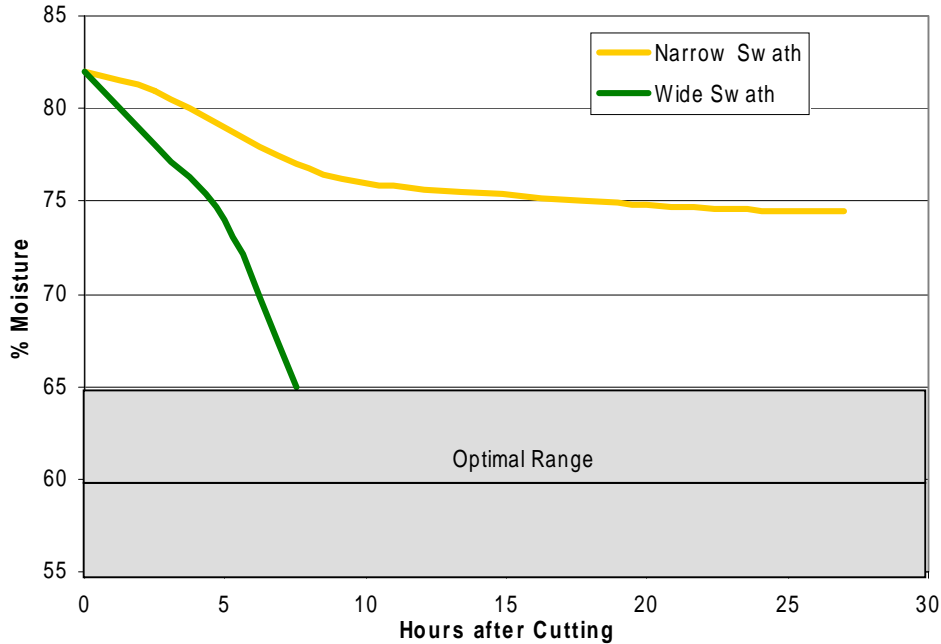
Kilcer's work showed differences between wide and narrow swaths, including less soluble nitrogen in wide swath haylage. The reduction in ammonia nitrogen levels with the wide swath method ranged from 44.4% in alfalfa to 63.2% in sorghum.

Kilcer's work also showed a greater lactic acid to acetic acid ratio in a wide swath cut, indicating more lactic acid is produced. The production of lactic acid is more efficient than the production of acetic acid, resulting in better retention of nutrients. This means that less energy is lost during fermentation. This higher energy level retained in the wide swath alfalfa translates into 300 pounds more milk production per ton of dry matter than narrow swath haylage (see Figure 2).

So the benefits are clear! A wider swath dries faster and results in less nutrient loss. This leads to increased milk production, decreased ammonia nitrogen and less need for

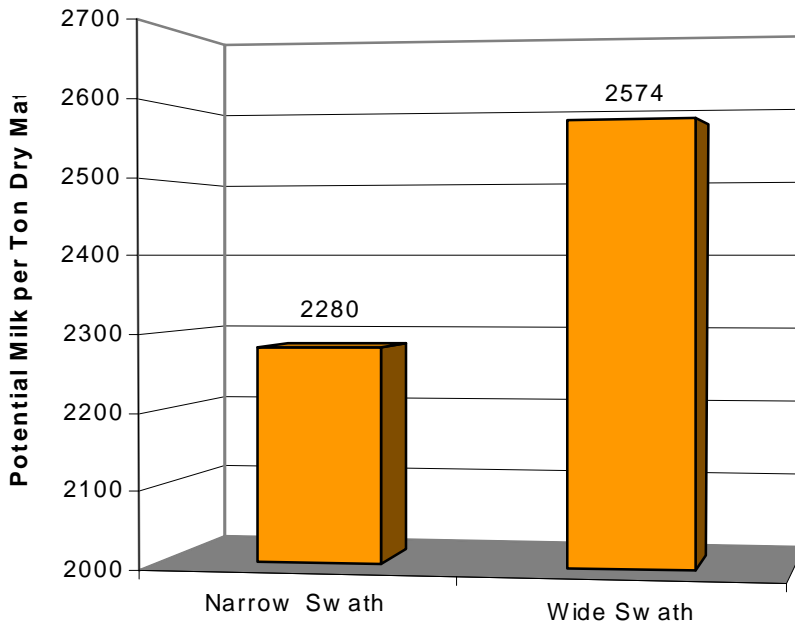
supplemental protein. Overall, a wider swath is a good management practice that gives you better forage for your cows and keeps more money in your pocket.

**Figure 1. Graph demonstrating the drying time of wide and narrow swath cut alfalfa after cutting\*.**



Graph adapted from Cornell University & Rensselaer County Extension Agent Tom Kilcer

**Figure 2. Potential Milk per Ton Dry Matter in Wide Swath versus Narrow Swath Haylage\*.**



Graph adapted from Cornell University & Rensselaer County Extension Agent Tom Kilcer



Photo courtesy of Cornell University & Rensselaer County Extension Agent Tom Kilcer