Is Snaplage a ‘Good Fit’ For Dairy Farmers in the Northeast?

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To state the obvious, the recent milk to feed price ratio has been hard on farm profitability. Because of this, some dairy farmers have become increasingly interested in using snaplage to partially or largely replace purchased corn in the ration. While the limited number of crop acres are a primary reason more farmers in the Northeast are not attempting to produce a significant portion of the concentrate needed for their dairies, snaplage deserves some consideration by those farmers who are able to overcome acreage limitations, have a large corn silage inventory, who are expecting a larger than usual crop of corn silage, or who have a corn crop that for some reason looks like it will probably make poor quality whole-plant silage.

**Snaplage basics**

‘Snaplage’ is corn silage harvested with equipment that excludes the stalk and most of the leaf material, but is generally understood to include the whole ear (husk, cob, grain, part of the shank). It is harvested by a silage harvester with a snapper head and kernel processor, and ensiled at 35-40% moisture. Most major manufacturers of silage choppers also make snapper heads. Compatible aftermarket snapper head can also be purchased, especially in the case of self-propelled harvesters.

‘Earlage’ is similar to snaplage, but does not include the husk and very little of the shank is retained. In addition to using various types of snapper heads, some farmers have also harvested earlage by adjusting their combines to break up the cob and return it and the grain to the bin. Farmers choose to harvest both earlage and snaplage instead of whole-plant corn silage for very similar reasons. While these products are similar in many ways the feeding characteristics will be different, depending on how much of the husk, shank, and stalk are excluded during harvest.

As with all feed decisions, snaplage has both positive and negative characteristics that will be more significant on some farms than others. While snaplage can offer major feed-cost savings to some farmers, it is not for everyone.

**The ‘pros’ of harvesting and feeding snaplage**

- The feed characteristics are likely to improve animal health compared to corn grain.
- Reduced transportation costs per ton of TDN harvested compared with corn silage.
- Increased flexibility of the time of harvest compared with corn silage.
- Returning stalks and leaves to the soil can improve soil quality and reduce the risk of soil erosion.
- Less fuel is used per ton of TDN harvested compared with corn silage.
- Improved ruminal digestibility compared to dry corn.
- Starch digestibility increases with time in storage, compared with corn grain.
- It can allow less reliance on purchased corn.
- Requirements for harvest equipment and storage facilities are similar to whole plant corn silage.
- Low-quality leaves and stalks can be replaced in the ration with higher quality forages.
- 10-15% higher TDN yield per acre than shelled corn.
The ‘cons of harvesting and feeding snaplage:
- Less consistent quality characteristics compared with dry grain.
- If harvested too late, cob digestibility is significantly reduced.
- A 'snapper head' is needed.
- Returning the unharvested portion of the plants may offer more residue management challenges than regular silage stubble.
- Fermentation losses can be high if a good silage making protocol is not used.
- The tendency for the starch digestibility to increase requires extra diligence when balancing the ration over the time the ration is being fed out.
- The amount of non-grain plant material present can vary with harvest moisture, even within the same day.
- Chop-length can be more difficult to control than with whole-plant corn silage.
- More tons of forage need to be harvested or purchased and stored to replace the value of unharvested portions of the corn plants.
- Not as easily marketed as dry grain.
- Lower in protein than corn grain by about 1%

Snaplage is haunted by a bad reputation associated with excessively late harvests, poorly adjusted equipment, and poor silage-making practices. To end up with high-quality snaplage going into the mouth of your cows, several practices must be followed:
- Harvest between 35 and 40% moisture (for the harvested portion). At this point the corn should be physiologically mature, and the digestibility of the cob should be high. Research has shown that the digestibility of the cob declines significantly as it dries out. It is better to err on the side of harvesting it wetter than drier. If harvested excessively dry, molds and associated mycotoxins can develop.
- When deciding how to store the snaplage, consider whether your current facilities will allow the product to be fed out rapidly enough to prevent spoilage. The density of snaplage in the silo should be at least 30 pounds of dry matter per cubic foot in order to provide a good environment for fermentation.
- Maximize kernel damage by using the shortest chopping length possible, using fine-toothed rollers adjusted to 2-3mm. The differential can and should be set higher with snaplage than with silage (Mahanna, 2008).
- If possible, allow at least 60 days to pass before opening the silo in order to benefit from the increase in starch digestibility over time.

In much of the Northeast, farmers are significantly constrained by the lack of crop land. You might consider harvesting snaplage in any given year if:
- you have a very large inventory of high quality forages to compensate for the reduction in yield.
- you have a very large inventory of corn silage already and/or have more corn standing than you need and would rather capture the value in reduced feed costs instead of selling it standing in the field to another farmer.
- conditions have been such that the quality of whole-plant corn silage is expected to be poor and you would rather have some high-quality snaplage than a much larger volume of low-quality whole-plant silage.
land has become available locally, but you do not need it for hay or whole-plant corn silage and you think the economics may be favorable for planting it specifically for snaplage in order to reduce purchased grain costs. 
the economics of hauling snaplage from distant fields makes more sense than it does for whole-plant corn silage.

**How does snaplage compare to dry corn products?**
Interestingly, the NEL for snaplage is very similar to high-moisture corn. This is counterintuitive because, pound for pound, pure corn clearly has more energy than snaplage. The similarity in feeding value has been attributed to improved rumen function being realized when the whole ear is fed rather than just the grain.

<table>
<thead>
<tr>
<th>Feed Name</th>
<th>% DM</th>
<th>CP</th>
<th>NDF</th>
<th>ADF</th>
<th>NDFd</th>
<th>% TDN</th>
<th>NEL(Mcal/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn grain/cob, high moist., ground (earlage)*</td>
<td>67.1</td>
<td>8.4</td>
<td>18</td>
<td>9.4</td>
<td>58.1</td>
<td>87</td>
<td>0.89</td>
</tr>
<tr>
<td>Corn grain, cob/ husk/shank (snaplage)**</td>
<td>62.5</td>
<td>7.7</td>
<td>22.2</td>
<td>10.5</td>
<td>57.8</td>
<td>81.8</td>
<td>0.86</td>
</tr>
<tr>
<td>Corn grain, ground, dry*</td>
<td>88.1</td>
<td>9.4</td>
<td>9.5</td>
<td>3.4</td>
<td>52.7</td>
<td>87.5</td>
<td>0.90</td>
</tr>
<tr>
<td>Corn silage, normal 32-38% DM*</td>
<td>35.1</td>
<td>8.8</td>
<td>45</td>
<td>28.1</td>
<td>59.8</td>
<td>68.7</td>
<td>0.65</td>
</tr>
<tr>
<td>Corn grain, ground, high moisture*</td>
<td>71.8</td>
<td>9.2</td>
<td>10.3</td>
<td>3.6</td>
<td>54.2</td>
<td>90.4</td>
<td>0.93</td>
</tr>
</tbody>
</table>

*Source: Spartan Dairy 3, Michigan State University, 2011  
**Source: averages from Cumberland Valley Analytical Services, Hagarstown, MD

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**Can the unharvested residue be baled to feed other classes of livestock?**
It is common for farmers in the Midwest to round bale corn stover to feed to livestock. This practice would probably not fit well with the residue left after the snaplage has been harvested. After going through a combine, the corn stalks are generally cracked and crushed in such a way that they can dry out somewhat. Aside from the generally wetter fall weather common in the Northeast around the time of silage harvest, the stalks from plants from which the ears have been picked are much less damaged and will not dry out as quickly or completely as if they had been run through a combine. The chances that the corn stalks remaining after snaplage has been harvested will make acceptable feed is very low.

**Conclusion**
Snaplage is an excellent source of energy for dairy livestock. While many farmers in recent years have begun to harvest snaplage to partially offset the cost of purchased grain, the associated land and management requirements are significant and need to be considered carefully before major changes are made.

**Sources used:**