

Forage Outlook and Sheep Feeding Strategies for Fall 2012

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Infosheet

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Forage Shortage on Many Minds

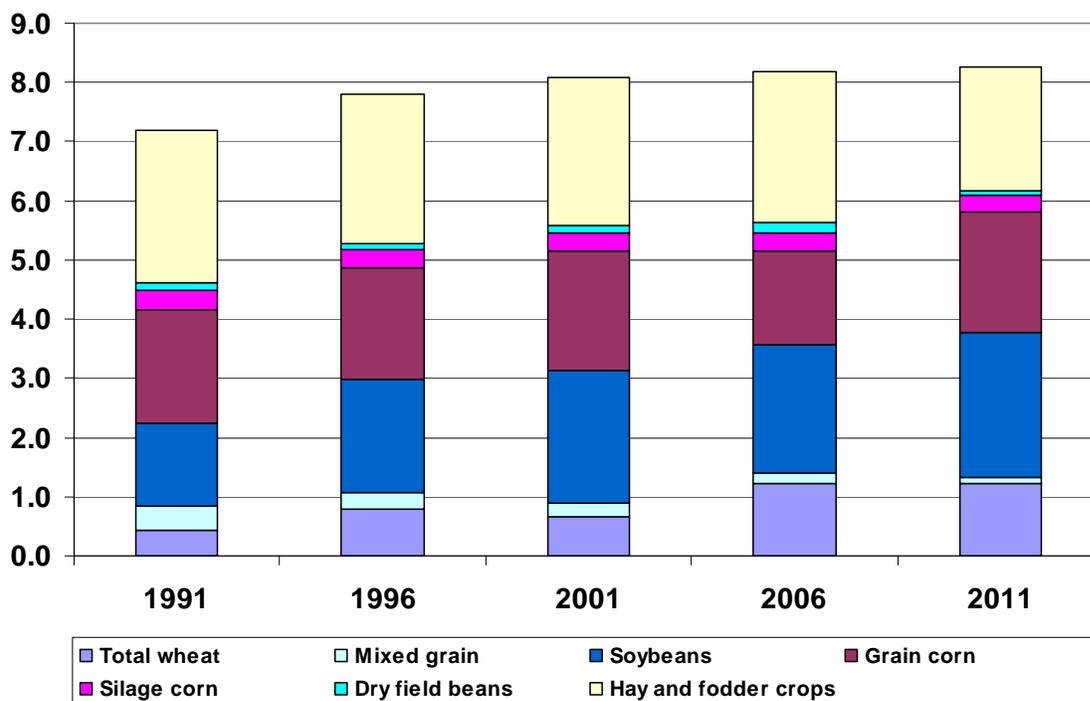
With the unusual nature of spring and summer 2012, the continued decline in forage acreage, and current dry conditions in parts of the Province, there are numerous reports that hay prices are extremely high at present, and that this will impact the hay and forage market for Fall of 2012. Finding a successful stored forage strategy will depend on a few things:

- Factors that will impact short-term forage supply and demand
- Management ideas for hay-based ewe flocks
- Alternative strategies for feedlots and other TMR-fed sheep operations
- Longer-term forage outlook

Factors in a Potential Forage Shortage

The story of 2012 Ontario forage supplies is still in play and will continue until corn silage and 3rd cut hay and haylage is put into storage. Until that time, we will not really know the full extent to which a supply crunch will occur on account of the dry conditions and the continued decline in Ontario forage acres as depicted in Figure 1. One factor which may affect the demand side is the perspective that the horse sector may shrink, specifically in terms of the stated intentions of many horse breeders to reduce their holdings and breeding. This would cause a loss in the associated hay demand. So, although the yields are down on this reduced forage acreage (owing to cash crop increases) and that this necessitates record forage prices, that may or may not be proven true on the whole.

Figure 1. Census data indicates that forage acres (in millions of acres) in Ontario continue to decline, a situation related to the appeal of commodity cash crops. *Source: Statistics Canada, Census of Agriculture.*



Ewe Flock Wintering Strategies

In the event of a stored forage shortage, here are a number of strategies that could be implemented to substitute or stretch forage resources:

1. **Substitute other straws, stovers and residues for hay.** Table 1 ranks some common alternative forages for a number of nutrients, including forage digestibility and crude protein levels. The extent to which this substitution can be used is a function of the straw quality and the ewe's stage of production.
2. **Institute limit feeding.** Several sources suggest that limit feeding can reduce wastage, and reduce luxury consumption of feed without affecting performance. This is because the ewe herself – especially the annually lambing ewe - is a natural buffer who can increase or decrease resource usage by altering body fat stores, liver wastage and waste heat production.
3. **Implement ionophore use.** Including ionophores at higher levels that used as a coccidiostat can reduce feed usage as well. By making rumen fermentation more efficient, the ewe can harvest more feed energy as metabolites for her system, rather than have that feed energy blown off as methane.
4. **Reduced hay rations + commodities.** By using commodities to offset hay, hay can be saved. There are a number of ways this can be done using limit feeding, in a TMR, or just to offset a poor quality residue feed like straw. Each of these approaches is based on the concept that commodities are concentrate feeds and can replace more nutrients per unit weight than hay. Forage example, corn can replace up to twice the amount of hay per unit weight, as shown in Figure 2.

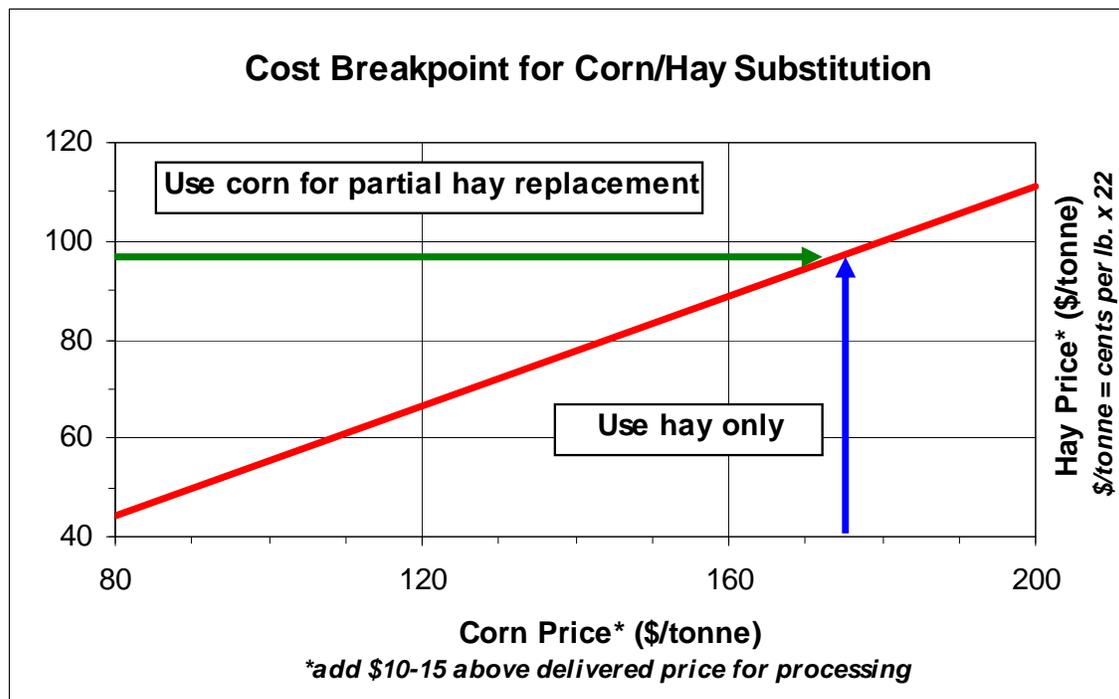


Figure 2. Based on an approximate 2 to 1 replacement of hay with corn, a reduced hay ration can be fed to cows provided some forage remains in the ration. The above graph gives some parameters to the pricing of hay vs. corn using this relationship.

5. **Use corn silage.** One interesting development in recent years is how corn silage has actually become *cheaper* than hay in many areas. In this case, corn silage could be *maximized* in the ration, and then this ration would use low quality forages to bulk them, a protein supplement to address the protein shortfall, and then all of this delivered on a limit-fed basis.

Table 1. A list of common forages (as a few other feeds) in terms of nutrient parameters on a dry matter basis. Paying attention to the eNDF or effective neutral detergent fibre (NDF) as a percentage of total NDF which is a measure of how well a feed stimulates rumination, may become important to the sheep sector as it has in the dairy sector, as alternative forage sources are investigated.

| | % TDN | % CP | % NDF | % eNDF |
|--|-------|------|-------|--------|
| Alfalfa Hay – early bloom | 62 | 19.9 | 39.3 | 92 |
| Alfalfa Silage – early bloom | 63 | 19.5 | 43.0 | 82 |
| Orchardgrass Hay – early bloom | 65 | 12.8 | 59.6 | 98 |
| Orchardgrass Hay – late bloom | 54 | 8.4 | 65.0 | 98 |
| Corn Silage – 45% grain | 72 | 8.7 | 43.0 | 81 |
| High Moisture Corn ¹ | 93 | 10 | 9 | 0 |
| Corn and Cob Meal ¹ | 82 | 9.0 | 26.0 | 56 |
| Corn Stalklage | 55 | 6.3 | 68.0 | 81 |
| Wheat Silage - dough | 57 | 12.5 | 60.7 | 61 |
| Wheat Straw | 41 | 3.5 | 78.9 | 98 |
| Barley Straw | 40 | 4.4 | 72.5 | 100 |
| Soybean Straw ¹ | 42 | 5.0 | 70.0 | 100 |

From Nutrient Requirements of Beef Cattle, 7th Revised Edition 1996, Appendix Table 1A, except those denoted as ¹ which are from the Nutrient Requirements of Small Ruminants, 2007, Table 15-11.

Feedlot Strategies

The assumption here is that processed hay is being used at some level to ensure rumen health, providing scratch factor. To replace that functionality, the following (many of which will seem a lot like the ewe-flock list) should be considered:

1. **Substitute other straws, stovers and residues for hay.** Again, see Table 1 for forage information, and perhaps this time consider the *effective fibre* the way a dairy producer might. Again, the extent to which this can be done is a function of the straw quality, and the stage of finishing.
2. **Switch from HMC or grain corn to cob meal.** As seen in Table 1, the effective fibre contribution of cob meal to rumen function and health is much greater than for regular high moisture corn.
3. **Use corn silage.** Again, in many places corn silage may actually be the cheapest forage. If 5% hay is used in the ration (or about 1 lb. per head per day), another way to achieve similar effective fibre is using long chop, processed corn silage at 2 times or more the hay inclusion rate. By long chop and processed, we mean using corn silage the way our dairy counterparts do, to improve rumen function. Worried about too much corn silage? There is a good body of research at Ridgetown College by Phil McEwen in beef and now Paul Luimes in sheep that shows corn silage levels of up to 50% and 25% respectively of ration dry matter don't negatively affect performance, and often improve ration cost-effectiveness.
4. **Institute limit feeding.** Using this concept - also referred to as slick bunk management or target feeding – reduces luxury consumption in the finishing animal as well. The liver and gut tissues waste massive amounts of energy, so feeding at 90 to 95% of ad lib (free choice) intake with slightly higher protein levels results in the same performance by making these organs run a little 'leaner'. So, if hay is 5 or 10% of the ration, if we reduce total intake by 10%, we can reduce hay usage by 10 percent as well.

Long Term Outlook

Forage shortages are not unique to parts of Ontario. Other parts of the globe have been driven to alternative forage strategies for all sorts of reasons, including the rising cost of irrigation. That means our worldwide understanding of using alternative fibre sources in everything from sheep and beef to dairy rations is improving. So, even if hay remains expensive, we will find ways to adapt. So, don't despair about the industry's future with the short-term rise in hay prices; either the market place will change or the industry's outlook on fibre will!