

## Feeding Lower Forage Rations - 2016

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It appears that many New York herds will have some limitations in terms of forage supply for the winter feeding season. This paper will provide some thoughts on how a dairy producer and their agribusiness advisors can address this situation.

1. **Forage Inventory** – As soon as corn silage is harvested, a total farm forage inventory needs to be done. How many tons of forage are available to feed the herd? Worksheets to do forage needs and inventory calculations are available at:

<http://ansci.cornell.edu/extension-outreach/adult-extension/dairy-management/feed-fact-sheets-and-worksheets>

<http://nwnyteam.cce.cornell.edu/submission.php?id=5898&crumb=forges12>

2. **Animal Inventory** – How many dairy cows and heifers are on the farm? Are there any options to cull or sell some animals? Check with your lender before doing this.
3. **Forage analysis** – Know what nutrients you have to work with. Taking some forage samples during harvest will provide information helpful in planning the winter feeding program.
4. **Forage allocation** – Are forages stored by quality? Can specific forages be reserved for specific animal groups?
5. **Buying Forage** – If forage inventory is short, is it possible to purchase any forage?
6. **Plant a winter forage crop and harvest as animal feed** – A winter grain can be ready for harvest and available to feed 1-2 weeks before 1<sup>st</sup> cutting. Pasturing this ground can be another option.
7. **Ration adjustments** –
  - a. Lower forage rations may be needed if forage inventory is short and additional forage cannot be purchased.
  - b. Key principle – No matter what changes are made animal health must not be compromised.
  - c. If lower forage rations need to be fed, be conservative on starch and use non-forage fiber type feeds (soy hulls, citrus pulp, whole cottonseed, gluten feed, wheat midds, wet brewers grain, distillers grain, etc.) to replace forage. The

challenge is that many of these may be in tight supply so early booking may be important.

- d. Consider using a small amount of chopped straw or low quality hay to provide chewing fiber.
- e. Consider multiple rations for the milking cows.
- f. Consider adding buffers to the ration.
- g. Consider added fat to the ration to provide energy.
- h. Potentially consider limit feeding some animal groups (bred heifers). This should only be considered in situations with good management, adequate feed bunk space (all heifers can eat at the same time) and with groups with uniform body weights. This practice may only be applicable to a small number of farms.
- i. Put heifers out on pasture in the spring. Other animal groups may also be candidates for this.
- j. Consider having heifer's custom raised.

**8. Management adjustments –**

- a. Adjust rations for changes in forage dry matter. This will help keep rations on target and minimize over or under feeding of forage.
- b. Adjust feeding management to lower the quantity of feed refusals. A small change here can conserve forage.
- c. Improve silage face management to keep the silage fresh and lower spoilage.

How low can we go in terms of feeding lower forage rations? There are a number of ways to express forage needs for dairy cattle. Guidelines for minimum forage levels in rations are:

- 1.5% of body weight as lbs. of forage dry matter
- 15% of the total ration dry matter as forage-NDF
- 0.7% of body weight as forage-NDF

Each of these will result in a slightly different answer in terms of the quantity of forage fed and needed. Table 1 is an example for a 1,450 lb. dairy cow. A 25% reduction in forage needed per cow results if the forage feeding rate drops from 2 to 1.5% of body weight.

**Table 1. Daily and Yearly Forage Needs (1450 lb. Cow)**

Daily Forage Intake, % of BW	Lbs. Forage DM/Cow/Day	Tons Forage DM/Cow/Year
2.5	36.2	6.6
2	29	5.3
1.5	21.8	4

Table 2 is from the 2001 Dairy NRC. This looks at forage NDF intake as a % of total ration dry matter. These are minimum suggested values with good management. Note that as ration forage NDF decreases, that total ration ADF and NDF increase while NFC (non-fiber carbohydrates) goes down. In most dairy rations, starch is the primary source of NFC. This indicates that starch needs to be limited and the space filled up with fibrous byproduct feeds.

**Table 2. Minimum Total Ration F-NDF, NDF and Maximum NFC**

<b>F-NDF, % - Minimum</b>	<b>Total Ration NDF, % - Minimum</b>	<b>Total Ration NFC, % - Maximum</b>	<b>Total Ration ADF, % - Minimum</b>
19	25	44	17
18	27	42	18
17	29	40	19
16	31	38	20
15	33	36	21

Source: 2001 Dairy NRC

Table 3 is an example of the percent of the total ration that would be forage based on Table 2 and varying forage NDF levels. The values in Table 3 look really low in terms of the proportion of forage in the total ration. I have seen herds feed < 40% forage with good management that make milk and maintain cow health. The key to making these lower forage rations work is ration balance, controlling ration starch levels and daily feeding management. The potential for disaster is high if they are improperly formulated and/or managed.

**Table 3. % Forage in the Ration to Meet Minimum F-NDF**

<b>Minimum F-NDF, %</b>	<b>40% NDF Forage</b>	<b>50% Forage NDF</b>	<b>60% Forage NDF</b>
19	47	38	32
18	45	36	30
17	43	38	28
16	40	32	27

Based on data in Table 2

**Summary:**

There is a wide range in the amount of forage that can be fed to dairy cows while maintaining milk production, milk components and herd health. The key will be to determine the quantity of forages by doing a forage inventory. This will provide the base information for setting the amount of forage that can be included in dairy rations during the 2016-17 feeding season.