Utilizing Corn Stalks as a Forage Source on Dairy Farms

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September 26, 2012
First Rule

- Don’t give up milk, good cows produce 2 lbs milk per lb of Feed DM Consumed
  - 1 lb DM = $0.20
  - 1 lb milk = $0.20

$7.00 feed to get $14.00 milk per day
Or $0.20 profit per lb of dry matter fed
Dairy farmers should calculate feed inventory and feed needs. Part of calculating feed inventory means also knowing the nutrient content of those feeds. Certainly if feed inventory is less than feed needs, actions must be taken to secure the needed feed resources.
Corn stalks are high in fiber content and can slow digestion and reduce nutrient digestion. Over feeding corn stalks particularly to lactating cows will result in feeding too high fiber content that will slow passage reduce dry matter intake. Attention to fiber content requires special attention when feeding corn stalks to lactating cows. Corn stalks can be fed to dry cows and older heifers at higher percentages of the ration. Corn grown in drought stricken areas has potential to contain elevated levels of nitrates. The nitrates will be concentrated in the lower portion of the stalk. Testing feeds for nitrate content is recommended. Feeding strategies can help avoid nitrate poisoning problems. Feeding round bales of stalks allows animals to select a higher portion of leaves and husks that usually contain lower nitrate levels. Allowing stalks to be wasted will result in rejecting the highest nitrate concentration.
Aflatoxin is a poisonous compound produced from mold and is also a known carcinogen to humans. Aflatoxin is closely regulated in human food supply here in the United States. Dairy farmers need to test feed to ensure that alfatoxins are not fed at levels that will cause animal health problems or that appear in the milk. The USDA Food and Drug Administration regulate that aflatoxin concentration should limited to 20ppb in lactating dairy cow feeds and 0.5ppb in milk. Producers should note that feeds high in mold and aflatoxin content must be stored properly. Poor ensiling or wet baling can enhance aflatoxin production within the feedstuffs. If feeds contain aflatoxin, proper storage techniques become critical. Sodium bentonite fed at a rate of 1% of DM intake has been shown to be an effective binder of aflatoxin and can inhibit the compound from being absorbed by the animal and secreted into the milk.
General recommendations are to feed no more than 20% of the forage ration to lactating cows while upper limits of 33% of the forage can be fed to dry cows and bred heifers. Dry cow and bred heifer rations should be backed down to 20% of the forage approaching calving two to four weeks.
Pricing Corn Stalks

- Feedval 2012 – U of Wisconsin compares pricing of various feeds
  - Cornstalks can be very economical to purchase

http://dairymgt.info/tools/feedval_12/index.php

Given current prices of forages and grain concentrates, corn stalks appears to be favorably priced using Feedval 2012 to compare feedstuffs. Feedval 2012 is a feed pricing spreadsheet that can be found on-line through the Dairy Cattle Nutrition University of Wisconsin Extension site.
Work conducted at South Dakota State University fed two groups of heifers, one group was fed a traditional diet while the other group was fed a diet of corn stalks and wet distillers grains. Gains were greater for heifers fed traditional diet 2.82 lb vs 2.31 lb ADG. While gains of heifers fed stalks and distillers grains were lower than the traditional diet, gains were greater than National Research Council dairy recommendations.
Body Condition Scoring (BCS) is an important management tool. Dairy farms to assist producers ensure that cows possess proper fat reserves and degree of muscling. Opinions vary as to the proper bcs dairy cows should be at the beginning of lactation. Most agree that those cows should have a bcs within 0.5 and certainly no less than one full condition score of desired calving condition score. Condition scoring can be used in evaluating ration and its success in preparing cows for parturition and lactation. Feeding high fiber feedstuffs such as cornstalks can assist in extending forage supplies and reducing ration cost; however precautions to ensure that inclusion rate is not too high. Bcs should be used in the evaluation of corn stalk inclusion rates. If cows are not gaining condition and body weight to enter lactation with adequate bcs, ration should be re-evaluated and reducing corn stalk inclusion should be considered.
## Nutrient content of corn stover/stalklage (% of DM)

<table>
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<tr>
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<th>Michigan 2009</th>
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<tbody>
<tr>
<td></td>
<td>NRC, 2000</td>
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<tr>
<td>TDN, %</td>
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<tr>
<td>NE\text{pr}, Mcal/lb</td>
<td>.52</td>
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<tr>
<td>NE\text{p}, Mcal/lb</td>
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<tr>
<td>Crude protein, %</td>
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<td>NDF, %</td>
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<tr>
<td>ADF, %</td>
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<td>Ash, %</td>
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<tr>
<td>Calcium, %</td>
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<td>Phosphorus, %</td>
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<tr>
<td>Potassium, %</td>
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Harvesting

- Bale
  - Dry Baling
  - Potential for balage – moisture concerns
- Chopping, similar to silage
  - More concerns with moisture
  - May result in lower quality forage – more stalk, less husk
Feeding Methods

- Chop or grind into TMR – Feed analysis critical
- Feeding bales
  - allowing more waste will improve nutrient content and digestibility
  - Ration calculations will be less precise
  - Estimating intake and nutritive value will be subjective and is only recommended for dry cows and heifers
Conclusions

• Corn stalks can be fed on dairy farms to supplement forage supply
• If milk production is not affected, corn stalks can reduce ration costs
• Management must pay close attention to details: inclusion rate, feed intake, BCS, feed quality particularly aflatoxin content
Contact Information

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