

*Straw As An Alternative Forage Resource*  
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Yes, you read this correctly! Could straw be a forage alternative that you could fit in your dairy rations? Straw can bring several “pluses” to the dairy feeding program.

- Source of function or long fiber to develop a forage mat in the rumen
- Low energy forage source to dilute down energy rich forage and starch (such as corn silage)
- Low protein forage containing 25 percent soluble and 4 percent total protein.
- Unique mineral profile containing 1.5 percent potassium, 0.30 percent calcium, and 0.10 percent phosphorous (wheat straw, NRC 2001)
- “Clean” forage usually with no mold or weeds

But, anyway you look at straw, it has some “baggage” or negatives.

- High in fiber that can limit dry matter intake containing 73 percent NDF, and 50 percent ADF, and 9 percent lignin (wheat straw, NRC 2001)
- Energy is low at 47 percent TDN or 0.37 Mcal of net energy-lactation
- Slow rate of NDF digestibility resulting in a high rumen fill factor
- Palatability can be a problem leading to sorting
- May be expensive to buy (currently over \$80 a ton when corn is under \$2.00 a bushel or \$70 a ton)
- May be unavailable in your area

Based on these characteristics, several different feeding scenarios could be considered when feeding straw.

**Situation One**

With continuous emphasis on forage quality and low fiber corn silage varieties, the level NDF can be limiting. Brown mid-rib corn and over 180 RFV forages could benefit from a small amount of straw. These forages could almost be “too good” in building the ration. One half to one pound of straw can go a long way in these rations.

**Situation Two**

Your current forages do not provide an adequate amount of long fiber to maintain rumen function due to chopping too short, bagging reducing particle size, or TMR mixers over mixing and cutting forage length. Adding straw can improve rumen pH and fermentation.

### **Situation Three**

Intensive grazing systems can result in forage containing over 28 percent protein (80 percent degradable) and less than 35 percent NDF. This lush forage rapidly clears the rumen resulting in rumen pH below 5.5 using rumenocentesis (rumen taps). New Zealand dairy managers reported feed one kilogram (two pounds) of straw improved manure score and increase milk yield and components.

### **Situation Four**

Close up dry rations should contain less than 1.2 percent while maintaining rumen fill and long forage. If only five pounds of legume-grass forage dry matter can be fed control potassium level, straw can provide some of the long fiber to avoid displaced abomasums and acidosis at calving when feed intake drops. Wisconsin workers suggest that one pound of straw can function similarly to three pound of legume-grass hay. Straw can meet these needs. Close-up cows fed 6 to 10 pounds of straw that has been processed to particles less than two inches can fit these rations.

### **In Summary**

Feeding straw must be carefully considered and strategically placed. Dairy managers and nutritionist must make the following decisions.

1. The amount of straw must limited due to its negatives characteristics. Typically, less than two pounds of straw are optimal for lactating rations.
2. Processing the straw will be needed (1 to 2 inches in length) to avoid feed sorting. If the cows do not eat the straw and it needed to balance the ration, more problems could be created than solved.
3. The type of straw is not clear. A top Pennsylvania dairy manager has tried several types, but reports wheat straw worked the best for their farm because of its hollow stem (floats in the rumen) and their cows seemed to consume it more readily (more palatable). Little research is published on this topic.
4. Start by adding one half pound of straw to observe lactating cow response. The following responses would be good news.
  - a. Manure scores improve (going from loose to firmer manure).
  - b. Milk yield or components increase or return to normal.
  - c. Dry matter intake remains the same or actually increases.
  - d. More cud-chewing activity is observed.

If any of these “cow characteristics” go the wrong way (dry matter intake drops for example), added straw is a liability.

5. Several dairy field nutritionists routinely add 0.5 to 1.5 pounds of straw to all lactating and dry dairy cow rations. They consider straw as an insurance policy to maintain minimal rumen function and health.