



**GRAZING
PASTURE
MANAGEMENT**

**FORAGE QUALITY IN
PERSPECTIVE: WHAT IS
QUALITY WORTH?**
Dr. Marvin Hall

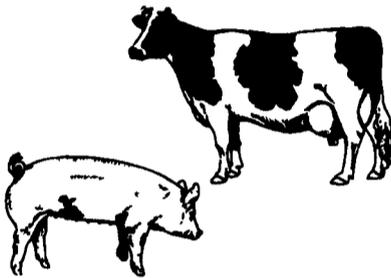
Penn State University
Fluctuations in milk prices,
feed costs, and government pro-
grams are forcing dairy farmers to

Problem Water?

Odor? Bad Taste? Stains? Iron? Manganese?
Mineral Buildup? Color? Bacteria? Virus?
Harmful Micro-organisms? Hydrogen Sulfide?
THM Precursors? Other Contaminants?

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- * Digestion
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- * Breeding
- * Small Litter Size
- * Too Much Medication
- * Milk Production
- * Poor Feed Efficiency
- * Algae in Drinking Cups
- * Bad Conception Rate



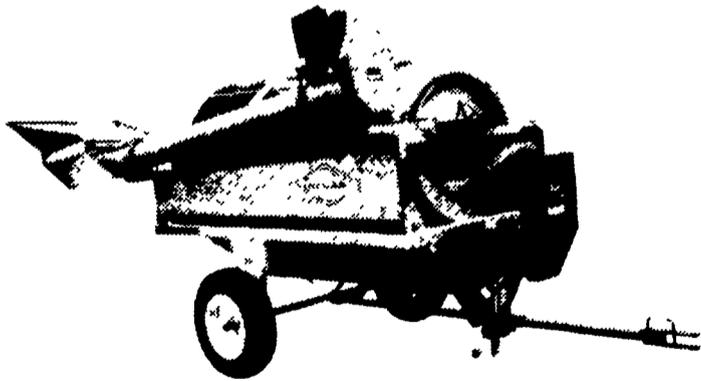
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become more efficient with their
farm operation.

Since feed accounts for approx-
imately one-half of the total cost
of producing milk, and high qual-
ity forage optimizes the productiv-
ity of the animals, increasing the
quality of forage available is one
of the best methods of improving
overall feeding efficiency. But
what is forage quality worth to
your operation?

What Is Forage Quality?

Forage quality is defined as the
sum total of the plant constituents
that influence an animal's use of
the feed. Along with its quality,
the overall potential feeding value
of a forage feed is influenced by
the form in which it is fed (e.g.,
particle size), the palatability of
the forage, and by the quality of
other feeds in the ration (associa-
tive feed effects).

**What Is Quality Forage
Worth?**

The value of high quality forage
in a balanced ration is evident in
Table 1. When three hays of low,
medium, and high quality, along
with corn silage and a mixed feed
grain, are used to balance a ration,
total feed cost for the high quality
hay ratio is \$0.11 less per cow per
day than the medium quality hay
ration.

Income over grain cost is \$0.45
more per cow per day for the high
quality hay ration than for the
medium-quality hay. For 100
cows over a year, this difference is

greater than \$16,000.

Low quality hay does not allow
an animal to consume enough
digestible energy to be highly pro-
ductive. A hay of lower quality
than the three hays in Table 1
would substantially depress the
performance of high producing
dairy cows.

**Keeping Quality In
Perspective**

If you want to produce high
quality forage, keep in mind the
ranking of quality factors and their
relative contribution to quality.
While all six factors described are

important, using high quality var-
ieties will be advantageous only
when the other five factors are
operant.

Quantity (yield) of forage is
also a major consideration. Evalu-
ate your total forage requirements,
and then select the crop and the
appropriate acreage of that crop
that best meet the needs of the
group or groups of animals to be
fed. It ultimately comes down to
economics — high quality forage
can help keep farmers in the dairy
business.

Table 1. What is forage quality worth?*

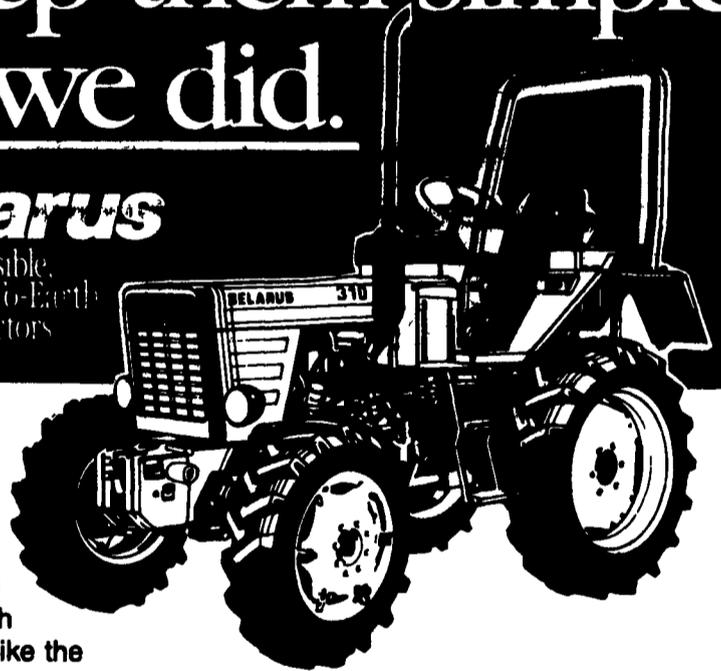
	Low quality hay	Medium quality hay	High quality hay
Hay composition			
Crude Protein, %			
Net Energy of Lactation, Mcal/lb.	12 0.51	15 0.58	18 0.65
Balanced ration			
Hay, lbs.			
Corn silage, lbs.	13	14	17
Grain, **lbs.	33	37	44
	25	22	17
Feed costs			
Hay, \$/ton			
Silage, \$/ton	70	85	100
Grain, \$/ton	24	24	24
	180	180	180
Total Feed Cost, \$	3.11	3.02	2.91
Income Over Grain (IOG), \$	4.35	4.62	5.07
IOG x 100 cows x 365 days	\$158,775	\$168,630	\$185,055

*Assumes second-lactation, 1350 lb. cow producing 60 lb. milk/day containing 4% milk fat
with a milk price of \$11.00/cwt Adapted from the Forage Production Manual for the Pro-Dairy
Program.
Cornell Univ., Ithaca NY 14853
**Grain is a mixed dairy feed.

**Keep them simple,
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