ANOTHER LOOK AT PASTURE MANAGEMENT

Jean Conklin
Dairy Specialist, UNH Cooperative Extension

Introduction

Some of you are probably saying "Oh no, another talk on pasture management, prescribed grazing management intensive rotational grazing, rational grazing, management intensive grazing," or whatever the current term being used is. Yes this is, but instead of focusing on the mechanics of fencing and the dynamics of pasture growth, I'd like to look at in the broader perspective as a feeding system. When you consider that feed accounts for 50-60% of the total costs on most dairy farms it may pay to take another look at pasture management.

Pasture is a feeding system and you need to evaluate its use the same way you would any other feeding decision, such as:

- Do I grow corn or alfalfa?
- Should I put in some soybeans?
- Would a TMR make sense?
- Do I feed commodities or a complete feed?
- Does pasture fit into my feeding program?

As with any decision, it has to be made based on criteria that fit your operation. Some criteria that might be used in making the decision to use pasture, or any other feeding decision, include:

- Likely to be accepted by family/employees
- Minimize cost to implement
- Quick results likely
- Positive effect on employee attitudes/motivation
- Positive impact toward goal
- Minimize labor required
- Maximize return on investment

What has changed that now makes this decision necessary, as well as feasible? The answer to the first part is economics, which were discussed this morning, and to the second part technology, specifically fencing technology.

I'd like to take you on a field trip using slides of several NH and VT dairy farms to illustrate 3 areas of pasture management.

1. TMR feeding and pasture
2. Benefits financial and otherwise
3. Larger herds and pasture

TMR Feeding and Pasture

The two approaches to using pasture with a TMR that I'd like to cover are:

1. No forage in mix
    - need enough pasture to provide all of forage needs.
    - timing of access to TMR is important to minimize slug feeding.
2. Replace haylage in mix
    - works well with a heavy corn silage ration and for larger herds with limited acreage near the barns
    - have to be careful not to substitute TMR for pasture

To balance rations for cows on pasture I like to use the following guidelines given by Ben Bartlett from Michigan State University Extension.

1. We "manage" pasture rations instead of "balancing" them since we have only best guestimates of quantity and quality of pasture intake.
2. Pasture is alive and changes daily; it is a nutritional moving target as compared to stored feed.
3. We control the quantity and quality of the forage (pasture) intake with time control and fence.
4. Properly grazed grass-legume pastures are usually higher in quality (20% CP, 28% ADF, .68 NEL), than alfalfa haylage (18% CP, 34% ADF, .61 NEL). Table 1 shows the results of ten pasture samples taken during the season in 1994.
5. The cow and her production are the ultimate ration analyzer.

Table 1. Pasture Update. 1994 Pasture Sample Results, Grafton County, NH.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Average
Date Sampled:	5/17	5/18	5/18	5/20	6/1	6/1	6/8	6/27	7/26	8/21	
Dry Matter	19.1	14.9	20.2	18.8	20	22.3	21.1	14.3	15.5	15.5	18.2
% Crude Protein	24.4	26.4	21.9	26.5	20.9	17.2	23.4	26.3	26.9	25.2	23.9
% Soluble CP	39	41	41	37	56	51	45	43	38	26	41.7
% ADF	19.6	20.8	19.1	19.4	25.5	33.8	25.8	23	20.7	31.2	23.9
% NDF	35.2	38.5	36.8	37.5	46.2	55.3	45.6	34.1	29	49.9	40.8
% NSC	29.6	24.3	31.6	25.2	22.1	16.7	21.3	28.8	32.4	14.1	24.6
% TDN	74	73	77	74	70	64	72	72	73	66	71.5
NEL	.79	.77	.80	.79	.71	.60	.70	.74	.77	.64	.73
% Ca	.61	.69	.44	.41	.36	.67	.51	.72	.93	.94	.63
%Ph	.36	.34	.34	.39	.39	.37	.37	.40	.32	.42	.37
%Mg	.15	.21	.18	.18	.18	.21	.18	.17	.21	.21	.19
%K	3.19	2.45	2.55	3.18	3.32	2.02	2.97	3.52	3.36	3.73	3.03

Based on these guidelines, he feels that most drops in milk production for cows on pasture are either quantity (too small an area of forage too short) or quality (forage too tall and mature).

There's enormous potential for fine tuning pasture rations with special feed supplements but only limited research and economic information. Therefore, concentrate your efforts

on getting the quantity and quality right. To do this Worksheet 1 can be used to determine acres needed and paddock size initially. A rough guideline of an acre per cow will get you started.

If there is not enough acreage available to meet the cow's total forage needs, corn silage would seem to be the ideal complement. Corn silage has a slight advantage over other forages in that it has slowly available non-structural carbohydrates (NSC). This may help to provide NSC's while the cows are grazing and high levels of protein need to be utilized. However, work at Penn State found that corn silage doesn't raise milk production or solids test, nor does it improve cow body condition when pasture quality and quantity are both adequate, so concentrate on these first.

Benefits-financial and otherwise

Researchers have done a lot of analysis of grazing farms over the years. These analyses almost always seem to indicate that dairy farmers who turn their cows out six months a year and who manage their pasture reasonably well will realize an additional profit of between $100 and $200 per cow compared to their previous confinement or continuous grazing system. In his analysis on the breakeven yields for intensive rotational grazing that's about the advantage that Dr. Steven Ford at Penn State found. If you put one cow on an acre of grass, you thus have another way of showing that $100 to $200 advantage.

Dr. Ford also points out that dairy producers considering intensive rotational grazing must include the following points in their decision making process.

- The advantage of grazing over confinement feeding depends on where you start. Different production levels, crop mixes, and managerial abilities of farm managers all contribute to different outcomes.

- Any evaluation of the economic effect of grazing, either in the planning stage or after it has been tried, must use the same prices for each scenario (before and after adoption). Otherwise, any perceived advantage to grazing may be because of higher milk prices or lower feed prices, not lower quantities of the same feed which is the real issue.

- As long as an additional pound of milk brings in more than it costs to produce, it pays to produce more. Consequently, graziers should try to keep milk production per cow at high levels.

- Pasture is only profitable if cost reductions are greater than any loss in income from declines in milk production.

- To make the most efficient use of pasture resources, managerial levels must be quite high. Don't be fooled by statement implying that grazing is easy. It may be more enjoyable and require less physical labor, but farm management skills must remain quite high.

- Any labor saved through grazing is best used to advantage elsewhere on the farm. There may also be the possibility of reductions in hired labor and its

associated expense. Of course, if labor is already stressed, any labor savings may best be used for lifestyle enhancement.

Larger Herds

The areas discussed above can be seen in practice on three farms who have used pasture as a major part of their feeding programs for many years. These are not "Johnny comes latelies" to the pasture world. They realized a long time ago that pasture made a lot of sense (and dollars) for their situations.

Stuart Farm – John & Lorraine Merrill, Jim Holmes – Stratham, NH

1995 RHA 124 Cows 22400M 820F 739P
115 cows
60 acres pasture (200 acres owned rented)

Ration –
Pasture (replaced 10 lbs haylage and 10lbs grain in winter ration)

44 lbs corn silage
15 lbs wet brewers grain
2 lbs hay
14 – 18 lbs grain

Reasons –

Labor and Cow Comfort
less milk, more money

Springvale Farm – Doug & Debora Erb – Landaff, NH.

1995 - RHA 122 Cows 22849M 868F 724P

Milking 100 – 110
Divided into 2 groups

1 fresh group – 30 cows in barn on winter ration
2 others – pasture 24 hours

Ration –

Pasture (replaced haylage in winter ration)

50 lbs corn silage
20 lbs grain

plus topdress cows over 70 lbs in parlor

Reasons –

Substituting pasture for haylage and pasture for free-stall
could not get summer work done without pasture

Jalco Farm – Miles & Jean Conklin – Haverhill, NH

1995 –

50 cows 10 bred heifers
30 acres all season plus 20 acres after 2nd cut

Ration –

Pasture	Purchased Feed Cost
1 lb hay-chopped	
22 lbs HMEC (homegrown)	
6 lbs cottonseed	.41
5 lbs grain	.53
	.94

Reasons –

Labor
best use of land resource close to barn – let cows do harvesting

Summary

Pasture management is not for every herd. However, more herds and larger herds should be looking at it as a way to reduce costs. Darrell Emmick, A Grassland Specialist with NY NRCS, has given the following list of the most common excuses farmers give not to graze.

1. My farm's too big; I have too many cows.
2. My herd average is too high, and I don't want to lose milk production.
3. I don't have enough pasture land.
4. But what will the neighbors say?
5. Fence costs too much.
6. I want my cows in the barn where I can control what they eat.

From the examples I've given today I think you can see that these don't have to be your excuse. So why not graze in 1996?

References

Emmick, D.L., and L.F. Toomer, 1991. The economic impact of intensive rotational management in fifteen dairy farms in New York State. Page 19 in Proc. Am. Forage Grassland Conference, Georgetown, TX.

Ford, S. and G. Hanson 1994. Intensive rotational grazing for Pennsylvania dairy farms. Penn State Cooperative Extension Farm Economics.

Ford, S. 1995. Breakeven yields for intensive rotational grazing. Proceedings from Pennsylvania Grazing Conference.

Jones, C. and P. Burns, 1989. Economic effects of adoption of roational grazing. Mimeo. Soil Conservation Service, Orono, ME.

Hoffman, K. and D.L. Emmick. 1995. Prescribed grazing and feeding management for lactating dairy cows on pasture. Pro-Dairy Management Intensive Grazing for Dairy Cattle.

McNair, Joel. 1995. Trial: Silage Didn't Boost Pasture Milk Production. Agri-View Grazing. Vo. 1, No. 5.

Parker, W.J., L.D. Muller and R.D. Buckmaster. Management and economic implications of intensive grazing on dairy farms in the northeastern states. J. Dairy Sci. 75: 2587-2597.

APPENDIX 1. Prescribed grazing management plan worksheet to be used with rotational stocking methods.

Step 1. Estimate the Forage Demand:

The forage demand is the amount of forage dry matter (DM) required to feed the herd/flock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage dry matter equal to about 2.5% of their body weight per day. "Note" For lactating dairy cows use 3.0%.

_____ x .025 or .03 =_____ x
Average weight/animal (lbs) lbs DM/head/day

_____ = Total Forage Demand _____
# of animals lbs/day

Step 2. Estimate the Forage Supply.

This is the amount of forage dry matter that is predicted to be available for grazing after a 15 day growth period in the spring and a 30 day growth period in the summer and fall. *Note* Actual pasture growth rates are extremely variable. As a result, the numbers presented are for planning purposes only. Optimum growth periods may be longer or shorter than those indicated.

Unless actual measured yields are available, use estimated yields such as SCS Soils 5 data for grass-legume hay. Use the following table to convert to forage availability on a rotational basis.

Forage Availability Estimates

Hay Yield Tons/acre/year	5.5	5.0	4.5	4.0	3.5	3.0	2.5
Forage Availability Lbs/acre/rotation	2200	2000	1800	1600	1400	1200	1000

Forage Supply _____
Lbs/acre rotation