

Balancing a Dairy Ration

Dairy Project Skill: Feeding the dairy animal
Life Skill: Decision making
Success Indicator: Calculates a ration for a dairy animal
Educational Standard: NPH-H.5-8.2 Demonstrate the ability to evaluate resources from home, school, and community that provide valid health information.

Feed costs are the major expense when raising dairy cattle. To feed a dairy heifer may cost as much as \$500 each year. In order to produce the most milk or growth at the lowest possible cost, you'll want to know what is included in a dairy ration. This activity will help you decide which feeds may be a good choice for your animal's ration.

Taking On the Challenge

Pretend you purchased a year-old Holstein heifer on November 1. You want to place her on a grower ration to gain 1.6 to 1.8 pounds per day until September 1. Your target weight is 1100 pounds. Will the feeds you select make a complete, balanced ration for your heifer? Remember that a heifer will eat approximately 2 to 2.5% of its body weight in feed per day.

Select one or more of the concentrates and roughages listed under Fresh Facts. Use the information provided to complete the four worksheets. The Nutritional Requirements of Growing Heifers is shown on page 34.

There are also many computer programs available that make balancing rations easy. If you have access to a computerized ration balancing program, use it to decide what to feed your heifer.



"Heifers need plenty of hay."

Animal _____ Weight _____ Age _____

Worksheet 1 Composition and Amount of Feed

Feed	Pounds	Crude Protein %	T.D.N. %

Worksheet 2 Quantity of Nutrients in Feeds Being Used

Feed	Lbs. Fed	Crude Protein Fed (lbs.)	T.D.N. (lbs.) Fed	Ca (%) Fed	P (%) Fed
Total					

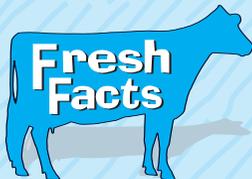
lbs. fed x % C.P. = C.P. lbs.
 lbs. fed x % T.D.N. = T.D.N. lbs.

Worksheet 3 Daily Nutrient Requirements

Weight of Dairy Animal	Dry Matter Required	Crude Protein (lbs.)	T.D.N. (lbs.)	Ca (%)	P (%)

Worksheet 4 Balancing Ration and Meeting Requirements

	Lbs. Fed	Crude Protein (lbs.)	T.D.N. (lbs.)	Ca (%)	P (%)
Requirement					
Being fed					
Deficient or surplus					



Heifer Growth Objectives

Say Cheese! (Share)

- What feed ingredients did you use in your ration?
- How did you find the answers to complete the chart?

Chew Your Cud (Process)

- How do you decide what and how much to feed your animal?
- Besides meeting requirements, what other factors should be considered?

Chore Time (Generalize)

- Why is getting several opinions important in forming your own ideas?
- What other decisions do you make about your animal?

Mooving Along (Apply)

- How will you now change the ration you are feeding?
- How can you continue to learn how to make decisions about your animal's ration?



Projects Online

www.n4hccs.org/dairycattle

Nutritional requirements of browsing heifers

Written by Mark Nelson.

Tables adapted from Learning About Dairy NCR 493.

Roughages				
	CP % DM	T.D.N. %	Calcium %	Phosphorus %
Brome grass hay	10.0	56	.4	.10
Alfalfa (pre bloom)	22.0	58	1.4	.24
Timothy hay (mid-bloom)	9.7	57	.48	.14
Crested wheat grass hay	9.0	53	.33	.21
Prairie hay	5.3	48	.43	.15
Oat silage	11.5	53	.26	.24
Corn Silage	8.1	65	.23	.22

Concentrates				
	CP % DM	T.D.N. %	Calcium %	Phosphorus %
Corn grain	9.8	93	.13	.35
Barley	13.2	84	.05	.38
Oats	13.6	77	.07	.38
Soybean oil meal	52.9	84	.33	.71
Cottonseed (whole)	23	95	.16	.75
Beet pulp	10	74	.69	.10



Dairy Talk Words

T.D.N. • T.M.R.

Milking It for More

1. Contact your Extension Agent or other advisor and see if they have a dairy ration balancing program you can use to determine if you are feeding your project animal correctly.