Using the Ration Evaluation Sheet
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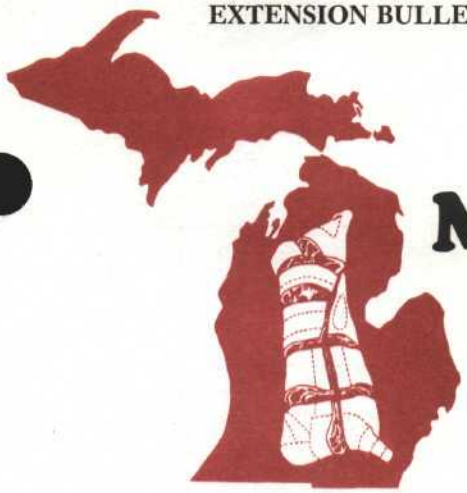

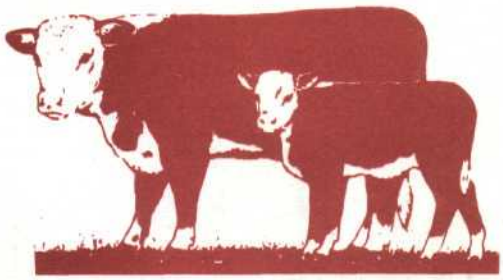

MICHIGAN BEEF PRODUCTION

COOPERATIVE EXTENSION SERVICE • MICHIGAN STATE UNIVERSITY

USING THE RATION EVALUATION WORKSHEET

The purpose of this worksheet is to evaluate the nutrient content of a ration, to determine its deficiencies and to develop a supplement program to correct those deficiencies. Only the major nutrients are considered; namely, protein, calcium (Ca), phosphorus (P), and salt. Following are the steps involved.

Step 1. Calculate Nutrient Content of Ration

A. In Col. 1, enter amount of each ingredient in pounds per head per day. If you only know the grain and supplement consumption, estimate silage dry matter (DM) intake by subtracting grain and supplement DM intake from the expected total DM intake in Extension Bulletin E-1623 (formerly Fact Sheet 1097; for growing - finishing cattle) or Extension Bulletin E-1637 (formerly Fact Sheet 1300; for beef cow herds).

B. In Col. 2, enter percent DM of each ingredient and multiply times pounds of each to arrive at DM intake for each ingredient in Col. 3. For average DM values, see Extension Bulletin E-1624 (formerly Fact Sheet 1102).

C. Determine percent protein, Ca, P and salt of the DM of each ingredient from your own feed analysis or from Extension Bulletin E-1624, and enter these values in Col. 4, 6, 8 and 10. (Assume no salt in natural ingredients; use only levels listed on supplement tags).

D. Multiply percent protein, Ca, P and salt of the DM times the DM intake of each feed ingredient and enter amounts in Col. 5, 7, 9, and 11.

E. Add up amounts in Col. 5, 7, 9 and 11 to get the totals for each nutrient.

Step 2. Establish Nutrient Requirements

A. From E-1623 or E-1637, enter expected DM intake and requirements for percent protein, percent Ca, percent P, and percent salt in Table 2 across from "amount needed" (Col. 12, 13, 15, 17 and 19).

B. Multiply the expected DM intake times the percent required of each nutrient and enter in Col. 14, 16, 18, and 20.

Step 3. Determine Nutrient Deficiencies

A. In Table 2, across from "amount of nutrient in ration," enter total amounts from Col. 3,5,7,9 and 11.

B. Subtract amount in ration from amount needed to determine deficiency.

Step 4. Determine Amount of Supplement Needed

A. First, establish how much protein supplement is needed:

Pounds protein supplement needed = pounds protein deficiency ÷ pounds protein in 1 pound of supplement.

B. Then, multiply pounds protein supplement needed times percent Ca, P and salt in the supplement and add to amount in ration.

C. If still short on P, establish how much P supplement is needed:

Pounds P supplement needed = pounds deficiency ÷ pounds P in 1 pound of P supplement.

D. Multiply pounds of P supplement needed times its percent Ca and add to amount of Ca in ration.

E. If still short on Ca, determine amount of limestone needed:

Pounds limestone needed = pounds Ca deficiency ÷ 0.38.

F. If short on salt, add enough to correct deficiency.

RATION EVALUATION WORKSHEET

Ration No. _____ Expected DM intake _____ Expected daily gain_____ (See Extension Bulletin E-1623 for these — formerly Fact Sheet 1097).

Table 1. Amount in Present Ration.

Grain and Roughages	*Col. 1 As fed lb. (Actual)*	*Col. 2 DM % (Actual)*	*Col. 3 DM lb.* (Col. 1 x 2)*	*Col. 4 Protein % (E-1624) or actual*	*Col. 5 Protein lb. (Col. 3 x 4)*	*Col. 6 Ca % (E-1624)*	*Col. 7 Ca lb. (Col. 3 x 6)*	*Col. 8 P % (E-1624)*	*Col. 9 P lb. (Col. 3 x 8)*	*Col. 10 Salt % (Actual)*	*Col. 11 Salt lb. (Col. 3 x 10)*
Protein Supplement**				% Protein from tag	Col. 1 x 4	% Calcium from tag	Col. 1 x 6	% Phosphorus from tag	Col. 1 x 8	% Salt from tag	Col. 1 x 10
Totals of Columns											

**To estimate silage DM intake, subtract DM intake of other ingredients from expected total intake in Extension Bulletin E-1623.*

***To get amount of nutrient fed from supplement, multiply actual lb. fed times percent of nutrient shown on tag of the supplement. To estimate supplement dry mattter intake, multiply actual lb. of a dry supplement x .9 and actual lb. of a liquid supplement x .6.*

Table 2. Requirements and Deficiencies.

	Col. 12 DM lb.	*Col. 13 Protein %*	*Col. 14 Protein lb.*	*Col. 15 Ca %*	*Col. 16 Ca lb.*	*Col. 17 P %*	*Col. 18 P lb.*	*Col. 19 Salt %*	*Col. 20 Salt lb.*
Amount needed (E-1623 or E-1637)									
Amount of nutrient in ration (Col. 3,5,7,9,11)									
Deficiencies (amount needed minus amount in ration)									

Amount of Supplement Needed
Protein Supplement:
Phosphorus Supplement:
Calcium [redacted]onate (Limestone):
Salt:

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