

2013 National FFA Dairy Cattle Evaluation and Management CDE

Dairy Nutrition Scenario

Scenario: You received a call from Fred F. Anderson, owner of FFA Dairy, LLC. Mr. Anderson feels that his nutrition program could be improved and would like you to evaluate his farm to see what suggestions you have for improvements.

FFA Dairy, LLC has 1150 total Holstein dairy cows on a freestall dairy operation in the Midwestern US. The farm has a rolling herd average of 24,000 lbs. of milk. They typically average 3.8% milk fat, 3.0% protein, and a SCC of 175,000. The cows are milked 3 times a day in a double-20 parallel milking parlor. The freestalls are bedded with sand, and the cows are utilizing their stalls well. They are feeding the same TMR ration to all lactating cows. The lactating cow ration was properly balanced by a nutritionist in September to meet the nutrient needs for cows producing 85 lbs. of milk per day. The balanced ration fed daily to the cows contains the following amounts (as fed) on a per cow basis:

- 4 lbs. of dry hay
- 20 lbs. of haylage per cow
- 55 lbs. of corn silage per cow
- 27 lbs. of grain, concentrates, vitamins and minerals

The cows have recently dropped approximately 8 lbs. of milk per day and the milk fat percentage has dropped to 3.4%. Mr. Anderson would like to get the problem corrected immediately. A veterinarian has checked the cows and confirmed that there are no new, contagious, or chronic disease issues and says to check with a nutritionist. The cows in the early lactation group are averaging a body condition score (BCS) of 2.25. Cows in the dry cow group are a body condition score (BCS) of 4.0.

The day that you arrive, you watch the new employee that is feeding the cows mix a load of feed for the early lactation cows. They are feeding two times per day using a vertical TMR mixer. The mix is being made for 100 cows in the pen. They mix the following amount in the mixer in the following order:

- Dry hay – 200 lbs.
- Haylage – 1,000 lbs.
- Corn silage – 2,750 lbs.
- Grain mix – 1,350 lbs.

After adding all of the ingredients, the TMR is mixed for 30 minutes. The TMR is then fed immediately to the cows (see picture #1). These early lactation cows are housed in a pen with a feed bunk that is 200 feet long. There are 100 freestalls in the pen as well. There are adequate fans in the barn and a properly functioning soaker system on the inside of the feeding lane to prevent heat stress.

The only change that has been recently made with the feeds is that a new bunker of corn silage was just started (Picture 2). The feeder used the front bucket on a tractor to remove the silage from the face, starting in the middle of the pile face. The ration has not been adjusted since they started feeding the new corn silage. An analysis of both the old and the new corn silage has been provided for your information (Table 1).

After the ration was mixed, you particle sized the ration using a Penn State Particle Separator. The results from the using the separator were:

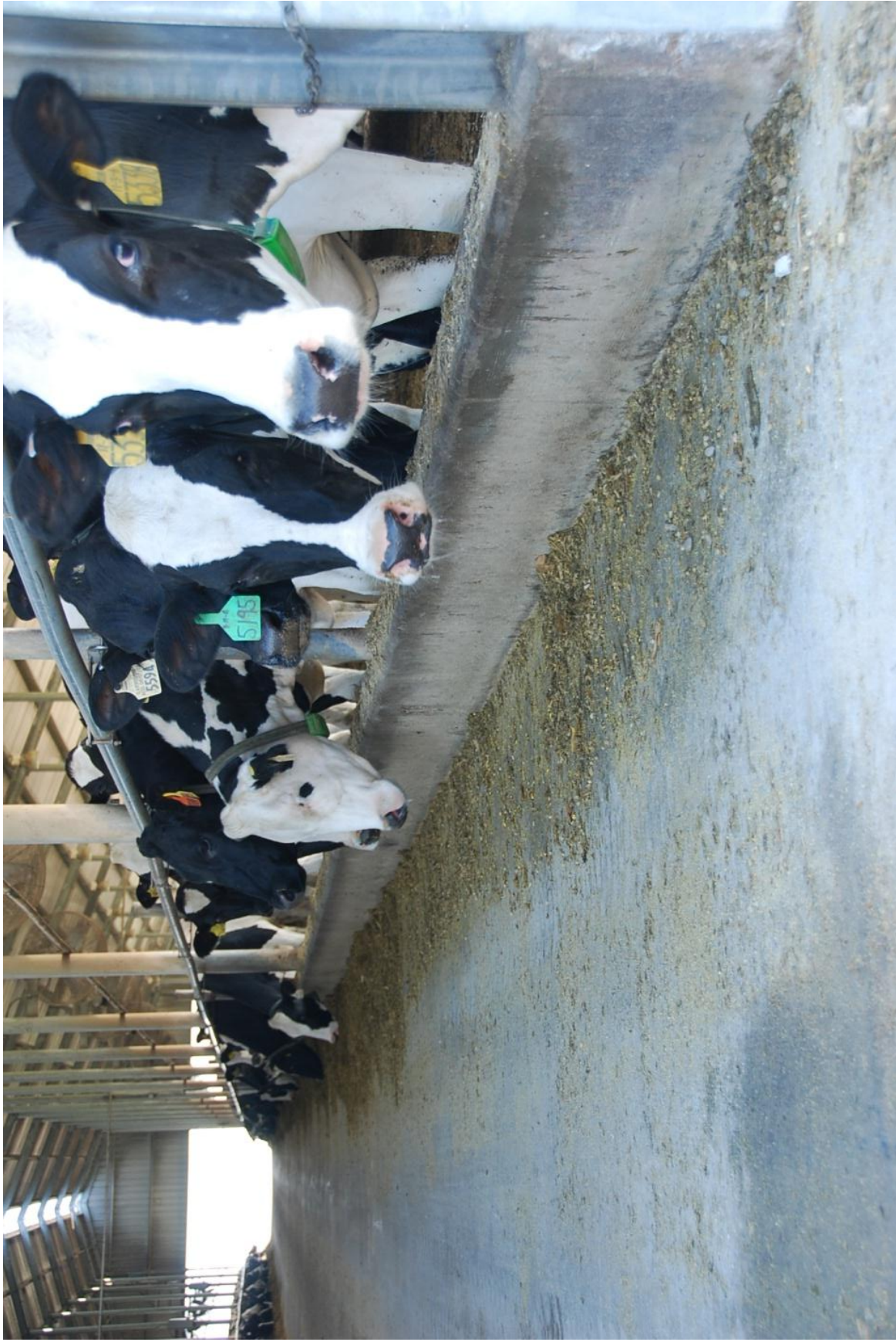
- Top screen: 2%
- Middle screen: 40%
- Bottom pan: 58%

In addition to an overall evaluation of his nutrition program, Mr. Anderson has a few specific questions for you:

- What changes should he make to help the cows return to their previous milk production level and how would you work with him to implement these changes?
- Do you have suggestions to increase the percentage of milk fat of the lactating cows?
- Which of the nutrition-related or nutrition management changes would you make first?

Table 1. Chemical analysis of the original corn silage and the new corn silage.

		Date of Analysis	3/18/2013	Date of Analysis	10/11/2013
Corn Silage Analysis		Original Corn Silage		New Corn Silage	
		Dry matter basis	As fed basis	Dry matter basis	As fed basis
Dry Matter	%	100	34.5	100	28.2
Crude Protein	%	7.9	2.7	8.5	2.4
Soluble Protein	%	54	18.6	52	14.7
Degradable protein	%	73	25.2	70	19.7
Acid Detergent Fiber	%	23.5	8.1	30.5	8.6
Neutral detergent fiber	%	41.5	14.3	48.9	13.8
NDFD, 30 hr	% of NDF	56.4	19.5	41.5	11.7
Calcium	%	0.25	0.09	0.21	0.06
Phosphorus	%	0.24	0.08	0.26	0.07
Magnesium	%	0.17	0.06	0.18	0.05
Potassium	%	1.2	0.41	1.4	0.39
Nitrate	%	negative		negative	
Aflatoxin	ppb	negative		negative	
DON	ppm	negative		negative	
pH		4.2		4.5	
Lactic acid	%	5.6		2.1	
Acetic Acid	%	2.25		2.4	
Butyric Acid	%	0.01		0.02	
Lactic/Acetic Ratio		2.49		0.88	



Picture 1. The early lactation group of cows after feeding.



Picture 2. The new bunker of corn silage.