

National FFA Convention - Dairy Nutrition Scenario October 2017

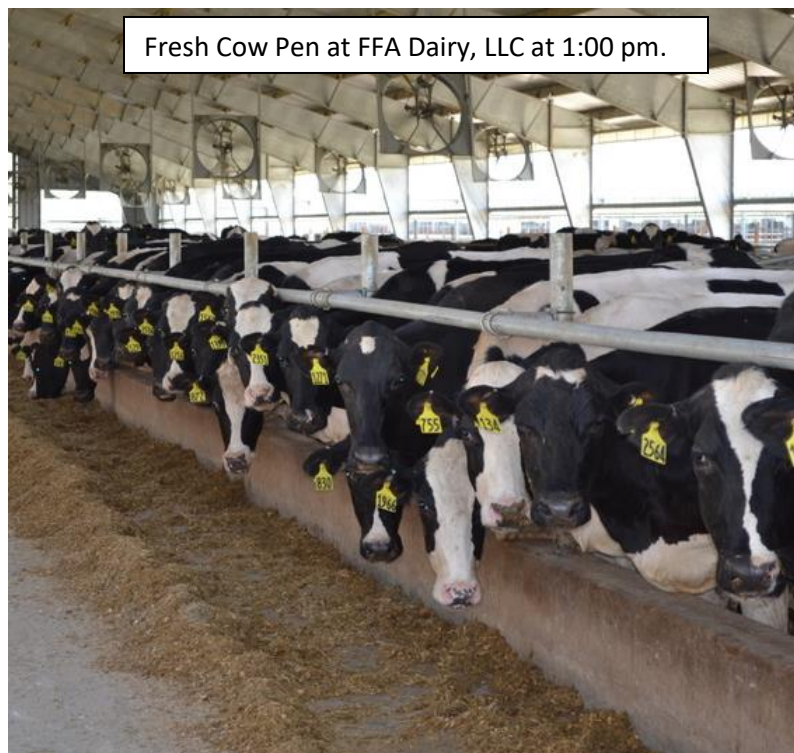
Scenario: You received a call from Floyd F. Atkinson, owner of FFA Dairy, LLC. , located in the Midwestern US. Mr. Atkinson is having some challenges with the nutrition of his fresh cows and calves and would like you to evaluate his farm to see what suggestions you have for improvements.

Part 1: Fresh Cows

FFA Dairy, LLC has 1750 total Holstein dairy cows with the milking herd housed in barns with free stalls. The farm has a rolling herd average of 26,500 lbs of milk. They typically average 3.85% milk fat and 3.1% protein with a SCC of 180,000. The cows are milked 3 times a day in a double-30 parallel milking parlor. The free stalls are bedded with sand, and the cows are utilizing their stalls well. The barn is properly ventilated and the outside daily high temperatures have been averaging 50 °F. Cows in the milking herd are averaging a body condition score (BCS) of 2.5 when they are moved into the high lactation group and close up dry cows have a BCS of 4.0.

FFA Dairy, LLC is feeding the same TMR ration to all lactating cows except for the fresh cows that are receiving a TMR formulated especially for their nutritional needs. The fresh cow ration was properly balanced by a nutritionist to meet the nutrient needs of the fresh cows and contains alfalfa haylage (Table 1), corn silage, grain, protein supplements, feed additives, vitamins, and minerals. The TMR is 60% forage on a dry matter basis and contains the same feed supplements as the lactating cow ration as well as choline, methionine, and bypass fat. Close up dry cows are being fed anionic salts the last 3 weeks of their dry period and the incidence of clinical milk fever has been very low.

Cows are fed their TMR once a day at 6:00 am. Feed is pushed up every 2 hours throughout the day until 10 pm at night. A picture of cows eating at the feedbunk at 1:00 pm is shown to the right.



After calving, all of the cows are moved into the fresh pen where they will remain for 14-21 days. The fresh cow pen has 90 stalls and 144 feet of feedbunk space. There is 1 waterer that is 8 ft in length and 2 ft wide placed along one of the walls in the pen.

The fresh cows have been getting off to a slow start and have low milk production compared to the herd average. Their daily dry matter intakes are below expectations. A veterinarian has checked the cows and confirmed that there are no contagious disease issues. A subset of the fresh cows have been tested during the first 2 weeks of lactation to determine the concentration of ketones in the urine. The tests have shown that 8% of cows have high ketone levels, 60% have moderate ketone levels, and 32% have normal ketone levels.

In addition to an overall evaluation of the fresh cow nutrition program, Mr. Atkinson has a few specific questions for you:

- What are the greatest challenges that need to be addressed to help the fresh cows improve?
- How would you go about changing the management program to correct the challenges you have identified?

Table 1. Chemical analysis of the alfalfa haylage being fed to the fresh cows and lactating herd.

Alfalfa Haylage		Date of Analysis 10/12/2017
Moisture	%	61.1
Dry Matter	%	38.9
pH		4.4
		Dry matter basis
Crude Protein	%	18.2
Soluble Protein	%	52.6
Acid Detergent Fiber	%	38.5
Neutral detergent fiber	%	46.9
NDFD, 30 hr	% of NDF	39.4
Calcium	%	1.30
Phosphorus	%	0.28
Magnesium	%	0.31
Potassium	%	2.51
Nitrate	%	negative
Aflatoxin	ppb	negative
DON	ppm	negative

Part 2: Feeding the Baby Calves

Mr. Atkinson hired a new Calf Manager 6 months ago and recently promoted an employee to manage the calving facility.

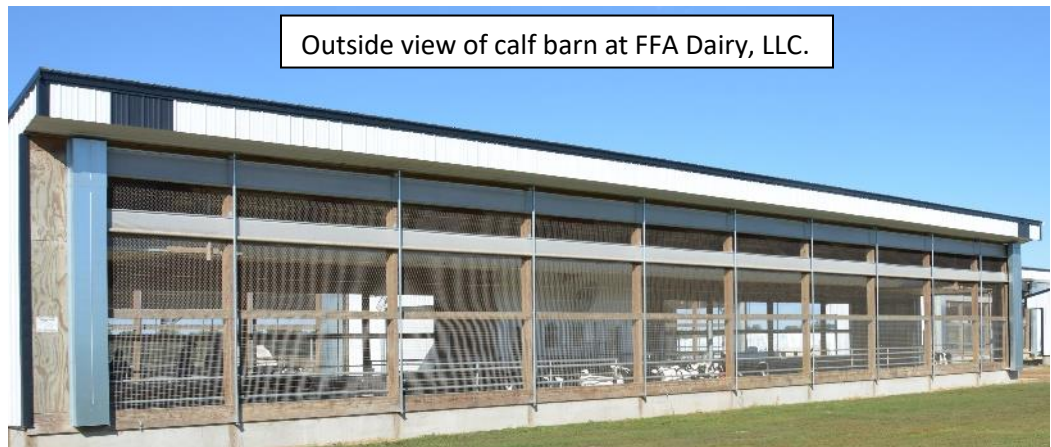
For cross training purposes, 3 employees were reassigned to the calving facility in the last 2 months.

Calves remain with their dam for the first 8 to 12 hours and then are moved to a pen in the maternity barn at which time they are fed one, 2-liter bottle of colostrum.

At 1 day of age, they enter the calf facility. The calf raising facility consists of 6 separate barns each equipped with an automatic calf feeder and one pen of calves per barn. There are also individual pens in one barn for new calves entering the facility. Calves are housed in individual pens and fed transition milk after entering the calf facility.

Calves are hand-fed using a bottle for 2 days or until they are nursing well, after which they are placed in a group pen. Pens contain 28 to 30 calves of similar age per group and calves are fed through an automatic calf feeder. The automatic calf feeder allows the calves to nurse reconstituted milk replacer multiple times daily and records the amount of milk consumed and drinking speed. The amount of reconstituted milk replacer is increased over the first week on the feeder. After the first week, calves may receive between 10 to 13 liters (2.5 to 3.25 gallons) of reconstituted milk replacer. At weaning time, the amount of reconstituted milk replacer is decreased over a period of 10 days. All calves receive a properly formulated, high-quality, palatable calf starter free-choice. Free-choice water is available at all times.

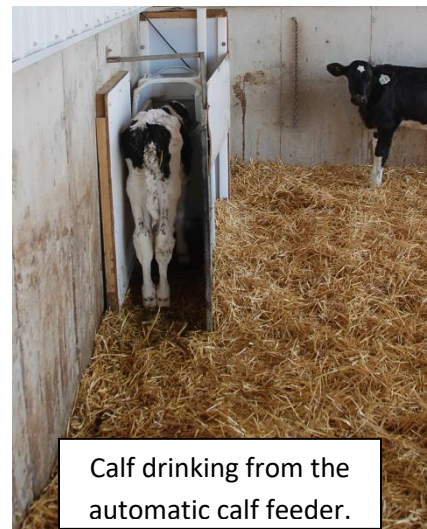
Recently, the morbidity and mortality rates within the first 3 weeks of life have increased tremendously. Records from last year show that only an occasional calf died and only a few were treated for diarrhea or respiratory disease.



Outside view of calf barn at FFA Dairy, LLC.

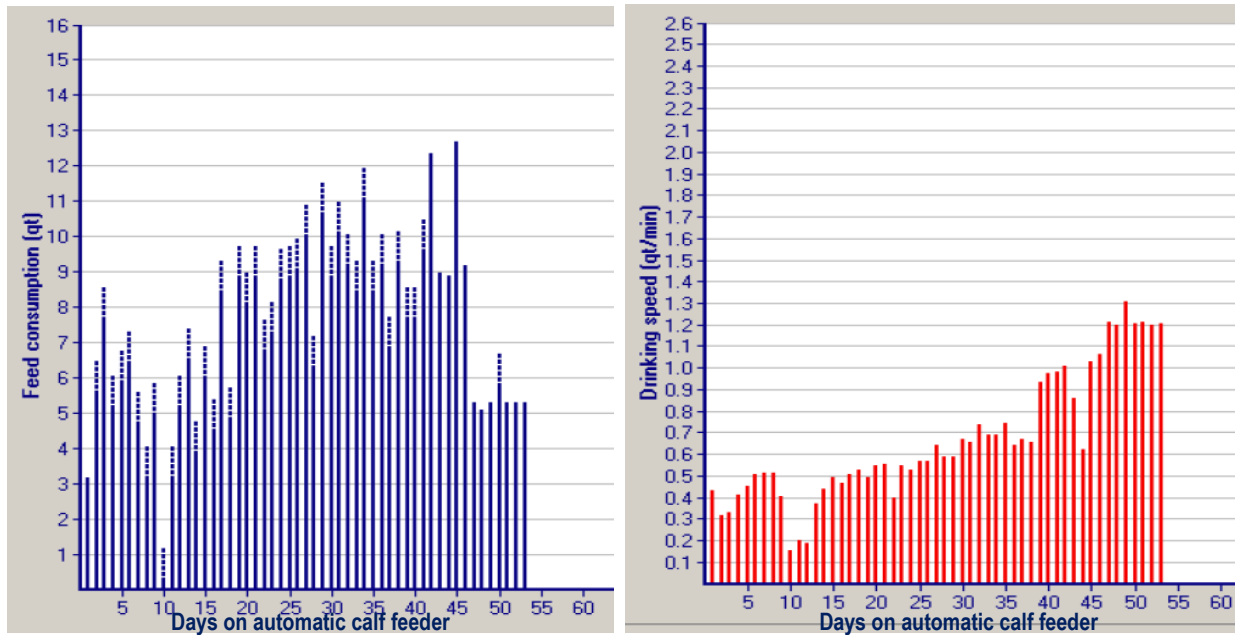


Calves in the group pen with the automatic calf feeder.



Calf drinking from the automatic calf feeder.

- Mr. Atkinson and the new calf manager are very concerned and would like your suggestions of what to change to correct the issue.
- Attached are the feed consumption and drinking speed graphs from the automatic calf feeder for calf number 820. At what age did this calf become noticeably ill? Today, calf #820 is 57 days old.



Figures 1a & 1b – Feed consumption and drinking speed graphs for calf 820 from the automatic calf feeder.