



CEDAR GROVE VETERINARY SERVICES NEWSLETTER



MAY 2019

TRANSITION MILK: WHAT IS IT AND HOW CAN IT MAKE CALVES HEALTHIER?

If farmers know one thing about calf health, they know that getting enough colostrum into the calf at the right time is one of the most important things that can be done. The current recommendation is that calves should consume 10-12% of their birth weight in the form of colostrum within the first 8 hours of life. Practically, this is accomplished by having a calf receive their first meal within the first 4 hours of life. The first meal should consist of close to 4 quarts of high-quality colostrum. A second feeding of colostrum of at least 2 quarts should then be fed at 6 to 8 hours of life.

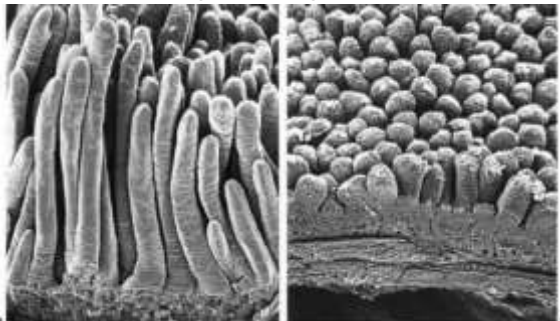
Even with these recommendations, many calves will not grow much in the first week of life. However, researchers may have discovered the key to healthier calves and being able to encourage more growth early

on in life. They believe that the key lies in the development of the intestinal villi in newborn calves. Intestinal villi are the finger like projection that allow for nutrient absorption in the intestines. The more nutrients a calf can absorb, the healthier they will be. For example, many causes of scours result in shortened villi length, which is why growth is depressed in cases of calf diarrhea and their growth can remain impacted for their life.

The scientists compared three types of feeding strategies for young calves:

1. Colostrum on Day 1, followed by an immediate transition to whole milk
2. Colostrum on Day 1, followed by 5 feedings of 50% colostrum and 50% whole milk (transition milk)
3. Colostrum on Day 1, followed by 100% colostrum for an additional 5 feedings

It should be noted first that all calves in the study achieved the desired levels of passive transfer, yet they had varied success in gut development. The first feeding group had



Normal Intestinal
Villi

Underdeveloped
Intestinal Villi

TEST YOUR DAIRY FARMING KNOWLEDGE

- 1) Currently, how many GMO crops are approved for use in the US?
a) 10
b) 12
c) 18
d) 24
- 2) When should milking units ideally be attached after the first time the teats are stimulated during a milking routine?
a) 15-30 sec
b) 30-45 sec
c) 45-60 sec
d) 90-120 sec
- 3) How much more likely are calves to develop respiratory disease if they went through a difficult calving?
a) 1.2 times
b) 1.3 times
c) 1.6 times
d) 2.1 times

Answers on back

greatly depressed length of intestinal villi, compared to the transition-milk and colostrum groups. Between the second and third feeding groups, there was not a significant difference in the amount of gut development indicating that calves don't necessarily require straight colostrum for the first 5 days for maximum results. Transition milk can be just as effective at jump-starting newborn calves.

This does make some sense in the grand scheme since we often address the issue of abrupt feeding transitions in weaning calves and even in adult cows regarding their TMR changes. By that logic, the transition of a calf from colostrum to milk may also be an

important change and impact management of those animals.

German researchers investigated how the nutrients in cow's milk changes in the first 5 milkings. The chart below details the results of these findings. Overall, dry matter, fat, protein and amino acids in transition milk is higher than mature milk. Transition milk is also higher in bioactive components that promote growth including lactoferrin,

insulin, oligosaccharides, growth hormone, and IGF-1.

There is still a lot of research to be done in the area of calf nutrition. Good colostrum and achieving adequate levels of immunoglobulins through adequate passive transfer will remain important. However, there may be other components of colostrum and transition milk that will prove to only further calf health, nutrition and welfare in the future.

	Unit	Colostrum Milking					Mature Milk
		1	2	3	4	5	
Dry Matter	%	24.5	19.0	16.0	15.5	15.3	12.2
Fat	%	6.4	5.6	4.6	5.0	5.0	3.9
Protein	%	13.3	8.5	6.2	5.4	4.8	3.2
Essential Amino Acids	mM	390	230	190	140	115	ND
Lactoferrin	g/L	1.84	0.86	0.46	0.36	ND	ND
Insulin	µg/L	65	35	16	8	7	1
Growth Hormone	µg/L	1.5	0.5	ND	ND	ND	ND
Insulin-like growth factor I	µg/L	310	195	105	62	49	ND



Congratulations!

The winner of the Cedar Grove Veterinary Services sweatshirt from the Spring Buying Show raffle is Jim Ramel. Congratulations and thank you to everyone that came that day.



Dairy Knowledge Answers

1. A 2. D 3. C