

# Why feed colostrum replacers?

Dr. Jim Quigley, Vice President & Director of Calf Operations, APC, Inc.

**The single most important day** in the life of a heifer is the first day. How the calf is handled, fed and housed in the first 24 hours can affect the animal the rest of its life.

One critical area of neonatal care is colostrum management. Maternal colostrum is the key to calf health. Colostrum contains immunoglobulins (Ig), that the calf must receive in the first 24 hours of life. The Ig – especially IgG – provide immunity needed by the calf for the first five to six weeks of its life. Without this immunity (called passive immunity), calves are highly susceptible to disease and death.

Unfortunately, difficulties in managing colostrum on the farm lead to a high percentage of calves with inadequate passive immunity. According to USDA, up to 41 percent of all heifer calves may receive inadequate passive immunity (called failure of passive transfer or FPT) from colostrum.

Over the past decade, researchers have worked on technology to improve and, ultimately, replace maternal colostrum to reduce problems of managing colostrum. Colostrum supplements were developed in the 1980's, and in the 1990's, colostrum replacers were introduced. These two categories of products gave producers new tools to improve the survival and health of newborn calves.

Colostrum replacers are products that contain at least 100 grams of globulin protein<sup>1</sup> per dose. They also include vitamins, minerals, protein and energy needed by the calf, so these products are a complete replacement for colostrum. They are reconstituted in water, mixed and then fed to the calf.

Colostrum supplements on the other hand are products that contain less than 100 grams of globulin protein (usually 40-60 grams per dose) and are not supplemented with essential nutrients. These products are generally fed in conjunction



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with maternal colostrum to increase the amount of globulin protein fed to the calf.

With the development of these new technologies, producers needed guidelines for when to use colostrum replacers instead of maternal colostrum. Below are some general guidelines on when a colostrum replacer may be a good alternative to maternal colostrum.

## When to use a colostrum replacer

**Poor quality colostrum.** Researchers at Penn State University reported that the average colostrum IgG concentration in 55 samples of colostrum taken from farms all over the state of Pennsylvania was 41 grams of IgG/liter. Most veterinarians recommend feeding colostrum containing at least 50 grams of IgG/liter. So, most (nearly 70%) of the colostrum measured in the Penn State study was classified as inadequate as a source of IgG for newborn calves. Other researchers from the U.S. and all over the world have reported low concentrations of IgG in first milking colostrum and huge varia-

tion in IgG content of colostrum from cow to cow.

**Measuring variation in colostrum** IgG concentration is difficult on the farm. The colostrometer is a specific gravity measuring device that can crudely estimate the amount of IgG in colostrum; however, the estimate depends on factors such as the outside temperature and amount of other nutrients (e.g., fat) in the colostrum. The errors associated with this device make estimates of colostrum quality just that – estimates.

Using a colostrum replacer instead of inadequate colostrum (those that float in the yellow or red zone of the colostrometer) can reduce the risk of FPT by increasing the amount of globulin protein the calf receives. This reduces variation in the overall rate of passive transfer in the calves which makes managing calf health more consistent and predictable.

**Contaminated colostrum.** Bacterial contamination of colostrum is an insidious problem that affects many dairies. Research conducted at several locations in the U.S. suggests that more than 50 percent of all colostrum fed to calves contains unacceptably high concentrations of bacteria. Bacteria in colostrum can interfere with IgG absorption and potentially transmit disease. Using colostrum replacers to break the cycle of transmission via contaminated colostrum has been shown to reduce the calf's risk of infection with John's disease by up to 44 percent.

**Insufficient labor.** When time is limited, a colostrum replacer can quickly and efficiently provide key nutrients and globulin protein to the calf and allow the worker to get back to other responsibilities. Colostrum replacers give the manager greater flexibility in assigning labor to various functions, since the need to spend large amounts of time collecting and handling colostrum and feeding the newborn calf is unnecessary.

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<sup>1</sup>Globulin protein refers to a specific fraction of serum that includes  $\alpha$ -globulins,  $\beta$ -globulins and  $\gamma$ -globulins (immunoglobulins). The other major fraction of serum is albumin protein. Each class of protein (albumin, globulin) has unique nutritional characteristics.

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**Untrained labor.** Properly managing colostrum – collecting, processing, testing, feeding, storing, etc. – requires significant skill. Unfortunately, not all laborers possess the skill to perform these tasks well. As a result, there are failures in the process, and calves suffer. Colostrum replacers are easy and effective. Simply open the bag, pour into warm water, mix and feed. Replacers can help managers take full advantage of the labor available to them while at the same time ensuring health and vitality of their newborn calves.

The ease, convenience, and speed with which a calf can be fed colostrum replacers make them an excellent tool for use on every dairy farm. Producers can be assured of a consistent supply of uninfected globulin protein and nutrients available when they are ready to feed the calf. A positive return on investment is realized through improved labor efficiency, reduced calf scours and death loss and improved herd performance due to improved calf health and growth. ★

## Save the date

Don't miss out on the great information that will be presented at the following winter customer meetings. A district stockowner meeting will also be held in conjunction with each meeting. Watch for the January issue of *The Point* for complete details.

### January 21

#### Rolling Oaks Supper Club

Barron, WI

7:30 p.m. dinner

#### New January Sire Summary Results

Jim Sipiorski, Director A.I. Sales and Service, NorthStar Cooperative

District 11

### January 27

#### McGuire's Resort

Cadillac, MI

10:30 a.m. meeting

#### Let's Talk Reproduction

Dr. Richard Pursley, Dr. Bruce Clark, Julie Ainsworth, P.A.S.

District 1

Co-hosted with Airport Animal Clinic

### January 26

#### Fulton Township Hall

Perrinton, MI

10:30 a.m. meeting

#### Let's Talk Reproduction

Dr. Richard Pursley, Dr. Bruce Clark, Julie Ainsworth, P.A.S.

District 2

### January 28

#### Essenhaus Inn & Conference Center

Middlebury, IN

10:30 a.m. meeting

#### New Sire Summary Results

Charlie Will, Manager, Holstein Sire Selection, Select Sires

District 12

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