

Down on the Farm



A Liquid Asset: Maintaining Your Own Colostrum Bank

by **BETTINA COHEN**

A healthy foal is born hungry, and its first meal delivers special nourishment that will keep it healthy. Colostrum is a limited edition formula of mare's milk, heavily concentrated with antibodies that build the body's defenses against infection. We humans receive our antibodies while still in the womb, but for horses, the maternal antibodies that fire up the immune system do not transfer across the more complex equine placenta.

Immunity boosting antibodies reside in plasma and other bodily fluids and tissues, where they fight invading viruses and bacteria that cause disease. Antibodies are proteins that are also called immunoglobulins, abbreviated as Ig. Each is identified by a letter, such as IgA, IgM, IgE, and the one for which we can test to determine whether the foal has absorbed sufficient levels, IgG.

When all goes well, a foal will nurse shortly after it is born, and get its immune system up and running by absorbing sufficient levels of IgG before it is a day old. Only for this short window of time can the foal's gastrointestinal tract absorb the maternal antibodies. The foal's small intestine at birth has special cells for this purpose, which function at their maximum for eight to

12 hours, and close entirely after 24 hours. Over the same period, the mare stops producing colostrum, and begins producing regular milk.

One can imagine the implications to the foal if its dam were to die giving birth, but that is not the only situation in which nature can shortchange a foal of maternal antibodies. Perhaps the foal did not nurse well. Perhaps the mare's colostrum is deficient. One good reason

colostrum to spare. Farm managers can bank this liquid asset for times of need.

Preventing Failure of Passive Transfer

The colostrum bank Sue Greene keeps for the 20 foaling mares boarded at her Woodbridge Farm, near Oakdale, Calif., has saved two foals over the years.

"One mare absolutely refused the foal," Greene said. "She was a maiden mare. It was a really tough delivery. She wasn't

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—Sue Greene, Woodbridge Farm

to vaccinate mares a month prior to foaling is that it promotes quality colostrum. Other research has indicated that Vitamin E supplementation appears to boost IgG and IgA levels both in colostrum and the blood serum of foals. Vegetable oil is a good source of Vitamin E. Then again, as labor approaches, some mares lactate prematurely, and drip out colostrum before their foal is born.

Failure of Passive Transfer (FPT) is the term for IgG deficiency in the newborn. A foal can die if exposed to infection that its immune system is not equipped to fight.

Fortunately, some mares have

going to have anything to do with this foal. She wasn't going to let him nurse. I felt fortunate that we had colostrum there, because we stuck that down him."

Woodbridge's colostrum bank saved another foal when the dam "absolutely had no milk," Greene said. "Time is of the essence with these little guys. Once they hit the ground, you got to be on top of that."

Veterinarians or farm staff can perform a blood test to determine whether the newborn has absorbed sufficient antibodies. At 12-hours-old, the reading should range between 400-800 milligrams of IgG per deciliter of

blood. Many vets adhere to a target concentration level of 800 mg/dl.

The foal can be bottle-fed, or drink the colostrum from a bucket. If necessary, colostrum can be administered by tube.

After the critical 24-hour mark, plasma transfusions by a licensed veterinarian become the last resort for administering IgG. Plasma is a biologic, so the companies which supply it can only sell it to vets. For farms that rely on visiting vets, transfusions cost between \$250 and \$500. Apart from the cost is the time element. A vet might not always be able to come right away.

Harris Farms, Inc., in Coalinga, Calif., foals between 160-180 mares each season.

“Our protocol is for any non-maiden mare that we know has been vaccinated appropriately a month prior to foaling, we collect at least one baby bottle of colostrum, after the foal has nursed.” —Dave McGlothlin, Harris Farms

“We run an IgG level on foals within 12 hours of foaling, and if they are low at that point, we’ll go ahead and give them supplemental colostrum from another mare,” farm manager Dave McGlothlin said. “That foal will still be on its mother. A lot of times by supplementation, we’re able to avoid having to do the plasma transfusions.”

Apart from preventing FPT, farm managers should try to have colostrum available for the occasional NI-positive mare. If a foal from an NI-positive mare inherited a different blood type and nursed its dam’s colostrum, it would contract Neonatal Isoerythrolysis, a potentially fatal jaundice-like condition. Mares can be NI-screened prior to foaling. The foal can nurse from its dam after 48 hours, provided the mare has been hand-milked every hour for that period.

Bank On It

The Kentucky Thoroughbred Farm Managers’ Club turned efficient management into a charitable endeavor when it organized the Central Kentucky Colostrum Bank. Maintained by the Hagyard-Davidson-McGee equine clinic near Lexington, Ky., the bank is stocked by donations from the 400 or so Thoroughbred nurseries in the region. Its

colostrum is available to breeders anywhere, who have a foal in need, for \$100 a pint. Proceeds go to the Central Kentucky Riding for the Handicapped. In 2001, the Colostrum Bank raised \$19,000 for the therapeutic riding program.

It all began with the farms banking colostrum for their own foals, and to help out neighbors in need. Keeping a stash of colostrum on the premises is something both Woodbridge and Harris Farms recommend farms of all sizes do.

“We’ll try to bank 40, 50 bottles of it,” McGlothlin said. “Our protocol is for any non-maiden mare that we know has been vaccinated appropriately a month prior to foaling, we collect at least one baby bottle of colostrum, after the foal

has nursed. That sample is labeled as to the donor and the date that it was collected. Some mares we’re familiar with, that milk like Holsteins, we may collect more than one bottle. If a mare produces a weak or sick foal, we would not retain the colostrum from that mare.”

“After we know the foal has nursed well, we’ll take two ounces of colostrum, run it through the colostrometer, sift all the debris out of it, then put it in a baby bottle,” Greene said.

Keep in Mind

Frozen colostrum can keep for two years. Following are some tips from KTFMC to prepare for IgG deficient foals:

1. Milk into a 32-ounce pyrex type measuring container with a wide mouth and handle, which will show the amount collected;
2. Collect from one side of the udder. Leave the other side for the newborn foal;
3. Strain colostrum when transferring from collection cup into storage container. Use gauze or cheesecloth to remove any dirt, hair or other debris;
4. Store in a durable, plastic container that has a lid, such as a baby bottle. Label the container with the col-

lection date. Other helpful information would be the mare’s name and a brief note regarding the foaling—(live foal-excellent milker), (foal born dead-colostrum saved);

5. Don’t store colostrum in baggies or styrofoam containers that can puncture;
6. Store in refrigerator for the short term (one hour). Otherwise, store in freezer;
7. Very important—when needed, colostrum should be thawed slowly in warm water for 30 minutes to one hour. Never thaw colostrum by putting it in a microwave. Overheating will destroy the antibodies.

Collect from mares that are good milkers, and mares that lose a foal at birth. When mares begin to lactate before foaling, collect and refrigerate colostrum until the mare foals.

Do not collect from maiden mares, poor milkers, mares with a history of foaling problems, or NI-positive mares. Do not collect if the foal is weak.

Colostrum can be tested for adequate IgG levels before it is stored. One product on the market for testing colostrum is Gamma-Check C, made by Veterinary Dynamics, Inc., in Templeton, Calif. The company also makes Gamma-Check E, to check the foal’s blood serum. Farm staff trained to draw blood can perform the simple test, which indicates the IgG level by a clot or no clot reading.

SNAP, made by IDEXX Laboratories, in Westbrook, Maine, also tests blood serum. An improved version of the old CITE test, SNAP gives a light to dark reading that indicates IgG levels within the 400-800 mg/dl range. Results can be attained at the barn within eight minutes.

Veterinary Dynamics also makes the plasma products Polymune, and Polymune Plus. Both contain IgG, the latter in a higher level. Also, a Rhodococcus equi antibody hyperimmune plasma is available. The Rhodococcus equi antibody does not transfer to the foal through colostrum. Rhodococcus equi bacteria causes pneumonia in foals between one and six months of age. As the name suggests, the Rhodococcus equi antibody protects against the bacteria that causes foal pneumonia.