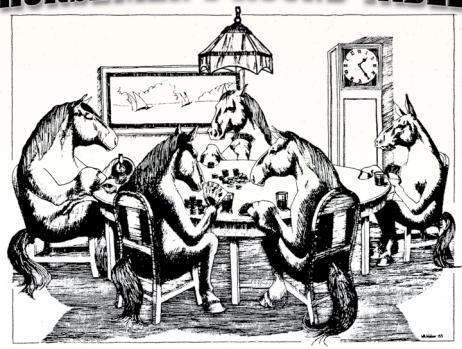
HORSEMEN'S ROUND TABLE



The Orphan Foal

images by Stacie Lynch

It's definitely not something to look forward to, but if you breed horses long enough, you'll more than likely be faced at some point with an orphan foal. It may be the result of the mare's death during or after foaling, an aggressive or otherwise poor mother or simply a mare's inability to produce milk. Whatever the reason, when it occurs, you are faced with one of the most challenging situations that any horse breeder can be dealt: feeding, raising and managing an orphan foal.

Here's the good news: the situation is manageable. You CAN raise a healthy foal that can reach its full potential. Fortunately (or unfortunately, depending on how you see things), there are several within our industry possessing valuable experience with orphan foals, draft foals specifically. The best thing you can do is heed their advice and arm yourself with what has worked for them.

Let's meet our panelists for this discus-

Stacie Lynch, Utopia Percherons, Goshen, Connecticut

I grew up on a New York Percheron farm. The first colt my family raised was foaled in 1981. My husband, Brian, is a farrier by trade and together we own and operate Utopia Percherons in Goshen, Connecticut, along with our children, Kaleigh and Kaiden.

We compete with our halter string, as well as a six-horse hitch of geldings throughout the Northeast, Ohio and

Pennsylvania. Our horses also are put to work doing exhibitions, hayrides, weddings and an occasional parade.

Our first foray into the breeding world as Utopia Percherons began in 2003. It didn't get off to a good start! We bred one mare in 2002 in hopes of raising our first foal on the farm we had recently purchased and built. This foal opted for a dystocia and tried to come into the world in a breech position. With a trip to the surgical suite and four surgeons working furiously to remove the breech foal to no avail, the vets opted for a c-section. Hindsight is always 20/20.

Had we known then what we know now we would have had them dismember the already deceased foal and remove it vaginally. Long story short, we ended up with a huge vet bill and no mare and no foal to show for it. Why we continued in the breeding business after such a horrid first experience I will never know, but nonetheless, we did. Twelve years later we now own and stand a stallion, from which we collect and ship chilled semen. We raise between two to five foals a year. We have lost foals after birth, but our first experience with an orphan came this past spring of 2015.

John Soto, Anheuser-Busch/Warm Springs Ranch, Booneville, Missouri

I will have worked with the Budweiser Clydesdales for 35 years this September. I spent the first five years traveling with the West Coast Hitch. The next five years I stayed at our home base in Menifee, California, and broke colts and took care of our spare hitch geldings. In 1990, we started a breeding program in California, so I have been breeding and foaling Clydesdales for 25 years. In 2008, Anheuser-Busch built a new breeding facility in Booneville, Missouri, where we merged the California breeding operation and the Grants Farm breeding operation together. Currently we have 40 mares in our breeding operation. Since 1990, I am guessing that I have been involved in at least 500 births and around 10 to 15 orphan foals.

Rhonda Cole, Pennwoods Percherons, Centre Hall, Pennsylvania

I left my native Canada 24 years ago, where I was working as a Veterinary Technician, to join forces with Chad Cole as co-owner/manager of breeding operations at Pennwoods Percherons. I have been hands-on involved with breeding draft horses at Pennwoods, where we generally raise between 10 and 20 foals per year. We have made a full-time career of breeding, showing and marketing Percherons. We specialize in artificial breeding and shipping chilled transported semen.

I have been involved in delivering and caring for almost every foal herearound 250. Of all these foals that have been born at Pennwoods,

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we have been lucky to have had only four orphans to manage, so I would not say I am an expert. Of the four, each was an entirely different situation: (1) was a foal born to a mare that we purchased that produced not even a drop of milk. He was raised alone and fed powdered milk replacer from a bucket; (2) was a foal born out of the same mare the next year (we did not learn our lesson the first time). We put this colt on a mare that had just had her four-month-old foal weaned. He had to be supplemented by creep feeding because we were concerned her

milk would not have all the nutrients he needed, but she gave him the nurturing a foal should have; (3) was a foal whose mother died two days after foaling because of a prolapsed rectum (full story below); and (4) was a two-week-old filly whose mother died from complica-tions after colic. These are always situations that are impossible to prepare for and even if you try, there ends up being a lot of improvisation.

Robert Detweiler, Lanes End Farm, Oelwein, Iowa

Robert Detweiler was born and raised

in Hazleton, Iowa, where he experienced a wide array of equine experiences under the watchful eye of his father, Allen F. Detweiler. As a young adult, Robert enjoyed an 11-year stint as the East Coast Manager of the Budweiser Clydesdales. Concurrently, Robert also maintained a part-time Belgian breeding program at his home, Lane's End Farm, just outside of Oelwein, Iowa. Due to an illness in the family in 1988, Robert permanently returned to Iowa. Shortly thereafter, he commenced his Percheron career with Gray Transportation, where he oversaw the breeding operation of 40 broodmares and foals per year. After nine successful foaling seasons with the Grays, Robert refocused his attention on the breeding program at Lane's End Farm. It wasn't long before he became the General Manager of Anderson Farms' draft horse operations, currently located at Lane's End Farm. Anderson's equine population exploded to include approximately 20 Percheron and Clydesdale broodmares. On an annual basiš, Robert welcomes at least a dozen newborn foals into the world.

And with that, let's get to the ques-

1-When faced with an orphan foal, what are the first things you do to ensure the foal's health and safety? If utilizing a nurse mare, how do you introduce the orphan to the nurse mare safely?

Stacie Lynch: As Brian and I stood outside the stall, holding the 12-hour-old foal, watching the mare die an unsightly death by a rupture of the uterine artery, we asked each other, what do we do now? First we milked the dead mare's milk into plastic Solo cups (they were handy) to collect as much of the "Liquid Gold" for the newborn foal we could. After bottle feeding the foal some, we then filtered it and placed it in a milk jug in the refrigerator. We were able to collect about a half a gallon of milk from the deceased mare.

This particular orphan foal was a mild dummy foal at birth, so we had already had our veterinarian out that morning to check her immunoglobulins or IgG levels and to administer plasma of which she was in need. Also under the supervision of our veterinarian we had administered the Madigan Foal Squeeze (which worked amazingly for this filly and requires an entirely different article). We recommend you look it up if you haven't seen or heard about it yet.

That being said if you lose your mare early on you have to make sure that you immediately get enough colostrum into the foal within the first few hours of life to help prevent a failure of passive transfer of antibodies. Absorption of antibodies is greatest during the first six to eight hours after birth and stops by 24 to 36 hours of age. (http://csu-cvmbs.colostate. edu/Documents/erl-learn-foals3-failureptapr09.pdf) If you are unable to get colos-



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trum from the mare and do not have a stash of frozen colostrum of your own, there are colostrum banks you can seek out with the help of your veterinarian or even the Internet.

Next, we put the foal back in the stall with the deceased mare while we could figure out what to do with her body (with six feet of snow on the ground and frigid temperatures outside) and what our next steps would be. Phone calls were made to various breeders in the draft horse world who we knew would be incredible resources for what we should do next.

We did not have a bag of commercial mare's milk on hand and have learned that we probably should purchase an eight-pound bag and place it on the shelf at the beginning of foaling season, just in case. We were lucky our local feed store had three small eight-pound bags. Although they were recently expired, they bought us the time needed to acquire what we'd need.

John Soto: Every breeding year I assume, before it gets started, that I will be dealing with an orphan foal sometime throughout the season. I always hope I am wrong and sometimes I am. I always have a fresh bag of milk replacer on hand at the start of the foaling year. With every orphan foal there is a different set of circumstances in dealing with the situation. You never know ahead of time that you will be facing an orphan foal, so you have to come up with any possibilities that could be tried and start with the best ideas, try them and if that doesn't work, go to Plan B, then Plan C, with the final plan being the foal drinking out of a bucket. If you have a mare foaling soon you might try to "trick" her to thinking she has had twins, by getting the foal in with her as soon as she has her actual foal. If you have had a mare lose a foal you might try to see if that mare might take another foal. In that case you would have to see how she reacts to the foal and then try to figure out options by her reaction. She might take immediately to the foal (that is optimal). If she will nurse the foal under restraint, then you will take the necessary precautions to make sure the foal is safe until you are sure that she has accepted it, but keeping them close so she can get accustomed to the new foal even when not nursing. Sometimes you have no option but to get the foal on a bucket of milk replacer as quick as possible. Making sure the foal has milk is the number one priority, no matter how you accomplish it. If you are going to be having foals you need to know ahead of time who has milk replacer or where you can get some quickly (within a matter of hours).

Rhonda Cole: What you have to do depends on the age at which the foal has been orphaned. If it is a newborn, in regards to its health, it is important to fol-

low the protocol you would normally use for any other foal at birth. (i.e.: colostrum, shots, care of the umbilical cord, enema, etc.). Then, of importance, regardless of age, would be to make sure the foal is kept in a safe environment away from other animals that could cause harm or facilities in which the foal could harm itself. Be wary of spaces between boards, metal gates, wire fences or deep troughs.

We used a nurse mare with two of our orphans. The first one was a mare that we had just weaned off her 4-month-old foal. We took her foal to a separate farm and introduced the orphan to her. She was missing her foal and after a few supervised nursings, she was content with the replacement. For the first 24 hours, we would take the foal away after nursing and put it in the next stall. They could hear each other and after taking the foal away a couple of times, the mare got very attached to it and accepted it completely. The second situation was a mare that prolapsed her rectum while foaling. The vet was there guickly and we replaced it, but he gave her a poor prognosis because of the amount of rectum that had prolapsed. The issue was that it was going to be a day or so before we knew her fate. While we were discussing matters, the mare in the next stall lay down and foaled. She was one of our best milkers and I knew she would have no trouble raising two foals. The only problem was that we knew she would not take the orphan a

day or two later. Our window of opportunity was open then and there. We took the first foal in with hers and rubbed her placenta all over both, then pulled them both up in front of her. She was sure they were both hers and never looked back. The mare with the prolapse died two days later, so we made the right decision.

Robert Detweiler: In my opinion, one of the most important practices in supporting the health of any newborn foal is to ensure that the foal receives as much good quality colostrum as possible. Colostrum is a form of milk, with a yellowish coloring, that a mare produces just prior to giving birth and for a short number of days thereafter. The importance of colostrum is that it is highly rich in antibodies (which assist in fighting infection) and can only be passed into a newborn foal through ingestion; transplacental transfer does not accommodate the handover of such complex proteins. Additionally, the foal's stomach is highly porous only during the first 24 hours of life and possesses the ability to absorb the antibodies through its walls only during this time. The quality of colostrum is measured in IgG (immunoglobulin G) per liter. After 24 hours, a blood test can be performed on a foal to determine its IgG reading: an indication of the foal's intake of the important disease-fighting antibodies. A reading of 800 IgG/liter is ideal.

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In the unfortunate event that the mare dies during the birthing process, if at all possible, use an Udderly EZ milking device to try to extract as much of the mare's milk as possible. The colostrum content is so valuable. Keep the colostrum warm (body temperature), but do not overheat, as it will kill the vital antibodies found in the milk.

If natural mare's colostrum is not avail-

able, immediately check with your local veterinarian to locate a source. Some veterinarians may have frozen colostrum available on hand. Depending on your location, there may also be a colostrum bank or a nurse mare co-op available. Checking and making note of your nearby colostrum sources may be time well spent, should you ever require such information on short notice.

The introduction of colostrum within the first 24 hours of the foal's life is of paramount importance. It may be necessary to have your vet "tube" the foal with

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a colostrum source.

The first step in introducing the orphan to the nurse mare is to confine/tether the mare, preferably in a box stall, when introducing the orphan. Depending on the general temperament and reaction of the mare, one can also utilize a shoeing stock, hobbles or a twitch if necessary. A plywood partition, set up much like a farrowing crate, can also be put to use in assisting in preventing the foal from being kicked by a nervous nurse mare. We practice stalling the orphan foal beside the prospective nurse mare, in an effort to acquaint the nurse mare, with the foal. If possible, a low partition between the two, allowing the mare to nuzzle the foal, and the foal to remain safe, is highly beneficial.

On a side note: a kind, old broodmare who does not have a foal of her own, may be able to be "brought into milk" by having your vet give her an injection of Domperidone.

2-What is your stance on getting colostrum into the foal, regardless of the fate of its own mother? Why?

SL: We've found that with these larger foals, they do best when we milk the mare and get some colostrum into the foal prior to them getting up. Before giving the foal the colostrum, we like to administer an enema to the foal. Usually, after they pass their meconium, the foal will want to nurse a little more vigorously.

We utilize a measuring cup and a strainer. We milk the mare into the cup with the strainer on top. We take the milk and pour it into a 60cc syringe and ease it into the foal's mouth, careful not to aspirate them. We try to let them suck the milk down instead of forcing it into their mouth. As I stated earlier, it is important to get that "Liquid Gold" into them within the first six to eight hours of life.

We've also found out that the intestinal absorption of the colostrum in dummy foals is not as good as in a normal foal, and they may not receive the transfer of antibodies required—they may still need to receive plasma, despite receiving colostrum within the recommended time frame.

JS: It is always important to get colostrum into the foal, but the window which the colostrum can be absorbed is a small window. I used to keep frozen colostrum in the freezer for emergencies, but I never used it. I have never had a mare die the second she gave birth. If she did, I would just milk her out and bottle feed

the colostrum to the foal. Like I said, the window is so small when the foal can absorb the colostrum that by the time you run an IgG to make sure the foal has enough antibodies, the window for absorbing colostrum has already closed. At that point a bag of plasma will bring up the antibody levels to a safe level.

RC: Getting colostrum into the foal is extremely important within its first 12 hours of life. That is how antibodies are passed to the foal. If a mare dies, or death is impending, I would advise collecting every bit of colostrum from her that you can and utilizing it immediately or freezing it. I always have enough frozen and stored for any situation that may arise. If this is impossible and you are unable to find some frozen from another farm, there are some commercial substitutes available, although I do not have experience with any of them.

RD: See #1.

3-What feeding options do you recommend and why? Specifically, what product(s) do you prefer and why?

SL: Immediately upon making phone calls to other breeders, we were faced with several options for our orphan foal. We had another mare with a month-old colt on her side that could likely nurse two colts, we could search out a nurse mare or a mare who had lost a colt of her own within the last few days, find a milk goat to put in with the foal for the foal to nurse off of, bring a barren mare into milk via hormone-induced lactation (http://c.ymcdn.com/sites/www.kvma.org/ resource/resmgr/imported/1-06-Hormone%20 Induced%20Lactation%20in%20Mares.pdf), bottle/bucket feed the foal or simply dispose of the foal.

We tried to put the orphan on the mare with the colt on her side. We feel she would have accepted the second foal if we had kept at it, however, she is an older mare and we figured out that she just could not produce enough milk to sustain both colts. Her own colt began to display symptoms of ulcers within a day of the mare nursing two foals. At that point, we scrapped that idea.

We had made a few phone calls about the possibility of a nurse mare. Nurse mares can be expensive-anywhere from \$1,000 to \$1,500 for leasing the mare, plus most farms require that you are responsible for re-breeding the mare. Secondly, fostering the foal onto the mare can be time-consuming and not always successful (http://www.thehorse.

com/articles/10569/the-orphan-foal). Also, the mare and foal should not be left alone until the mare has fully accepted the foal which sometimes can take a few days.

We started out bottle feeding every two hours. But after speaking to many breeders who have raised orphans, we opted to take the route of bucket feeding. For us, it seemed like the path of least resistance. We heard over and over again the product to use was Buckeye® Nutrition Mare's Milk Plus® (http://www. buckeyenutrition.com/breeding/mare%27smilk-plus.aspx). Hearing this made our decision pretty easy. We immediately sought out a bag of Mare's Milk Plus® and transitioned the orphan off of the milk product we purchased locally. The reason we heard most breeders used it with their orphans was because they felt the foals grew well and did not have a "pot-bellied" appearance often seen in foals fed milk replacer.

We were told to avoid using a Multi-

We were told to avoid using a Multi-Species Milk Replacer, which is what you will find readily available at places like Tractor Supply Company. The Multi-Species Milk Replacer is not formulated closely enough to mare's milk.

From what we read and heard, the trick to feeding milk replacer is to feed small amounts often.

JS: I have used a number of milk replacer products through the years. I have got to say the only products I would use are the milk replacers made by Buckeye or Progressive. The great thing with these two products are that they are not only easy to use and get a foal started on them, but more importantly, the foals look like foals that are nursing a mare and they don't look like typical orphans (big bellies, ribs showing, terrible hair coat).

RC: As far as feeding options, we have



used liquid milk replacer (Merricks was the product we had good luck with), milk replacer pellets (Land O' Lakes) and more recently, Pennwoods 2 to 12, which can be supplemented with your grain of choice. I prefer to get them on some type of grain and the milk protein supplement as soon as they can digest it to reduce the chances of dealing with diarrhea or other intestinal upsets.

RD: If we are required to feed an orphan foal, we use Buckeye® Nutrition Mare's Milk Plus®. It is a powdered concentrate, mixed with water, that can be used as bottle feed or free-choice pail-feed. I recommend teaching the foal to pail feed as soon as possible, over and above bottle feeding. It teaches them to eat out of a bucket and there's a lower chance of them aspirating as they could on a bottle.

We have also introduced Buckeye® Nutrition's Foal Starter pellet, as a creep feed during week four. We like the Buckeye Nutrition products, as the overall health, weight gain and physical development of the foal is pleasing. On a side note, if you are pail feeding during "fly season," take care to keep the feeding pail clean and free of flies.

4-How much, how often and via a bottle, pail or both?

SL: Upon the loss of our mare we went to bottle feeding one to one-and-a-half quarts (two to three bottles) every two hours for the first week of the foal's life. That is 12 feedings per day. Brian and I took every other shift. It was just like having a newborn in the house again except for the cold trips to the barn in the snow, sleet and freezing temperatures. Not to mention it is hard to go back to sleep once you have been out in the cold. We would leave a feeding schedule on

the kitchen counter where we could leave notes to each other in between feedings so we knew how the previous feeding went (i.e. foal jumped up and went to nursing, hungry as heck, foal drank and went back to sleep, foal is ravenous). This way, if anything seemed a little off we would be on top of it. As many know, young foals can take a turn for the worse in a hurry and we were trying to be proactive at staying ahead of anything that may cause concern.

At the conclusion of the first week we stretched it out to one-and-a-half quarts every three hours, still by bottle, and also started giving her Buckeye Nutrition's Foal Starter

milk-based pellets, which can be fed freechoice, provided her with a bucket of water in her stall and a half a flake of hay.

At the end of the second week, we decided we'd better get the foal switched over to a bucket because bottle feeding was getting really old and the foal was getting really pushy. Training the foal to a bucket was interesting, to say the least. We had been warned to get our scuba gear ready because we were going to get wet! We were told to let the foal nurse your finger and use a shallow dish. While the foal is sucking, bring the foal's muzzle on your finger into the dish with the milk and eventually (after wearing a lot of milk including in your hair and soaking your pants) they will begin to suck the milk out of the dish. The foal got very frustrated and tossed its head around splashing milk everywhere. The sucking on the finger part did not go so well, the foal much preferred the nipple over my finger and I did get soaked in milk the first few times. It is helpful to have two people, one to hold the dish and the other to deal with the foal. I found what worked better and may have saved me from a few milk soakings was taking the

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nipple from the bottle and placing that on my finger. I let the foal suck the nipple and then brought it down into the dish and slowly removed my finger from the nipple so the foal would be sucking the milk through the nipple in the shallow dish. As the foal was sucking the nipple I slowly withdrew the nipple from the foal's mouth and voilà, the foal was drinking from the dish successfully. Once that was accomplished, we were able to move the orphan to a bucket quite quickly. For week three, we were feeding the foal one gallon every four hours, six feedings in 24 hours, for a total of six gallons a day. We kept that up through the foal's fourth week, then went to feeding the foal every eight hours: 6 a.m., 2 p.m. and 10 p.m., for a total of seven gallons per day. The recommended feeding of Mare's Milk Plus for a foal with a dam weighing around 1,500 lbs. is six gallons per day; a foal with a dam weighing approximately 2,000 pounds is eight gallons per day. We figured this foal's dam to be around 1,800 pounds and hence settled on seven gallons per day.

We currently plan to shift the foal to two feedings a day instead of three since she is now eating the Foal Starter free-choice, hay and drinking water pretty readily. We will then feed three and a half gallons of the milk replacer at 6 a.m. and three and a half gallons at 6 p.m.

We are going through about one 50 lb. bag of the milk replacer every two weeks.

JS: When I first introduce the foal to the milk replacer, I will feed it through a bottle. This ensures that it is getting milk into its belly and also getting used to the taste of it. After that, I will give it a couple of hours to make sure it is hungry. I will mix up a bucket, use my fingers on the foal's lips to get him to follow my fingers into the bucket (if the foal is nursing and hungry, they usually will follow your fingers willingly). It doesn't take long for a foal to learn to drink from a bucket. I have had a foal learn to drink from a bucket as young as five hours old.

RC: When orphaned at birth, we bottle-feed every two-to-three hours during the first 12 to 24 hourperiod with the colostrum and milk I have stolen from other mares in the barn. After that, we made



A colostrum refactometer is a portable instrument for analyzing mare colostrum quality. Only a few drops of colostrum are required and the entire test can be completed in less than a minute.



in a bucket of milk replacer as they sucked. As for amount and frequency, I would follow the directions on the product you choose.

RD: Bottle feeding: every two hours (from newborn to three weeks of age). If bottle-feeding, make note to watch the foal's manure, as constipation can be problematic and enemas may be required. Commercial milk replacer does not replace the constant water intake of natural mare's milk. Additionally, an orphaned foal may not receive the benefit of a mothering mare's grooming, which assists in stimulating the foal's intestinal tract.

Bucket feeding: by one month old, three to four times per day, introducing pellets at three to four weeks old.

5-In the case(s) you've dealt with personally, did you lose the mare, or were there other factors that prevented her from mothering the foal? What things do you pay special attention to during and after a birth, and why?

SL: In our case of the orphan foal, we lost the mare.

One thing we have which assists us in birthing our mares is a foaling kit. Our kit includes quite a few simple, but useful items to help us with certain things

we consider to be preventable (i.e. an enema to prevent foal meconium impaction, obstetrical straps in case we need to pull a foal, colostrum bottles to freeze colostrum for future use if needed, umbilical clamps in case there appears to be a bleeding problem, navel dip to help prevent septicemia from an infected navel stump, equine colostrum refractometer to test the colostrum to make sure the quality is good to try to prevent a failure of passive transfer). We also keep Probios® gel in our kit and give it orally to the mare and foal post foaling.

We try to attend every single birth on our farm. I think we have only missed one in all the years we have been foaling mares. Of course, the more mares you have to foal, the more the likelihood of you attending them all will decrease.

We always closely monitor the mare pre-foaling and the mare and foal post-foaling. We utilize web cameras and they are very helpful to monitor from afar how the mare is behaving and how well the foal is nursing.

Attending the births gives you a good idea of how it went and you can help the mare in case of a malpresentation or a placenta previa "red bag" delivery. If we don't see progress within ten minutes of seeing the mare's water break, we will often get in the stall and take a look to see what we have going on. We are certain we would have had

several rectal tears with certain mares had we not attended their births. Was it a tough birth? Did the mare need help? Was the colt hung up on its shoulders or hips? We find some mares need more help than others. Some we do not help at all. It depends on the mare and their foaling history. We even discovered that we have one mare that, within hours of foaling, will be covered from head to toe in hives and will go into a complete itching fit. We always know when she gets hives,

we are getting close to foaling.
Our post-foaling protocol includes: making sure the foal has passed the meconium, the mare has passed her placenta within three hours of foaling (we keep a bottle of Oxytocin on hand just in case we need to administer it to the mare) and we carefully examine the placenta immediately after it has been expelled to be sure it is complete, the foal is nursing well after we get the initial colostrum into them and get them standing, we dip the umbilicus with a dilute Nolvasan (generically known as 2% Chlorhexidine) solution as soon as possible after birth and then three times daily for the first two-to-three days of the foal's life, we will also temp the mare and foal morning and night the first day or two to be sure everything is normal. We watch to be sure the foal is urinating properly and not out the navel. You can often catch a potential catastrophic problem early by paying attention to these few things.

There are many potential problems that can afflict a mare in the wake of foaling: is the mare producing enough milk, did the mare pass or retain her placenta, does she have a ruptured uterus or inter-

nal hemorrhaging, etc?
Potential problems that can afflict any foal include: diarrhea, ulcers, colic, pneumonia and septicemia. Note: orphans are more susceptible to all of the above. One of the most common killers of orphan foals is diarrhea or scours. All foals are born with a sterile gut which lacks bacteria. Foals will often be observed eating their dam's feces to gain that needed bacteria; obviously an orphan will be lacking this from the loss of its dam. We provide the foal with probiotics via Probios® gel.

Orphans also are more prone to having ulcers due to the added stress and from the less frequent feedings they normally would have with a dam present. A newborn foal will typically get up to nurse every 15 to 20 minutes throughout

Watch for problems, and if one develops, catch it quick and do your best to correct it!

IS: Every case but one (that I can remember) has involved a mare's death. I have had mares die from ruptured uter-ine artery. In that case, by the time you know she has ruptured a uterine artery, it is already too late. They usually start breathing hard (from blood loss), sweating, if they are up you might notice them stagger or stumble a little walking in the stall. If you see this, grab the foal and get them out of the stall immediately. She is going down within the next few minutes. I have also had twisted intestines just after foaling. According to the statistics, this is the number one killer of postpartum mares. The only thing you can do to try and prevent this is make sure the mare starts eating as soon as she can after giving birth. A bran mash and good quality hay is what I recommend. You need her to get roughage flowing through her intes-

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tines as soon as possible. It can't completely prevent twists, but it can't hurt. I have had mares twist within a few hours, but also within that first week after birth. A mare can also tear her uterus during the foaling process and you don't know she did until she looks like she is starting to get sick. By then it is usually too late as well. The only orphan I had involving a mare that lived was a foal that just wouldn't nurse. We had a tube inserted into his stomach via the nostril where we could milk the mare every two hours and put the milk into the tube so he would

get nutrition. We were also working with him under the mare, hoping we could buy time until he "got it." After a week, the mare was tired of being milked and he still wouldn't nurse. We got him on a bucket within two hours. Even if they have no suck reflex, they can still drink out of a bucket.

RC: Our first two cases involved the same mare. She was on an excellent feeding program, yet still did not produce any milk. She would not come to any milk even when we tried several different drug regiments. Our third case was the mare I described with the prolapsed rectum. Our last case was a client mare that died after complications from colic and left us with a two-week old orphan.

We pay close attention to each birth. When the mare is in active labor, but she does not appear to be making any progress, I always go in and check the situation out to make sure the foal is presented correctly and that nothing is twisted or out of position. The industry is calling for big, hitchy foals and the downside to this is that they can be more difficult to deliver. Big front ends, sloping shoulders and long legs can cause problems that can be easily corrected IF you are on the scene to assisť.

After the foal has been delivered, we make sure it gets a Vitamin E/Selenium shot, we put some tame iodine solution on its umbilicus and we give each foal an enema to help it pass the meconium that has built up in its rectum. There is always a risk of meconium impaction if they do not successfully pass it, so we keep a close watch to see that they do. We offer them a bottle of the colostrum collected from the mare and then leave them to each other for a couple of hours if all has gone well. After that, it is a case of paying attention to the usual things: the foal is getting up on its own and successfully nursing, the foal's umbilicus looks normal, the mare has "cleaned" (expelled all the afterbirth), the foal is passing milk feces and I like to see them urinate for the first time so I know they are getting the hydration they need.

RD: Unfortunately, we have lost a mare

during the birthing process.
Pay attention to how much milk is lost during the pre-birthing hours. Valuable colostrum can be inadvertently lost during the premature lactation process. Quantity and quality of colostrum during the foal's first few hours of life are very important.

During the birthing process, correct presentation of the foal (in the diving position) is of primary concern to the health of the mare. Apart from an overly large foal, which holds the possibility of fatal physiological damage to the mare, I would have to believe that incorrect presentation would be the second most common difficulty that mares encounter during the foaling process. The correct delivery position would begin with two front feet (hooves facing "downward"), closely fol-lowed by two cannon bones, a nose, knees and a face. If your delivery presentation differs, call your vet immediately.

Malpresentation will usually cause the mare to experience substantial pain. Unfortunately, she has no control over her contractions, which are naturally forcing an incorrectly positioned foal. Repeated rising and laying down, rolling and belly-kicking, profuse sweating, unusually heavy breathing, rolling of the eyes, prolonged moaning and the possibility of blood in the birth canal are all signs





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Lockwood. CA 831-385-3597 diwalters@tcsn.net vctewalt@gmail.com of trouble for the expectant mother. Call

your vet immediately.

Within an hour, complete presentation of placenta ("afterbirth") should occur. If you are unsure how to identify the passed placenta, have your vet check it for you. The placenta should exhibit two definitive horns and only one major opening. If there are obvious pieces of the placenta missing, there is a chance that it has been retained within the mare's uterus which will very likely lead to a serious infection. A veterinarian will be required to flush and infuse the mare's uterus for its sanitary return to normalcy.

6-In the case(s) where the mare died, what has been the cause and do you have any recommendations for avoiding the situation in the future?

SL: In our case we lost the mare to a uterine aortic rupture. I had noticed after the mare foaled that her gums looked gray to me. I mentioned it to Brian and we continued on with our normal foaling protocol, not thinking much more about it, just making mental note of it. We both kind of remarked that the mare wasn't 100%. She acted mildly uncomfortable so we administered some Banamine, figuring she was just painful post-birth as some mares can be. The next morning, the foal wasn't 100% either. The foal didn't appear to be nursing as readily as we would have liked her to have been. We called our veterinarian immediately. While the veterinarian was there examining the foal, the mare had a colicky episode, so more Banamine was administered and the veterinarian performed a rectal exam. The veterinarian felt the mare was just suffering from mild gas colic. We kept a close eye on her and after the veterinarian had left, the foal was doing much better and was actually nursing and seemed to be on the up-and-up. That's when the mare took a turn for the worse and began to seize and within minutes had passed away.

With a uterine aortic rupture, there isn't much you can do to prevent it. Hemorrhage from a uterine artery is common in older mares and is a cause of death in a significant number of broodmares. Not much is known as to why aortic ruptures happen. (http://www.thehorse. com/articles/12744/foaling-problems)

We always try to recognize early signs of problems and act quickly and appropriately to give our mares and foals the best chance at survival.

IS: Mostly answered in #5. The only sure way of never having an orphan foal is to not foal any mares. Even with people having babies in the hospital, not every mother makes it through childbirth. Things sometimes happen that we are not able to control.

RC: I already gave the details of both mares that died in previous answers and they were both unfortunate cases that could not be avoided.

RD: We have lost mares from internal hemorrhage, due to foal size or malpresentation of the foal. The presence of substantial amounts of dark red blood in the birth canal is a primary symptom of a hemorrhage. Unfortunately, a hemorrhage is very difficult to remedy, and is most common in older mares.

We have also lost a mare to "foal colic," which is a form of colic that can occur during the days immediately following the birth of the new foal. Although preventing colic is highly unlikely, taking precautions to guard against it are prudent. Be sure that the mare has access to plenty of fresh water and hay during the days before and after the birth. Hydration and roughage, to keep the gut active and turgid, are important.

We have also lost a mare to "foal founder," which is characterized by extreme lameness in the front legs of the mare. The retention of placenta within the mare's uterus is the primary cause of foal founder. If your mare has not completely passed her placenta within two hours of giving birth, call your veterinarian to have it removed and flush and infuse the mare's uterus with an antibiotic treat-

7-How soon do you try the orphan foal on grain? What type, how and how

SL: We started supplementing the orphan on the starter pellet at two weeks of age. We hope to wean her from the milk replacer at 60 days of age and keep her on the Foal Starter pellet and then at four months of age we would like to transition her from the Foal Starter pellet to the Buckeye® Nutrition Growth pellet.

IS: I try to keep everything as natural

as possible. Within days, you nor-mally see the foal nibble a little hay with mom, or check out the grain the mare is eating, or even check out and drink a little from the water bowl. Once I have an orphan that is on a bucket, I make sure there is always water available, a little fresh hay in the stall and after a few weeks, a handful of grain in a bucket for the foal to nose around in. I would just use the grain

I am using feeding the other horses, but I would use a very small amount, like a handful until I know the foal can digest it and get some use out of it-at maybe a couple of months old.

RC: The two foals that did not have nurse mares were both starting to get some crimped oats between three and four weeks of age. One foal was on a powdered form of milk replacer mix and he was slowly and separately introduced to crimped oats. The two-week-old orphan was on milk pellets and we started mixing a bit of crimped oats in with the pellets at about three weeks. Both of those foals were transitioned over to crimped oats and a good supplement by six weeks of age. Some judgement is used when deciding how much, but I was always told that a foal should get 1% of its body weight daily and we based our program close to that.

RD: At one and a half to two months, we begin to introduce a pelleted foal feed into the milk pellet creep feed. We have found that the Buckeye Foal Feed has worked best for us.

8-Are there particular behavioral traits common in orphan foals? If so, how do you deal with them?

SL: We have definitely noticed that this orphan foal is lacking manners. She is quite pushy and is quite rambunctious. Our plan, once the weather breaks here, is to get her turned out with a retired brood-mare who is more like "Grandma" to the foals, without the spoiling, of course. At this time, we turn the orphan out with another mare and colt but we hold on to the mare with a lead just in case. So far, this is working okay. Eventually we would like to work up to turning the filly loose with the mare and colt. This mare

continued on next page



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has been out in a herd with other mares and foals and we are pretty sure she will be fine with having this filly around. Being fed from a bucket lessens the likelihood of the orphan trying to nurse off the mare. The weather here has been too brutal to leave the mares and foals turned out for extended periods of time. Obviously it is best if the orphan can learn from other horses how she is expected to behave.

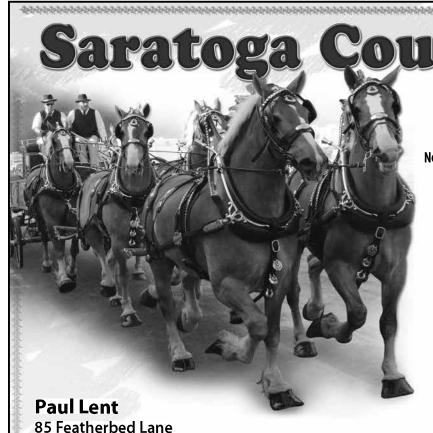
We put a gate across the center of a foaling stall. We placed a mare and colt on one side and the orphan has the other side to herself. The orphan is learning some horse behavior from the mare despite not being in the stall directly with her. The orphan can also reach over the top of the gate to play with the other foal. The mare will often reach over the gate and nip at the orphan or pin her ears at her. This alone is teaching the orphan that when another horse does this, she needs

to retreat. We are assuming that something is better than nothing in this case.

This orphan foal does a lot of playful rearing and charging which we are working on discouraging. It can be difficult to teach the foal that the rearing is bad, but that she and her behavior, in general, are good. Normally we wouldn't strike any of our foals unless it is warranted (nippy colts for example). In this case when the orphan offers to rear I respond with a quick, firm whack in the muzzle with my hand to interrupt her misbehavior. However, I don't want her to become fearful of my hand and become head-shy, so if she is standing quietly around me and behaving, she will get scratches on her withers. I only want her to learn that the rearing behavior is undesirable. It's a lot easier to correct now than if we wait until she is a mature horse. If you observe a mare correcting her foal, they will oftentimes nip at them and sometimes will

give them a gentle kick.

JS: Everyone wants to baby an orphan foal. It usually makes them very spoiled and they have no respect for people as they get older. I always try to limit their exposure to people. I don't want to handle the orphan any more than I would do with a foal that is nursing his mother. The orphan does need something to occupy his time, rather than just waiting alone in a stall for his next bucket of milk. Ideally, get them outside next to other horses or even get a companion in the stall with them. We have good luck putting the orphan in with a young goat so they have a buddy and you can limit the contact you have with it. Put the milk in the stall and leave them alone. When you clean the stall, take them to another stall or an outside pen. If you have a stall with an outside run connected to it, that is ideal. You can close the foal and his buddy out-



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side while you freshen up the stall, water and hay. Then open the door back up and again, leave them alone with whoever their buddy is as much as possible.

RC: A common trait is the potential to get spoiled. It is human nature to feel sorry for them and allow them to get away with behavior you wouldn't normally tolerate. It is important to treat them like any other foal and discipline them if they require it. Orphan foals also get very dependent on their humans and I think it is important to make sure they get socialization with other horses as soon as you can do it safely, even if it is just in the next stall or paddock.

RD: Although "dumber than a box of rocks" may not be the most accurate description, there may be times when the phrase passes through your mind when dealing with orphaned foals and mature horses who were orphaned as youngsters.

As a general observation and experience, orphaned equines tend to exhibit a lack of respect for the human's physical space and authority. The hypothesis would be that these "space issues" are formed due to an orphan spending the most formative months of its life being in closer-than-normal, physical proximity to humans and the respect for: "my space/your space" is never developed.

Through no fault of their own, orphaned foals have been deprived

Through no fault of their own, orphaned foals have been deprived of the opportunity to bond with their natural equine mother and to learn her "horse habits." Although the task seems difficult, as little human interaction as possible is recommended; as the orphan foal will become psychologically bonded more so with humans, than with horses. Overly humanized behaviors include the foal following their human (like a pet dog), sucking or tugging at human clothing, whinnying at their human and the foal initiating physical "horse play" with their humans.

Providing alternative equine peers to the young foal is recommended. We make a point of stalling the foal right next to the nurse mare where she and the foal can physically see one another (if the nurse mare is unwilling to have the foal, right in the box stall, with her). Ponies, light horse geldings or mares, and even goats, are suitable peer replacements for the absent mother.

Beyond providing animal peers to the foal: patience and an early, consistent and kind, (but firm) education in ground manners is the best way to avoid a mature draft horse "walking all over you." Providing the youngster with a solid foundation of respect for humans will serve both the animal and future owners well.

9-How has the nurturing of a foster mare, or lack thereof, effected the orphan foals with which you have experience?

SL: I definitely have noticed this orphan is more pushy than most of the other foals we have raised. In her world, she associates humans with her milk bucket. We are currently treating the orphan just like any other foal we have by halter training her and leading her to and from her stall and the paddock. We have limited our human contact with her in hopes that she will learn to behave like a horse.

As I stated earlier, we are working on the horse socialization aspect of rearing her by trying to turn her out with the other mare and foal so she is not in complete isolation. We have heard stories of how orphans sometimes could not be turned out with other horses because they lacked proper socialization skills.

JS: Again, if you can get them on a mare, then they will grow up as a normal foal. The worst mannered orphans are people made. You can't cuddle and baby them all day and expect them to grow up and act like a regular foal. In the long run, it is no good for the foal's owner and even worse for the foal. Let them learn to be a horse.

RC: Our two foals that were adopted by other mares were raised and cared for

continued on next page



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just like they were with their own mothers. The funny thing about the mare that raised her own plus the orphan, was that if you had to say which one she nurtured more, it would have been the foal that was not hers. Her own foal was quite independent and never seemed to need or want as much attention from her. The other foal with the mare with no milk had the most human interaction, so when it was safe to do so, we would turn him out in a small lot next to our one stallion who loved foals. It made a big difference in his behavior having that other horse with which to communicate. The last foal was the two-week-old orphan of the mare with colic. Although it was eating satisfactorily, it was noticeably depressed and wanted people with it all the time. I actually went to a neighbor and bought a goat as a companion. The problem was solved, and when the foal went back to its owner a few weeks later, the goat went right with it!

RD: We have recognized that the surrogate mares that carry our embryo transfer babies certainly have an effect on the behavioral tendencies of the foal, however, the overall personality of the foal tends to be reminiscent of their biological parents.

10-In your opinion, how is a foal's eventual disposition effected by being raised an orphan?

SL: In my opinion, I hope not to see any differences in the orphan's disposition from foals raised by their dams. We are hoping that by getting the orphan socialized with other horses and not just being reared by humans, we will see that there are no ill-effects on the foal's disposition. However, I could definitely see if an

orphan were not reared properly that it could easily develop some bad behaviors that may not be easily corrected later in life.

JS: Most of this was answered in my responses to #8 and #9.

RC: I think an orphan foal's eventual disposition will be molded by how the owners raise and care for it. The very situation of them being orphaned just makes them easier to spoil. Any foal, orphan or not, can be raised to be a respectful individual or a spoiled brat.

RD: Sadly, the orphan foal tends to be "a (behavioral) problem child" in their adult years if not handled carefully and correctly from an early age.

11-Was the foal's growth rate or eventual size effected by being an orphan?



SL: At this juncture, our orphan is just over a month old and her growth appears to be on track with the other foals we have raised.

JS: As long as they have a good nutrition and deworming plan their growth rate will be like any other foal. That is why I recommend either the Buckeye or Progressive products. The other products I have tried, the foals don't have the growth rate or weight gain like a normal foal. If they have good nutrition, they grow to the size they're genetically going to grow to even if they weren't an orphan. It is very important to feed these milk replacers as the bag instructions tell you. A lot of people think that if a little works, then a lot will do better. Overfeeding an orphan is just as detrimental to the foal as underfeeding it. Even if the foal still seems hungry or thirsty after they've drunk the milk, they can learn to nibble a little hay, eat grass or drink water. A mare will produce only so much milk as well and if the foal is still hungry, it will learn to nibble on other things.

RC: I know where all four of our orphans ended up. The one that was raised like a twin suffered neither in growth rate or eventual size. Both fillies matured normally into big mares. The colt that we put on the weaned mare was slower to mature, as her milk production was on its descent. However, he and other two foals raised on replacer finished out as good-sized individuals, despite their slow beginnings.

RD: The first six months exhibit slower physical development than normal, even if the foal is on milk replacer. If the orphan foal is on a nurse mare, the tendency for the normal physical development is very high.

12-At what point do you wean the orphan foal off of milk replacer?

SL: We plan to wean the orphan off of the milk replacer at 60 days of age. At that point she will be accustomed to eating the Foal Starter pellets, hay and drinking water consistently and will no longer need the milk replacer.

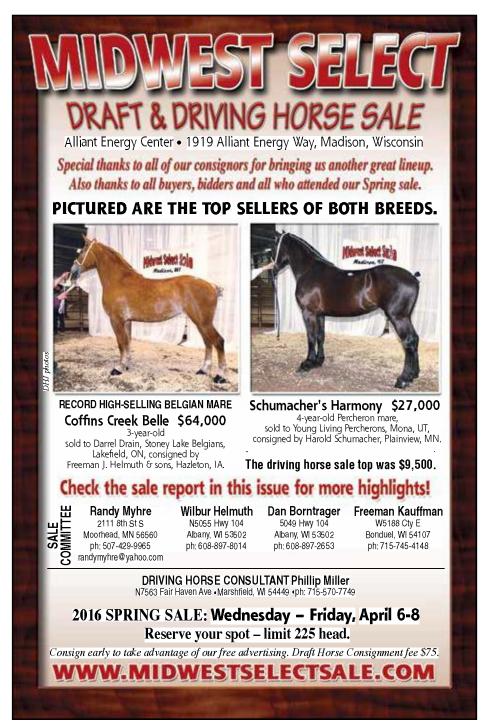
JS: Personally, I will try to keep things as normal as possible. There are milk pellets offered to get the foals off the milk replacers at an early age. I prefer to let them drink the milk replacer through the first five months and wean them off like I do a normal foal. A mare's milk becomes less concentrated and more "watery" as her lactation progresses, so after the first couple of months, I will start cutting down on the amount of milk replacer I mix into the water. My total volume stays the same, but instead of say, four cups of milk replacer per bucket, I might use three to three and a half cups per bucket

per feeding at the third month. The next two to three weeks, again cut it by half to one cup. By the fourth month, I get down to about half the amount of milk replacer as when I started. This is somewhat close to what the mares do naturally. The foal, of course, will be eating more hay/grass and a little more grain by this time and will be able to digest it better with each passing month. There again, when you cut back the milk strength, don't start pouring the grain to the foal. I can't repeat it too much—overfeeding a young foal is as detrimental as underfeeding it. The foal eating more hay or grass as the

milk consistency thins is the closest thing to normal.

RC: I think all our orphaned foals were weaned off the milk replacer by six-to-eight weeks of age. They were on good grain and a foal supplement and good quality hay. Since the time we had these orphans to deal with, our company, Pennwoods Equine Products, started manufacturing a product called "2 to 12." It is a milk protein product formulated especially for foals two months to 12 months of age and is added to their

continued on next page



grain ration. Luckily, we have not had any orphans to try it on, but quite a few customers have used it on theirs with favorable results.

RD: At three weeks, we like to start introducing a pelleted foal feed into the milk replacer, gradually increasing the ratio, until they are on a complete ration of foal feed.

13-Describe the final outcome (mature status) of those orphaned foals with which you've been involved.

SL: This orphan's complete story is yet to be written. Our hope is that she will eventually become a show mare, but we will have to wait and see. As of the writing of this article we believe she is on track to being a useful addition to our herd.

JS: The orphans that I have let grow up to think they are horses have matured into good horses. Like most people, I babied and played with my earliest orphans when they were young and, as they matured, we had a lot tougher time getting them to think they were horses. They were tougher to train and to work with in general. I learned quickly that we are

doing them no favors by treating them like our little pets.

RC: The two foals out of the mare who would not milk were both stud colts. They were gelded and both went on to be successful hitch horses. The orphaned filly that was put on the mare with her own foal grew into a beautiful, big mare and went on to produce her own offspring. The filly that we put with the goat went back to Ohio, where she is now a broodmare.

RD: Thankfully, our orphan foals have always grown up to be physically sound. We have observed that, behaviorally, grown-up orphans have their challenges, and are not always the best choice for a first-time horse owner.

14-If you had a single piece of advice for anyone faced with an orphan foal, what would it be, and why?

SL: The easiest solution would be to get the foal on another mare as quickly as possible—then the rest of the potential problems are eliminated or greatly reduced. If, for some reason, you are faced with having to bucket feed one, it isn't impossible and can be done with few ill effects on the foal.

JS: Before you have the first or only foal of the year, make sure that you know where you can get milk replacer quickly, in case it is needed. There is nothing worse that suddenly having an orphan and not knowing how you are going to feed it

Treat the orphan like a normal foal and let them grow in as natural of an environment as possible. They don't need a human for a friend, buddy or a new mom. Let them enjoy the company of other safe horses, or a goat, lamb or whatever animal you can get that they can hang out with until they are weaned and can be with any other weanlings that may be available.

RC: If I had to give one single piece of advice in this situation, it would be this: Get as much advice as you can from others who have been through it and use all the pieces and parts to make it work for you and your foal. Don't think that there is just one right way to proceed. What works for one person, or foal, may not work for another. Be patient, and like I said, if you have to, improvise!

RD: Our best advice would be to try to get the foal onto a nurse mare as soon as possible. The physical and psychological advantages are irreplaceable.

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[&]quot;Information's pretty thin stuff unless mixed with experience."

⁻ Clarence Day, American writer