

POITOU DONKEY FOAL SUPPORT PROTOCOL



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Above and next page: Poitou donkey foal Legend and his mother Babette. Photo by Patrick Archer, Texas Poitou Donkeys.

*By Charlene Couch, Keith Youngblood,
Patrick Archer and Chris Jones*

Breeders of rare Poitou donkeys carry a heavy responsibility. Like all other equine breeders, they invest a tremendous amount of time and resources to ensure the health their foals. For Poitou donkey breeders, though, every new foal they produce will play an important role in saving this breed from extinction.

For two Poitou donkey breeders in Texas, the routine use of an immune supplementation treatment for newborn foals has resulted in better foal survival and health outcomes. A description of the treatment is provided below as a reference for breeders who may wish to consider its use on their farm. This information is intended for educational purposes only. It is not meant to be used as a substitute for the advice of the breeder's own qualified veterinarian.

NEWBORN FOALS

Foals are born with immature immune systems and are vulnerable to many pathogens. Infection-fighting molecules in the mother's first milk, the colostrum, help protect the foal from infection. These immune factors come from the jennet's own immune system, so a valuable first step in keeping the newborn foal healthy is to keep the jennet on a good vaccination schedule. Your veterinarian can advise you on the core vaccines that are needed before and during pregnancy, plus any other risk-based vaccines that are necessary.

When the newborn foal drinks colostrum, its digestive system absorbs antibodies through what is called "passive transfer of immunity." Most of this antibody absorption occurs during the first six hours of the foal's life and declines a great deal after about 12 hours. By about 24 hours, the lining of the foal's gut can no longer absorb the large antibody molecules. Foals that do not receive adequate colostrum during those first few hours of life are highly susceptible to life-threatening infections.

Close observation of the jennet, especially during her last few days of pregnancy, and of her newborn foal, can help the owner identify any potential problems with the passive transfer of immunity. Some things to watch for include excessive leaking of the colostrum from the jennet's teats before the foal nurses, poor bonding between mother and foal (which can delay or limit nursing), premature foaling, and illness or death of the mother. Report any of these observations to your veterinarian immediately.

Whenever an inadequate uptake of colostrum is suspected, veterinarians usually test the foal's blood for its immunoglobulin (IgG) antibody levels. This is done at about 12 hours after birth. Laboratory results are usually returned in 24 hours, but more rapid testing can be done on-farm by other means. As a general rule, a blood IgG level of 800 mg/dL or higher indicates that optimal passive transfer of antibody molecules has occurred. Foals with IgG levels lower than this may need a good-quality replacement colostrum. After the foal is 24 hours old, antibodies must be given intravenously.

Because Poitou donkeys are so critically endangered, the owners of a large breeding herd in Texas have begun supplementing all their foals, even those that nurse vigorously, with intravenous antibody-rich plasma. They take this extra step as a safeguard against any risk of inadequate passive transfer. The practice has decreased the infection rate for their foals.

OBSERVATIONS ABOUT IMMUNE SUPPLEMENTATION

Keith Youngblood, DVM, of Youngblood Equine Veterinary Services in Grandview, Texas, has provided veterinary care for the Texas Poitou Donkeys farm for 13 years. He administers a hyper-immunized plasma infusion to all new Poitou foals at about 12-24 hours of age. This treatment, along with high-quality jennet and foal care on the Texas Poitou Donkeys farm, has improved health outcomes for foals. Dr. Youngblood's observations suggest that, at least for this herd, routine plasma supplementation is a wise precaution for newborns. Foals that are born in different locations and environments may or may not experience the same pathogen challenges as those seen in the Texas donkeys. However, based on Dr. Youngblood's experience, the treatment poses few risks and yields good results for Poitou foals.

Dr. Youngblood offers a word of caution: If the foal has been given a milk-replacer (due to low milk production or death of the jennet), the veterinarian must be informed before plasma is administered in order to avoid an anaphylactic reaction in the foal. Your veterinarian can pre-treat the foal with medication before the plasma is given so that it can be administered more safely. Please discuss the plasma infusion treatment with your veterinarian well before the foal is born. A licensed veterinarian should always administer the treatment and supervise the foal's after-care.



The following sections describe a typical physical examination for a newborn foal and the subsequent plasma infusion process so that owners will know what to expect during this treatment.

PHYSICAL EXAMINATION

Before the plasma is given, your veterinarian will conduct a physical examination to measure the new foal's body temperature, heart rate, and respiration rate, and to listen for normal gut, heart, and lung sounds. The veterinarian will palpate the roof of the foal's mouth to be sure there is no cleft palate and will check the rectum to confirm that the first feces, the meconium, has been shed. During the examination, the frozen plasma can be thawed in a bucket of hot water.

You may be asked to hold the foal for the veterinarian. The foal should be restrained from the front and behind using as little pressure as possible to allow the foal to stay on its feet and relax more quickly. Dr. Youngblood observes that the Poitou donkey foals in his care tend to struggle less than horse foals. Poitou donkey mothers and foals also tend to tolerate separation from each other fairly well. If the foal struggles, a mild pressure at the base of the foal's ear can release calming endorphins. Very active foals can be lightly sedated by your veterinarian and will rest quietly.

PLASMA INFUSION

Dr. Youngblood usually administers the plasma infusion at about 12-24 hours after foaling, but he notes that the plasma can be given earlier with little risk to the foal. To prepare the infusion site, your veterinarian will shave an area on the foal's neck to expose the its jugular groove. After cleaning the shaved area well, your vet will collect a blood sample for a pre-infusion measurement of the foal's IgG level. Note that the skin of donkeys is tough, and the vein may tend to flex and move as the needle is being inserted, especially if the foal is dehydrated.

Next, your veterinarian will attach a catheter to the bag of thawed plasma (see sidebar). If you are holding the foal, lift its chin slightly to provide better access to the injection site. Be sure to stay clear of the site with your hand, arm, and sleeve to keep the area clean. Your veterinarian will puncture the jugular vein with the infusion set needle and check to be sure that it is placed correctly and that blood flows through the needle. The catheter will be attached to the infusion set, and the bag of plasma can be hung or held a few feet above the infusion site. Dr. Youngblood notes that it is not usually necessary to suture the catheter in place. With the needle held in position and the bag's valve opened, the plasma will flow into the foal's vein.

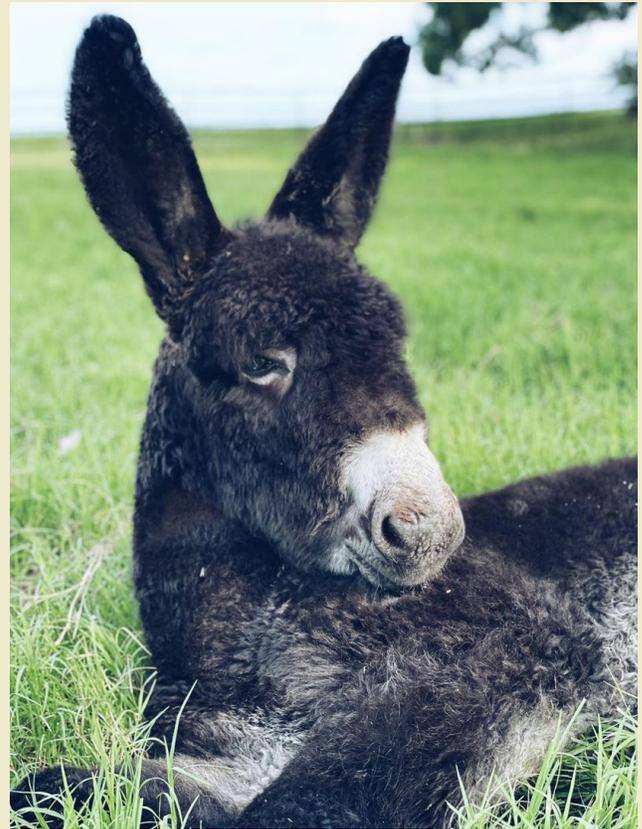
The warm plasma will cool as it flows through the catheter set, so you may notice the foal shivering. Your veterinarian will monitor the foal's overall health and adjust the flow of the plasma as needed. When all the plasma is transferred (about 15-30 min), the needle will be removed. You may be asked to hold pressure on the injection site until the bleeding stops. During this time, your veterinarian will re-check the foal's vital signs. After the treatment, watch the foal closely for several hours to be sure there is no reaction to the infusion.

CONCLUSION

As of December 2021, the owners of Texas Poitou Donkeys farm, Patrick Archer and Chris Jones, have produced 32 Poitou donkey foals from multiple jacks and jennets. Patrick notes that all foals need close monitoring, even if they appear to be strong and nursing well. He says, "While it may not be necessary to administer plasma to every foal, we strongly feel that lowering or eliminating the chance of a foal 'crashing' is worth the expense of the treatment. We use it as an insurance policy as all foals are critical to the survival of the breed."

ACKNOWLEDGMENTS

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Above: Poitou donkey foal, Legend, at 1 month old. Legend received the plasma infusion treatment 6 hours after birth. Photo by Patrick Archer, Texas Poitou Donkeys.

VETERINARY SUPPLIES

Equine veterinarians routinely stock all the supplies needed for foaling and blood testing. *They may need advance notice to order the plasma.*

- **Plasma:** *Rhodococcus equi* antibody, Pneumonum-RE, 1000 ml (Lake Immunogenics, Ontario, NY). The plasma is provided frozen and can be thawed in hot water before administering.
- **Primary blood set:** 200-micron filter and 16-gauge, 2-inch needle catheter. Pre-pierced Y-site, Secure Lock 80 inch (ICU Medical, Santa Ana, CA).

VIDEO-RECORDED PLASMA INFUSION TREATMENT

The physical examination and plasma infusion treatment for Legend, a Poitou donkey foal, was video recorded at Texas Poitou Donkeys on April 27, 2021. The foal is about 6 hours old at the time of recording. **The full, unedited video can be viewed on YouTube at <https://youtu.be/bXhEW1ISdkE>.**

Legend is nearly 8 months old at the time of this writing. He continues to thrive on the Texas Poitou Donkeys farm