



## Preparing For Your Foal

### *A few tips to help your mule and donkey foal thrive*

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It's that time of year when foals start hitting the ground! Are you ready for the arrival of your new foal?

A few tips that can help prepare you and your jenny or mare will include setting up a safe place for her to foal and doing your homework before the big day. Both jennies and mares can safely foal outside, but most owners choose to bring them indoors and allow them to foal in a foaling-type stall. A foaling stall should ideally be larger than a regular standard 12' x 12' stall and the size will relate to the size of jenny or mare that's ready to foal. A standard foaling stall is roughly 14' x 16' but granted this may be too big for a miniature donkey or not large enough for a large warmblood or draft mare. There should be enough room where the jenny or mare can lay down and then stand back up without getting cast (or stuck). A good bedding would be straw on top of shavings.

The typical gestation period for jennies carrying donkey foals is around 12 months. Keep in mind male foals may take up to 10 days longer to be born compared to females. Mares carrying mule foals have been reported to go 11 months to 11 ½ months - it will just depend on the mare. The table at the top

A comparison of estimated gestational length in ponies, Thoroughbreds, mares carrying mule foals, donkeys carrying donkey and hinny foal:

<i>Gestation Length Estimations (in days)</i>		
	Mean Gestational Length	Gestational Range
Pony	330	320 - 345
Thoroughbred	340	320 - 360
Donkey (carrying donkey foal)	370	360 - 380
Mare (carrying mule foal)	344	330 - 350
Donkey (carrying hinny)	365	360 - 380

of this page shows an estimation of when foals are likely to be born according to species or hybrid cross. The lengths are estimations, each mare and jenny may be different.

Do keep in mind, premature foals born 300 days or early will need neonatal care. During the pregnancy, keep in contact with your veterinarian and have them monitor fetal growth and development. It's not uncommon for mares carrying mule foals to have a lower circulating level of progesterone compared to mares carrying horse foals. In this case, your veterinarian may need to prescribe a supplemental form of progesterone called Regumate. The theory behind why this occurs is due to a difference in placental development and fewer placental hormones, a structure found on the placenta and produces an important hormone called equine chorionic gonadotropin (eCG) - once called pregnant mare serum - is produced at a lower rate due to the mare carrying a hybrid foal. Regardless, develop a good working relationship with your mare or jenny's veterinarian and begin checking and monitoring her pregnancy at an early stage. Also, begin vaccinating for equine herpes virus strain 1 (EHV) also known as equine rhinopneumonitis, one of the most common causes of early term abortions. Donkeys can be vaccinated for this as well but keep in mind donkeys may have asinine herpes virus and currently there are no vac-

cines available for AHV.

Another consideration for jenny breeders includes checking for twins at an early stage, ideally 14-22 days. Jennies, especially mammoth or other larger breeds of donkeys (Catalonian, Andalusian, Pega, Zamora, Poitou, Mirandes) will often double ovulate and the same is true for larger mares like Thoroughbreds or Warmbloods, so check for twins. If you are planning to flush embryos from your mares or jennies, consider waiting a day or two longer on flushing donkey embryos compared to horse embryos. Little work has focused on the best time to flush mule embryos but following similar protocol for horse embryos has proven successful. Some research from Brazil and Argentina has suggested a higher survival rate of mule embryos being placed in jennies compared to mares, so keep this option open. The jennies or mares that are receiving the embryos (recipients) will need to be synchronized in estrus (in heat) with the donor. Mules can also serve as recipients for carrying horse, mule, and donkey embryos. If you are concerned about the size of the foal compared to the size of the mare, jenny or mule carrying the embryo, it's important to remember the fetus will grow to the size of the uterus of the mare or donkey. Studies in the past have transferred draft horse embryos to pony mares and foals were born the size of a pony foal yet had the genetics and the

potential to grow to the normal size of a draft horse.

Other changes to monitor for include a change in the placenta (the membrane covering or protecting the foal in the uterus) which can lead to a condition called placentitis and can cause a premature foal or even foal death. Placentitis can develop from a bacterial infection in the uterus.

Prior to your mare and jenny foaling, keep in mind the need to provide a good source of nutrition. The foal will grow the most the last three months of pregnancy. Consider supplementing with additional Vitamin E to help improve muscle development. Bioavailability of Vitamin E varies so check with your vet for a good recommendation. We have conducted several studies in donkeys (in Portugal and Italy) on low Vitamin E and Selenium levels and donkey foals born to jennies with low levels have weaker muscles, more orthopedic complications, and often die. One of the problems that occur is the fact that the muscles in the throat are weak when Vitamin E is low and the milk will go down the trachea versus the esophagus and enter the lungs and create aspiration pneumonia. Granted, the donkey foal will hide this quite well and many times breeders will not notice this is occurring for a day or two and the foal becomes very ill, lethargic and you may even see milk coming from the nostrils. This is an emergency case.

Also, do not allow your mare or donkey to consume fescue grass the last three months of pregnancy. This can cause thickening of the placenta, the mare or jenny to not produce milk and other complications such as prolonged gestation, due to the endophyte found in fescue to make the grass drought tolerant.

One month prior to foaling, you should consider vaccinating and deworming your mare or jenny. This

will help boost her immunity and allow her to make a higher or richer colostrum, the first milk where the foal will gain its immunity. Deworming at least a month prior to the foal being born will also reduce parasite transfer in the milk and in the mare or jenny's manure. For mares carrying a mule foal, breeders should test for neonatal isoerythrolysis (NI). This is not a disease to mess around with and often leads to a very weak and even fatal case in foals. The blood type of the mare essentially does not match with the jack. There are close to 16 blood types in horses, but we truly have not tested or identified different blood types in donkeys. You will need to have your veterinarian draw a blood sample in a red top tube and submit to a lab capable of testing for NI. In the past, most of the samples were sent to UC Davis pathology lab but many large equine clinics can now test for NI. So, be prepared and test before your foal arrives. You can perform a secondary test when your mare foals by drawing a blood sample from your mule foal and taking a milk sample to see if they coagulate. This test is called Jaundice Foal Agglutination, JFA test. If your mare tests positive, then you will need to supply an alternative source of colostrum to the foal that is from a mare that tested negative for NI. Prepare a bottle by using a sheep or goat nipple and feed 120 grams a day for 48 hours. In between feedings, it's important that the foal stays muzzled, and you milk out the mare.

What if you find your new mule foal the next day and you have not had your mare tested? Then what? Immediately test the milk and blood. Look for signs such as a lethargic or weak foal, increased heart rate, increased respiration (which you will likely notice before the heart rate), decreased interest in standing, suckling and the foal will continue

to "crash" or not thrive. This is a medical neonate emergency so call your vet hospital immediately.

Signs of foaling or parturition are similar in both the mare and jenny. Consider the following signs:

1) Development of mammary gland, may occur for two weeks before foaling

2) Closer to foaling, "bagging up" may occur two weeks or less before foaling, this refers to the mare/jenny developing a udder/bag

3) Elongation and relaxation of the vulva and pelvic muscles, palpate along the tailhead to document a difference

4) Restless behavior

a. Mare behavior: Mares will generally stand up and exhibit signs such as colic-like behavior, rolling, standing, walking and more rolling. During this period the foal is changing positions in the uterus and preparing for partition.

b. Jenny behavior: Jennies will tend to stand more and eat less close to foaling.

5) Foaling- mares generally break into a sweat before the first stage occurs, the appearance of the amnion or white bubble-like structure that protrudes through the vulva (stage 1) but jennies normally do not go through a sweat prior to the first stage.

There are commercial tests available that you can purchase to try and predict the time of foaling. Both tests will require a milk sample and will test either the calcium level which increases closer to the time of foaling or the change in pH which also changes close to the time of foaling (e.g. Predict-a-foal and Foal Watch). In addition, there are sensor type devices that can be used as well to tell the onset of foaling such as a sensor that's sutured into the vulva of the mare or jenny or smart halters (e.g. Nightwatch) that will send an alert to your phone that the mare or

jenny is laying down and heart rate is elevated, rolling, etc.

The stages of foaling are the same in both mares and jennies but with some slight differences such as mares often sweat before foaling and jennies do not, as mention above.

Stage 1- signs may include the mare standing, laying down, rolling, sweating and then release of water along with the appearance of the amnion or white bulb like structure, if you do not see white and see red, known as a red bag, have a set of sterile scissors on hand to cut the placenta.

Stage 2- explosion of the fetus- the foal should be delivered in this stage and in some cases, you may have to assist with the foal pushing through the fetal membrane/placenta. This is the stage where dystocia may occur.

Dystocia tends to be more common with donkeys than mares. You should see two front legs and hooves followed closely behind with a nose and then of course big ears. In a dystocia case, you will not see this. Have your veterinarian's phone number on hand and have your truck and trailer ready to go if you need to take your mare or jenny to the clinic. Some dystocia cases can be addressed on farm and depending on your level of comfort and experience you may be able to assist in manipulating limbs and shoulder locks at the pelvic brim but others will require immediate veterinary attention and possible c-section. The position of the foal happens right before stage 1. Since jennies tend to move less prior, this may contribute to jennies having a higher rate of dystocia compared to mares. Also, keep in mind jennies tend to foal at any time of the day where mares more commonly foal late at night or early in the morning.

Stage 3- passing of the placenta- the placenta should be completely  
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passed at the end of this stage.

The three stages of foaling should follow the 1-2-3 rule meaning, the first stage should be completed within the first hour, the second within the second hour and the third within the third hour and any stage taking longer should be treated as an emergency and you should contact your veterinarian for help. When the foal arrives consider keeping the environment quiet and clean. Remove the placenta and then check the placenta to make sure no pieces are missing. The placenta will look like a "Y" and one end of the Y will be longer than the other, this is the side where the foal was growing. The nonpregnant side of the placenta will be smaller and often a small piece may remain in the uterus of the mare and can lead to an infection and making your mare very sick. So, check to make sure the entire placenta is present. Also, the placenta tells the story about the foal and its health. So, it's not a bad idea to keep the placenta on hand in a refrigerator for a few days. If something goes wrong, the placenta can be submitted to pathology to run further tests.

Also, keep on hand a milk replacer in case your jenny or mare is not producing enough milk. Your veterinarian can administer a medication called Domperidone that will help with milk let down. Watch and monitor that your foal stands OK and then starts to nurse. A healthy foal will play, bounce around and act healthy. Both mule and donkey foals can be stoic like an adult, so watch for any signs of the foal's health going downhill. Remember, a mule or donkey - even as a foal - will not show signs of discomfort until the condition is more advanced, so you will need to act immediately. To test your foal's immunity and if the foal has received enough colostrum, a blood sample should be taken within 24 hours. A healthy foal both don-

key or mule will have ideally over 400 IgG (immunoglobulin G) and the higher the better in their serum or plasma. Anything less than 400 is a sign of failure of passive transfer and the foal will need to receive additional plasma that's rich in antibodies to thrive.

Consider dipping the foals' naval with betadine or chlorohexidine but not straight iodine. Also, check the naval or umbilicus often for any swelling after birth, do not cut the umbilicus when the foal is born it will separate from the placenta when the mare or jenny stands. Finally, watch for the foal to pass its first manure called meconium. Foals can have impactions and colic.

In a few days consider allowing your mare/jenny and foal to be in a larger environment and if you have a safe paddock or field/pasture they can be turned out into, that will be great for orthopedic development of your foal. From a nutritional standpoint, continue to supply a good source of nutrients including hay offered multiple times throughout the day and a concentrate/grain to your jenny and mare. The most energy demanding time for an equine is the first month of lactation. So, provide enough food for the mother and foal and especially if you want to breed back on the foal heat or within the next month or two. A mare or jenny with a low or compromised body condition will increase the difficulty of getting her in foal the next time around and can also influence the growth of your foal.

Hopefully, these tips will help your new long eared foal to survive and thrive! If you have any additional questions about foaling or breeding for donkeys, mules or hinnies please don't hesitate to reach out by email, [acmclean@ucdavis.edu](mailto:acmclean@ucdavis.edu).