

# Donkey Reproduction

D. G. Pugh, DVM, MS, Diplomate ACT, Diplomate ACVN

Author's address: Reproductive Unit, Department of Clinical Sciences, Auburn University College of Veterinary Medicine, Auburn University, AL 36849. © 2002 AAEP.

## 1. Introduction

Donkeys are used throughout the world as guard animals for protecting small ruminants (sheep, goats, llamas), as companion animals (for people, foals, etc.), halter training (calves, foals), work (pack, pulling wagons, plowing, etc.), riding, and shows. The mare and donkey are also bred to horses to produce mules or hinnies, respectively. Donkey medicine can be fun and rewarding and a break from routine equine practice. Donkeys come in many sizes, from the miniature ( $\leq 36$  in at the withers) to the mammoth, which may be in excess of 56 in tall. These size differences may alter the practitioner's ability to perform some types of diagnostics (e.g., rectal examination). Although the practitioner will rarely be involved with the reproduction of donkeys as intensely as they are in horses, a working knowledge of donkey reproduction is valuable. The donkey is similar in many respects to the horse, and equine practitioners, if lucky enough to be afforded the opportunity, can easily adapt to this interesting species. This paper can serve as a short review of donkey reproduction.

## 2. Female Reproduction

The jenny (jennet) is very similar in many reproductive aspects to the horse mare. Puberty is usually attained in 1–2 yr. Donkeys seem to display less seasonality than that of the horse.<sup>1</sup> Wisconsin workers<sup>2</sup> reported prolonged estrus, a lower inci-

dence of ovulations during December, shorter estrous cycles from May to September, and shorter estrus from May through October. Still, these workers reported less "partitioning" in the ovulatory and anovulatory (non-breeding) season of the donkey than in the horse.<sup>2</sup>

Although the estrous cycle has been reported to range from 20 to 40 days, it will usually last 23–30 days.<sup>1,3</sup> Estrus usually lasts between 6 and 9 days, with ovulation 5–6 days after the onset of estrus.<sup>3,4</sup> Estrus behavior has been characterized by mouth opening and closing (occasionally with the neck extended), chomping with salivary dribbling, winking, urinating, and tail rising.<sup>3,5</sup> If palpation or ultrasonographic evaluation is carried out, follicles  $>25$ – $30$  mm should be considered potentially ovulatory.<sup>6</sup> Multiple ovulations in mammoth jennies may be higher than that reported in standard jennies. This difference may be similar to the differences in multiple ovulation as seen in horse breeds (Arabians versus Thoroughbreds).<sup>1</sup> Gestational length has been reported to be 372–374 days.<sup>3,7</sup> Foal heat usually occurs between 5 and 13 days postpartum.

The jenny's cervix is usually longer than that of the mare, with a smaller diameter. The donkey cervix protrudes into the vagina, and this protrusion may preclude intrauterine ejaculation, make artificial insemination more difficult, and may be associ-

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## NOTES

## IN DEPTH: MULE/DONKEY MEDICINE AND SURGERY

ated with a high incidence of post dystocia cervical adhesions.<sup>8</sup>

### 3. Male Reproduction

The jack (jackass), like the jenny, has many reproductive similarities to the horse. However, some differences do exist. The testes and penis of the jack seem to be larger than that of comparably sized horses.<sup>9</sup> Although the jack and stallion have the same accessory sex glands, the ampulla is larger in the jack than the stallion.

One peculiarity of donkey reproduction is the longer time it takes for the jack to achieve an erection and ejaculate. Jacks usually need 5–30 min (compared with 10–11 min) to complete a breeding.<sup>9,10</sup> The teasing behavior usually includes vocalization, sniffing the vulva of the female, flehmen, and one or more mounts before penile exposure and erection.<sup>9,10</sup> Complete ejaculation will take 6–12 s, with a volume of 10–80 ml, progressive spermatozoal motility of 70–80%, 80–88% live spermatozoa, and a pH of 7.6.<sup>9,11</sup> Although some seasonal differences in libido are observed, there seems to be little or no alteration in seminal parameters during the winter months.<sup>9,11</sup>

As with the stallion, the jack can be trained to service an artificial vagina and semen can be collected and used in fresh or cooled artificial insemination programs or frozen for future use.<sup>9–14</sup> Donkey semen can be handled similar to that of the stallion, and skim milk extenders seem useful in artificial insemination programs.<sup>12</sup> French workers<sup>14</sup> have published freezing protocols for donkey semen.

### 4. Breeding Programs and General Reproduction

Jennies can be pasture or hand bred. Whenever a hand breeding program is employed (either with natural breeding or artificial insemination), an effective teasing program will enhance its success.<sup>1</sup> Texas workers<sup>4</sup> demonstrated that estrus synchronization protocols useful in horses seems effective in the donkey. If natural breeding systems are used, the jenny should be mated the

second day of estrus, and then at 48-h intervals until the end of “standing heat.”<sup>3</sup>

Reproductive management in the jenny is similar to the mare. In the author’s experience, metritis, endometritis, retained fetal membranes, etc. are less common, yet postdystocia vaginal-cervical injury is more common. This may not be the case in certain areas, herds, or breeds, and this observation could be counter to other, more-learned clinicians.

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