



ALPACA FACT SHEET #1

Welfare, Education & Training Reviewed 2018

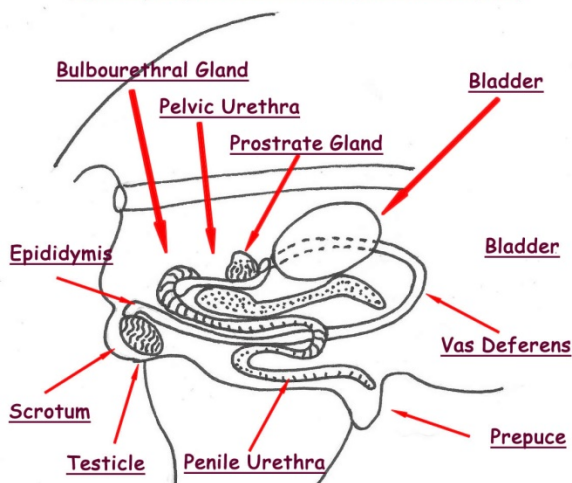
Alpaca Reproduction

Key Reproductive Features

Male Anatomy

The male has two testicles in a non-pendulous scrotum situated below the anus. The function of the scrotum is to maintain the testicles, which are the source of sperm, at a slightly lower temperature than the rest of the body. The prepuce is the sac holding the penis. This normally points backwards during urination, but when the male is sexually aroused the prepuce points forward and the penis is extruded for mating. The tip of the penis has a slightly clockwise curvature. In young males the penis is adherent to the prepuce and they are usually unable to extrude the penis sufficiently for mating until they are about 2.5-3 years old. Immature males may not be able to extend their penis to reach the vulva of the female. Mating should be delayed until they are three years of age. Eruption of fighting teeth appears to correlate with approximate time of sexual maturity.

Figure 1 : Reproductive anatomy of a male alpaca

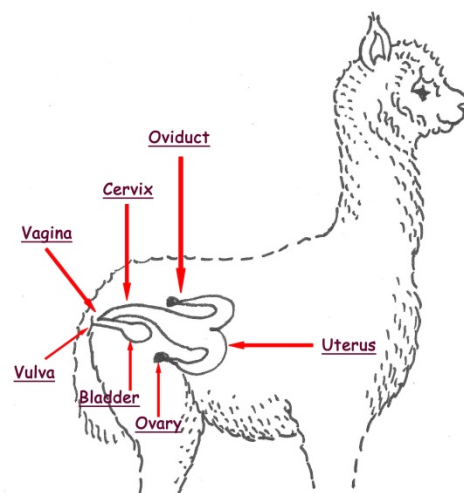


Female Anatomy

The female has a small opening called the vulva situated below the anus. The vulva leads to the vagina which is the actual birth canal and passage for the penis during copulation. (Fig.2). The vagina leads to the cervix which is the opening into the uterus. The uterus consists of a body and two uterine horns. During mating the male deposits sperm directly into the uterus of the female.

The oviduct carries the egg from the ovary to the uterus and is also the site of fertilization of the egg by sperm. In alpacas most pregnancies occur in the left horn. Young females usually reach sexual maturity at about 12-15 months of age and when they are 45-50 kg. This gives the female adequate time to mature and reduces the risk of problems during parturition. Potentially adult female alpacas can remain productive up to 13-15 years of age.

Figure 2 : Reproductive anatomy of a female alpaca





ALPACA FACT SHEET #1

Welfare, Education & Training Reviewed 2018

Reproductive Physiology

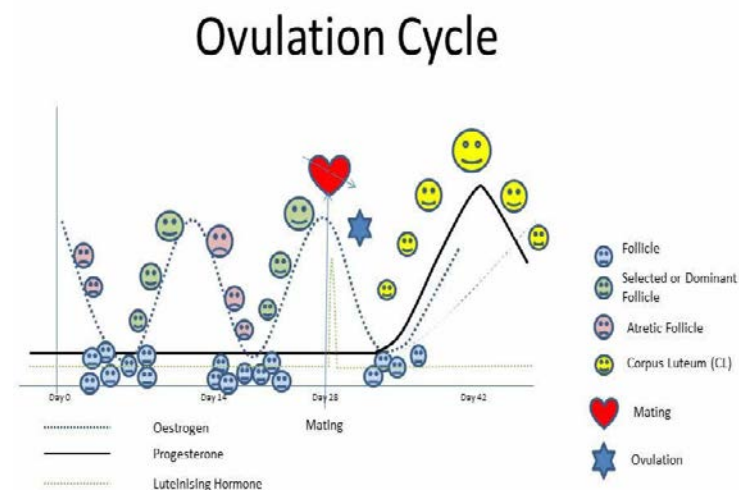
Most domestic species show regular distinct periods of 'heat' or sexual receptivity. At each 'heat' one or more mature follicles (fluid sacs) on the ovaries ruptures spontaneously releasing an egg (ovulation). The number of follicles depends on the species. Alpaca females do not 'come on heat' but show prolonged periods of sexual receptivity during which time they will allow the male to mate (Fig. 3). Ovulation generally does not occur spontaneously and it is the act of copulation itself which induces ovulation. During copulation, the penis of the male stimulates the vagina and cervix of the female. This stimulation causes the release of hormones from the brain of the female which circulate in the blood to the ovaries and cause final development and ovulation of the ovarian follicle (Fig. 2).

In mature alpacas, providing there is an absence of a corpus luteum and progesterone, the female is usually sexually receptive. Generally, only one follicle, on one of the ovaries, reaches maturity. It can remain at this stage for up to 10-12 days. If mating occurs during this time, ovulation may be induced (Fig. 3). If mating does not occur the follicle regresses. However, at the same time, another follicle is generally maturing (on either the same or the opposite ovary). This provides overlapping waves of follicular development and regression. Hence, prolonged periods of sexual receptivity may be shown (Fig. 3). There may be intermittent periods of non-receptivity of 1-2 days' duration, as new follicular waves commence. Ovulation occurs approximately 30-40 hours after mating. After ovulation, as in other domestic species, the cells around the collapsed follicle proliferate and form a corpus luteum, which secretes the hormone progesterone.

Progesterone suppresses receptivity for as long as the corpus luteum remains functional. Hence spit-offs (see Alpaca Note 2 Mating Behaviour) are a useful tool for seeing if there is a corpus luteum present – an indirect method of pregnancy testing. If the alpaca does not conceive, the corpus luteum remains functional for 10-13 days then regresses, and another follicle begins to develop to maturity (again). As the follicle matures the female once again becomes sexually receptive (Fig. 3). If the female conceives and becomes pregnant, the corpus luteum does not regress but continues to produce the hormone progesterone throughout the entire pregnancy.

Ovulations are generally single, i.e. only one follicle ruptures. Multiple ovulations occur in 10% of natural matings but twin births are extremely rare (approx. 1 in 10,000 births). Spontaneous ovulation occasionally occurs in alpacas.

Figure 3: Normal pattern of ovarian activity in alpacas





ALPACA FACT SHEET #1

Welfare, Education & Training Reviewed 2018

Further Reading

Graham Duncanson
Veterinary Treatment of Llamas and Alpacas
CABI Publishing; 2012

Fowler, M.E.
Medicine and Surgery of South American
Camelids. Iowa State University Press, Iowa,
U.S.A. 1989

Johnson, L.W.
The Veterinary Clinics of North America,
Volume 5, No. 1: Llama Medicine.
W.B. Saunders Co., Philadelphia, U.S.A.
1989

Johnson, L.W.
The Veterinary Clinics of North America,
Volume 10, No. 2: Update on Llama
Medicine. W.B. Saunders Co., Philadelphia,
U.S.A. 1991

McMillan, E. and Jinks C. & A.
Alpaca Breeders Reproduction Handbook.
Alpaca Publications Australia. 1998

Smith, B.B., Timm, K.I. and Long, P.O.
Llama and Alpaca Neonatal Care. Clay
Press. 1996

Much of this material has been adapted from:
An introduction to the unique reproductive
physiology and breeding activity of SACs by
Dr. Deidre Bourke: Proceedings of the
International Alpaca Conference, held in
Fremantle, WA 1998, with significant
contributions from Dr. Ewen McMillan, Dr.
George Jackson, and Carolyn Jinks.

Gina Bromage
Llamas and Alpacas: A Guide to
Management
The Crowood Press Ltd. 2006

David E Anderson, Meredyth L Jones & Matt
D Miesner
Veterinary Techniques for Llamas and
Alpacas
Wiley-Blackwell 2013

Eric Hoffman with contributing authors
The Complete Alpaca Book 2nd Ed revised
Bonny Doon Press 2006

Cebra, Anderson, Tibary, Van Saun, Johnson
Llama and Alpaca Care : Medicine, Surgery,
Reproduction, Nutrition and Herd Health 1st
Ed Elsevier

The BAS would also like to thank Dr. Graham
R Duncanson for his help in checking these
documents.

**Disclaimer: The management practices
detailed in this overview do not constitute
veterinary advice. Any alpaca appearing to
have an adverse condition should be
assessed by a veterinarian.**