

Breeding Techniques

A discussion of the latest ideas in breeding and those techniques that have proven to be successful under varying conditions.

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Importance of Keeping Current

Throughout history we have learned from the experiences and knowledge of others. As we mature to adulthood, we hopefully realize, “I’d rather do it myself” is not always the easiest, quickest or least painful way to learn and progress. We then come to the realization that as soon as we seem to “have it down pat”, something new is discovered – a better product; a better method.

Learning about llamas and alpacas is no different. In the United States, our relatively short history of researching, buying, selling and raising Camelids is ever changing. What we know today to be a sound protocol for treatment of disease, herd development, or marketing, may be partially or totally outdated tomorrow due to the constant and on-going experience, research, physical changes in llamas and alpacas and market values. We owe it to ourselves and our customers to keep informed and to remain open-minded to current protocols. Keeping informed is easy. It is, however, as Miguel de Cervantes, author of *Don Quixote*, indicated, time consuming and at times costly.

“For a man to attain to an eminent degree in learning costs him time, watching, hunger, nakedness, dizziness in the head, weakness in the stomach, and other inconveniences.” ... Miguel de Cervantes

If you are into computers (speaking of keeping up) there is the Internet that is available regardless of whether one uses America On-Line, CompuServe, or another service provider to access Internet and the World Wide Web. Unless you’ve been living in a cave, you’ve heard something about the Internet. Despite the constant media coverage of the Internet, most non-users are still confused about what the Internet is. It’s helpful to think of the Internet as a vast digital highway system that links millions of computers connected to thousands of networks around the world. Even though electronic mail, the sending and receiving of electronic messages, is the number one use of the Internet and used by many within the llama industry to keep in-touch, there is a Llama *Home Page* on the WWW that could be effectively used for not only sharing research and seminar presentations, but personal experiences as well.

A few years back, we repurchased a maiden female, sold at age 9 months, because the buyer could not get her to retain a pregnancy. Upon reading her breeding record, we immediately

understood her problem. She was bred every other day continuously for three weeks each time they bred her. The biopsy report showed that, because of the too-frequent breeding, she had, “congested capillaries, hemorrhages, loose, edematous tissue and scar tissue, reducing her ability to carry a cria to term and predisposing her to abortion.” If the breeder had been current with some of the findings of Dr. Bravo’s research, this problem could have been avoided. Fortunately with rest, careful breeding and good luck this female has produced beautiful cria for us.

Dr. Walter Bravo, in his study, “*Reproductive Physiology of South American Camelids*”, presented at the 1994 Central States Conference states, “Reproduction of South American Camelids is unique and there are no big differences between the basic reproductive physiology of the female llama and alpaca.” He further states the following reproductive facts that make them distinct from other livestock species:

- South American Camelids are induce ovulators
- The average length of copulation is 20 minutes
- Females do not show regular estrous cycles and can be bred at any time of the year

According to Dr. Bravo’s remarks, the results of a further study¹ clearly demonstrate that females will ovulate as a result of one breeding if the female is physically ready. Subsequent breedings are unnecessary except when additional sperm may be required (e.g., when using a young male). Displaying numerous colored slides during his presentation, Dr. Bravo clearly showed to what extent the condition of a female’s uterus is changed after only one breeding and how much more it would be changed, or even damaged, by subsequent repeated breedings. He reasoned that because it takes one week for the fertilized egg to return to the uterus, that the uterus would be sufficiently recovered from the breeding in one week. Therefore, the female should only be bred one time per week. He also stated that the optimum time to breed back a female who has just given birth is 15 - 21 days as it takes 21 days for the uterus to involute properly in order to receive the fertilized egg. So, his conclusions were:

- Breed a female 15 - 21 days after giving birth
- Breed a female only once a week (twice if more sperm is needed)

We are, of course, following Dr. Bravo’s expertise and find that this method is essential not only to the health of the female uterus but that it becomes apparent very quickly if there are problems with the female. For example, by breeding on day one, seven and fourteen, if the female is willingly bred all three times it tells us that she is probably not cycling properly (for sure by day 21). If the female is physiologically *ready* to be bred she will refuse day seven or day fourteen. This has worked for us consistently.

Providing Breeding Services Requires Responsibility

Many users of breeding services, whether they are new to the industry or simply do all their breeding outside, depend completely on the knowledge and experience of the provider of the breeding services. This places a great responsibility on the provider.

Keeping abreast of the latest breeding techniques is essential, not only in expediting the breeding in the best and safest way possible, but in providing your client with detailed observations and information pertinent to the breeding history of the females being bred.

In his presentation “*Breeding Strategies for Llama Herd Development*” at the 1994 Central States Conference, Dr. Art Kennel outlined his philosophy as a llama breeder with the following points:

- Strive continually to improve the herd
- Strive to improve the breed
- Have fun doing it
- Make a reasonable profit
- Be a responsible member of the llama community

A Current Review

Field Breeding versus Hand Breeding

While field breeding saves time and aids in stud management and space problems, it is still the general consensus of most experienced breeders that hand breeding is the most effective and efficient way to breed.

One of the most important advantages of hand breeding is the power of observation. Being able to observe the behavior of the male and female can be invaluable. Body language of the female and the reaction of an experienced stud to the female can tell an experienced breeder a lot about what their bodies are doing and can save much time and effort.

Allowing for varying personalities, generally if a female is exhibiting ambivalent behavior such as spitting, clucking, head up, ears back, swishing her tail, or locking her knees and then suddenly decides she’s going to breed after several minutes, this could be a sign that the female is not cycling or has some physiological problem like cysts on the ovaries, especially if this behavior persists. The same applies if the female allows a male to mount her then simply locks her knees, stares into space or browses, ignoring him. Females that are aggressive and spit or charge the male (and you know they have not already been bred) generally have a retained corpus luteum. Your veterinarian may determine all these conditions by blood test, palpation or ultrasound.

The male’s behavior also give clues – be suspicious if the male sniffs the female, then *snorts into the air*, if he is disinterested by orgling with a question mark or if he spits at or charges the female as though she is another male – indicating female hormones are not quite right.

It is not unusual to see an experienced male that is having trouble settling down to breed; he gets up and down or has a problem penetrating. Sometimes females fidget, roll on their sides or dump the male. Here are things to look for in the females:

- an intact hymen
- a tight cervix

- no cervix
- scar tissue
- vaginal infection
- bladder problems

Safety is another important factor of hand breeding. Using a smaller more confined area with level ground, no obstacles, and free from outside distractions such as other females and young babies who tend to interfere, is optimum. This is especially true when breeding a maiden. It is best to have two handlers with both male and female on lead. Many maidens are frightened and will try to jump fences or slam through gates. It is a good idea to have the intended couple on a mutual fence line for a few days in order for them to get acquainted before the breeding.

We should keep in mind how many herd sires have been permanently injured or died due to fiber getting wound around their penis and going undetected. Wrapping the female's tail is not adequate protection. Hair on the back and rear of a woolly, groomed female is equally dangerous when breeding. The male's own wool can also get in the way. To avoid this, keep your male sheared (at least a *barrel cut*). Supervision is the best policy. One of our males had his penis lacerated on debris in the female's fiber when she surprised him by suddenly jumping up during the breeding. This would have gone undetected if the breeding had not been supervised.

Good record keeping is essential, especially when providing breeding services. Hand breeding allows you to be present at the breeding -- you cannot record what you cannot see.

Breeding Situations

Maiden Females

In addition to the safety factors mentioned above, there are other considerations when breeding maidens such as the size versus age controversy. After 10 years of extensive breeding experience we believe that a minimum of 18 months is a good *starting* age. Of course, there are females who get pregnant earlier (just as there are 10 year old humans that get pregnant). It is our observation that 18 month old females still have a lot of growing to do but will come into their full maturity before their third trimester. Yearlings will not. We feel that weight has no relevance (unless they are too small). Many females that weigh 200 pounds at a year look physically mature but may be immature hormonally. We have had more frequent problems getting these *big* girls bred than average sized females. Be patient; waiting a few months could insure better health and development of your female.

It is useful to educate your maidens (by having them take the class, *Breeding 101 for Maiden Females*) allowing them to observe breedings from the opposite side of the fence. If she does not lay down willingly, try breeding her at the same time as an experienced female. If she is frightened or does not seem to understand what she is supposed to do, try cushioning her in a stall, then bringing in the male and walking him on.

Believe it or not, some studs will breed at the same time in the same pen with another male. We use this procedure quite often to get unwilling females to breed for the first time.

This is the procedure:

1. Have one handler per animal (on leads).
2. Bring both females into the breeding area.
3. Bring one stud into the breeding area and lead him to the experienced female he is to breed.
4. When the first pair is *hooked up*, bring in the second male and lead him to the maiden.
5. When the first pair is finished, remove the male right away allowing the other pair to remain undisturbed.

This works for us consistently. Sometimes it takes more than one try, but when it happens, both girls have always settled and the males have a great time seeing who can orgle the loudest!

Inexperienced Males

The biggest problem with inexperienced males is intimidation, whether by other males or dominant females. It is imperative that a male's first attempt be a positive experience. Setting him up properly is a must. Here are some hints:

- Don't breed inexperienced males to maiden females. Use a reliable experienced female that is an easy breeder. Not only is it easier because at least one animal knows what is happening, but it is easier to know if he is fertile with a dependable female.
- Keep the female on a lead with her head facing forward so that she won't spit at the new stud. They get discouraged quickly. You may be in range but "Oh well".
- Use a breeding area away from distractions of other animals. Small areas work best.
- Let the male establish the breeding area as his. Let him eat and defecate in the breeding area before you bring in the female.
- A male that has been worked with a lot will be more apt to let you assist. However, wrapping the female's tail will eliminate unnecessary messing around to get the tail out of the way.

Stay with the pair throughout the breeding. Males, even experienced ones, do not always stay *hooked up* and many maidens will roll over onto their hip or side.

First Time Moms

Some moms are overly concerned about their crias, especially first timers. These females seem to breed easier when the cria is in sight but on the other side of the fence. Remember, not all studs are considerate of the cria.

Females with Older Babies

It is not uncommon for females with older babies (i.e., two months - five months) at their side to have difficulty in conceiving. This usually occurs because most of the female's energy is going into milk production instead of producing follicles; the female is not cycling. She may need hormone therapy or she may simply have to wait until her baby is weaned. Watch out for weight loss. If a female is too thin and her body protein is low, she will not conceive. This is not uncommon with females who have older babies.

Females Who have Recently had Abortions, Still Births, Dystocias, C-Sections or Infections

Any of these situations can make re-breeding difficult. If you have females who have suffered these problems, be sure they have received proper veterinary care and are ready to be bred before you proceed. If you are not sure about an outside female's condition, require a veterinarian's statement. It is very distressing for breeders to have to deal with someone else's problem when they are not informed or prepared. Much time and effort and good will can be saved by taking care of problems on your own quickly, not waiting to "see what happens" and not giving them to someone else to cope with.

Responsibility to New Owner

*"The hare then applied, as a last hope, to the calf, who regretted that he was unable to help her, as he did not like to take the **responsibility** upon himself, as so many older persons than himself had declined the task. By this time the hounds were quite near, and the Hare took to her heels and luckily escaped. ... Aesop's Fables*

Besides keeping current for our own benefit, we have a responsibility, unlike the calf in Aesop's Fables, to pass on our knowledge to our clients, especially the new owner. Too many new buyers are led to believe that breeding is a *snap*; after all, it is a natural process! You choose a male you like and a female you like, throw them together and Voilà! -- a cria in 11 ½ months. Anyone can do it! Being a responsible breeder involves knowledge and experience. New owners need to be educated about breeding. They need homework and fieldwork and the last thing they need is to own a stud until they understand their responsibility. There is enough to learn about the care of their newly acquired females and babies without dealing with stud management and breeding responsibilities. It doesn't even make economic sense to own a stud when you only have a few females. Are we really being responsible when we sell a *breeding pair* to a new buyer?

Conclusion

Today, since we live in the *information age*, we must not to be complacent in our knowledge. With the velocity of change in all our lives accelerating, how we use the knowledge we have gained will be the difference between who succeeds and who fails. We must accept the fact that "the one constant is change." If we fight it, we will loose. If we prepare ourselves to deal with it

and be ready for it, change will be an exciting challenge and a marvelous opportunity. **“For today is the tomorrow we worried about yesterday!”**

References:

1. *Breeding Strategies for Llama Herd Development – Commonly Asked Questions*, Dr. Art Kennel, 1994 Central States Conference, Cedar Rapids, Iowa, October 1994.
2. *Reproductive Physiology of South American Camelids*, Dr. Walter Bravo, DVM, MS, Ph.D., Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis.

¹ We understand that presentation slides and supporting information are available by contacting Dr. Bravo.