

## **Frequently asked questions - Recipients**

### **1) Must I use heifers or cows as recipients?**

Heifers have the advantage that they do not have any lactational stress, therefore they usually cycle better than cows. They usually have a very low incidence of clinical or subclinical genital tract infections, compared to multiparous cows. Because of the lower metabolic maintenance requirements, they are relatively cheaper to feed than adult cows.

When using cows, there are definitely also some advantages, especially if the policy in that specific herd has been to cull strictly on reproductive performance and the ability to properly raise the calf. If, in such a herd, you are presented with a cow that has had between 3 and 6 calves, you know you're dealing with functionally fertile animals. They will also be better suited when transferring embryos of breeds with relatively large calves, and usually they have more milk than heifers to raise the calf.

The worst recipients will be first calvers with calves at foot. These animals are still growing out, have added lactational stress and are the most difficult group to get pregnant even by normal means. I would not recommend using first calvers, except if you're prepared to wait until the calves are weaned.

Animals used successfully before as recipients tend to repeat this in a next breeding cycle, making them very valuable. The owners should try and retain their successful recipients.

### **2) When is an animal ready to be used as a recipient?**

In the case of beef animals, we usually start synchronizing them to transfer at 3 months post partum. There will always be exceptions where animals reconceive earlier, but at a drug fee of about R100 per individual synchronization program and the value of the embryo, it is usually cheaper to wait. If you wait too long, the nutritional needs of the calves become too much and the cows go onto a negative plane of condition.

I prefer using them between 3 to 4.5 months after calving, alternatively letting them wean first before using them. With adequate nutritional assistance, calves can be weaned at 5 months without problems in order to get their mothers ready for embryo transfers.

In the case of heifers we use the same guidelines as for normal breeding, which is about 65% of mature weight at the time of transfer. Breed differences and nutritional management on the farm determine the age at which heifers will be ready for transfer.

Dairy animals are usually ready to be used as recipients at about 60 days post-partum, when she would have been bred under normal circumstances.

### **3) Which breed of recipient is the best?**

There are many different factors to consider when choosing a breed of recipient. Fertility, temperament, adaptability, calving ease and adequate milk must all be considered.

The most continental or European breeds have good fertility. Dual purpose type of animals usually raises beautiful calves because of the extra milk. Most dairy breeds have very good temperament. All of this means nothing if they die of tick borne diseases or suffer because of extremes in temperatures or parasite burdens.

In most cases you do not really have a choice, because either the recipients will be genetically inferior animals of the same breed as the donor cow or be from the commercial part of the farming enterprise.

If you have to buy in, one must use recipients that are suited for that specific farm's management and for that specific area. Use hardy animals for extensive, semi desert type conditions and give the heifers enough time to mature properly before using them as recipients. It is better to have at least 50% Bos Taurus in the recipient, pure Brahmans are usually not very good recipients.

More early maturing, European type animals can be used in mild climates with adequate nutrition or artificial pastures.

Some breeders use dairy heifer to transfer embryos into. Once they have calved down, they let one cow rear 2 or 3 calves on her own and sell the other recipients as fresh in milk dairy cows, with obvious economical advantages.

Using animals that were raised by the breeder himself is a far better option than buying in animals to be used for recipients, because you know the real age, nutritional state, vaccination status, calving history etc.

If you have to buy in animals, try buying from respected breeders that you trust and try and buy from total dispersal sales. If you buy a group of open heifers from an unknown source, they may very well be his most infertile animals that did not conceive after running with the bull for various reasons. Heifers that were neglected while growing up as far as nutrition goes are very often stunted for life and will always be of lower fertility. Sometimes heifers may have received growth hormones which will greatly impair future fertility. Buying open cows without young calves at foot is buying someone else's problems.

The best way to go is to buy young heifers (at weaning or shortly after) and raise them yourself until they are old enough to be used, or heavily pregnant cows or cows with small calves at foot.

#### 4) What must I do with the recipients prior to the transfer program?

Animals brought from another area or from a different nutritional system requires at least 3 months adaptation period on the farm where the transfers will be done.

When receiving a new group of animals onto the farm or getting a group of animals ready for transfer, liaise with the local vet and get the following in place:

- Test for TB and Brucellosis at least.
- Do pregnancy diagnosis on every animal, even if she has "never been close to a bull". At the same time examine the recipient for breeding soundness and ovarian activity. Cows with calves at foot can be routinely doused at one month post partum to make sure she does not carry any subclinical uterine infection into the embryo program.
- Vaccinate against relevant diseases, especially diseases directly affecting fertility like **BVD**. If they are going to be moved to a Heartwater, Redwater or Gallsickness area later after receiving embryos, make sure that the immunization occurs before the transfer synchronization starts.
- Treat against internal (especially liver fluke) and external parasites.

Proper **identification** of the recipients is essential. Ear tags must be clearly visible from a distance. Put ear tags into both ears, as they get lost regularly. Make sure there is no duplication of recipients with the same number. A permanent hot iron brand would be ideal, tattooing is also a good option. Do this well in advance as not to stress the recipients too close to the transfers.

**Nutrition** is obviously extremely important and warrants a separate discussion on its own. Advise a new breeder to get a nutritionist to assist him. It is better to start with animals slightly down in condition and get their condition to improve during the program, than to start with fat animals that only maintain their condition or even lose condition. A condition score 2 to 2.5 animal at the start of the program that gains condition to a 3 to 3.5 at the time of transfer is ideal.

Correct any micro mineral imbalances or deficiencies prior to the program. We give Vit A (Ocean Gold) and Multimin as part of our synchronization as well. Guard against high levels of NPN in the diet. Sudden changes in diet close to time of transfer is not advisable and after the transfers the recipients should stay in exactly the same grazing conditions (same camp if possible) and on the same nutritional regime from 6 weeks prior to the program to at least until 2 months after transfers when the pregnancy diagnosis can be performed.

Cows with small calves at foot can be nightweaned if possible and the calves receive additional concentrates during the night.

Animals with **temperament** problems should be removed from the transfer program. If you're dealing with recipients managed under a very extensive conditions, organize for them to be taken through the handling facilities where the transfers will take place at least once a day for a month before the actual transfer takes place to get them accustomed to the setup and bring their stress levels down. Work quietly and calm, No dogs/electrical prodders/whips etc.

#### 5) **What kind of handling facilities is required for the transfers?**

Please see the section on **facilities** on our website. This is a very important question, because it has a direct effect on the temperament and stress levels of the recipients (as well as on the embryo transfer vet!!)

It obviously also affects the quality of the vet's work and the conceptions you achieve if he has to climb over 2 meter high fences 200 times a day, work in 40°C in the sun with inadequately restrained recipients.

Likewise, having good facilities also makes your job as a farmer easier, saves you time when working with the animals during the program, especially when injections etc. have to be done over weekends with limited assistance. It also helps to prevent injuries to staff members.

#### 6) **What kind of synchronization is the best?**

There are many different programs, each with its pros and cons.

Natural heats are usually very good to use, but impractical. Should some animals that were not part of the program, coincidentally show heat over the same 3 days period when you are doing heat-spotting on the recipients, you can decide not to A.I./breed them and present her on the day of the transfer to be checked. (Just mention this to the vet, and obviously she should comply with all the other criteria for the recipients.)

Using only prostaglandins is easy and if you are dealing with cyclic animals, the percentage of animals that did show heat and ended up being used is high. You do however not get a tight synchronization, which makes heat spotting over a long period of time difficult and there are always animals that cycle outside the 3 day heat window that are then not suitable for transfers. Animals with inactive ovaries will also not be stimulated by prostaglandins alone to become active.

We prefer using Crestars or Cidrs, combined with other drugs. Please discuss this with one of the veterinarians. Our office will then send you a complete program with exact instructions and time tables which are easy to follow.

## 7) **How many recipients should I prepare?**

The more good recipients you're able to prepare, the better. If a vet is able to only select the very best recipients, the conceptions will obviously be better than when you're forced to use marginal recipients.

If you're going to transfer frozen embryos, try and prepare at least twice as many recipients as embryos to be transferred.

If you're flushing animals for the first time, we recommend you prepare 10 recipients per cow flushed. If you get more embryos than recipients ready, we transfer the poorer grade embryos and freeze the better embryos to get the maximum amount of pregnancies.

If you do not get enough embryos to utilize all the recipients, it is a waste however, if you do not have frozen embryos available (this is especially a risk when only flushing one or two cows, which may go either way in terms of embryo numbers obtained).

It is a good idea to have some kind of a back-up, maybe organize with a fellow breeder who does have frozen embryos to have them ready too should this happen. There are also usually quite a few embryos for sale, you can arrange with our office prior to the transfers to see which embryos are for sale, and bring some of the embryos available with on the day of transfer, should you need more embryos.

Another idea is to flush a cow and freeze all the embryos (maybe prepare only a handful of recipis just for the poor grade embryos that won't freeze well), and then prepare a big group of recipients for her second flush when we have an idea of her flushing abilities and we know how many embryos we have in the flask, as to guesstimate the number of recipients needed.

## 8) **Do I really need to do heat spotting for the program?**

**Heat spotting** is an extremely important part of the program. If you're dealing with big group of recipients, divide them up into more manageable groups of not more that 40 animals. It helps to remove the animals that have been seen on proper standing heat to a separate camp as to get subordinate animals to show heat as well. Get a responsible, dedicated person who can read and write well to do heat spotting for the 3 days, also at nighttime if possible. The importance of easily readable ear tags is obvious.

We recommend using aids such as heat detection devices (Kamar, Bulling Beacon, Estrus Alert) and teaser bulls as far as possible, but they must never replace proper observation time spent with the animals.

Good recordkeeping of the time of onset of standing estrus is important for the vet to interpret what he is palpating on the ovaries prior to transfer. It is also important to best match the stage of the embryo for each recipient. When flushing a group of cows, you usually get embryos varying in age and stage of development. You get better conceptions when transferring embryos from a more advanced stage into recipients that came on heat earlier and younger embryos into recipients that came on heat later.

## 9) **When may I do PD's on the recipients that received embryos?**

Wait until 8 weeks after transfers before examining them, because some embryos develop slower than normal pregnancies and may be missed, even by an experienced vet, if the examination is done too early. Doing the pregnancy too early on a compromised embryo at a critical stage may also result in losing a pregnancy that may have been saved had it not been tampered with.

Ultrasound is another option, but with the relatively high number of "normal" resorption between 28 days of pregnancy and 56 days, its use is debatable.

**10) May I A.I. the recipients after the transfers if they come on heat again?**

It very often happens that recipients that have received an embryo show heat again afterwards, even though she is pregnant. This is seen regularly in dairy operations with normal A.I. is well, where cows are often pregnant from an earlier insemination although she showed heat again 3 weeks after the initial heat.

You should not A.I. the recipients on the first time she shows heat signs after the transfer. When she shows heat a second time, you can inseminate but must take care to only manipulate the A.I. pistol to the internal os of the cervix and deposit the semen there without advancing into the body of the uterus at all, for the small chance that she may still be pregnant. To use a bull would be the safest.

Also never sell/slaughter recipients that have received embryos until they have been confirmed as non-pregnant after 2 months.