



## **SEXED SEMEN RECOMMENDATIONS**

### **Key Points**

- **Liberty Genetics is actively seeking to identify the most cost effective options to use sex separation of sperm on NZ dairy genetics**
- **Liberty Genetics and Animal Breeding Services have completed 4,500 trial inseminations in Spring 2009 and are conducting additional trial inseminations in winter and Spring 2010**
- **The results in the 2009 Spring trial did show an 11% depression of conception rate (range 4-20%) compared to conventional semen across a variety of synchrony and natural mating scenarios**
- **From these results the project team has formulated techniques and advice that should produce satisfactory results at a sustainable price.**
- **The least risk option is a prostaglandin based synchrony program in the yearling heifers at the start of mating.**
- **The board has approved a limited commercial release of the technology, pending further successful results from Winter matings (in the order of 50% pregnancy rate plus)**
- **Farmers that successfully use heifer synchrony and sexed semen can double genetic gain, and the bottom half of the herd can be available for higher value beef cross matings (that will also shorten gestation, and ensure a high degree of calving ease). The cash flow from the first crop of beef cross calves will more than cover the heifer AI costs, and there is likely to be a days in milk and fertility benefit from reduced gestation length.**
- **Alternatively if the dairy operation is in expansion mode then the number of available replacements produced can increase by approximately 40%**
- **The sexed semen does require extra care and attention in handling**

### **Background Information**

Sexed semen has been marketed in the Northern Hemisphere for the past decade and production peaked at 4 million straws per year. However, conception rates are known to be depressed by 8-12%

Liberty Genetics Ltd and Animal Breeding Services (2007) Ltd.(ABS) secured government and industry funding to research and optimize the implementation of sexed semen in the NZ market. The government funding and an equity deal with Animal Breeding Services provided a sufficient base to encourage Sexing Technologies to set up a lab in Hamilton. Through this trial, Liberty Genetics and ABS, with support from AgResearch, lead the world in the application of sexed semen via delivery as a fresh product.

There is also potential for value to be created from embryo production with sexed semen to produce the preferred sex calves.

### **The Spring Trial**

This trial tested:

1. Different synchrony options in yearling heifers
2. Fresh vs Frozen sexed semen
3. Various sperm concentrations
4. A different sex ratio split (approx 80% vs normal 90%)

The trial will continue with winter and Spring matings in 2010 to add data and validate the optimal protocols.

### **Conclusions**

1. The current conception rate trade-off precludes the use of semen in most pastoral herd breeding scenarios. Some farmers have expressed interest in using the sexed semen for a window at the front end of AB mating in the herd, but this will extend the mating period which is not a desirable option for most large herds management situations.
2. The low risk option and the genetically superior group to mate to sexed semen is the yearling heifers.
3. A smart (efficient & economic) synchrony program at the start of heifer AB will advance average mating date, maximize efficiency of use of the semen, and depending on the final choice of program, moderate the pressure on the bull team to cover returns.
4. Fresh sexed semen with a lower dose of sperm is as effective as frozen sexed semen with the standard 2.4 m sperm dose (approx 20% of the normal frozen straw loading)..

### **Current Cost Structure**

|   |                       |
|---|-----------------------|
| <b>Synchrony program</b>  | <b>POA</b>            |
| <b>Sexed semen for synchrony program<br/>(G75 semen delivered fresh with frozen semen backup)</b> | <b>\$32 per straw</b> |
| <b>Nominated sexed semen</b>  | <b>\$38 per straw</b> |
| <b>Beef semen, short gestation and low calving difficulty</b>                                     |                       |
| - Hereford  |                       |
| - Stabilizer  | <b>\$6 per straw</b>  |

**Forward contracts are available for collection of the beef cross calves at 4 days of age or as 100kg weaners**