

## THE A.I. PROCESS (THE FARMER'S ROLE)

- The synchronization process is performed on the owner's property or if necessary at the DOA facility.
- If the facilities are adequate the cow will be inseminated on the owner's property. If there are no facilities, then the cow is transported to the DOA on the 7th day of synchronization.

Cows showing estrus	Should be inseminated	Too late for good results
In morning	Afternoon	Next day
In afternoon	Morning of next day	Afternoon of next day

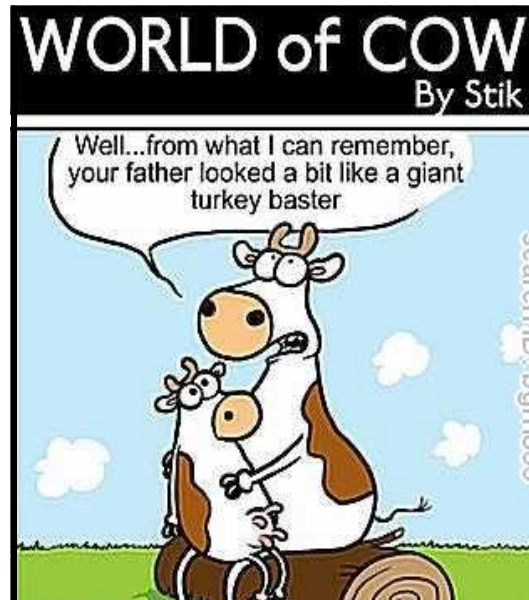
- Cows will not be inseminated on the end of a rope, due to the risk of injury to the cow and the operator.
- Approximately 24 hours after insemination, the cow is returned to the owner's property.
- Cows will not be allowed to remain at the DOA compound.
- The cow is observed by the owner for signs of heat 17-21 days after insemination.
- The cow(s) are pregnancy tested 8-12 weeks after insemination.
- At the time of examination, the owner will be given the expected calving date, if the cow is pregnant.



A.I. Technicians Inseminating a cow

## WHAT TO EXPECT FROM ARTIFICIAL INSEMINATION

- NOT EVERY COW WILL CONCEIVE
- A.I. WORKS BEST IN HEIFERS AND YOUNG COWS
- FAT, THIN, VERY OLD, VERY YOUNG, OR NON-CYCLING COWS ARE NOT GOOD CANDIDATES FOR A.I. (conception rates for these animals are MUCH lower)
- REPEAT BREEDERS OR COWS THAT HAVE NOT CONCEIVED TO REPEATED MATINGS FROM A BULL, SHOULD NOT BE SENT FOR INSEMINATION



For more information and advice on Artificial Insemination contact:



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## ARTIFICIAL INSEMINATION (A.I.) OF CATTLE



# INTRODUCTION

With Artificial Insemination (AI), a cow in heat is impregnated, with thawed, live semen. Semen is available frozen in liquid nitrogen.

Once frozen and placed in storage the semen can last indefinitely.

**AI is not as good or predictably efficient as natural mating!**

## WHY NOT?

- The number of spermatozoa placed in the female is less than in natural mating. A single ejaculate from a bull contains approx 5-10 billion sperm. A straw of frozen semen contains only 10-15 million sperm (and fillers).
- The semen has been frozen and not all of the sperm survive upon thawing. Hence the sperm numbers are lower, and the sperm are less vigorous and vital.
- The timing of insemination is critical and depends upon human monitoring. The cow must be inseminated at the correct time to optimize the chances of conception.
- Fresh semen will survive in the female's reproductive tract, for as long as seven (7) days. Previously frozen (thawed) semen will only last hours in the cow's reproductive tract. Hence the timing of natural mating vs. that of AI is much less critical.
- A bull is much more efficient in detecting a cow in standing heat than a human.
- Conception rates for AI are lower than those for natural mating.



Spermatozoa approaching an egg

## GENERAL INFORMATION:

A bull will generally mate and obtain conception in 60% of the cows he is running with in any one cycle. Thus if a bull is placed with a herd of cows for three (3) cycles (63 days) he should get a minimum of 93% of the cows pregnant.

## WHY WE USE AI:

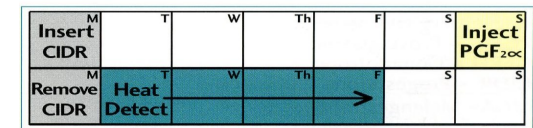
- To maintain the availability of the genetics of a bull that has died.
- To maintain the availability of the genetics of a bull that has been injured and is no longer able to service cows for natural breeding.
- As insurance against the loss of a bull and the subsequent loss of his genetics.
- To permit the use of a single bull over a large number of cows.
- To provide access to cattle breeds that are not available on island.
- To avoid the cost and hazards (injury to cow, handlers, feed costs etc) of keeping a bull.
- To provide access to a genetically superior bull that may not be available or is too costly to purchase.
- To permit the breeding of cows that, for whatever reason, are unable to be mated by a bull.
- Decreased risk of transmission of venereal and exotic diseases.
- Decreased risk of passing on inherited genetic defects.
- To prevent inbreeding by broadening the genetic pool of animals on the islands.
- Cuts the costs, 'red tape' and transportation issues (e.g. Quarantine, testing etc) associated with bringing in a bull from overseas.

## THE A.I. PROCESS:

- Cows that are presented for AI are first identified (tagged), dewormed, deticked and examined for pregnancy and suitability for AI.
- The synchronization process is started with the insertion of an intra-vaginal hormone releasing device (CIDR:progesterone) and an injection of an ovulation stimulating hormone called Gonadotropin (GnRH).

## CIDR®

- CIDR Inserted – Day 0
- Inject PGF<sub>2α</sub> – Day 6
- CIDR Removed – Day 7
- Heat Detect – Days 8-11



- On the 6th day after the beginning of synchronization the cow(s) is given an injection of another hormone called Prostaglandin.
- On the 7th day after the beginning of the synchronization process, the CIDR is removed, the cow(s) is placed with the teaser bull and the cow(s) is observed for signs of oestrus (standing heat).
- Most cows come on heat 48-60 hours after the removal of their CIDR.
- Insemination is performed 12-24 hours after the cow is exhibiting 'Standing Heat'.

