

ARTIFICIAL INSEMINATION

Level 3

Topic	Training & information Content
5.1	Dairy Cattle Breeds and Breeding
5.2	Breeding program for a dairy farm (medium & large)
5.3	Conformation, Type classification and judging
5.4	Cow handling
5.5	Milk production recording
5.6	Heat Detection
5.7	Artificial Insemination
5.8	Pregnancy Diagnosis
5.9	Fertility Management
5.10	Cows with abnormal discharge
5.11	Fertility disease recording
5.12	Calving recording
5.13	Use of Key Performance Indicators



Artificial Insemination (Level 3)

You will learn about:

- Why Artificial Insemination (AI) is better than Natural service (use of bulls)
- Tips of carrying out successful insemination
 - accurate heat detection
 - timing of insemination
- Handling cattle before and after insemination

Artificial Insemination (Level 3)

**Which way cattle breeding -
Artificial Insemination (AI) or
Natural Mating?**

AI outweighs the use of bulls

AI improves genetic merit/potential of the herd (cows), as a farmer can choose semen from a bull with proven and better genetics.

It also eliminates cost of rearing a bull and problem with infertile bulls



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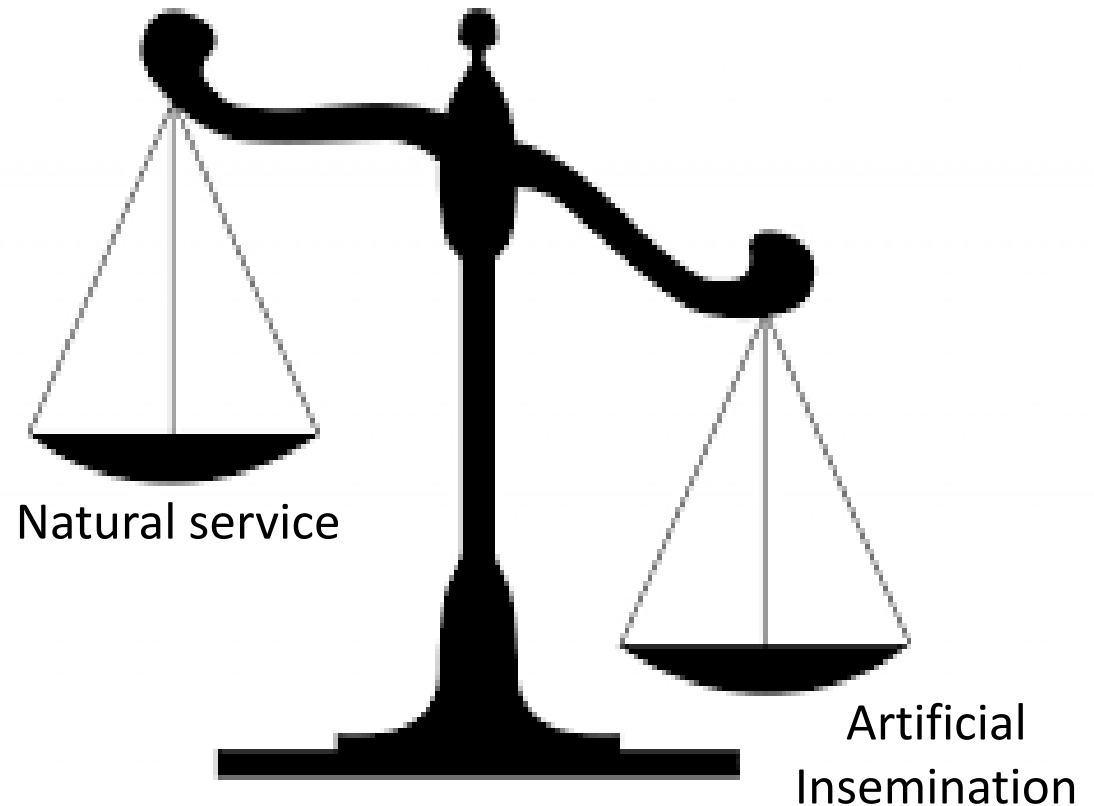
There is no transfer of sexually transmitted infections/venereal diseases from a bull to a cow

Prevents injuries to animals that can occur from natural breeding (use of bulls)

Reduces the risk of inbreeding

Ease of achieving uniform calf crop as (synchronized cattle) can be inseminated at the same time

Encourages keeping and maintenance of perfect breeding and calving records (*see calving card later*).



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Successful Insemination

Depends on:

1. Accurate heat detection

Closely monitor the cow three times a day, morning, mid-day and late afternoon to observe heat signs.

Cow possibly on heat, requires closer monitoring



Photo: Felix Opinya | Gogar Farm, KE

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Bulls can be used to aid in heat detection before insemination

- Bulls are the most reliable observers
- Never makes mistakes as they always choose the right moment
- If available, use vasectomised or teaser bulls to read the heat signs, including animals in silent heat.

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2. Proper timing of insemination

Correct timing is critical - Inseminating the cow at the right time increases the chances of conception

Semen should be administered by a qualified (right skills and knowledge) AI technician/service provider



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1. Accurate Heat detection

- It is very important that a farmer and all his/her staff undergo training in heat detection.
- Everybody must be aware of the heat signs/signals and the importance of each signal to improve chances of successful artificial insemination.
- It is important to **keep records** of dates when heat is observed!

Heat signs that are important to recognize;

Restlessness	5 %.
Drop in milk production	5%
Swollen vulva	5 %
Phleming	10%
Bellowing	10%
Mounted but not standing.	10 %.
Fresh saliva on cow's back	15%.
Chin resting.	20 %.
Back bending (touching clitoris)	30%
Continuous Clear Discharge (Few Days)	30 %
Sniffing several other cow's vagina	30 %.
Mounting farmer (when standing in front of cow)	30%
Mounting or attempt other cows.	40 %
Mounting head side other cows.	60 %
Standing Heat.	100 %.

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As earlier mentioned, AI encourages keeping and maintenance of perfect breeding and calving records

Example: Calving Card

It is simple to use (can be used for a group/herd of cows or individual cow) - dates about Heats, Inseminations, Advised Drying and Expected Calving are easily monitored on one card, in one line

Calving	control	October	control	November	control	December	control	January	control	February	control	March	control	April	control	May	control	June	control	July	control	August	control	September
Drying	control	August	control	September	control	October	control	November	control	December	control	January	control	February	control	March	control	April	control	May	control	June	control	September
Insemin.	control	January	control	February	control	March	control	April	control	May	control	June	control	July	control	August	control	September	control	October	control	November	control	December
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Calving Card

Calving	October		November		December		January		February		March		April		May		June		July		August		September	
Drying	August		September		October		November		December		January		February		March		April		May		June		July	
Insemin.	January		February		March		April		May		June		July		August		September		October		November		December	
Observ.	control		control		control		control		control		control		control		control		control		control		control		control	
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Information from the Calving card can be used for the **Heat Detection Score Chart**, to tell which cows might/must come in heat the coming days (for next insemination)?

Implementation of a heat detection score chart will help to catch up all the signs observed by different people throughout the day.

Based on this information the herd manager/farmer can decide when to inform the AI technician and to start up all the preparations.

sign	value	Cow A	Cow B	Cow C
Restlessness	5			X
Drop in milk	5	X		
Swollen vulva	5			
Phleming	10			
Bellowing	10		X	
Mounted but not standing	10			
Fresh saliva on back	15	X		
Chin resting	20	X	X	
Back bending	30			X
Continuous clear discharge	30		X	
Sniffing other cow's vulva	30			
Mounting farmer	30			
Mounting or attempt other cows	40			
Mounting head side other cows	60		X	
Standing heat (stands when mounted)	100			X

Artificial Insemination (Level 3)

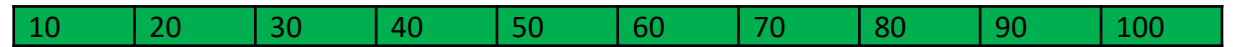
2. Proper timing of Insemination: When to Inseminate

- Artificial Insemination is more sensitive and more time bound compare to natural service
- Therefore its important to be sure that your cow is in good heat



Artificial Insemination (Level 3)

- As soon as cow has scored 100 points because of several heat signs or standing heat (*use Heat detection score chart*), it is time to call the AI technician.
- **Perfect time to inseminate:** Time of the first Standing Heat event (primary heat sign) OR when the total score of all other heat signs (secondary heat signs) is > 100 .



100 points

Artificial Insemination (Level 3)

It is time to call the AI technician/service provider

He/she must have skills and knowledge to handle semen and inseminate correctly



Artificial Insemination (Level 3)

Separate the cow on heat from the rest

Take the cow away to a separate place where she can avoid stress and disturbance from the rest.



Artificial Insemination (Level 3)



Fresh feed

Clean water

- While kept separate, provide fresh feed and clean water as you wait for the AI technician/service provider
- Continue to monitor the cow

Artificial Insemination (Level 3)

- Insemination without stress is **very important!**
- At this point the cow may give clear discharge from the vulva.
- The **Clear discharge** is a message from the cow that she is in good heat and the uterus is in good condition

Clear discharge



Artificial Insemination (Level 3)

- Immediately the AI technician/service provider arrives, move (restrain) the cow into a crush
- Allow the technician to inseminate the cow

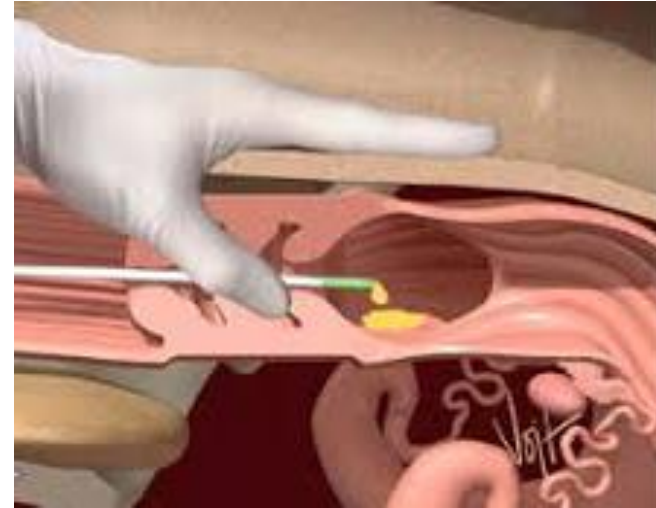


Photo: Felix Opinya



Artificial Insemination (Level 3)

- With right skills, the inseminator deposits the semen in the uterus (accurate insemination)
- The semen has a long way to go before it reaches the oviduct where fertilization takes place. Any little level of stress will have a negative impact on the process of fertilization.



Artificial Insemination (Level 3)

- After Insemination, keep the cow separated for at least one hour before she goes back to the herd
- At the herd, maintain low the possible causes of disturbance or stressors to the cow as the semen continues to swim to the oviduct

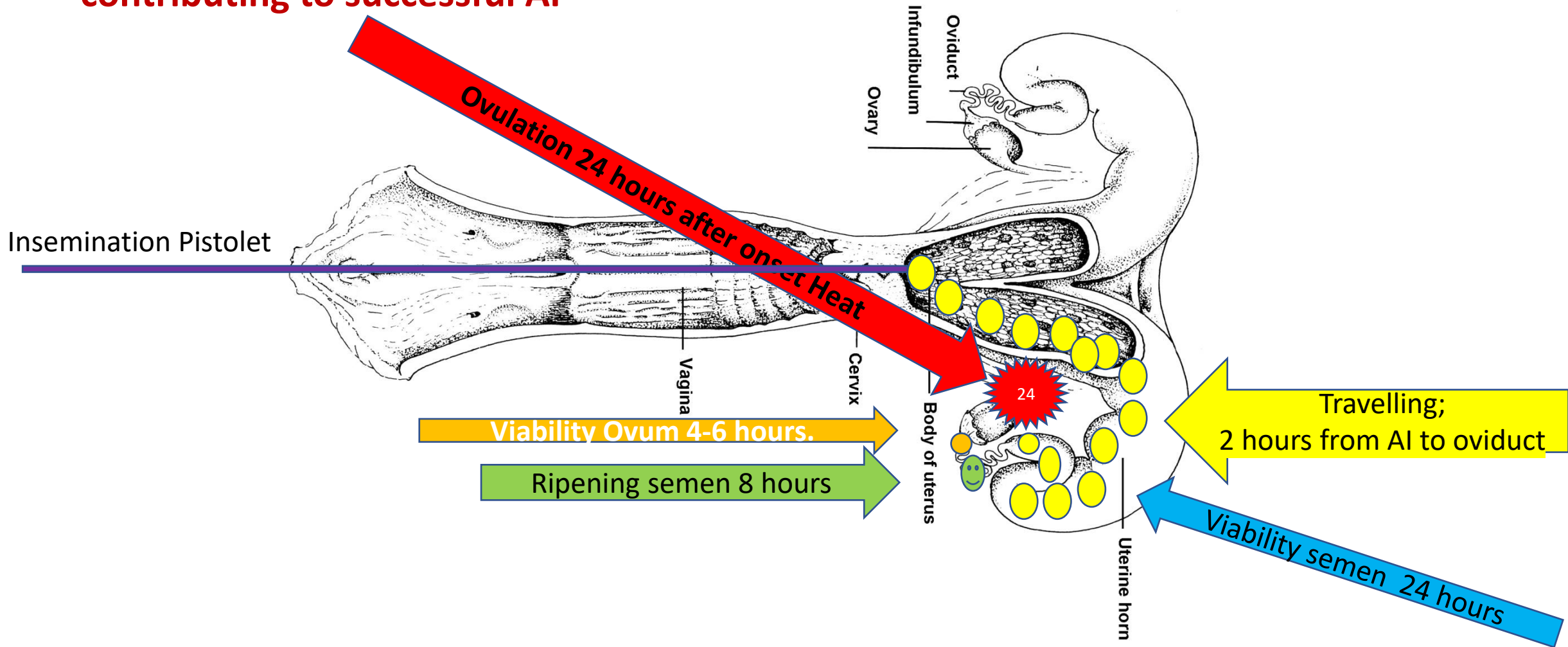


Wait at
least one
hour



Artificial Insemination (Level 3)

Heat Detection Relative to Ovulation: A quick snapshot of the Biological events contributing to successful AI

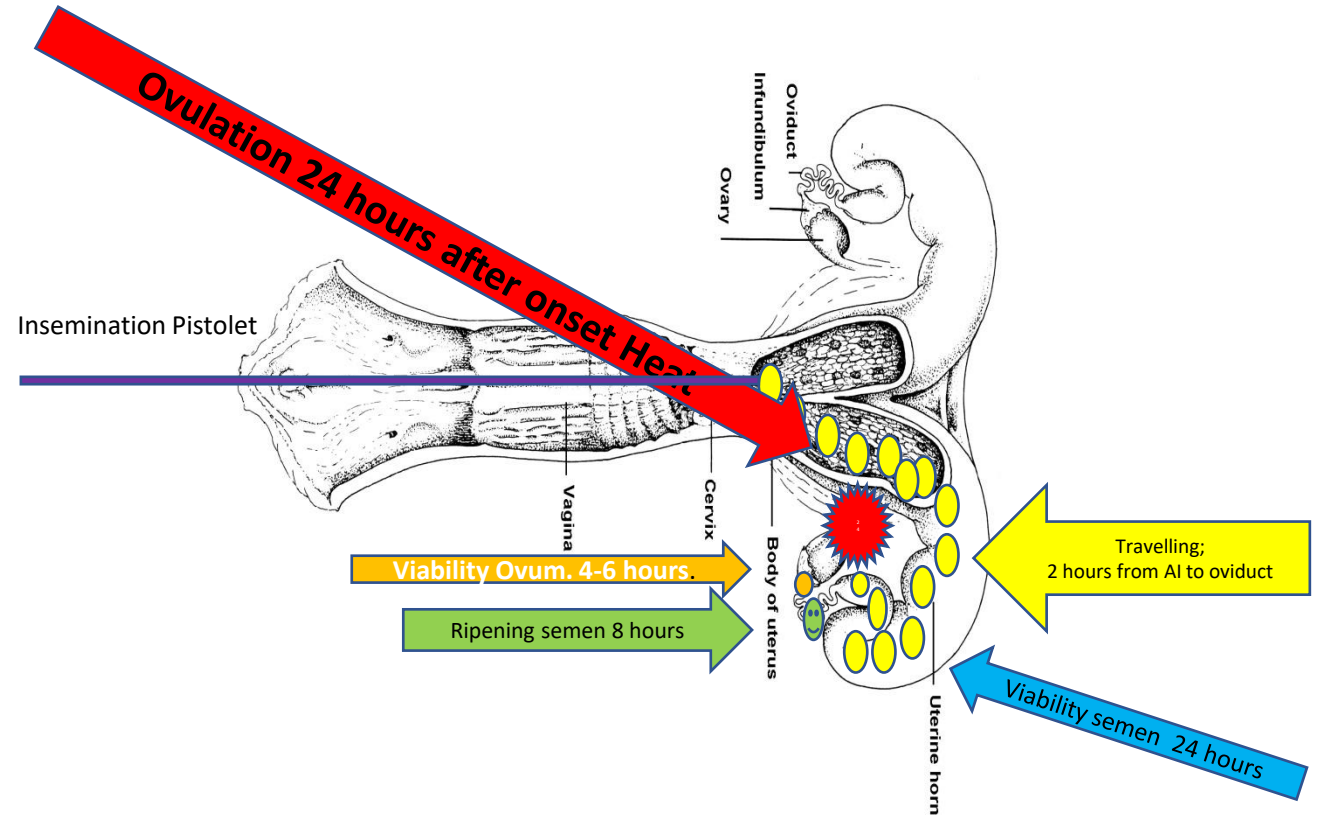


Artificial Insemination (Level 3)

Explaining the Biological events contributing to successful AI

- The physiological relationship linking ovulation to the onset of standing heat underscores the importance of **accurate heat detection** and **timing of insemination**
- This is why it is important to maximize the limited window of opportunity for conception to result from AI

Every minute (time) counts!!!



Artificial Insemination (Level 3)

Take Home message

Successful Artificial Insemination (conception/pregnancy) depends on,

1. **Preciseness!** - heat detection
2. **Timing!** - insemination
3. **Awareness and Knowledge!**
 - Farmer
 - Other Observer (farm staff)
 - AI technician
 - Skills
 - Adequacy
 - Semen management



Photo: Felix Opinya

Artificial Insemination (Level 3)

Successful AI and Optimal Pregnancy results starts with the Farmer and the Farm Staff!!

The farmer and his/her staff has a great influence on the success of AI. Before a farmer decides to start using AI, he/she and the staff must be informed/trained on heat detection and timing.

With training, the results will become better!!



- END -