Artificial Insemination

Artificial Insemination

What is A.I?

- AI has wide acceptance.
- >70% services with AI (US) and 99% services with AI (Denmark)
- Why A.I?
  - Increased access to superior genetics
  - Reduction in boar inventory
  - Improved productivity
  - Good understanding of mating behavior
  - Stops communal boars and risk of STD's

Successful AI

- Estrus synchronizing of sows
- Heat detection
- AI/mating preparation
- Stimulation of sows
- Artificial insemination
- Registration

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Heat Synchronization

- Synchronization of estrus can be done in several ways which all are common and require good management.

The Process

- By moving the sow from farrowing unit to the service unit this will create positive stress and most sows will go into heat at the same time.

Because?

- Drastic change to the daily routine
- Stop of lactation

Problems

- If there are delays with the sows coming into heat, you could let them be mixed together for an hour or two when weaned, before they enter the service unit.

Because

- More stress due to fighting as they establish the alpha

Monitor mixed sows to avoid excessive injury

Problems

- Some sows don't synchronize with the other sows after weaning even if the two steps before are followed.
- Action: move the sows to a different pen/crate the same day as a new group of sows are being weaned.

Because

- Stress because of new space
- New boar, maybe sexier than the other.
- They can be heat checked with the newly weaned sows + bump feeding

Seasonal Effects

- Sows have the highest fertility in the cooler months

When Are these?

- Lowest fertility are in warmer months

When are these?

Effect of Lactation on estrous

- **Extremes in body condition scores**
  - Too thin or over conditioned
    - Feeding, litter size
- **Lactation Length**
  - Increasing lactation length increases the risk of sows coming into estrus before weaning
    - Short non productive days if served in lactation
      - ***Litter size will be slightly smaller than normal service***
      - ***Interferes with vaccinations carried out before weaning***
    - long NP days if heat is skipped
      - **Affects breeding targets and production numbers**
      - **Record sows that come in heat in the farrowing**

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Pre-estrus

- The sow pre-estrus period normally occurs 3-4 days after weaning in preparation for the actual heat. Some sows will not show pre-estrus.
- Pre-estrus lasts 1-2 days and sows display characters as swollen and red labia, poor appetite, restless behavior, and an increased interest in surroundings. Loose sows seek boars or try to jump on the other sows. Dominant animals in Pre-estrus try to mate other sows, whether they are in heat or not.
- If heat check is carried out twice daily in pre-estrus period, it will facilitate the planning of mating the following day.

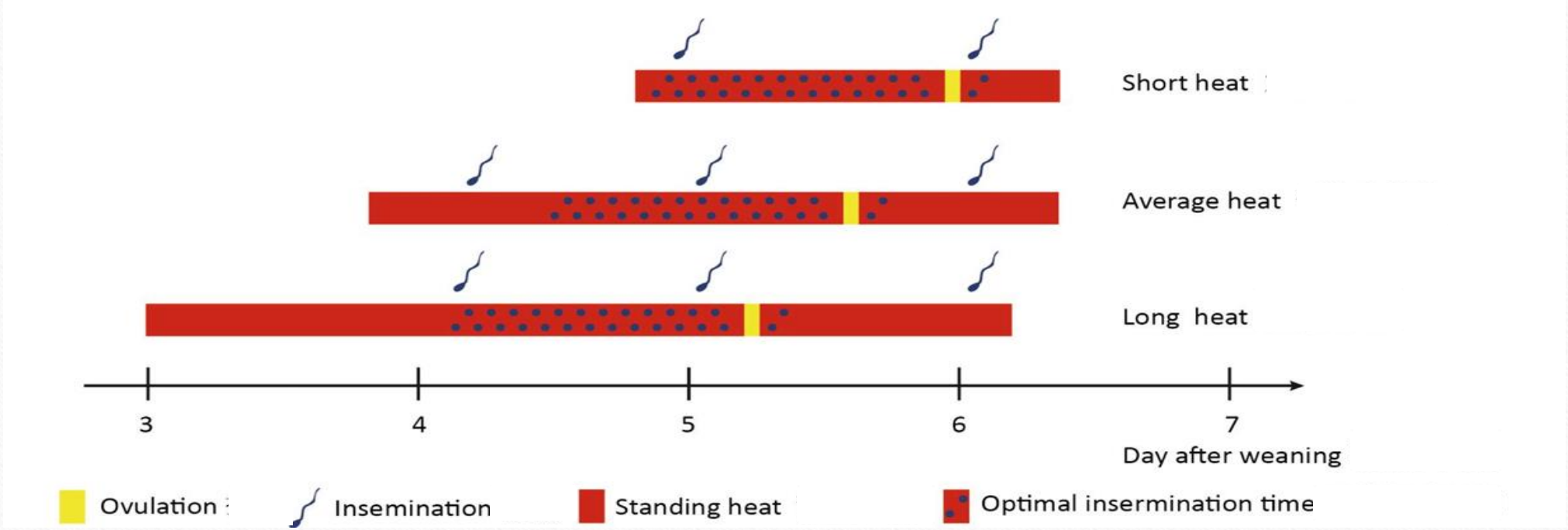
Estrus

- The actual heat occur 1-2 days after sows showing pre-estrus signs, which is 4 to 7 days after weaning.
- Sows will be in standing heat when their standing reflex is triggered by boar and inseminator stimulation.

Estrus

- The estrus normally lasts for 2-3 days, and the optimal insemination time is between 4-12 hours before ovulation. Ovulation occurs two-thirds into the heat.
- Heat length depends on the herd, the animal's parity and the intensity and frequency of heat checks.
- Nursing sows, may come in estrus on the day of weaning.
- <u>DO NOT BREED THESE SOWS</u>

Estrus


Short heat
Average heat
Long heat
3
4
5
6
7
Day after weaning
Ovulation
Insemination
Standing heat
Optimal insermination time

Estrus Detection

- Estrus detection can only be achieved effectively with a mature boar in front of the sows which they can see, smell and have snout contact with.
- The boar must be active in front of the sows that you work with.
- If you let the boar walk around a bunch of sows to perform heat control, it requires monitoring to avoid natural service.

Estrus Detection

- Start with a good boar contact 2 days after weaning.
- Use the oldest boars, preferably 10-month old. Move a boar in front of the sows which you want estrus checked.
- It is best if the boar can be seen only by 4-6 sows at a one time.
- Use several boars and switch between boars. Several boars can be used at the same time if there is sufficient manpower.
- When the insemination is finished, leave several boars in front of the inseminated females for 2-3 hours but then remove the boar again until the next estrus check / insemination.

Estrus Detection

Benefits of using more than 1 boar

- Front boar stimulates estrus during service.
- Trailer boar stimulates estrus post service.
- Increases the oxytocin release
- Increases conception rate

Boar Program

- Ensure enough active virile boars
- Boars handled daily
- Teach boars to heat check. Teach to work with another boar. As early as 6months

Heat checks in sing pens, bulk pens and in gestation.

- Replace teaser boars after Max 3 years of age.

Boar Safety

- Move the boars quietly and calmly. Avoid surprising them or being in their blind spots
- Cull aggressive and frustrated boars.
- Good boars are sometime unpredictable. Careful management will avoid injury.

Successful AI

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Preparation

- Before servicing the sows you must be prepared for the task. This ensures best results and efficiency.
- The first thing you need to know is how many sows/gilts are to be serviced as you need to have the right amount of semen doses ready.

Preparation

- Secondly, make sure the sows and gilts have been fed at least 30 minutes prior to service as the sows have calmed down and are not stressful.
- If the sows have not had any thing to eat, it can be difficult to service as they might be hungry.
- Always service at the same time every day.Service should be done in the cooler parts of the day

Preparation

- Get the equipment ready that is needed for servicing the sows.
- Catheters
- Clean water and cloth/Paper towel
- Semen Doses
- Bunjee strap

Semen Storage

- Semen should be stored at 16 – 18˚C and does not need to be pre-heated before usage as it has no effect.
- Only take the amount of semen you need to use within 20 minutes due to:
  - High and low temperature
  - Sun light
  - Use within 3 days
  - Replace ice packs 10-12 hrs

Successful AI

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- **Stimulation of sows**
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Stimulation of Sows

- To get the best results in AI the sows must be stimulated properly.
- There are 2 ways to stimulate the sows:
  - Boar stimulation
  - Human stimulation

Stimulation of Sows

- The boar is by far the best at stimulation why?
- Smell
- Sounds
- Look
- Pushing behavior

Stimulation of Sows

- If a herdsperson is to stimulate the sows it must be done thoroughly, therefore there is a five point stimulation plan.
- This is done by mimicking boars to touch sows' stimulation points:

Stimulation of Sows

1. Shocks in the flank with hand or knee.
2. Push and lift the groin fold.
3. Shocks under the vulva
4. Cross grip
5. Riding test

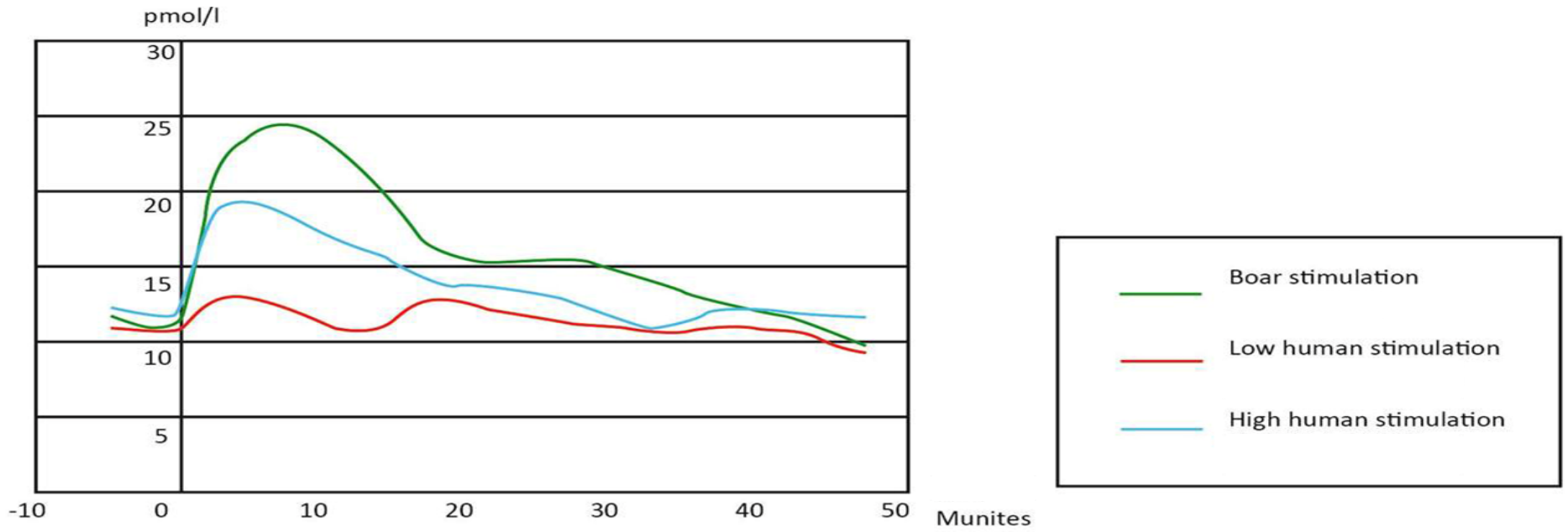
Stimulation of Sows

Stimulation of Sows

Stimulation of Sows

- Stimulation in Pens
- Direct boar-sow contact
- Stand beside sow
- Apply back pressure
- Side nudge with knee
- Rub udder and flank

Stimulation of Sows



Stimulation of Sows

- Boars are the best at stimulating sows in heat, therefore presence of a boar is crucial at stimulation and service of sows.

Artificial Insemination

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- **Artificial insemination**
- Registration

Artificial Insemination

- When the sow is stimulated enough, it is time for insemination.

Artificial Insemination

- Bring the semen and catheter to the sow
- Keep the catheters in a clean bag closed to prevent contamination.
- Discard contaminated catheters.

Artificial Insemination

- Wipe the Labia with dry paper towel so no manure will be inserted into the sows uterus during insemination and eventually cause infections.
- You can also use a wet cloth / towel to clean the vulva if really dirty.

Artificial Insemination

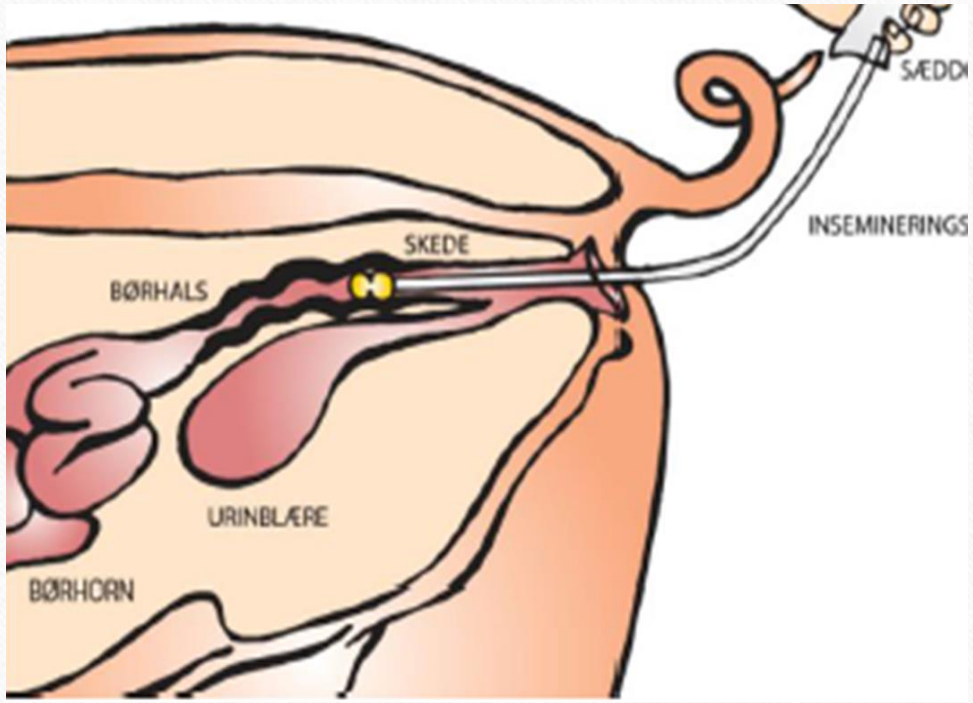
- Thereafter cleaning, the vulva lips is twisted to one side and the catheter is inserted at a 45 degree angle (toward the spine) and then parallel to the spine until it locks in the cervix
- Pull the catheter back slightly to check if locked if not pull out slighlt and repeat as above until locked
- This ensures a correct positioning of the catheter tip in the sow's cervix.

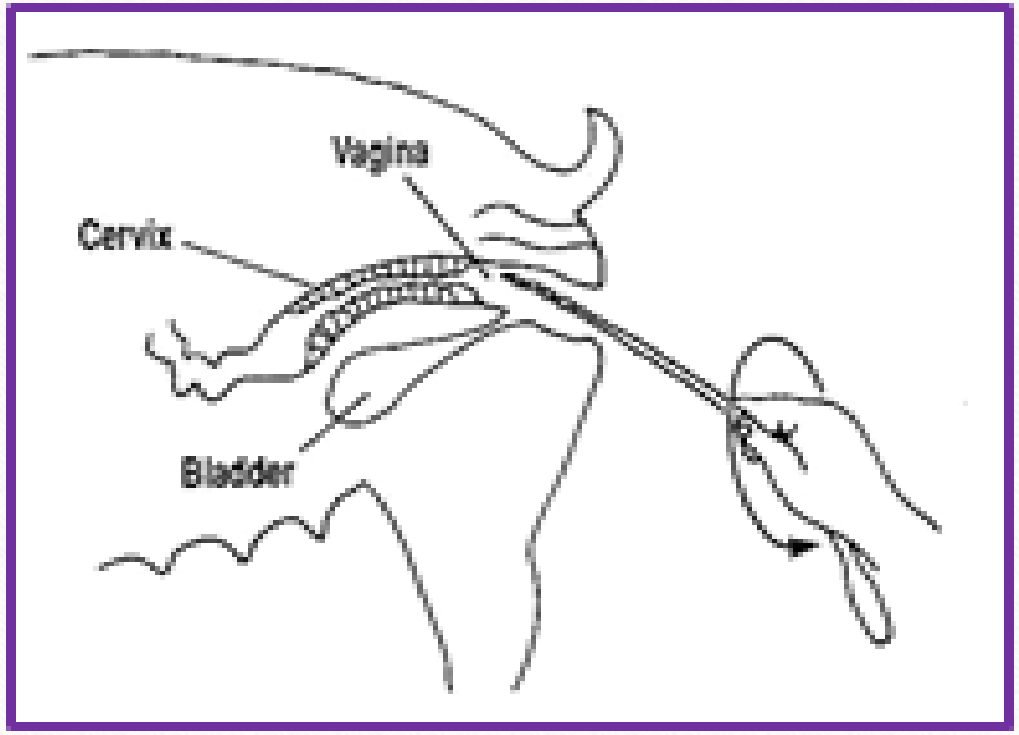
Artificial Insemination

- Unscrew the semen and attach to the catheter

Artificial Insemination

Farmer's Choice
Your Guarantee of Quality





Artificial Insemination

- Keep stimulating the sow - sit on her. Do like a boar. (5 action points)
- Normal insemination is between 3-5 minutes per sow.

Artificial Insemination

- Do not press the semen bottle to be quick as the semen can backflow and the semen will run out of the sow instead.
- Let the sow suck the semen into herself.

Artificial Insemination

- When finished slowly pull out the catheter or let it stay in the sow 10-15 minutes and continue to the next sow.

Artificial Insemination

- Quality of service- timing two-thirds of heat, stimulation, boar, hygiene, enough time
- Accepts the catheter well and Semen flow is slow- too fast the catheter is not locked. The uterus is supposed to contact and suck it
- No blood on catheter at removal or any discharge flowing out when the catheter is put in
- Total time is 3 minutes.

Artificial Insemination

Poor insemination

- Sows not standing well.
- Excessive leakage.
- Excessive blood on catheter.

Registration

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- Heat detection
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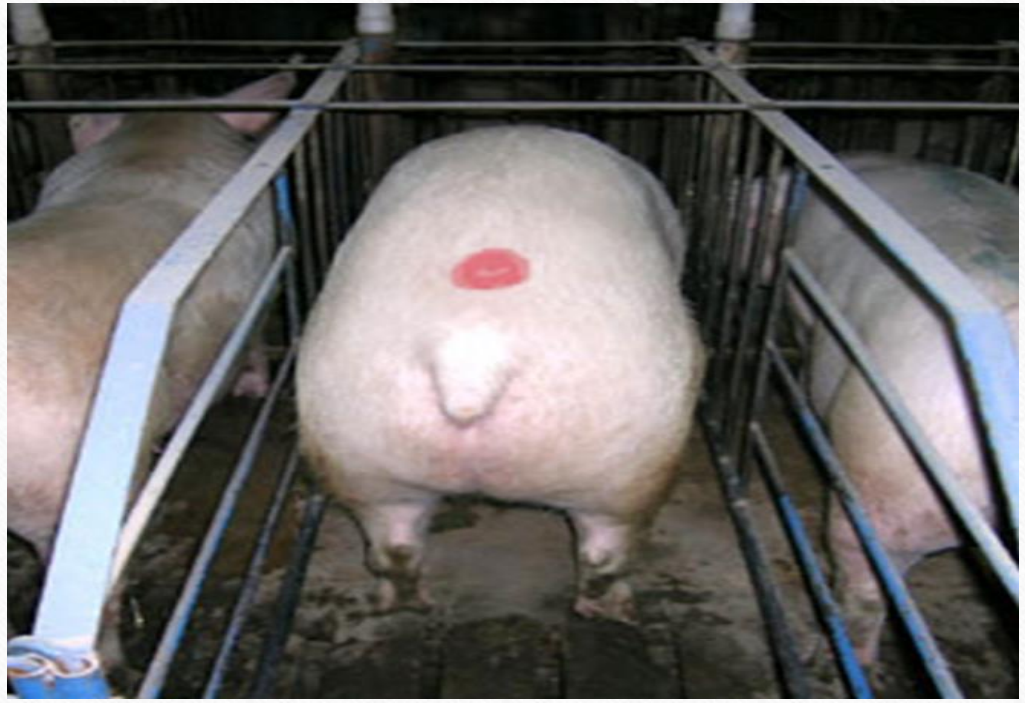
Registration

- Registration of the service is important for the management of the sow herd.
- The reasons to do registration is to know:
- When the sow has been serviced?
- What boar has been used?
- Who has serviced the sow/gilt?
- Estimated return date
- Predicted farrowing date
- Pregnancy test results
- These registrations we can use to track and pinpoint reasons if there are problems.

Registration

- Standard AI marking system
- 1st day service: straight line (l)
- 2nd day service: Cross on top (T)



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Questions???

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A Thinker is a Doer

Implementation

Farmer's Choice
Your Guarantee of Quality