

Artificial Insemination Technology in Native Chickens

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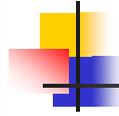
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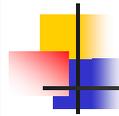
Introduction

AI in poultry

- Most commonly used in **turkey**.
- Low fertility in turkeys, resulting from unsuccessful mating as a consequence of large, heavily muscled birds or of reduced libido, is a serious and costly problem in the production of hatching eggs.

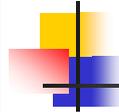


- AI has not found wide application in chicken but is routinely used in special breeding work.
- In Taiwan, AI is commonly used in duck and native chicken for management reason.

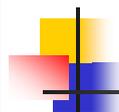


Application of AI in native chickens

- Big difference of body size in males and females.
- Cage feeding.
- Progeny test and specific male's reproduction.
- Increase female's mating rate.
- Increase male's utility.



- Adjust insemination frequency.
- Increase inseminated ratio.
- Early selection of cock.
- Development of frozen semen.

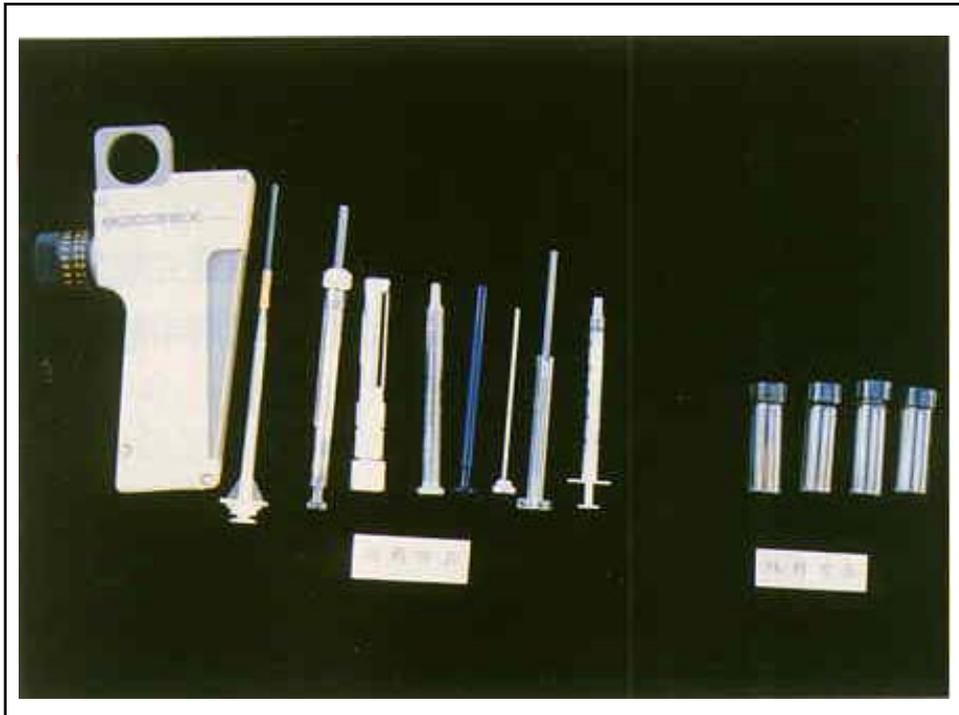


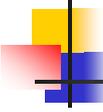
Concern of AI

- Cage feeding
- Stress by AI
- Egg production rate

Gather the tools

- A 1 cc plastic syringe, a medicine dropper, and a glass eye cup.
- More intricate equipment such as temperature-controlled collectors for the semen, injections guns and collection aspirators can be used in commercial chicken breeders.





Select the male and female chickens used in the insemination process

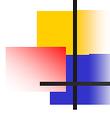
Fulfill certain requirements:

- Maturity, no physical defects, and healthy.
- Sexually active, tame and free from external parasites.
- Hen's squatting behavior.



The Male Procedure

- With an assistant present, the male should be held with hands of the person holding him.
- Next, with the right hand, begin stroking the back from the midsection all the way to the end of the tail, while at the same time the fingers of the left hand are massaging the abdomen of the male.

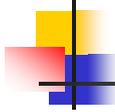


- After a few strokes the forefinger and thumb of the right hand should apply pressure to either side of the vent of the chicken.





- Collect the semen from the extension of copulation organ with a small tube or any cup-like container.
- About 0.5 mL can be collected.
- If the semen flow is too slow, it can be increased with a small milking action.



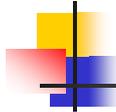
Storage

- Chicken semen begin to lose fertilizing ability when stored >1 hr.
- Liquid cold (4°C) storage of chicken semen can be used to transport semen and maintain spermatozoal viability for ~6-12 hr.



Insemination

- For insemination, pressure is applied to the left side of the abdomen around the vent.
- This causes the cloaca to evert and the oviduct to protrude so that a syringe or plastic straw can be inserted ~1 in. (2.5 cm) into the oviduct and the appropriate amount of semen delivered.
- In order to prevent injury, the female cannot have any hard-shelled eggs in the lower area of her oviduct.
- The presence of such an egg would hinder the journey of the sperm to the ova.



- For maximal fertility, inseminations may be started before the initial oviposition.
- As the semen is expelled by the inseminator, **pressure around the vent is released**, which assists the hen in retaining sperm in the vagina or the oviduct.



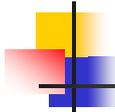


- In native chickens, inseminating 0.02-0.03 mL and $8\sim 10\times 10^7$ spermatozoa of pooled semen is required.
- AI can be at intervals of 7 days.
- In summer time, inseminating at intervals of 5 days and 0.04 mL semen are suggested.
- When fertility tends to decrease, it may be justified to inseminate more frequently or use more cells per insemination dose.



Duration of fertility

- Goose 6 days
- Duck 8-9 days
- **Chicken 12 days**
- Turkey 22 days



In practice

To maintain semen quality:

- Periodically collect semen.

Each batch:

- Collect 5 cocks semen and then inseminate 75 hens

