



NHIA National Artificial Insemination Technician Accreditation Best Practice

When Performance Professionalism & Precision Matter

**This provides the best practice standards for the
National Accreditation of Professional AI Technicians (Bovine) in Australia.**

NHIA serves as the authority responsible for overseeing these standards and the national accredited technician program of industry's highest skilled individuals.

Accredited professionals must exhibit the skills and knowledge commensurate with those of a true professional AI Technician, along with upholding a standard of professionalism befitting the industry.



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NHIA AI ACCREDITATION BEST PRACTISE

Contents

Acknowledgements	1
OHS/WHS	2
Workplace Health and Safety (WHS)	2
OHS/WHS Codes of Practice	2
Insemination facility	2
Liquid nitrogen general safety precautions	3
Biosecurity for Animals and Inseminators	3
Biosecurity and AI	3
Zoonotic diseases	4
What is biosecurity?	4
Whole Farm Biosecurity Plans	5
Using your veterinarian	5
Industry Standard for the Carriage and Handling of Liquid Nitrogen in Small Tanks	6
Technician Presentation	6
Semen Handling	6
Frozen	6
Fresh	7
Thawing Process - Frozen	7
Frozen Semen Transfers	7
Gun Loading	7
Thermal Protection	8
Cow Entry	8
AI Technique	8
Semen Placement	8
Semen Viability	8
Clean up and Hygiene	8
Record Keeping	9
Update semen tank inventory	9
Overall Performance	9
Additional References and Information	9
NHIA Information	9

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OHS/WHS

Hazards and risks occur in all workplaces – policies and procedures are in place to help keep everyone safe and healthy.

When you work on a farm, it is expected that you will:

- Follow and abide by workplace policies and procedures.
- Follow good hygiene practices.
- Always use PPE as required.
- Treat animals and farm workers with respect.
- Act if you see a hazard or risk, inform others, and discuss what can be done to reduce the risk.
- Report near misses or incidents.
- Be sun-smart.
- Have a reliable means of communication with you, especially when working alone and let someone know where you are working and when you expect to return.

Workplace Health and Safety (WHS)

Workplace safety refers to the working environment at a business and encompasses **all factors that impact the safety, health, and well-being of employees**. This includes creating a safe workplace by recognising, discussing and controlling hazards and having safe working practices and processes.

Farms are like all Australian workplaces – employers **have a legal obligation to protect the health, safety and well-being of their employees**.

OHS/WHS Codes of Practice

Occupational Health and Safety (OHS)/Workplace Health and Safety (WHS) practices impact every single workplace in Australia, including farms. When completing any work on a farm you need to be aware of and follow the OHS/WHS code of practice that governs work in your state.

To find the relevant Workplace Health and Safety requirements for your state go to the [Safe Work Australia Website](#) and find links to regulations in your state. These OHS/WHS regulations govern artificial insemination on farms in Australia.

You should also be aware of [Safe Work Australia's advice to those working in Agriculture](#).

Insemination facility

Facilities may differ from farm to farm and (as discussed above), you should familiarise yourself with each farm's WHS policy. Important factors to consider when choosing a location for drafting, holding and inseminating cattle include:

- Shelter from the weather, including heat, rain and cold.
- Convenience for drafting animals for insemination from the herd.
- Ease of use.
- Safety of both the animal and the inseminator.
- Suitable restraint of the animal to be inseminated.

Liquid nitrogen general safety precautions

- Always wear protective clothing and safety glasses when handling liquid nitrogen.
- Do not wear open-toed shoes or shorts when handling liquid nitrogen, preferably, wear jeans or overalls over solid boots.
- Pour liquid nitrogen slowly to reduce splashing.
- Both the liquid nitrogen and nitrogen vapour can cause burns. Have first-aid for liquid nitrogen burns.
- Brief exposure that may not affect the skin of the face or hands can damage delicate tissues such as the eyes.
- Immediately flood the area with cold water and apply a cold compress.
- See a doctor if there is any chance the eyes have been affected or the skin is blistered.

Ventilation

- If enough nitrogen evaporates into a badly ventilated room, the percentage of oxygen in the air may get dangerously low.
- Never dispose of liquid nitrogen in a confined area.
- If a person becomes dizzy or loses consciousness while working with liquid nitrogen, immediately create ventilation by opening windows or doors or turning on an exhaust fan before entering and move the patient to a well-ventilated area.
- If breathing has stopped, apply artificial respiration and CPR if necessary, call an ambulance, doctor or get the patient urgently to hospital.

Biosecurity for Animals and Inseminators

Preventing disease spread

Disease organisms can be spread on contaminated vehicles, insemination equipment, clothing, hands and via semen. Taking steps to manage this risk is called biosecurity.

Biosecurity and AI

Without strict attention to hygiene, artificial insemination has the potential to spread disease organisms:

- From cow to cow.
- From semen to cow.
- From cow to inseminator (called 'zoonotic' spread).
- And even from inseminator to cow.
- Inseminators can never afford to be complacent about biosecurity. Just because animals do not show visible signs of disease does not mean they are not carrying a transmissible infection.

Your AI practice should ensure:

- You always wear appropriate personal protective equipment (PPE)
- The vulva is clean and dry and free of manure.
- You consider using a new, clean rectal glove for each cow or heifer wherever possible.
- The only material to come in contact with the vulva is clean, dry paper towel and a gun with a new, clean sheath.
- You take care to avoid mucus or other bodily fluids contacting hands or gloves.
- You don't touch the vulva with either hand (even with gloves on).
- You correctly dispose of gloves and sheaths on-farm.
- You change into clean overalls, clean, and disinfect boots and ensure all equipment is free from manure and other bodily fluids prior to leaving or arriving at a new farm.

Zoonotic diseases

Zoonotic diseases are diseases that are transferable from animals to humans. **Personal protective equipment (PPE) plays an important role in protecting you from zoonotic diseases.** You must as far as you are reasonably able, wear PPE, such as non-slip, waterproof footwear, clean overalls, disposable gloves, in accordance with the information, training and instruction you have received.

The two most important zoonotic diseases you should be aware of include **leptospirosis** and **Q fever**. Whilst rarely causing illness in cattle, they can make humans very sick. They are transmitted via saliva, urine, manure, and birthing fluids. **Adequate PPE reduces your risk of contracting these conditions.**

Leptospirosis

Leptospirosis is a bacterial disease of cattle. Spread to humans can be minimised by ensuring the whole herd has up to date vaccinations (7-in-1). You should always check if the animals you are inseminating are vaccinated for leptospirosis. Even if the herd is vaccinated, avoid urine splashes and discharges from the reproductive tract of animals and wear your PPE.

Q fever

Q fever can be prevented by vaccination of people. It is recommended that anyone whose work puts them at a high-risk (e.g. farmers and employees, veterinarians and AI technicians) are vaccinated for Q fever. Speak to your doctor about getting vaccinated for Q fever.

What is biosecurity?

Biosecurity is taking steps to reduce the risk of introducing and spreading diseases, pests, and weeds both between farms and within a farm.

It includes prevention of spread of disease between individual animals, different groups of animals, from animals to people or between farms. This has important work health and safety benefits as well as benefits to animal health, welfare, labour, and farm businesses.

Artificial inseminators also play a critical role in maintaining biosecurity at a national level, helping to minimise the spread of diseases, pests, and weeds between farms. This helps us maintain our international market access for dairy products and beef, maintain our farm productivity, and protect our clean, green image. Effective biosecurity practices do not have to be complicated. They can be easily integrated into everyday work activities as an artificial inseminator.

One example is to change into clean overalls and wash your hands prior to moving to another farm, as well as washing and disinfecting boots using a disinfectant foot bath upon arrival. Some other examples may include:

- **Regularly disinfecting or washing your hands with soap and warm water after working with animals, especially before and after eating, drinking, or going to the toilet.**
- **Always wearing disposable gloves, even on your free hand.**
- **Ensuring that vehicles, clothes, boots, and equipment that are contaminated with manure are not taken from farm to farm.**
- **Thoroughly cleaning and disinfecting equipment after every use.**

Whole Farm Biosecurity Plans

Whole farm biosecurity plans became a requirement for all beef and dairy enterprises under the Livestock Production Assurance (LPA) scheme in October 2017.

Here are two tips for creating whole farm biosecurity plans.

Do-it-yourself

Dairy Australia and Agriculture Victoria have worked together to develop a biosecurity tool which assists dairy farmers to create their own complete biosecurity plan tailored to their farm.

Farmers all over Australia can access the biosecurity tool to manage their farm and herd's risks to 14 separate diseases.

Farmers with an existing DairyBase account can use their existing login details.

To access the tool, [click here](#).

You can also use the [national farm biosecurity planner](#).

Using your veterinarian

Veterinarians who are members of the Australian Cattle Veterinarians will have access to the BIOCHECK[®] Biosecurity Planner.

Your vet will walk you through the major biosecurity risks, and together you will rate how the risks are being managed on your farm.

You will then receive a plan that you can share with your farm employees and people who purchase cattle from you.

Contact your veterinarian to find out more.

This section includes a brief description of some diseases that can be a risk to Australian herds during artificial insemination. These include:

- Uterine infections and metritis
- Campylobacteriosis (also known as 'vibriosis')
- Trichomoniasis
- Vaginitis
- Enzootic Bovine Leukosis (EBL)
- Bovine Johne's Disease (BJD)
- Bovine Viral Diarrhoea Virus (pestivirus)

It is essential that scrupulous attention is paid to biosecurity and hygiene in your AI practice.

Industry Standard for the Carriage and Handling of Liquid Nitrogen in Small Tanks

- Never carry tanks of liquid nitrogen in cars or station wagons.
- Always carry the liquid nitrogen tanks on the tray of a truck or utility, or in a vehicle that has an airtight compartment separate from the cab.
- Always secure liquid nitrogen tanks in an upright position.
- Always ensure that the neck plug on a liquid nitrogen tank is fitted and is vented to permit the escape of gaseous nitrogen.
- Always ensure that the lid on a liquid nitrogen tank is clipped shut during transport.
- Never place anything on top of a liquid nitrogen tank.
- Never provide, or hand over, a tank of liquid nitrogen to a customer when it is known the customer proposes to carry the liquid nitrogen tank in the passenger compartment of a vehicle.
- Always warn customers of the hazardous nature of liquid nitrogen.

Technician Presentation

Wears clean protective clothing including overalls and rubber boots

Equipment clean and organised (reference page 73 AI Manual 2022 Edition)

- Clean Water
- Suitable disinfectant
- Kit box
- AI Guns
- Gloves
- Lubricant
- Paper Towel
- Scissors
- Sheaths
- Thaw flask – fresh clean water and clean inside
- Secondary temperature check (e.g., 2 thermometers)
- Tweezers
- Gun warmer or a form of hygienic thermal protection
- Come Clean Go Clean – A standard to adhere to

Prepares semen handling and loading area taking into consideration sun, wind and rain

Semen Handling

(reference page 74 AI Manual 2022 Edition)

Frozen

Uses location card to identify semen location

Only lifts canister to the frost line for a maximum of 10 seconds

Uses tweezers or forceps to remove semen from tank

Re-immerses canister after 10 seconds if selection is not complete

Places semen in thaw water within 2 seconds

Fresh

Follow instruction card in container

Maintains correct temperature of storage container

Thawing Process - Frozen

Maintains water temperature between 35-37°C

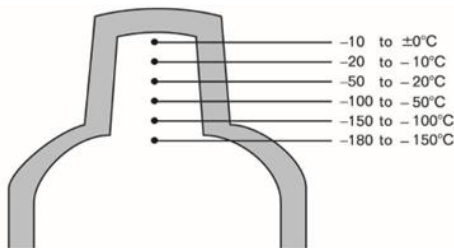
Thaw enough semen from the tank that can be used thawed and deposited within **5 minutes for SEXED SEMEN** and **10 minutes for CONVENTIONAL SEMEN**. (= 5 MINS SEXED / 10 MINS CONVENTIONAL).

Thaws semen for 45 seconds

Does not allow straws to contact each other in thaw water

Do not thaw more than 4-5 straws in any given time to maintain water bath temperatures (use multiple water baths, if necessary)

Frozen Semen Transfers



This figure is referenced as figure 46 in the 2022 AI Manual

Note the temperature scales for your reference

Gun Loading

Pre warm guns and maintains hygienic thermal protection

Checks bull name on straw for correct semen

Dry straw using clean paper towel

Do not handle straw between crimped and plugged end as this may cause temperature shock

Clean scissors before cutting straw and after cutting straw

Only handles open end of sheath (no contamination of cow entry half of sheath)

Re-sheaths gun if contamination occurs

Know where the tip of the gun is at all times

ABS Straw Recommendation (for ABS Bubble straw only):

ABS (some are Bubbles straws) gently flick to move the bubble to the crimped end, **after semen is thawed**.

ABS Products are frozen with air bubble in the middle of the straw as part of their proprietary tunnel freezing process. For this reason the straws need to be gently flicked to move the bubble to the crimped end, after semen is thawed. Failing to move the bubble to the crimped end prior to cutting the end of the straw could result in loss of semen if the straw is cut too far below the crimp.

Thermal Protection

Places loaded gun in hygienic thermal protection immediately after loading (gun warmer, neck sheath, inside fresh AI glove and in front of clothing)

Cow Entry

Alert cow of approach

Lube on glove, Gently insert hand into rectum of cow, avoid lubricant in-contact with vulva region, as contact can be spermicidal

Use paper towel to aid clean entry into the vulva

Inserts gun at 45° angle

AI Technique

Move gun to cervix without excessive force of gun

Use cervical manipulation to pass cervix over gun – minimal movement of gun

Overcome any difficulties of wind in bowel or vagina or vaginal folds in a competent manner

Semen Placement

Slowly depresses plunger (3-5 seconds) using thumb

Deposits all semen in body of uterus (no partial withdrawal of gun)

Pauses after depositing semen (very minimal pause)

Assessor to manually check site of deposition

Slowly withdraw arm and gun together

Check sheath for any signs of infection or blood

Semen Viability

Deposited all semen within recommended time limits from commencement of thaw

- 10 minutes frozen conventional semen
- 5 minutes frozen sexed semen

Clean up and Hygiene

- Come Clean Go Clean
- Collect all paper towel and sheaths and turns glove inside out to contain all waste
- Place waste in appropriate disposal
- Remove any solids from clothing
- Clean rubber boots including underneath
- Wash and dry any soiled guns
- Wash and dry hands, and arms
- Return all guns to kit box

Record Keeping

Complete all appropriate records for insemination including

- Technician number/name complete while thawing semen
- Date
- Farm Name/ID
- Cow ID
- Bull ID
- Comments if required Complete pre and post AI as required

Update semen tank inventory

Overall Performance

- Completes all processes in an orderly and routine manner
- Completes allocated tasks within recommended time limits to ensure maximum semen viability
- Handles cows in line with Animal Health and Welfare regulations
- Maintains a clean hygienic kit box, equipment, and personal presentation
- Maintains a clean organised and safe work area
- Demonstrates competency of knowledge, techniques, and skills

Additional References and Information



ST Genetics Reference Guide supplied from ST Genetics May-2024, [download here.](#)

NHIA Information

NHIA [Hire Cow](#)

Are you in-house training staff? Invest in the NHIA Simulation Cow in partnership with NuGenes and Paul Kenny AB. Find out more contact office@nhia.org.au

NHIA Contact Details for support

Phone: 1300 844 220 Email: office@nhia.org.au

W: <https://www.nhia.org.au/> Learning Hub: <https://learn.nhia.org.au/>

