

# Minimising stress in breeding and venison herds

## Maximising welfare, health and production

Minimising stress improves the welfare of deer. If they are free from ongoing stress (chronic stress) they are likely to have higher production and better-quality venison than stressed deer.

Chronic stress affects deer behaviour. Pacing, an early indicator that a herd is not settled, can lead to soil damage along fence-lines, resulting in erosion and a loss of water quality.

Stressors on a farm may include under-feeding, bad weather and activities like mustering/yarding, recent transport, exposure to unfamiliar humans or dogs, mixing of mobs, weaning and animal health procedures.

The stressors associated with management activities can be minimised by good stockmanship during the activity, then by releasing the deer to spacious paddocks, where they can settle without disturbance.

This *Deer Fact* focuses on what causes stress in hinds and young stock, and ways to avoid or reduce stressors. For more information on safe, effective and stress-free deer handling see the 'More' panel on the back of this *Deer Fact*.

## What is stress?

All deer – wild and farmed – are exposed to stressors. These acute stresses are generally short-lived and have minor effects on deer well-being.

In the wild, deer can escape some stressors. They can flee and hide from predators, and can move to shelter in bad weather.

On farms, fences prevent deer from doing this. If the stressor continues, chronic stress responses may occur, aggravated by the large herd sizes found on many farms.

## Key points

- Deer that are free of chronic stress are more settled, easier to handle, healthier and more productive.
- Under-feeding is probably the biggest cause of chronic stress in deer. Good nutrition usually means happy and productive deer.
- Signs of chronic stress are fence-pacing, excessive and prolonged panting, aggression, general nervousness and frequent barks and grunts. In bad cases there may be noticeable weight and hair loss.
- It's important to become familiar with the normal behaviour of deer, so you recognise when deer are stressed and can act to relieve that stress.
- To reduce stress levels at weaning, provide fawns with plentiful familiar feed, wean on a mild day, provide older 'auntie' hinds to settle the mob and minimise the number of potentially stressful procedures carried out at this time.
- Deer are highly social and hierarchical. To minimise stress, avoid mixing mobs – particularly of unfamiliar or different sized deer – especially during yarding or when grazing at high stocking rates.

Under-feeding is probably the biggest cause of chronic stress and the resulting metabolic and behavioural changes. A plus for deer on farms is that the risk of nutritional stress can be eliminated by providing deer with a balanced year-round diet. Good nutrition usually means happy and productive deer.

Fence-pacing is an early sign of chronic stress. Other indicators



Photo: Richard Hilson

*Plentiful feed and good shelter are seen by many farmers as major contributors to stress-free deer farming*

are excessive and prolonged panting, aggression and bullying by dominant deer, general nervousness and frequent vocalisations (barks and grunts). Chronically stressed deer may lose hair (as a result of bullying) and weight.

## Why make an effort to reduce stress?

One or two stressed deer may not have a wide impact on production. But when stress levels are elevated across a mob or herd, they can have a big effect on herd welfare and performance.

To minimise stress, it's important to become familiar with the normal behaviour of deer, so you recognise when deer are stressed.

Deer that fence-pace to try and escape the stressor are likely to cause pasture damage and, over time, fence-line erosion and loss of soil.

Pre-fawning hinds can spend up to 40% of their time pacing if conditions are not right. This can burn up to 2 kg of hind bodyweight in 24 hours.

Other signs of chronic stress may be subtle or unseen. For example, ongoing stress can interfere with ovarian function, reducing conception.

Research and farmer experience confirms that when newly-weaned fawns are unsettled and pacing the fences, they have much lower growth rates than settled fawns.

Venison tenderness, colour and eating experience can be negatively affected by chronic stress (such as in under-feeding) in the weeks leading up to slaughter, as well as by high levels of stress during pre-slaughter yarding and transport.

## Minimising stress in breeding hinds

### Feeding

During late pregnancy, mature hinds need more energy in their diet in order to set them up for fawning and maximum milk production.

Feed them so they gain at least one Body Condition Score (BCS) unit during spring. By late pregnancy (early November) they should ideally have a BCS of 3.5-4 out of 5.

Feeding levels for pregnant hinds and hinds with fawns at foot are detailed in the *Deer Facts* 'Best Practice management of pregnant hinds' and 'Feeding hinds for maximum fawn growth'.

## Minimising stress in weaners

Weaning of fawns and their management in the days afterwards can be major sources of chronic stress.

Weaners that are anxious and/or cold, or reluctant to eat an unfamiliar feed, are likely to have low weight gain. Their intestinal movement may slow down, allowing yersinia bacteria to multiply. This can quickly cause gut damage and, in time, dehydration and death through the onset of yersiniosis.

- Decide on pre- or post-rut weaning based on your individual farm and production system. There are pros and cons with both pre-rut and post-rut weaning.
- Post-rut weaning is thought to be less stressful for fawns, as they are older when they are weaned. Research by AgResearch Invermay (Pollard & Stevens, 2003) showed that later weaned fawns (May/June) grew better over winter than mobs weaned in February/March. But there was a significant tradeoff: hind conception was delayed 7-12 days and hind body condition scores were lower by 0.3 to 0.5 units.
- Manage the weaning date to get the right balance between the fawn's growth rate and the hind's body condition. Pre-rut weaning is usually completed by the first week in March, but in very dry seasons consider



Photo credit: Richard Hillson

weaning as early as mid-February. To ensure fawn welfare, don't wean any earlier than this.

- Minimise stressful treatments like ear tagging and vaccination during weaning. Do these well before or after weaning.
- Provide an oral anthelmintic before or at weaning to protect fawns from parasites.
- If outdoor weaning, put fawns back onto feed they are used to, to help reduce any check in growth rate.
- High quality pasture won't by itself guarantee good weaner growth rates. What is important is that the weaners are familiar with their feed and have plenty of it.
- Consider running unrelated 'auntie' hinds in mobs of newly weaned fawns at a ratio of 4-5 per 100 fawns. This will help settle the fawns and improve their growth rates.
- Auntie hinds can also act as guides when moving weaners through gateways, lanes, yards and deer sheds.
- Manage weaners in mobs based on weight or breed, to minimise bullying of smaller animals. Promptly remove sick or highly stressed individuals from the mob.
- Toward the end of winter (10-20 August), weaners respond to increasing day length by rapidly increasing their feed intake. If late-winter pasture covers are low, feed supplements of high quality silage and grain.

## Transport after weaning

If you plan to transport deer to another farm after weaning, do it within six hours, or wait at least 10 days before doing so. This is a legal requirement under the *Deer Code of Welfare* requirement, to ensure the welfare, health and productivity of both fawns and hinds.

## Minimising stress in the paddock

If deer are well-fed but still showing signs of chronic stress, something is wrong within their environment. Identify the source of the problem and remove or remedy it.

Is a perceived predator (the farm dog) housed too close to the paddock? Constant traffic, lack of shelter or shade, deer too closely stocked? Or are some of the deer failing to cope with dominant or disruptive individuals?

In the wild, red deer and wapiti tend to prefer habitats where they have access to grassland and forest. On farms shelter belts provide shade, shelter, cover and screening and many farmers believe this helps reduce stress in deer.

## Mob size and composition

Deer are highly social and hierarchical. To minimise confrontation and potential injury, avoid mixing unfamiliar



### Weaners on plantain

*Quiet handling, familiar paddocks and feed (and plenty of it), the use of auntie hinds and good weather can all help reduce stress at weaning*

or different size deer, especially when yarding or grazing at high stocking rates.

Avoid over-stocking. Research and practical experience indicate that hinds have less disrupted grazing patterns and are more productive at lower stocking rates.

Minimise the mixing of mobs. While fighting following mixing (flailing front legs) may be short-term and ritualised, it can

increase overall stress levels. Where possible, maintain stable social groups, for example 80 hinds of the same age.

Normally a dominant hind in each mob will exert her dominance over feed or wallowing space. At the other extreme, at the bottom of the pecking order, an outcast hind may experience on-going bullying and stress.

Some farmers argue that if an outcast hind is removed from a mob, another will take its place. However, since outcasts are not found in all herds, their presence may indicate a stress factor in the mob's environment. Alternatively, the outcast hind may have something wrong with it that other hinds dislike (e.g. disease or injury).

Outcast hinds generally perform very poorly (e.g. low weight gain, high probability of barrenness) and are best culled.

The ideal stocking rate for both hind and weaner mobs depends on the feed availability in the block.

For information on ideal mob sizes for yards and in the shed, see the *Deer Fact* 'Effective deer handling'.

### Intensive feeding

Feeding on narrow breaks or a feed pad will force deer to graze closer together. This will potentially increase the chance of bullying. Timid and/or smaller/younger deer may have lower feed intakes.

It is a good idea to observe the herd in these situations to see if undesirable behaviour is taking place. If they are, options include widening the break or access to the feed. Hinds showing signs of being bullied, such as hair loss or lighter condition, are best removed from the mob.

### Mating management

- During natural mating, avoid handling or moving hinds.
- Join young hinds to yearling stags well before mating.
- For elite hinds in an AI fixed-time insemination programme, select hinds that appear calm or have some successful previous track history in successful conception.
- To maximise conception potential, cull hinds that are flighty and nervous and disrupt mob dynamics.

### Fawning management

Allow enough space for a hind to be away from others during fawning. Hinds will pace before fawning, with research showing more pacing time in smaller paddocks with higher levels of human presence.

Provide low or scrubby cover for birthing sites where hinds can express their instinct to hide their fawns. Fawns will stay hidden for several days with the mother returning to feed them two to four times a day.

**Because deer are herd animals, isolation is a major stressor. Never leave a deer alone in a paddock or pen for any length of time.**

### Reducing stress during handling

Laneways that help guide deer easily into the yards and across the farm are crucial to minimising stress during mustering. Having control of the mob and moving them at a patient steady pace is important.

When being shifted, deer will as a rule move, stop, reassess the situation and the mustering pressure, and then move again. It is useful to move when they move, and stop and maintain quiet pressure when they stop.

There must be facilities within the shed for restraining deer, so they can be treated and handled without risk to the animal or

## CASE STUDY

### Pre-rut weaning at Haldon

Farm manager Paddy Boyd says successful deer management at Haldon Station, South Canterbury, hinges on pre-rut weaning.

In mid-January, the fawns and hinds are moved off the fawning blocks onto lucerne or irrigated ryegrass/clover/chicory pastures. They are introduced to baleage, with a little barley poured on the top.

"This is the secret to getting fawns used to supplements, before they really need them in winter. It also helps the hinds gain condition before mating."

By weaning in late February/early March, the weaners are eating supplements twice a week. They are used to tractors and people.

After weaning they are given an oral anthelmintic mixed with a commercial probiotic rumen conditioner. Paddy finds the conditioner helps settle the fawns, "More sit and chew instead of pacing," he says.

The fawns are returned to familiar improved pastures and continue to be offered ad lib supplements.

The gradual introduction of new feeds, alongside their mothers, gives fawns a head start during the post-wean adjustment time. "It means we're taking them into winter with good weights too."



Paddy Boyd at Haldon



*A good stockperson will recognise the signs of stress and know how to minimise it during mustering and handling*

its handlers. Draft large mobs in the holding yards into smaller groups (5-15 deer at a time – depending on internal pen size) before they enter the shed. This reduces stress on the deer and can reduce aggression within the shed.

The role of the stockperson is crucial in minimising stress during mustering and handling. If deer become stressed (excitable, heavy panting, racing) then it is best to let them (and perhaps the farmer!) calm down before moving or treating them.

It is beneficial long-term to train young deer to get used to people. This can be done by running them slowly through the yards but not actually treating them. Deer that are nervous and flighty in the way they respond to noxious stimuli are often the 'poor doers'.

Hold groups of deer in pens where they don't feel crowded or isolated. Ideally the deer should occupy between one-third and two-thirds of the pen area.

Over-crowding and poor ventilation can cause heat stress (shown as panting and collapse). Fawns are most

### Handling wapiti

Elk/wapiti have similar stress responses to red deer but are generally less tolerant of small or confined spaces. They take up more space, weighing up to 550 kg. Yard and shed design should have flow, such as curving raceways, so the deer feel they have somewhere to go.

Move slowly and avoid making a sudden entry to a pen. If the elk can see and hear you coming they are less likely to be startled.

To minimise stress, never pen individual elk/wapiti on their own. Work with groups of five, then draft out individuals for handling using gates or a plywood sheet with a handle to direct their movement. Keep calm. Be firm, but patient.

Elk/wapiti are more likely than red deer to respond aggressively to dogs. To minimise acute stress, don't use dogs.

vulnerable, so ensure pens lightly stocked (with enough space for fawns to move about slowly).

For detailed information on effective handling of deer (in paddocks and the yards, and when mustering) see the *Deer Fact*, 'Effective deer handling'.

The *Deer Fact*, 'Staying safe' lists the warning signs of aggression in deer and advises on safe practice during handling.

### Selecting deer for better temperament

The genetics behind temperament were studied by AgResearch during the Deer Progeny Test from 2011-2014.

This research showed that behaviours related to temperament – overall aggression, agitation when penned, ease of handling, behaviour in the crate and exit speed – have low heritability. Because of this there is no trait for temperament on Deer Select.

To reduce across-herd stress levels, it is important to train deer when young and to have good handling facilities. Much bad behaviour can be modified by learning and experience, but it may be easier to cull those deer that repeatedly behave badly in the yards.

Consider keeping records of offenders. Bad behaviour that may warrant culling could include an overt fight response (flaying, charging), reactive flight responses (jumping) or sinking to the floor and not moving. These behaviours may or may not be genetically inherited, but they unsettle other deer and may encourage them to do the same.

### More >>

#### Deer Facts

- Best practice weaning
- Management of pregnant hinds
- Effective deer handling
- Staying safe
- Transporting deer within New Zealand

#### Videos

- How to Body Condition Score Deer – [www.deernz.org/bcs](http://www.deernz.org/bcs)
- Impact of hind condition on conception – [www.deernz.org/bcs](http://www.deernz.org/bcs)
- Handling Elk-Wapiti – [www.bit.ly/WapHandling](http://www.bit.ly/WapHandling)
- Tips for weaning deer – [www.deernz.org/weaning](http://www.deernz.org/weaning)

#### Research

- Some production outcomes when management practices and deer behaviour interact (J.C. Pollard & D.R. Stevens, 2003)

#### For guides and information on

- Feeding - [www.deernz.org/feeding](http://www.deernz.org/feeding)
- Shed design - [www.deernz.org/shed-design](http://www.deernz.org/shed-design)

For even more info >> [www.deernz.org/deerhub](http://www.deernz.org/deerhub)