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ANIMAL WELFARE ON ORGANIC FARMS FACT SHEET SERIES

PAIN MANAGEMENT IN LIVESTOCK HUSBANDRY

1. DISBUDDING AND DEHORNING

Produced in consultation with the ECOA Animal Welfare Task Force, November 2009

INTRODUCTION

Pain is an unpleasant and emotional experience involving both a physiological and psychological component that can reduce an animal's ability to experience normal pleasures or impede natural functioning. Pain arises via chemical, thermal or mechanical stimuli that are actually or potentially damaging to the tissues.

Research has shown that many of the common procedures associated with livestock husbandry, such as dehorning or castration, are painful to the animal. Some methods are less painful than others and some may continue to cause pain hours after the procedure. Signs of pain in animals are varied and are not necessarily obvious.

Researchers have worked on finding effective ways to alleviate this pain, as freedom from pain is a basic tenet of animal welfare. This is recognized in the organic standards, which prohibit farmers from carrying out physical alterations except when absolutely necessary. When they are carried out, it must be in a manner that minimizes pain, stress and suffering. Pain control is allowed to achieve this objective (see CAN/CGSB-32.310, 6.7.2) and should incorporate a combination of anaesthetics, sedatives and/or analgesics that are known to be effective at controlling pain during and after the painful procedure in question. The standard also specifically requires the use of anaesthetics or sedatives when disbudding dairy calves.

Species-specific recommendations should be followed. Analgesics and anaesthetics will need to be prescribed by a veterinarian. All equipment used must be cleaned and disinfected between animals. Successful pain management on farms will require a strong working relationship with your veterinarian who can help you determine the best practices most suitable for your operation and provide training in carrying out the procedures in the least stressful manner as appropriate.

ASSESSING THE NEED

Organic farmers should ask themselves the following:

1. Is the procedure necessary?
By ensuring high welfare standards and addressing the behavioural needs of livestock, the need for surgical procedures may be eliminated. For example, providing more space for goats to reduce aggressive behaviour is preferable to dehorning in order to prevent injuries.

2. Can the same result be achieved in another way?
Are there polled breeds or sires that can be used instead of dehorning?

3. If there is no other choice, which of the available methods are the least painful and the most practical?
If producers feel that the procedures are necessary, pain can be reduced through the use of various analgesics and anaesthetics.

RECOMMENDATIONS FOR CATTLE

To reduce the risk of injuries to humans and other animals, horned cattle breeds are typically disbudded or dehorned.

Recommended best practice is that calves be disbudded early in life. Disbudding is when the

horn buds are removed in calves before any horn material is visible (e.g., before 3 wks of age). In contrast, dehorning refers to the removal of the visible horn and other tissues surrounding visible horn tissue (e.g., normally present after three weeks of age). Disbudding before two weeks of age is preferred, as it is less invasive and less painful than dehorning. Only disbud calves if they are not showing any signs of ill health.

Dehorning adult cattle is known to be a very painful procedure. Adult cattle should not undergo dehorning procedures unless they are posing a serious welfare concern to the herd. In such a case, the procedure should only be performed by a veterinarian.

Methods for disbudding and dehorning:

1) Hot-iron disbudding and dehorning. This involves the use of a hot-iron dehorner heated to ~600˚C (red-hot). Press firmly against the head being careful to keep the calf's ear away from the hot iron. Rotate the iron around the horn bud until a copper-coloured ring is formed completely around the base of the horn bud. If any part of the circle is not properly burned to a copper colour, partial horns or "scurs" can develop. For young calves this should not take any longer than 10-15 sec. Take caution, heat can be transferred through the thin bones of the skull and damage the calf's brain. See OMAFRA's factsheet: (http://www.omafra.gov.on.ca/english/livestock/dairy/facts/09-003.htm#hot).

   Ability to use this procedure is dependent on the size of the horn.

2) Chemical cauterization for disbudding. A thin coating of caustic paste is applied to the horn bud area. Pain is easier to control using paste but care is needed to prevent accidental caustic burns to other animals; ideally calves should be isolated in a separate pen for at least 24 hrs after the caustic paste application. If animals cannot be placed in separate pens for 24 hrs then isolate calves for at least 6 hrs following the procedure.

3) Scoop dehorning is the use of two interlocking semicircular blades attached to handles that are fitted around the horns, allowing for the horns to be amputated. This method is **not recommended.**

RECOMMENDATIONS FOR SHEEP AND GOATS

Dehorning is not necessary for sheep – choose hornless breeds. Horned goats will not pose problems in well-designed facilities and horns are important for grooming and social communication. Research has shown that horned does are no more aggressive than non-horned does. Aggression is only a factor if available space is less than $2m^2$/doe.

Disbudding is the only option for horn removal in goats (naturally polled goats have limited fertility), and must only be performed by a veterinarian or trained personnel. Disbudding should be carried out only if kids are healthy, thriving and are between 2-30 days old (for European breeds: 2-7 days for males, 3-10 days females; Nubians have no buds until 30 days) using adequate pain control. Disbudding irons are preferred to caustic paste, which would require removal of the dam to prevent transfer of paste to the udder. Allow sufficient time between kids to ensure maximum heating and only apply for 5-10 sec.

RECOMMENDED PAIN CONTROL

Pain control should be used during all disbudding and dehorning procedures.

When hot iron disbudding, local anaesthestics administered through a cornual nerve block or a ring block around the horn bud have the potential to reduce the immediate pain responses but they do not provide adequate post-operative pain control. Therefore, local anaesthestics alone will not suffice. The use of sedatives, local anaesthetics and systemic analgesics in combination is recommended.

The following pain control is recommended for **hot-iron disbudding**:

a) Sedative - with the use of a sedative, such as xylazine, (administered approximately 20 min before disbudding), the calf's response to physical restraint and the administration of local anaesthetics during disbudding should be reduced.
b) Local anaesthetics, - administration of a local anaesthetic, such as lidocaine or buvipicaine, should be done prior to disbudding and should follow the manufacturer's recommended drug onset time. To test that the area is numb prior to disbudding, prick the skin to see if the animal can feel anything around the horn bud or base of the horn.
c) Post-operative analgesia - a non-steroidal anti-inflammatory, such as ketoprofen, should be administered to control post-operative pain. Ideally, the animal should be given pain control for at least 24 hr after dehorning. Duration of effectiveness will depend on the drug used. Consult with your veterinarian for the most appropriate procedures and drugs to use, given the circumstances of your farm.

   Some organic farmers also use the homeopathic remedy Arnica or "Rescue Remedy" for pain control although research has not confirmed its efficacy.

Research has shown that in the case of disbudding with caustic paste, the use of a local anaesthetic nerve block did not reduce the observed pain related behaviours and may in fact increase discomfort, possibly due to the mode of action of the anasethetic.

Until more research is conducted in this area, the following pain control is recommended for **caustic paste disbudding**:

a) Sedative - administer a sedative, such as xylazine, approximately 20 min before disbudding.
b) Post-operative analgesia – see recommendations under hot-iron disbudding.

Since **dehorning** adult cattle should only be performed by a veterinarian, all pain management protocols should be under the advisement of the attending veterinarian.

SUMMARY – DISBUDDING / DEHORNING

- Combine the use of sedatives, analgesics and anaesthetics when hot iron disbudding
- Combine the use of sedatives and analgesics when using caustic paste
- Only veterinarians or trained personnel should perform disbudding
- Dehorning adult cattle should only be performed by a veterinarian and only if it is absolutely essential for the welfare of the herd
- When using caustic paste, isolate calves and kids so as to avoid unintentional caustic burns to other animals

SOURCES OF INFORMATION

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