

**AWEC**ANIMAL
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Hot-iron disbudding using anaesthesia and analgesia: how to do it

A. RAMON | E. MAINAU | P. LLONCH



Disbudding is a common practice in dairy cattle to inhibit horn development, which is intended to facilitate handling and reduce the risk of injury between animals. This practise produces stress and pain during the process and in subsequent days. Therefore, it is necessary to refine the methodology to ensure that pain is prevented and the welfare is improved.

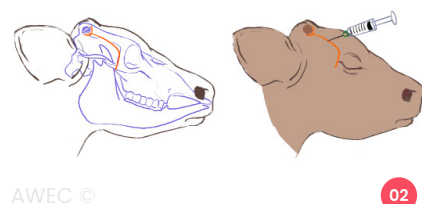
Disbudding should be performed using anaesthesia and analgesia to reduce pain during and after the procedure, respectively. Sedation before the use of anaesthesia and analgesia helps to appease animals and facilitates the handling of animal. It is necessary to emphasize that exclusive use of sedation does not reduce pain.

First step for disbudding is to identify the horn buds by palpation, so it can be confirmed that it is not a polled animal. Bud horns appear around three weeks after birth. It is convenient to apply **analgesia** before to start disbudding so its effects can start as soon as possible to effectively prevent pain after cessation of the anaesthesia effect. Table 1 shows the list of analgesic drugs that are authorized in cattle, the recommended dosage and duration of the effect. The analgesic effect should last during 2 or 3 days, and in those products that last shorter, it will be necessary

to repeat the administration.

Xylazine is a α -2-agonists drug that can be used for **sedation**. It is applied intramuscularly at a 0,05-0,2 mg/kg dosage, ideally in a fasted calf. Once sedation takes effect, the next step is to apply **local anesthesia** (procaine) at both horn buds (Figure 1). The injection should be on the cornual nerve, over the crest of the temporal bone, dorsally to the zygomatic arch (Figure 2). In other words, the triangulation between the eye, the horn and the ear.

Up to ten minutes later, it can be checked whether the anesthetic has taken effect through the pin-prick test (Figure 2). It consists to mildly prick the skin with a needle around the germinal buds and to check whether the calf reacts to the stimulus. If calf wiggles the ears or blinks, it will be necessary to repeat the anaesthetic administration. Once confirmed the animal was properly anaesthetized,



Illustrated by G. Martín-Valls

disbudding can be carried out. Consisting on applying high temperatures on buds to cauterize horn tissue.

Figure 01

Administration of local anesthesia

Figure 02

Anesthetic injection location

Steps to disbudding process:

01. Raze around the germinal buds to facilitate the contact between the hot iron and the buds (Figure 3).

02. To apply the hot iron during 10 seconds with rotative force to each germinal bud (Figure 4).

03. To spray with antibiotic at the buds preventing possible infections (Figure 5).

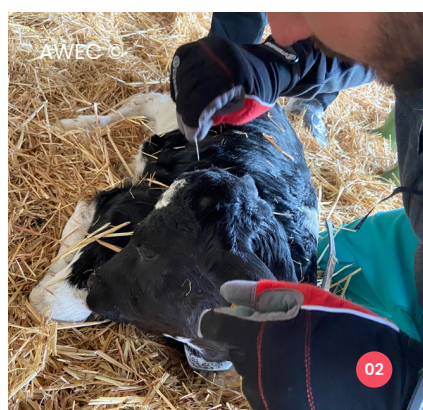
After the end of the procedure, the calf should be monitored to ensure an adequate recovery from sedation and anaesthesia.

● **TABLE 1: ANALGESIC DRUGS AUTHORIZED IN CATTLE IN SPAIN**

ACTIVE SUBSTANCE	DOSAGE	WAY OF ADMINISTRATION*	WITHDRAWAL PERIODS (d/h)	DURATION OF EFFECT
Meloxicam	0,5 mg/kg	SC o IV	Milk: 5 d / Beef: 15 d	26 horas
Carprofeno	1,4 mg/kg	SC o IV	Milk: 0 h / Beef: 21 d	70 horas
Ketoprofeno	3 mg/kg	IV o IM	Milk: 0 h / Beef: 1d	2 horas
Diclofenaco	2,3 mg/kg	IM	Milk: 6 d / Beef: 15 d	11 horas
Flunixin meglubine	2,2 mg/kg	IV	Milk: 48 h / Beef: 4 d	4 horas
	3,33 mg/kg	TD	Milk: 36 h / Beef: 7 d	8 horas

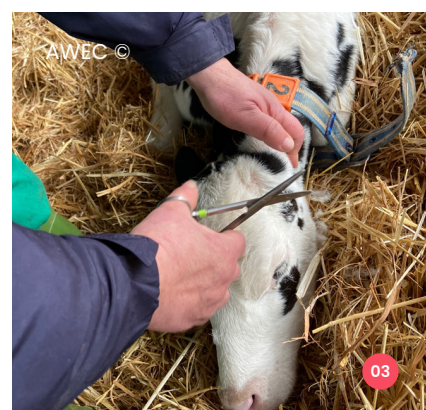
► **Table 01**

(*) SC = subcutaneous, IV = intravenous, IM = intramuscular, TD = transdermal



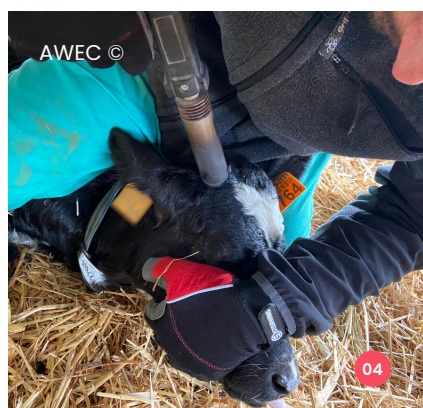
► **Figure 02**

Pin-prick test



► **Figure 03**

Razing around the buds



► **Figure 04**

Hot-iron disbudding



► **Figure 05**

Antibiotic spray

REFERENCES

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