



Freeze Branding Cattle

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To improve long-term overall production efficiency, cattle producers should place a high priority on identifying individual cattle and maintaining accurate records. One type of permanent identification is branding.

Although a fire brand can be applied, many producers prefer freeze branding. Freeze branding is performed using a coolant and copper or copper-alloy branding irons. Two common freeze branding methods include using either liquid nitrogen or a combination of dry ice and alcohol as a coolant. Producers who freeze brand may have better results with dry ice and alcohol, but locating a dry ice source can sometimes be difficult. Liquid nitrogen can be purchased from welding supply stores and artificial insemination companies. Producers who use artificial insemination and have an industry representative service their liquid nitrogen tanks every few months can take advantage of this access to prepare for freeze branding.

Freeze branding is relatively stress-free for the animal, and causes little or no damage to the hide. Unlike fire brands, freeze brands result in reduced incidences of blotching. However, compared to fire branding, freeze branding takes more time, can be more costly and the brands may not be as clear on all cattle.

It is best to freeze brand during the spring or fall months while the hair is growing. As the brand is applied, melanocytes (pigment-producing cells in the skin) are destroyed, and subsequent hair growth is white. New hair growth should appear in two to three months. Over time, freeze brands may fade, so consider an additional form of identification, such as tattooing, as a backup. The effectiveness of freeze branding is variable, and results are usually better for black and red cattle than for white cattle.

Tools Needed to Freeze Brand with Liquid Nitrogen

- Copper or copper-alloy branding irons (steel and brass irons have been used with poor success)
 - 3 in. for calves
 - 4 in. for mature cattle
- Liquid nitrogen
- Container to hold liquid nitrogen and branding irons while cooling
- Rice brush or curry comb
- Clippers with surgical blade
- 95%–99% isopropyl alcohol

Table 1. Advantages and Disadvantages of Freeze Branding.

Advantages	Disadvantages
Relatively painless	Time required to brand
Reduced hide damage	More expensive than fire branding
No blotching	Results may vary; Does not work as well on cattle with light-colored hair



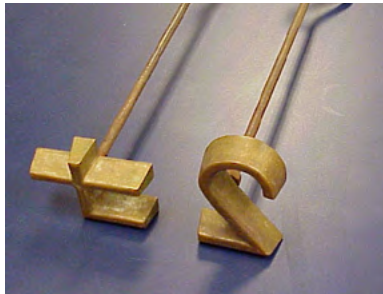
Procedures (Results may vary)

1. Place copper branding irons in liquid nitrogen.
2. Wait 20 to 25 min for irons to cool to the proper temperature. A coat of ice will begin to migrate up the handle as the irons cool.
3. Secure the animal in a squeeze chute.
4. Brush the intended brand location and remove all debris and loose hair.
5. Clip the brand location using surgical clippers to ensure good contact between the iron and the hide.
6. Brush the brand location a second time to remove loose hair.
7. Saturate the brand location with 95% to 99% isopropyl alcohol (use a spray bottle or sponge).
8. Apply the brand immediately. Research reports that calves should be branded for 20 to 24 seconds, while cows should be branded for 25 to 30 seconds. Variations in hair length can change the amount of time needed to apply a quality brand. If brands are applied too long, the results will mimic that of fire branding.
9. Make sure the iron is free of debris and place it back in the liquid nitrogen.
10. Allow the iron to cool for 3 to 4 minutes before using it again. When vigorous boiling ceases, the iron is ready for branding.

Note: Two numbers can be applied at once, but this requires two people.

Do not freeze brand when it is rainy, windy or humid. If weather conditions aren't optimal, the irons change temperature rapidly, thus hindering the branding effects.

Use copper or copper-alloy branding irons for freeze branding.



Freeze brand calves for 20 to 24 seconds, and cows for 25 to 30 seconds.

For freeze branding, you'll need liquid nitrogen and a container to hold the liquid nitrogen and branding irons while cooling.



The effectiveness of freeze branding is variable, and results are usually better for black and red cattle than for white cattle.

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