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Freeze Branding

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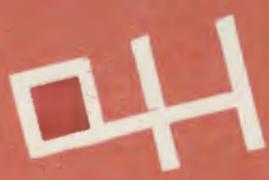
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Freeze Branding



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COOPERATIVE EXTENSION SERVICE
SOUTH DAKOTA STATE UNIVERSITY

UNITED STATES DEPARTMENT OF AGRICULTURE



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Freeze Branding

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Figure 1. Freeze brands applied properly are legible both in summer and in winter.

Freeze branding is a new technique in which a super-cold branding iron applied to the animal's hide kills the pigment producing cells. The result is that while hair instead of colored hair grows at the brand site.

WHY FREEZE BRAND?

The advantage of a freeze brand is that it is readable at any time of the year if it is properly applied. The white hair against a dark background can be seen at a distance both summer and winter.

Freeze branding produces less scar tissue and less hide damage. The hair continues to grow which indicates skin health.

Intense cold branding causes less pain to the animal.

MATERIALS NEEDED

1. Chute or some device to restrain the animal
2. Either mechanical or manual hair clipper
3. Branding irons
4. Insulated container for the coolant
5. Alcohol or acetone
6. Dry ice
7. Squirt bottle for room temperature alcohol or acetone and grooming brush for cleaning

IRON

Copper and bronze "irons" or their alloys are satisfactory. Steel irons have also been used satisfactorily when slightly more time is allowed for the cold to penetrate. You can buy them from livestock supply companies and drug stores. Several companies are in the process of perfecting freeze branding irons. If an iron is "made up," it should have a face about three-eighths inch wide, preferably rounded, and it

should be one to two inches deep from the face to the back to give it capacity to retain cold. The four-inch height is recommended for cows and yearlings. A smaller size may be necessary to put several numbers on a calf. The freeze brand gets bigger as the calf grows.

Four-inch copper irons cost about \$8 to \$9 each. Some county livestock associations, veterinary clinics, PCA's, etc., have irons on a rental basis. Contact your County Agent about their availability.

The handles on some freeze branding irons may have to be shortened for use in a squeeze chute.

REFRIGERANTS

Methyl alcohol can be purchased as alcohol-type anti-freeze called methanol for less than one dollar per gallon at service stations and supply stores.



Figure 2. Copper irons are preferred, but don't throw away a good set of steel irons. Both produce legible brands if applied properly.

This is the cheapest and most available refrigerant. The only disadvantage is that it is colored; the color interferes slightly in detecting dry ice in the container.

Acetone is clear and works well, but it costs about \$2.75 per gallon and it is not easy to get in large quantities. Wholesale drug companies are about the only suppliers that carry it in five-gallon lots. The coolant can be re-used.

DRY ICE

You can usually buy dry ice in the larger cities. Check on sources with your county agent. Dry ice usually comes in 50-pound blocks and sells from 7 to 30 cents a pound. Dry ice will not store for more than a couple of days. Dry ice companies will ship dry ice blocks in a cardboard container, but the purchaser must prepay the shipping charges and carton cost before it will be sent by public carrier. You'll no doubt be more satisfied if a local distributor or creamery can handle the material.

Order about one-half pound of dry ice per head to be branded.

LIQUID NITROGEN

Artificial insemination organizations may be able to provide liquid nitrogen and jugs for freeze branding. The usual type of jug used for AI has only a three-inch opening.

CLIPPERS

An electric hair clipper for cattle is perhaps the best. However, they are rather expensive and require electric current. A hand clipper with a three-inch head costs about \$7.00. Brand inspectors find this type of clipper satisfactory if handled properly.

CONTAINER FOR THE COOLANT

A container can be improvised from a bushel basket with two or three inches of insulation in the bottom. Put a half-bushel basket inside and fill insulation around it. This will hold nine irons. If only two or three irons are used, a similar arrangement can be made with a water pail and a half-bushel basket. An insulated picnic container is also satisfactory.

Use enough liquid to cover the branding irons. About two and one-half gallons are needed for the half-bushel basket. Add dry ice in chunks of about one pound each, until the liquid stops bubbling. This takes about five minutes. Then insert the irons into the coolant. Let the irons chill for ten minutes the first time; after that they will cool in a couple of minutes following each use.

Keep a chunk of dry ice in the coolant at all times. If colored anti-freeze is used, the dry ice can

be detected with the branding iron or with a stick. The amount of ice is not critical; as long as it is detectable in the liquid, the temperature of the solution will be 90 to 100 degrees below zero Fahrenheit.



Figure 3. Improvised container for coolant

Wear gloves when handling dry ice. Saw the dry ice in slices about two inches thick. The dry ice company will do this if you request it. A slice can then be broken with a hammer into four or five pieces. Do not pulverize the dry ice.

PROCEDURE

1. Hold the animal in a squeeze chute or with a headgate in an alley. Hold calves either in a calf chute, or throw cowboy style on the ground with the calf on its side.

2. Clip an area on the upper part of the rump, a bit larger than the numbers to be used. If any number of cattle are to be branded, an electric cattle hair



Figure 4. Electric clipper

clipper is almost necessary. Clip high enough so the numbers will be easy to read in cattle alleys, crowding pens, chutes, or from horseback. Clip the hair in the brand area as closely as possible.

Number brands for individual identification can be placed on the rump area which includes from the tail head down to the hock. However, brands in the lower quarter become dirty easily, and they may be impossible to read if cattle are in a group.

3. Clean the clipped area of hair, dirt and dandruff with a grooming brush.



Figure 5. Grooming brush



Figure 6. Plastic squirt bottle

make a satisfactory squirt bottle from a plastic liquid soap container with a cap that has been perforated; an ordinary oil can, clothes sprinkler or a small hand sprayer will do. Some caps have a small tip that can be easily cut off to make an excellent dispenser.

5. Just before applying the branding iron, saturate the skin again with alcohol or acetone to provide a liquid contact between the iron and the skin. This step is critical for successful branding, since

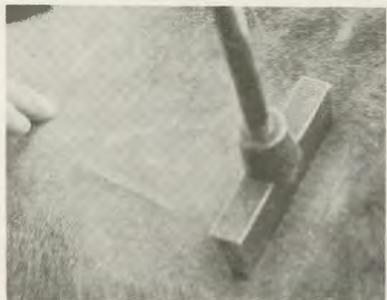


Figure 7. Copper iron applied to make last digit for number 121

both alcohol and acetone evaporate rapidly and the area must be wet.

6. You can use more than one iron at a time, but one operator for each iron gives the best results.

TIMING

For best results, apply the brand 40 seconds on calves and at least 50 seconds on cows. Allow ten seconds more for freeze branding with steel irons.

You can use a numbering system to note the year of birth. One simple method is to use continuous numbers with a notation as to the numbers used each year. Another method is to start the number with the last digit of the year born. For example, a calf born in 1966 would be branded with a six first, then the number of the calf, such as 61, 62, etc. The 1967 calves would start with 71, 72, etc. Still another method is to place the identifying number on the top row with the year number below. In this instance calf number 123 born in 1967 would have 123 with a 7 below:

123
7

Some purebred cattlemen like to identify their cattle by freeze branding the tattoo number on the rump.

APPEARANCE OF BRAND

Immediately after the branding iron is lifted the hide area appears to be frozen stiff. This area will soften in a few minutes. In an hour or two, the

4. Apply room temperature alcohol or acetone with a squirt bottle and continue to brush to remove any foreign material still on the skin. You can



Figure 8. Number 18 was applied with copper irons for 40 seconds.

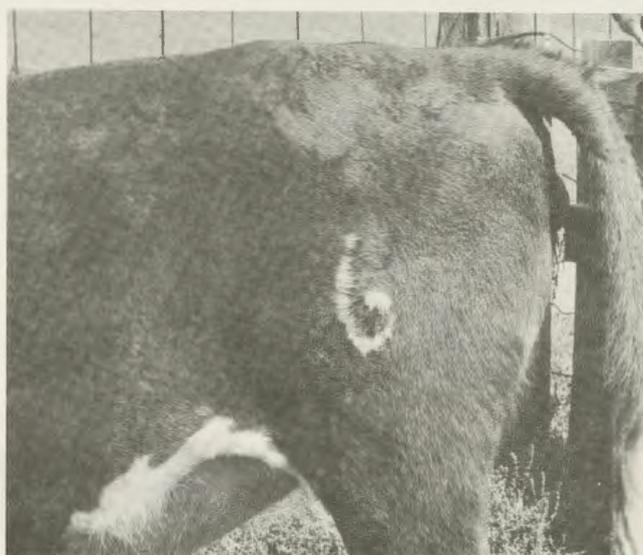


Figure 9. Number 6 was applied for 40 seconds; however, the brand is too low to be read easily in a chute.



Figure 10. Steel irons applied for 50 seconds produced these good results.

branded areas will become swollen as in frost bite and the brand will be easy to read. In about a week the hair will either fall out or appear short. The brand will still be readable. If the brand is applied properly, white hair may start to grow from six weeks to four months later.

RESULTS AND OBSERVATIONS

Freeze branding demonstrations have been conducted under different conditions with varying results. Practically all brands have been readable shortly after branding; the hair falls out and some scar tissue forms in the branded area. Up to this point most brands are uniform. However, the subsequent regrowth of white hair—the reason for freeze branding—has to date been only about 50 per cent effective. Some brands applied for as little as 20 seconds have resulted in a good growth of white hair, while other brands applied for 60 seconds have failed to produce any white hair. This has also been reported at times when liquid nitrogen was used as the coolant.

Evidently factors other than timing affect the "take" of freeze brands. Unsatisfactory result may be attributed to: (1) a poor job of clipping; (2) failure to saturate the brand area immediately before the iron is applied; (3) failure to apply iron with firm pressure; (4) not holding the iron on the hide long enough, and (5) the possibility that regrowth of hair may occur at different rates during certain seasons of the year.

Freeze branding must be considered to be in the experimental stage until consistently uniform results can be achieved.

Thickness of the animal's hide seems to influence the time needed to produce a good brand. Calves are easiest to brand, followed by yearlings, cows, and bulls. Dairy cattle seem to be easier to brand than beef cattle. Herefords seem to need a longer time than Angus.

Excited cattle seem to be harder to brand than cattle that are handled quietly. This may be caused simply by difficulty of keeping the iron in proper contact with the skin.

Good corrals, alleys and squeeze chutes make freeze branding easier.

CAUTION

Dry ice, and especially the cold liquid, can injure humans. Wear gloves to protect your hands. Don't let the cold liquid contact your skin. Work in the open air or in a well-ventilated building. Alcohol and acetone are inflammable, so avoid lighting and smoking cigarettes. Vapor from the liquid can damage the delicate tissues of the eyes and nose. Super-chilled metal, on direct contact, can cause skin tear. Keep children away! Let the liquid "warm up" before replacing in the container. Leave the container cap loose until the liquid reaches room temperature. If you don't it may explode!

Freeze branding is not currently a legal brand.

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