



Freeze Branding Horses¹

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Brands are a commonly used means to identify individual horses as an aid in farm management and as a theft deterrent. Brands are also used to identify a line of horses from a particular ranch, so as to increase their marketability based on the ranch's reputation. Both fire and freeze branding have been used successfully on horses for many years.

Freeze branding, also called cryogenic branding, uses extreme cold to alter the growth of the hair in the brand contact area. Cooling agents, such as liquid nitrogen (-300° Fahrenheit), are used to cool branding irons. Two different follicles in hair are affected by contact to cold branding irons: the pigment producing follicle and the hair shaft growth follicle. Contact time can be regulated to destroy the ability of the pigment producing follicle without affecting the hair shaft growth follicle. As such, a brand can be applied that discolors (whitens) the hair at regrowth. If the contact time is lengthened, the cold will destroy the pigment producing follicle and the hair shaft growth follicle. The expected result would be a hairless or "bald" brand.

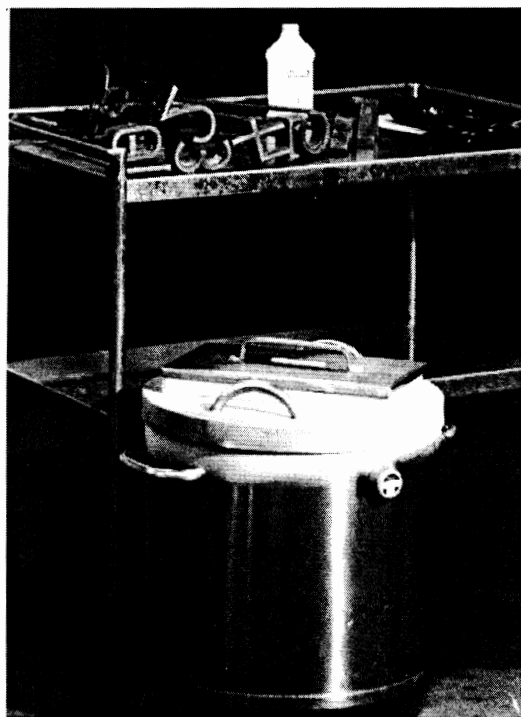
Equipment Needs (Photograph 1)

1. Container with liquid nitrogen (-300°F) or dry ice and alcohol.
2. Gloves to handle branding irons and liquid nitrogen container.
3. Small animal clippers with Number 40 clipper blades.
4. 95% alcohol
5. Stopwatch
6. Branding irons (brass, copper, stainless steel, etc.) at least 1 inch depth front to back.

Procedure

1. Clip the area to be branded. It is recommended to clip the hair in a square area at least two or three times larger than the brand. (Photograph 2)
2. Chill branding irons in liquid nitrogen. When first exposed, the liquid nitrogen will bubble. The irons are cool when bubbling is minimal (Cooling will usually take 30 seconds to a minute or more). (Photograph 3)

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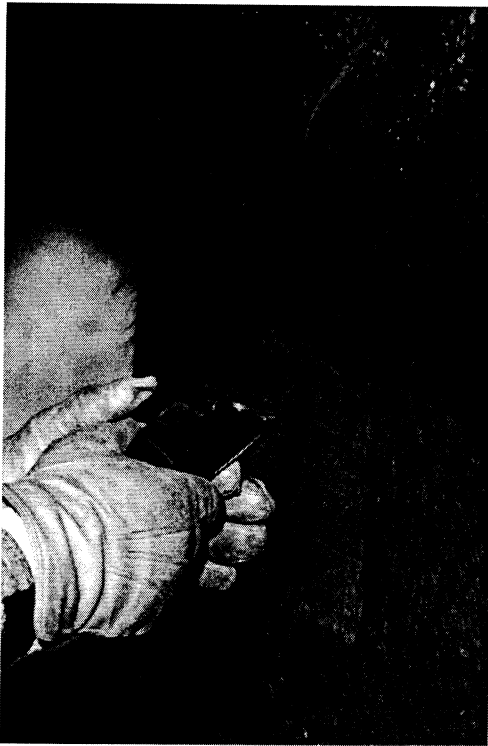
Photograph 1

3. Wipe the clipped area with the alcohol to remove skin oil, and then apply a liberal amount (soak the skin) with the alcohol to provide a good medium of temperature transfer. (Photograph 4)
4. Squarely apply the cold branding iron to the site. Use a gentle rocking motion for the required time to insure a good contact. Also, effort should be made so not to wrinkle the skin. Proper restraint of the horse (stocks, twitch, etc.) will aid in maintaining a good brand contact. (Photograph 5)

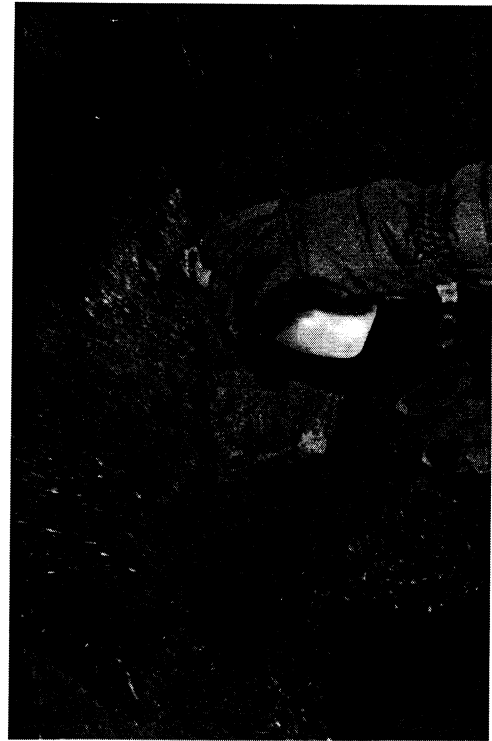
Timing

Timing is critical. It is suggested that the brander signals the "on" time for the timer. The timer subsequently should tell the brander when to remove the iron from the skin. Branding procedures should be uniform so to maintain a minimal time of

¹ Information for this fact sheet was partially prepared from a report in "Proceedings of TAMU Animal Science Horse Breeders' School", Texas A&M University.



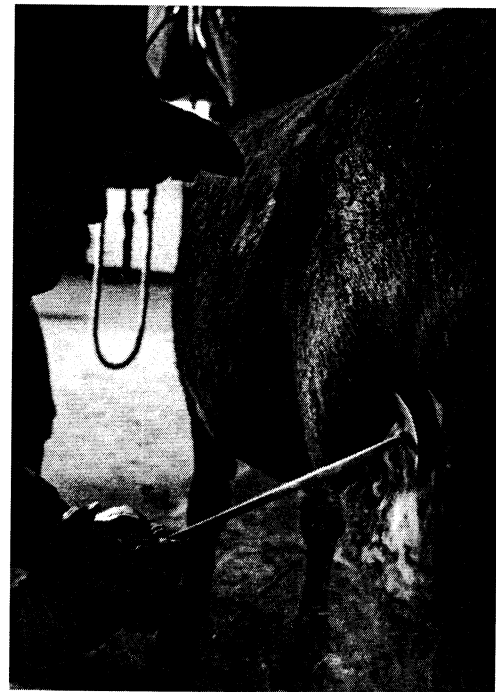
Photograph 2



Photograph 4



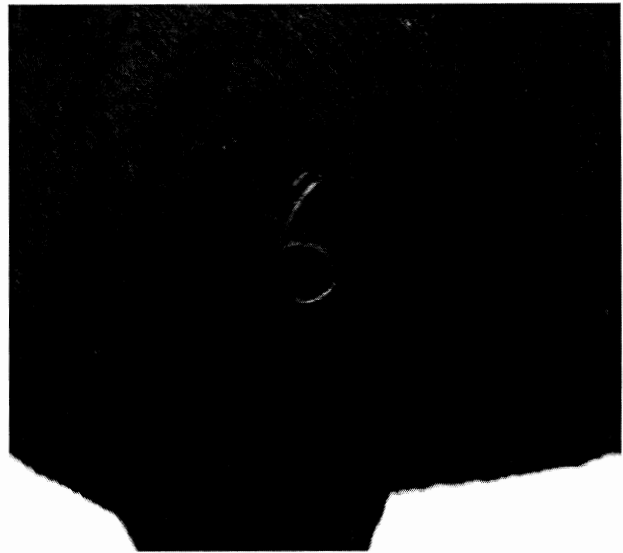
Photograph 3



Photograph 5



Photograph 6



Photograph 7



Photograph 8

Suggested Branding Times

	Branding Iron Metal	
	Stainless Steel	Copper/Brass
Dark horse (white hair brands)	8 seconds	7 seconds
Light horse (hairless brands)	13 seconds	12 seconds

branding iron transfer from the cold to the horse's skin. Also, brand contact time should be closely regulated with use of a timer and stopwatch. (Photograph 6)

It is best to calibrate the branding irons with standard branding procedure to insure best results. Suggested branding times will vary with the type of metal of the branding iron and whether or not subsequent hair growth is desired. A seven (7) second branding time is recommended for producing white hair brands on dark horses when using a copper or brass branding iron. If the branding time is increased to twelve (12) seconds, expect a "bald" or hairless brand with no subsequent hair growth. The longer branding time (bald brand) can be used on light colored horses to allow for the most legible brand.

Results

An indented pattern of the branding iron will be evident a few seconds after removing the iron (Photograph 7). The brand pattern will thaw and the brand site will swell up within five to ten minutes. The brand pattern swelling should leave within a week. Usually, the top layer of skin will shed in about one month following branding. If branding times were calibrated to allow for subsequent hair growth, the white hair should come in about two months. The white hair brand should be complete within three months post branding (Photograph 8). If no hair returns, the branding time was too long. If the hair color is streaked with natural hair color, the branding time was too short.

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