

## PERFORMANCE OF BRASS METAL DURING FREEZE BRANDING IN SAHIWAL CATTLE

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**Abstract:** Identification of animal in livestock enterprise is of immense importance to draw conclusion of their status in production as well as performance. The present investigation was conducted at the Bull Mother Experimental Farm, College of Veterinary Science & A.H., Anjora, Durg on 80 Sahiwal cattle of different age groups. The age of animals ranged from 0 month to above 18 months. In 0-6 months, the time of appearance of white hairs were  $49 \pm 1.83$ ,  $50.66 \pm 2.33$ ,  $48.75 \pm 3.94$  and  $55.25 \pm 1.75$  days, respectively for 5, 7, 9 and 11 seconds of exposure time. In 6 to 12 months, the exposure time of 8, 11, 14 and 17 seconds using brass metal, the appearance of white hairs were  $47.2 \pm 2.4$ ,  $49.75 \pm 1.75$ ,  $56.66 \pm 2.40$  and  $49.66 \pm 3.28$  days, respectively. In 12 to 18 months, the times of appearance of white hairs were  $59 \pm 1.00$ ,  $61 \pm 2.65$ ,  $55.5 \pm 6.54$  and  $62.5 \pm 2.50$  days, respectively for 12, 15, 18 and 21 seconds of exposure time. In age group of above 18 months, the exposure time of 17, 20, 23 and 26 seconds using the brass metal, the time of appearance of white hairs were found to be  $63 \pm 00$ ,  $47 \pm 00$ ,  $57.66 \pm 2.96$  and  $64 \pm 2.00$  days, respectively.

**Keywords:** Brass metal, Cattle, Production, Experiment

### INTRODUCTION

Cattle identification procedure is still infancy leading to create management problem besides maintaining breeding records under breed improvement programme. Hot branding is widely practiced in organized and unorganized herds of India and strictly condemned by the society for prevention of cruelty against animals due to development of scar. These identification methods decreases hide value due to severe damage to the skin and loss to the leather industry (Hooven *et al.*, 1971). Freeze branding is common technique to mark large mammals, particularly livestock (Farrell *et al.*, 1978, Newton, 1978) and has been accepted widely in developed countries. This technique could only be the best procedure considering its permanency, applicability and ease in reading.

### MATERIAL AND METHOD

The study was conducted on 80 Sahiwal cattle of both sexes of different age groups at the Bull Mother

Experimental Farm, College of Veterinary Science & A.H., Anjora, Durg. Each group comprised of 20 animals (table 1). The age of animals ranged from 0-6 month to above 18 months. The shape of brass metal was moulded to "I" shape and width, depth is same for all age group. The length of metal is 2, 3, 4 and 4 inch (Bath *et al.*, 1981) according to their age groups i.e. 0-6, 6-12, 12-18 and above 18 months, respectively and weight of metal is 108, 164, 217 and 217 grams according to their age groups i.e. 0-6, 6-12, 12-18 and above 18 months, respectively. As refrigerant, liquid nitrogen was used. The brass metal was dipped in to coolant. The temperature of brass metal equaled to that of liquid nitrogen (at  $-196^{\circ}\text{C}$ ) and frosting appears on the lower end of the metal handle, just above the level of the coolant. The branding metal was taken out and quickly applied on the skin of the animals with firm pressure by holding the metal on the area and do not let it slip. We have taken different exposure times were tried for different age groups given in table:1. The data were analyzed as per methods described by Snedecor and Cochran (1994).

**Table 1. Different exposure time proposed for different age group**

Age (months)	No. of Animal	Exposure time (seconds)
0-6	20	5
		7
		9
		11
6-12	20	8
		11
		14
		17
12-18	20	12
		15
		18

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		5	21
Above 18	20	5	17
		5	20
		5	23
		5	26

## RESULT AND DISCUSSION

The mean time for appearance of white hairs studied were given in table: 2. In 0-6 months of age group in Sahiwal, the time of appearance of white hairs were  $49 \pm 1.83$ ,  $50.66 \pm 2.33$ ,  $48.75 \pm 3.94$  and  $55.25 \pm 1.75$  days, respectively for 5, 7, 9 and 11 seconds of exposure time. Lesser time was seen for the appearance of white hairs at 9 second ( $48.75 \pm 3.94$  days) exposure time used in 0-6 months of age group in Sahiwal. In 6 to 12 months age group, the exposure time of 8, 11, 14 and 17 seconds using brass metal, the appearance of white hairs were  $47.2 \pm 2.4$ ,  $49.75 \pm 1.75$ ,  $56.66 \pm 2.40$  and  $49.66 \pm 3.28$  days, respectively. The number of days required for appearance of white hairs was relatively lesser ( $47.2 \pm 2.4$  days) in 8 second of exposure time.

However, all values were statistically non-significantly differed with respect to exposure time of 8, 11, 14 and 17 seconds for brass metal. In 12 to 18 months age group, the time of appearance of white hairs were  $59 \pm 1.00$ ,  $61 \pm 2.65$ ,  $55.5 \pm 6.54$  and  $62.5 \pm 2.50$  days, respectively for 12, 15, 18 and 21 seconds of exposure time. In this age group, minimum of  $55.5 \pm 6.54$  days required for appearance of white hairs were seen at 18 seconds of exposure time. In age group of above 18 months, the exposure time of 17, 20, 23 and 26 seconds using the brass metal, the time of appearance of white hairs were  $63 \pm 00$ ,  $47 \pm 00$ ,  $57.66 \pm 2.96$  and  $64 \pm 2.00$  days, respectively. The difference in the time required for appearance of white hairs in all exposure time of above 18 months age groups were non-significant (Sherwin *et al.* 2002).

**Table 2. Mean time for appearance of white hair**

Age group (months)	Exposure time (seconds)	Appearance of white hairs (days)
0-6	5	$49 \pm 1.83$
	7	$50.66 \pm 2.33$
	9	$48.75 \pm 3.94$
	11	$55.25 \pm 1.75$
6-12	8	$47.2 \pm 2.4$
	11	$49.75 \pm 1.75$
	14	$56.66 \pm 2.40$
	17	$49.66 \pm 3.28$
12-18	12	$59 \pm 1.00$
	15	$61 \pm 2.65$
	18	$55.5 \pm 6.54$
	21	$62.5 \pm 2.50$
Above 18	17	$63 \pm 00$
	20	$47 \pm 00$
	23	$57.66 \pm 2.96$
	26	$64 \pm 2.00$

## CONCLUSION

Lesser days were required for appearance of white hairs at 9, 8 and 18 seconds of exposure time in 0-6, 6-12 and 12-18 months age group, respectively. Overall, in 0-6, 6-12 and 12-18 months age group an exposure time of 9, 8 and 18 seconds, respectively can be recommended for brass metal. The appearance of white hairs in above 18 months age group was less than 80 percent, hence, legibility may be ambiguous after 18 months of age due to age advancement. The thickness of skin is directly related to age, so more number of days were required for appearance of white hairs with less legibility.

Hence require more mass (weight) in the brass metal for better performance in advancement of age group.

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