Multiple Iron Holder for Freeze Branding

D. G. ELY AND J. L. LAUNCHBAUGH
Assistant Animal Husbandman and Pasture Management Specialist, Fort Hays Branch, Kansas Agricultural Experiment Station, Hays, Kansas.

Highlight

Three hundred 450-lb Hereford steers were numerically freeze-branded on the right hip with a multiple iron holder. Time required to apply three-number brands was reduced from 150 seconds when irons were individually applied to 40 seconds when the multiple iron holder was used. Seventy-seven percent of the animals had legible brands eight months after branding. An additional 10% of the brands were marginal in legibility and the remaining 13% could not be readily identified.

Researchers conducting grazing studies with beef animals constantly encounter difficulties in positively identifying individual animals. Several identification methods, including hot branding, chemical branding, ear tagging, neck chaining, and tattooing are used, but each has disadvantages. Freeze branding offers another possibility; however, application time is usually longer than with other techniques. Holding each iron against the animal’s skin for 30 to 40 seconds appears to be necessary in order to produce a legible brand on cattle (Farrell et al., 1966; Ely and Duitsman, 1968). This study attempted to reduce the application time by applying one, two, or three irons simultaneously with a multiple iron holder.

Materials and Methods

Three hundred Hereford steers weighing approximately 450 lb each were numerically freeze-branded on the right hip on November 2 and 3, 1967, using the multiple iron holder shown with parts and construction details in Fig. 1.

Fig. 1. Exploded and assembled views of freeze-branding multiple iron holder: A. Locking Lever—Flat iron stock; 3/16" dia. hole centered 1/4" from left end; rod handle brazed 1/4" from right end. B. Branding Iron—Galvanized pipe with 2" x 4" bronze numeral; 3/8" dia. steel pin inset, extended 1/4" and brazed. C. Locking Lever Latch—21/4" x 5/8" flat iron stock, 90° bend, 3/4" from upper end; 1/4" dia. countersunk screw holes centered 1/4" and 3/4" from lower end. D. Front Alignment Bracket—Oak Stock; 7/16" semi-cylindrical grooves at mid-point and 1" from each end (use 1" x 1" stock; drill 7/8" dia. horizontal holes 3/8" from bottom; cut stock down from top to thickness); 3/16" dia. hole centered 1/4" from lower end; 3/16" dia. countersunk vertical screw holes 3" from each end. E. Vertical Alignment Bar—Flat iron stock; 7/16" x 3/8" slotted holes on longitudinal centerline at mid-point and 1" from each end; 3/16" dia. countersunk vertical screw holes 3" from each end. F. Rear Alignment Bracket—Oak stock; 3/8" dia. x 3/8" deep horizontal holes on longitudinal centerline at mid-point and 1" from each end; 3/8" dia. countersunk vertical screw holes 1", 3", 5", and 7" from lower end; 3/8" x 45° bevel on upper right edge. G. Padding—8" x 6" x 10" to 1/2" foam rubber, held in place with contact cement. H. Base—Oak stock; 3/8" dia. hole (countersunk on lower side) 1/4" from left end and lower side; 3/8" x 45° bevel on lower right edge. Drill pilot holes for all screws. J. 1-10-20 x 3/4" flat head slotted stove bolt with nut. K. 1-10-20 x 3/4" flat washer. L. 2-No. 10 x 1/2" heavy duty compression spring. M. 2-No. 12 x 1/4" flat head slotted wood screws. N. 2-No. 12 x 1" flat head slotted wood screws. O. 4-No. 10 x 1/4" flat head slotted wood screws. P. Complete Assembly.
The following freeze branding procedure was employed:

1. Use a duplicate set of 2" × 4" bronze alloy numerals (0-9) to ensure proper chilling at all times.
2. Stand irons in insulated container.
3. Pour methyl alcohol into the reservoir to a depth completely covering heads of irons.
4. Add sufficient crushed dry ice to raise alcohol level to 1 to 2 inches above iron heads.
5. Allow 30 minutes for irons to chill.
6. Place bath containing irons and dry ice solution near animal holding facility.
7. Check temperature of the solution with a Centigrade thermometer. When temperature reaches ~72 to ~75 °C and bubbling stops, irons are ready to use.
8. Restrained the animal and clip the brand site as closely as possible with a Sunbeam Stewart Clipmaster, model 510A head, blade 84-AU, Sunbeam Corporation, Chicago, Ill. (Farrell et al. 1966).
9. Wipe clipped area with a sponge soaked in methyl alcohol to prevent iron from sticking to skin.
10. Insert numbered irons into multiple iron holder.
11. Apply irons to wetted area of skin with firm, steady pressure at least 40 seconds (Fig. 2).
12. Lift irons slowly from skin with a steady motion.
13. Return irons to methyl alcohol-dry ice bath and allow 2 to 3 minutes before using same iron again.
14. Add dry ice and alcohol to the mixture if bubbling becomes excessive or if mixture does not completely cover heads of irons.
15. Caution: Use insulated gloves when handling dry ice or individual branding irons and keep face away from alcohol-dry ice solution to avoid fumes.

Results and Discussion

A satisfactory result of applying a three-digit brand is number 181 shown in Fig. 3. Although properly applied numerals remain legible, they may become slightly distorted in time because hair on and near the brand site appears to grow faster than that covering the remainder of the animal. An illegible brand number (75) is shown in Fig. 4. Difficulty in locating a flat area on the hip large enough for two or three irons appears to be the major problem in applying two or three numerals simultaneously. The area between the pin and hip bones on 450- to 500-lb calves is short. If any part of the irons is set on the bones when branding, the operator cannot apply even pressure on all irons and only part of the numerals may be legible at a later date. Branding larger animals (more than 600 lb) with three numerals simultaneously should result in greater success of positioning the irons to avoid hip and pin bones.

The time required to apply three individual numerals to each animal is approximately 150 seconds (40 seconds/numerical holding time plus 30 seconds to select the irons as needed from the dry ice-alcohol bath). When the mul-
multiple iron holder was used, application time was reduced to 40 seconds/animal because all irons could be fitted into the holder while the animal was being prepared for branding. Since branding is usually done in conjunction with vaccinating and dehorning, the time saved on numbering 300 steers with the multiple iron holder as opposed to individual numeral placement was approximately seven hours for a crew of five men. Two hundred thirty-one of the 300 brands (77%) were still clearly legible eight months after application.

Another 10% were marginal in legibility. That is, one of the two or three numerals was not completely clear. The remaining 13% could not be readily identified.

If smaller numerals (1 1/2" × 3" instead of 2" × 4") were employed for 450- to 500-lb steers, one could reduce the three-digit numeral spread from 8" to 6 1/2" in the multiple iron holder, and perhaps obtain greater legibility. Another possibility would be to code three-digit numbers by substituting a dot in various positions for the first digit and thereby minimize the surface area requirements for placement of three irons simultaneously.

LITERATURE CITED


Sheep Ranching in South Dakota

OTTO J. WOLFF
Rancher, Rapid City, South Dakota.

Fig. 1. Wintering sheep on Pine Ridge Indian Reservation in South Dakota.

The Cover Photo on this issue of the Journal shows one band of 1,200 sheep wintering on the Pine Ridge Indian Reservation southeast of Rapid City, S.D.

Returning from World War I service in France in 1919, I started with a small flock of sheep on a ranch north of Rapid City. By 1926 we built the flock up to 1,400 head and applied for a permit to graze on the Black Hills National Forest. We ran two bands in 1927—the National Forest range has carried two bands for 42 years and shows marked improvement and greater carrying capacity. There are more than 50 dams with ponds fed by springs, runoffs, and numerous roads. In recent years, we consolidated the two bands in partnership with my son, Philip. By 1940, herders were hard to get so we fenced the Forest ranges with the encouragement of W. R. Chapline and E. D. Sandvig. The home ranches also are fenced and crossfenced and altogether we keep up 140 miles of fence. Ewe lambs, buck lambs, and herd bucks are run on the home ranches. We also run a small herd of purebred Highland cattle to utilize the lower-quality range and hay that the sheep refuse.

In 1931 we began wintering our sheep on the Pine Ridge Indian Reservation and we still winter there. Supplemental feed is produced mostly on our ranches north of Rapid City, where we have 1,000 acres of alfalfa and 500 acres in cultivation. Alfalfa mixtures are grazed during the spring. Brome grass, intermediate wheatgrass, and crested wheat in an alfalfa–sweet clover mixture cuts down possibility of bloat. Sheep are removed from the hay fields in June and the same fields produce one good crop of hay; 500 acres are planted to barley, milo, and Sudan grass. Barley is drilled into the hay fields and fertilized. The mixture is baled and hauled 100 miles into the badlands. Winter ranges have safety stockades in the southeast corner of the pastures; there are three snowfences back of the stockades and haystacks are built in this windward area back of the corrals for emergency use.

Our sheep have been linebred for more than 50 years and produce one of the highest priced wool clips in the country. Our original cross was Romney-Rambouillet with a half blood long staple. We shear in March and lamb in April. Our wool is sold by core test and it grades mostly half blood. We hold 1,200 ewe lambs for replacement each year and all ewes are sold at 5 years of age. Sheep are face fire-branded with the registered brand. In 1968, we marketed our lambs as usual on Sept. 5 at an average weight of 87 lb. We sell several hundred linebred bucks each fall. The yearling ewes are ear-tagged with a different color tag each year. Loading chutes are available on all ranches. Large movements of sheep are done by regular truckers. Snowmobiles are used on the winter range and motorcycles are used more often than horses.

Our greatest problem is coyotes and hoes; predators have consistently robbed us of much of our net profits which lately have been rather limited in the sheep business. Poisonous weeds are rare under our type of management. Parasites are no problem where we have a rather extensive method of rotation. Summer range and Indian Reservation are 100 miles apart. A thorough job of spraying cockleburs is done to reduce damage to the wool clip. Dipping vats are located in each of the three areas of operation. A coyote repellent is used for dipping to try to hold down predator losses. This is still in the experimental stage.

It seems that the utilization of considerable range land would best be served by a sheep ranch-farm combination, since sheep and wool represent about our only agricultural industry not in excess supply at present. Finally, management of open range in sheep production is just as important as weight per fleece and weight per lamb.

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