

EFFECT OF HEADLOCKS ON MILK PRODUCTION AND FEED INTAKE OF DAIRY CATTLE

*M. J. Brouk, J. F. Smith,
J. P. Harner, III¹, and S. E. DeFrain*

Summary

Cows previously trained with headlocks did not increase milk production or feed intake when headlocks were removed. Two-year-old and older cows did not differ in response to headlocks and neckrails. Prudent use of headlocks increases labor efficiency of a commercial dairy. Managing a dairy without headlocks is a challenge because cows must be sorted and worked off the milking parlor flow. In the case of large milking parlors, it may be necessary to process 50-200 cows per hour. Depending upon the treatment facilities, this number of cows may create a bottleneck in the dairy. For many routine procedures, headlocks offer the simplest and most cost-effective alternative. It is important to note that headlocks can be mismanaged. This is especially true during summer months. Locking up cows for extended periods without access to water or shade may have adverse effects during summer heat stress. It is important to minimize lock-up time. Consideration should also be given to training heifers to headlocks prior to calving. It is very likely that untrained heifers may be reluctant to be placed in headlocks. If this occurs, intake could be limited during their first exposure to headlocks. If heifers are not trained to headlocks prior to calving, one should determine if they should be locked-up each day during the first week of lactation. Headlocks can be successfully used on a dairy. The critical question is how will they be managed. Successful managers of headlocks minimize restraint time, push-up or feed pens often (6-8 times per day), and avoid use of headlocks

during late morning and afternoon hours during the summer months.

(Key Words: Cow Comfort, Restraint, Stress.)

Introduction

Headlocks or self-locking stanchions have been utilized for animal restraint necessary for many routine dairy husbandry procedures for several decades. Headlocks allow a single person to restrain a group of cows, increasing the labor efficiency of routine animal care including breeding, pregnancy exam, vaccination, injections, and other procedures. Within the last decade, some concerns have been raised about the effects of headlocks on milk production and feed intake. Several studies showed that extended lockup time (4 hr) did not affect feed intake or milk production. One study showed a decrease in milk with extended lock-up time, but similar feed intake. Another study found a decrease in intake without a difference in milk production. Therefore, a study was conducted during the summer of 2000 to determine the effect of headlocks and neckrails on milk production and dry matter intake of lactating dairy cows on a commercial dairy.

Procedures

Mid-lactation Holstein cows were housed in head-to-head 2-row freestall buildings equipped with 100 freestalls and identical cooling fans located over the freestalls and low-pressure feedline sprinkling systems.

¹Department of Biological and Agricultural Engineering.

The two barns were located on a northeast Kansas dairy and stocked with 108 mid lactation Holstein cows (55 2-year-olds and 53 cows). Each barn contained 220 ft of bunk space with 110 headlocks and 100 freestalls. A total of 108 cows were allotted to each barn, resulting in an overstocking of stalls by 108% and headlocks stocked at 98% of capacity. Headlocks were manufactured by a local company and utilized 2 linear ft per lock. Headlocks when locked provided a neck area of 8 × 32 in. When open, headlocks provided a top opening of 13.5 in.

Cows were blocked by lactation number, days in milk, and production, then randomly assigned to each of two treatments. Initial milk production and days in milk for each treatment are illustrated in Figures 1 and 2. Treatments were headlocks or neckrails. A switchback design was used and the treatments (headlocks and neckrails) were switched between the buildings. The study was done in two 4-week periods. Cows were milked three times and amounts recorded electronically for each milking, using an automatic identification system. Both barns received an identical TMR and the amounts fed and refused were recorded daily. Dry matter of the feed and refusals were determined twice weekly. Milk production data

were averaged by lactation number and week within period for each treatment. Feed intake data were averaged by week within each period for each treatment. Averaged data were then analyzed for the effects of treatment, period, parity, and week.

Results

Average dry matter intakes (Figure 3) were similar for both treatments averaging 51.8 and 50.4 lb/c/d for neckrail and headlock treatments, respectively. Average milk production (Figure 4) was similar for both neckrail and headlock treatments. First-lactation and older cows produced similar amounts of milk when exposed to either treatment (Figure 5). Results from this study indicated that on a commercial dairy, headlocks did not adversely affect milk production or dry matter intake of cattle trained to headlocks. Removal of the headlocks did not increase milk production or feed intake.

In summary, it does not appear that headlocks adversely affect milk production or feed intake on commercial dairy farms. It should be emphasized that the cows involved in this study had been previously trained to headlocks.

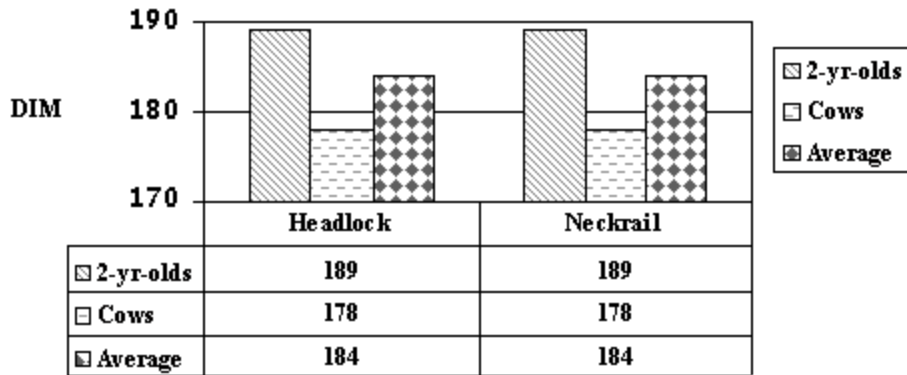


Figure 1. Initial Days-in-Milk of Treatment Groups of Lactating Dairy Cattle Exposed to Either Headlock or Neckrail Feed Barriers.

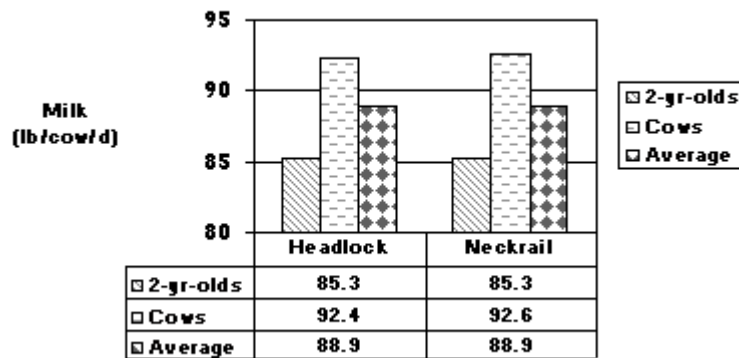


Figure 2. Initial Milk Production of Treatment Groups of Lactating Dairy Cattle Exposed to Either Headlock or Neckrail Feed Barriers.

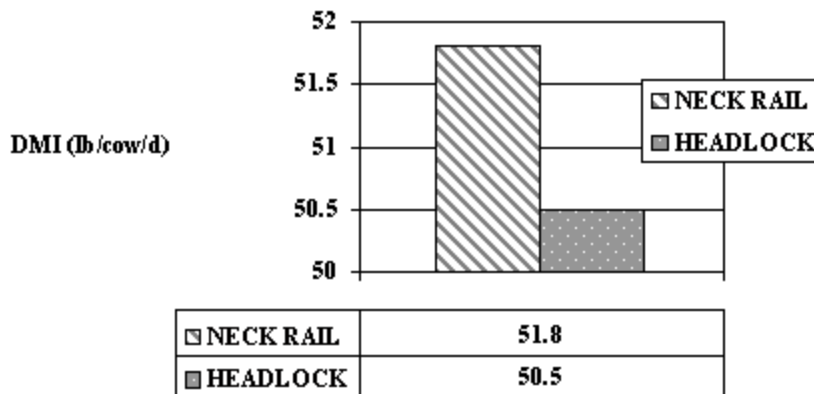


Figure 3. Average Dry Matter Intake of Treatment Groups of Lactating Dairy Cattle Exposed to Either Headlock or Neckrail Feed Barriers.

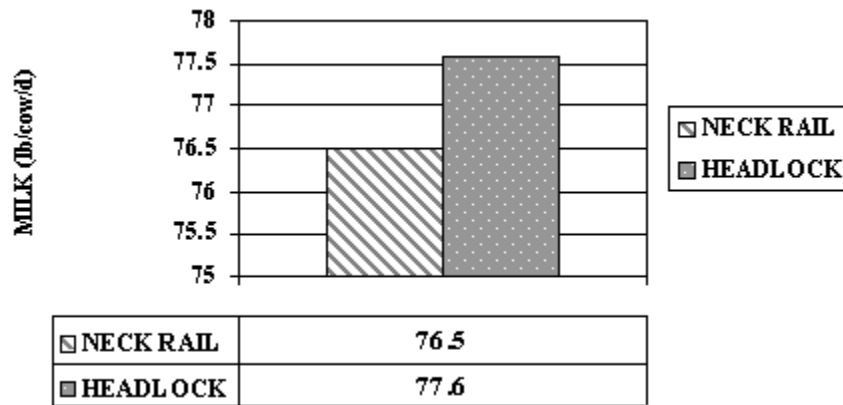


Figure 4. Average Milk Production of Treatment Groups of Lactating Dairy Cattle Exposed to Either Headlock or Neckrail Feed Barriers.

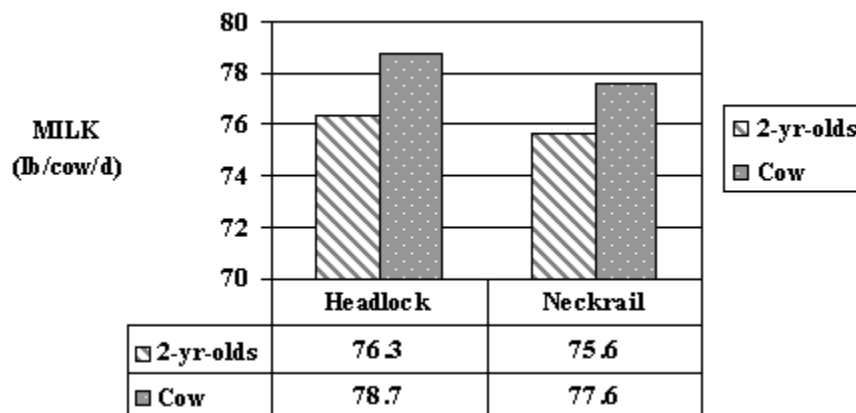


Figure 5. Average Milk Production of Heifers and Cows Exposed to Either Headlock or Neckrail Feed Barriers.