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BRIEF COMMUNICATION

Reduced visibility lowers bull aggression

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ABSTRACT

To assess whether reducing visibility would also reduce aggression in farmed bulls, we put 2 newly-formed groups of 20-month old Friesian bulls into two types of paddocks. Those animals in paddocks where visibility was obscured by pine trees showed about one-eighth the level of aggression as those put into a bare grassy paddock. It seems likely that vision is a modifier of aggression in bulls as in some other species.

Keywords: cattle, aggression, enrichment, behaviour, visibility.

INTRODUCTION

A.S. Chamove and B. Grimmer, Reduced visibility lowers bull aggression. Wild cattle live on forest margins where visibility of other animals is less than that common in farm paddocks. The males leave the herd at about 18 months of age to join all-male groups which engage in high levels of aggression for a further 6 months (Squires, 1973). When bulls are farmed in all-male groups, inter-bull aggression leads to damage to both animals and property (Kenny *et al.*, 1987. Two studies (using rats Chamove, 1984; and monkeys McKenzie *et al.*, 1986) have shown that vision is important in maintaining mammalian aggressive behaviour, so, in the absence of relevant research on cattle, we thought that restricting visibility of other bulls might reduce aggression.

METHODS

We observed 2 groups of five 20-month old Friesian bulls just after they were combined into a larger group of 10 bulls following purchase. Animals within the groups of five were presumably, and acted as if they were familiar with one-another whereas they were not familiar with those from the other group of five, having been bought on different days. Immediately after putting the two groups together, we put all 10 animals first into a 6 hectare bare grassy paddock for 2 hours (beginning at 1030 hrs in September) and then into a 2.5 hectare grassy paddock planted with unpruned 11-year old radiata pines at 2.7 m spacing (illustrated in Fig. 1) for the same period. All instances of head butting and mounting (Tennessen *et al.*, 1985) were recorded by continuous scan sampling throughout the 4-hour period.

One observer (BG) recorded behaviour by walking within the enclosure at a distance from the bulls. Visibility of bulls was clear for about 3 m, at 6 m about one-third of a bull could be seen, while bulls over 13 m could rarely be seen at all.

As soon as the first set of observations were complete, the study was then replicated using different animals (Group 2), but reversing the order of the paddocks. Results were analysed for replications (2 levels), aggressive behaviour pattern (2), and paddock condition (2) using multivariate analysis of variance (MANOVA) with alpha set at 0.05. The single analysis compared the levels of the two aggressive behaviour patterns between the two paddock conditions over the two replications.

FIGURE 1: Four Friesian bulls of a group of 10 in 11-year old pines.

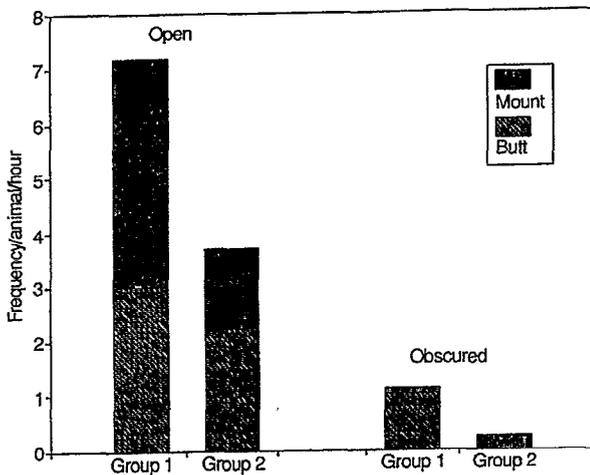


RESULTS

Six bulls showed no aggression and were excluded from the analysis; these 6 were all the objects of aggression by other bulls. A MANOVA of the data from the remaining 14 bulls indicated that the 87% reduction in aggression was highly significant [$F(1,12) = 34.0, p < 0.001$]. As can be seen in Figure 2, the mean of 4.6 (S.E. = 0.57) aggressive episodes per animal per hour in the larger bare paddock reduced to 0.6 (S.E. = 0.18) episodes per animal per hour in the visually obscured

tree paddock. The effect did not interact with the order of testing or the type of aggressive behaviour shown, and so was independent of these two variables.

FIGURE 2: Frequencies of aggressive butting and mounting by 20 bulls in an open paddock or in a paddock where pine trees visually obscured other bulls.



DISCUSSION

Results suggest that visual cues are important in bull aggression and simple techniques for interfering with these cues can substantially reduce the aggression common when one is forced to mix unfamiliar animals. This is not surprising when farming an animal that in its wild state lives in forest margins where vision is likely to be partially obscured.

It should be noted that both visual and physical access to other bulls was prevented or at least hindered by the trees. In the authors' experience when one animal wishes to assert dominance over another, they will overcome great obstacles to do so; nevertheless, it is possible that the trees were merely making access to other bulls difficult solely by their physical presence. We are presently testing this possibility.

While visibility to the observer was less among the trees, we believe that the levels of aggression there were not underestimated judging from the sounds bulls make when in conflict. We were able to hear interactions much as we could in the bare paddock when these occurred behind the observer.

Behaviour of the bulls towards the observer did not appear to differ between the two conditions; the bulls appeared largely to ignore or simply watch the observer who did not approach the animals.

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