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BONDING TO FACILITATE MULTISPECIES GRAZING

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Cattle, sheep and goat diets have been shown to be complementary for efficient range forage utilization. Multispecies grazing has therefore been recommended, but has generally remained unimplemented because of unacceptably high predation losses of sheep and goats. An account of the social attachment of a ram to horses the temporary attachment of individual wether sheep to steers and of guard dogs to sheep suggested that social bonding of sheep and goats to cattle might be possible. Cattle protect their calves from predators. If bonding would occur then the close association of sheep and goats to cattle might provide protection from predation by coyotes and dogs.

Rambouillet x Polypay lambs averaging 45, 62, and 90d of age were confined in small pens (1200 sq. ft. 7 lambs per pen) with 8-9 mo-old heifers (3 per pen) for 60d. Control lambs were kept isolated from cattle. Following 30 and 60 days of pen confinement the treated and control lamb-heifer groups were observed in 300 acre range pastures for evidence of interspecific bonding. During the first tests following 30 days confinement the 45 and 90-day-old groups consistently followed and stayed with the heifers over an 8-hr. test period. The 90-day group became separated twice during the observation period and the control group had no tendency to stay with the heifers. Observation and a specially designed study established that two abusive heifers (abusive to lambs) in the 62-day -old group delayed, but did not prevent bonding. The 60-day test demonstrated that all of the lambs kept in close confinement with heifers consistently stayed with the heifers throughout the test and the control lambs remained entirely independent of the heifers.

Protection from Predation

To evaluate the effectiveness of social bonding as a method of protecting lambs from coyote predation a field study was conducted in 1986. Seven heifers and 9 bonded lambs were rotated between 2 pastures (av. 700 acre) frequented by coyotes, between 13 March and 1 May with no death loss. On 2 May a group of 8 unbonded lambs were placed in a nearby pasture. Four of the 8 lambs were killed by coyotes over a 19d-period, the surviving lambs were then removed from the area and the trial was terminated 6 days later. Again no bonded lambs were lost. During the following 23d interval the bonded group was maintained on a 1000-acre pasture without any loss. On 18 June the remaining 4 lambs and 11 mature ewes were placed in a 1200-acre pasture while the original bonded group was placed in a nearby 600-acre pasture. The two groups of animals were rotated between the two pastures. Nine of the 15 control sheep were lost over a 43-day period compared with zero loss in the heifer-bonded group. The surviving control sheep were then removed from the study area leaving the bonded lambs as the only sheep available to the coyotes. However, no bonded lambs were lost during a 3-week test. None of the bonded lambs were lost during the entire 163-day exposure to predation. These results indicate that bonding to cattle can be an effective method of controlling coyote predation on free-ranging sheep.

The next study was conducted to determine the mechanism in the bonded multispecies herd that provides protection to the sheep:

Response of Bonded and Unbonded Sheep to the Approach of a Trained Border Collie

Intra-and interspecific association of young cattle and yearling ewes bonded or non-bonded to cattle was observed under free-ranging conditions preceding, during and following the approach of a trained border collie dog. The dog treatment provided insight into the response of livestock to an aggressive, threatening canine. As the dog approached, the cattle and sheep would come together. The sheep would run in among the cattle leaving the cattle on the periphery to face the dog. The confrontation of the cattle and dog usually would discourage the dog unless he was urged on by his trainer. The dog became more aggressive following urgent commands and the cattle and sheep herd would turn and move away, always with the sheep in the middle and the cattle on the perimeter. If the dog got too close the cattle would kick at the dog and occasionally turn and threaten to bunt the dog. As long as the dog was present the sheep would stay in among the cattle whether stopped or moving. In contrast the unbonded yearling ewes, even when moved next to a herd of cattle would move completely independent of the cattle when chased by the dog.

Bonding of Goats to Sheep and Cattle

Cattle on the range prefer grass, sheep prefer forbs (weedy plants) and goats prefer brouse (shrubs and trees). Since much of our western range includes brush and trees it would be still more efficient to include all three species in the flock and herd (flerd). Therefore, the next step was to determine if goats would also bond to cattle and would be protected from predators. Mohair goats when tested following a study similar to the lamb-heifer study did develop a cross-specific attachment or bond when tested on pasture but this bond did not endure over a extended period of time on the range. However, when mohair goats which had been bonded to cattle were placed with both cattle and sheep for two weeks and then tested over extend periods of time on the range they did consistently stay with the flerd and both sheep and goats were protected from coyotes, while control (unbonded) goats were badly decimated.

Although much progress has been made there remains much to be learned. We need to know how large numbers of cattle and bonded sheep behave and if the character of subgroups that form is such that predation protection is still effective. We need to devise methods for bonding sheep to cattle on the range without the cost of confinement and feed. We need to study the complimentarily of cattle and guard dogs on maximizing predator control for sheep and goats. We need to develop efficient methods of separating bonded sheep from cattle for management activities such as cutting lambs out for market, sheering, etc. We need to know if bonding will facilitate the management of Spanish goats which can be extremely difficult to gather and work by themselves.

In Conclusion:

We know that in small flocks, bonding to cattle can be a valuable tool in not only protecting sheep from canine predators but can also greatly facilitate finding sheep in large brushy pastures and can minimize the need for sheep-tight partition fences. We need to reduce the cost of bonding, extend our knowledge to the management of large commercial flocks and study methods of combining the attributes of dogs and cattle for protecting sheep and goats from predation.