Sheep Vocalization Analysis from Gestation to Birth

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Understanding vocal mothering in sheep is vital to increase lamb survival rates and farm efficiency. Ewes have been observed to vocalize differently before and after giving birth. It is conjectured that these changes enable effective bonding between mother and lamb. My study provides new insights into ewes' mothering abilities through vocalization analysis. During phase 1 of data collection, individual recorders were attached weekly to 13 sheep (10 pregnant, 3 controls) for a one-hour period over the course of 10 weeks. Phase 2 began after birth and continued for 48 hours. Audio files were uploaded to Audacity for isolation and labeling of individual bleats. I created a Praat script to automatically extract six acoustic indicators from a total of 2,199 vocalizations: duration, harmonicity, pitch, jitter, center of gravity ratio, and power ratio. Subsequent analyses revealed three trends. First, comparison of vocal qualities between the early and late phases of gestation showed consistent shifts among multiparous mothers, with the primiparous ewe exhibiting contradictory changes. Second, changes from pre- to post-parturition were uniform among the test group and most dramatic at the moment of birth. Finally, I did not see an association between mothering experience and vocal change from pre- to post-parturition. Further work is needed to see if these results can be replicated. If they are, vocal analysis mobile applications could be developed to provide indicators of mothering ability and diagnose pregnancy in sheep. This study has implications for understanding the interrelationships between ovine pregnancy, mothering ability, and changes in vocal profile.

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