Relationships Among Maternal Characteristics in Hair Sheep

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ABSTRACT

Since the spring of 2022, the MSU sheep flock has been an Innovation Flock for the Sheep GEMS project, managed by the University of Nebraska-Lincoln. The GEMS project is a multi-breed, national project evaluating longevity of ewes within flocks. Our part as a participant in the project involves collecting and sending raw data which is compiled into 1 very large data set. The research discussed here uses our preliminary data from the 2022 and 2023 lambing seasons collected from our Katahdin ewes (n =38; 1-4.5 years of age). Collected data included fecal egg count (FEC), body condition scoring (BCS), FAMACHA scores, teat and udder scores. Data were analyzed using the CORR procedure in SAS with a significance level set at $P < 0.05$. Ewe age provided the most correlations, including a negative relationship (r = -0.384) with teat score and a positive relationship (r = 0.28) with BCS. There was also a negative correlation (r = -0.31) between FEC and ewe age, along with a positive relationship (r = 0.267) with the incidence of mastitis. Furthermore, udder scores were negatively related (r = - 0.25) to FAMACHA, and positively correlated to FEC. Also, the teat score was negatively correlated (r = - 0.34) with BCS. The results of this project underline the importance of multiple traits which could contribute to ewes leaving the flock early.

INTRODUCTION

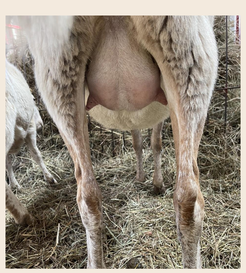
There are multiple reasons ewes are commonly culled from a flock. These can often include inability to keep body condition, poor teats and udders, reoccurring mastitis, and having little parasite resistance. All of these issues can leave a ewe unable to care for her lamb(s) on her own. This leads to producers needing to bottle raise lambs and this is an unwanted outcome. Udder scoring is used to show how close or far from the body the udder is suspended. A lowly suspended udder is going to be more prone to bacteria entry and is harder for lambs to nurse as they grow larger. Teat scores are to determine the proximity of the teats to one another. Teats must not be too far apart or close together as lambs can have a hard time nursing in these situations. Ewes that are prone to issues with parasites tend to lose weight easily and be weaker which leads to them having issues making enough milk. This is the same idea behind having ewes of adequate BCS.

OBJECTIVE

The objective of this research was to find the correlations between multiple traits in a flock of Katahdin hair sheep. This data collection was a part of a NIFA grant by Dr. Lewis at the University of Nebraska-Lincoln which is looking at the longevity of ewes in a flock based on the traits typically not measured as a part of current genetic evaluations. Based on previous observations and research we hypothesized that age and BCS would have a positive correlation along with age and mastitis having positive correlations.

MATERIALS AND METHODS

- 38 Katahdin ewes (ages 1-4.5 years)
- Ewes were penned separately with lambs for 48 hours post-lambing
- All measurements were collected within 72 hours of lambing
- Collected BCS, FEC, FAMACHA scores, teat, and udder scores
- Fecal samples were run using the Modified McMaster test
- Incidence of mastitis was recorded by trained personnel
- All ewes in same living environment and on same feedstuffs
- Data analyzed using CORR procedure in SAS
- Data compiled from 2022 and 2023 lambing seasons



RESULTS

Table 1. Correlations between each score or number collected to show relationships (r=) and significance (p=) of each.

	Age	Udder	Teat	BCS	FAMACHA	FEC	Mastitis
Age r=	1.00	-0.16	**-0.38**	**0.35**	-0.14	**-0.31**	**0.27**
P=		0.21	**<0.01**	**<0.01**	0.28	**0.01**	**0.04**
Udder r=		1.00	0.18	-0.21	-0.25	0.29	-0.10
P=			0.17	0.11	0.05	0.02	0.46
Teat r=			1.00	**-0.34**	0.02	0.13	0.08
P=				**<0.01**	0.86	0.30	0.54
BCS r=				1.00	-0.09	-0.05	0.15
P=					0.49	0.69	0.24
FAMACHA r=					1.00	0.10	0.09
p=						0.45	0.47
FEC r=						1.00	-0.10
P=							0.46
Mastitis r=							1.00
P=							

DISCUSSION

The results of the gathered data concluded there are multiple correlations with strong relations. Age and teat scores are negatively correlated, meaning teats worsen as a ewe ages. BCS and age are positively correlated which means as ewes age their BCS goes up (Semakula et al, 2020). This was suspected as younger ewes have less developed immune systems and their bodies are still growing. FEC and age are negatively correlated which is wanted because it makes for less need to cull because of parasite issues (Notter et al., 2017). Once ewes transition from primiparous to multiparous, their udders finalize development and tend to produce more milk. A positive correlation between age and mastitis occurrences has been noted previously. (Waage et al., 2008). BCS and teat scores were negatively correlated.

CONCLUSION

Reducing the occurrence of mastitis limits the need for supplementing or bottle feeding lambs along with decreasing cull rates. Being able to prevent or predict mastitis before it happens is key to long-term ewe longevity and productivity.

LITERATURE CITED

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