



CORRELATION BETWEEN GENETIC VALUES FOR RESISTANCE TO GASTROINTESTINAL NEMATODE INFECTION AND GROWTH TRAITS IN SHEEP

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INTRODUCTION

Gastrointestinal nematode (GIN) infection can lead to **morbidity**, **mortality**, and massive **economic losses**.

Different **approaches** to control GIN must be **combined** as overreliance on anthelmintics has led to GIN resistance to available drugs.

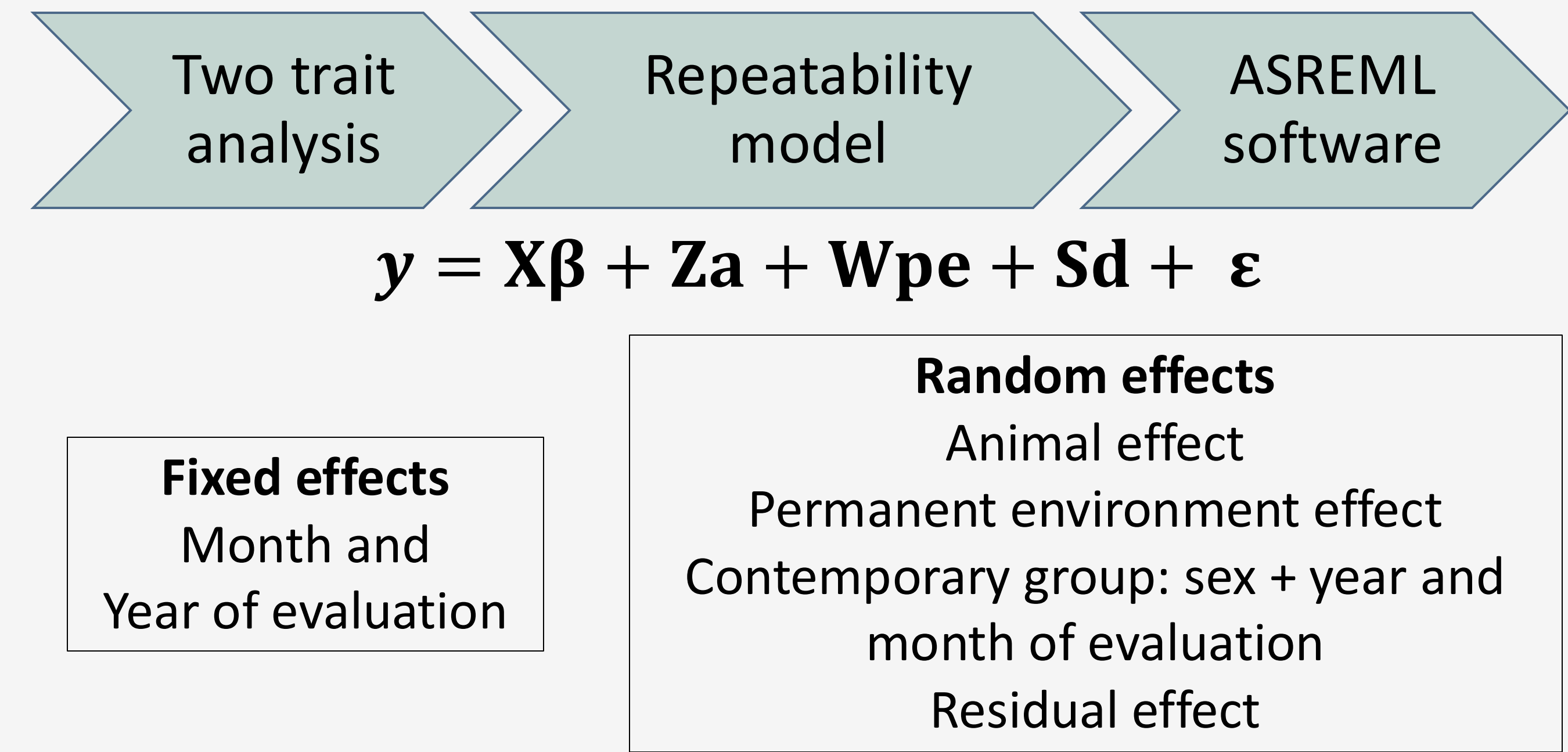
Breeding for **resistant** sheep can help **improve overall health**, **reduce economic losses**, and **reduce the need for anthelmintic treatments**.

OBJECTIVE

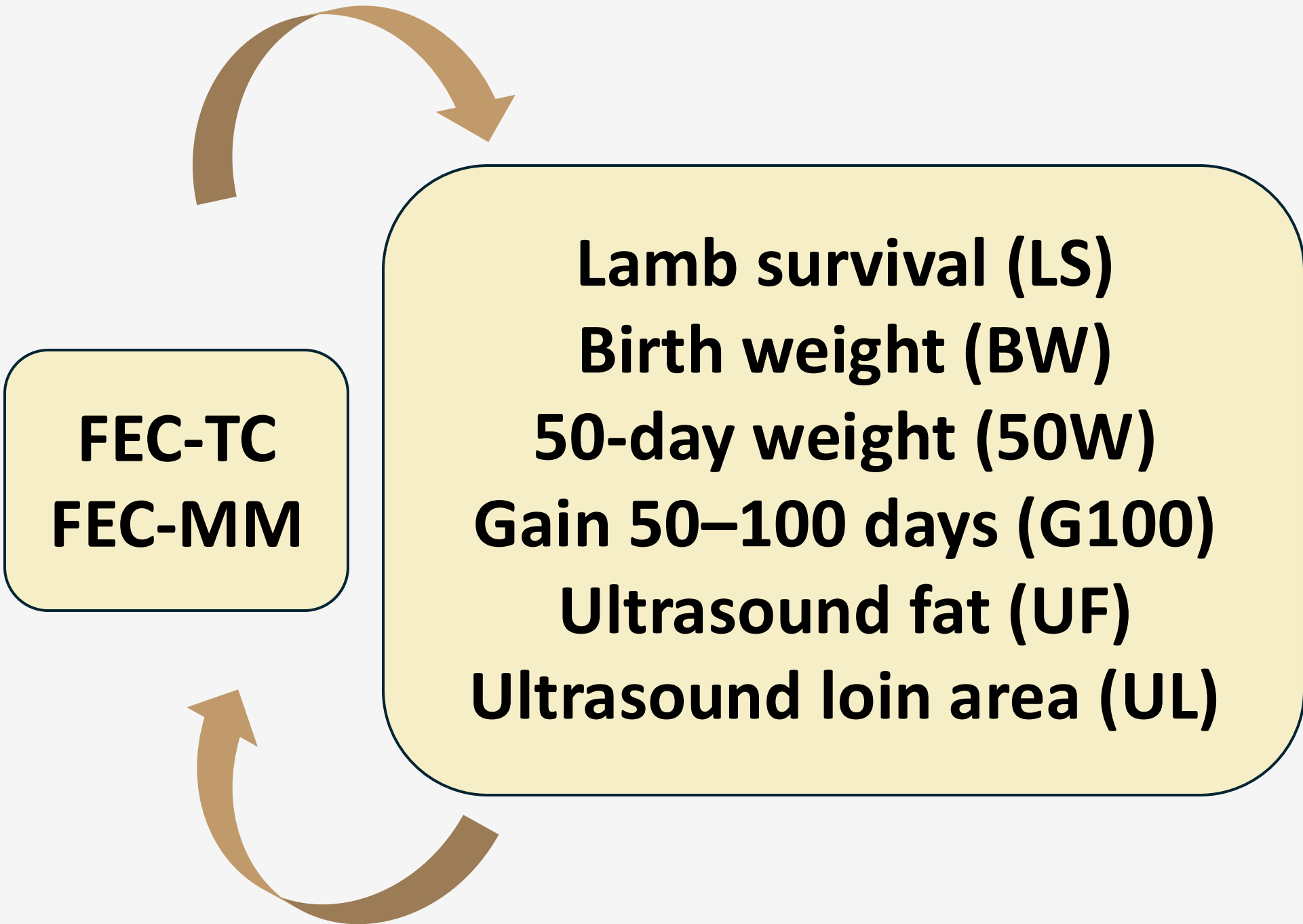
Estimate **correlations** between Expected Progeny Differences (EPDs) for **fecal egg count (FEC)** and **growth traits** using data from a commercial farm under selection for resistance to GIN.

MATERIAL AND METHODS

1 Estimation of **EPDs** for **FEC** measured using the Triple Chamber (FEC-TC; n=790) and McMaster methods (FEC-M; n=1,626)



2 **Pearson correlation** between EPDs (n=14,739) for **FEC** and for **growth traits** from the GenOvis genetic evaluation system as a proxy of genetic correlations:



RESULTS AND DISCUSSION

- Selection to **reduce FEC** may **slowly increase LS**, **50W**, **G100**, and **UF** (green squares in Table 1) due to a favorable correlation.
- Selection to **reduce FEC** may **slowly reduce BW** (yellow squares in Table 1) due to an unfavorable correlation.
- The **correlation** between **UL** and **FEC** was **not significant** (white squares in Table 1).

Table 1. Pearson correlation between fecal egg counts (FEC) measured using the Triple Chamber (TC) and McMaster (MM) methods and lamb survival (LS), birth weight (BW), 50-day weight (50W), gain between 50–100 days (G100), ultrasound fat (UF), and ultrasound loin area (UL).

	LS	BW	50W	G100	UF	UL
FEC-TC	-0.14*	0.08*	-0.03*	-0.12*	-0.12*	0.00
FEC-MM	-0.15*	0.09*	-0.04*	-0.13*	-0.11*	0.00

*Significant correlation; The standard error for all estimates was 0.01. Green squares indicate favorable correlations and yellow squares indicate unfavorable correlations.

- With more FEC data available **genetic correlations should be estimated** using a multiple trait model to confirm these results.

TAKE HOME MESSAGE

Selecting for **FEC** is **not** expected to **cause** substantial **changes in other traits** currently selected in Canada and the potential changes are mostly favorable.

ACKNOWLEDGEMENT



FOOD FROM THOUGHT

