Bachelor or Master thesis BIOVIT 2021/22

Topic/Title

Genotype-miljø-samspill (GxE) for norsk sau: Effekt av fars genetikk på lammevekter om høsten - langs en produksjonsnivå-gradient (reaksjonsnorm-tilnærming)

Topic/Title

Genotype by environment interaction (GxE) effect on lamb autumn weights: a reaction norm approach using sire models

Summary

Norwegian sheep produce lambs along several environmental gradients. Management (intensity) and natural conditions (north-south, forest-mountain, …) vary substantially between flocks.

In this study we will use one (or more) environmental gradients based on farm production level (measured as lamb growth or litter size at birth).

M&M: Quantitative genetics modelling. Using existing datasets. Large datasets (> 500 000 obs.), data management/quality checking/verifications/merging sets, etc. Final modelling in not so user-friendly software (ASReml).

The study will be linked to Line Kierkegaard's PhD project on 'Robust and resilient production…'.

Subject area

Animal breeding, quantitative genetics, GxE

Language thesis

Preferably English

Bachelor or Master thesis MSc

Credits 30

Project/company IHA/BIOVIT, NMBU

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Bachelor or Master thesis BIOVIT 2021/22

Topic/Title

Seleksjon for redusert variasjon i lammevekter: Behold middelverdien, reduser variasjonen?

Topic/Title

Breeding for reduced environmental plasticity in lamb weights – keep the mean, reduce the variation?

Summary

Challenging task; student must be on an advanced level in statistics, data analysis.

How to breed for reduced variation in quantitative traits? Is this the same as breeding for robust animals? The topic is relevant for important traits in many species, including sheep. E.g., litter size in Norwegian White Sheep is 2.2 lambs at birth, which is considered ok, but a large variation, with litter size up to 5 or more, cause health/welfare problems. Also lamb birth weight is important: weights close to the mean give lambs the best chance of survival.

M&M: Quantitative genetics modelling. Using existing datasets. Large datasets (> 500 000 obs.), data management/quality checking/verifications/merging sets, etc. Final modelling in not so user-friendly software, incl. prototypes.

Subject area

Animal breeding; quantitative genetics, phenotypic plasticity

Language thesis

Preferably English

Bachelor or Master thesis

MSc

Credits 30

Project/company IHA/BIOVIT, NMBU

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Bachelor or Master thesis BIOVIT 2021/22

Topic/Title

Nye fenotyper / egenskaper for småfeavl: Fokus på funksjonelle søyer

Topic/Title

New phenotypes / traits in small ruminant breeding: focus on fit & functional ewes

Summary

Ewe functionality and maternal ability will be central in future sheep breeding in Norway. We need phenotypes that can be measured efficiently and accurately by farmers.

A focus will be on health and welfare traits of ewes and lambs. E.g., mastitis and early suckling conditions (colostrum). Lambing difficulties and ewe vs neonatal lamb measurements. Udder conformation, floor-udder/teat distance.

[Also relevant, measurements of young lambs, e.g., skeletal measures, potentially giving information on slaughter age and adult body conformation and anatomy, early measurement of adult size?]

M&M: Field work (1-2 years), data collection at several large, commercial farms (incl. the University farm in Ås). Some funding required for travel, will be applied for/arranged by supervisors.

Subject area

Animal breeding; phenotypes; quantitative genetics

Language thesis

English

Bachelor or Master thesis

MSc

Credits 30 or 60

Project/company IHA/BIOVIT, NMBU

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Bachelor or Master thesis BIOVIT 2021/22

Topic/Title

Forskjell i fordøyelseseffektivitet mellom NKS og Gammelnorsk Spæl?

Topic/Title

Breed differences in feed efficiency in Norwegian white sheep (NWS) and Old Norwegian Spæl sheep (ONS)?

Summary

During the project 'Grass to Gas' we have collected detailed data on 20 ewes of ONS and 20 of NWS during 7 weeks in individual stalls, with daily ewe body weights and minute-to-minute feed intake information which can be used to estimate individual digestibility efficiency and indicate potential differences between the breeds. These potential differences are important to uncover if we are to develop 'resilience' traits in sheep breeding.

The study will be linked to Line Kierkegaard's PhD project on 'Robust and resilient production…'.

Subject area

Animal breeding; animal nutrition; resilience; feed efficiency; breed differences

Language thesis

Norwegian or English

Bachelor or Master thesis MSc

Credits 30

Project/company IHA/BIOVIT, NMBU

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