

Projektpresentation

Green Valleys er et 3-årigt EU-projekt, hvis formål er at etablere en udviklingsplatform for bioraffinering. Projektet skal via demonstrationsanlæg ved Töreboda i Västra Götaland og ved Foulum i Midtjylland demonstrere, hvordan raffinering af biomassen fra græsmarker kan levere bæredygtigt producerede energiprodukter og proteiner.

Gennem et svensk-dansk forskningssamarbejde kommer vi også til at påvise hvordan cirkulær grøn bioøkonomi kan udgøre et hidtil uudnyttet potentiale for landbruget. Vi undersøger klima og miljøfordele ved regionalt dyrkede græsafgrøder, hvor græsset forarbejdes til bæredygtig energi og foder af høj kvalitet.

Projektpresentation

Green Valleys är ett treårigt EU-projekt med mål att etablera en utvecklingsplattform för bioraffinering. Med en anläggning i Töreboda, Västra Götaland och en i Foulum, Midtjylland kommer vi demonstrera hur bioraffinering kan utnyttja gräsmarker till att leverera hållbart producerade energiprodukter och proteinfoder.

Genom ett svensk-danskt forskningssamarbete kommer vi kunna visa på hur cirkulär grön bioekonomi kan utnyttja lantbrukets potential. Vi undersöker klimat- och miljönyttan i regionalt odlade vallgrödor där gräset förädlas till hållbar energi och högvärdigt foder.

Task 4.5 Trials for optimal utilisation of the biorefined products for feeding of farm animals

- Responsible SLU: Elisabet Nadeau, Anna Wallenbeck
- Collaboration with Västra Götaland Region Naturbruksförvaltning: Andrea von Essen et al.
- AU Foulum: Troels Kristensen
- Hushållningssällskapet Sjuhärad
- Data for system calculations by Chalmers

Feed evaluation trial with wethers at SLU Götala Beef and Lamb Research, Skara

*Harvest from one field in the first cut in May/June at Sötåsen
Wilting and chopping*

Treatments produced at Sötåsen

- Fresh grass-clover forage
- Biorefined fibre fraction from fresh grass-clover forage
- Ensiled grass-clover forage in hard-pressed round bales
- Biorefined fibre fraction from the silage

Fed to 8 wethers (2 wethers/feed) October 2020 - February 2021
Change-over, each period 1 month long
All animals get all feeds

Intake

Total collection of faeces and urine

Digestibility of feeds

Protein utilisation



Dairy cow trial at Sötåsen, Töreboda

Treatments

- Grass-clover silage in bunker silo 2020
- Biorefined fibre fraction from the same silage

Sötåsen dairy cow herd

Indoor period October 2020 – April 2021

- Half of the cows get the silage
- Half of the cows get the fibre fraction

In a mixture with concentrate on the feed bunk

Topped with more concentrate to individual cows
according to milk yield

Feed rations

Intake on a group level

Milk yield and milk composition on individual basis
once a month.



Task 4.5 Trials for optimal utilisation of the biorefined products for feeding of farm animals

Anna Wallenbeck, researcher, SLU

- The biorefined liquid fraction from the silage will be fed to growing pigs at Sötåsen

Hushållningssällskapet Sjuhärad

- Test of different storage possibilities of the liquid fraction for stable storage.

Troels Kristensen, Aarhus University

- Upscaling of the results form the trials to farm level.

Task 4.2 Optimisation of harvest- and storage systems of herbage for efficient use of energy and protein of the biorefined products

- Responsible: SLU
- Share results with Västra Götaland Region Naturbruksförvaltning and AU Foulum
- Data for system calculations by Chalmers

Grass-clover forage for wilting and ensiling

- First cut June 4-5 and second cut July 18, 2019 of a sward of timothy, meadow fescue, perennial ryegrass and red and white clover

Wilting treatments

- Direct cut 15% DM, wilted to 26% and 49% DM in first cut and to 37% DM in second cut.

Additive treatments

- Control without additive
- Inoculant of homofermentative LAB
- Salt-based additive and acid

Samples are currently being analysed for CP fractions at LKS mbH, Saxony, Germany and for fermentation characteristics at Humboldt University, Berlin I will present results from the forage trial and inform about the feeding trials at R&D days in Malmö October 14-15 organized by the Swedish Board of Agriculture.



Protein quality assessment of forage and silage

Cornell Net Carbohydrate and Protein System (CNCPS)

Crude protein		
True Protein (TP)		Non-protein N (NPN; A)
Buffer insoluble Protein (BIP)		Buffer-soluble protein (BSP; B1)
ND-insoluble Protein (NDIP)		ND-soluble protein (NDSP; B2)
AD-insoluble protein (ADIP; C)	AD-soluble protein (ADSP; B3)	Rumen undegradable protein (RUP) at a specific rumen passage rate can be calculated based on these CP fractions and fibre contents (Kirchhof et al., 2010).
Analysed		
Calculated		

Expected results

- Wilting will improve the protein quality of the herbage and decrease the protein breakdown during ensiling.
- Use of additives will decrease the protein breakdown during ensiling
- We will find the best management at harvest and ensiling for efficient utilisation of the biorefined products.