

Projektnamn:	CyberGrass 2.0 - Innovative tools for farmers to optimize the management of harvested grasslands
Projektägare:	SVERIGES LANTBRUKSUNIVERSITET
RUS prioriterad område:	1 Västerbotten en nytänkande och smart region
RUS delprioritering:	1.3 Utveckling av innovationer
Berörda län/Kommun:	Bjurholm, Robertsfors, Vännäs, Umeå, Vindeln, Nordmaling, Skellefteå, Lycksele, Överkalix, Luleå, Piteå, Boden och Älvsbyns kommun
Sökt belopp:	1 362 791 kr
Sökt projektkostnad:	4 828 066 kr
Projektperiod:	2025-03-01 - 2028-02-29

CyberGrass 2.0 syftar till att förbättra noggrannheten och integrationen av avancerad teknik för att optimera avkastningen och kvaliteten på ensilage från skördade gräsfält. Projektet erkänner den ekonomiska betydelsen av foderproduktion i hela NPA-regionen och bristen på anpassade beslutsstödsverktyg för att hjälpa jordbrukare att fatta förvaltningsbeslut som kommer att påverka mejeri- och köttproduktionen. CyberGrass 2.0 fokuserar på tre mål: utveckla ett satellitassisterat förvaltningsverktyg i flera regioner för att tillhandahålla foderavkastning, kvalitet och skördeprognoser (WP1); stödja billiga drönarassisterade lösningar för effektiv fältspaning, vilket möjliggör snabba insatser (WP2); och utforska framtida tekniker för att bedöma gräsmarker (WP3). Genom samarbete och strategiskt genomförande kommer det att integrera ett transnationellt tillvägagångssätt som inte finns, genom att kombinera experter, slutanvändare, dataset och nya metoder för att öka företagets konkurrenskraft och hållbarheten för jordbruksresurser i landsbygdssamhällen.

Ansökan avser medfinansiering till Interreg Norra Periferi och Arktisprogrammet.

Förslag till beslut

BIFALL:

SVERIGES LANTBRUKSUNIVERSITET beviljas **1 362 791** kr, dock högst **28,23** % av godkända kostnader uppgående till 4 828 066 kr för projektet *CyberGrass 2.0 - Innovative tools for farmers to optimize the management of harvested grasslands* för projektperioden 2025-03-01 - 2028-02-29. Beslutet har fattats med stöd av förordning (2003:596) om bidrag för projektverksamhet inom den regionala. Medel disponeras ur anslaget 1:1.

REGION VÄSTERBOTTEN beviljar stöd av följande skäl:

Projektet ligger i linje med prioriterat område 1 Västerbotten en nytänkande och smart region och delprioritering 1.3 Utveckling av innovationer i Västerbottens regionala utvecklingsstrategi.

Projektet uppfyller kraven fastställda i Region Västerbottens *Agenda för hållbar finansiering* och bidrar i hög grad till prioritetshöjande aspekten *Hållbar regional tillväxt* och delvis till prioritetshöjande aspekten *Sammanhållen region*.

Bedömda resultat och konsekvenser

Urvalskriterier och prioriteringar

I nedanstående två tabeller framgår hur projektet uppfyller Region Västerbottens krav och prioritetshöjande aspekter fastställda i Agenda för hållbar regional finansiering.

KRAV fastställda i Agenda för hållbar regional finansiering	Nej	Ja
Projektet är avgränsad från den sökandes ordinarie verksamhet i fråga om tid, ekonomi och arbetsinsats		X
Projektet har en projektlogik som visar vilka problem ska lösas, vad ska uppnås, genom vilka åtgärder projektets mål uppnås och med vilka resurser detta görs		X
Jämställdhet är integrerad i projektet		X
Mångfald inklusive integration och andra sociala aspekter är integrerad i projektet		X
Ekologisk hållbarhet är integrerad i projektet		X
Ekonomisk hållbarhet är integrerad i projektet		X

PRIORITETSHÖJANDE ASPEKTER fastställda i Agenda för hållbar finansiering	Inte alls	I låg grad	Delvis	I hög grad	I mycket hög grad
Projektet bidrar till att Västerbotten är en sammanhållen region			X		
Projektet bidrar till hållbar regional tillväxt				X	
Projektet bidrar till positiva hållbarhetseffekter genom insatser som i huvudsak syftar till att hantera regionala hållbarhetsutmaningar inom jämställdhet, mångfald inklusive integration och andra sociala dimensioner och miljö och klimat.					

Sammanfattande bedömning

- Ansökan bedöms ligga i linje med prioriterat område 1 Västerbotten en nytänkande och smart region och delprioritering 1.3 Utveckling av innovationer i Västerbottens regionala utvecklingsstrategi.
- Ansökan bedöms uppfylla kraven fastställda i Region Västerbottens Agenda för hållbar finansiering.
- Ansökan bedöms i hög grad bidra till prioritetshöjande aspekten Hållbar regional tillväxt och delvis till prioritetshöjande aspekten Sammanhållen region.
- Projektet bedöm komma arbeta inom ett intressant område.
- Projektpartnerskapet bedöms som ok, projektet har med aktörer från så väl akademi som branschorganisationer som aktörer i projektet.
- Projektet framstår som förankrat i och efterfrågat av en tilltänkt målgrupp.
- Låg andel egen insats i projektet från sökande.
- Ansökan bygger vidare på erfarenheterna från ett tidigare projekt inom Interreg Botnia-Atlanticprogrammet.
- En liknande projektansökan har skickats in tidigare, Region Västerbotten biföll då projektansökan men ansökan avslogs av NPA-programmet och återtogs därefter.
- SLU är s k Lead Partner (samordnande stödmottagare) i ansökan till Norra Periferi och Arktisprogrammet (NPA), det är mycket ovanligt med Lead Partners från Sverige inom NPA under innevarande programperiod.

Ersätter beslutet ett tidigare/annat beslut?

-

Resurser och finansiering

-

Bilagor

-

Beslut expedieras till

Strateg: Mikael Johansson Åberg

Projekt-PM

ÄrendeID
20369609

Diarie-nr
319-2024

Sammanfattning

CyberGrass 2.0 aims to improve the accuracy and integration of advanced technologies to optimise the yield and quality of silage from harvested grass fields. The project recognizes the economic importance of forage production across the NPA region and the lack of adapted decision support tools to help farmers make management decisions that will affect dairy and meat production. CyberGrass 2.0 focuses on three objectives: develop a multi-region satellite-assisted management tool to provide forage yield, quality and harvest predictions (WP1); support low-cost drone-assisted solutions for efficient field scouting, enabling timely interventions (WP2); and explore future technologies to assess grasslands (WP3). Through collaboration and strategic implementation, it will integrate a transnational approach that no longer exists, combining experts, end-users, datasets, and new methods to boost business competitiveness and sustainability of agricultural resources across rural communities.

Vilket/vilka problem vill projektet lösa?

In Northern Europe, harvested forages are an important agricultural land use, forming the base for livestock industries. Their availability, quality, and climate adaptation strongly impact the success and sustainability of livestock management in dairy and meat industries. Using a standard Swedish dairy farm (70 cows in 150 hectares) as a case study, a 5-day harvesting delay may cost about 75,000 SEK, highlighting the economic impact of sub-optimal management.

Data that informs forage management relies on laborious field and lab analysis, whereas the proposed new approach will save time and resources, economically benefiting farmers. Although previous initiatives have developed techniques to assess crop fields, there is still a need for tools adapted to the harvested grassland systems in the region, with accurate management solutions for farmers. A bottleneck is the lack of accurate calibration to translate data into ready-to-use information attuned to farmer needs. Cybergrass 2.0 will focus on leveraging resources, collaborating with end-users, and combining expertise to develop innovative tools. It will involve taking advantage of multiple technologies (e.g., satellite data, low-cost drones, high-resolution imagery), combined with dynamic modelling to predict real farmer's demands (e.g., optimal harvest dates), and creating a concise cross-border dataset that captures variability across countries, weather conditions and years. It will be of unprecedented value for farmers, advisors, companies, and researchers to better understand the production and diversity of weather conditions and infer more accurate and reliable prognoses. Moreover, future technologies will be considered, enabling continued adaptation and rapid response to new opportunities.

By developing alternatives for technology capacity improvement in agricultural fields, Cybergrass 2.0 will promote a more optimized and sustainable use of natural resources and, consequently, long-term healthy and resilient systems. It will facilitate the identification of better strategies for climate change adaptation and contribute to a more stable food production system while preserving feed resources. Cybergrass 2.0 brings together a wide range of collaborators keen to develop sustainable forage production

across the NPA region. The project involves partnership between Sweden, Finland and Iceland, collaboration with Norway, and participation of several end-users who are key actors in the region (e.g., farmer associations, advisors, farmers, and tech companies). It will facilitate addressing common challenges and solutions for promoting rural policy programmes and better-balanced territorial development, as well as enhance the innovation capacity and competitiveness of the agricultural sector and boost knowledge transfer among partners and stakeholders.

Cybergrass 2.0 solutions will support less physically demanding labour through freely available digital outputs and accessible communication and training materials. It will promote greater participation of women and young people in the agricultural sector, which is especially crucial given the agricultural industry's declining demographic trends. Cybergrass 2.0 also aims to support new business and work skills opportunities in the region. The project seeks to make rural areas more attractive and foster sustainable regional growth by enhancing income possibilities.

Goal conflicts: The development of innovation benefits the target groups and regional skills, but technological alternatives, even being as user-friendly and low-cost as possible, will need some adaptation. It would require additional training, which may exclude those not open to new digital solutions.

Förväntat resultat av projektet på kort och lång sikt

Cybergrass 2.0 will develop tools for efficient management of harvested forage grasslands in the Northern Periphery and Arctic (NPA) region. A starting point will be a comprehensive analysis of the current status of the grasslands systems (e.g., forage yield, quality, botanical composition, winter kill damage) using data from previous projects, freely-accessible and new satellite data, and low-cost drones. These data will be organised and, together with inputs and collaborations with the target group and associated partners, decision support systems will be developed and freely provided for forage management through digital platforms. Additionally, the project will explore future technological opportunities and challenges through discussions with the target group, enhancing their skills and adaptability to cutting-edge technologies, fostering network and collaboration, ultimately improving competitiveness in the agricultural sector.

Cybergrass 2.0 centres around three key milestones:

1) Development of an optimized satellite-assisted tool for decision support: CyberGrass 2.0 will create a cutting-edge satellite-assisted management tool that provides accurate estimations of critical parameters such as yield, quality, and optimal harvest recommendations. This tool will empower farmers to make informed decisions, optimizing productivity and resource management.

2) Support for Low-Cost Drone-Assisted Solutions: it will promote the use of low-cost drones for efficient field scouting to estimate winter damage, botanical composition and yield. This real-time and cost-effective approach will enable farmers to identify issues promptly and implement timely interventions to enhance overall forage production.

3) Exploration of Future Technologies and Challenges: CyberGrass 2.0 will remain at the forefront of innovation by exploring new technologies and challenges related to forage management and monitoring. This forward-looking approach ensures that the project stays adaptable and continues to improve agricultural practices.

CyberGrass 2.0 is a forward-looking project and these new tools and solutions will enhance the capacity of the target group to monitor and manage harvested forage grasslands efficiently. It will increase knowledge, access, and adaptation to new technologies, enabling a more inclusive, active, and sustainable agricultural society. The target group will increase their capacity to prevent future technological needs for efficient management, improving their resilience to climate change and adaptation to economic constraints.

Cybergrass 2.0 is organized into three main work packages, where some of the activities will be meetings and seminars with the target groups to discuss the project activities and outcomes, and to get feedback. Consultation with a reference group and collaboration with the associated partners will also be part of the activities to ensure that good directions are being followed and represent the target groups needs. These meetings will prioritize balanced male/female participation. The invitation to meetings and information material regarding the developed solutions will be openly available in several communication channels, reaching a broad audience. The communication material will be committed to non-discriminatory directives and environmental perspectives.

Cybergrass 2.0 will promote capacity building, skills, and technological development by providing tutorials and ready-to-use tools freely available to the target group. It will improve the potential for a better-balanced knowledge transfer regardless of gender, age, or the local community to which they belong.

Cybergrass 2.0 will develop solutions and outcomes that can be used by the target groups, project partners and collaborators and further strengthen the collaborations in other EU projects and initiatives. Cybergrass 2.0 focuses on applied research to economically and environmentally benefit forage management over the region.

Cybergrass 2.0 will build on the foundation of the CyberGrass 1 Interreg Botnia-Atlantica project (Introduction to remote sensing and artificial intelligence assisted silage production), which aimed to introduce the potential of remote sensing methods in predicting forage yield and quality. Cybergrass 1 marked the beginning of cooperation between researchers and advisory organizations in Finland and Sweden on this topic. Cybergrass 1 was an 18-month project and the intensive workload over the growing seasons paved the way for building an extensive sampling dataset of forage fields. However, a consensus was that the 18-month period was very short for completing all aspects needed to develop remote sensing methods and growth modelling in forage management. Collaboration with stakeholders and pilot farmers was one of the most valuable outcomes.

Cybergrass 2.0 builds on the collaborations, experiences and knowledge developed over Cybergrass 1. Moreover, CyberGrass 2.0 will expand its scope by incorporating new approaches and solutions and including more partners and associated organizations, end-users and countries, such as Iceland (partner) and Norway (associated partner), enriching collaboration, improving the generalization of the solutions, as well as marking our region as a leader in technological solutions for agricultural management. Consequently, this will enhance operational efficiency, economize resources, and elevate the nutritional value of the feed resources within the region.

Taking into account the necessity to disseminate realistic and reliable solutions, Cybergrass 2.0 will focus on adapting high-spatial resolution imagery analysis to low-cost drones, which will empower the technological capacity of target groups, without high-cost demands. Additionally and anticipating recurrent technological development, Cybergrass 2.0 will dedicate special attention to addressing upcoming technologies and how we should be prepared for future demands and adaptations.

Cybergrass 2.0 will have positive effects in promoting equality and diversity. By creating dissemination material and open-source digital outputs, the outcome solutions will support less physically demanding work in the field, which will promote knowledge transfer and more representativeness of women and young people in the agricultural sector.

The project's environmental impact is equally significant. Optimizing forage management will increase the resilience of grassland systems and improve farming techniques. This, in turn, will foster a better understanding of nutrient efficiency and soil conservation. Moreover, Cybergrass 2.0 will support strategies to increase resilience to climate change and promote more sustainable rural development.

The practical application of the proposed solutions extends across various domains. Partners, farmers and associations will benefit from improved forage management and data analysis, while advisory stakeholders and companies can leverage these solutions to provide new products and enhance farming services. Cybergrass 2.0 outcomes will remain adaptable and updatable even after completion, providing long-term benefits. Reports generated by the project will be openly accessible, promoting knowledge sharing and collaboration. Cybergrass 2.0 is oriented toward generating positive effects and paving the ground for sustained development and innovation. Cybergrass 2.0 seeks to elevate the forage sector's productivity, economic significance, and contribute to social benefits and environmental sustainability of agricultural resources in rural communities and dairy and meat industries across the region.

Målgrupp

The main target group is the agricultural industry (mainly farmers and advisors, but also a wider group including farmer associations and tech companies) with a focus on ruminant livestock production. Advisors and farmer associations will be involved in all activities of Cybergrass 2.0, including planning, data collection, technology development, implementation and evaluation, as well as communication, meetings and events. They will also be represented in the project as main and associated partners, represented by organizations, such as the Federation of Swedish Farmers (LRF), Växa Sverige (a farm consultancy company), the tech company Svarmi (specialized in digital support systems), and the advisory organization ProAgria in Finland.

Higher education and research organizations are also part of the target group. They can significantly benefit by advancing knowledge, fostering collaborations, attracting funding, providing educational and publication resources, and leading to practical applications with broader societal, economic and environmental impact. The Norwegian Institute of Bioeconomy Research (NIBIO) in Norway will also collaborate on the project as an associated partner, which will be very beneficial to enhance the representativeness and validation of the project outcomes in the NPA region.

Local, regional, and national authorities responsible for land use management and agricultural policy development will also benefit from information on farming resources and management implemented in Cybergrass 2.0. The outputs will then support rural policy development and implementation, assisting in securing funding and resources, fostering sustainability, and aiding in effective resource monitoring.

Cybergrass 2.0 recognizes the importance of gender equality and is committed to ensuring balanced male/female participation in the target groups, creating an inclusive working environment that will enhance the quality of the outcomes.

Projektets hållbarhetsaspekter

Cybergrass 2.0 will contribute to broader global and European strategies and policies, such as A stronger EU engagement for a peaceful, sustainable and prosperous Arctic Strategy, Territorial Agenda 2030, and European Green Deal including the Farm to Fork strategy. Moreover, the project structure and goals align with the social, ecological and economic goals for sustainable development stated in Västerbotten's Regional Development Strategy.

Cybergrass 2.0 focus on enhancing agricultural sustainability and food security in the NPA region. It aims to develop solutions for forage management, leading to improved farming practices and resilient vegetation and soil resources. By using precision farming technologies and digital solutions, the project seeks to reduce labour, increase productivity, and promote efficient agricultural systems. These optimized solutions can then be favourable to reduce greenhouse gas emissions and improve nutrient efficiency. The project will also collaborate to open opportunities for new green business areas and services, supporting new opportunities and income alternatives in the agricultural sector.

Cybergrass 2.0 is also committed to the EU Charter of Fundamental Rights and to promote non-discrimination and equal opportunities. It prioritizes inclusion by providing accessible communication and training materials into regional languages for all stakeholders. By using remote sensed data and digital tools, Cybergrass 2.0 offers alternatives to decrease physical strain in rural work and open opportunities to encourage more women and young people to join agricultural professions, which are traditionally male-dominated and in declining trend. Cybergrass 2.0 is also committed to have balanced gender participation, including project members, reference committee and target groups.

Cybergrass 2.0 will also make use of already collected datasets, which will promote a better usage of available resources and decrease the necessity of higher greenhouse gas emissions on field campaigns. The project partners, associated organizations and target groups will have participants with sustainability expertise, focusing on ensuring equality and diversity. Traveling and purchases, when necessary, will pursue environmental requirements.

Kostnadsbudget

Kostnadslag	Totalt
Personal	3 428 651
Externa tjänster	380 492
Resor och logi	273 108
Investeringar, materiel och lokaler	231 518
Schablonkostnader	514 297
Summa kostnader	4 828 066

Kostnadsslag	Totalt
Projektintäkter	
Summa faktiska kostnader	4 828 066
Bidrag annat än pengar	
Summa bidrag i annat än pengar	0
Summa totala kostnader	4 828 066

Finansieringsbudget

Finansiär	Totalt
Total offentligt bidrag annat än pengar	0
Sveriges lantbruksuniversitet	323 074
Interreg Norra Periferi och Arktisprogrammet (Länsstyrelsen i Västerbottens län)	3 138 243
Hushållningssällskapet i Västerbotten	3 958
Total offentlig kontantfinansiering	3 465 275
Total offentlig finansiering	3 465 275
Total privat bidrag annat än pengar	0
Total privat kontantfinansiering	0
Total privat finansiering	0
Finansiering	Totalt
Region Västerbotten	1 362 791