

## Teams meeting

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## Present

Andrew Mackenzie	Lewis Castle College
Aisling Nic Aoidh	Údarás na Gaeltachta, Na Forbacha, Co. na Gaillimhe
Fionnán Ó hÓgáin	Údarás na Gaeltachta, Na Forbacha, Co. na Gaillimhe
Dr Alasdair Macleod	Lewis Castle College, Stornoway
Prof Rúnar Unnþórsson	University of Iceland
Dr Jonas Steenholdt Sørensen	Arktisk Teknologi Center, Greenland
Dr Masami Inaba	NUI Galway
Dr Ronan Sulpice	NUI Galway
Dr Agnes Mols Mortensen	TARI – Faroe seaweed
Prof Lisbeth Truelstrup Hansen	Arktisk Teknologi Center, Greenland
Dr Calle Niemi	Swedish University of Agricultural Sciences
Dr Roy Bartle	Lewis Castle College

## Apologies

Jon MacLeod	An Lanntair
Prof Francesco Gentili	Swedish University of Agricultural Sciences
Dr Angus Murray	Lewis Castle College

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Minute

	ITEM	Comment	Decision	Task	Who?	By date
1	Approval of minute of SW-GROW Teams Meeting 24 November 2021	The minute was approved.	No matters arising.	Send to Angus for uploading to website	Andrew	Done
2	Matters arising from 24 November 2021 meeting	None				

	Item	Information
3	Progress with work package deliverables for Period 5	<p><b>Lews Castle College</b>  <b>Andrew Mackenzie: Work package Management.</b>            Writing reports, preparing for meetings, drafting minutes and circulating. Engaging with Partners.</p> <p><b>Dr Angus Murray</b>            The technical work for social media means setting up a Facebook account. As Údarás na Gaeltachta has already expertise in this field it was agreed that they should do this.            The web site already has two pages ready to be used by SMEs and partners and a page highlighting work carried out by SW-Grow and a FAQ page for interaction between SMEs and partners. Currently, the pages can only be accessed by logging on the website and awaiting approval from the partners.</p> <p><b>Dr Roy Bartle</b>            During testing of the drying rig, temperature and flow velocity nonuniformities were observed in the test section. To solve this, the cross-sectional area of the test section was reduced, baffle plates introduced, and hexagonal</p>

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		<p>flow-straightening honeycomb has been introduced. This has proven successful, and we will start drying runs using lettuce in January so that the performance of the rig is understood in time for seaweed testing when it is ready for wild harvesting. Lews Castle College's experimental paper, "<i>The effect of natural convection air temperature on the drying kinetics and desorption isotherms of Alaria esculenta and Palmaria palmata</i>" was under review with Applied Phycology for six months and has now finally been accepted. Roy has met and provided some drying advice and direction to representatives of The Seaweed Company, and are producing Alaria off the west coast of Ireland. Work on renewable energy systems modelling for drying continues apace.</p> <p><b>Dr Alasdair MacLeod</b></p> <p>The Lews Castle College team will be focusing entirely on providing advice for SMEs, as far as different methods of drying is concerned, energy costs, how to do it renewably and the impact of different environments on the quality of product. The intended outcome will offer really useful, practical advice for SMEs who might be thinking of starting up a business focused on the seaward industry.</p>
	Update on progress with work packages	<p><b>Swedish University of Agricultural Sciences</b></p> <p><b>Work package T2.6.2</b></p> <p>Amino acid and nitrogen data has now been received for a lot of samples and PLS modelling has been used to create a spectral model for determination of protein content in seaweed and this will be checked with the local spectroscopy expert to ensure correct statistical analysis. In addition, the nitrogen: protein ratio is being determined in seaweed and a comprehensive paper is being prepared about protein estimation in seaweed at the same time as working on a paper on carbohydrates, but this might need some more comprehensive analysis before submission. Some more samples from geographically diverse sites would be useful since most of the samples have come from the Faroe Islands, Norway and Ireland.</p>
	Update on progress with work packages	<p><b>An Lantair</b></p> <p><b>Work Package T2.6 Characterisation</b></p> <p><b>T2.2 Development of Brand identity</b></p> <p>It was suggested that we should also include advice on branding and market positioning of product as part of our final year workplan.</p>

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	Update on progress with work packages	<p><b>Arktisk Teknologi Center, Greenland</b>  <b>WP 1. Quality Improvement</b>  <b>T1.1.1</b></p> <p>The seaweed produced last summer in Greenland is now being analysed. Writing up a paper on the shelflife of Danish sugar kelp and a final draft of that paper is expected imminently.            Collaborating with a food engineer to look at the drying data that was collected last year, in Greenland in relation to environmental factors such as temperature and humidity is-this should be complimentary to the work that Roy is doing.</p>
	Update on progress with work packages	<p><b>TARI</b>  <b>Work package T1.1:</b></p> <p>Working hard in the new hatchery and also received data back from Lisbeth and going to use the Master's student thesis as part of this project - comparing the quality of natural populations with cultivated populations, in the Faroes, versus time of harvest.            TARI was also nominated for a food award in the category of entrepreneurs within food production. The winners should be announced in Oslo around 11 March 2022. However, the most important part is to be nominated.</p>
	Update on progress with work packages	<p><b>Údarás na Gaeltachta</b></p> <p>Arranged the last seminar on 26 November, when there were about 40 people registered and 35 people participated on the day. The presentation will be uploaded to the you tube channel shortly.            Looking at the next seminar, which will be planned for some time in early February and will focus on processing and drying seaweed and will be looking for appropriate speakers in due course. Contributions for suitable speakers would be welcomed.            Also, looking at the next newsletter and will summarise discussions from the last seminar, but are always looking for more information from partners-<b>in particular, any photographs, stories etc that could be used in Social media.</b>            It would also be useful to have links in social media to the Associate Partners - <b>Partners are requested to provide these for inclusion in social media and also for the website.</b>            Starting to reconsider the pilot on shared infrastructure which was deferred until 2022.</p>

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	Update on progress with work packages	<b>NUI Galway Work package T2.2</b> Considering two papers on <i>Alaria esculenta</i> . Starting to consider projects on species identification using Metabarcoding techniques <sup>1</sup> of commercial seaweeds -this is not about geographical identification, but on identifying species. This is based on Polymerase Chain Reaction (PCR) technology and is applied to as many wild species as possible-but it is not possible to cover everything so will be focused on green and brown algae. In the future commercial samples from Asia may have to be sourced for this work.
	Update on progress with work packages	<b>University of Iceland</b> Still working on preparing for experiments, which should run during the remaining part of the project. Setting up equipment and drying biomass and making sure that the system works for the gas analyser so that the composition of the gas can be assessed. Also working on setting up temperature probes, flow meters, etc, so that the energy being produced by the engine can be measured and appropriate calculations made.
4.	<b>Update on progress with Pilots</b>	<b>Hatchery pilot:</b> Continuing according to plan - the equipment has been ordered and half the money has been paid. The equipment is being manufactured in Italy but is being purchased through a Faroese company and it is expected that the installation will take place during February or March 2022. <b>Drying pilot (Lews Castle College) route</b> See above. <b>Shared infrastructure project</b> Agreed to defer this to 2022 - see below.
5.	<b>Progress with Period 3/4 reports</b>	In progress but partners were asked to ensure that reports that are held up with the FLC are completed as soon as possible. The problem is that until all the Partner reports are completed it is not possible to even start the Project Report.
6.	<b>Progress with analysis of samples for carbon and</b>	Lews Castle College has new drying equipment and are going to install a tumble dryer system using a heat pump (which is low energy) to work with seaweed. To ensure that this new drying system does not degrade the quality of the seaweed it is important that the seaweed product is analysed after going through the drying process.

<sup>1</sup> Metabarcoding is the large-scale taxonomic identification of complex environmental samples via analysis of DNA sequences for short regions of one or a few genes (called DNA barcodes).

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	<p><b>nitrogen, and calorimetric content reports</b></p>	<p>This will depend on the type of analysis required and SLU confirmed that it would be relatively straight forward to analyse carbohydrate and fat content but protein would be more difficult. Lews Castle College would be grateful for any analysis possible.</p> <p>This seems to be quite a complex area but partners in Denmark, Sweden and Ireland (NUI Galway) may be able to provide such a service if Lews Castle College are able to specify exactly what analysis they required. <b>Roy to develop some notes that will specify the analysis required by Lews Castle College and send to above partners for their comments on ability to provide such services.</b></p> <p>TARI have also done quality analysis of final product based on different times of harvesting.</p> <p>At the end of the project, we should be able to determine how different harvesting times affect quality as well as different types of drying techniques.</p>
<p>7.</p>	<p><b>Progress with agreed final year work plan</b></p>	<p>There is significant work that needs to be done to achieve the intended outcomes. The empty shell for information is on the website, but, in the main, has not been populated yet. All partners were asked to make use of the website by logging in and to add any information that they feel is relevant to achieving the work plan.</p> <p>Currently it has been agreed that the following should be included:</p> <ol style="list-style-type: none"> <li>1. legal rights to develop on land or sea (customised to individual countries).</li> <li>2. Barriers to entry into the industry (customised to individual countries).</li> <li>3. Finance requirements and access to funds.</li> <li>4. Branding and market positioning of product</li> <li>5. Cultivation best practice and options.</li> <li>6. Advice on use of clean energy in cultivation and processing.</li> <li>7. Standards and quality, including environmental credibility.</li> <li>8. Agreement to sharing knowledge and skills.</li> <li>9. Minimising waste</li> <li>10. validation using DNA sequencing (access to DNA testing kit)</li> </ol> <p>The suggestion was that the first three items on the list above our unlikely to be achieved unless additional work streams are included. Since the three items will be specific to each country <b>Andrew agreed to develop some questions [with help from Roy] that could be answered by specific people in partner countries and this would feeding to the final toolkit. Fionnán also agreed to send information to Andrew on these issues that has already been done in Ireland post up</b></p>

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8.	<b>Progress with engaging Associate Partners / SMEs</b>	Roy has had some meetings recently with SMEs.
9.	<b>Shared infrastructure pilot project start- up.</b>	Because of on-going COVID-19 issues, it was decided that no travel will be undertaken until 2022 and this will be taken forward in the following months.
10.	<b>Options for travel</b>	Travel is becoming easier but COVID restrictions still apply. It was decided that, for most partners, travel to Ireland would be the easiest option. After discussion it was agreed that a meeting in the week beginning 4 April would be suitable for most partners. Aisling will liaise with Ronan on a suitable itinerary for this date. It will be quite easy to fly to Dublin airport and then take one of the frequent trains to Galway.
11.	<b>Any other business.</b>	None.

Next meeting: Teams Wednesday 26 January 2022 at 1pm (UK time)