

GrowSave Annual Report: 2020-2021

Contents

Introduction	3
Steering Committees	3
Steering Committee Meetings	4
Management Teams	4
Sector Engagement	5
Horticulture	5
Dairy	6
Pork	6
Potatoes	7
Cereals & Oilseeds	7
The Impact of GrowSave	7
Financial Benefit	7
Reaching the audience	8
Website	8
Appendix	9
Horticulture Steering Group Meeting Minutes	9
Appendix 1.1	9
Appendix 1.2	10
Appendix 1.3	12
Appendix 1.4	14
Appendix 1.5	15
Dairy Steering Group Meeting Minutes	16
Appendix 2.1	16
Appendix 2.2	17
Appendix 2.3	18
Appendix 2.4	20
Appendix 2.5	21
Appendix 2.6	22
Appendix 2.7	23
Potatoes Steering Group Meeting Minutes	25
Appendix 3.1	25

Management Meeting Minutes	27
Appendix 4.1	27
Table 1: Steering Committees.....	3
Table 2: Summary of Steering Committee Meetings.....	4
Table 3: Management Team	5
Table 4: Management Team Meetings	5
Table 5: Horticulture Deliverables	5
Table 6: Dairy Deliverables	6
Table 7: Potatoes Deliverables	7
Table 8: Cereals & Oilseeds Deliverables	7

Introduction

The 2020-21 GrowSave year has been a turbulent one. The fifteenth of the programme and the second within the current five-year contract, the momentum which had been gathering, especially with the recent inclusion of the Cereals & Oilseeds, Dairy, Pork and Potatoes sectors, has in many regards been stalled. The effects of the COVID-19 pandemic continued to be felt, with any hopes of in-person workshops, training events and study tours dashed once again. Nevertheless, the GrowSave team continued to provide valuable content to the industry through other means, including online training courses and videos.

The biggest setback of the year, however, has been the news of AHDB's winding down of activities in response to the members' ballot and subsequent decision by DEFRA. This has had a marked impact on this year's activities, both through the uncertainty caused and the lost appetite for continued work shown by some sectors.

This report summarises the activities and deliverables that were contracted and delivered between September 2020 and August 2021 and highlights the impact that the demise of AHDB has had and potentially will have on the programme's engagement with the various sectors.

Steering Committees

The GrowSave programme has always been led by a steering committee, which represents the various stakeholders. The complementary and diverse mix of people includes project managers (AHDB), the delivery team (NFU Energy) and industry representatives (e.g. growers and business owners). Each sector has its own steering committee, the members of which are named in Table 1, who have typically been selected through internal discussion between AHDB and NFU Energy. Through regular meetings, albeit held remotely this year, the steering committees help ensure the programme focuses on topics that are both timely and relevant to the sector.

Table 1: Steering Committees

Sector	Member	Organisation	Role
All	Nathalie Key	AHDB	Project oversight
	Jon Swain	NFU Energy	Content delivery
Horticulture	Wayne Brough	AHDB Horticulture	Sector Oversight
	Scott Raffle	AHDB	Sector Oversight
	Sandy Booth	New Forest Fruit	Industry representative
	James Broekhuizen	Anchor Nurseries	Industry representative
	Richard Fox	Neame Lea	Industry representative
	Andrew Fuller	Neame Lea	Industry representative
	Richard Harnden	Berry Gardens	Industry representative
	Roly Holt	R&L Holt	Industry representative
	Phil Morley	Pearson's	Industry representative
	Matthew Simon	Glinwell PLC	Industry representative
	Neil Stevenson	Double H Nurseries	Industry representative
Cereals & Oilseeds	Harry Henderson	AHDB Cereals and Oilseeds	Sector oversight
Dairy	David Ball	AHDB Dairy	Sector Oversight
	Joe Towers	Lune Valley Dairy	Industry representative

Sector	Member	Organisation	Role
	Ian Ohnstad	The Dairy Group	Industry representative
	Ian Harvey	AHDB Dairy Board & Harvey Brothers	Industry representative
	Alistair McLaren	AHDB Dairy	Sector oversight
	Emily Collins	AHDB Dairy	Sector oversight
	Kate Harris	AHDB Dairy	Sector oversight
Pork	Ben Williams	AHDB Pork	Sector oversight
	Zanita Markham	AHDB Pork	Sector oversight
Potatoes	Adrian Cunnington	AHDB Potatoes	Sector oversight

In the case of Cereals & Oilseeds, the steering committee continues to consist only of the AHDB representative. However, to keep work progressing and gain additional industry insight, this sector would benefit from including additional members on the committee. This should be actioned in the early part of the 2021-22 year to ensure the sector extracts maximum benefit from the programme.

As for Potatoes, however, it has been decided to fold the steering committee (which had been nominally decided this year), due to the winding down of AHDB operations in this sector.

Steering Committee Meetings

The steering committees, where already established, meet as frequently as necessary, typically bi-monthly or quarterly. The dates and locations of these meetings are summarised in Table 2. Meeting minutes are included as appendices.

Table 2: Summary of Steering Committee Meetings

Sector	Date	Location	Minutes
Horticulture	22/10/2020	Via Teams	See Appendix 1.1
	04/02/2021	Via Teams	See Appendix 1.2
	01/04/2021	Via Teams	See Appendix 1.3
	09/06/2021	Via Teams	See Appendix 1.4
	02/09/2021	Via Teams	See Appendix 1.5
Dairy	08/10/2020	Via Teams	See Appendix 2.1
	09/12/2020	Via Teams	See Appendix 2.2
	11/02/2021	Via Teams	See Appendix 2.3
	15/04/2021	Via Teams	See Appendix 2.4
	14/06/2021	Via Teams	See Appendix 2.5
	29/07/2021	Via Teams	See Appendix 2.6
	14/09/2021	Via Teams	See Appendix 2.7
Potatoes	10/03/2021	Via Teams	See Appendix 3.1

Management Teams

The management team (see Table 3) oversees the running of the programme from an overarching and holistic viewpoint, ensuring themes are relevant and aligned to AHDB’s goals and the industry.

Table 3: Management Team

Member	Organisation	Role
Jon Swain	NFU Energy	Content delivery
Nathalie Key	AHDB	Project oversight
Zanita Markham	AHDB Pork	Industry representative
Ben Williams	AHDB Pork	Industry representative
Wayne Brough	AHDB Horticulture	Industry representative
David Ball	AHDB Dairy	Industry representative
Scott Raffle	AHDB Horticulture	Industry representative
Harry Henderson	AHDB Cereals and Oilseed	Industry representative
Adrian Cunnington	AHDB Potatoes	Industry representative

The management team only met once this year (see Table 4).

Table 4: Management Team Meetings

Date	Location	Minutes
15/04/2021	Via Teams	See Appendix 4.1

Sector Engagement

Engagement of the various sectors is dependent on several factors, including budget, target audience and the type of information to be shared. Information typically falls into two categories:

1. Technical reference material, delivered as:
 - Technical updates
 - Technical articles
 - Workshops/Seminars
2. News
 - Sector publications
 - Sector conferences

Horticulture

With the continued involvement of Protected Edibles (PE), Protected Ornamentals (PO) and Soft Fruit (SF), GrowSave content has been structured through engagement with industry, the steering committee, individual representatives and commercial awareness. A summary of the content delivered in 2020-21 is shown in Table 5.

Table 5: Horticulture Deliverables

Contracted Activity	Content	Delivered
AHDB’s The Grower Article		

Contracted Activity	Content	Delivered
GrowSave News	Changes to RHI, Energy Efficiency & Energy Market News	April 2021
	Future heating, Geothermal, Circular Economy & Heat Pumps in Horticulture	June 2021
Technical Update	1 Energy Market	March 2021
	2 Electrification of Heat	May 2021
	3 Air Movement	In review
Events	TGA Conference	24/09/2020
	CGA Conference	Postponed
	Soft Fruit Technical Conference	18/11/2020
	Net Zero Webinar Carbon Footprinting	28/01/2021
	BPOA Technical Meeting	23/02/2021
Other	Online Training Portal (Thinkific) 1. Basic Humidity Control 2. Horticulture Luminaire Calculator	30/06/2021

All editions of GrowSave News, as well as articles for AHDB's *The Grower* magazine and three technical updates were delivered to contract. However, due to the ongoing pandemic, in-person training workshops were not possible. Instead, it was decided to produce two online training modules. These are hosted through Thinkific¹ and are available for access. The study tour deferred from 2019-20 was still not possible and has been deferred again to 2021-22.

Dairy

Work has continued with the Dairy sector, and a programme of work was agreed upon in December 2020. This work has included producing online content for the sector, as well as a webinar, and is summarised in Table 6.

Table 6: Dairy Deliverables

Contracted Activity	Content	Delivered
Events	Rhual Dairy Webinar	Reducing dairy electricity costs 17/03/2021
Publications	Webpages	Renewable energy opportunities for dairy farmers. Introduction to electricity use & management on dairy farms. Energy efficient use of equipment on dairy farms. Energy efficient milk cooling. Energy efficient refrigeration. Energy efficient water heating on dairy farms
		Dairy Lighting

¹ <https://ahdbgrowsavetraining.thinkific.com/>

Pork

Following the conclusion of work carried out in 2019-20, the Pork sector did not commit to any GrowSave work, meaning there were no contracted activities this year. The Pork sector should consider how the GrowSave programme can be of benefit – i.e. what activities, publications or workshops would be of use to the pork industry.

Potatoes

As mentioned previously, the winding up of AHDB Potatoes operations has meant the proposed steering committee has not been formed and further work has not been scheduled. It was agreed to finish the work committed for this year, as summarised in Table 7.

Table 7: Potatoes Deliverables

	Contracted Activity	Content	Delivered
Events	AHDB Conference		Cancelled
	Storage Technical Discussion		25/01/2021
	Webinar	Net zero energy strategy for potato storage	01/06/2021
Publications	Technical Article	Air Leakage & Control	
	ROI Calculator	Update of financial calculator for potato store operating costs	26/08/2021

Cereals & Oilseeds

Following the slow start in this sector last year, it was decided to start the Year 1 work proper this year instead. The only deliverable was a technology review on grain storage and drying (see Table 8), which has been produced and is currently awaiting review by Harry Henderson, the sector's sole steering committee member. As previously stated, this sector would benefit from additional committee members, both to ease the strain and provide input for future work, which is yet to be determined for 2021-22.

Table 8: Cereals & Oilseeds Deliverables

	Contracted Activity	Content	Delivered
Publications	Technological Review	A round up of the current marketplace and issues affecting the sector in terms of energy and efficiency for grain storage and drying	31/05/2021

The Impact of GrowSave

Financial Benefit

Quantifying the impact of GrowSave is never easy, given that the primary output of the programme is knowledge. It is incumbent on the industry to take the information provided and to apply it to business processes. There is no strategy to benchmark energy consumption and measure subsequent energy savings of those engaged by GrowSave.

However, energy (as heat and electricity) remains a significant cost for many agricultural businesses. Furthermore, with the sharp increase in energy prices seen in recent months, GrowSave and its

energy efficiency focus is relevant to industry now more than ever. Since last year's annual report, year ahead electricity prices have almost tripled from £48/MWh to £140/MWh, with half of that increase materialising in August and September 2021 alone. Day ahead gas prices, meanwhile, have risen even more dramatically. Starting from a relatively low base in October 2020 of less than £0.40/therm, prices have soared to £1.74/therm in September 2021, again with nearly half of the increase happening over just a few weeks.

This kind of rapid rise in energy prices is felt directly by the industry and can potentially threaten business profitability and stability, especially for those who are still heavily dependent on gas or grid electricity. That is not to say that businesses with on-site generation capabilities are immune to market volatility, but they may be better placed to weather the storm. In all cases, however, reducing energy consumption and dependence on fossil fuels, such as through improved efficiency practices and by adopting emerging low-energy and 'green' technologies, can help businesses to ensure their long-term viability. GrowSave remains well-placed to help the agriculture industry achieve this, firstly by keeping abreast of developments and secondly through its programme of knowledge dissemination. If September's energy prices represent a new long-term baseline, the agricultural industry could expect its annual fuel bill to increase by a factor of three or four. It also means, however, that for every kilowatt-hour GrowSave can help save, the financial benefit of the programme is also multiplied by the same factor, thus offering a greater return on investment to the AHDB.

Reaching the audience

While direct engagement of the industry through workshops and sector events has been more difficult this year, the programme has retained its reach to a wider audience through its numerous publications and web content.

Website

Since the transfer of online content to the AHDB website, analytics have not been available. The website remains more focused on Horticulture than the other sectors, partly due to the pre-existing catalogue of work available from the past 15 years. The Pork and Dairy sectors are also represented on the website, although content is still limited.

In addition, the GrowSave team publishes blogs once a month on the AHDB website and, from time to time, these are featured on other websites.

Appendix

Horticulture Steering Group Meeting Minutes

Appendix 1.1

Subject:	Horticulture Steering Committee	Present:	Richard Harnden (RHa) Roly Holt (RH), Neil Stevenson (NS), Phil Morley (PM), James Broekhuizen (JB) Wayne Brough (WB), Scott Raffle (SR), Nathalie Key (NK), Jon Swain (JS), Ed Hardy (EH), Jenny Beynon (JBe) Michael Bond (MB)
		Apologies	Richard Fox, Andrew Fuller, Sandy Booth, Matthew Simon
Date:	22 October 2020		
Venue:	Via Microsoft Teams		

Item	Notes
NFU Energy Update – progress so far	<p>Tech updates</p> <ul style="list-style-type: none"> We have written a tech update on Heat Networks which is going to be split into two. 1 – Where heat is from 2- How to apply. This completes delivery for Year 1. <p>CO2 Study Tour</p> <ul style="list-style-type: none"> This had been pushed to Spring 2021 but is going to be pushed further back to 2022 and year 3. We will use our new online training to fill the workshop program <p>Lighting calculator plan</p> <ul style="list-style-type: none"> We are going to use the new online training platform to provide information and instructions for using the lighting calculator. <p>Website information provision update</p> <ul style="list-style-type: none"> We are currently in the process of updating all the old Tech Updates
GrowSave training platform	<p>Ed Hardy gave a demo of the work so far on the Online Training Platform. Feedback was very positive, and comments as follows:</p> <ul style="list-style-type: none"> Basis points are not important for training It would be worth having illustrations related to crops Prezi presentation format works well and is easier to watch than PowerPoint Mixing up content format is a good idea. NFU Energy to complete the Basic Humidity Course and share with Steering Group Group to then give to staff to test and provide feedback before we start promotion of course.

Air movement	<ul style="list-style-type: none"> • Are, what people say fans are doing, what fans are really doing? • MB gave a full round up of work done so far from recent visits • MB to write up thoughts and findings and share with Steering Groups • Air Movement concept note to be shared with these minutes
Proposed workshop on the future of heat and CO2 supply in protected cropping	<ul style="list-style-type: none"> • Concept on this workshop/webinar was shared • JS to send concept note for workshop/webinar to Steering Group for thoughts • Feedback to be supplied by Mid-December.
Topics/matters arising	<ul style="list-style-type: none"> • Soft Fruit event • Future of RHI – Aimed at Heat pumps and not biomass • Hort continuation ballet – Levy payers to vote whether levy continues to exist. NK to be in touch separately.
Next meeting date	<ul style="list-style-type: none"> • Suggested date: Thursday 14 January 2021

Appendix 1.2

Subject:	Horticulture Steering Committee	Present:	Roly Holt (RH), Neil Stevenson (NS), Wayne Brough (WB), Scott Raffle (SR), Nathalie Key (NK), Jon Swain (JS), Ed Hardy (EH), Jenny Beynon (JBe) Michael Bond (MB), Andrew Fuller (AF), Matthew Simon (MS), Ceri Kinsella (CK)
		Apologies	Richard Harnden, Phil Morley, Richard Fox, Sandy Booth, James Broekhuizen
Date:	04 February 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Introduction	Ceri will be covering for Jenny whilst she is on maternity leave.
Growsave online training courses progress	<p>JS – Training platform has taken some time to produce.</p> <p>JBe – demonstrated how to sign in and showed progress so far.</p> <ul style="list-style-type: none"> • <i>Basic Humidity Control</i> – click on “enrol for free” then lessons start, voiceover recorded by Ed Hardy, click through each lesson, quizzes throughout, certificate at the end. • <i>Horticulture Luminaire Calculator</i> – YouTube video, then an explanatory slide at the end showing hints & tips, certificate again at the end. <p>Certificates can be branded with pictures etc, option of an expiry date if required.</p>

	<p>NK & JS – development so far? We are ready for the steering group to give us some honest feedback which would be very helpful for us to continue. We are hoping for a range of content for all levels and relevance.</p> <p>Date for feedback from the team in 1 month please – 5th March 2021.</p> <p>OK to share with colleagues for feedback but not to be sent in any newsletters etc.</p> <p>NK to speak to internal comms team.</p>
Air Movement	<p>MB – presented findings of separate tests for air movement carried out at Sandylands & Woodlark sites, showing use of both vertical & horizontal fans - please refer to his document sent out to the team earlier for full detail and conclusions.</p> <p>RH – discussions around “what air speed does a grower want?”, Sandylands aim for a uniform temperature & fans were recommended to be placed 15m grid by the installer. Variations in canopy height with a tomato crop, test environment very different to real life i.e., adding gutters, crop & people to the mix. Air movement helps mildew control especially in hotspots with less condensation.</p> <p>Air movement is good, try to get the best you can – still may not be good enough!</p> <p>AF – Ornamental’s response – interested in looking at fan speeds, no straight answer, horizontal fans seem to work the best, worried about them spreading diseases.</p> <p>JS – What do we do next for Growsave – are we looking for an answer that is not there?</p> <p>WB – need a more nuanced approach.</p> <p>EH – What is the question, what are we trying to achieve? Even temperature at top of canopy/ minimise disease etc. Given your requirements your recommendations will be different.</p> <p>MB – to circulate next set of results when they are available for all to provide recommendations.</p>
Workshop on future of heat & CO2 supply in protected cropping	<p>JS requires feedback on his email sent out this week – is he being too early with this idea?</p> <p>Responses were generally that most have not yet read the document but like the concept.</p> <p>Date for feedback from the team in 1 month please – 5th March 2021.</p>
Topics/matters arising	<p>NK – AHDB are looking at Carbon Auditing – would Horticultural Growers be interested in this? JS did a webinar on this last week.</p> <p>WB – lots we can do on this, could be a prerequisite of supermarkets in a couple of years, let’s try and get ahead of the game.</p> <p>AF – already looking at this alongside the university – happy to share results.</p> <p>NS – agrees, no industry body with a standard so keen to do this.</p> <p>JS – lots of conflicting ideas & tools around, recent Net Zero webinar around 40+ people showed interest there.</p> <p>NK – to post the webinar online soon.</p>
Next meeting date	<ul style="list-style-type: none"> • Suggested date: TBC early April

Appendix 1.3

Subject:	Horticulture Steering Committee	Present:	Roly Holt (RHo), Neil Stevenson (NS), Wayne Brough (WB), Scott Raffle (SR), Nathalie Key (NK), Jon Swain (JS), Ed Hardy (EH), Richard Harnden (RHa) Michael Bond (MB), Matthew Simon (MS), Ceri Kinsella (CK)
		Apologies	Phil Morley, Richard Fox, Sandy Booth, Andrew Fuller
Date:	01 April 2021		
Venue:	Via Microsoft Teams		

Item	Notes																																			
Carbon Auditing	<p>AHDB have made a start in other sectors – Livestock & Cereals and have been undertaking AgReCalc audits. Current tools are not well suited to Horti sector. Need to look to commission work or engage with farm owners. Categories are “protected”, “outdoors”, “perennials”, “annual” and “containers”.</p> <p>Questions from recent webinars have been what tools are available and what does the industry need, can something be developed?</p> <p>All the tools could be modified for protected hort, that doesn't mean they will be modified though. As CoolFarm Tool is stated by many multiples and is most suited to hort it's likely to be the best candidate for modifications. However, this may still be compromised and an industry dedicated solution may be needed. Farm Carbon Toolkit</p> <p>AHDB can commit to short term essential work, although current impending decision on future of AHDB Hort has put much new work commissioning on hold. WB stated they are trying to keep this topic alive regardless such that they can best prepare growers as and when the industry need arises.</p> <p>Action – to keep an eye on this and propose work as and when appropriate</p>																																			
Growsave online training courses progress	<p>Ed has now uploaded the unit “definitions & units” module. Thanks for the feedback received to date, Ed will carry on along the same lines, timeline has now been planned to complete all the content as follows:</p> <table border="1"> <thead> <tr> <th></th> <th>Module</th> <th>Subject</th> <th>Status</th> <th>Due</th> </tr> </thead> <tbody> <tr> <td>1.1</td> <td>Basics</td> <td>Temp 1</td> <td>Complete</td> <td></td> </tr> <tr> <td>1.2</td> <td>Basics</td> <td>Temp 2</td> <td>Complete</td> <td></td> </tr> <tr> <td>1.3</td> <td>Basics</td> <td>Air Exchange</td> <td>Complete</td> <td></td> </tr> <tr> <td>2.1</td> <td>Definitions & Units</td> <td>Terminology</td> <td>Complete</td> <td>31-Mar</td> </tr> <tr> <td>3.1</td> <td>Measuring</td> <td>Temp & Climate</td> <td>Not started</td> <td>14-Apr</td> </tr> <tr> <td>4.1</td> <td>Heating, Venting & Screens</td> <td>Mollier Diagram</td> <td>In progress</td> <td>30-Apr</td> </tr> </tbody> </table>		Module	Subject	Status	Due	1.1	Basics	Temp 1	Complete		1.2	Basics	Temp 2	Complete		1.3	Basics	Air Exchange	Complete		2.1	Definitions & Units	Terminology	Complete	31-Mar	3.1	Measuring	Temp & Climate	Not started	14-Apr	4.1	Heating, Venting & Screens	Mollier Diagram	In progress	30-Apr
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1.1	Basics	Temp 1	Complete																																	
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1.3	Basics	Air Exchange	Complete																																	
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3.1	Measuring	Temp & Climate	Not started	14-Apr																																
4.1	Heating, Venting & Screens	Mollier Diagram	In progress	30-Apr																																

	4.2	Heating, Venting & Screens	Heat then vent	In progress	30-Apr
	4.3	Heating, Venting & Screens	Vent then heat	Not started	15-May
	4.4	Heating, Venting & Screens	Screens	Not started	31-May
	5.1	The Role of Air Movement	Climate Uniformity	Not started	15-Jun
	5.2	The Role of Air Movement	Fan Selection	Not started	30-Jun
	<p>The format of the training is similar to an “in-person” workshop, a new topic will be available every 2-4 weeks, please check in regularly and provide feedback as necessary.</p> <p>WB is chasing BPOA for their feedback, should we open up to more people for feedback? Can we use this to lead on to more ongoing relationships? NK said that they are trying to measure the impact so it would be great to consolidate it a bit more.</p> <p>MB – Lighting Calculator is currently in a PowerPoint ready to move into a video format soon, need to add in UK market models. Manufacturer could run the tool on the customer’s behalf, or NFUE could become the consultancy intermediary and ran on customer’s behalf. Consensus was that NFUE should run it as it is a complex area and independent advice is needed, a clever tool will not do the job an expert is needed to advise growers. Action MB to speak to Phillips.</p>				
Air Movement	<p>MB – analysis work is still in hand, Mike showed progress to date, see attached notes on this – and please provide feedback and comments.</p>				
Workshop on future of heat & CO2 supply in protected cropping	<p>JS spending a lot of time discussing this, it is a difficult topic but very important. There is potential for a Growsave workshop, or news articles if it will not work as a workshop. Some feedback received from group: really interesting area, workshop would be very useful. Needs to be thought about soon & Growsave should be looking at it. Growers will not want to spend on it yet but need to be thinking about it now. Very relevant, looming issue & need to provoke a debate. Action – Jon and Nathalie to agree format and attendees invites.</p> <p>JS – there is some funding out there at the moment looking at industrial heat use research for edibles, contact Jon if you are interested. WB – suggested looking at pot herbs so that this can be translated into protected horticulture.</p> <p>CGA Conference is this year – October 21st – good opportunity to keep growers engaged. Need to add this to Growsave Milestones.</p>				
Next meeting date	<ul style="list-style-type: none"> Suggested date: Wednesday 02 June 2021 2:30pm – 3:30pm 				

Appendix 1.4

Subject:	Horticulture Steering Committee	Present:	Roly Holt (RHo), (NS), Wayne Brough (WB), Scott Raffle (SR), Nathalie Key (NK), Jon Swain (JS), Ed Hardy (EH), Richard Harnden (RHa) Michael Bond (MB), Matthew Simon (MS), Ceri Kinsella (CK), Sandy Booth
		Apologies	Phil Morley, Richard Fox, Andrew Fuller, Neil Stevenson
Date:	09 June 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Updates – Literature prepared	<p>Electrification of Heat Technical Update was written and sent to Nathalie last month – can Nathalie provide any known publication date?</p> <p>Growsave News articles for this quarter have all been written and are ready for whenever Nathalie wants them, who confirmed that the Grower magazine is paused, so this material can possibly be used on the website instead. A separate discussion is required for the content to fit around recent changes within AHDB. NFUE is currently on track with what was scheduled to be delivered at this point of the Growsave contract.</p>
Workshop on future of heat & CO2 supply in protected cropping	<p>A list has been prepared made up of Academics, Installers & Consultants as prospective attendees for the Teams workshop – totalling 34 people now if all confirm. This is a good number for one workshop.</p> <p>The facilitators are Ed Hardy & Chris Plackett as two different perspectives for the breakout rooms. Timescales – we would like to deliver the workshop before the end of the Growsave year in August – we need to give a 4-week notice period for the invitation. All to receive a brief with targeted questions for thought beforehand. Action – please review the list for suitability and add people as required, list to be finalised by 25 June 2021.</p>
Growsave online training courses progress	<p>Ed Hardy reminded everyone how to log on to the training portal, set yourself up with a student account. “Basic Humidity Control” section is just about ready to be launched to industry. Action – please watch the videos and advise any comments or feedback ASAP on how they read to a new user.</p> <p>“Role of Air Movement” is likely to be the next chapter. Ed gave us a demonstration of the Mollier Diagram section. A separate discussion between Jon & Nathalie to decide how to roll this out. The Let’s Grow platform is also worth looking at.</p>
Any other business	<p>Nathalie confirmed that AHDB have released a statement regarding the winding down of activities but have confirmed that the funding is still available for the remainder of the Growsave contract to August 2024. Jon also confirmed that the steering group is still very important.</p> <p>Next Meeting: scheduled for Tuesday 02 September at 2:30-3.30pm</p>

Appendix 1.5

Subject:	Horticulture Steering Committee	Present:	Roly Holt, Wayne Brough, Jon Swain, Ed Hardy, Richard Harnden, Michael Bond, Ceri Kinsella,
		Apologies	Scott Raffle, Matthew Simon, Phil Morley, Sandy Booth, Richard Fox, Andrew Fuller, Neil Stevenson
Date:	02 September 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Intro from JS & Update on literature	We are now at the end of Year 2, need to discuss themes for next year. Deadline of annual report is end of September, will be shared once it is available. All literature has been sent to Nathalie and will now be picked up by Wayne where applicable, the 3 rd Tech Update is Air Movement which is currently being worked on by Mike Bond. Next GrowSave News articles are also in process of being prepared.
AHDB update from WB	Winding down process continues within AHDB Horticulture along with associated staff changes and redundancies. Nathalie has been seconded to a DEFRA funded project within AHDB and no longer works full time for horticulture. The future of AHDB Horticulture is still not clear, but ongoing contracts will be funded and supported as staffing levels allow. An archive website will be created for the horticultural output. JS is minded that NFU Energy has a hub for all this information, need to canvas opinions from growers to discuss this further. Rha suggested that a subscription model could be considered, next few months are important. Growsave could exist as a stand-alone website as a brand. WB added that there is a new Future Farming funding available from DEFRA, WB shared the link to this. Action here for JS, WB and Debbie Wilson to discuss where GrowSave information will be housed.
Milestones	JS to double check on work done to date for Technical Updates , Annual Report is with Ed Hardy & Growsave News is in progress for the Autumn release.
Air Movement	Mike is in the process of putting the results into a report, draft should be available by the end of the week and will be circulated. With regards to the online training portal (instead of in-person) no new content added, some areas have been edited from last feedback. Action – need to set a date for Training Portal to go live. Air Movement should be the next chapter – Roly & Richard in agreement. Ed agrees that he will reference the earlier courses within the new content. Need a timescale for next chapter.
Next Year's Themes	Future of Heat workshop can be built on, this looks to be running at end of September from poll feedback. Different approach to the norm, should provide some interesting insights. WB suggested a series of polls to be ran throughout the day to obtain instant feedback. Air Movement in more detail. CO₂ Study Tour – shall we keep this on the agenda? Agreed by all that yes, as soon as we can travel overseas. January 2022 would be an ideal time. Need to find growers that are willing to accept a group of overseas visitors –

	lots to bear in mind. JS to speak to previous venues & to check on status and prices of flights etc.
Any other business	Roly mentioned that Gas prices are a hot topic and will probably still be for the foreseeable future reference - Energy Markets tech update – should we be fixing or hedging – big gulf between night and day at the moment. JS to review our latest Technical Update on this to see if still relevant and then share any current information.
Next Meeting	Suggested date Wednesday 20th October 2:30-3:30pm

Dairy Steering Group Meeting Minutes

Appendix 2.1

Subject:	GrowSave Steering Committee Meeting	Present:	Ian Harvey (IH), David Ball (DB) Ed Hardy (EH), Jenny Beynon (JB), Ian Ohnstad (IO), Joe Towers (JT), Mike Bond (MB), Jon Swain (JS)
		Apologies	
Date:	08 October 2020		
Venue:	Via Microsoft Teams		

Item	Notes	Action
Contractual commitments	<ul style="list-style-type: none"> Year One completed in August It was agreed that the group would like the Dairy GrowSave work to continue for another year. Financial commitments to be agreed 	DB, JS
Technology review update	<ul style="list-style-type: none"> Send final technology review to Steering Committee 	JB
Information sharing	<ul style="list-style-type: none"> Dairy landing page needs to be added to the GrowSave website so that we can use this to share the information and articles that are being created. Use AHDB comms team to improve the sharing of the information. 	JS, DB, JB
Year 2 topics	<ul style="list-style-type: none"> Topics were agreed as Solar PV, Wind and Energy Storage, Water heating and vacuum pumping. 	
Topics since last meeting	<ul style="list-style-type: none"> Need to involve KE team in getting the messages shared. 	DB, JS

	<ul style="list-style-type: none"> Use Strategic Farms – Once footprints are done on farms GrowSave to get involved to advice on knowledge that we have. 	
Next meeting	To be scheduled on the 09 December at 8.30 – 9.30.	JB

Appendix 2.2

Subject:	GrowSave Steering Committee Meeting	Present:	Ian Harvey (IH), David Ball (DB) Jenny Beynon (JB), Ian Ohnstad (IO), Joe Towers (JT), Mike Bond (MB), Jon Swain (JS), Kate Harris (KH), Emily Collins (EC), Alistair McLaren (AM)
		Apologies	
Date:	09 December 2020		
Venue:	Via Microsoft Teams		

Item	Notes
Progress to date	<ul style="list-style-type: none"> Completed a technical review and delivered to AHDB Original contract for Dairy was just for Year 1 of the GrowSave program but AHDB Dairy are keen to continue work into Year 2 and 3. Initial budget for year 2 is £10k, and this meeting to establish deliverables commensurate with this and wanted by the steering group
Topic areas worth taking forward into Year 2 and 3.	<p>Ideas that came forward from the technical review for possible future work are:</p> <ul style="list-style-type: none"> Energy generation – are there still opportunities? Energy markets – how to make use of emerging opportunities. Energy storage – Batteries, heat, cold etc. Heat pumps and electric motor management. Lighting – current technologies and animal benefits.
Energy Efficiency check list – agreed possible deliverable	<p>NFU Energy to create a checklist for farmers to be able to check their energy efficiency. Plan is to have a webpage that:</p> <ul style="list-style-type: none"> Starting with the basics of all about Energy on dairy farms: Through to energy efficiency, heat recovery units and renewable energy. This would then have clickable links through to more information should they wish to read further. Include a calculator to record numbers of cows/milk consumption and your energy spend and it will calculate how much energy you are using per cow or pence per litre of milk. Then notify if that is efficient with a red, green, amber response. Keep an eye on analytics to see what a popular topic is.

	<ul style="list-style-type: none"> NFU Energy to provide technical information and AHDB to create the webpage
Lighting – agreed possible deliverable	<p>NFU Energy to create a lighting technical review:</p> <ul style="list-style-type: none"> The benefits of lighting To provide a scope of the work to consider mentioning what we would look at and how we would look at it.
AOB	<p>Timescales -</p> <p>Scope of the work to be provided ASAP for AHDB sign off and then:</p> <ul style="list-style-type: none"> Check list to be provided by March/April time Lighting technical review to be provided by end of August. NFU Energy to bill for work completed by end of March.
Next meeting	Suggested date: 11 February 2020 meeting to be an hour and a half.

Appendix 2.3

Subject:	GrowSave Steering Committee Meeting	Present:	David Ball (DB) Jenny Beynon (JB), Joe Towers (JT), Mike Bond (MB), Jon Swain (JS), Emily Collins (EC), Alistair McLaren (AM), Ceri Kinsella (CK)
		Apologies	Ian Harvey (IH), Ian Ohnstad (IO), Kate Harris (KH),
Date:	11 February 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Welcome to Ceri	<ul style="list-style-type: none"> Ceri will be taking over from Jenny who is about to start her maternity leave
Update on Topics	<ul style="list-style-type: none"> JS mentioned that the calculator is still missing (from last minutes) We are awaiting a P/O reference for the first £5k invoice, confirmed invoice will not be sent out without it. Energy pages of website – thoughts on the structure of web pages discussed. AM cannot comment on technical aspects of the content, but the page structure looks fine. Mostly text content rather than downloads. JS said the calculator will fit into #3 as an Excel document. AM confirmed more development time will be needed but will discuss with team. JS confirmed very simple maths calculations, but the feedback given from the results will need to be more dynamic. DB to tech check & AM for website development. Try to keep it simple. Once spreadsheet document is created – need to ask IH/IO/JT for their feedback.

	<ul style="list-style-type: none"> • Technical Pages content – these will be based on what has already been written. DB said this is comprehensive content and covers a lot of areas. JS suggested Jane to pull these together, start with “Buying Energy” page and then we will share with the group for feedback prior to continuing with the rest. IO & IH will be best placed to comment in this area. Jane has a deadline of the end of March to complete all the pages. MB & JS to create the calculator. AM to flag this with digital colleagues to prepare them for the development work. EC suggested some farmer case studies with good news stories re energy will work well. DB discussed Strategic Dairy Farm platform which will provide a good case study, 16th March webinar has been organised as an event. Results of the case study will not be available to see for some time as need chance to install monitoring equipment to show the improvements. JT suggested his father could be a potential case study, JS asked if he could confirm that he is half hourly metered as this shows good data. • Dairy Lighting technical review – MB confirmed the 3 stages of this: <ol style="list-style-type: none"> 1. Review current practice (users/practitioners) 2. Review available technology & claims of benefits, speak to manufacturers & installers, and look at the science around lighting levels. 3. Formulate whatever output is required. <p>DB said technical info required to inform people of the benefits of improvements to lighting, can go on as web pages – better than the milk cooling fact sheet of last year as more in depth required. Detail required – 1 page on “what’s available”, 1 page on “science behind” with links to technical pages and studies if you want to refer & then “case studies”. EC is happy to speak to Steve West & other colleagues to see what people have been asking for. JS said it will give a good idea of the market. JT added that his brother was quoted £14k from a lighting specialist and decided to go down the Amazon route himself instead, JS is interested in the thought process behind this. DB suggested do not necessarily need to spend thousands but good to look at the science behind it. Lots of info for MB to look through, content due to AHDB in August. Need to set up contact between Joe’s brother & MB.</p>
AOB	<ul style="list-style-type: none"> • DB - Webinar 16th March – Strategic Dairy Farm under the Growsave brand so that it can be added to the Growsave page later – will check data permissions beforehand. Webinar will be circulated to group when available. & Marie will promote it. • JS confirmed that NFUE have portable data monitors for use if required, DB said there was a separate budget pot for monitoring improvements. • Content for the 7 pages required by end of March. • EC will share spreadsheet for web content with team, so everyone knows what is coming up.

	<ul style="list-style-type: none"> Feedback welcomed.
Next meeting	Suggested date: 2 nd week in April.

Appendix 2.4

Subject:	GrowSave Steering Committee Meeting	Present:	David Ball (DB), Ian Harvey (IH), Joe Towers (JT), Mike Bond (MB), Jon Swain (JS), Emily Collins (EC), Kate Harris (KH), Ceri Kinsella (CK)
		Apologies	Ian Ohnstad (IO), Alistair McLaren (AM)
Date:	15 April 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Review of last meeting minutes	<ul style="list-style-type: none"> Webinar was held for Rhual Dairy Farm, link is here: https://ahdb.org.uk/farm-excellence/Rhual-Dairy/reducing-dairy-electricity-costs
Web Pages progress	<ul style="list-style-type: none"> NFUE have sent across outline for 7 web pages which turned into 6, one merged into another (Vacuum Pumps). Titles are as follows: “<i>Renewable energy opportunities for dairy farmers, Introduction to electricity use and management on dairy farms, Energy efficient use of equipment on dairy farms, How to ensure energy efficient milk cooling, Energy efficient refrigeration for dairy farms & How to ensure energy efficient water heating on dairy farms.</i>” Titles can be changed if necessary. Written from older material we had and brought up to date for today’s audience. All in AHDB word template. DB has reviewed and made comments on them – overall very good. Most comments were on the Renewables page. Lighting not yet included – MB to add half a page of notes into web page No.3 plus a lighting calculator for general purpose use. IH suggested a simple spreadsheet online showing electricity usage savings and apply it to the capital payback. Purely in terms of cost savings. Actions – NFUE to revisit content with comments by 27/04/2021 & then CK to share pages with IH & IO to check we have hit the right style and accessibility for the reader. DB to prep AM so that his team is ready for this to be booked in for web creation. KH & EC to review pages also. Dairy Benchmarking calculator also to be ready by 27/04/2021.
Dairy Lighting	<ul style="list-style-type: none"> 1. Review of current practice 2. Available technologies & benefits to performances

Technical Review	<ul style="list-style-type: none"> • 3. Science around lighting levels. • 4. Jargon buster • MB still needs to speak to Joe's brother on his recent lighting upgrade. • MB has been talking to Phillips who put him onto "One Lighting" which seems to cover all sectors except dairy! • Unilight & Dairylight have a science section on their websites • MB needs 5 weeks to complete this review. • Actions – MB by end of May content will be prepped, needs to be in simple terms then we can have another discussion ref output of this review. Real customer examples would be helpful, all to advise if they know any sites who have recently upgraded lighting system or started build from scratch.
AOB	<ul style="list-style-type: none"> • Admin/invoicing – DB expected a March dated invoice for the dairy pages work carried out to date £5k. Action – Ceri to arrange this to be issued to AHDB. • Ceri to circulate reviewed web pages to the group next week. • DB to arrange for next P/O reference to cover the following £5k.
Next meeting	Suggested date: Monday 14th June 08:30 – 09:30

Appendix 2.5

Subject:	GrowSave Steering Committee Meeting	Present:	David Ball (DB), Ian Harvey (IH), Mike Bond (MB), Jon Swain (JS), Emily Collins (EC), (KH), Ceri Kinsella (CK), Ian Ohnstad (IO), Alistair McLaren (AM)
		Apologies	Joe Towers (JT), Kate Harris (KH)
Date:	14 June 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Review of web pages	<ul style="list-style-type: none"> • Thanks to both Ian's for their feedback, JS agrees with the suggested re-wording. The web pages can be linked to wherever we like – Knowledge library, Growsave section, Dairy section. AM needs the finalised web pages sending to him, JS to forward pages by 25 June 2021, and copy DB into the email.

Lighting Review	<ul style="list-style-type: none"> • Not as much progress on this section as we had hoped. • MB still needs to make contact with Joe Towers's brother. • Jon visited Rhual Dairy Strategic Farm last month, this can be added to the list for discussion. • EC has a strategic farm in mind who would be good for MB to speak to as he bought from a wholesaler, would be good to look at Unilight solution. • Government recently announced that halogens and fluorescents will be outlawed soon. • Deadline for this work is mid-July for MB to move this along.
AOB	<ul style="list-style-type: none"> • JS hopes that all feel the benefit of Growsave moving forward, next meeting should be used to discuss what we want to look at next year. • Can EC direct the team to point to the Dairy web pages? • Monitoring of Rhual Dairy – this could be part of Growsave or a separate programme. JS to put costs together for this. What was the energy use before/after and the benefit etc. • Nick Parsons heads up the strategic farms, can we look at others for investigative work? A few have recently had carbon audits. • DB to provide a P/O reference for Dairy Lighting Technical Review (August 2021 completion).
Next meeting	Suggested date: Thursday 5 th August 08:30 – 09:30

Appendix 2.6

Subject:	GrowSave Steering Committee Meeting	Present:	David Ball (DB), Ian Harvey (IH), Mike Bond (MB), Emily Collins (EC), Ceri Kinsella (CK), Joe Towers (JT), Jonathan Sandercock (JRS)
		Apologies	Kate Harris (KH), Jon Swain (JS), Ian Ohnstad (IO), Alistair McLaren (AM)
Date:	29 July 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Web pages	<ul style="list-style-type: none"> • Web pages have now been delivered to AHDB.
Lighting Review	<ul style="list-style-type: none"> • IH suggested a summary at the start, or even a short and long version so that if you don't have much time, you can still read the important points. • We reviewed document with DB's notes. • LDPP needs more detail. • Proper references required when quoting science research.

	<ul style="list-style-type: none"> • Some manufacturers were spoken to directly, others were researched on the web. More calls to be made to manufacturers and case studies from their customers if possible. • Need images specifically from UK dairy farmers. • Table required summarising manufacturer findings – easier to read. • A 3rd user experience would be good, everyone liked the 2 already there. Good to read similar farm experiences and opinions, even if not scientific. Just need to include a disclaimer that opinion based. • List of 5 useful questions to ask LED suppliers, and example answers. • EC has a contact – Andrew Gilman who should be forthcoming as another farm to research. • Dairylight/Unilight may be able to share their customer experiences. • AM not present but we need his feedback regarding the formatting of the draft document. • Ban on fluorescents should be included somewhere. • MB to circulate version 2 of the document by 13 August 2021 for further comments from all. • Next review meeting to be Thursday 19 August at 08:30-09:30 for discussion

Appendix 2.7

Subject:	GrowSave Steering Committee Meeting	Present:	David Ball (DB), Jon Swain (JS), Mike Bond (MB), Emily Collins (EC), Ceri Kinsella (CK), Joe Towers (JT), Jonathan Sandercock (JRS), Alistair McLaren (AM)
		Apologies	Kate Harris (KH), Ian Ohnstad (IO), Ian Harvey (IH),
Date:	14 September 2021		
Venue:	Via Microsoft Teams		

Item	Notes
Update - JS	<ul style="list-style-type: none"> • 3rd draft of Lighting Review document was finalised and sent to all on 31/08/2021. • Set of web pages were delivered on 05/07/2021. • Growsave year runs 01/09 to 31/08, everything was completed in the time frame, so we are now into Year 3. • Annual Report is in the process of being written and will be available by 30/09/2021.

Energy Monitoring	<ul style="list-style-type: none"> • Rhual Dairies came to us as a Strategic Dairy Farm, a webinar event was held, and a site visit attended by Jon Swain & Jonathan Sandercock early Summer this year – they are a great case study. • Good option for energy monitoring. JS has put together some costs subject to approval. Examples of using either Infinity loggers or Profile monitors, Infinity is web based so can be done remotely with 1 set up visit, then another later to check how it's going. Profile monitors only hold 30 days of data, so more site visits required but AHDB to cover costs. • DB liked the sound of the Infinity model, but very dependent on John & Anna wanting to upgrade their equipment, need a commitment from them. There would be 6 sets of recommendations and final reporting. Valuable info as evidence to use in Growsave. • JT enquired “what would we learn?” is it confirming what we would expect to see? JS confirmed that the point is to give the farm confidence of what their upgrade options are. • Most people only upgrade when a product fails, so this is an opportunity to look before breakdown to see what savings could be made. • DB confirmed that Emily Boyce has taken over from Marie at AHDB regarding this strategic farm. • The results of the initial energy monitoring have already been presented to the farm showing potential energy savings– copy of presentation attached. • Important to monitor the PV in particular as currently shaded by big trees. • DB confirmed that costs need to be discussed within the Dairy team, DB has now moved across to the Farm Economics team so EC to take this proposal back to them for discussion. Nick Parsons is head of the Dairy Strategic Farms. • Another potential farm is George Wade (JSa). • Action now with Jon to write this up into a concept note and then this will be shared with steering group & for EC to share with her team.
Dairy Web Pages & Lighting Review	<ul style="list-style-type: none"> • AM confirmed that there is some slow progress being made with the web pages. • Dairy Lighting Review is ready for discussion with DB, likely to be web content rather than a pdf, introduction page required with key words with a link through to the pdf. AM thinks better to translate to web pages as search function works better, DB & AM to discuss.
Content for next Growsave year Sept	<ul style="list-style-type: none"> • Energy Monitoring as discussed earlier. • Enhancements to web pages content already produced with case studies to back it up along with up-to-date content – possibly

<p>2021 to Aug 2022</p>	<p>a short video update or blogs. Keep the narrative going pointing back to old pages.</p> <ul style="list-style-type: none"> • Commentary on energy market prices would be useful but would need to be something a farmer can act upon. Cost of energy increasing changes the narrative around renewable energy, energy efficiency & types of tariffs. Easily accessible format needed for this, as not likely to go looking for this info. • Check good times of the year for updates with farmers, seasonality does affect decision making. • What is going on in energy market & how does that affect purchasing or investment decisions? (Jan/Feb?) • Change energy provider (end of spring/early summer)? • Is your PV system working as you expected? • Carbon Footprinting (August?) • JS to write up what NFUE can deliver in the coming Growsave year and include along with the concept note & share with the group by 30/09/2021. Discussion with group by 31/10/2021. • Energy Monitoring could do with being spread over years 3 & 4 to have a good set of results.
<p>Next Meeting</p>	<p>Next SG meeting to be held Wednesday 3rd November 08:30-09:30am</p>

Potatoes Steering Group Meeting Minutes

Appendix 3.1

<p>Subject:</p>	<p>Potatoes Steering Committee</p>	<p>Present:</p>	<p>Jon Swain (JS), Ed Hardy (EH), Ceri Kinsella (CK), Michael Bond (MB), Adrian Cunnington (AC), Adam Fryer (AF), Archie Gibson (AG), David Marshall (DM), Paul Carrott (PC)</p>
		<p>Apologies</p>	<p>None</p>
<p>Date:</p>	<p>10 March 2021</p>		
<p>Venue:</p>	<p>Via Microsoft Teams</p>		

Item	Notes
<p>Background</p>	<p>The Growsave project started primarily for the Horticulture sector as research project work. 2 years ago, AHDB expanded into other sectors – Potatoes, Cereals & Oil Seeds, Dairy & Pork. The Growsave remit is mostly around energy – storage technologies, refrigeration, fans etc. NFU Energy has worked with Adrian Cunnington since 2006 when we were known as FEC Energy and Farm Energy Centre, we have been looking at all aspects of potato storage and air movement within stores and benchmarking energy consumption within stores. Jon Swain has been involved since 2006, then Ed Hardy joined us and was heavily involved in air movement work and more recently Mike Bond.</p>

<p>Introductions</p>	<p>Ed Hardy – Engineer at NFU Energy, currently living and studying in Sweden. Experience is with engineering and energy efficiency.</p> <p>Mike Bond – Senior Engineer at NFU Energy – recently involved with Energy Savings Opportunities Scheme (ESOS) & Streamlined Energy and Carbon Reporting (SECR) regulations</p> <p>Adam Fryer – Commercial Director at Farm Electronics, Engineer by trade involved in sales engineering & the commercial side of the business.</p> <p>Archie Gibson – Executive Director at Agrico, is also on the Seed Industry advisory panel of Sutton Bridge with Adrian/</p> <p>David Marshall – Managing Director at Bradley Refrigeration, also involved with teaching at local colleges refrigeration design.</p> <p>Paul Carrott – Farm Manager at Beeswax Dyson, they grown 15,000 tonnes of potatoes p/a in Lincolnshire – box storage not bulk.</p> <p>Adrian Cunnington – Head of Crop Storage Research at AHDB since 1990, also head of the research programme at Sutton Bridge. Provides knowledge & exchange nationally on potato storage.</p>
<p>What can Growsave do?</p>	<p>We need to determine what we can do and what topics it might cover:</p> <ul style="list-style-type: none"> • Training courses in person or online • Newsletters & Factsheets • Webinars • Workshops • Technical Updates <p>From AHDB perspective some important words to use are “relevance”, “change” & “difference”. We have to be making a difference to the levy payers who are ultimately paying for this project. How can we turn recent topics from the “Storage Technical Discussion Group” into Growsave?</p>
<p>Areas of Interest</p>	<ul style="list-style-type: none"> • Storage standards – UK v Europe, are we significantly behind? • How is energy efficiency affected? • What should be the blueprint for storage for 2021 & beyond? • Some old stores are still effective. • Air flow, efficiency & state of buildings – use every drop of air • Weather stations can be fitted to stores with software to improve efficiency. • More mileage from case studies, economic arguments, changing practices in existing stores. Gather information & data to support arguments. • A simple depreciation plan would help growers, assistance with financial side of things. • One-to-one farm visit invitations to levy payers. • Websites, PDF downloads, direction from social media to website. Multiple approaches required.

	<ul style="list-style-type: none"> • Energy saving was important to students at recent lectures, colleges all have “growing” as part of the syllabus. • How can buildings offer opportunities for renewables, Solar PV, wind, ground & air source heat pumps complimented by insulation
What challenges are people facing?	<ul style="list-style-type: none"> • CIPC is no more, so very few tools to control sprouting – everyone learning as they go along, not great for the industry. • CO2 management • BPS is going, lots of uncertainty. • Growers cautious about spending money & investments • Covid & Brexit creates a lot of uncertainty. • Farmers more inclined to invest in plant & machinery rather than buildings. • Would a grower invest to save 2 or 3% on energy bills? • Need to speak to policy department at NFU
Actions	<ul style="list-style-type: none"> • NFU Energy team will pull together a programme of deliverables and represent these to the Steering Group for discussion and their agreement. • Jon Swain to put Archie Gibson in touch with NFU Policy team to discuss the political issues.
Next meeting date	<ul style="list-style-type: none"> • Suggested quarterly meetings, next one TBC Mid-June 2021

Management Meeting Minutes

Appendix 4.1

Subject:	All sector management group meeting	Present:	Jon Swain (JS), Nathalie Key (NK), Mike Bond (MB), Wayne Brough (WB), Ceri Kinsella, David Ball (DB), Harry Henderson (HH), Adrian Cunnington (AC),
		Apologies	Scott Raffle (SR)
Date:	15 April 2021		
Venue:	Microsoft Teams		

Item	Notes	Action required by
Progress report - General	<ul style="list-style-type: none"> • Continuing with current work, due to recent Horti ballot not issuing new work until decision made. Other sectors will probably follow but future ballots will be held next Spring but by AHDB and will not be a simple yes/no this time. 	

Dairy	<ul style="list-style-type: none"> • Included in Year 1 and as an extra for Year 2 for specific pieces of work – Dairy Web Pages & Review of Lighting. Deadline was March for web pages which is nearly ready to go now. Lighting work will be delivered by end of August. • Steering Group meeting this morning and all on track for Dairy Milestones. DB agreed. • DB happy with strengthened Steering Group. 	
Potatoes	<ul style="list-style-type: none"> • We were missing the Steering Group approach, so this was set up in February. First meeting was held on 10th March. • Put together a programme for suggested deliverables has been sent to AC, seem appropriate but need to see if there are any overlaps with current KE programmes. • Proposals put forward for webinar and ROI calculator, could fit in to May & June. Calculator needs to be updated first before being used. • Only being funded until end of this year. 	JS & AC to discuss webinar & calculator further on Thursday 22/04/2021
Cereals	<ul style="list-style-type: none"> • Probably biggest area of concern as furthest behind with delivery. • Had first draft review of grain drying technical review, currently being re-written in-house. • Need a dedicated session on this next week with those involved. Agreed Wednesday 21/04 09:30-10:30. • Want to put KE out there based on outcomes. Grain drying is poorly understood. Strong on grain to harvest & harvest to storage but gap between harvest to right long-term storage. • NK confirmed more progress needed in this sector. 	Meeting held on Weds 21/04/2021 for JS/HH/NK & ES
Horticulture	<ul style="list-style-type: none"> • Continues to dominate as biggest part of contract but all on track – NK agreed. • On-line training sessions rather than in-person. • Steering Group seem satisfied with the approach. • NK said need to keep moving with topics covered. • WB keen for Air Movement progress & stated not to be put off with the lack of feedback from growers, they are all interested in this area. • Study Tour still on horizon in the future maybe next year. • JS needs feedback on Future of CO2. • Tech update outline for Air Movement & MB has one more set of results to analyse. 	

Pork	<ul style="list-style-type: none"> • No movement in this area – does this need to be brought back in next year? • Pork Pies Initiative currently with Environment Team. • DB not aware of any future plans. NK to follow up to find out more on this. 	NK to follow up with Pork & Environment Teams
Next meetings	<ul style="list-style-type: none"> • Scheduled for mid-July, need to discuss Milestones for following year. 	
Final report	<ul style="list-style-type: none"> • To be released at the end of September. 	