



Tionól Reigiúnach Oirthir agus Lár-Tíre
Eastern and Midland Regional Assembly

Next2Met
Interreg Europe



European Union
European Regional
Development Fund

Next2Met Stakeholder meeting- Digibale Project

9th September 2020



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Attendance:

- David Colbourne, John Hyland, Tom Kelly, Michael O' O'Donovan, Deirdre Hennessy (Teagasc)
- David Cummins, Matthew Clarke (Department of Agriculture, Food and the Marine)
- Conor Shanahan (Mc Hale R&D Facility)
- Ilpo Pölönen, Markus Sihvonen, Katariina Penttila (HAMK, Finland)
- Harri Kuusela (Regional Council of Päijät-Häme, Finland)
- Antti Suokannas (Luke, Finland)
- Bríd Greenan, Malachy Bradley, Ger Kenny (Eastern & Midland Regional Assembly)

Apologies: John Warren, Mc Hale R&D Facility

1. Introductions and Overview

Introductions to the Eastern & Midland Regional Assembly and Next 2 Met were provided by Malachy Bradley and Bríd Greenan (EMRA) and Harri Kuusela (Regional Council of Päijät-Häme) followed by a presentation on [Digibale](#) by Ilpo Pölönen (Häme University of Applied Science).

2. Digibale - Analysis

Following the Digibale presentation there were some questions and discussions in relation to the following areas:

a) RFID Tags

What if the tag falls off? The tags use RFID-technology which is proven and used in many different environments. Ilpo Pölönen reported that during the testing period no tags were lost, readability was monitored over the Finnish winter and tags were tested by adding more formic acid on grass silage and they remained readable. Ilpo stated that losing a tag shouldn't happen if a suitable way to attach it to the net/binding plastic is found. Even without using a tag, the same data can be collected but the individual bale cannot be identified or tracked afterwards. In Finland there is a digital database for field plots (parcels). This system is connected to the Digibale system and when farmers open this Digibale interface, all field parcels can be seen on the map. The software in the Digibale interface can calculate crop per that field parcel.

b) Sensors and Measuring Dry Matter

Michael O'Donovan (Teagasc) highlighted that In Ireland we have much lower dry matter when compared to other countries. How could the sensors cope with this type of dry matter and how well validated would they be?

Ilpo reported that the sensors use the 'competency probe' to estimate dry matter, even if dry matter is about +/- 5 percentage per unit it would be better to know this. At the moment there isn't good data from the laboratory analysis and the balers dry matter sensors results, although it has been done, it has not been published yet. However, in the future the laboratory can send the field parcel results to the farmer – if the farmer wanted information on bale samples the lab can return the results of all the bales on that field parcel - making it easier in the future.

c) Capturing Grassland Data

Michael O'Donovan informed the group about the Grassland database website PastureBase Ireland¹ which records Field Data, Silage data and Yield Data that is inputted by farmers. In Ireland, there are lots of APIs (Application Programming Interfaces) i.e Grasshoppers, Met Éireann, and from Co-ops such as milk data, there is no charge for this service and the farmer owns the data.

In Teagasc, feed labs are set up with an API system, for example in soil fertility. After the drought in 2018 the Department of Agriculture wanted to implement a register for fodder across the country. Now Teagasc have an online Fodder survey in the PastureBase platform. Something like Digibale has the potential for farmers using bales to link up to the current system, as the bales are made during the year it would be possible to find out the amount of feed across specific farms, across the season. Michael offered to share more information about this platform at a later meeting.

Recommendation1: Invite Teagasc to showcase the PastureBase website at the next stakeholder meeting.

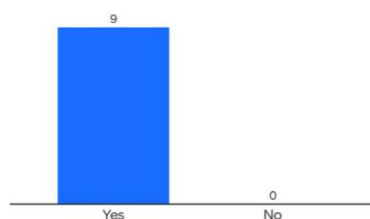
d) Cost of Implementation

In Finland, farmers are ready to pay 50c per tag/ bale for the service. If the baling manufacture makes the hardware and there are no tags, the cost is mainly the database management system. Ilpo stated that if Digibale becomes more widespread and farmers are open to sharing their data they will not have to pay much for this technology. It's a matter of running a business around the database, field parcel reporting, cooperation with bale makers is also important.

3. Transferability to the Midlands Region

After the discussion stakeholders were asked a number of questions via Mentimeter. The following outlines the results of these questions. The idea of Next2Met is to identify and learn from good practices from our Partner Regions and explore good practice transferability to the Midlands Region. Nine stakeholders stated that Digibale is transferrable to the Midlands Region.

Do you think Digibale is transferable to the Midlands Region? Mentimeter



4. Benefits and Beneficiaries of Digibale

Stakeholders were then asked to rank the following benefits of Digibale in order of importance. Stakeholders felt that Digibale was most beneficial in terms of (1st) Monitoring quality of bales, (2nd) More efficient farming, (3rd) Enabling bale trade, (4th) Monitoring stock, and finally (5th) Environmental factors -disposing of bale plastics.

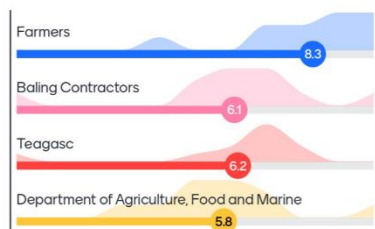
¹ [PastureBaselreland](#) is a grassland management decision support tool and a mechanism to capture background data on farms.

Rank the following 'benefits' of Digibale, in order of importance. 1st = most important.



Stakeholders were then asked on a scale of 1-10, with 10 being the most beneficial who could benefit most from this project. Stakeholders identified that farmers (8.3/10) could benefit most, followed by Baling contractors (6.1/10) Teagasc (6.2/10) and the Department of Agriculture, Food and Marine (5.8/10). More specifically they felt that larger farmers (with output more than €8,000) can benefit most from Digibale, then small farmers (output less than €8000) and finally equine farmers.

On a scale of 1-10: Who could benefit most from Digibale? 10 = most benefit.



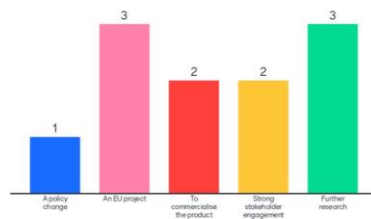
A number of stakeholders echoed the findings of the above polls, stating that there are clear benefits to be gained from the data gathered, for farmers, more efficient farming and quantifying fodder in terms of bales. However, a number of issues were also highlighted in terms of the accuracy of sensors in measuring dry matter, the need for widespread uptake to ensure data accuracy and determining the potential uptake of this innovation.

Recommendation 2: Invite Mc Hale to present on current R&D and potential/ uptake in the Midlands.

5. Implementing Digibale in the Midlands

Stakeholders were asked what is needed in order to implement Digibale in the Midlands. Six people stated that further research (3/11) or an EU project (3/11) was required in order to implement this innovation. Two stakeholders stated that Digibale needed to be commercialised (2/11), a further two stakeholders stated that strong stakeholder engagement is required (2/11) and finally, one stakeholder stated that a policy change is required.

What do we need to implement Digibale in the Midlands?



In terms of the research required to implement Digibale, Michael stated that for Teagasc sensors would need to be validated in terms of capturing quality, weight and dry matter of the bale.

Conor Shanahan from Mc Hale² stated in terms of sensors and validation Mc Hale have two moisture sensors in their Fusion machine monitoring either side of the bale. Mc Hale are seeing good correlation on the values they are getting on each bale. In the last year they have started doing bale weighing before bales are dropped in the field and finding that there is a good correlation between weighing them afterwards compared to the machine itself – this is all inhouse work. Research as such hasn't been done in this area but Mc Hale are happy with their system. Mc Hale know a lot about their manufacturers in Europe –who are using industrial sensors to monitor moisture content and bale weighing at the moment, in terms of other sensors for temperature and relative humidity they are standard off the shelf products. Mc Hale don't have GPS on bales, just on the tractor.

Recommendation 3. Explore the potential of research in terms of the validation of sensors- Can this be part/ or an element of a new project?

What are the barriers to implementing Digibale in the Midlands?



In the Word Cloud above the size of a word shows the frequency to which it was mentioned. The majority of stakeholders stated that the barriers to implementing Digibale include 1. Funding 2. Costs, and 3. Uptake i.e. the more uptake the more successful the innovation in terms of data and releasing the data. Other barriers mentioned include technology, promotion, reliability, data management and Framer take-up (if there is no connection to the internet/the cloud the system collects the data in the memory and when the connection returns it send the bale information).

² Mc Hale: main market is directly to contractors and second-hand market; contractors selling on to smaller farmers.

6. Research and Funding

As a number of stakeholders mentioned carrying out research - Matthew Clarke, National Contact Point for Horizon 2020 (Department of Agriculture) was asked to inform the group about the possibility of applying for funding under this Research and Innovation programme. Matthew reported that the next call is in relation to the European Green Deal – under this call the most relevant topic area would be Farm to Fork, however this is a more systemic look at the overall possibility of reducing greenhouse gas emissions on farms, so not the most relevant call here for Digibale or a specific research project validating sensors.

7. Conclusion

This meeting brought together stakeholders from Teagasc, the Department of Agriculture, the private sector, academics and our Finnish partners. It provided an initial first step and opportunity for Irish stakeholders to learn about Digibale. Overall stakeholders felt that there are opportunities in the Midlands for Digibale and clear benefits for farmers, more efficient farming, quantifying fodder and the potential for gathering data, however, stakeholders also highlighted the need to valid sensors in measuring dry matter and wide spread uptake, in order to get accurate data. The majority of stakeholders stated that they would be interested in further meetings in relation to this project. Finally, Ilpo highlighted that a future project needs to be large-scale to consider a change to the current baling system and the digitalisation of farming, providing opportunities for networks and collaboration to make it more visible and show the strength of this system.

8. Next Steps/ Recommendations

1. Invite Teagasc to showcase the PastureBase website at the next stakeholder meeting.
2. Invite Mc Hale to present on current R&D and potential/ uptake in the Midlands.
3. Continue to collaborate with stakeholders and develop a consortium (including further relevant stakeholders) with the potential for involvement in a future international project.
4. Explore the potential of a research project/funding streams in terms of the validation of sensors- Can this be part of a new project?