Agriculture and Food Development Authority

Teagasc LIFE BEEF CARBON Newsletter 6

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INNOVATIVE FARMER OPEN DAY IN CO. MONAGHAN

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3rd European network

President of the national confederation of livestock in France, Bruno Dufayet, opened the 3rd EU network on the 20th June in Paris FIAP centre. The president addressed the large attendance by highlighting findings from the United Nations Food and Agriculture Organization (FAO) reports that livestock are a key source of agricultural carbon emissions, but noted that livestock production needs to increase to fulfill the United Nations (UN) food security ambitions.

Christine Mueller, European Commission DG Clima, re-iterated agriculture and livestock's contribution to carbon emissions and climate change. She presented the EU carbon reduction emissions targets designed to prevent a 2ºC increase in global temperature by the end of this century. For agriculture, Christine showed the sector will need to reduce current (2018) carbon emissions by over 50% (>200 mega tonnes of CO_2) by 2050 and outlined potential mitigation options as well as the UN Koronivia work on agriculture.

An overview of LIFE BEEF CARBON, CARBON DAIRY, Teagasc Marginal Abatement Cost Curve, Origin Green and further programmes to reduce Europe's livestock carbon footprint (carbon emissions/unit of output) was provided by Jean Baptiste Dolle, Head of IDELE Environment Department. The agriculture and environment expert showed that European agriculture has maintained the same level of livestock production and reduced emissions by 18% since 1990. He highlighted that further improvement of livestock's footprint is possible by adopting actions from the initiatives discussed along with the 4 per 1000 soil initiative.

LIFE BEEF CARBON demonstrative farm observatory and innovative farms were jointly presented by Josselin Andurand (IDELE), Sara Care (CREA), Paula Martinez (ASOPROVAC) and Donal O'Brien (Teagasc). The researchers presented the predominant beef farming systems sampled in each country along with the farmers and technicians trained, the methodology and tools applied to quantify carbon footprint and carbon action plans.

The latter indicated that simultaneously improving several farm productivity measures (e.g., reducing age at first calving) can cut beef carbon footprint by up to 15% and improve economic performance regardless of the type of beef system. Further mitigation may be possible by enhancing carbon sequestration (e.g., planting hedgerows) and by using new low emission technologies.

In addition, these options have additional environmental benefits e.g., reducing ammonia emissions, but financial cost can be a barrier to their implementation. Nevertheless, the actions innovative farms have demonstrated to mitigate beef carbon footprint are increasing beef farmers understanding of carbon emissions and are gradually being adopted. The mitigation actions that the innovative farms successful implement to reduce beef carbon will be used to develop national carbon action plans.

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France's new low carbon label may accelerate the rate of adoption of farm efficiency and carbon sequestration measures via potentially providing carbon credits to farmers. Jean Baptiste Dolle presented the labels requirement regarding verification of carbon emission reductions on farm and outlined the companies and/or institutions that are interested in financing carbon credits. The label may also aid the role out of a low carbon action plan for the beef sector. The latter will be discussed at the final LIFE BEEF CARBON EU network in Ireland later this year or early 2020.

Innovative Beef Farmer Open Days

Ulster and Leinster LIFE BEEF CARBON farmers, the Lalors and Wesley Browne opened their innovative farms to the public in July 2019. Both open days were organized by the Teagasc/Irish Farmers Journal BETTER Farm programme and supported by EU LIFE, processing companies, Kepak, ABP and Dawn Meat, and insurance company, FBD.

Teagasc researchers, Donal O'Brien and Jonathan Herron, presented the latest carbon footprint findings for Wesley's farm and the Lalors farm. They highlighted that both beef producers can cut their carbon footprint by 15% and thus achieve a key LIFE BEEF CARBON goal, by implementing a carbon action plan. This plan contains a range of measures that are designed to reduce carbon emission/unit of beef e.g., better breeding. The measures innovative farms selected also usually improved the efficiency of animal and grassland production, which potentially increases profitability.

BETTER FARM manager, Martina Harrington, and advisors, John Greaney and Tommy Cox described the practices innovative farmers have adopted to improve productivity in detail. Tommy explained how Wesley and the Lalors have increased their grasslands productivity by changing their approach to grazing. Both farms now divide a field into sections or paddocks and allocate cattle paddocks instead of whole field(s). Cattle usually graze a paddock in 2-3 days and in mid-summer return to this paddock after about 21 days of growth.

The new approach means that in July farms move cattle 7-10 times in 3 weeks. Before this, cattle were moved to a new field once a month or fortnight. Wesley and Harry said the new grazing approach had little impact on their workload, improved performance and made cattle much easier to handle and manage.

Other productivity options Teagasc advisors and researchers said mitigated beef carbon footprint were better breeding and reducing the age at first calving to 24 months. These strategies tend to improve cow longevity and reduce reproductive loss. Both measures are dependent on replacement heifers hitting target weaning, breeding and calving live weights. Local Teagasc advisors and the Irish Farmers Journal, Matthew Halpin outlined the weights farmers should be aiming to achieve.

Besides improving efficiency, Teagasc researchers showed that beef farms can cut their footprint by using low emission slurry spreaders and protected urea fertilizer. The researchers showed that protected urea can produce similar grass yields as calcium ammonium nitrate (CAN), but emits 73% less nitrous oxide emissions. They also highlighted that the product is cheaper than CAN, which is the main nitrogen fertilizer applied in Ireland.

Low emission slurry spreaders can further reduce nitrogen losses, particularly ammonia. This mitigation option is expensive, but can be viably implemented via contractors. The equipment also generates other environmental gains that the researchers mentioned are necessary to ensure beef is sustainably produced.

FOR MORE INFORMATION

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Dairy BEEF 2019

Ireland's dairy cow population has grown rapidly since the abolition of the EU milk quota system. The latest statistics indicate there were 21% or 248,000 more dairy cows in 2018 than 2014. The expanding dairy cow population has mainly increased milk output, but it is also increasing beef production. Over the period, the growth in beef output has come from (1) slight increase in the population of dairy cows culled and (2) rise in the number of dairy male calves and beef-bred dairy calves reared from birth to slaughter (dairy calf to beef). Beef-bred dairy calves are usually produced by mating dairy cows with an early maturing beef sire e.g., Aberdeen Angus or Hereford. The number of these calves and male dairy calves from non-beef breeds is projected to continue rising. Rearing and fattening more dairy calves will be challenging, but it is possible and potentially viable by using the technologies recommended and demonstrated by Teagasc at the Dairy BEEF 2019 event.

The event covered dairy calf to beef production practices from Teagasc Johnstown Castle, Grange, Moorepark, Teagasc Knowledge Transfer programmes and other stakeholder groups. The venue for the event was Teagasc dairy calf to beef research farm in Johnstown Castle, Co. Wexford. The open day theme for Dairy BEEF 2019 was "Advancing Knowledge for an Evolving Industry". Dairy BEEF 2019 primarily focused on the technologies inside the farm gate that are under the control of the farmer and that influence the viability and sustainability of dairy calf to beef production. The event paid special attention to the influence grazing systems, calf nutrition, health and welfare have on the sustainability of dairy calf to beef production systems. There was also a strong focus on genetics with the Irish Cattle Breeding Federation (ICBF) providing a detailed overview of their new dairy-beef index (DBI). The DBI was launched at the start of 2019 and ranks beef sires for use on dairy cows according to their estimated genetic potential to produce high quality profitable cattle with minimal impact on the dairy cow. The new selection index promotes the production of top quality beef cattle from the dairy herd that are more profitable and sustainable, yet have minimal consequences on key selection traits i.e. calving difficulty and gestation length.

The right genetics is an important determinant of the profitability of dairy calf to beef production along with high levels of grass utilization. Dr Padraig French, Head of Teagasc Livestock System Department, highlighted the importance of these factors at the event and slaughter age. He said "Farmers that finish spring-born calves before their second winter have a high proportion of grass in the diet and are therefore more resilient to external shocks on beef price and concentrate price". Furthermore, he highlighted that excellent grassland management coupled with high lifetime animal performance gives a higher net margin and lower environmental footprint.

Profitability and sustainability can potentially be improved by introducing white clover into grassland swards. The plant species enhances biodiversity, improves swards digestibility, and reduces artificial nitrogen fertilizer demand. It is also possible to apply slurry to grass/white clover mix swards using low emission slurry spreaders e.g., trailing shoe. This new spreading device increases slurry nitrogen value and displaces artificially manufactured nitrogen, thereby reducing ammonia and carbon footprint. Changing to a fertilizer product with a reliable inhibitor e.g., NBPT nearly eliminates carbon emissions from spreading nitrogen and reduces the risk of nitrate loss to water. Applying this low emission technology with trailing shoe and combining them with white clover minimizes the environmental footprint of the most efficient dairy calf to beef production systems and enhances sustainability. Low environmental footprint should add value to farm-gate prices over time and improve beef farms profitability.