LIFE Carbon Farming

Newsletter #5- November 2024

Welcome to the fifth issue of the Irish newsletter for LIFE Carbon Farming.

This issue highlights the EU LIFE Carbon Farming networking event in Verona, Italy, the Teagasc Sustainability Conference and some notable events coming up in the last quarter of 2024. We describe the topics addressed at the events and the dairy and beef farms we visited.

European Networking Event

Anaïs L'Hote, Project manager, EU LIFE Carbon Farming (Institut de l'Élevage)

The second European networking meeting convened the six partner countries of the project - France, Ireland, Spain, Belgium, Germany, and Italy - in Verona, Italy, from October 14-16, 2024. The 3-day event attracted, farm planners, policy actors, industrialists and potential carbon funders. The event commenced in the morning at the Camera di Commercio, Corso Porta Nuova, where project planners discussed the progress of the initiative and the next step, particularly Action C.3, which focuses on *elaborating the referential costs for carbon farming project.*

Anaïs L'Hote (Institut de l'Élevage) opened the afternoon session, which was dedicated to a series of presentations and testimonials from stakeholders' involved in the LIFE Carbon Farming initiative. Anaïs explained the objectives of the LIFE Carbon Farming project, which aims to support 700 livestock farms to reduce their carbon footprint by at least 15% over five years through a result-based rewarding mechanism. She highlighted the completion of the first carbon audit of the farms, elaborated on action C.1 to C.6 and emphasized the importance of developing a reliable certification system.

Illaria Falconi (CREA-PB) followed with a presentation on *Carbon farming: regulatory framework, state of the art and future prospectives in agriculture*. Illaria discussed EU regulations related to the Common Agricultural Policy (CAP), and the development of a certification framework for carbon removal, and the regulations governing the restoration of nature. She also covered various payment schemes, including farm payments, corporate supply chain, and the voluntary carbon market, which could be utilized to incentivize carbon farming practices.

Saverio Maluccio's (CREA-PB) presented *the Carbon Credit Market: State of the Art and Future Prospects.* His session elaborated on the advantages of the carbon market in driving sustainability objectives. Saverio highlighted that current prices of credits generated in Italy range between €40 and €50 per tonne, which are generally more than prices in developing countries. However, there are regulations and laws governing the sale of carbon credits generated on a voluntary basis.

Lorena Giglio (CRPA) and Sara Carè (CREA-PB) pictured at the event.

Sara Carè (CREA-PB) and Lorena Giglio (CRPA) continued the discussion on the topic *Sustainability Assessment of Cattle Farming in Italy*, elaborating the social, environment and economic aspect of sustainability and the applicable actions to adopt. Sara pointed out that AgNav, CAP'2ER, and Bovid-CO2 will be utilized in assessing farms involved in LIFE Carbon Farming. In the context of sustainability, Giuliano Marchesin, Andrea Scarabello (UNICARVE), Simone Mellano (ASPROCARNE) and Riccardo Negrini (A.I.A. - Italian Breeders Association) discussed the *Role of Beef and Dairy Cattle Associations for Promoting Environmental Sustainability* especially, in the management of waste, animal health, and welfare.

Guido Zilli (Gruppo Mastrotto SPA) delivering a talk on inter-sectorial collaborations

Finally, Guido Zilli from Gruppo Mastrotto SPA delivered a talk on the topic *Livestock and Tannery: Hypothesis of Inter-Sectoral Cooperation to Reduce Greenhouse Gas Emissions.* He pointed out the Italian tanning industry's commitment to sustainability, emphasizing that environmental sustainability should be a global priority, as it reflects our care for nature and collective well-being. Guido underscored the significance of collaboration between industries to achieve meaningful reductions in emissions.

Underground umbilical system for slurry spreading at Mea farm, Rovigo, Italy

The second day evolved with a visit to three beef farms located in the Rovigo province, specializing in the breeding or fattening of

cattle. At the first farm, Mea Farm, discussions focussed on biomethane production and the injection of digestate into the soil. The farm spans approximately 535 hectares (ha) and is situated 3 metres below sea level. Mea farm raises Limousin and Charolais beef cattle. The average number of animals on the farm is about 2600, equivalent to 1285 livestock units (LU). This farm primarily uses maize silage together with wheat and beets for feed, and generates power from biogas. It also employs underground umbilical system, powered by a tractor, for slurry application. The farm engages in a several sustainability actions including:

- Use of fans for ventilation and rubber mats on perforated floors.
- Irrigation system during summer to complement rainfall.
- Reduction in the use of digestate as fertilizer by 50%.
- Satellite-guided tractors to minimize fuel consumption.

Mezzanato Farm was the second farm visited, featuring 2200 animal places rising to 2500, along with 300 ha cropland. Actions taken on this farm include:

- Growing legumes, wheat and other crops in rotation.
- Biogas plant for power generation.
- Fitted fans for improved ventilation.
- Vaccination of all animals upon arrival on the farm.
- Regularly sanitize floor of the housing.
- Purification of drinking water for the animals.
- Special barns for sick animals.
- Covered slurry tanks on the farm to reduce greenhouse gas emissions.

Through investing in improving welfare, the animals on this farm gain an additional 50 grams of weight daily. The average daily weight for heifers is approximately 0.8 kilograms, while for bulls it is about 1.15 kilograms. Both are a mix of Italian and French breeds. Heifers are normally slaughtered at live weights ranging from 550 to 600 kg. Bulls are generally finished at greater live weights.

CA Negra farm producing Wagyu beef in Italy

CA Negra farm was the last farm visited on the second day. It stretches to over 500 ha, consisting of 370 ha dedicated to tillage - grain, corn, soybeans, and beets; 33 ha for forage, 53 ha for green infrastructure; and the rest used for landscape features. CA Negra is the first farm in Italy to specialise in Wagyu cattle breeding. Wagyu beef is a famous Japanese breed renowned for its good quality, characterized by its marbling content and favourable fat content, which is relatively low in cholesterol. To achieve these desirable qualities, the animal must be raised according to strict feeding protocols. CA Negra work closely with Japanese nutritionists to provide the right diet to Wagyu cattle. This diet is more expensive than conventional rations, but the added feed cost is more than recouped in the market place through the premium

price received for Wagyu beef (€100-200 per kilogram of beef).

At the Ca Negra farm, Wagyu breeds are also crossed with Angus breed imported from Ireland to produce F1 hybrids (Wagyu x Angus) through artificial insemination and natural service. In rare cases, embryo transfer is adopted for breeding. The actions adopted to improve sustainability and carbon footprint on the Ca Negra farm include:

- Reducing the age of heifers at the time of conception.
- Heifers are allowed to suckle for at least 4 months
- Decreasing the age of finish from 33 months of age for Wagyu to 28 months for F1 crossbred.
- Steers being fattened are provided with energy-rich diets during this period.
- Adequate space for animal (8 m^2)

Green infrastructure established on the farm has helped to sequester carbon and enhance biodiversity, while the forage area is used to produce fibre for both Wagyu and Charolais cattle. The tillage area covered with oats, alfalfa, legumes, and wheat, is irrigated by three systems: pivot, micro, and hose reel. These irrigation systems are advantageous as they requires low energy, low labour input and offer high water efficiency, which benefits soil structure and crops growth.

The final day of the workshop was dedicated to visiting two dairy farms in Emilia-Romagna. Our first stop was at Albarossa Agricultural Company of Salati Vincenzo. The farm sits on 380 ha with approximately 1400 animals. This farm is part of an 18-member cooperative and specializes in the production of Parmigiano Reggiano cheese, with about 80% of it being exported. Discussions highlighted the importance of excluding silage from the production of Parmigiano, as spores from silage result in spoilage. Additionally, the farmer implemented the following actions to reduce the farm's carbon footprint:

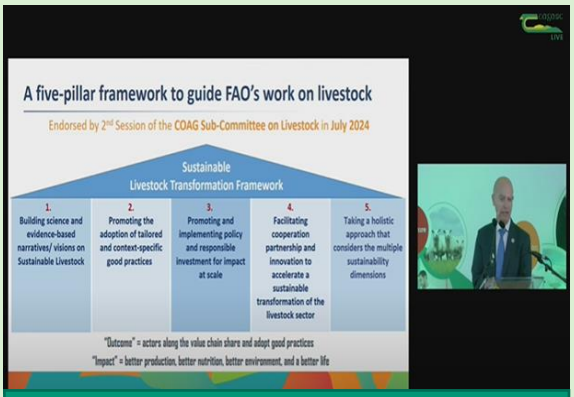
- Decreased the amount of soy in the ration.
- Upgraded the ventilation system to regulate humidity.
- Improve genetic merit for milk production.
- Cover lagoon which helps to reduce gaseous emissions.
- Spreads slurry in narrow bands near surface instead of broadcasting it.

The last farm visited was Ronchi Energy Farm. This farm maintains 700 cows and 400 breeding stock on 500 ha and supplies companies with milk intended for cheese processing, specifically parmesan cheese. The farm generates 16 GW of energy from a biogas plant using manure and food waste. Ronchi Energy farm has a manure spreading technology that mixes digestate with plant waste and measures the nitrogen content of manure in real time. This technology improves the soil nutrients, promoting plant growth on the farm. Additionally, discussions highlighted the significance of animal welfare and how the farm uses scientific software to monitor key performance indicators, such as feed costs, protein efficiency, and revenue per cow, as well as environmental indicators like nitrogen excretion, and methane emissions.

Sustainability in Agriculture: the Science and Evidence

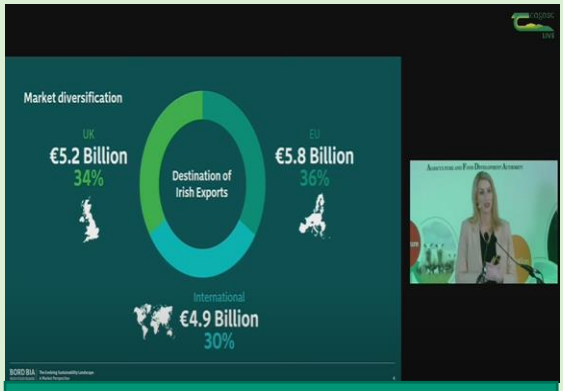
The Teagasc Sustainability in Agriculture: the Science and Evidence conference took place on Tuesday, 5th November, 2024, at the Teagasc Research Centre at Ashtown, Dublin. The conference highlighted the science and evidence behind the sustainability credentials of agriculture, with emphasis on livestock systems. Speaking at the opening of the conference, Teagasc Director, Professor Frank O'Mara, said, "In Ireland, sustainability means balancing economic viability, environmental stewardship, and social equity in order for agriculture to provide food and nutrition and to play a central role in the economy and rural livelihoods. Sustainability is at the heart of agricultural policy in Ireland and the European Union, with the aim to nourish a growing global population with healthier food in a sustainable way. In effect, about 4.5 million hectares of land is utilized for food production, representing more than 60% of total land area in Ireland." The livestock sector largely dominates Irish agriculture and contributes significantly to the rural economy, due to a viable grassland for agriculture purposes. Among several efforts, the Irish economy is on the right path in enhancing biodiversity, producing high-quality and safe food with minimal carbon footprint, and taking sustainable actions to expedite the emission reduction targets.

After the opening session, Dr. Badi Besbes, animal genetics expert from the FAO Animal Production and Health Division, spelled out some predictions about rising demand for animal food, principally from Africa, as a result of rapid population growth and how urgent actions are required now to increase food production in order to meet future demand. Badi highlighted other challenges such as lack of animal protein contributing to stunting in low-income countries, biodiversity loss, and misuse of anti-microbial in feed for animals. In addition, about 700,000 human deaths per year are related to antimicrobial resistance. All these challenges necessitate the prioritization of animal welfare, which matters for both ethical and economic reasons. FAO's transformation and sustainable efforts are in practice to support the livestock sector to provide remedies against background challenges of food insecurity, nutrient loss, and greenhouse gas emissions.



Dr. Badi Besbes highlighting FAO's five pillar framework on sustainable transformation of livestock production

Deirdre Ryan, Director of Quality Assurance and Origin Green - Bord Bia, continued the discussion with a market perspective on sustainability and how the food supply chain has performed over the past few years. Deirdre shed some light on Irish food and drink exports, which reached approximately 16.3 billion in 2023, a 24% increase since 2019.



Deirdre Ryan presenting destination of Irish food exports in 2023

An increase in unit prices and volume of goods were key drivers noted for this change. Also, consumers' perspective on sustainability and how their viewpoint continues to be narrow and simpler, covering fewer sustainability driving factors as compared to food suppliers and distributors is an area that needs more focus.

Among the presentations, Dr. Sinead McCarthy presented on *Nutritional Adequacy in a Healthy and Sustainable Diet*, highlighting the role for sustainable livestock production. Sinead's discussion primarily pointed out the need to balance our food diets, especially animal-sourced foods, to reduce the carbon footprint of daily food consumption.

Dr. Sinead McCarthy comparing the sustainability of different diets

She emphasized that meat and dairy foods are essential in a sustainable and nutritionally adequate diet. However, there must be correct proportion of consumption to gauge dietary carbon footprint. This will ensure adequate consumption of zinc, calcium, iodine and vitamin B12, A, and D.

The conference concluded with a panel discussion on the threats to the sustainability of Irish agricultural along with the opportunities. Generational renewal was identified as a major issue for the sector that could potentially be addressed through a mixture of public and private sustainability mechanisms. Both are likely to be needed to ensure the sector is economically viable and socially sustainable.

Upcoming Events in Ireland

Teagasc is organising or supporting several events to address climate challenges in Irish agriculture, as we move through the last quarter of 2024. Among these events are the ATF event on sustainable livestock production, National Beef Conference in County Leitrim, National Dairy Conference at Limerick Racecourse; and the Sustainable Farming webinar hosted by the Teagasc Mayo Region. These events promise to explore topics such as achieving quality grazing systems, optimizing nutrient use, genetic modification (including the use of sexed semen in maiden heifers), and innovative technologies driving sustainability on Future Beef Suckler farms.

See you in the next issue

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To find out more about LIFE Carbon Farming in Ireland and Europe visit:

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