Industrial Hemp Conference

Opening Remarks

Barry Caslin, Teagasc Energy & Rural Development Specialist

Ladies and gentlemen, esteemed colleagues, and hemp enthusiasts, welcome to the National Industrial Hemp Conference. Today, I'd like to take you on a journey through the history and potential of hemp in agriculture, a topic that has intrigued researchers for decades.

Let's start by turning back the clock to the late 1950s, a time when An Foras Taluntis, the predecessor of Teagasc, was established. From the very beginning, there was a keen interest in exploring the potential of hemp. One of the pioneers in this field was Michael Neelan, who, in the 1960s, focused his research on using hemp for paper and textile production. Imagine him standing outside Oak Park House, beside towering stooks of hemp, drying after being retted in a pond—a testament to the innovative spirit of that era.

Michael's work extended beyond agronomy. He explored the suitability of Irish-grown hemp for both paper manufacturing and textile production. His findings revealed that the fiber quality was well-suited for textiles, and the paper produced from unretted hemp stalks was comparable to that made from wood. This early research laid the groundwork for understanding hemp's versatile applications.

Moving forward to the 1990s, we meet Dr. Jim Crowley, who investigated hemp as a feedstock for Medium Density Fibreboard (MDF). Jim's research focused on agronomy and the potential of different hemp varieties. He discovered that late-maturing varieties yielded the highest fibre output, a crucial finding that continues to influence cultivation practices today.

Jim also delved into the intricacies of seeding rates, determining that 30kg/ha was optimal for biomass and fibre production. This insight was economically significant, as seed costs are a major input in hemp cultivation. Regarding sowing dates, he observed that early planting in April led to better yields due to increased radiation absorption before flowering.

Around 2008, Dr. John Finnan reignited interest in hemp, this time as an energy crop. Amidst a growing demand for renewable energy sources, hemp emerged as an attractive rotation crop for tillage farmers, especially after the decline of the sugar beet industry. Hemp's ability to suppress weeds, enrich the soil, and reduce compaction made it an excellent break crop, contributing to sustainable farming practices.

In all these research endeavors, one remarkable aspect stood out: hemp's resilience. Throughout the studies by Michael, Jim, and John, hemp was cultivated successfully without herbicides, fungicides, or pesticides. While broadleaf weed control posed a challenge, once established, hemp effectively smothered weeds, enhancing its value as a break crop. In

terms of diseases, only in particularly wet years did minor issues arise, highlighting hemp's robust nature.

Agronomy presents its challenges, particularly with seed rates. An incorrect seed rate can allow weeds to establish before hemp takes hold. Harvesting too poses difficulties due to the crop's robustness, making rotary machines ineffective. While a combine works for seeds, our specialised flower harvester, though functional, is still a prototype with mechanical quirks.

Nutrient response was another focal point of research. While hemp can absorb significant potassium, studies showed that even on soils with low potassium indices, the crop did not exhibit significant yield responses to potassium fertilisation. As for nitrogen, the optimal application was found to be 100-120 kg/ha on low-index soils, with timing being less critical as long as the crop received sufficient nitrogen early in its growth.

The comprehensive nutrient trials - informed the guidelines in the Teagasc Green Book, providing valuable insights for farmers. Comparing hemp to other energy crops, it performed favourably even against perennials like willow and miscanthus. While annual crops like hemp do not sequester as much carbon, they offer advantages in rotation and adaptability.

Finally, significant research was conducted on harvesting techniques. The choice of machinery plays a vital role in effectively managing hemp crops. From mowing to baling, the right equipment ensures efficient processing. Innovations in machinery design have further facilitated this process, proving that with the right tools, hemp can be harvested with ease.

Harvesting hemp requires specific equipment, such as a finger bar or big disc mower, a self-propelled machine with a Kemper head, and a combine for seed collection. Separating seeds and buds involves using a combine for seeds and, often, manual labor for buds. The planting season occurs in April or May, ideally after the last frost and ideally with light rain forecasted, with harvesting taking place from August to October.

Looking to the future of hemp in Ireland, the establishment of decorticators would further enhance our ability to process hemp stalks, unlocking additional market opportunities.

Obtaining a license to grow hemp involves a straightforward application to the Health Products Regulatory Authority (HPRA). The cultivation of hemp requires careful consideration of various factors, including soil pH, which should ideally be above 6.5 for optimal growth.

Industrial hemp is a powerful ally in the fight against climate change, offering exceptional carbon sequestration capabilities. Research from the University of Cambridge indicates that hemp can capture atmospheric carbon twice as effectively as forests, making it one of the most effective crops for carbon capture Dezeen. Furthermore, the European Commission's Joint Research Centre (JRC) highlights hemp's potential in reducing the carbon footprint of construction materials, particularly when used in products like hempcrete, which provides long-term carbon storage MDPI. This combination of rapid growth, high CO_2 absorption,

and sustainable durability positions hemp as a key tool for carbon mitigation and eco-friendly construction in Europe.

For farmers considering hemp cultivation, I recommend starting small, understanding the plant, and securing a reliable end user. Equipment-wise, a combine is ideal for seeds, a finger bar mower for fibre. While hemp thrives on various land types, tillage ground offers the best returns due to its fertility.

In conclusion, our journey through the history and research of hemp reveals its remarkable potential in agriculture. With modest fertiliser requirements and resilience to pests, hemp stands as a promising crop for the future. Hemp holds good promise for Ireland's agricultural landscape, contributing to sustainable and diversified farming systems.

Our climate is well suited for this crop, and with strategic advancements in processing and policy, we can position ourselves as leaders in hemp-based food production.

Thank you for your attention, and I look forward to an engaging and productive conference.