

ENVIROCROPS: BIOMASS CROPS DECISION- SUPPORT AND INFORMATION TOOL

A collaborative partnership is putting farmers in control with the development of a biomass crop support and decision-making tool.



UK and EU organisations have highlighted a massive need for expansion of biomass crop planting – some 23,000ha/year – to meet net zero commitments by 2050. But a big hurdle facing the upscale of biomass production in the UK is the lack of joined-up, comprehensive information available to decision-makers.

Farm businesses that are seriously considering biomass crops currently rely on feasibility reports produced by consultants to guide them. This has been the most valuable and comprehensive option to date. However, these reports are a snapshot in time and are not agile in any way; and do not facilitate the supply chain connectivity that is required for the sector to thrive.

For the rapid expansion of biomass to be successful, there needs to be a reliable and easily accessible hub of information for the growing and trading of biomass crops and products.

“Upskilling through digital technology is very important”

Project

Recognising this need, and the opportunity that the UK Government-funded Biomass Feedstocks Innovation programme (BFI) provided, a collaborative partnership has sought to change things.

Led by the Agri-food and Biosciences Institute (AFBI) – in partnership with energy consultancies Crops for Energy and NFU Energy – the project has designed and developed Envirocrops. This is a comprehensive, web-based application that will help key stakeholders make informed biomass planting and marketing decisions.

Envirocrops is:

- A complete encyclopaedia of biomass production information
- A directory of leading biomass businesses
- A price comparison site
- A trading platform with a local dimension.

Utilising an array of existing and custom-made tools, Envirocrops will provide farmers and consultants with robust and tailored information that will help them:

- Identify biomass crop types and varieties suited to different land and climates
- Estimate land required for desired yields
- Grow and manage their biomass crops
- Find local contractors and markets
- Determine production timescales and costs
- Calculate overall economic potential.

End users, whether self-supply, local authority, or power station – will be able to work out:

1. How much land is required to meet all or a proportion of their needs/contracts
2. Production timescales
3. Delivered costs.

“It’s a decision support tool; giving you suitability options, allowing you to crunch the numbers, and connect you with localised specialists and markets”

Bridging the gap is the project's mission – taking a holistic approach that fosters a cycle of exchanges that continually grow information, networks, and markets.

One example is the app's yield prediction function; yield data entered by growers improves the data set, which better informs the model and makes it more reliable for future climate scenarios. Combined with other data from growers and third-party models – like weather, seasonality, soil, and topography – it can more accurately calculate predictions for individuals and users as a collective.

Latest

Having developed and released the alpha version of the app to internal reviewers comprising specialists, key stakeholders, and 50 students at Berkshire College of Agriculture, the beta release will be unveiled at the Low Carbon Agriculture Show 2024.

The beta version will encompass more crop options including poplar, eucalyptus, and reed canary grass – which join willow and miscanthus. It also has improved yield and crop management functions through improvements to modelling and user inputs and controls.

The new version will include a 'find a supplier' function to create the network needed to get biomass crops into the ground and onto the market. This directory will include agronomists, contractors, engineers, and planting material suppliers sorted by location and business type.

The app will also help farmers to understand crop and land suitability, yield predictions, logistical and economic feasibility, as well as markets, legal guidance, and carbon sequestration.

To engage with people and provide a quick way to understand the management of biomass crops, the project released a simulation game, Cropper, in March 2023. It's helped start conversations and encouraged curiosity in biomass production and its place in the road to net zero.

“For the successful and rapid upscale of biomass, farmers need to be able to make quick decisions. That requires a reliable and easily accessible hub of information for the growing and trading of biomass crops and products”

Next steps

The team will gather feedback on the beta release of the app in spring 2024, via webinars and face-to-face training with target audiences including farmers, consultants, policymakers and agricultural students.

They aim to officially launch the Envirocrops app in February 2025.

But they will continue to engage with farmers to better understand their needs from the tool and encourage more farmers and supply chain stakeholders to get involved and improve the network element.

Going forward, the project would like policymakers to use the app in farm focus groups, which will help join up thinking from farm level through to end user, with policy decisions.

It can also see the tool being developed to incorporate more features on a farm's potential for reducing greenhouse gas emissions using biomass crops, carbon sequestration, as well as the biodiversity and sustainability benefits of biomass crops.

The project aims to stay at forefront of the biomass sector by AGE-ing well:

1. Acting as a central point for independent and impartial information on biomass crops
2. Growing as the sector develops to include novel and innovative biomass crops and solutions
3. Evolving with the markets while being interactive and customer specific.