

Wet farming, new thinking.

On a stretch of once-drained peatland, where conventional farming has long struggled against the twin pressures of soil degradation and climate scrutiny, a different approach is taking root or, more accurately, taking hold in water.

In partnership with the UK Centre for Ecology & Hydrology (UKCEH) and Fen Group, Oxwillow has dedicated part of its land to the Ag Zero+ and Lowland Peat 3 (LP3) research programmes. The aim is ambitious: to test whether rewetted peat soils, often written off as “wasted” or marginal, can instead become the foundation of a resilient, productive and environmentally restorative farming system.

Paludiculture, the practice at the heart of the trials, involves growing crops on wet or rewetted peatlands rather than draining them. It represents a fundamental shift in mindset. For decades, drainage has been seen as essential to making peat soils agriculturally viable. But that drainage comes at a cost: oxidised peat releases significant quantities of carbon dioxide, contributing

disproportionately to agricultural greenhouse gas emissions.

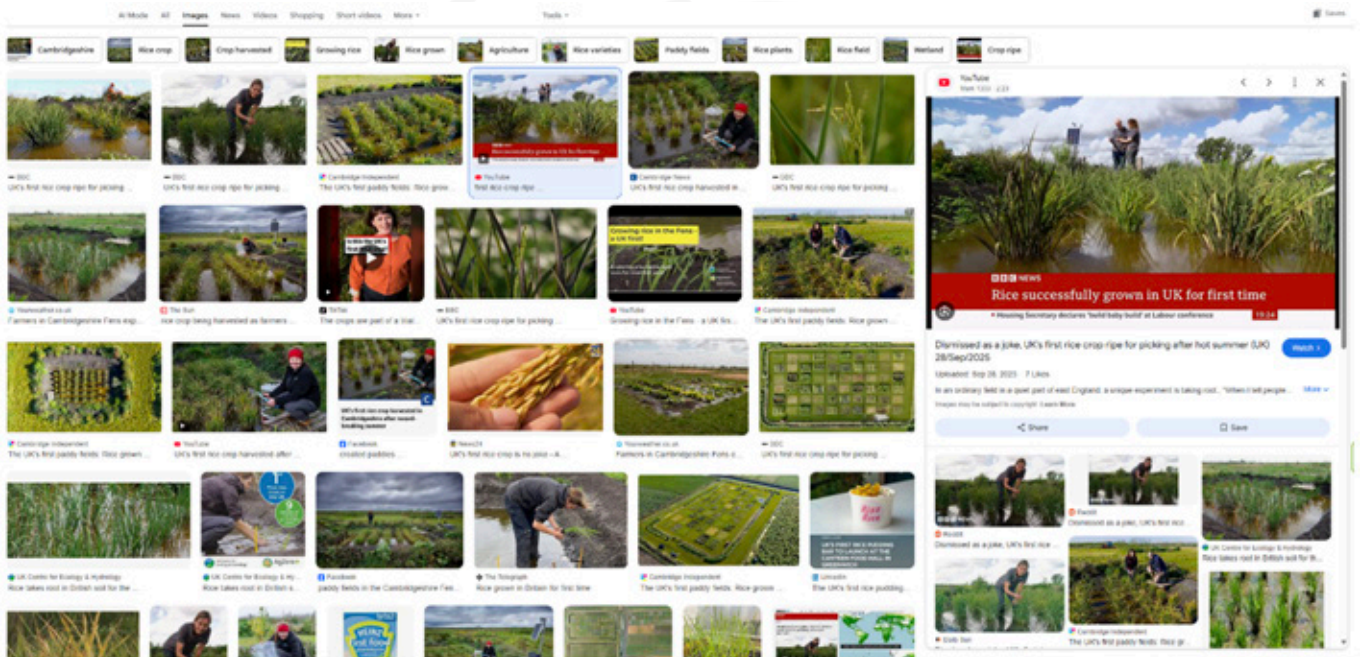
Rewetting, by contrast, slows this process, but traditionally at the expense of productivity. The Ag Zero+ trials are seeking to challenge that trade-off.

Balancing productivity with environmental repair

At its core, the project is about evidence. Researchers and farmers are working together to understand whether wet farming systems can deliver both environmental and economic returns.

Across the trial site, a range of key indicators are being closely monitored. These include greenhouse gas

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emissions and carbon sequestration, offering insight into whether paludiculture can meaningfully reduce the climate footprint of peatland agriculture. Simultaneously, biodiversity levels are being assessed, with early indications suggesting that wetter conditions may support a wider range of plant and animal life compared to intensively drained systems.

Water is another central focus. By maintaining higher water tables, the land has the potential to act as a natural buffer, improving water quality, storing floodwater and reducing nutrient runoff. The removal of phosphates and nitrates is of particular interest, given increasing regulatory and environmental pressure on farming to mitigate pollution entering waterways.

Yet the trials are not solely driven by environmental metrics. A critical question remains: can farmers make a living from such systems?

To answer this, the programme is exploring a range of food and biomass crops suited to wetter conditions. These could offer new income streams while aligning with sustainability goals, a combination that will ultimately determine whether paludiculture can move beyond experimental plots into mainstream adoption.

A landmark harvest

In 2025, the project reached a milestone that captured widespread attention: the successful cultivation of what is the UK's first rice crop grown under paludiculture conditions.

While rice is typically associated with warmer climates and vast flooded paddies, its appearance on British peatland signals the adaptability of both crops and farming systems. The achievement drew national and international interest, not only for its novelty but for what it represents, a tangible example of how rethinking land use can open up unexpected possibilities.

For those involved, the rice crop is less an endpoint than a proof of concept. It demonstrates that rewetted peatland need not be unproductive, and that alternative crops could play a role in future UK agriculture.

From trial to transformation

The next phase of the Ag Zero+ programme will focus on scaling up these early successes. Plans are underway to expand the range of crops under investigation and to refine the systems needed to support commercial viability.

This will not be without challenges. Infrastructure, market development and farmer confidence all need to evolve alongside the science. But the direction of travel is clear: as pressure mounts to reduce emissions, restore

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ecosystems and adapt to climate change, traditional approaches to peatland farming are being reassessed.

What sets this project apart is its collaborative nature. By bringing together researchers and farmers, it bridges the gap between theory and practice, ensuring that findings are grounded in real-world conditions.

Is biomass the answer?

Alongside our AgZero+ trials, our LP3 research focused on the use of miscanthus, a perennial biomass crop, is being grown on peatland as part of a wider investigation into carbon dynamics and renewable materials. The LP3 trials are designed to assess whether such systems can offer a viable route for both emissions reduction and sustainable land use on peat soils.

Miscanthus, often recognised for its high biomass yield and low input requirements, is being evaluated not simply as a crop, but as part of a broader carbon cycle. Once harvested, the material can be used in a range of applications, including conversion into biochar, bioenergy production or in renewable building materials.

What makes these trials particularly significant is the level of measurement involved. Researchers are capturing the full carbon exchange across the system, from plant growth and soil interactions via a flux tower. This whole-system approach aims to build a clearer picture of whether biomass cropping on peatland can move beyond

carbon neutrality and contribute to net carbon storage.

Early work is focusing on understanding how miscanthus performs under peatland conditions, including its impact on soil structure, water dynamics and greenhouse gas emissions. As with the Ag Zero+ programme, the emphasis is on evidence, generating robust data that can inform future land management decisions.

The integration of biochar adds another dimension. By locking carbon into a more stable form, it offers the potential to extend the climate benefits of the crop beyond the field itself. However, questions remain around scalability, economics and long-term impacts, all of which the trials aim to address.

Taken together, the lowland peat work reflects our broader shift in thinking. Rather than viewing peat soils solely as a challenge to be managed, they are increasingly being seen as systems that, if handled differently, could play a role in delivering climate solutions.

As pressure grows on agriculture to reduce emissions and contribute to net zero targets, these trials represent another piece of the puzzle. We are testing whether biomass, carbon capture and practical farming can align on some of the UK's most sensitive soils.

A glimpse of farming's future?

Peatlands cover only a small proportion of the UK's agricultural area, yet their environmental significance is immense. How they are managed will play a critical role in meeting national climate and biodiversity targets.

Our trials suggest that the choice may not be as binary as once thought. Rather than abandoning peat soils or continuing with environmentally damaging status quo practices, there may be a third path, one that works with water, rather than against it.

Whether paludiculture can be adopted at scale remains to be seen. But as this project shows, innovation in agriculture is not always about new technologies; sometimes, it is about reimagining the fundamentals of how land is used.

And on a rewetted field, where rice now grows where few would have expected it, that reimagining is already under way.

