



Case study – Farm

Purpose and overview

This case study documents the approach taken by a third-generation mixed farmer in East Anglia to integrate outdoor pig production into an arable system while reducing environmental risk and supporting long-term farm sustainability. Based on an interview and farm visit, the case study outlines how site selection, crop rotation design and early groundcover establishment are used to manage risks such as soil damage and water runoff. The farmer reflects on how the system has evolved over time, including changes to stocking density and crop choices, to improve environmental and animal welfare outcomes.

Farm overview

- 450 ha mixed farm in East Anglia incorporating outdoor pig production, with a further 300 ha of tenanted arable land
- Outdoor pig farming system includes 850 breeding animals across 43 ha

Production system

The farms outdoor operations are centred on 850 breeding animals across 43 ha of paddocks and individual pens.

Pigs remain in the same field for two years, with ground cover established nine months prior to pigs moving in.

A 3-week batch farrowing system of 120 sows (below).

Per cycle, ~1,250 animals are weaned at 8-9 kg.

1/3 weaners are finished on farm indoors.

Housing is moved, feeders and waterers remain fixed.



The remaining 730 sows and gilts are gestating. Each sow will produce ~2.2 litters per year and ~6 overall before replacement. The replacement rate is ~40%.



The wider farm

450 ha is farmed in house with pigs integrated into the arable rotation. Outdoor pig production will cease in the current field in spring 2025, which will then be drilled with forage maize. The current rotation is pigs for two years, maize for AD, rye as a whole crop and ground cover for nine months (below). There is a further 300 ha tenanted arable operation next door which provides bedding to avoid potential black grass contamination.

Agri-environment

Parts of the farm are entered in Countryside Stewardship and Sustainable Farming Incentive agreements.

Site Selection

How do you choose sites for the pigs?

70% of the 450 ha farm is unsuitable for outdoor pig production due to the clay loam soil type. Pigs are integrated into the arable rotation on the remaining 135 ha occupying sandy loam soil. Fields selected for pigs are often on higher ground which the farmer believes is a key factor in minimising environmental risks. The adviser who completes the risk assessment also designs the arable rotation, analyses soil and other environmental data.



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What does the risk assessment include?

Key suitability factors

Landscape position is key in outdoor pig farming with factors such as elevation, slope, aspect, proximity to field boundaries, access routes for farm vehicles, and the presence of public roads and footpaths being considered. Farmers can check if they are located in NVZ's or other zones on the [Environment Agency interactive map](#).

Key management considerations

The arable rotation is designed so outdoor pig production follows the rye whole crop. Rye, Figure 1, is selected due to its early harvest window compared to other cereals, allowing a longer time frame to select optimum drilling conditions to increase the likelihood of good groundcover establishment. Grass is selected based on its hard-wearing nature and ability to maintain consistent ground cover in paddocks and heavily used access tracks.



Figure 1. A rye whole crop to be harvest in early summer, which will be drilled with grass for pigs to enter in March 2026.

Environmental challenges and mitigation measures

What are some of the key environmental challenges in outdoor pig farming?

Water runoff can be an issue in the sector. Particularly on farms where pigs occupy whole fields and quickly eliminate ground cover, leading to runoff issues. [Catchment Sensitive Farming's advisers](#) can help farmers identify runoff pathways and potential ponding locations using the 'ALERT' mapping tool, and plan fields accordingly.

Have you seen any of these on your farm?

The farm has experienced some issues with runoff though minimal. These instances were in the first ten years of outdoor pig production when no grass groundcover was deliberately established. The farmer had concerns of runoff entering a local SSSI waterway which is a tributary of the River Great Ouse, hence this issue was addressed. Farmers can identify sensitive environmental and designated imported sites via DEFRA's [MAGIC maps platform](#), under the 'designations' layer.

What has the farm done to address any environmental issues?

The arable rotation is mainly min-till, with shallow subsoiling occurring post two years of pigs to improve drainage pre forage maize drilling. Other measures implemented on the farm include:



Preparation of fields begins nine months before introducing the pigs and hard-wearing grass is sown. Having ground cover before the pigs are introduced helps to reduce runoff.



A pre-site risk assessment is done to select sites for the pigs, factoring in the need for things like spare pens and paddocks, accessibility, and proximity to waterways.



To prevent potential issues with erosion, the **arable rotation has been altered**. Sugar beet has been removed due to its harvesting method, also spring barley as this crops harvest window reduced the time frame for groundcover establishment.



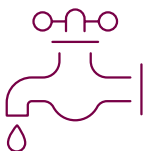
The **adult pigs are fed a diet matching their gestation and lactation demands**. This practice, coupled with feeding methods, limits waste which could go on to create environmental issues.



All adult pigs are nose-ringed (shown below) to reduce rooting and the associated erosion risk. This practice is a compromise between reducing the potential environmental impacts of outdoor farming and animal welfare.



Straw for bedding is sourced from the tenanted arable operation to avoid potential black grass contamination. **Muck** from the pigs reduces fertiliser requirements, with the following forage maize and rye crops performing well with little N inputs



All **drinking water is treated** and the farm has not experience issues with water contamination.



Housing is moved semi-regularly to avoid poaching.

What made you decide to act?

With outdoor pig farming occurring in house, we have a vested interest in land management for the long-term security and sustainability of the farm. 1,000 breeding animals were previously kept on the farm, a number which was unsustainable from an environmental perspective.

Did you receive any support to make the changes?

We are a member of a regional pig producers club who share learnings. Learnings have also been provided by fieldsman through their experiences working on other outdoor pig farms. The farms vet is also involved in the site selection process from an animal welfare perspective, especially concerning stress and overall health.

We are proactive in knowledge sharing with fellow outdoor pig farmers via farm walks and are aware of the Anglian Water Farming Innovation Grant, however, we did not opt in.

What are the benefits you've seen from addressing environmental issues?

The number of breeding animals was reduced to limit the potential of environmental degradation associated with outdoor pig farming.

The addition of a grassy groundcover in the production system, coupled with a lower stocking density, have contributed to odour reductions and improved animal welfare. Maintained groundcover stabilises soil structure which aids year-round field access with field tracks barely rutted in winter (Figure 2).

Environmental monitoring is conducted visually, however, it's difficult to quantify the impacts to air, water and soil without specialist equipment. There is good communication between staff and any environmental concerns are immediately raised and remediated if required.



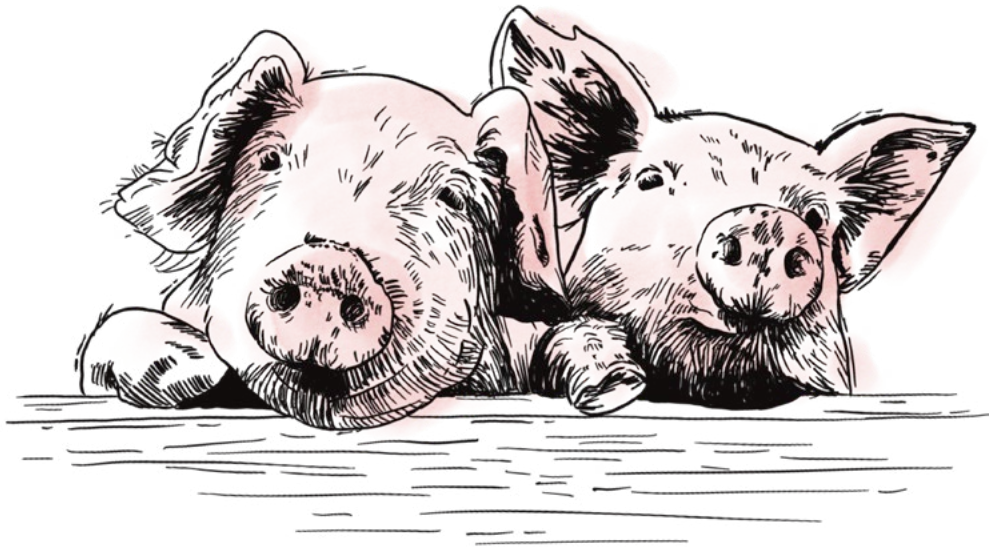
Figure 2. An well maintained field track enabling access year-round even during wet periods.

What are some of the challenges from implementing measures to address environmental issues?

Outdoor pig farming with grass groundcover has been a learning experience. The farmer credits the working relationship with the environmental adviser for the success in reducing environmental impacts.

There is a cost benefit relationship of the farm's production system:

- Increased cost associated with purchasing grass seed, drilling operations and labour requirements. The farms arable operation provides the equipment for this process.
- The groundcover establishment does not provide any returns pre pigs introduction into the field.
- Increased labour requirement of moving housing in pens and paddocks.



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Any key takeaway messages for other pig farmers?

All outdoor pig farmers should have a vested interest in land management to guarantee long-term land security and business sustainability. Such production with reduced environmental impact can help farmers market the industry as positive. Developing good working relationships, learning from others and past mistakes made can fast-track the implementation of a productive outdoor pig farm.