

A wide-angle photograph of an outdoor pig unit. In the foreground, a lush green field is filled with numerous pigs of various breeds, some standing and some lying down. In the middle ground, several blue and black pig shelters are scattered across the field. The background features a dense line of tall, thin trees under a clear blue sky with light, wispy clouds. The overall scene is bright and open.

OUTDOOR PIG UNIT SUSTAINABLE MANAGEMENT

A review and update of best practices for improving soil health and structure, reducing soil erosion and nutrient loss, and maintaining high animal welfare on your outdoor pig unit.



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Working together with farmers to produce more sustainable produce.

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1. Overview

1.1 Benefits of sustainable outdoor pig unit management

Good management of outdoor pig units can significantly improve animal welfare, increase the efficiency of production, and help to protect the environment. More specifically, sustainable unit management can result in:

-  **Better stock health resulting in reduced vet bills**
-  **Reduced risk of soil movement and nutrient losses**
-  **Reduced risk of watercourse pollution**
-  **Better soil structure**
-  **Reduced carbon footprint**
-  **Improved wildlife habitat**

Outdoor pig production accounts for over 40% of the total UK sow herd, with pigs reared and finished outdoors in addition to this.

1.2 Working with a landlord

It is beneficial to have a good working relationship with your landlord, be it an agreement for a simple land rental, or a full working partnership. Details to consider when in discussion with landowners (or as a landowner) regarding land use for pigs include:

- **Timings** – when will pigs move onto the land, how long will they be on the land, and when will they move off the land?
- **Stocking** – what will be the stocking density (Red Tractor and RSPCA standard is max. 30 adult pigs/ha, however DEFRA (Department for Environment, Food & Rural Affairs) recommends max. 25 adult pigs/ha)? Is there scope to agree a lower stocking density for a lower rent in order to deliver additional rotational benefits?
- **Soil conditions** – what is the current soil structure and nutrient level prior to pigs? How do you expect this to change and does this bring any risks/opportunities?
- **Establishing green cover** – can a green cover be established? When and by who?



- **Crops** – what crop(s) will precede and follow the pigs as part of the rotation?

The crop grown before pigs will affect the condition of the site and the time available to establish a green cover for the pigs. Working with your landlord or arable manager to fully integrate pigs into their rotation and long-term planning can result in benefits to both parties.

1.3 Stewardship options

CS (Countryside Stewardship)

SFI (Sustainable Farming Incentive)

<p>Before pigs CS options (per ha):</p> <p>AB15: 2-year sown legume fallow - £593</p>	<p>Before pigs SFI options (per ha):</p> <p>NUM3: Legume fallow - £593</p>
<p>During pigs CS options (per ha):</p> <p>AB1: Nectar flower mix - £614</p> <p>AB8: Flower risk margins and plots - £673</p> <p>AB9: Winter bird food - £732</p> <p>AB16: Autumn sown bumblebird mix - £637</p> <p>SW1: 4m to 6m buffer strip on cultivated land - £451</p> <p>SW3: Infield grass strips - £658</p> <p>SW4: 12m to 24m watercourse buffer strip on cultivated land - £612</p>	<p>During pigs SFI options (per ha):</p> <p>SAM3: Herbal leys - £382</p> <p>IPM2: Flower-rich grass margins, block, or in-field strips - £673</p> <p>AHL1: Pollen and nectar flower mix - £614</p> <p>AHL2: Winter bird food on arable and horticultural land - £732</p> <p>AHL3 Grassy field corners and block - £590</p> <p>AHL4: 4m to 12m grass buffer strip on arable and horticultural land - £451</p>
<p>Post pigs CS options (per ha):</p> <p>SW6: Winter cover crop - £129</p> <p>AB3: Beetle banks - £667</p>	<p>Post pigs SFI options (per ha):</p> <p>SAM2: Multi-species winter cover crops - £129</p>



Capital Items:

- RP7: Sediment ponds and traps – £11.88 per sq. m
- RP9: Earth banks and silt bunds – £195.61 for each unit (100m of bund)
- RP11: Swales – £7.52 per sq. m
- BN11: Planting new hedges – £22.97 per m

CS and SFI options can work together on the same parcel of land, however, they cannot be used on the same object to claim double. For example, if a square field is surrounded by buffer strips, two sides may be claimed through CS and the other two sides through SFI. Discussions with CSF or SFI officers will determine which schemes will work together.

The figures used in this section are accurate at time of publication. More detail as to where to find this information can be found on the back page of this guide.

1.4 When to move

Unit moves will be influenced by when the land becomes available following harvest, most commonly in autumn. This is not ideal for moving pigs due to the following factors:

- Weather is getting worse
- Soil condition is less stable
- There is little time to establish a dense green cover, depending on when the preceding crop is harvested



Image credit: Ian Palmer WRAP

It is for these reasons that spring moves are more desirable, although less likely due to the nature of the rotation cycle. When planning moves, it is best practice to have at least three sites in place for six years of agreements. This allows enough time to establish suitable cover, assess site risks, and plan what mitigation measures might be necessary. If an autumn move is the only option available, try to ensure green cover is established in July or early August and the move is complete before October.



2. Before the unit move

2.1 Assess site risks

Before putting any pigs onto a field, be it for the first time or when returning to a previously used field, it is crucial to assess the land and survey the risks posed. It is important to undertake this process well in advance of the move. Try to anticipate the risks that may arise from the presence of pigs on the land.

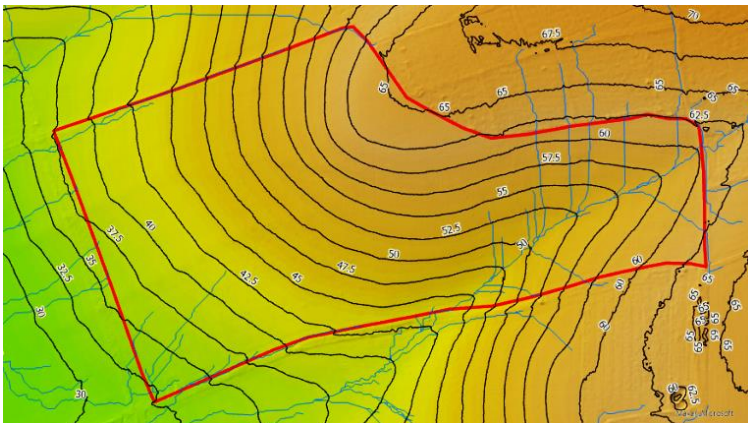
A site assessment should consider:

- Size of the field – does it give enough room for the unit (with spare space)?
- Soil type – topsoil texture, depth, underlying geology?
- Ground elevations – gentle or steep slope, convex or concave? Note the length of slope and meeting points of multiple slopes
- Proximity of land to watercourses – for pollution purposes and for stock drinking water. Remember even dry ditches usually flow some of the year
- Proximity to Groundwater Source Protection Zones (SPZ), Nitrate Vulnerable Zones (NVZ) and boreholes
- Underground and overhead services – where are these located?
- Current crop on the land – will any stubble/roots be left? Will harvest operation compact or disturb soil?

Detailed risk mapping is vital to creating a successful unit management plan. A range of tools are available to illustrate the water flow pathways, assess erosion risk, and identify surrounding risk factors like SPZ, NVZ and utility services. Speak to your local rivers trust, catchment sensitive farming or other trusted advisor for help accessing these resources.

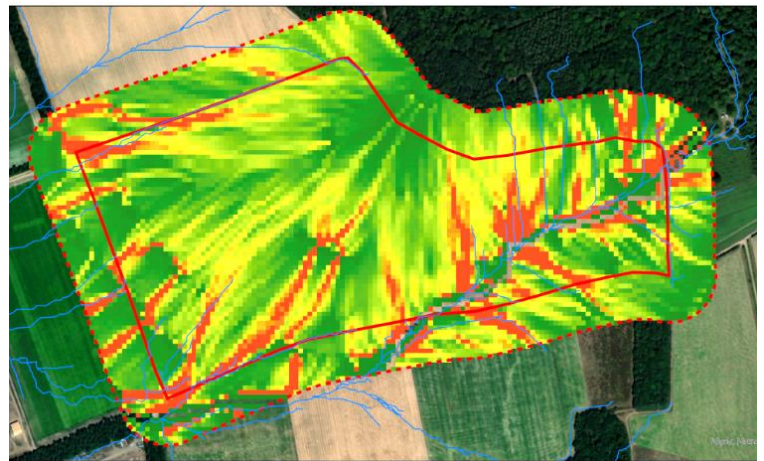
The blue line on the map shows the flow pathways.





This map shows the topography of the site with contour lines showing the extent of the slope across the field.

This map shows the erosion risk in the same field (red being highest risk areas). See how the flow pathways line up with the erosion risk and follows the slope.



2.2 Establish cover

Establishing an effective green cover before the pigs are introduced to a site can: ensure food for the pigs; prevent soil erosion; retain nutrients; and improve soil structure. This can be achieved efficiently when pigs follow early harvested crops, or when the preceding crop is under sown or grown into a living mulch to ensure good establishment pre-pigs. A working example is when maize is undersown before pigs are introduced to the field. This has been known to work on Wayland Farms units and has now been adopted by the unit manager as common practice for future units due to the endurance of the green cover.

Green cover options include a grass-based mix, a legume-based mix, or a combination of both. This can vary for each farm and will need to be assessed and included in the site management plan. This is something which will need to be planned in advance of the unit move - when the land is agreed with the landowner, along with who will pay for and drill the seed.

An effective method at keeping cover within the pens is to flip the pastures, seen in the image on the right. This is when the pigs have access to the middle third at all times, but



only have access to one other third at a time (LSB Pigs have had remarkable success with this). If this is possible, it significantly increases the life of the cover and the associated benefits.



Image credit: LSB Pigs

2.3 Unit layout

The layout of a unit can have a significant impact on the movement of surface water across a site. By understanding the way water gathers and moves, it is possible to plan a unit layout with features to intercept flow pathways. Adjusting farrowing alignment can interrupt a pathway effectively, however, areas such as service radials are harder to alter and if positioned wrong, can be flooded, or exacerbate flooding elsewhere. Around 90% of runoff comes from dry sows as they pan the soil. Therefore, identifying flow pathways can reduce risk and aid decision making.

When planning a unit layout, consider the following:

- Arrange unit to allow for extra space for emergency pens where possible (for isolation or to move pigs if severe flooding occurs)
- Understand water flow pathways and use elements of the unit to interrupt this flow (use farrowing across pathways and keep service radials away from pathways where possible)
- Use mitigation controls for run off where necessary such as:
 - Buffer strips (create habitats for wildlife)
 - Silt netting and traps
 - Road grips
- Plan roadways, move gateways and implement a one-way system to reduce ruts and prevent wheelings acting as flow pathways (Wayland Farms have found this most beneficial)

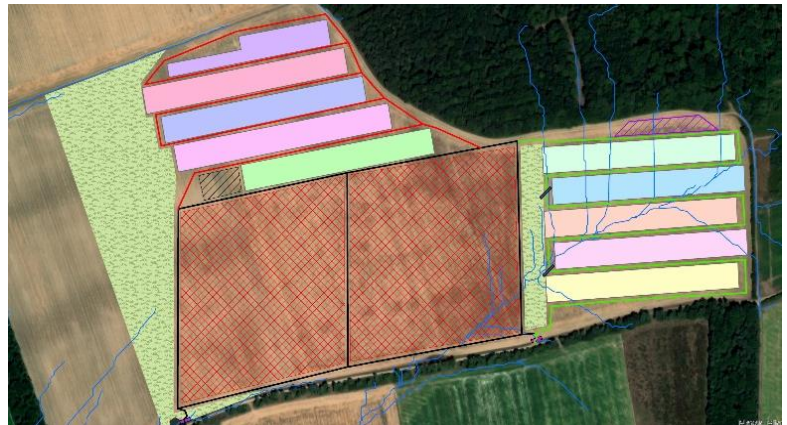


Control measures are a last resort and although they can help significantly, it is through careful field selection, risk mapping, and effective unit layout that the majority of risks can be reduced before the pigs are on the land. This practice will reduce the risk of soil, nutrients and other pollutants washing from the field (the source), along a flow pathway and reaching a watercourse (receptor). A process known as source-pathway-receptor modelling.



This image shows an old unit layout, although the layout is good and has mitigation controls in place, there is room for improvement.

This image shows a revised unit layout for the same field with consideration for the flow pathways. Mitigation controls include buffer strips, grips, silt traps and staggered farrowing.



2.4 Creating a management plan

When managing a unit, it is vital to create a management plan, not only based on the care of the pigs, but the ongoing impact they will have on the land whilst they are in the rotation. A management plan should include, but not be limited to:

- Emergency plan for severe weather or disease outbreak
 - Best practice is to have enough space to move animals to isolation or out of flood area
- Regular review and maintenance of mitigation controls including establishing green cover before pigs go onto the land
 - Silt fencing may need to be installed or existing fencing replaced
 - Silt traps may need periodic emptying if they fill



- Buffer strips may need to be extended or new ones established to cope with run off
- Provide suitable training for all staff regarding the wider impact of pigs on the land
- Soil management plans, see: [Soil management plan for outside pig keepers.pdf \(windows.net\)](#)
- Nutrient management plans

The management plan should be seen and understood by anyone working on the unit. The plan can also help with understanding current practices and where improvements can be made on other units. This is when training of staff can be beneficial to encourage best practice across all units and promote understanding of the importance of managing outdoor pigs with sustainability and the wider environment in mind.



3. Post-pigs

When pigs are coming off a field, it is important to:

- Use gateways on high ground to move huts off site to reduce ruts and compaction (use multiple exits)
- Loosen surface capping and level wallows, especially if the following crop cannot be established right away
- Tackle deeper compaction, particularly from trackways
- Incorporate muck, depending on nutrient requirement of the following crop

These steps aim to restore the field back to the condition it was in pre-pigs, or what was stated in the agreement with the landowner. If the unit move occurs in autumn, it is best to sow the field with a cover crop (if a winter sown crop is not being sown immediately). This ensures the soil is not left bare and reduces the risk of soil erosion and soil structure breakdown. Common post-pig crops include sugar beet, potatoes and maize, which make the most of the newly available nutrients.



4. Case study

A well-documented case study of effective management of outdoor pigs in rotation was on a unit run by LSB Pigs. The farm manager, Rob McGregor, was part of a trial to explore how green cover may benefit the animals, the staff, and the soil. The cover was sown in autumn following a cereal harvest, and two types of cover was used - a grass mix and a herbal mix. The pigs were moved onto the site in early spring. The stocking density was around 25% less than usual to reduce the damage to the green cover.

Soon after the trial began, it was clear that the green cover was significantly beneficial:

- The pigs grazed the paddocks freely, resulting in happier, calmer stock
- Less money was spent on straw as the pigs were not eating their bedding
- The cover regulated the ground temperature in summer; areas which had cover were significantly cooler than areas with bare ground
- Living roots maintain soil structure, biology, and organic matter
- Soil erosion was reduced; less soil was blown around and fields were less muddy
- Staff were able to take pride in the unit, leading to a boost in morale
- Grazing reduced 'dung hotspots' and nutrient losses through groundwater

In this particular case, it was found that the grass mix was more durable and produced the best results. This may be due to the fact that the grass mix established at a faster rate and had a higher root biomass, thus helping to smooth out any nitrogen spikes in the soil.



Remember:

- Work with your landlord or arable manager. Agree who will be responsible for pre, during, and post-pig site management.
- Where possible, select low risk fields away from watercourses, boreholes, and protected groundwater areas. Establish ground cover early and aim to maintain this cover to protect soils from erosion and runoff.
- Manage risks and be prepared to mitigate where necessary with unit layout changes, buffer strips, road grips, sediment traps and silt fencing.
- Sustainable management of outdoor pigs can improve production, animal welfare, biodiversity and soil health. It can also reduce soil erosion risk and nutrient loss, while protecting the water environment.

Where to find more information:

General outdoor unit management:

- [40 Managing Livestock areas -outdoor pigs](#) (The Rivers Trust)
- [Livestock and the arable rotation | AHDB](#)
- [Soil management plan for outside pig keepers.pdf \(windows.net\)](#)

Green cover trials and offers:

- [Grass cover mix options compared on outdoor units | AHDB](#)
- [Forage Crop Case Study - KingsCrops](#)

Information about wider farming practices, useful for tenant and landlord:

- [Countryside Stewardship grant finder - GOV.UK \(www.gov.uk\)](#)
- [SFI23 handbook.pdf \(publishing.service.gov.uk\)](#) (New SFI funding)
- [Magic Map Application \(defra.gov.uk\)](#) (Map software to see land properties)
- [Rules for farmers and land managers to prevent water pollution - GOV.UK \(www.gov.uk\)](#)

Norfolk Rivers Trust offers a free and confidential advice service to help landowners meet Nitrate Vulnerable Zone and Soil Protection Review requirements under Cross Compliance and environmental regulation. Our aim is to support farmers and promote water sensitive farming practices. Please get in contact to arrange a site visit using the following information:

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