AHDB

PORK

Good Soil Management Practice

A Guide For Outdoor Pig Keeping

June 2017

Credit: Dingley Dell Pork

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Contents

Introduction

Outdoor pig production comprises a significant proportion of the English industry. Owners and managers of outdoor herds face many challenges, not least the management of soils to ensure daily operations can be completed efficiently, good health and welfare of the pigs is delivered and that consequential environmental impacts from water and airborne soil erosion are minimised by good soil management.

Water pollution, especially elevated levels of silt and phosphorous in water bodies, is identified by the Environment Agency as a cause of water quality objective failures. Loss of soil transported by water or wind and deposited onto other land, roads or properties is not only a loss of asset from the field concerned but may cause problems where it is deposited. Pollution and damage caused by erosion can also be costly to rectify and there are risks of enforcement action being taken by regulatory authorities. Good soil management forms the basis of stopping this pollution.

In most situations, outdoor pig keeping forms part of an arable rotation, where root and vegetable or even turf crops, may also be included. Soil management for each site has to start with the preceding crops, in addition to preparing the soil for the following crops.

Over the years, pig keepers and their advisers have learnt to understand and manage the soils they work with. This publication seeks to consolidate knowledge for the benefit of all concerned, in order to help achieve better standards of performance.

A Soil Management Plan (SMP) continues to be a key part to planning how to manage production sites, it is envisaged that this guide will assist the process. The AHDB Soil Management Plan is available on the AHDB Pork website – **pork.ahdb.org.uk**

Getting started

Managing an outdoor pig operation successfully requires one overriding factor to be observed:

CHOOSE THE RIGHT SITE FROM THE OUTSET

Even those fully committed to diligent management can struggle to overcome the obstacles presented by an inherently unsuitable site. On occasion, several low-level risk factors can work together to make effective site management difficult.

When assessing new prospective stocking areas or even moving fields on the same holding, you need to be certain of the level of risk of the following primary risk factors.

Credit: Dingley Dell Pork

Primary risk factors

For a practical guide to soils assessment, the 'Think Soils' manual is a useful document.

Soil type

Know your topsoil, especially in terms of depth and what it lies over.

- Relatively impermeable clay/chalk subsoils have limited short-term drainage capability; calcareous clays are preferable to non-calcareous in terms of their self-structuring capability
- Beware of fields offered as 'lightest on the farm'; they may react very differently, once stocked. In particular, treat fine silt loams with a degree of caution as they can easily compact.
- In practice, coarse loamy sands and sandy loams should be your first choice. Where these are deep and over sand or gravels, effective water infiltration levels can be achieved. Site layout may need to exclude areas of localised variation (for example, a clay seam within a sandy loam). For a practical guide to soils assessment, the 'Think Soils' manual is a useful document.

Fine top soils are at risk from previous operations such as residual compaction.

Topography

Fields rarely have the same degree of slope across the entire area. You need to be comfortable that you can effectively manage the area of the field with the greatest degree of slope, otherwise leave that area of the field unstocked.

Ideally, fields should have an average slope below 3°. The severity of slopes is likely to determine the potential level of soil erosion and run-off that you may need to mitigate.

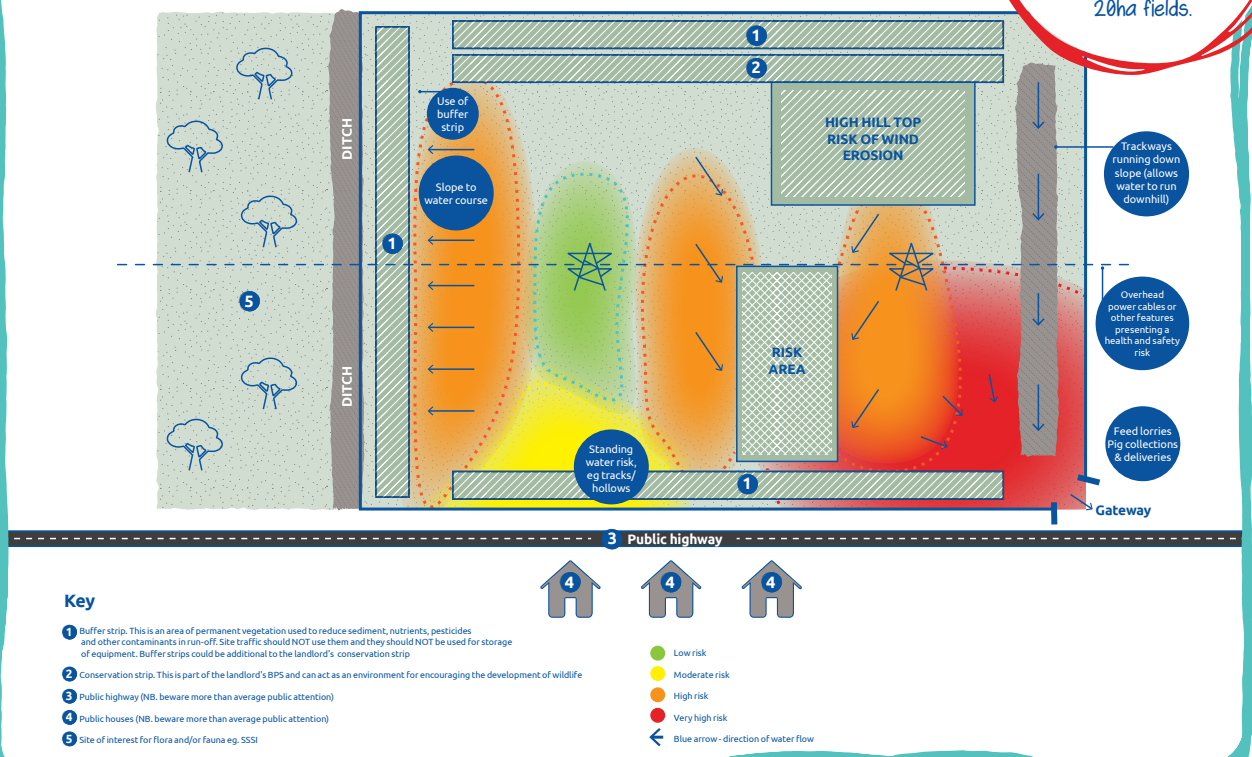
When examining potential land, take into account slope length. Long, gentle slopes can shed large volumes of surface water along wheelings. Plan your site layout to minimise the risk.

Water and leachates can travel rapidly to ground water aquifers resulting in measurable contamination.

For every slope, think: **SOURCE ▶ PATHWAY ▶ RECEPTOR** and ensure that the ultimate potential receptor is not outside the field area.

Ensure a potential landlord understands that you need 40ha of suitable land, not just two 20ha fields.

Identifying high risk areas on an outdoor pig unit



Key

1. Buffer strip. This is an area of permanent vegetation used to reduce sediment, nutrients, pesticides and other contaminants in run-off. Site traffic should NOT use them and they should NOT be used for storage of equipment. Buffer strips could be additional to the landlord's conservation strip
2. Conservation strip. This is part of the landlord's BPS and can act as an environment for encouraging the development of wildlife
3. Public highway (NB. beware more than average public attention)
4. Public houses (NB. beware more than average public attention)
5. Site of interest for flora and/or fauna eg. SSSI

- Low risk
- Moderate risk
- High risk
- Very high risk
- Blue arrow - direction of water flow

An enlarged version of this map can be found on page 18.

Location

It is essential that you clearly identify from the outset all potential issues relating to the location of fields. Generally, the importance of location rises in significance if slopes are present.

Think: **SOURCE ▶ PATHWAY ▶ RECEPTOR** and take into account the ultimate destination of water travelling across or through the site.

Avoid sites which could have a potential negative effect on potential receptors:

- Sites with SSSI or Scheduled Monument designation (remember, this could be farmland)
- Private boreholes
- Nitrate Vulnerable Zones (NVZs)
- Catchment Sensitive Farming Priority Catchments
- Field drains
- Significant archaeological features within fields
- Overhead power lines or other features presenting a Health and Safety risk
- Surface waters, including ponds and ditches
- On-farm Agri-Environmental Schemes
- Public dwellings
- Groundwater Protection Zones (water and leachates can travel rapidly to groundwater aquifiers resulting in measurable contamination). To find out whether your land falls within these zones, visit **'What's in your backyard?'** online at **apps.environment-agency.gov.uk/wiyby/**

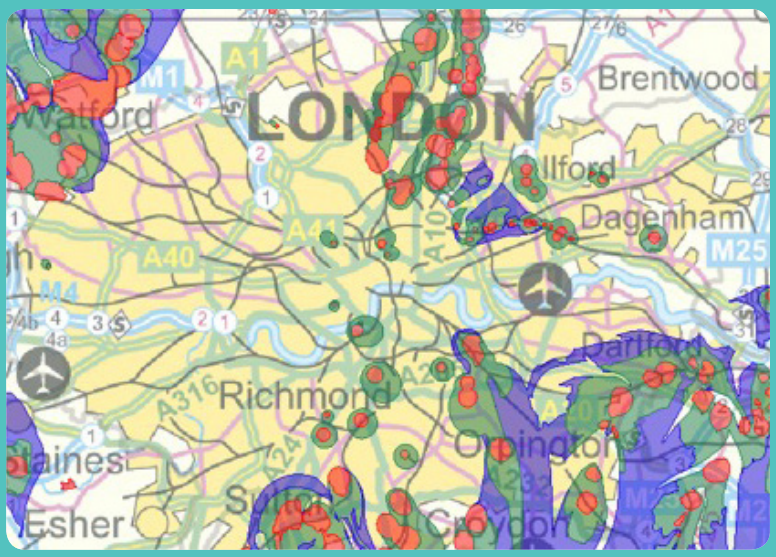
Groundwater Source Protection Zones

Groundwater provides a third of our drinking water in England and Wales, and it also maintains the flow in many of our rivers. It is crucial that we look after these sources and ensure that how land is used does not present a risk to abstracted water.

Source Protection Zones (SPZ's) are zones that show the risk of contamination from any activities that might cause pollution in the area. The closer the activity to the extraction point, the greater the risk. Maps show three main zones (inner, outer and total catchment). The zones are used in conjunction with the Groundwater Protection Policy to set up pollution prevention measures in areas which are at a higher risk, and to monitor the activities of potential polluters nearby.

The shape and size of the zones depends on the local geology, topography, land use and other environmental factors. The map below shows an example of an area within these zones and the key below demonstrates what these mean.

As a general rule, it is encouraged that pig keepers avoid zone 1. It is extremely important that farmers are aware if their land is within zones, 2, 3 and 4 in order to apply good practice and management decisions to minimise pollution. For further guidance on good practice to avoid pollution, see **'The Code of Good Agricultural Practice: Protecting Our Water, Soil and Air'.**



Key

Inner zone (Zone 1) - Defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres;

Outer zone (Zone 2) - Defined by a 400 day travel time from a point below the water table. The zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction;

Total catchment (Zone 3) - Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source. In confined aquifers, the source catchment may be displaced some distance from the source. For heavily exploited aquifers, the final Source Catchment Protection Zone can be defined as the whole aquifer recharge area where the ratio of groundwater abstraction to aquifer recharge (average recharge multiplied by outcrop area) is >0.75. There is still the need to define individual source protection areas to assist operators in catchment management;

Special interest (Zone 4) - A fourth zone SPZ4 or 'Zone of Special Interest' was previously defined for some sources. SPZ4 usually represented a surface water catchment which drains into the aquifer feeding the groundwater supply (i.e. catchment draining to a disappearing stream). In the future this zone will be incorporated into one of the other zones, SPZ 1, 2 or 3, whichever is appropriate in the particular case, or become a safeguard zone.

Connectivity from field to receptor

Establish from the outset a 'worst case scenario' for each individual field; this requires identification of the potential **PATHWAY** and the **ULTIMATE RECEPTOR** in the event of surface water and associated sediment leaving the field.

Make a contingency plan which can be quickly and easily implemented should the worst case scenario arise and which will minimise or prevent the potentially most damaging effects.

Farm tracks, public roads, ditches and wheelings in adjacent arable fields can all act as **PATHWAYS**. Identify exactly what could be at risk; can you reduce this risk through site management?

Never treat run-off as an acceptable risk, but do differentiate between risk levels of ultimate receptors.

If the risk cannot be reduced through site management, the field may represent an unacceptable risk and should be avoided. Overall, and especially to cope with extreme weather events which are becoming more common, good soil drainage is key. Maintenance of the pathways to take water away from the field, having firstly filtered it through a correctly structured soil is essential. Land drains can benefit many soils but do require maintenance. Maintenance can include ensuring that ditches are clean and flowing. This may mean that excess debris and materials impacting flow are removed and checked on a regular basis.

Previous land management

If possible, you should monitor the effects of field operations carried out in prospective fields in the year leading up to site layout. Bear in mind that there could be longstanding unseen issues present, such as plough pans or soil compaction. There are various high-tech methods available but one easy cost-effective option is to dig some inspection pits with a spade which will reveal the structure of the soil.

- Plan and carry out and remedial measures required **before** stocking takes place
- You are looking for a well structured topsoil with little evidence of compacted horizontal plates; horizontal plates are an indication that the land is compacted
- The interface between the topsoil and subsoil should not show evidence of a historic cultivation pan
- Light soils often show a compacted layer at 10-15cm, especially where shallow cultivations have taken place. Subsoiling should be carried out at the effective working depth, which is just below the compacted layer, any deeper is less effective, inefficient and expensive
- Subsoiling needs to be carried out at appropriate soil moisture levels which allow the soil structure at the problem depth to crack, fissure and break apart, as opposed to being compressed; soils need to be dry enough for this to occur. For videos on how to assess soil compaction, select and operate different types of sub soiler, go to **pork.ahdb.org.uk/subsoiling**
- Regular de-stoning can inhibit the natural drainage capabilities of the soil, exacerbating run-off risks
- Regular de-stoning and extensive cultivations reduce soil organic matter (OM) levels. In turn, low OM results in poor resilience and high susceptibility to compaction, sealing and damage
- Harvesting crops in wet conditions can cause the formation of run-off pathways along wheelings; these localised areas of compaction should be identified and removed before site layout.

Manage compaction before the site is laid out. Remember what you set up on is what you're stuck with for the duration.

Understanding soil loosening

Soil loosening is often needed to undo the effects of compaction, restoring the soil to good condition where air and water can permeate and crop roots develop healthily. Loosening is normally achieved by cultivations which disturb the soil. Deeper compaction, below the depth of normal tines or disced implements, means there is a need to work deeper, typically using a subsoiler.

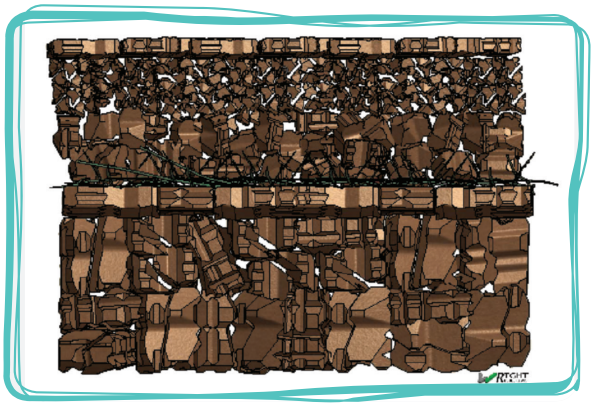
The aim is to break compacted soil layers into smaller elements such as aggregated blocks. This is achieved by applying shear forces to the solid soil layer causing fracture. For this to occur, the soil must be in a friable condition.

These operations, if carried out incorrectly or if the soil is too moist, may result in further damage to the soil rather than improvement. It is, therefore, important to understand some important principles of soil loosening practice.

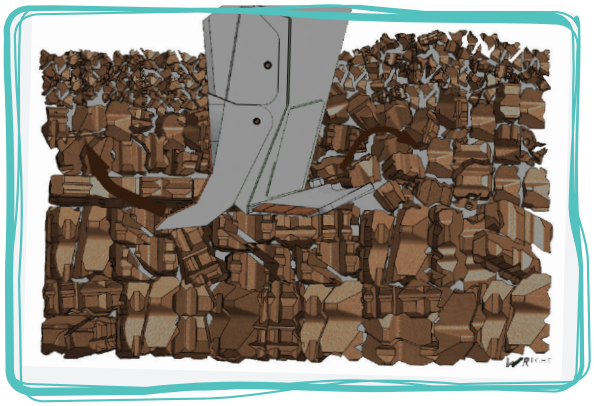
Compacted layer at 15cm.

Good soil structure.

Poor soil structure.



Soil structure showing compaction at the surface and in a sub-surface layer.



A winged subsoiler tine at 'effective working depth' just below the compacted layer loosening the soil.

Soil moisture content

If soil is too moist and in a plastic condition then it will deform (mould) and remain compacted. In fact, it could be made denser (compacted), making the problem worse.

Before starting to loosen the soil using a subsoiler or other tine-type cultivator, check that the soil is below its plastic limit (to the full depth you intend working). Land which has not supported a growing crop will not have benefited from water being abstracted by plant roots. Therefore, while the surface may appear dry, lower depths may still be wet.

Plastic limit

Plastic Limit (PL) is defined as the moisture content at which soil begins to behave as a plastic material. To test if the soil is friable or plastic:

- Take a small handful of soil from desired working depth
- Use your hands to make it into a ball, taking care not to dry it out
- Try to roll it into long thread 3mm in diameter
- If it crumbles and breaks then it is friable
- If the thread holds, it is in a plastic state and too wet for subsoiling

Soil compaction caused by a subsoiler foot working when the soil is in a 'plastic' condition.

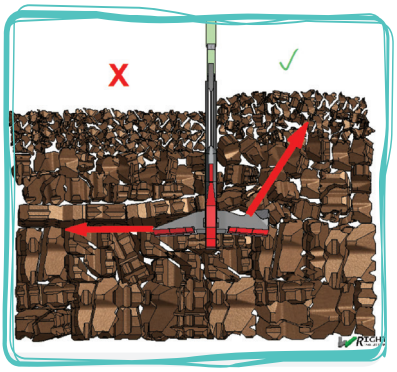
If soil conditions do not allow working to the full depth required to remove the compaction, it may still be possible to loosen upper layers of the soil, which will assist it drying out prior to returning later to repeat the work to a greater depth.

Critical depth

Soil loosening relies on sheer force applied by the implement tine to break the compacted soil. For this to occur, the mass of soil above the depth of working has to be moved. The foot or shoe of the tine is designed to lift the soil upwards to create the shattering forces. For shattering to occur, the mass of soil and the forces holding it together have to be overcome by the tine shoe or foot and wings where fitted.

The depth at which the transition from loosening to deformation mode occurs is known as the critical depth. Thus, the subsoiler or tined implement has to work above the critical depth to be effective.

The use of a wing on the foot increases the lift for little extra draft (pulling force), which is required to improve the effectiveness of the operation.



The importance of critical depth for removal of compaction, the direction of movement aimed for is upwards.

Types of subsoiler

There are different combinations of subsoiler tine and foot which influence the condition the soil surface is left in. Some create heave, leaving a rough and open surface while others, typically used on grassland, leave the surface relatively flat and even. For land in pig occupancy the latter is often more appropriate, whereas for restoration after the period of occupancy the first type may be preferred.

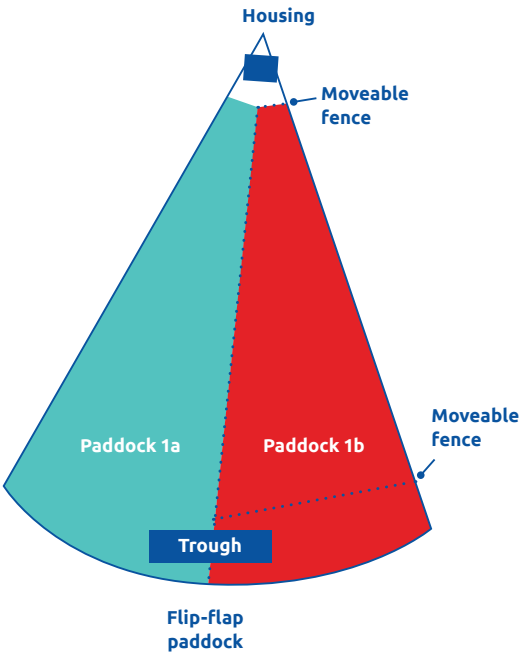
For videos on how to assess soil compaction, select and operate different types of sub soiling, go to To watch a video on how to assess soil compaction, select and operate different types of sub soiling go to: **pork.ahdb.org.uk/subsoiling**

Site management

Green cover

There can be little doubt that stocking pigs on an established grass sward has benefits in terms of overall site management. Generally, retention of some short rotation grass leys usually takes place only when there are other livestock groups on site. A typical situation might be:

- **Year one:** Spring barley undersown with ryegrass
- **Year two:** Silage taken from ryegrass
- **Year three:** Pigs stocked onto well-established sward



This system works well and ensures there is a high degree of grass cover on the periphery of the site. In effect, all headlands are buffered and non-stocked areas retain cover to assist in the sequestration of nutrients. However, this option is not available within many rotations, with pigs moving onto 'bare' land within weeks of crop harvest taking place in many instances.

Experience has proven that any type of green cover can be beneficial; the flush of annual arable plants often seen within rested outdoor pig paddocks can play a part in taking up nutrients.

An example of this is where site managers have cultivated farrowing grids between batches and adopting the 'flip-flap' layout of individual radial segments, where pigs are rotated between two sub-paddocks allowing green cover to re-establish between rotations as the diagram shows above. For a case study example of this working effectively on farm, the **'Strip grazing farrowing paddocks'** video is available on the AHDB Pork YouTube channel: **youtube.com/AHDBpork**

The frequency and shape of naturally occurring stone within a field can also be a factor in retaining green cover. Pigs are able to move large quantities of topsoil where the stone is round and comfortable for them. This is often the reverse where stone is large and angular; overall soil movement is reduced and hence a greater degree of green cover retained.

It should be noted whether the land being populated by pigs is part of the Basic Payment Scheme. If so, it is important that tenants familiarise themselves with the current regulations and code of best practice. You must check the rules in force at the time of decision making. For guidance on this, please see the Basic Payment Guidance notes provided by the Rural Payments Agency found on the government website.

Note: Scheme rules change so you are advised to check these annually for any successor or alternative Scheme which may apply to the land in question.

Feeding

Thoughtful feeding operations can have spin-off benefits affecting overall site management. The adoption of feeding troughs associated with standard paddock layout has delivered advantages in key areas:

- Feeder wagons follow a set route reducing the risk of damage to peripheral buffers (particularly important where buffers are managed under an Agri-Environment scheme)
- Pigs will not dung and eat in the same area. Feeding via a trough increases the area available for defecation, potentially reducing nutrient 'hotspots' previously associated with fence lines. This is an important factor in the management of the subsequent crop
- Trough feeding concentrates feeding activity in one area, reducing the level of localised daily compaction. In turn, a reduction in local compaction discourages formation of surface water, limiting the appeal of the site to gulls.

Troughs are not a 'fit and forget' fix for every site. They need siting carefully and require routine maintenance to ensure pigs do not undermine them on light land. Drain plugs need checking regularly to prevent excessive water build-up.

Layout

Site layout must observe any **primary risk factors** and adopt a robust management regime to effectively deal with any **SOURCE ▶ PATHWAY ▶ RECEPTOR** risks identified during an initial site assessment.

The opportunity for surface water to collect should be minimised by adopting a range of specific site management criteria:

- Trackways should not travel the length of long slopes
- Localised areas containing steep slopes should not be stocked
- Ensure run-off cannot leave the site via access points to/from public roads
- Sensitive adjacent habitats should be well buffered from site operations, as should all watercourses
- Fence lines may need to reflect localised variation in soil type
- Fence off any individual features such as in-field trees (these may be a chosen option within the farm's Agriculture Environment agreement) and significant archaeological features such as burial mounds
- Areas that may be subjected to higher degrees of traffic, such as farrowing grids, should be sited to avoid build-up of surface water, using slope to an advantage if it is present
- Heaps made from old hut bedding should be treated as muck heaps and sited sympathetically to minimise the risk of contaminating surface or groundwaters. For example, as stated in the NVZ guidance, these should avoid being located near boreholes, ditches and land drains. It is also important to record the locations of heaps when planning the site layout. See the Soil Management Plan for assistance with this.
- Ensure leachate from muck heaps cannot travel along wheelings to other sections of the field. Do not site heaps in areas of high traffic use.

Correct alignment of trackways should be central to a well considered site layout. Many run-off incidents stem from careless use of vehicles. Compaction from farm traffic is a far higher risk than compaction caused by stock.

Stocking rate

- Adjustment of stocking levels to suit localised risks can be an effective tool where alternative land availability is limited
- As a rule and where possible, localised high-risk areas should not be stocked
- In some cases, the risk of sloping bare ground being eroded by rainfall cannot overcome by adjustment to stocking rates
- Depending on the potential for green cover to re-establish, frequency of stocking may reduce risks more effectively than adjusting rates

Buffering

A buffer is an area of permanent vegetation used to reduce sediment, nutrients, pesticides and other contaminant loadings in run-off. Site buffering takes two main forms:

1. Medium-term buffers maintained as part of an Agri-Environment Scheme; these must not be trafficked by site operations

2. Mitigation buffering, put in place for the duration of the stocking period.

If the stocking period is of two years or more, effective grass buffers should be established where run-off risks are present. These need to be 6m plus in width and sown with a tussock grass mix (eg Cocksfoot and Timothy) to be effective against surface water. **Site traffic should not use them and they should not be used for storage of equipment.**

In reality, local topography, soil type, site layout and potential connectivity to sensitive adjacent habitats could combine to render 6m of grass ineffective against significant run-off incidents. Such situations may better utilise a corrugated buffer, created by means of ploughing or pulling a bed-ridger through the area potentially at risk from inundation by surface water. Invariably, this area will be at the base of a slope and needs to be wide enough (often 12m plus) to arrest sediment in its troughs.

Be aware, if large volumes of water are trapped behind a furrow or bund, consider the possible consequences should this burst out. Regular maintenance of buffer strips are also key to their effectiveness. A ridge may form with time due to accumulation of sediments preventing uniform flow through the buffer. The buffer is ineffective when the flow is concentrated. It should also be noted that regulations should be followed when it comes to conservation strips as these may fall within the Landlord's Basic Payment Scheme (BPS) or a similar scheme; therefore certain activities are prohibited eg driving on conservation strips.

Periodically, the area may need to be reworked in suitable dry soil conditions.

What is the difference between conservation and buffer strips?

The conservation strip is part of the Landlord's BPS and can act as an environment for encouraging the development of wildlife. A buffer strip could be additional to the landlord's conservation strip and is a voluntary management tool for producers to help reduce run-off into risk areas.

Ecopig project

The Ecopig 2 project was initiated in order to improve the long-term sustainability of pig production in the eastern region and aimed to optimise nutrient resource management, biodiversity and landscape conservation through a combination of farmer collaboration and management practices.

The aim was also to deliver economic sustainability and business security through improved competitiveness, by reducing inefficiencies and maximising productivity. The project was managed by BQP.

Observation

Soil compaction can reduce soil aeration and infiltration and can lead to increased waterlogging, ponding and run-off.

Solutions

- Reduce soil compaction by using wide low ground pressure tyres
- Maintain as much green cover as possible, both within the paddocks and on trackways
- Using 'flip-flap' paddocks can help to maintain green cover
- Try not to use the same route for every task
- Use reverse-tread front tractor tyres on trough filler trailers to improve grip
- Avoid using turf tyres, which create a smooth surface for run-off and are ineffective in ice or snow.

Observation

- Indiscriminate feeding via the use of a nut-chucker can lead to several problems:
- Food can end up in wet areas and puddles
- Large numbers of gulls and corvids are attracted to the feed, which can lead to:
  – The spread of disease from birds
  – The birds spreading disease between paddocks
  – The gulls and corvids predating nearby ground-nesting birds
  – Food wastage.

Solutions

Targeted feeding via the use of long troughs ('nut-chuckers' can be modified to deliver food to the troughs).

Positive findings

- Larger farrowing huts improve performance
- High prolifacy genetics improve carbon footprints
- Vents on dry sow huts may reduce straw usage
- Using muck as a soil conditioner and source of nutrients can help save money by reducing the costs of buying inorganic fertilisers. Testing the soil levels of nutrients regularly can help to identify the best places for spreading manure

Case study: David Robinson, Suffolk

David has been a pioneer in trialling new techniques to improve the sustainability of pig farming and it was one of his units that was used by BQP in the Ecopig trial. He has continued to innovate since the end of the trial and has recently been improving feeding techniques.

He has been working on two particular issues:

- Ground mounted troughs on wet sites are prone to retaining water
- 3mm pellets tend to stick to pigs' feet, which leads to an increase in soil ingestion.

Solutions

Troughs have been fitted with 4"x 4" timbers 4 feet apart to their bases. This has the following benefits:

- Troughs are more stable on the ground
- Water ingress is prevented
- Pigs find these troughs more difficult to move
- The troughs are easier to stack and are less prone to damage while being stacked (forklift tines are set 5 feet apart)
- The stacks of troughs are easier to move.

Although 3mm pellets are the most efficient in terms of production (they offer the greatest carbon saving option), they are problematic to use as they stick to pigs' feet. The food stuck to the pigs' feet becomes mixed with the soil and the pigs are then attracted to the scent of food in the soil and ingest it.

David now feeds with 6mm pellets for most of the year which reduces the amount of food sticking to pigs' feet and, hence, soil ingestion; he still has the option to use rolls if conditions are particularly wet.

Dealing with the potential impacts of climate change

The government's latest Climate Change Risk Assessment (CCRA) identifies flood risk as likely to become an increasing problem and especially flooding from heavy downpours. It also predicts that summers will become warmer and drier. Both of these scenarios have implications for the management of the soil in outdoor pig paddocks.

Sustained heavy rainfall brings its own particular issues. Heavy rain falling onto baked dry soil can result in particularly severe run-off as water penetration of hard surface layers of soil will be minimal.

To minimise run-off in both of these situations the pig farmer needs to be particularly mindful of the following:

- The need to locate paddocks only where the soil type is optimal (coarse loamy sands and sandy loams over sands or gravels)
- Avoid steeply sloping sites; sites with a slope of 3° or less are preferable
- Perfectly level sites may also produce problems as ground water tends not to be shed in this type of situation. This has animal health implications for the location of farrowing grids, which tend to be sited on level ground
- Maintain as much green cover as possible eg by establishing green cover prior to moving pigs onto the paddock and using flip-flap paddocks once the pigs are on site
- Maintain good soil structure at all times eg by creating a corrugated buffer by ploughing or pulling a bed-ridger through any area potentially at risk. These will usually be at the base of slopes and need to be wide enough (often 12m+) to arrest sediment
- Carefully manage vehicle movements on site to prevent the formation of compacted wheelings, which can act as channels for water
- Use buffer strips next to water courses or sensitive habitats. It is extremely important that locations of these are recorded accurately. Using the Soil management plan will help with risk assessment and management.

There is also the possibility that crop rotations and the types of crop may change, which could result in changes to the times of year when paddocks become available.

It is also extremely important to consider the layout of the farm in terms of hut orientation. For example, in the winter months huts should face south/south east and in the summer in a northerly direction to keep the sun out. The practically of this will be dependent on the local geographical surroundings eg valleys.

Higher temperatures in the spring and summer months may also have implications for animal welfare; hut design may need to change to provide more ventilation and, as a result, site layout may also need to change to accommodate them.

Regulations

NOTE: Regulations can change. New regulations or farm support schemes may have different rules and requirements so check them regularly.

Nitrate vulnerable zones and cross compliance

As of 2017, whether you are an owner/occupier or a tenant with an outdoor pig unit, establish from the outset whether the farm/outdoor pig land is:

- In a Nitrate Vulnerable Zone (NVZ)
- In receipt of the current Basic Payment Scheme (BPS)
- An Environmental Stewardship (ES) scheme and, if so, what options are on or near the land used for outdoor pigs.

Make sure you are fully aware of your obligations under Cross Compliance and/or under the NVZ rules. From the Rural Payment Agency's viewpoint, the BPS/ES recipient is responsible for ensuring the requirements of Cross Compliance are met for the full calendar year on the land for which they are claiming payment, even if they are not in occupation of the land for the entire year. The responsibility for ensuring compliance with the rules relating to the identification and traceability of pigs lies with the keeper, ie the person with day-to-day responsibility for the animals. This applies regardless of who owns the animals and whose land they are on.

Responsibility for the welfare of all farmed animals lies with both the keeper (as defined above) and the owner of the animals. The BPS/ES recipient must show compliance with the NVZ rules (if relevant) on the claimed land. However, 'the occupier of the holding' is taken by the Environment Agency to be the party ultimately responsible for complying with the NVZ rules; in the case of a tenancy, this is likely to be the tenant. Because of the potential pitfalls surrounding the roles of the different parties, it is strongly recommended that a formal written agreement is put in place between landlord and tenant to make clear the responsibilities of each in relation to the NVZ and Cross Compliance rules. If necessary, take advice from the Environment Agency and/or the RPA.

Ideally, both landlord and tenant should maintain and keep (for at least five years) identical sets of all the relevant records, minimising the risk of breaching any of the rules.

Both Cross Compliance and the NVZ rules may change over time, so ensure that you keep up to date with any changes and have access to the appropriate guidance information.

	Land in an NVZ	**Land NOT in an NVZ**
Land in an NVZ	NVZ Regulations apply	N/A
Land in Environmental Stewardship	NVZ Regulations and Cross Compliance apply	Cross Compliance applies
Land subject to Basic Payment Scheme	NVZ Regulations and Cross Compliance apply	Cross Compliance applies

Further information

AHDB information

- Environment & Buildings website:
  pork.ahdb.org.uk/environment-buildings
- Soil Management Plan for outside pig keepers:
  pork.ahdb.org.uk/environment-buildings/water-soil-and-air
- Nutrient Management Guide (RB209):
  ahdb.org.uk/rb209
- Practical Pig App videos on Soil management by Tim Schofield, Suffolk FWAG:
  practicalpig.ahdb.org.uk/outdoor-breeding/soil-management
- AHDB Field drainage guide:
  pork.ahdb.org.uk/drainage
- Video on sub-soiling by Philip Wright:
  pork.ahdb.org.uk/subsoiling
- Video on strip grazing:
  www.youtube.com/AHDBPork

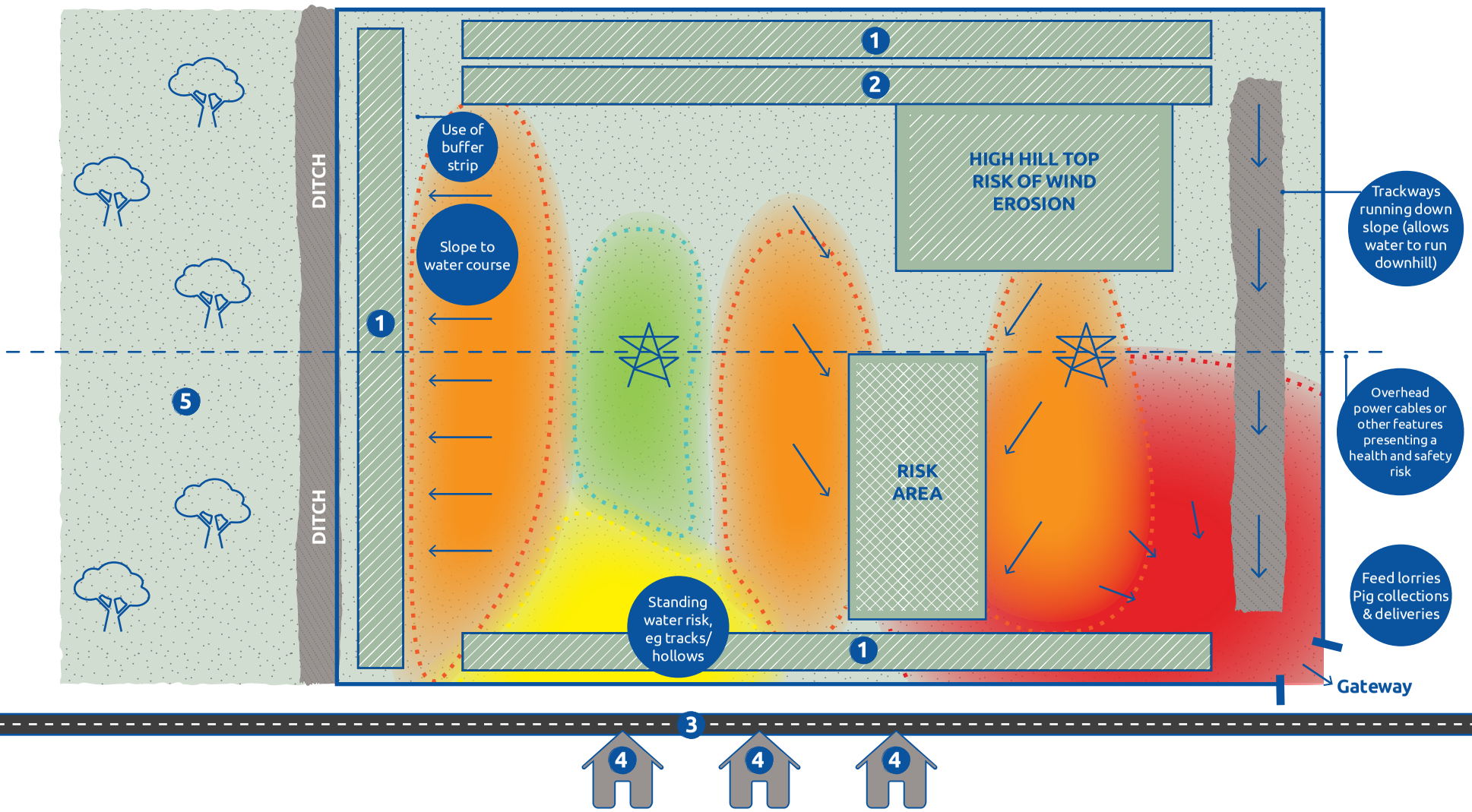
Or contact your local AHDB Pork KE manager to discuss your individual details:
pork.kt@ahdb.org.uk or 024 7647 8793

Other information

- Think Soils – Soil assessment to avoid erosion and runoff, Environment Agency, 2008:
  ahdb.org.uk/thinksoils
- Code of Good Agricultural Practice: Protecting our Water, Soil and Air, Defra, 2009:
  www.daera-ni.gov.uk/publications/code-good-agricultural-practice-cogap
- The Guide to Cross Compliance in England, Defra, Rural Payments Agency, 2011:
  www.gov.uk/guidance/cross-compliance-2017
- Soil management Standards for Farmers:
  www.gov.uk/guidance/soil-management-standards-for-farmers
- For more information on Drinking Water Protection Zones and Special Protection Zones (SPZs) look at:
  apps.environment-agency.gov.uk/wiyby
- For more information on designated areas and zones visit:
  www.natureonthemap.naturalengland.org.uk
- Simply Sustainable Soils, LEAF (Linking Environment and Farming):
  www.leafuk.org/leaf/farmers/simplysustainablesoils.eb
- Guide to Better Soil Structure, National Soil Research Institute (NSRI):
  www.landis.org.uk/downloads/downloads/structure_brochure.pdf
- The Voluntary Initiative – Promoting Responsible Pesticide Use:
  www.voluntaryinitiative.org.uk/water/advice
- Basic Payment Scheme Guidance, Rural Payments Agency:
  www.gov.uk/guidance/bps-2017

Identifying high risk areas on an outdoor pig unit

AHDB PORK



Key

1. Buffer strip. This is an area of permanent vegetation used to reduce sediment, nutrients, pesticides and other contaminants in run-off. Site traffic should NOT use them and they should NOT be used for storage of equipment. Buffer strips could be additional to the landlord's conservation strip
2. Conservation strip. This is part of the landlord's BPS and can act as an environment for encouraging the development of wildlife
3. Public highway (NB. beware more than average public attention)
4. Public houses (NB. beware more than average public attention)
5. Site of interest for flora and/or fauna eg. SSSI

- Low risk
- Moderate risk
- High risk
- Very high risk
- Blue arrow - direction of water flow

Notes

Notes

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Want to know more?

If you want more information about AHDB Pork you can contact us in the following ways…

pork.ahdb.org.uk

AHDB Pork, Stoneleigh Park,
Kenilworth, Warwickshire, CV8 2TL

T: 024 7669 8793 **E:** pork.kt@ahdb.org.uk

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