



Pig Industry Environment Strategy

A DISCUSSION DOCUMENT

British pigs and the environment: a discussion document

Many pig-keepers perceive environmental controls as disjointed, confusing, occasionally conflicting and often unnecessarily bureaucratic, and therefore counter-productive and an impediment to the economic sustainability of the England and Wales pig industry.

In proposing an over-arching environment strategy, the pig industry envisages working with legislators and regulators, and other interested parties, to understand, discuss, develop and simplify environmental strategy as it relates to pig production, and so to improve delivery.

This discussion document is published by a BPEX-led steering group made up of producers, environmental specialists, legislators and regulators.

There are major opportunities here! You are urged to read this paper and contribute your views to help us produce a final document which we can take to the industry at large for its views.

KEY AIMS

1. A more compliant, more forward-looking pig industry.
2. Fewer inspections, less red-tape.
3. Premiums for 'green' products, to help offset the cost of environment legislation.
4. Reduced energy and water costs.
5. Creation of an *environment forum* to work with the supply chain, government and regulators, to help deliver better regulation, better prices through the chain, and well-informed, happy customers.
6. A *knowledge hub* to keep producers informed and to help them get it right.
7. Proven delivery via benchmarking and quality assurance bolt-ons.



I think we all know we can't carry on like this. We simply have to reduce the burden of environmental regulation. At the same time we need to significantly improve our environmental performance. The Pig Industry Environment Strategy will develop tools to manage the impacts of pig farming on the environment, demonstrate economic benefits arising from improved environmental performance and identify the research needed to advance our environmental performance.

**STEWART HOUSTON,
CHAIRMAN OF BPEX.**

Why have a Pig Industry Environment Strategy?

As an industry, we can fight a rear-guard action over new environmental controls OR we can work with all interested parties to achieve better regulation and a more environmentally-friendly pig industry. The potential rewards are manifest: less bureaucracy, lower energy costs, and the opportunity to add value to environmentally-friendly pork products.

These are our goals...

The aim of the Pig Industry Environment Strategy is to provide a framework for the delivery of an economically and environmentally *sustainable* and *compliant* pig industry in England and Wales. The strategy will take into account:

- The need for better regulation.
- The importance of safeguarding animal welfare.
- The need to deliver safe food.
- The desirability of delivering tangible benefits to the wider environment.

How we propose to achieve these goals

The aims of the Pig Industry Environment Strategy will be to:

- Improve understanding of environmental issues by engaging – and motivating – the whole supply chain; this will require clear lines of communication.
- Interact with, and influence, the regulatory and policy-making processes *at all levels* to increase understanding and efficiency for the benefit of all.
- Demonstrate that through improvements in environmental performance, including better use of resources on pig units, that opportunities really do exist to deliver environmental and marketing gains.
- Develop with researchers and regulators the tools and understanding needed to manage the environmental impacts of pig farming and fill in the knowledge gaps.
- To provide a framework that will help justify and realise the premium needed from consumers to provide the income necessary to drive and sustain environmental improvement in the pig sector.

Why change is coming and why we have to respond

- Society is becoming more aware of the environment.
- Pig farming relies on the natural environment for its raw materials and the fate of the majority of its non-meat outputs; we must face the fact that increasingly we may be seen by our customers as having an unwelcome impact on the environment.
- Wider concerns over the impact of agriculture, particularly livestock, on the environment and increasing energy and feed costs will only serve to increase the already significant interaction between the pig industry and the environment.

QUESTIONS

Please use the section on page 23 to answer questions raised in this document and to contribute any other thoughts you have.

QUESTION 1

Do you think these aims satisfy EVERYONE in the pig supply chain?

QUESTION 2

Do the description of the Pig Industry Environment Strategy, and the goals set out here, adequately describe the ways in which the strategy can set out to attain an economically and environmentally sustainable and compliant industry? Are the goals comprehensive enough to satisfy producers and the broad range of industry partners? Can you see any areas where improvements might be made?

- The expected levels of environmental performance in all sectors of agricultural production are increasing, and this will continue for the foreseeable future.

Given the above, the pig industry needs to work with consumers and retailers to develop shared expectations and standards. We need to ensure that better regulation is developed in partnership with government and the Environment Agency.

We need to ensure that controls on pig farming:

- Are fair and integrated.
- Are based on sound science.
- Are designed to address future challenges.
- Will impose only reasonable burdens on farmers.

Above all, the pig industry must strive to be seen as a responsible and respected participant in the regulatory and policy making processes.

How we benefit by working with legislators and regulators (rather than against them)

Third parties determine environmental performance, but it is producers who make decisions about how it can best be achieved. Day-to-day choices determine long-term outcomes.

In order to be equipped to do this, producers will need the best tools to do the job and the opportunities to use them to reduce their impact on the environment and maintain viability for the future.

Farmers are natural innovators and rapidly adopt new practices when consequential benefits are apparent; environmental improvements will be implemented when farmers see benefits in adopting them.

These benefits can take many forms:

- Improved profits.
- Better use of resources.
- Reduced impacts on the environment.
- Greater awareness amongst stakeholders.
- More cooperation within the sector.
- Better regulation.

The Pig Industry Environment Strategy sets out to help everyone in the supply chain to recognise these environmental benefits and how they can best be achieved.

It is imperative that the pig industry responds proactively to concerns about the impact it has on the environment, anticipates the likely future demands of society, and works with a wide group of partners in the industry to recognise the constraints on the sector and win the recognition of improved performance.

How we will engage the supply chain

The Pig Industry Environment Strategy will not work unless the whole pig industry wants it to. Therefore we must:

- Provide leadership at all levels of the industry.
- Establish communication of the aims and outcomes of the strategy to farmers, Defra, the Environment Agency et al (this discussion paper is part of that process).
- Enable effective engagement with legislative and regulatory processes.
- Motivate producers to engage with the Pig Industry Environment Strategy.

In order to make a valuable and relevant contribution to the decision making process and demonstrate that improved environmental performance at farm level *can* make a difference to business performance, the pig industry will need continuing strong leadership and commitment by the whole supply chain.

The Pig Industry Environment Strategy will bring clarity of vision and openness to the supply chain. Everyone will benefit.

The three keys to success:

1. Leadership.
2. Communication.
3. Engagement.

1. LEADERSHIP

The future sustained economic and environmental performance of the pig industry will rely on effective leadership in terms of actions and attitude. Good leadership will encourage businesses to become more innovative, more environmentally responsible, and more competitive.

Much of this work will be achieved by BPEX (and the National Pig Association) with the development of a formal structure for exemplary communication.

These leaders will need to work towards a clear vision for the future that will enable the industry to focus on relevant issues and will prioritise actions for environmental improvement.

This will be achieved through engagement with legislative and regulatory processes at local, regional, national and even international level, and the public commitment to actions that will bring about improvements in environmental performance.

Leadership through innovation will also be vital to the industry's future environmental performance. Pioneering producers who successfully use new techniques will be used as costed examples to motivate *all* producers to implement novel methods.

2. COMMUNICATION

The key players with regard to communication are:

- Pig producers.
- Suppliers.

How we'll keep producers and government informed



The Pig Industry Environment Strategy will not be successful unless the vast majority of producers are prepared to roll up their sleeves and get involved. The strategy will pursue a sensible balance between profit, contribution to local economies, and the health of the environment.

MICK SLOYAN
CHIEF EXECUTIVE, BPEX

GREENER PRODUCTS

The Pig Industry Environment Strategy will enable the pig industry to work with a wide group of partners to minimise its impact on the environment, to provide services for the benefit of the environment and to seek better returns for 'greener' products whilst minimising the costs associated with compliance and innovation. This increased interaction will be strengthened by a heightened awareness that businesses should operate in a manner that meets – or exceeds – the environmental, ethical, legal and public expectations of society; in other words, with corporate social responsibility.

Pig Industry Environment Strategy

- Shoppers.
- Government and the regulators.
- Retailers.
- Foodservice.

The Pig Industry Environment Strategy will ensure all messages about environmental issues that have a bearing on the pig sector are delivered in an effective and easily accessible way to enable producers to rapidly identify how they should react.

The strategy will also identify ways to improve awareness of environmental concerns amongst producers and to stimulate changes in attitude and practice, to deliver improvements in economic and environmental performance.

The Pig Industry Environment Strategy will not only engage the producer/supply chain, but will also ensure that Government and the regulators are informed of actions to be taken within the industry. Representatives of Defra and the Environment Agency will be invited to participate as equal partners in all relevant meetings.

The strategy will ensure that producers listen to others in the chain and consider their views when appropriate.

Communication will be two-way and will avoid duplication of message delivery. This can only be achieved through clear definition of roles and responsibilities and the creation of effective communication between key influencers, knowledge sources, and producers.

A *knowledge hub* will be developed to support the dissemination of information.

The development of clear two-way communication will mean more effective and better feedback into the legislative and regulatory processes.

The Pig Industry Environment Strategy will also establish a pig industry *environment forum* to ensure all interested parties are involved and have the opportunity to debate new ideas. Involvement might include regional bodies as well as national government, the Environment Agency and of course producers. The forum will consider and agree effective approaches to challenges facing pig producers.

Improved communication from consumer to producer will enable producers to recognise and respond to the desires and concerns of consumers. The Pig Industry Environment Strategy will establish communication with consumers and consumer groups both directly and through consumer groups such as Consumers' Association, National Consumer Council and Sustain.

The structure that will result from the implementation of the Pig Industry Environment Strategy will provide a way of communicating news of improvements in producers' environmental performance to consumers, retailers and foodservice.

The Pig Industry Environment Strategy will not only engage the supply chain, but will also ensure that Government and the Environment Agency have full buy-in to actions to be taken within the industry. Representatives of Defra and the Agency will be invited to attend all relevant meetings and approval for all actions will be sought.

The increased profile of the sector that will result from better communication

We will ensure buy-in by government and regulators

INNOVATION

Leadership through innovation will be vital to the industry's future environmental performance. Pioneering producers who successfully use new techniques will be used as costed examples to motivate all producers to implement novel methods. The Pig Industry Environment Strategy will provide a common vision for the role of the pig industry in the delivery of public policy objectives by a sustainable industry operating with minimum impact on the environment. The strategy will place the pig industry at the forefront of livestock production in the United Kingdom.

QUESTION 3

Do you agree that the establishment of an *environment forum*, perhaps supported by regional action teams drawing on central resources, will provide a vehicle capable of providing the leadership necessary for the successful delivery of the Pig Industry Environment Strategy?

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Selling our concept to retailers and foodservice is essential

will put producers in a better position to take the initiative in spreading good news through the chain to shoppers.

3. ENGAGEMENT

There are three areas for engagement.

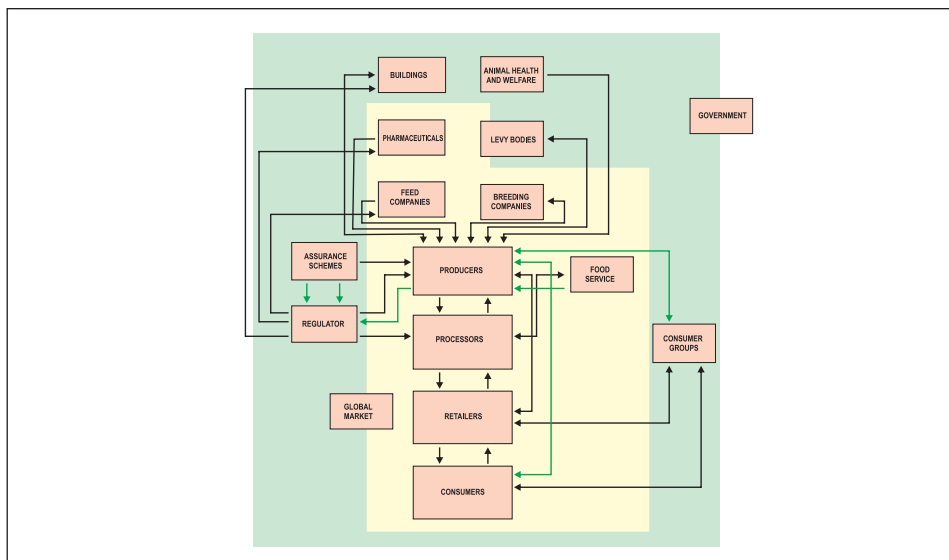
- Involvement with Government and the Environment Agency.
- Motivation of producers.
- Cooperation of retailers and foodservice.

Many lines of engagement already exist. But need to be developed to improve the likelihood of success. These linkages are shown in green in the chart below.

For instance, there is not a strong link between producers and foodservice sector, yet foodservice accounts for 30 percent of sales of pigmeat. The market is worth over £8,600 million, so a small environmental premium here would be significant.

ENGAGEMENT

The Pig Industry Environment Strategy will not only engage the supply chain, but will also ensure that Government and the Environment Agency have full buy-in to actions to be taken within the industry. Representatives of Defra and the Agency will be invited to attend all relevant meetings and approval for all actions will be sought.



GOVERNMENT

The pig industry is already a respected and effective partner with Defra, the Environment Agency and others. In order to ensure that informed decisions arise from the industry's interaction with these bodies – and taking into account the industry's need for decision to be based on sound scientific and technical principles – the Pig Industry Environment Strategy will develop a research programme designed to address pig-related environmental issues.

The industry will develop further relationships with regional and local government in order to increase understanding of immediate and future needs of pig farming and individual businesses, and to demonstrate the contribution of pig producers to local and regional economies.

The Pig Industry Environment Strategy will work with the regulators and the BPEX Knowledge Transfer Team to deliver one message to all.

To achieve these relationships support will be provided by the Pig Industry Environment Strategy to industry leaders at all levels. Regional action teams will be created to establish contact with Regional Development Agencies.

Pig Industry Environment Strategy

We must deliver a single consistent message

PRODUCERS

The Pig Industry Environment Strategy will not be successful unless producers are prepared to roll up their sleeves and get involved. The strategy will pursue a sensible balance between profitable businesses, contribution to local, regional and national economies, and the health of the environment.

The initial focus will be on those who are already successful in integrating environmental and economic success. Communicating these successes will encourage others.

Farming in an environmentally acceptable way is as much about education as it is regulation and the Pig Industry Environment Strategy recognises there are many obstacles to be overcome in order to motivate all producers to accept the need to change.

Producers need to be persuaded to look over the fence – to realise that their own individual actions *can* make a difference. Inaction is no longer appropriate and will ultimately be detrimental to the business.

RETAILERS AND FOODSERVICE

Retailers and foodservice have a considerable influence on market demand for the pig industry's products. The Pig Industry Environment Strategy will work with them to help producers promote home-produced meat and meat products. At the same time, we will work to include the retail and foodservice sectors' own environmental ambitions within the Pig Industry Environment Strategy.

The following range of actions has (so far) been identified.

KEY ACTIONS: ENGAGEMENT OF SUPPLY CHAIN

Set up a pig industry *environment forum* to help encourage cooperation and develop leadership within the supply chain.

Identify leaders/industry champions to inspire and motivate producers to take action and improve environmental performance.

Identify producer innovators and encourage them to publicise the success of new techniques for environmental management through the Pig Industry Environment Strategy *knowledge hub* and directly to other producers.

Establish a communications network that delivers a single, consistent message.

QUESTION 4

The engagement of producers, processors, retailers, foodservice, and others in the supply chain, is vital to the success of the Pig Industry Environment Strategy. Does this list of actions adequately address this key issue?

How we will ease burdens by interacting with legislators and regulators

The Pig Industry Environment Strategy will seek to:

- Reduce the time producers spend on paperwork.
- Identify ways in which costs can be reduced.
- Develop funding streams.
- Promote *soft* regulation.
- Work with Defra to develop the Whole Farm Approach.

Pig producers (as with other sectors of agricultural production) are faced with a raft of legislative, best practice, monitoring and control responsibilities that place a considerable demand on their time. The cost of implementing necessary improvements is often difficult to meet.

The Pig Industry Environment Strategy will work to identify practical ways in which these burdens can be reduced through:

- Avoidance of duplication.
- The application of technology.
- Involvement in the legislative and regulatory processes.
- The establishment of an easily accessed *knowledge hub*.

Working with the regulatory and legislative processes is key to minimising the red-tape burden on pig producers. The industry already has valuable links with Government and the Environment Agency and these will be used to bring about change in the regulatory regime.

Many producers perceive the existing regulatory regime as being difficult, both in terms of targets and the time and costs required for compliance. It is a major part of the Pig Industry Environment Strategy that the existing regulatory regime should be lessened.

But to achieve this, it will be necessary to move from the current situation, where poor environmental standards on pig farms are systemic and robust regulation is necessary, to a position where the culture within the industry is focussed on achieving high environmental standards monitored from within – for instance through quality assurance schemes.

In order to give Government and the Environment Agency confidence to make a move towards soft regulation, it will be necessary for producers to demonstrate that a culture of compliance exists within the industry and that improvements in environmental performance are not only wanted, but that they are being achieved.

The Pig Industry Environment Strategy envisages a scheme of measurement and recording to demonstrate improvements on baseline performance at both farm and industry scale.

BEST PRACTICE

Best practice takes many forms and guidance on how to implement it comes from many different directions. To reduce the time burden on producers, the Pig Industry Environment Strategy will seek to establish a single route for the transmission of information which will reduce duplication of information and

A sensible balance of profits versus the environment

INDIVIDUAL ACTION

Producers need to be persuaded to look over the fence – to realise that their own individual actions *can* make a difference. Inaction is no longer appropriate and will ultimately be detrimental.

CULTURAL CHANGE

Producers will need to demonstrate a culture of compliance before Government and the Environment Agency will have the confidence to move towards *soft* regulation.

will direct interested parties to a single authoritative source of information: the Pig Industry Environment Strategy *knowledge hub*.

The hub will be an authoritative one-stop source for advice and information. It will also be used to disseminate important general information, such as codes of practice.

ENVIRONMENTAL PERFORMANCE

Quality assurance schemes have a well-established role in monitoring good practice on farms. It is a short step from monitoring good practice to recording individual farm statistics for inclusion in a national database of environmental performance.

The quantification of environmental performance is addressed later in this document, but the standardisation of quality assurance standards – similar to the British Standards Institution’s Publicly Available Specifications – would enable producers to engage with customers and Government using a system based on – or indeed, integrated with – Defra’s Whole Farm Approach.

Early adopters of the Whole Farm Approach have been very positive about its potential benefits, particularly the reduction in the amount of bureaucracy (time) associated with dealings with Government. The Pig Industry Environment Strategy will research the feasibility of establishing a similar mechanism to reduce paperwork. Such a mechanism may also reduce the chance of being selected for Environment Agency and quality assurance inspections, which are carried out on a risk-assessed basis.

EXPENDITURE

Research, capital and operational funding will all be necessary to achieve the objectives of the Pig Industry Environment Strategy. Existing sources of funding are limited and individual environmental outcomes must all demonstrate value for money for producers, the environment and society. Various sources of funding will be sought with more or less effort from producers as reflected in the hierarchy below:

| | |
|---|------------|
| Capital aid | Government |
| Rural Development Programme | Government |
| Levy Funding | Producer |
| Pass cost on to consumer | Consumer |
| Value added products – environmental premium | Consumer |
| Capital investment for improved efficiency and value recovery | Producer |

At present there is no widely available industry-specific guidance that is available to identify where grants or other funding might be obtained. The Pig Industry Environment Strategy will propose that guidance be included within the *knowledge hub*.

Although the pig sector remains largely unsupported, funding streams do exist, or might be adapted, which would help the pig industry. For instance European Agricultural Guidance and Guarantee Fund Objective 1 funding provides opportunities for environmental innovation to producers in specific

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areas.

Producers are, however, faced with a looming problem with ageing capital. Many manure storage and pollution control systems were installed in the 1970s and 80s and these are approaching the end of their design life. Lack of profit has led to limited reinvestment, making individual businesses vulnerable to failure of systems. Such failures may result in catastrophic pollution and result in producers being unable to continue in business.

In France, a Rural Development Programme ensures that construction and renovation programmes for husbandry systems take into account welfare and husbandry standards. No such system is used in the United Kingdom, nor is there any mechanism to take into account environmental standards and gain.

Although restrictions on United Kingdom state aid do not preclude capital aid to pig producers, they specifically restrict funding to projects that 'contribute to the improvement of agricultural incomes and of living, working or production conditions', namely:

- To reduce production costs.
- To improve and/or re-deploy production.
- To increase quality.
- To preserve and improve the natural environment, hygiene conditions and welfare standards.
- To promote diversification activities.

The Pig Industry Environment Strategy proposes to encourage the pig sector to fully utilise the opportunities available through the Rural Development Programme.

The diamond toolkit for change below, illustrates the position of the range of government-based mechanisms for change. The Pig Industry Environment Strategy will seek to shift emphasis from stick to carrot, through the implementation of soft regulation and lobbying for aid to undertake capital works that provide environmental benefits.



Planning policy and development control are also perceived as obstacles to progress, primarily due to bad experiences. Many producers see planners as obstacles to progress and planners see some producers as riding roughshod over the planning process. Both parties are, to some extent correct.

The Pig Industry Environment Strategy will develop participation in the planning process at local, regional and national level to influence policy and assist in the environmental improvement of pig production units.

How about Higher Level Stewardship for pig buildings?

STICK OR CARROT?

The Pig Industry Environment Strategy will seek to shift emphasis from stick to carrot, through the implementation of 'soft' regulation and lobbying for aid to undertake capital works that provide environmental benefits.

Pig Industry Environment Strategy

We need funds for the Pig Environment Strategy

The encouragement of two-way communication will make the Pig Industry Environment Strategy dynamic and capable of reacting to changes in the needs of producers and others, including Government and regulators.

It is recognised that stakeholders will need regular communication to reinforce the message of the Pig Industry Environment Strategy and keep the strategy alive. It is equally important to recognise the need to maintain engagement at or above the critical level necessary for success. This will be achieved through the *knowledge hub*.

The following range of actions has been identified as necessary to effect delivery of the Pig Industry Environment Strategy goal of easing burdens.

KEY ACTIONS: EASE BURDENS

Integrate reporting of environmental performance with quality assurance schemes using a standardised 'whole farm approach'. Develop modules within farm assurance for IPPC, environment and welfare.

Establish an agreed set of quantifiable environmental performance indicators against which future environmental performance can be measured.

Work towards a soft regulatory regime using a risk-based approach and work towards the integration of legislation and regulatory reporting.

Encourage the pig sector to fully utilise the opportunities available through the Rural Development Programme.

Work with Government to develop fiscal measures to encourage capital investment to achieve environmental gain for the benefit of society.

Influence regional and national planning policy makers to ensure that new developments can be effected that will bring about improvements in environmental performance of pig production units.

QUESTION 5

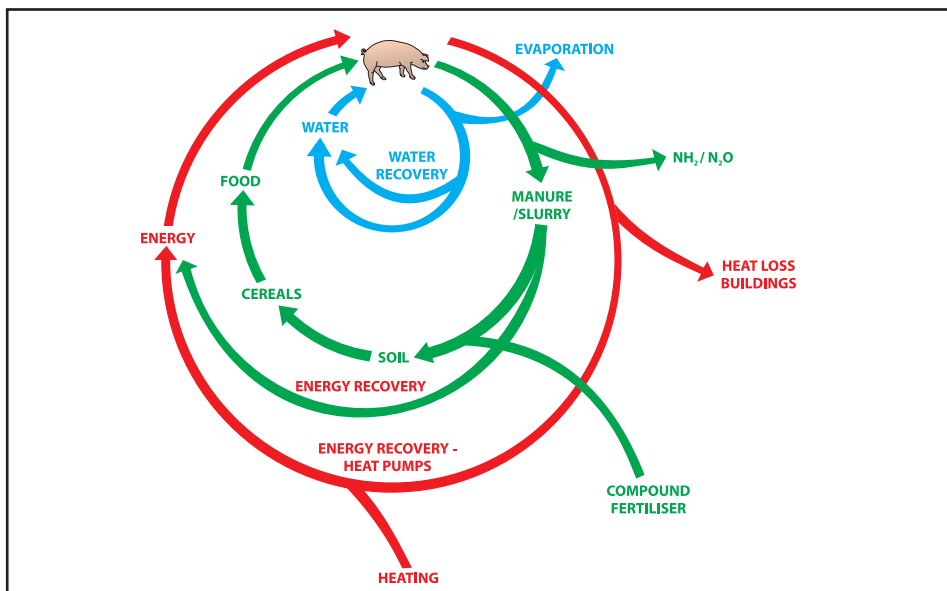
Is this list of actions comprehensive and sufficiently detailed to address the wide range of environmental issues facing pig producers?

How we will improve environmental performance

Improvement in the environmental performance of individual farms and ultimately the entire pig production sector is the goal of the Pig Industry Environment Strategy. Only this will justify environmental premiums for pork products and the assistance of Government.

The flows of nitrogen, energy and water, which govern the environmental performance of the pig industry, can be expressed simply in the form of the pig cycle shown below.

This diagram shows that pig production is at the centre of three critical cycles, each of which can be measured to gauge environmental performance. It also demonstrates how the industry impacts on the environment in terms of resource use and emissions. Opportunities to improve recovery and recycling are also shown.



In addition to the industry's influences on the environment, the environment can also have a significant influence on the industry. For instance, climate change could have a significant adverse impact on pig production and flexibility to cope with such change must be incorporated into future thinking.

CLIMATE CHANGE

The potential for pig farming to influence climate change, for good as well as bad, is significant. United Kingdom agriculture as a whole was estimated to contribute around 7 percent of greenhouse gas emissions alone and 37 percent of methane emissions in England and Wales comes from agriculture, the main source being the digestive tracts of livestock, with a small amount from the handling of livestock wastes.

Climate change will have a direct influence on the future nature of the English and Welsh pig industry. Possible impacts include:

- Waterlogged fields leading to reduced manure spreading opportunities and restricting outdoor production.
- Increased soil erosion from outdoor production as a result of more high intensity rainfall.

- Increased range of animal diseases arising from higher temperatures.
- Increased risk of heat stress in livestock in summer both indoors and outdoors.
- Damage to agricultural buildings.

Climate change will also influence the choice of crops grown, which may include novel protein crops. Rainfall patterns and extreme weather events including flooding, increasing average annual temperatures, soil quality and condition will also influence such choices.

The pig industry is also a driver of environmental change through emissions of greenhouse gases at all stages of production and distribution. The Pig Industry Environment Strategy will look at building design, feed specification and transport in order to reduce gaseous emissions.

DIRECTORY OF SOURCES OF ADVICE

The Pig Industry Environment Strategy proposes the development of a knowledge-based framework to demonstrate how improved environmental performance can be achieved at reasonable cost and with consequential economic benefits arising from lower costs, better welfare and pig performance; information will be presented in print and on the web.

The environmental issues covered in the *knowledge hub* will include:

- Buildings
- Health and welfare
- Nutrient management
- Ammonia emissions
- Greenhouse gases
- Carbon use and trading
- Management practices
- Feeding practices
- Water sourcing, recycling and recovery
- Alternative energy and energy recovery
- Manure and slurry management.

By developing and increasing the use of good advice and networking, it will be possible to cut down the number of face-to-face advisory hours, reducing costs to the producer.

NEW BUILDING DESIGN

The design of pig accommodation has changed little over the past twenty years, though in the recent past the trend has been towards the adaptation and use of existing buildings on farms that might not have a recent, or any history of livestock production. However, some buildings are being built on large units as production methods change.

In an attempt to stimulate construction of finisher accommodation, BPEX commissioned the British Pig Project, a housing blueprint for the British pig industry.

The Pig Industry Environment Strategy will further develop the British Pig Project, identifying and raising the profile of successful new and innovative pig buildings. In some circumstances it will be important to ensure buildings

are designed in a way that is flexible enough to be used for more than one stage of production, or are suitable for other uses.

The Pig Industry Environment Strategy will also ensure the industry works towards IPPC's Best Available Techniques, to be applied to the design of new buildings. These techniques should make it easy to adapt methods to changing performance and climate.

However, it is important that the Pig Industry Environment Strategy instills confidence in innovative design and the long term future of the sector so as to encourage producers to make the capital investment necessary to raise environmental performance to new high levels.

NUTRIENTS – DIFFUSE OUTPUTS

Leakage of nitrogen and phosphorus from the pig cycle into the environment can be significant. These losses can be reduced through the implementation of good practice. Many of these techniques are included in the range of Best Available Techniques identified in IPPC guidance documents.

All producers – not only those covered by IPPC – will be encouraged to improve buildings or techniques where the implementation of best practice will result in better environmental and economic performance. Information about the costs and benefits of these techniques will be incorporated in the *knowledge hub*. This will enable producers to assess the economic impact of changes in practice on their own business and make informed decisions on what changes to make in order to achieve maximum benefit.

The changes that might be implemented include:

- Improved housing designed to reduce losses to atmosphere.
- Handling and storage systems designed to minimise losses to atmosphere and the water environment.
- The use of nutrient management planning on farms where pig manure is used.
- Better targeting of nutrients in feeds.
- Improved breeding of stock.

One reason why many producers, and farmers receiving manure from pig production units are not achieving best results from manure applied to land is a strongly ingrained lack of confidence in the nutrient content of slurry and manure. The use of standard values in advisory booklets is inappropriate for any more than general guidance. The Pig Industry Environment Strategy will ensure producers have the tools and methodologies to enable them to sample and measure accurately the nutrient content of slurry and manure.

GREENHOUSE GASES

The emission of greenhouse gases from livestock production is a major concern to society. Research by Williams et al on behalf of Defra shows the global warming potential of pigmeat production (6,350kg 100 year CO₂ equivalent per tonne) is less than half that of sheepmeat and beef and is beaten only by poultrymeat in terms of efficiency.

This high performance results from several factors, but primarily: the relatively low overheads of breeding stock (20 piglets per year per sow versus one calf per cow); the efficient feed conversion achieved by mono-gastric animals; and the high daily weight gain made possible by genetic

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selection and nutrition.

Greenhouse gas emissions attributable to pig production could be reduced by finishing pigs at heavier weights (mainly due to the reduced overheads of producing weaners), and by sourcing more protein either locally or from co-products, the carbon burdens of which can mainly be attributed to the primary product; for instance potato starch and other wastes from food production. There is little difference in environmental performance between indoor and outdoor production methods.

The Pig Industry Environment Strategy will promote ways of reducing greenhouse gas emissions arising from pig production.

AMMONIA

The contribution of livestock to ammonia emissions is significant; 95 percent of all EU15 ammonia emissions come from livestock. The Pig Industry Environment Strategy will work with the Environment Agency to achieve a 10 percent reduction in baseline emissions through the development of best practice and better housing systems

ODOUR REDUCTION

As population densities throughout England and Wales increase, so also do pressures on pig production particularly relating to odours arising from production, and storage and application to land of slurry and manure.

The Pig Industry Environment Strategy will promote husbandry and slurry/manure handling systems that reduce the impact of odours arising from pig production on neighbouring properties. Ways in which this will be achieved include changes in diet and the improvement of ventilation in housing in order to dilute odours and dry out wet areas. The Pig Industry Environment Strategy will also seek to develop good agricultural practice as identified in Defra's Air Code and promote research into the application of slurry and manure to land.

WATER USE

Water use in pig production can be significant. The majority of water use is for drinking but in some systems significant volumes can be used for washing down accommodation.

Whilst reduction in water use for economic and environmental reasons is desirable, and can be achieved by the installation and proper maintenance of drinking systems, there is a close correlation between water use and manure production; reduced water use may lead to reduced manure production. However, this must only be achieved without causing welfare or health problems in pigs.

The Pig Industry Environment Strategy will look into savings in water use that can be achieved through improvements in building design that will also lead to reductions in slurry/manure production. The use of rainwater harvested from roofs and hard areas in washing down will also be investigated.

CARBON USE (ENERGY)

The Pig Industry Environment Strategy will establish a system for measuring energy use on pig units, which will enable producers to understand energy use per kilo of pigmeat produced (kWh/kg). On its own this knowledge will be of little use, but incorporated into some form of benchmarking scheme

Nearly all ammonia emission comes from livestock

HOW TO DO IT

Producers need to know how to improve their environmental performance as a reasonable cost and ideally in a way that brings lower running costs, so the Pig Industry Environment Strategy will provide expert advice, in print and on the internet.

it will enable producers to compare their own performance with that of comparable units and with an industry average.

Energy-saving measures will be described on the *knowledge hub*.

ALTERNATIVE ENERGY

The Pig Industry Environment Strategy will also promote improvement in environmental performance of production units through the use of novel energy sources.

The *knowledge hub* will provide guidance on various means of energy sourcing, such as heat pumps, wind power and digestion.

OUTDOOR PIGS

Outdoor pigs have considerable potential for harm to the environment, in terms of soil erosion, diffuse and direct pollution of surface and groundwaters, and emissions to atmosphere.

Some guidance on the location of outdoor pig units has been produced by the industry, but this has not necessarily been applied rigorously by producers. The reason for this is probably because of the desire to produce pigs on a given farm, where no suitable areas are available, and the least bad option being taken.

The Pig Industry Environment Strategy will provide guidance that will make it easy to identify land that is suitable for outdoor pig production; this guidance will be agreed with the Environment Agency and Defra. The identification of suitable areas will make it easy for the Agency and Defra to make risk-based compliance visits to farms, so reducing the likelihood of farmers working within the guidelines being inspected.

The *knowledge hub* will also provide guidance on site selection and layout, and the use of cover crops to reduce the risk of erosion from stocked areas and access tracks.

MANURE/SLURRY MANAGEMENT

Manure and slurry management techniques on pig units have changed little over the past twenty years. The Pig Industry Environment Strategy will provide costed examples of handling and storage systems, taking into account both capital and operating costs. This information will be available on the *knowledge hub*.

Nutrient losses can also vary greatly between management systems. The Pig Industry Environment Strategy will highlight losses from systems and attempt to place a value on those losses. This will enable producers to make informed decisions on the type of system installed on new units and what type of system might reasonably be retrospectively applied on existing units.

The following range of actions has been identified as necessary to effect delivery of the Pig Industry Environment Strategy goal of improving environmental performance.

INNOVATIVE BUILDINGS

The Pig Industry Environment Strategy will help create new and innovative buildings which meet the standards set by IPPC's Best Available Technique.

KEY ACTIONS: IMPROVE ENVIRONMENTAL PERFORMANCE

Establish a web-based *knowledge hub* supported by printed material to make available guidance on a range of issues affecting the environmental performance of pig production.

Make available through the *knowledge hub* assessments of greenhouse gas emissions from a range of pig housing types, and identify ways in which emissions can be reduced through improved nutrition and breeding.

Encourage development of standard building designs employing Best Available Techniques for all stages of production; for instance through the award of a building prize.

Publicise innovative buildings constructed by producers, together with full costing and descriptions of the associated benefits.

Work to improve the health and welfare of pigs and develop husbandry techniques to reduce the impact of pig production on the environment.

Quantify leakage of nutrients throughout the pig cycle and highlight costed methods of reducing diffuse losses to the wider environment.

Increase farmer confidence in the nutrient content of slurry and manure arising from pig units.

Encourage the use of nutrient management planning on farms.

Reduce greenhouse gas emissions from pig production through changes in husbandry, diet and breeding, but not at the expense of production efficiency.

Promote husbandry and slurry/manure management systems to reduce odours arising from pig units

Highlight through the *knowledge hub* ways in which water consumption and losses on pig units can be reduced.

Encourage through the *knowledge hub* and with other industry advisors the use of alternative energy sources on pig farms.

Identify and cost simple energy saving measures that can be taken on pig farms.

Produce agreed guidance on the location and management of outdoor pig units.

Develop systems to reduce nutrient losses in slurry and manure handling and storage systems.

Sidebar question; Is the above list of actions comprehensive and sufficiently detailed to address the wide range of environmental issues facing pig producers?

More accurate measurement of nutrients in slurry

QUESTION 6

What do you think of these actions? Are they comprehensive enough to motivate the whole industry to get involved?

Develop the tools to manage the environmental impacts of pig farming

The pig industry's relatively poor performance in recent years has not been conducive to the culture of innovation necessary to improve environmental performance. To overcome this, the Pig Industry Environment Strategy will develop tools to:

- Manage the impact of pig farming on the environment.
- Demonstrate economic benefits arising from improved environmental performance.
- Identify research needed to advance the environmental performance of the sector.

NEW TECHNIQUES AND COSTED BENEFITS

In order to ensure that advice provided through the Pig Industry Environment Strategy *knowledge hub* and that future developments are based on fully costed state of the art techniques, a study of literature concerning the environmental impacts of pig production and their mitigation will be carried out and significant gaps in the knowledge base identified. This exercise will identify the best direction for future research, for instance energy recovery and conservation.

ENVIRONMENTAL PERFORMANCE

The establishment of accurate baselines and realistic targets is necessary for the pig industry to be able to demonstrate progress and achieve increased margins to help pay for these and future improvements. Targets must be:

- **Specific:** consumption against weight of pig meat produced on a production unit.
- **Manageable:** can be influenced by changes in management practice.
- **Assessable:** all production units practice some form of measurement of all of the required parameters.
- **Realistic:** the use of benchmarking against overall industry performance makes possible the setting of attainable targets.
- **Time-specific:** annual measurement enables both long- and short-term targets to be set.

BASELINE

In the pig industry thus far (as with most other agricultural sectors) the key driver towards improved environmental performance has been regulatory. It is an aim of the Pig Industry Environment Strategy to promote changes in environmental behaviour to actions beyond those strictly necessary for compliance in order to be able to gain a competitive advantage. Historically, pig producers have tended to react to environmental legislation with little self-driven change in environmental performance. In order to encourage the environmental initiative it will be necessary to demonstrate improvements at both industry and individual levels and show how benefit can be gained from those improvements.

Ecological or carbon footprinting and simple measurement of consumption

REDUCING EMISSIONS

The Pig Industry Environment Strategy will work with the Environment Agency to achieve a ten percent reduction in baseline emissions through the development of best practice and better housing systems.

per unit of production are commonly used to measure baseline environmental performance.

- **ECOLOGICAL FOOTPRINTING** is a measure of use of renewable resources and thus the sustainability of any activity; non-renewable resources are accounted for in terms of their use of, or impact on, renewable bioproductive capacity. (For instance use of fossil fuel is accounted for in terms of carbon dioxide emissions). Ecological footprinting is the tool used to assess how many planets will be necessary to support consumption at a given rate, and thus our success in achieving 'one planet living'.
- **CARBON FOOTPRINTING** can be a more simplistic measure of environmental performance and is based on the measurement of energy use and extrapolation of that value into tonnes of CO₂ produced in provision of services to production, or simply the amount of energy used for production. Carbon footprinting often simply relies on the calculation of use of diesel, petrol, electricity, LPG etc. over any year to measure performance.
- **MEASURING CONSUMPTION** can set relevant inputs against tonnage of output produced. For instance, most pig producers can readily assess the net liveweight gain of pigs produced on individual units in a year; they can also assess the amount of feed given to stock, and water and energy consumption in a given period. These values can easily be translated into amount of consumption per kilo of pig produced, on a farm, in a region, or by unit type, and nationally. The pig sector is already familiar with this approach to measurement, which was the heart of the Climate Change Levy rebate scheme.

ENVIRONMENTAL BENCHMARKING

Benchmarking involves an outward look at how others achieve their performance levels together with an understanding of the processes they use. Lessons learnt from benchmarking exercises, when used properly, lead to improved performance.

At producer level, benchmarking can support management strategies to improve performance and competitiveness. The acquisition and use of data can be used to compare the performance of individual companies with industry benchmarks, enabling the identification of areas of relative strengths and weaknesses.

Producers can then work with one or more benchmarking partners to seek to identify how specific processes can be improved through understanding of how superior performance is achieved. This can help companies to find innovative solutions in a culture where knowledge is shared and greater understanding of processes is achieved.

At the sector level, the techniques used in enterprise benchmarking are applied to the whole industry in which similar types of best practice are essential for competitiveness or compliance. Benchmarking provides a means of monitoring key performance indicators that impact on the ability of the sector to respond to changes in standards, and to identify best practice in relation to those factors.

Pig Industry Environment Strategy benchmarking will rely on the following measurables, all of which can readily be recorded on farm and included in a national database:

QUESTION 7

Please consider this analysis carefully. Can you think of more accurate ways of assessing how to obtain best value from the implementation of the Pig Industry Environment Group?

Pig Industry Environment Strategy

- Water use (m3).
- Feed use (t).
- Energy use (kWh).
- Net gain in pig liveweight (kg).

These will enable a benchmark value to be calculated for consumption per kilo of liveweight gain at a range of levels within the industry.

The output from the Pig Industry Environment Group benchmarking process will be used by BPEX to promote the sector and by individual businesses to

KEY ACTIONS: DEVELOPMENT OF TOOLS

Establish system of measurement to enable the environmental performance (benchmarking) of the pig industry to be measured.

Measure performance of farms and establish industry and farm benchmarks and baselines using the PIES system.

Set reasonable targets for improved environmental performance of the industry.

Establish benchmarking system for all types of production unit and make individual performance figures available to producers.

Undertake a Gap Analysis of current research within pig production and identify opportunities for future Research and Development.

Reasonable targets for improved performance

QUESTION 8

The performance of the pig industry is only easily measured in a limited number of areas, which are identified in the cycle diagram on page 13. It is proposed that the three components – nitrogen, water and carbon – are related to kilos of pig produced at any size of unit at any stage of pig production. The outputs can be used either as benchmarks or as indicators of performance. Currently a great deal of attention is currently being paid to carbon footprinting, but to be done properly at any scale this should take into account aspects of production, including fertiliser and fuel used in crop production and water use on production units, and then related to the energy used to produce those items. This information is not easily available on the farm scale. The Pig Industry Environment Strategy steering group has a preference for benchmarking... but what do you think? Which methodology is most appropriate?

Pig Industry Environment Strategy

We need to choose quick wins at low cost

demonstrate high levels of environmental performance.

The 'key actions' list on page 21 is ambitious. It will not be possible to include everything in the Pig Industry Environment Strategy through lack of time and/or funding.

In order to make the strategy achievable (and realistic), it will be necessary to focus efforts on areas where actions will be effective, give value for money, can be achieved in partnership with others, and have maximum synergy with other actions.

The diagram below shows topics identified in the list of actions and groups them with others that fall into one or more themes for action:

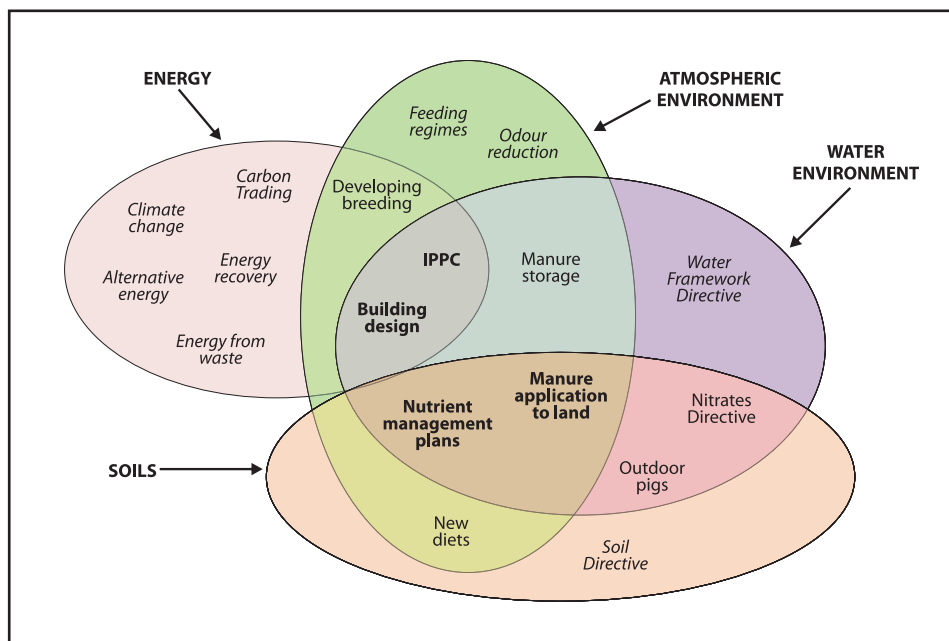
- Energy.
- Atmosphere.
- Water.
- Soils.

Where topics appear only in a single theme area, they are italicised; where a topic appears in two themes it is in normal text and those topics that appear in three themes they are emboldened.

It is proposed that the main focus of the Pig Industry Environment Group should be on emboldened topics, with other topics having a lower priority.

QUESTION 9

Realistically, neither the time nor the money are available for the Pig Industry Environment Strategy to address all the issues raised in this section. Prioritisation must take into account quick wins and low costs as well as significant environmental benefits. What do you think? Have we got these priorities right?



ABOUT THE KEY TARGETS IN THIS DISCUSSION PAPER

The targets identified in this strategy relate not only to environmental performance at industry and producer level, but also to the achievement of specific goals through the successful carrying out of elements of the 'Key Actions' sections of the Pig Industry Environment Strategy. *The achievement of the targets serves the delivery of the Pig Industry Environment Strategy.*

QUESTIONS

QUESTION 1

These are our goals (p.3)

Do you think these aims satisfy EVERYONE in the pig supply chain?

QUESTION 2

How we propose to achieve these goals (p.3)

Do the description of the Pig Industry Environment Strategy, and the goals set out here, adequately describe the ways in which the strategy can set out to attain an economically and environmentally sustainable and compliant industry? Are the goals comprehensive enough to satisfy producers and the broad range of industry partners? Can you see any areas where improvements might be made?

QUESTION 3

Communication (p.6)

Do you agree that the establishment of an *environment forum*, perhaps supported by regional action teams drawing on central resources, will provide a vehicle capable of providing the leadership necessary for the successful delivery of the Pig Industry Environment Strategy?

QUESTION 4

Key action for engagement of the supply chain (p.8)

The engagement of producers, processors, retailers, foodservice, and others in the supply chain, is vital to the success of the Pig Industry Environment Strategy. Does this list of actions adequately address this key issue?

QUESTION 5

Key actions for easing the regulatory burden (p.12)

Is this list of actions comprehensive and sufficiently detailed to address the wide range of environmental issues facing pig producers?

QUESTION 6

Key actions for improving environmental performance (p.18)

What do you think of these actions? Are they comprehensive enough to motivate the whole industry to get involved?

QUESTION 7

Tools for managing the environmental impacts of pig farming (p.20)

Please consider this analysis carefully. Can you think of more accurate ways of assessing how to obtain best value from the implementation of the Pig Industry Environment Group?

QUESTION 8

Environmental benchmarking (p.21)

The performance of the pig industry is only easily measured in a limited number of areas, which are identified in the cycle diagram on page 13. It is proposed that the three components – nitrogen, water and carbon – are related to kilos of pig produced at any size of unit at any stage of pig production. The outputs can be used either as benchmarks or as indicators of performance. Currently a great deal of attention is currently being paid to carbon footprinting, but to be done properly at any scale this should take into account aspects of production, including fertiliser and fuel used in crop production and water use on production units, and then related to the energy used to produce those items. This information is not easily available on the farm scale. The Pig Industry Environment Strategy steering group has a preference for benchmarking... but what do you think? Which methodology is most appropriate?

QUESTION 9

Benchmarking priorities (p.22)

Realistically, neither the time nor the money are available for the Pig Industry Environment Strategy to address all the issues raised in this section. Prioritisation must take into account quick wins and low costs as well as significant environmental benefits. What do you think? Have we got these priorities right?

Please send your comments to the Pig Industry Environment Strategy steering group at:

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This discussion paper has been produced from a more detailed paper produced by Reading Agricultural Consultants who in turn were guided by a working group made up of producers, producer representatives, and a range of industry partners, including Defra and the Environment Agency.