# Mega pig farms and their potential impact on human health

### Summary

- pig farming accounts for approximately 60% of all UK farm antibiotic use
- larger herd size is linked with higher levels of many diseases in pigs, including some that can cause illness in people
- research shows that the use of antibiotics increases as pig farms get bigger
- for certain bacteria, such as salmonella and campylobacter, most of the antibiotic resistance in human infections comes from farm-animal antibiotic use
- resistance to antibiotics can transfer from animals to humans and humans to animals, and this occurs more frequently, and with far greater ease, than was previously believed
- a number of very serious new types of antibiotic resistance have developed in recent years and several of these are increasing in farm animals
- C. difficile 'superbug' bacteria which has been found in hospitals is a growing problem in pigs worldwide, and the latest research shows that at least one strain of the pathogen is now present in British pigs
- there is growing evidence that C. difficile may be spreading from pig farms to humans through the environment
- there is concern about the risk of Pig MRSA spreading to the UK; it is now
  well established that people working with MRSA positive pigs, such as
  farmers, veterinarians, and even their family members, are at risk of
  colonisation and infection there have also been a number of very serious
  cases and deaths
- there are real concerns that unless antibiotics are used much more sparingly we will soon find ourselves facing a range of serious diseases in humans and animals that can no longer be treated effectively.

## Introduction

The Soil Association is against the introduction of mega farms to the UK. We are campaigning against the proposed plan for a 25,000 pig factory farm in Derbyshire.

We produced a detailed review of the relevant scientific evidence in response to a letter from the law firm Carter Ruck, acting for Midland Pig Producers, which questioned the original objections we submitted to the South Derbyshire Planning Authority and told us to withdraw our evidence. Our detailed review focused on research highlighting the potential link between large scale, intensive pig production and both human and animal disease risk, and reaffirmed our original evidence.

Please see <u>www.soilassociation.org</u> to read the submission to the planning office, the letter from Carter Ruck and our full scientific evidence, with references, produced in response, on which this summary document is based.

The information below is an overview of the more detailed referenced version, and may be used in responses to the planning authority.

#### **Antiobiotic resistance**

- The European Food Safety Authority has published a review of the science which shows that for certain bacteria, such as salmonella and campylobacter, most of the antibiotic resistance in human infections comes from farm-animal antibiotic use.
- Over the last decade, evidence has emerged to show that resistance to antibiotics<sup>1</sup> can transfer between both animals and humans and that this occurs more frequently, and with far greater ease, than was previously believed. A number of very serious new types of antibiotic resistance have developed in recent years and several of these are increasing in farm animals
- A British survey of antibiotic use on pig farms found that there was a significant association between the use of antimicrobials added routinely to the feed of animals, and the size of the farms: small farms were less likely to use them than either medium or large farms, and large farms were also more likely to medicate individual growing pigs than either small or medium farms.

# **Larger herd size = higher levels of disease**

- There is now a substantial amount of hard evidence that larger herd size is linked with higher levels of many diseases in pigs, including some that can cause illness in people.
- Such infections include swine flu and salmonella. Scientists have found that genotype 3 hepatitis E, a known zoonosis (a disease which can be transferred from animals to humans), is significantly more prevalent in pig farms with over 1000 sows than on smaller farms and large herd size is suspected of contributing to the incidence of swine dysentery.
- The C. difficile 'superbug' bacteria which has been found in hospitals is a growing problem in pigs worldwide, and the latest research shows that at least one strain of the pathogen is now present in British pigs.
- There is growing evidence that C. difficile may be spreading from pig farms to humans through the environment and in this context the exceptionally large quantities of pig waste that will be transported and spread on land in the area local to the proposed Foston mega-pig farm suggests that local inhabitants may be at an increased risk of infection.
- It should be noted that while it is commonly perceived that C. difficile is simply a hospital superbug, its incidence in the community has greatly increased in recent years and some hospital outbreaks have been traced back to the community, and these also tend to be the most serious cases.

<sup>&</sup>lt;sup>1</sup> Antimicrobial resistance is the ability of microorganisms, that might carry disease, to resist the effect of drugs such as antibiotics, which would otherwise kill or suppress them.

# Using antibiotics when animals aren't ill

- Although the use of antibiotics for growth promotion has now been banned in all EU countries, many of the antibiotics still used as growth promoters in pigs in the US (such as tetracycline, penicillin and tylosin) remain available as feed additives for prophylactic use in the UK at growth promoting rates, as long as a veterinary prescription is obtained.
- Even though there are fewer than 5 million pigs in the UK, and over 33 million sheep, it is worth noting that according official figures pig farming accounts for approximately 60% of all UK farm antibiotic use, and sheep farming for less than 0.3% This means that use per animal is about 1,500 times higher in pig farming than it is in sheep farming. Although sheep and pigs are not directly comparable these statistics help to illustrate the fact that even though the use of some antibiotics on farms has now been banned many producers have simply switched to others and overall antibiotic use remains very high.

# The specific problem of MRSA

- We are concerned about the risk of Pig MRSA spreading to the UK and have been calling for further research and testing to prevent this for the last five years. There has been a great deal of international concern about the rapid rise of this new type of MRSA, which arose in pigs on the large intensive farms in the Netherlands and Canada, but has already spread to humans, other animals and many other countries
- In 2007, the Soil Association published an 86-page review of the scientific evidence on this issue (<u>Nunan and Young 2007</u>). Since then many more studies from around the world have been published and include research from the United States, China, Spain, Italy, France, the Netherlands, Switzerland, Denmark and Portugal.
- It is now well established that people working with MRSA positive pigs, such as farmers, veterinarians, and even their family members, are at risk of colonisation and infection. There have also been a number of very serious cases and deaths.

## The organic alternative

- Most non-organic pig producers still use antibiotics prophylactically (when animals aren't actually ill), many on a routine basis. A survey of pig producers in Great Britain looked at three different production models (all non-organic) and found that between 60% and 75% of producers reported having used antimicrobials in feed for growing pigs in the two weeks before they completed the questionnaire. Such prophylactic use is not permitted on organic farms.
- Organic standards that govern the conditions in which animals must be kept are intended to ensure that it is possible to raise healthy pigs with little or no antibiotic use.
- A report published by the Department for the Environment, Food and Rural Affairs, has concluded that the use of antibiotics on organic farms is extremely low in comparison with that on intensive farms

• Furthermore, the Soil Association requires that much longer withdrawal periods are respected after the use of antibiotics than is required on non-organic farms. As well as reducing the levels of antibiotic residues in food, this also helps to ensure that lower levels of antibiotic resistant bacteria are present at slaughter.