

**BEFORE THE HEARINGS PANEL
AT THE RANGIORA TOWN HALL FUNCTION ROOM IN RANGIORA**

IN THE MATTER of the Resource Management Act 1991 (**"the Act"**)
AND

IN THE MATTER of the Resource Management Act 1991
AND

IN THE MATTER of the hearing of submissions on The Proposed Waimakariri District
Plan
Hearing Stream 1

STATEMENT OF EXPERT EVIDENCE OF IAN BARUGH

FOR NEW ZEALAND PORK INDUSTRY BOARD

(NZPork)

27 April 2023

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SUMMARY STATEMENT

This statement of evidence addresses the submission of NZPork.

My evidence provides an explanation of the systems used in commercial pig farming operations in New Zealand and those in the Waimakariri District and that Outdoor Pig Farming is a land-based primary production activity that requires the soil resource (particularly highly productive land – LUC 1, 2, 3) to support the growth of food for pigs and for nutrient management for these pig farming systems.

QUALIFICATIONS AND EXPERIENCE

1. My full name is Ian Barugh. I am the Technical Manager with NZPork and hold a Bachelor of Agricultural Science and a Diploma in Science.
2. I have been involved in the New Zealand pork industry for many years. Apart from time at University I have been continually involved in several roles in a practical manner and research in the New Zealand pork industry. These include:
 - Working on and managing pork production/pig breeding units/boar test station (3 years).
 - As an on farm advisory officer/consultant, covering all aspects of pork production (husbandry, nutrition, management, building design, manure management, economics) (13 years)
 - Managing a pork procurement/marketing company (3 years).
 - Current role as technical manager for 30 years providing technical support for the New Zealand Pork (NZPork), NZPork staff, pork producers, nutritionists, veterinarians, and other personnel servicing the pork industry. Key role has been in pork industry training, technology transfer and environmental support. I have delivered presentations and advice on all aspects of pork production with recent emphasis on welfare issues especially around housing systems for sows, integrating outdoor pigs into the nutrient budget Overseer, supplying technical information and topical issues affecting the pork industry to farmers.

NZPORK SUBMISSION

3. I have been asked by NZPork to provide expert evidence to explain the pig farming/housing systems and land use requirement for nutrient utilisation and outdoor pig farming as a land based primary production activity that is reliant on the soil resource.
4. To do this, I will provide an overview of the types of pig farming systems used in New Zealand and the Waimakariri District which has indoor pig farming and has a suitable climate, free draining soils, access to straw which makes it suitable for outdoor pig farming.
5. Access to suitable land area is required to facilitate utilisation of nutrients produced from pigs. This

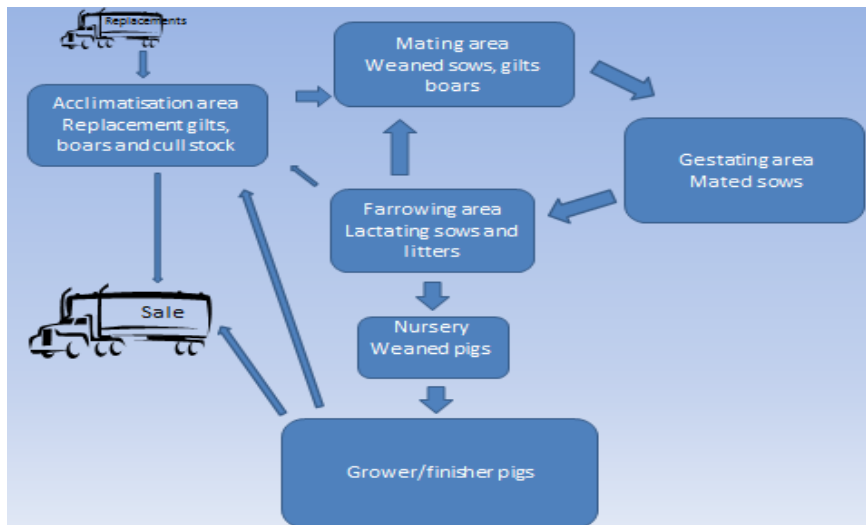
may be in a liquid or solid form. Land area is required to apply nutrients at controlled levels enabling plants (crops or grass) to utilise nutrients.

6. Land area is required by outdoor pig farmers to enable stocking densities at a rate for nutrient utilisation, maintenance of ground cover and utilisation of grass by sows. This may be part of an arable farm rotation.
7. Highly productive land (LUC 1, 2, 3) provides a soil profile that is typically deeper and more readily able to manage nutrient inputs than poor quality soils. In turn the soils recycle the nutrients into the production of pasture and crops to feed pigs within a site.
8. Intensive outdoor pig farming systems involve supplementary feed to be brought onsite. However, as an outdoor system, the animals have access to and are reliant on the soil resource for grazing and utilisation of nutrients.
9. Intensive outdoor pig farming systems occur on flat typically highly productive land as they require the soil resource to do so, and it is operationally impractical for these systems to farm these animals on contoured non flat land.
10. Land area is required by pig farms to enable them to be spaced out for animal health and biosecurity reasons.
11. In addition to using nutrients within an onsite farming system, these products can also be exported off site to neighbouring farms or solid material utilised as soil conditioners by landscape gardeners. As such they need to be near end users of the material to minimise freight costs.

TYPES OF PIG FARMING SYSTEMS USED IN NEW ZEALAND

12. A wide range of farming and housing systems are used to raise pigs. Breeding units carry breeding sows, their replacements, and boars. The management of the breeding unit is on a regular weekly flow or batch system where at any time there will be gestating sows, sows about to be mated, boars, replacement gilts, and lactating sows and litters on hand.
13. Pigs weaned (known as weaners) from the breeder unit can move to a weaner/nursery facility on the same site or be sold or transferred to another farm. Newly weaned pigs remain in the nursery for up to 6 weeks and are then transferred to a grower/finisher facility where they are grown until point of sale at about 20 weeks of age. At each stage the housing, feed, environmental and husbandry needs are different, and this will determine the type of accommodation required to house pigs.

Figure 1: Schematic layout of a pig farm structure and pig flow



Types of housing systems

14. Indoor housing can consist of different styles of buildings, constructed from timber or steel framing with varying amounts of insulation. Walls can be constructed of concrete panels, concrete blocks, plywood and 'freezer panel' walls with corrugated iron or 'freezer panel' roof construction. Ventilation systems include fully enclosed controlled environments to more reliance on natural ventilation using curtains and roof vents. Pole barns, utility implement sheds or hooped framed shelters covered with a waterproof fabric are often used in conjunction with straw or sawdust bedding as a deep litter system. The different housing systems, have different systems used for manure collection, storage, and utilisation via application to land.
15. Pig farming systems can be broadly separated into two categories. Indoor pig farming and outdoor pig farming. Outdoor pig farming operates in fenced paddocks with a weatherproof hut or shelter available to protect the pigs and provide access to shade from direct sunlight.
16. Outdoor pig farming can then be further classified to 'free farmed' systems and 'free-range' systems. More detailed descriptions of each are given below.

Indoor systems:

17. During pregnancy sows are housed indoors all year around. They are housed in groups in environmentally controlled or naturally ventilated sheds.



Image 1: Indoor group housed dry sows.

18. Prior to farrowing or giving birth, they are transferred and housed individually in specialist facilities. These farrowing facilities are environmentally controlled, allow individual feeding and care, are easy to keep clean, designed to provide piglet protection, and meet the different temperature requirements of the sow and her piglets.



Images 2 and 3 Sows and litters in indoor farrowing facilities

19. A variety of housing systems are used to house pigs after weaning. Pigs can thrive in diverse environments which provide shelter from the elements, space, and access to feed and water. As they grow their feed and temperature requirements are adjusted to meet their needs. Around 55% of New Zealand's commercial pig herd are farmed indoors.



Images 4 and 5: Indoor group housing for newly weaned pigs on straw bedding and growing pigs on a fully slatted floor.



Image 6: Growing pigs raised on sawdust bedding.

Outdoor Free Farmed systems:

20. Free farmed systems are those that have an outdoor-based breeding herd, and an indoor-based housing system on straw or sawdust bedding for growing pigs.
21. The breeding sows and boars live outdoors for their whole life, provided with housing in a variety of forms. The dry sow huts/shelters are designed to accommodate groups of breeding animals' dependant on the size of the farm and ability to be able to be shifted through gates. These come in a variety of forms as shown in the illustrations below. Note trees for shelter and the huts are facing away from the predominant wind direction.



Images,7,8,9 and 10: Examples of housing for outdoor dry sows

22. At farrowing time, the sows are moved to a separate area and give birth in individual huts, which

they can move in and out of freely.

23. After weaning, pigs transferred and are raised indoors in open fronted shelters or barns with straw or sawdust bedding. Most outdoor pig farming operations in operate in this manner.

Outdoor Sow combinations

24. Other combinations occur with sows farrowing outdoor, gestation indoors and post weaning growers are reared in environmentally controlled sheds.



Image 11: Outdoor breeding herd on a free-farmed operation.



Image 12: Sow and litter in outdoor farrowing paddocks. Movable farrowing huts are visible in the rear of the photo.

Outdoor Free-range systems:

25. In free-range systems, breeding sows and boars live outdoors for their whole life, provided with shelter and protection from the elements. The sows give birth in individual huts, which they can move in and out of freely. Newly weaned pigs may be kept for a short period in a fenced outdoor pen with a shelter, before they are fully transitioned for rearing outdoors during the grower-finisher period provided with huts for shelter. Less than 5% of New Zealand’s commercial pig herd is farmed in free-range systems.

**Ian Barugh
27/4/23**