



## FACT SHEET

### PROMOTING MORE EVEN DISTRIBUTION OF MANURE NUTRIENTS IN ROTATIONAL OUTDOOR PIGGERIES

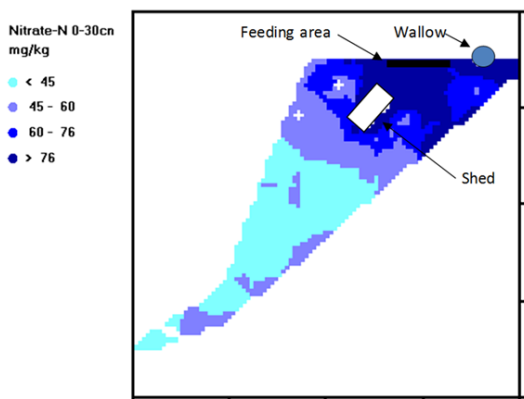
Outdoor Piggery Fact Sheet Series  
Revised February 2018

Figure 2. Predicted Colwell Phosphorus Distribution Map

Australian and international research shows that manure nutrients are not distributed evenly across the paddocks of rotational outdoor piggeries. Rather, the nutrients are concentrated around the shelter; and in the area bounded by the shelter, the feeding facilities, the waterers and the wallow.

APL research has used electromagnetic (EM) induction survey technology, coupled with soil sampling and testing, to map the distribution of nutrients in rotational outdoor piggery paddocks. Figure 1 and Figure 2 below show the distribution of nitrate-nitrogen and Colwell phosphorus respectively across one of the surveyed paddocks in relation to the shed, wallow and feeding area.

Figure 1. Predicted Nitrate-N Distribution Map



Rotational outdoor piggeries will always accumulate nutrients in the soil because of the quantities of nutrients brought in as feed exceed the mass leaving the site in pig bodies. If manure is concentrated in particular parts of the paddock, soil nutrients may quickly reach levels that pose a risk to the environment. The potential for nitrate-nitrogen leaching and soil structure decline from these hot-spots is of particular concern. However, nutrients dissolved in runoff or carried as sediment may pose a risk to surface waters. There are also implications for crops grown on the land after the pig phase, in particular uneven crop growth and reduced nitrogen use efficiency.

To promote more even nutrient distribution across the paddock area it is necessary to change the excretory behaviour of the pigs. Pigs mainly defecate and urinate as they move between the shelter and the feeding area, although they also excrete as they move between other facilities. Regularly moving facilities around the paddock is



effective in modifying excretory patterns and in achieving more even nutrient distribution across the paddock. Using appropriate nutrient inputs will also help to reduce the environmental risks of nutrient accumulation and leaching.

It is important to choose movable paddock structures wherever practical. This could include shelters, shade, feeding points, waterers, wallows and spray or drip cooling facilities. At a minimum readily movable shelters, shades and feeders should be selected. These should be moved within the paddocks at least every six months for the breeding herd and at least every three months for growers. Position the shelters so that they are well separated from the feeding facilities. For piggeries that ground-feed, delivering the feed either right along the length of a paddock perimeter fence or dispersing it over a significant part of the paddock area may encourage better dispersal of manure.

Although proactive management will help to disperse nutrients, it is unlikely that these will be spread completely evenly over the paddocks. The soil sampling program for the crop / forage / pasture phase should be designed to pick up paddock variability so that risks can be monitored and nutrient imbalances addressed in order to optimise crop yields.

### Other Fact Sheets in this Series

- Developing a Nutrient Management Plan for a Rotational Outdoor Piggery
- Land and Water Protection Measures for Rotational Outdoor Piggeries
- Soil Monitoring for Rotational Outdoor Piggeries.

### Example of movable farrowing hut



Example of movable dry sow or grower shelters



Example of movable self-feeder





# Fact Sheet



(APL) solely for informational purposes. While APL has no reason to believe that the information contained in this publication is inaccurate, APL is unable to guarantee the accuracy of the information and, subject to any terms implied by law which cannot be excluded, accepts no responsibility for loss suffered as a result of any party's reliance on the accuracy or currency of the content of this publication. The information contained in this publication should not be relied upon for any purpose, including as a substitute for professional advice. Nothing within the publication constitutes an express or implied warranty, or representation, with respect to the accuracy or currency of the publication, any future matter or as to the value of or demand for any good.