Climate Variability will bring challneges to many agricutlural industires across the South Coast region of Western Australia. Understanding the risks of projected climate variability may help us to plan and adapt to a more variable climate.

FREE RANGE PIGGERIES

Free range pigs now comprise a significant proportion of the WA pig industry due to demand by consumers for pork produced in this manner. The free range pig industry is a relatively new agricultural industry in the South Coast Region, selected by growers due to its ideal climate for outdoor piggeries: annual rainfall of less than 750mm and January mean maximum temperature of less than 28 °C and mean minimum July temperature exceeding 3 °C (Australian Pork, 2018).

Pigs are finely tuned into their climate and respond in their growth, reproduction and ultimately production. he projected climate variability for the South Coast region includes warmer and more humid conditions which would increase the likelihood of heat stress.

Heat stress constrains livestock productivity by affecting their behavior, feed intake and productivity (Rojas-Downing et al., 2017).
Changes to temperature extremes and sudden change in temperature in short period of time also affect pigs' adaptability.

To date, modifying their environment is the most effective way to reduce the impact of heat stress. This includes physically modifying pigs' surrounding to reduce air temperature and reduce solar radiation, such as insulated farrowing huts and provision of shaded areas. Other approaches include dietary modification (Mayorga et al., 2019)

What are the changes to South Coast region climate?

Higher temperature in all seasons with more frequent hot days;
Decrease in rainfall (relative humidity, soil moisture and run off) in winter and spring;
Increase in drought duration and frequency;
Increase in solar radiation in winter and evaporation rate;
Higher sea levels; and
Higher sea surface temperature and more ocean acidification.

Climate Change in Australia: http://www.climatechangeinaustralia.gov.au

POTENTIAL RISKS ASSOCIATED WITH CLIMATE VARIABILITY AND MANAGEMNET ACTIONS TO REDUCE THE RISK

The climate projection	Potential risk	Management action to reduce the risk
Higher temperature in all seasons with more frequent hot days	Heat stress can cause piglet mortality and lower piglet growth rates due to sows producing less milk, Decrease sow fertility which may increase abortion rates and reduced litter size	Farrowing huts: • Align farrowing huts to create draughts • Paint farrowing huts white (can reduce temperature by 7 °C) with insulation • Solar powered fans • Sprinklers/sprayers to cool through evaporation Wallows: • Increase size of wallows with clay floor and shade over them Water access: • Larger drinkers or use of concrete to reduce water temperature Pig management: • Put piglets into shaded facilities
Increase in solar radiation	Increased risk of sunburn for pigs Increase prostaglandin release which increases risk of abortion	Farrowing huts: • Increase shaded area around farrowing huts
Decrease in rainfall and increase in drought duration and frequency	Water supplies Feed shortage	Water access: • Larger drinkers

References

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