

Pigs of all ages can be affected by increased ambient temperatures. When environmental temperature increases above that in which a pig can adequately regulate its body temperature then that pig begins to suffer with heat stress, the consequences of which can cause performance losses and, in extremis, death.

Pigs generate body heat through normal metabolic processes such as milk production, growth and foetal development. The larger and more productive the pig the greater the amount of heat produced. Modern, improved breeds have a higher basal metabolic rate due to their improved productivity and therefore generate more body heat. This makes them more susceptible heat stress.

Pigs cannot sweat and are inefficient at heat loss via panting, unlike other species. Therefore, pigs lose heat by:

- **Convection** – good ventilation is essential for efficient heat loss into the air
- **Evaporation** – as pigs cannot sweat, access to liquid in which to wallow is necessary for heat loss
- **Conduction** – pigs will modify their lying posture to lose heat into a solid surface
- **Radiation** – if the temperature difference between the pig's body and surrounding surfaces is insufficient then heat loss does not occur. Maintaining building or arc insulation, and painting external surfaces white, maintains a wider temperature differential and facilitates heat loss by radiation.

Heat stress

Pigs of any age will show the following signs:

- Increased panting
- Reduced feed intake
- Increased splashing/wallowing
- Spread out from other pigs
- Lay on floor
- Increased body temperature
- Dehydration – leading to water deprivation
- Sepsis
- Death

Sunburn

An increase in exposure to direct sunlight at any time of year can cause sunburn. It can affect pigs kept indoors that have access to direct sunlight as well as those kept outdoors. As with people pigs will have a pink, flush on their skin and can develop blisters in severe cases. Treatment involves protecting pigs from further exposure and anti-inflammatories as it is a painful condition. Prevention relies on provision of shades or mud wallows to protect the skin. Sunscreen could also be applied if a mud wallow is not possible.

Water deprivation/salt poisoning

If water availability is compromised or pigs are fed a diet containing excess salt, then pigs can experience salt poisoning which presents with similar signs to meningitis or Glasser's disease. Acutely affected pigs will initially appear thirsty, itchy and constipated but this progresses to blindness and disorientation leading ultimately to coma and death. Recovery is possible through gradual reintroduction of water either orally, via a spray or per rectum. Rapid rehydration can make the clinical signs worse. They can benefit in the use of steroids as part of the rehydration process.

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Fertility issues

Sows	Boars
<ul style="list-style-type: none"> • Embryo death – return to service/small litters • Suppression of oestrus • Abortion • Reduced feed intake, especially in lactation 	<ul style="list-style-type: none"> • Reduced sperm volume and quality • Reduced libido • Up to 8 weeks after period of hot weather

The effects of hot weather combined with day length influencing melatonin production contribute to the issue of seasonal infertility which is often reported during the summer and early autumn.

Introducing measures to mitigate against the effects of hot weather will help reduce the impact of seasonal infertility.

Feeding herd issues

- Decreased weaning weight – sows will reduce feed intake in hot weather which in turn will reduce milk production. Improving the nutrient density of lactation diets can counteract this.
- Increased time to market – growing pigs, like sows, will reduce their feed intake resulting in slowed growth rate. As with sow diets consideration should be given to modifying diets to increase nutrient density.
- Increased risk of vice such as tail biting and flank biting – review stocking rates and ventilation to improve environment. Also remove composting bedding as this adds heat to the lying area of the pigs, increasing competition for cooler places to lie.

It is important to ensure that measures are in place to minimise heat stress and the detrimental effect that this will have on all ages of pigs.

Outdoors

- provision of wallows and/or shaded areas
- painting dry sow and farrowing arcs white to reflect heat
- check water points to ensure that adequate, clean drinking water is always available
- feeding at cooler times of day when pigs are more likely to want to eat so intakes are maintained
- review semen handling in the field so AI isn't heat shocked and fertility impaired



Use of a wallow trough



Mud wallows

Indoors

- check ventilation systems are functioning properly, and alarms are working
- reduce slurry levels and remove soiled bedding frequently to limit heat release from manure and manage fly populations
- check stocking densities are correct or consider reducing stocking rates during hot weather periods
- repair/replace damaged insulation
- provide shade over outdoor loafing areas
- check water pressure is sufficient to maintain flow rates throughout all accommodation when demand for water is high
- frequently check water systems so any disruption in supply is identified rapidly
- frequently scrape dung passages so pigs can cool on solid floors without wallowing in faeces and urine



Useful references

- * Solving the Problem of Heat Stress in Pigs – APHA
- * <http://adlib.eversite.co.uk/resources/000/251/081/PB1316.pdf>
- * PREPARING FOR THE SUMMER MONTHS – Australian Pork
- * <http://australianpork.com.au/wp-content/uploads/2013/12/Preparing-for-the-Summer-Months-Seasonal-Infertility-and-Beyond.pdf>
- * Sunburn, heat stress/heat stroke – NADIS
- * <https://www.nadis.org.uk/disease-a-z/pigs/sunburn-and-heatstrokeheatstress/>
- * AHDB Pork, Heat stress
- * <http://pork.ahdb.org.uk/pig-production/outdoor/heat-stress/>