

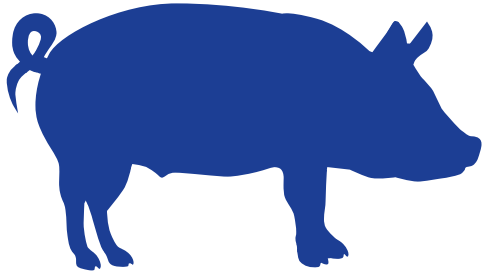
VITA-PRO

Soluble

TECHNICAL DOCUMENT
SWINE



matrix
ENVIRONMENTAL SOLUTIONS LTD.



Knowing that heat stress occurs in livestock at the smallest increment of temperature rise makes producers more aware of heat prostration. It should teach managers that it doesn't have to be 30°C outside for there to be antagonistic effects from elevated temperatures.



Proactive dosing by using 400g of VitaPro in a 750 liter to 2200 liter dilution can alleviate some of the extreme side effects of heat prostration.¹

¹ Vita Pro has a DIN (Canadian Drug Identification Number) for the following purpose: Vitamin and electrolyte water soluble powder for chickens, turkeys, swine, cattle, sheep and horses.

Water is essential to a pig's welfare for a variety of reasons. Pigs require water for the proper functioning of cells, maintaining body temperature, moving nutrients into the body tissue, removing metabolic waste, growth, and reproduction. Water makes up approximately 80% of the empty body weight of a newborn pig and approximately 55% of a finishing pig. Water intake should be approximately 2.5 times the feed intake of the growing pig.

Dehydration occurs during many events throughout the pig's life.²

A reduced or restricted water intake will slow the growth rate of pigs. Protein deposition requires a large amount of water, but lipid (fat) deposition requires much less water. If not enough water is available for protein deposition then muscle mass and muscle definition will be affected.²

In work completed by Dr. Nora Lewis from the University of Manitoba, using electrolytes in weanling pigs was found to have these positive results.

- Water intake during the first 3 days post wean was 4.5x higher in the group given electrolytes than those given tap water. After that the consumption was roughly the same.
- Early weaned piglets generally lose weight in the first 2 to 3 days post weaning which is apparent in the piglets provided with tap water. However piglets provided with electrolytes did not go through this period of weight loss.
- Feed consumption over the first 7 days was not higher in the pens in which piglets were given electrolytes (2.961 kg; 105 g/pig/day) than in the pens in which tap water was provided (3.613 kg; 129 g/pig/day).

Dr. Nora via the funding support of Manitoba Pork and ARDI summarized that the use of electrolytes in water may help piglets to retain weight and fluid status during the first week after weaning.

² Dr. Marcia Carlson Shannon, University of Missouri

Here are some common events where animals being raised through intensive production might experience an electrolyte imbalance:

Heat Prostration, Vaccination, Transport Stress, Feed Transition Stresses, Room to Room Transitions, Increased Stocking Density, Enteric Disease, Poor Water Quality

A distinct sign of stress in pigs is diarrhea. When pigs experience diarrhea, they are losing tremendous amounts of electrolytes and the water balance in the pigs can reach a dangerously critical level. This imbalance can damage the villi in the pig's digestive tract, resulting in decreased nutrient absorption long-term.



UNDERSTANDING THE PHYSIOLOGICAL IMPACTS OF HEAT STRESS

Also, a recent publication by Pearce et al. (2013) examined what happened to the intestinal structure when pigs were exposed to heat stress. The research showed that exposure to 35°C for 24 hours significantly damaged the intestinal defence function and also increased plasma endotoxin levels. The authors explained that when pigs are exposed to heat stress (even for as little as two to six hours) their intestinal defence systems are significantly compromised and this provides opportunity for infection as pathogenic bacteria can invade the body more easily. Therefore, heat stress can create secondary infection if sanitary conditions are poor.

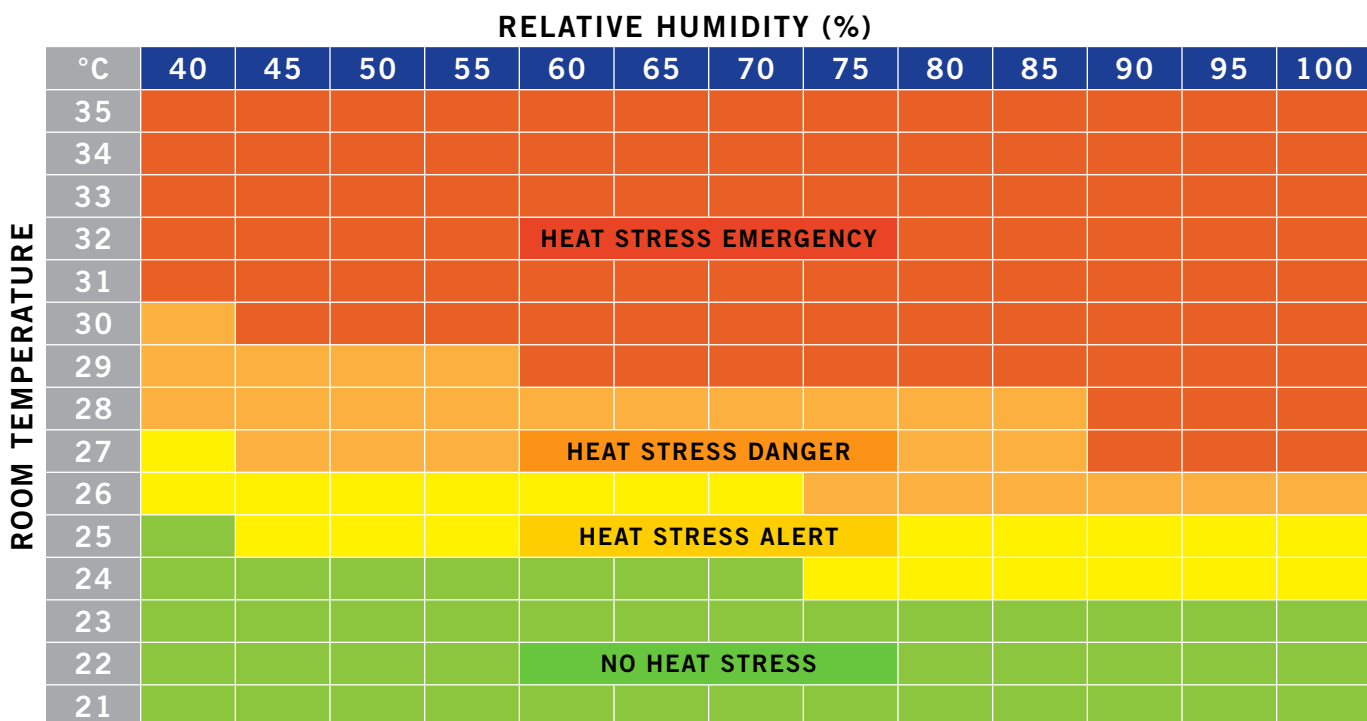
DEHYDRATION

- Dehydration of the cells and tissues leads to body shrink, reduced growth, impaired maintenance, and may result in death when the body loses between 7-15 percent of its normal body fluid.
- Young pigs, which have a very high percentage of their body weight in fluid, are very subject to severe dehydration, which contributes to the high mortality when they are exposed to stress or disease.
- Enteric infections caused by E. coli, TGE, and rotavirus quickly dehydrate the body, as the fluids are lost via the stools. This dehydration from the diarrhea makes the young piglet subject to shock and death in a matter of minutes or several hours.



SYMPTOMS AND SIGNS OF DEHYDRATION IN PIGS

- Lethargy
- Less feed intake
- The pig will not stand up for inspection
- Insecure, wobbly walk
- Vomiting
- Abdominal pains
- Dark urine
- Diarrhoea
- Sunken belly and eyes
- Blue discolouration of skin



Source: Iowa State University

Recommended flow rates for nipple drinkers and different classes of pigs:

Classes	Flow rate	Maximum pressure (kilopascals/kPa)
Lactating sow	2L/minute	No limit (avoid wastage)
Dry sows and boars	1L/minute	No limit (avoid wastage)
Finisher	1L/minute	140–175
Grower	1L/minute	140–175
Weaner	0.5L/minute	85–105

The daily water requirements for pigs vary according to their age:

Age of pig	Daily water requirements
Lactating sow	24–45 L/day
Dry sow and boar	12–15 L/day
Finisher	9–12 L/day
Grower	5–7 L/day
Weaner	3–5 L/day



Using tools like Kestrel meters can help determine when your animals are most at risk. They are simple and easy to use with exceptional Bluetooth capabilities. Without the proper equipment, busy managers are left to guess when their herds are most at risk; right when they think they're not. Don't leave yourself vulnerable to opinion, use a steadfast tool to make better choices and be proactive.

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