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What will we feed our pigs? - heat stress impacts on crop production

Richard Trethowan is Professor of Plant Breeding and Director of the Plant Breeding Institute at The University of Sydney. He has 33 years of experience breeding crops with tolerance to abiotic stresses both internationally and in Australia. His research interests include the development of new plant breeding technologies, enhancement of high-temperature tolerance of cereal and leguminous crops and development of grain crops with enhanced nutritional value.

Climate change may impact the distribution and productivity of traditional Australian cereal and pulse crops, with implications for the diets of pigs. C4 summer crops such as sorghum and millet may replace or augment wheat, barley and pulses in diets as temperatures rise and the incidence of drought increases. However, such changes will have implications for pig nutrition as heat stressed grains and the grains of better adapted crop options may be less nutritious. While pigs may eat other grains, or these grains may form a greater percentage of future diets, it is clear that traditional temperate cereals and pulses will still form the major portion of most rations. Improved agronomic management, including adoption of conservation agricultural technologies, and new planting times for traditional crops to take advantage of early season moisture and reduce terminal stress, will continue to lessen the impacts of a more hostile production environment. Genetic improvement of heat tolerance of traditional cereals and pulses is possible, and the impacts of higher temperatures on both yield and nutritional value can be minimised. Optimisation of cultivar x environment x crop management interactions will slow changes in crop distribution due to climate change and will lessen these impacts on pig diets.