Insects: a novel animal-feed protein source for the Australian market

ABSTRACT

The increasing demands on natural resources to provide food and feed has led to increased global initiatives to improve production sustainability and efficiency. The use of insects as an alternate source of protein for human food and production-animal feed is one such avenue gaining attention. With there being a large variety of insect species endemic to each region, there is likely to be an ideal candidate for each specific production system and region. Insects require less land and water than do terrestrial animals, have high feed-conversion efficiency (FCE) and emit low levels of greenhouse gases (GHG). Insect species currently investigated for mass production include black soldier fly larvae (BSFL), mealworms and crickets. In western societies, it is less likely that wide-scale adoption of insects as a food source will occur, although speciality products with 'hidden' insects, such as cricket flour, are commercially available. It is likely to be more achievable for insects to be included into the diets of production and companion animals. While there has been significant investment in research and development of large-scale insect-production systems, such facilities are yet to start producing at a significant scale. The safety and efficacy of insects as a food or feed must be established in conjunction with the development of mass rearing facilities and the optimisation of insect-rearing substrates. Insects also have nutraceutical properties that may have beneficial impacts on animal health and growth, with scope for these properties to be exploited as feed or food additives. The present review will explore the following question: 'are insects a future livestock industry for Australia?'

Keyword: Animal production; Entomophagy; Nutrition; Sustainability