



EATING INSECTS, THE FUTURE OF OUR FOOD?

Future Protein

As the world prepares for a predicted population of 9 billion by 2050, as the food and agribusiness industry, together we must start to investigate and utilise alternative commodities for the purpose of feeding the expected population. Whilst technological developments are helping to create more food, through improved production and processing to extract more nutrients and larger yields, others are focusing on the development of new food sources and exploring alternative raw materials. One such source is insects. Insects are rich in vital nutrients and proteins and abundant throughout the world thriving in most climates, but are guaranteed to spark spirited conversations around the water coolers and dinner tables of Australia.

Insects have had a long and varied global culinary history. Present in many cultures around the world including Asia, Central & South America, Africa and surprisingly to many Australia. Insects made up a significant proportion of the Australian Aboriginal diets, which famously included the consumption of witchetty grubs (witjuti grub), as well as moth species and particular ants as source of nutrition.

Production

Since 2000, in countries in west Africa and south east Asia, insect farming has become a commercialised cottage industry with modern farming selection techniques producing fast growing, high value species of crickets, beetles and caterpillars. The result of this has been the commercial production of flours high in protein, which are gluten free and suitable for fortifying in staple grain products to improve nutrient density.

Small scale insect farming is also very common in Thailand with over 20,000 registered insect farmers. These mainly cricket farms are now producing product with comparable value to typical animal protein, such as beef, maintaining higher profitability due to lower overheads and processing costs. This is because insect farming requires significantly less space for grow out and slaughter costs are significantly less.

Current Case

Insects benefit from being natural to most environments with good climatic adaptations, making them year-round available in most human habitable locations around the globe. So the question is, is there a future for insects as a source of nutrients in modern western diets? If so, how do we convince modern Australians to see crickets in a similar context as chickens, cattle or fish?

During the 90s, popularised by the "bush tucker" movement, some native insect species were developed for the final aim of commercialising Aboriginal foods for mainstream consumption. However, due to a variety factors, such as species identification, mass farming was not achieved. Recently, small-scale start-ups are emerging for niche human ingredients and feed for production. Calling for industry legalisation to regulate specifications, quality, food and hygiene standards.

However, as the challenges of climate change continue to affect our traditional protein production industries, insect farming may become an important tool to increase food security.

Fast Facts:

There are many benefits that can be gained by the consumption of insects and the incorporation of insect materials into the modern Australian food supply.

- **Nutrition:** Insects typically have a favourable ratio of protein to saturated fat and carbohydrate, making them a good choice for protein, unsaturated lipids and mineral elements. The high level of unsaturated fatty acids can cause issues with rancidity during processing, but proper processing and storage techniques can alleviate this problem.
- **Environmental:** Very high growth density, requiring less land per animal for grow out. Higher metabolic efficiency than mammals and avian species, creating more protein from less feed. The higher feed conversion also allows insects to be raised on organic waste streams without significant growth rate reductions and results in lower emissions and waste production
- **Social Economic:** Lower capital and start-up costs to insect production, allows for developing countries' producers to enter the market, and utilise once non-agricultural land for primary food and feed production.

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