

Cricket Protein Inquiry

In this inquiry I will look at whether the use of insects will meet the future needs of New Zealand, specifically if it could have an impact on New Zealand's farming industry and the ethical issues regarding the insects. The surveys were completed by a range of people from all over the country and some from overseas which allowed us to have wide range opinions to help with discussion.

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Farming Industries

As we already consume a huge quantity of beef as a country and world and farming for beef is how we get our main source of protein, I think that there will always be a demand for beef meat. "Animal protein is a great source of not only protein but also calcium, phosphorous, zinc, iron, copper and omega 3 fatty acids." - The NZ Farmers Weekly, Nov 26, 2016.

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Cricket farming is carried out in containers that allow for shelter and free movement. They require a heat of about 32 degrees Celsius. They are fed vegetable matter, to help to improve their taste for human consumptions. "They live for about 8 weeks before being harvested at 40-50 days old." - (2). They're killed by dry freezing, packaged and sold to the consumer. Compare this to beef farming where you must wait at least 18 months to get a profitable yield. Cricket farming requires less land to produce high quantities of produce. It seems obvious that lots of profit can be made quickly and efficiently as the crickets use less land, water, feed and time compared to beef farming. Cattle use 12x the amount of feed to crickets to produce the same amount of protein.

As shown above for 0.45 kg of protein crickets consume 3.8 litres of water compared to beef where 0.45kg of protein requires 7571 litres of water.

Also shown is that the products from farming animals are responsible for 18% of greenhouse-gas emissions worldwide. As the world population is expected to rise to almost 9.5 billion by 2050, it's important that we find a more effective and sustainable way to farm for natural protein, which could be done with insects. Crickets produce only 2.2g of CO₂ per 1kg of protein, which is negligible compared to cattle, which produce up to 2,800g of CO₂ per 1kg of protein. It takes 40-50 days before crickets are able to be harvested and processed compared to beef where it's 18 months.

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From these statistics, if we were to bring insect farming into New Zealand, we would need to consider whether or not this would have a significant impact on the beef industry.

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From the processed data of the survey (see appendix 1), when asked, people's response was that they rather not eat insects as an alternative source of protein. The majority say we shouldn't bring farming insects into New Zealand, this could be due to their lack of knowledge about how insects are farmed. In the survey people have voiced that they believe beef farming is not something that can be taken over easily by insects. If we were to educate people more about how easy, affordable and fast it would be to set up an insect farm for human consumption compared to starting up a new beef farm, they could have a change in opinion. Next to what type of insects should be farmed is considering whether it would or could be more profitable than beef farming. As already stated above insect farms require less land/space, less feed and water for the same amount or produce to beef and the end result is produce quicker and to the same, if not better quality as there are higher protein levels in crickets than to beef. The 20% of people who believe insects could be more profitable than beef farming could be people who would prefer to see insect farms rather than beef farms as they are anti-killing of animals and may not see killing insects the same way as they see killing cattle. This portrays that they might be open to changing how they get their protein, through insects even.

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From my own experience of eating the insects, I wouldn't be hesitant if offered them again as they are not bad tasting rather, it's the texture of them that is off putting. From eating the chocolate coated crickets, I would suggest this may be a good way to sell them as you are still

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getting the protein from the insects as well as energy from the chocolate. I found that the chocolate made it more appealing.

As you receive such a high amount of protein in a small amount of food, it means that they are not needed to be eaten in bulk. I feel that about 200g per serving would be beneficial enough to have enough protein to grow and develop your body effectively. "For only 1 grill piece of beef fillet steak 28% of the 135g is protein" - (5)

Ethical Issues

When it comes to farming or growing things ethics need to be considered regarding animal welfare eg. feed, treatment, habitat conditions and slaughter. Regarding the insects welfare, in 2015, an amendment to New Zealand's Animal Welfare Act recognised animals (non-human animals, excluding insects, to be precise) as sentient. This means that insects are not covered in the animal welfare code. But as farming insects is a growing thing; there should be reason to upgrade to the code of animal welfare. This is because the ethics behind farming insects needs to be an ongoing concern just as it is for beef farmers.

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There is little standardized protocol regarding insect rearing as there are too many types of insects to devise a feasible protocol for treatment. "There are things to consider like diseases therefore sanitary is important, humidity/temperature which needs to be monitored and controlled to be able to allow for the insects to produce to their potential, and cannibalism amongst the insects themselves which relates to giving them adequate space and nutrition to help prevent this" – (8)

If they were covered by a code of welfare under the Ministry of Primary Industries, this could help with people's idea of consuming them. They would know that they're not being unlawfully or unnecessarily harmed in the process as some people have strong beliefs that they won't eat anything that has had a stressful life.

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As shown in the ethics survey (see appendix 2) people have a good understanding in relation to ethics regarding animals and their treatment so when asked about the state of the animal when it is consumed, majority of them either chose that they should dead or it is personal preference. This shows that people don't wish to be eating live insects and they wanted them to be killed humanely. When asked people were almost certain that dry freezing was the most humane choice and from my research this was proven true.

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In conclusion, I feel that the use of organisms will help to meet New Zealand's future needs as they have a significantly smaller impact on the environment and can be more economically viable. It would have a minimal impact on the beef farming industry and could also have huge social benefits as it opens up jobs in the agricultural industry and create a market for developing products to farm insects. The code of welfare will need to be amended to include farming insects.

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