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Bugs or Burgers audio transcript

The global population is set to reach 9 billion people by 2050. With many more mouths to feed there comes a greater need for sustainable and protein rich food. There are lots of sources of dietary proteins such as meat, eggs, nuts, fish, milk and tofu, but have you ever thought about where these foods come from and what effect producing and eating them has on the environment and our health?

Would you consider eating different types of dietary protein if they were more sustainable and less harmful to the environment?

We're going to investigate some of the key issues associated with producing and eating two very different types of edible protein – beef and insects.

[Music]

First let's take a step back. Why do we need protein in our diet? Every cell in the human body contains many different types of protein. They form a major part of our skin, our tissue and our organs. They also carry out many important functions such as transmitting messages and molecules around the body and supporting the immune system. Enzymes, which catalyse all kinds of reactions are also proteins.

All proteins are made of amino acids, there are 20 different types of amino acids in human protein, ten of which are known as the essential amino acids. This means that they must come from the food that we eat. Men and women aged 15 to 18 years old need about 55 grams of protein a day. That's the equivalent of having two boiled eggs for breakfast, a grilled piece of chicken for lunch and 100 grams of tofu for dinner.

But what happens if we don't get enough protein into our bodies? A lack of protein can lead to health problems such as odema, which causes a build up of fluid in the body and therefore causes swelling. Children who have protein deficiency can also develop diseases such as Marasmus, which causes severe weight loss.

[Sound of meat being chopped]

Come to a butchers and you can pick up a joint of beef like this one. This 200-gram piece of steak will provide 40 grams of protein, which is 70 per cent of your daily requirements. Beef is a readily available source of protein in the UK, young bulls, steers and heifers are all used in beef production. They are slaughtered in abattoirs at different ages and weights depending on what the buyers want. After this, the beef is transported to a processing plant where it is processed into different cuts or minced. It is weighed, packaged and labelled and transported to supermarkets and butchers. As the global appetite for beef increases how much demand will be placed on livestock farming to satisfy our meet eating needs?

I've come to (Whitecross Street) Food Market in London to meet with Tim Lang, Professor of Food Policy at City University London. I want to ask him how sustainable beef production is for the global population. So what are the main problems of beef production?

- I think now the main problem is we think it's available whenever we want. Whereas I'd really like us to reframe what do we mean by choice, how much choice do we need? Is it our right to eat beef twice, three times, four times, five times a week? If we are, what are the costs? Environmental costs, land use and public health.
- What are the health implications of sustained global beef consumption?
- If the growth of meat consumption grows as current trends are it's a disaster. It's a disaster in land use, it's a disaster for eco systems, for biodiversity, because the animals take up space, they're being fed soya,

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they're being fed grain that could be growing food for humans or protecting eco systems in other ways. But the biggest impact is on public health, it's us.

- How do we persuade people to become vegetarians or eat less meats?

- I don't necessarily want people to become vegetarian, I definitely think the evidence suggests we need to eat more plants, so to have meat, if you want to eat meat, in its proper place, very infrequently, one could almost say my rubric is eat it as a feast day special if you want to, rather than every day and have a tiny – old Chinese style food, little bits of meat at the edge of a vast amount of plants. That's where meat should be. We consumers in the West have had this fantasy we can eat whatever we like and it's a fantasy of the last 70 years actually, it's very modern, we've said, oh we can choose between 13 000 items on the supermarket shelf and we can walk down a market street here and there are 50 different sort of cuisines offered for my lunchtime snack. This is a fantasy world that comes from a culture which is eating as though there were three planets, that's what's happening in Britain. If we're in America, America consumes, not just food, everything, as though there were four to five planets. This is literally unsustainable and really what I want is for the British to eat less meat, dramatically less meat and to eat better. Better but less is my message.

- Okay, that's ambitious.

[Music]

- Animals have long been bred as a source of protein but in many cultures Entomophagy or the eating of insects is seen as a common and viable source of protein. You can eat dragon flies in Indonesia, grasshoppers in Mexico and even earth worms in Venezuela. In Thailand alone 200 different species of insects are eaten throughout the country. But why is it we don't eat insects here in the UK? Dr (Spears) is a food scientist here at London Southbank University, his research has been looking into ways we can use insects to form a protein rich flour that can be added into food such as biscuits and cereal bars. So what is the difference between animal proteins, specifically beef protein, and insect protein?

- Well in actual fact the amino acid composition of the protein is very similar to animals and the fact content is more like a fish rather than an animal but it's of a similar nature and of a similar composition. So there's no reason why we can't see insects as a potential edible food source to us compared to animals.

- So how could we persuade people to eat more insects?

- We're looking more if you like, downstream, to how we can convert the insect raw material as a flour, as a very nice interesting products, and we've had some experimentation with some cereal bars which you've already mentioned, maybe biscuits and we're going to go on to see if we can make them into meat products.

- What would you say the negative health implications of eating insects are?

- If you harvest them in the wild we don't know what they've been feeding on and insects tend to gravitate towards rotting material, possibly even faeces, animal faeces and animals. So therefore they will accumulate lots of pathogens, lots of bacteria, that we wouldn't want to introduce into a food supply. The better proposition is to use them in a farmed sense that we could actually raise them in areas where we know what they've been fed on, we know what conditions they've been bred and then harvest them from mini farms. But the insects themselves produce thousands and thousands of eggs, so potentially there's a high breeding stock that you could develop in the insects.

- Right, that you wouldn't get with animals.

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- Which we wouldn't get with animals and they obviously need a lot more room to grow and to move in.

[Music]

- There will almost certainly be a problem maintaining current beef production levels in the future. According to Professor Lang we don't have to give up beef completely but our current rate of consumption is unsustainable. But can insects help solve our protein requirements? As Dr Spears says, using insects as a raw material for protein would be more sustainable; however, we have to persuade people to be more comfortable with eating insects.

So the next time you tuck into a protein rich meal such as beef pie, how efficient do you think it is to sustain, rear, grow or source that food and get it onto your plate? To find out what proteins do in your body and lots more, visit our website at www.welcome.ac.uk/bigpicture.

[End of recording]