

Maggots may provide protein for future animal feed

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Relying on proteins from fast-growing insects such as maggots presents many advantages, but we need a better knowledge of these protein sources before they can be turned into animal feed

Proteins fed to livestock are typically soya-based. But growing soya takes up valuable land that could be used for human food production. And it has a heavy carbon footprint, being imported mostly from South America. It is also in great demand in China, which means there could soon be a shortage. In Europe, another [protein](#) source, rapeseed, is available but of inferior quality. Now, an EU-funded project, called ProteInsect, hopes to tackle all these problems at once. Project coordinator Geert Bruggeman, who is the R&D manager at Nutrition Sciences, a contract research organisation specialised in feed and nutrition in Ghent, Belgium, talks to CommNet about novel sources of proteins for feed from insects.

Why choose to focus on insect proteins?

Insect proteins can be produced fairly easily in mass production and you can use organic waste to grow your insects on. This makes for very efficient transformation systems: from waste into protein. This way you can convert biomass that is not suitable for human or even animal consumption into a novel protein source.

Why are insects not an approved source of proteins for animal nutrition?

That's a matter of legislation. Since the so-called mad cow disease scandal, it is not permitted to feed livestock with animal proteins. And insect proteins are, after all, animal proteins. Of course legislation can change, and we are preparing for that change.

What kind of insect did you choose as a protein source and why?

We use maggots because other good protein insects, like crickets, are already used for human consumption. The housefly is, at the moment, not used as a protein source for humans - people just don't like the idea.

The other advantage of using maggots is that they are very quick growers. They produce proteins at an amazing rate and they will just 'happen' if you seed them on organic waste. Besides, maggots have an excellent protein composition. They consist of up to 60% of protein alone. Such animal protein is very suitable for animal nutrition, in fact, better suited than soya proteins.

What are the challenges you encountered?

There can be contaminations and predators; namely other insects invading and feasting over maggots. Or there can be bacterial infections and fungi. These are the most important dangers to the maggots themselves. Another problem would be that in the surrounding area there would be more flies. We therefore need to keep maggots in a closed environment, using nets.

Could proteins from insects replace all proteins needed for animal feeding?

No, but it can replace part of the proteins. And that would be a realistic

practical application. Let me give you an example. Piglets need a diet consisting of 80% to 90% of proteins. One third of these could come from insects, instead of plants. That would make quite a difference.

What do you hope to achieve by the time the project reaches completion in summer 2016?

As part of the project, we are trying to identify issues that could affect the quality of the maggots. We are looking at typical allergies, for instance, which can be caused by [insects](#), or for transferable diseases. The project aims to have these mapped by 2016. Once we can grow [maggots](#) that are not affected by transferable diseases, we will be one step closer to legislation allowing their use for animal feed.

Do you think these insect proteins could, one day, be used for human consumption?

Yes, but the strength of this project is to go towards human food via animal nutrition. Before we could focus on human food, we should first see that it works for [animals](#). Then the step to human nutrition will be easier.

More information: www.proteinsect.eu/

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