



Circular Economy Webinar

Session 19 Summary: Closing the Loop on Food Waste with Insect Bioconversion

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Mobius Farms uses insect bioconversion technologies in turning food waste into value. It collects food waste from commercial kitchens, restaurants, and caterers and feed them to Black Soldier Fly larvae. The by-product of this process, known as frass or manure, is collected, composted, and recycled to local community gardens and growers which supplies products to restaurant and thus, closing the loop on waste.

Key Takeaways

1. **There is a significant problem of global food waste, with one-third of food produced globally being wasted each year.** There is also the negative impact of synthetic fertilizers and pesticides on soil and water.
2. **Insect bioconversion, using black soldier fly larvae, is a solution to food waste and a contributor to the circular economy.** The process involves converting food waste into protein for livestock, organic fertilizer (frass), and can be accomplished in a controlled environment with minimal land and resource requirements.
3. **The global impact of food waste on climate change is approximately 3.3 billion tons of CO₂ emitted from food waste,** contributing to 6% of total global emissions. Insect bioconversion is positioned as a sustainable solution to address this issue.
4. **A case study in Myanmar illustrates how farmers, after being educated on the benefits of black soldier fly larvae, can convert food waste into protein for chickens and fertilizer for crops, providing a sustainable source of income and food.**
5. **Insect bioconversion is replicable across Asia,** with its simplicity and suitability for implementation in various settings, including cities and the countryside.
6. **There's a growing interest and investments in insect bioconversion** with applications extending beyond agriculture to include cosmetics, medical uses, and various high-tech industries.



7. **One positive impact of insect bioconversion on food security is its ability to quickly convert waste into protein and fertilizer.** Additionally, insect bioconversion has minimal greenhouse gas emissions compared to traditional composting methods.
8. **Insect bioconversion is an environmentally friendly option,** with potential for renewable energy use in large-scale production and positive effects on disease control, including the suppression of pathogens and pests.
9. **The use of frass, a byproduct of insect bioconversion, along with microorganisms and biochar, is a way to increase carbon drawdown in the soil,** addressing issues related to rapid losses and desertification.
10. **Insect bioconversion can contribute to the circular economy by potentially reducing food insecurity risks from global supply chain disruptions.**

[Watch the Recording here](#)