Lesson 10

Information and communication technology solutions

Learning outcomes

- The trainee knows the self learning tools on vermicompost production.
- The trainee knows how to access the WWOOF Vermicompost online training interface, hosted at https://lloof.net .
- The trainee evaluates in which processes of vermicompost production the Internet of Things technology can be used.

Instructions for the trainer

- The trainer shares theoretical knowledge through presentation.
- The trainer demonstrates the registration and login process to the WWOOF vermicompost online training interface.
- The trainer demonstrates the registration and login process to the ILA vermicompost online training interface.
- The trainer demonstrates the registration and login process to the MTU vermicompost online training interface.

The trainer shows the SM6 video (Vermicomposting Monitoring System) to the trainees. After the video, the trainer asks the trainees, "What digital solutions can be developed at other stages of the worm castings production process?"

The trainer guides the trainees on the introduction and use of the Powerworms mobile application.

Basic requirements: Computer, projector, internet connection

2. Information and communication technology solutions

The landscape of dedicated digital solutions solely focused on vermicomposting is limited. However, there have been some developments in the realm of online education courses and research papers addressing related aspects, particularly in the domain of Automatic Monitoring and Correction via the Internet of Things (IoT). In recent years, there have been online education courses and mobile applications available that delve into the intricacies of Vermicomposting [83, 84]. These courses might cover topics ranging from the basics of setting up a vermicomposting system to more advanced techniques for optimizing compost quality and worm activity. These educational platforms might offer video tutorials, instructional guides, or interactive modules, providing enthusiasts and practitioners with comprehensive insights into effective vermicomposting practices. Additionally, academic research and published papers explore the integration of IoT in waste management and composting. These studies discuss concepts and prototypes for automatic monitoring and correction systems that utilize IoT sensors to track crucial parameters in composting, such as temperature, moisture, pH levels, and oxygen content. These papers might propose methodologies or experimental setups for leveraging IoT to optimize composting conditions automatically [85–87, 88, 89]. The absence of specific digital solutions dedicated entirely to vermicomposting could be attributed to several factors. Firstly, the field of vermicomposting, while gaining attention for its environmental benefits, might not have yet garnered sufficient commercial interest to prompt the development of standalone digital solutions. The diverse nature of vermicomposting methods, varying based on location, available resources, and specific needs, might pose challenges in creating a universally applicable digital solution. Moreover, the complexity of vermicomposting processes and the range of variables involved, including environmental conditions, worm species, and

waste materials, might have deterred the immediate development of dedicated digital tools. Developing a comprehensive and effective digital solution that addresses these intricacies could require significant research, resources, and expertise. In essence, while there might not have been prevalent digital solutions exclusively dedicated to vermicomposting, the existence of educational courses and research papers exploring IoT applications in composting indicates a growing interest and potential for technological advancements in this field. These resources lay the groundwork for future innovations and the development of specialized digital solutions tailored to vermicomposting practices.