

## **Session II    Lecture 2**

# **Chemical Fertilizer Reduction Technologies for Achieving the MIDORI Strategy Goals**

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### **Summary**

The MIDORI Strategy aims to reduce the use of chemical fertilizers by 30% by 2050 as part of its vision for a sustainable food system. To achieve this, two key approaches have been identified: (1) replacing chemical fertilizers with organic materials and (2) improving the utilization efficiency of chemical fertilizers. To enhance the efficient use of organic materials, it is essential to clarify their fertilizing effects and to address challenges associated with the transport and application of heavy organic materials. A method has been developed to estimate the fertilizing effects based on soil conditions and the characteristics of organic materials. To improve ease of transport and application, pellet compost has been developed. Green manure is an organic material that is advantageous in terms of transport costs and application labor, and has also been shown to be effective in reducing chemical fertilizer use. However, its fertilizing efficiency has been found to vary depending on the crop species and the growth stage of the green manure. To maximize the utilization rate of chemical fertilizers, localized fertilizer application techniques have been developed. In addition, indigenous soil microorganisms involved in nutrient cycling, such as those involved in phosphorus availability, play a crucial role in improving nutrient utilization. It has been shown that these beneficial microorganisms can be controlled and utilized by incorporating green manure and improving crop rotation. The EU, which has similar goals through its Farm to Fork Strategy, is also exploring the reduction of chemical fertilizers through the use of organic waste and precision agriculture. Collaboration between Japan and the EU is expected to accelerate research and innovation in this area.