

The Propagation of Virus-free Sweet Potato Cuttings by Hydroponics in Miyazaki Prefecture

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It is well known that virus-free, sweet potato cuttings have advantages for crop production, although there has been no effective method to propagate a large quantity of cuttings in a short time. After several years of experiments, a hydroponic system has proved to be a successful method to propagate sweet potato cuttings; this system is a deep flow technique (DFT) hydroponic system. The system requires a clean culture bed, an automatic nutrient solution control system, and an air mixing device as shown in Figure 1. This system, as used by an agricultural cooperative and some growers in Miyazaki prefecture, is shown in Figure 2. In this process the cuttings are multiplied in a soil-less culture system through all stages, therefore, the cuttings are free of viruses, soil fungi, and nematodes. The plants propagated in this way are disease-free, better rooting, and produce higher yields. Because of these advantages, utilization of this hydroponic system to propagate virus-free sweet potato cuttings will be an effective method for future production elsewhere.

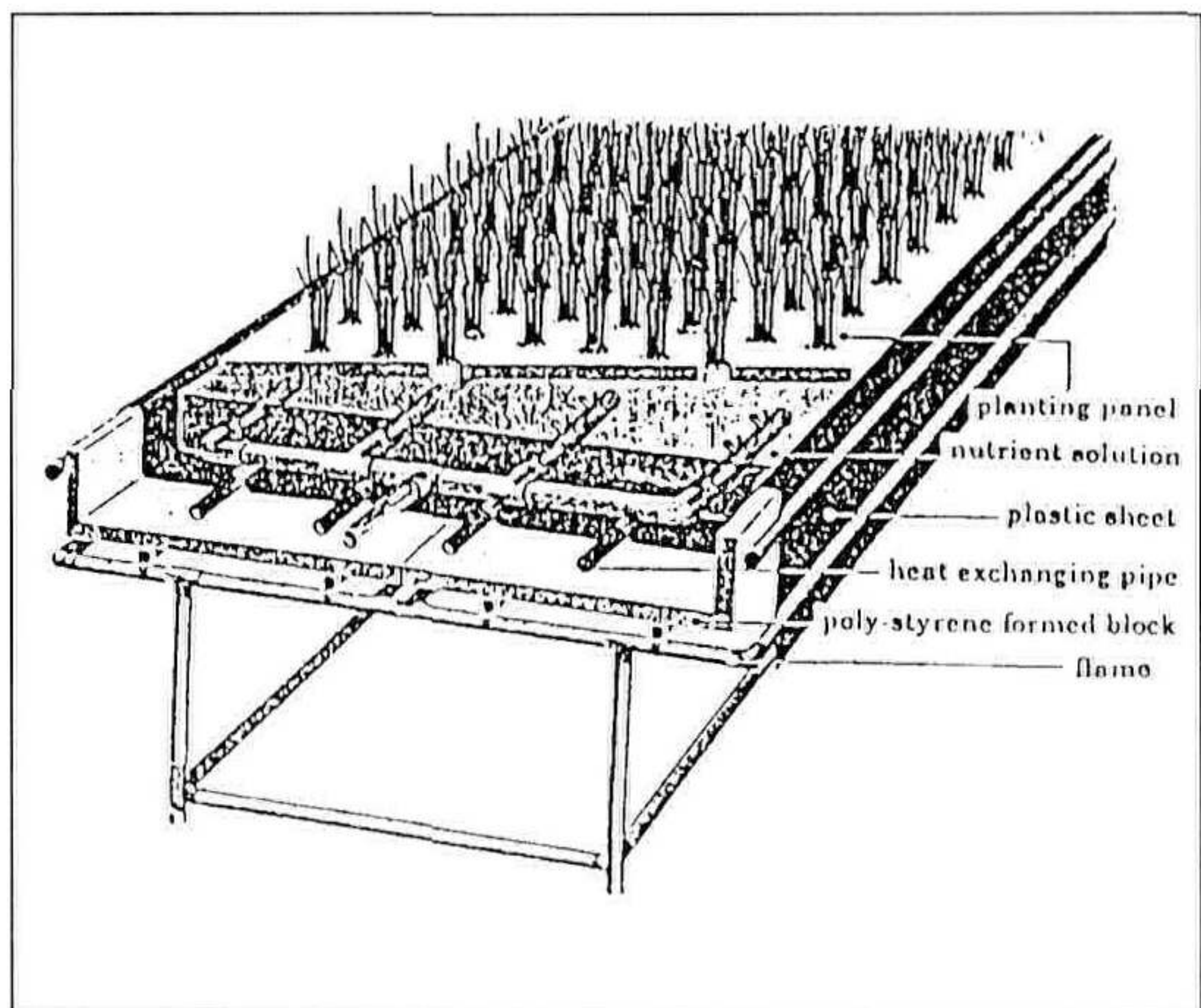


Figure 1. Schematic diagram of structure of the hydroponic system.

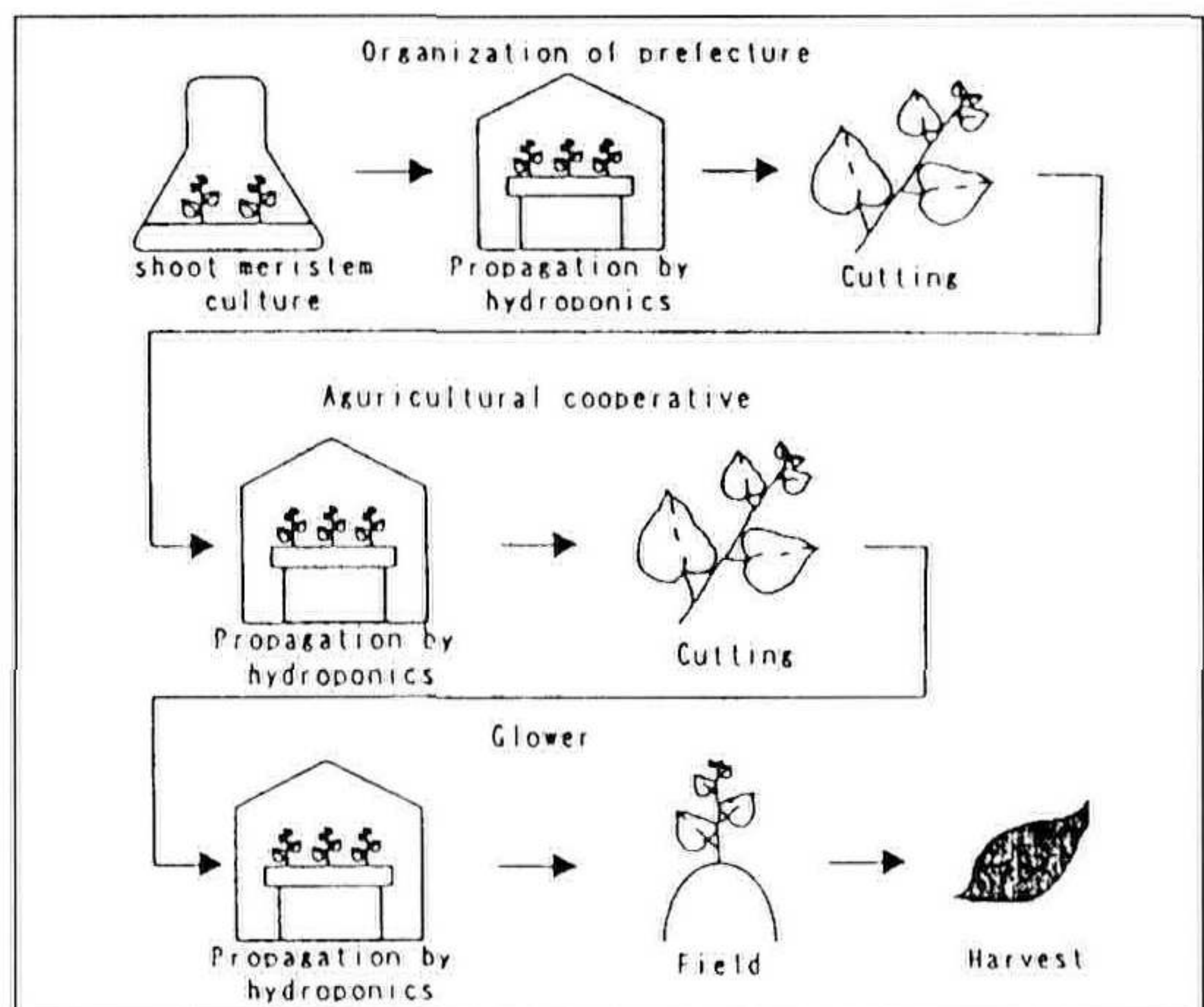


Figure 2. Schematic diagram of process of propagation.