

SUSTAINABILITY OF THE AEROPONIC'S PRODUCTION SYSTEMS OF PRE-BASIC SEED OF POTATO IN PERU

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To implement a sustainable system of production of pre-basic potato seed, it is important to be familiar with every factor involved. This work was, therefore, carried out in two phases. The first was a production phase in a greenhouse, at the International Potato Center (CIP), in Lima, Peru, where two production methods were evaluated (Aeroponics, using rooted cuttings; and Conventional: beds with substrate and rooted cuttings), using two recently released varieties (Chucmarina and Serranita) in a Complete Randomized Design, with four repetitions. The second phase, to determine the sustainability of the production systems, was based on interviews conducted with producers of pre-basic seed who used either the aeroponics system or the conventional one. With the information gathered, the sustainability indicators were constructed in accordance with the methodology and the conceptual framework proposed by Sarandón and Flores (2009), making small modifications according to the methods evaluated.

The lowest total production cost per square meter (US \$37.98/m²), was obtained in the conventional system with both varieties. The highest total income and profitability were obtained by the Aeroponics-Serranita treatment, with US\$125.16/m² and 66.97%, respectively. The largest number of tubers per m² > 5g was obtained with the Aeroponics-Serranita system with 324 tubers/m²; and the lowest was obtained with the Conventional-Serranita system with 54 tubers/m². The largest number of tubers per m² < 5g was obtained with the Aeroponics-Chucmarina system (198 tubers/m²); and the lowest (16 tubers/m²) with the Conventional-Serranita system. The average values of sustainability according to the methodology proposed by Sarandón and Flores (2009) were 2.74 and 2.56, respectively, for the Aeroponics and Conventional systems of production of pre-basic potato seed, which place them in the medium sustainability range.

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