

Efficiency of using Chemical Leasing approach in Pest and Disease control in Agriculture – Evidence from the Potato Cultivation



Data of Your Paper



Topic

- Resilience
- Lifestyle
- Building
- Resources
- Tourism
- Energy

Title of the Paper

Efficiency of using Chemical Leasing approach in Pest and Disease control in Agriculture – Evidence from the Potato Cultivation

Form of Presentation

- Poster
- Presentation

Short Description (maximum 2500 characters)

Chemical Leasing is emerging as an innovative approach to promote sustainable management of chemicals in various processes of different industries. But so far it has not been implemented in agriculture where chemicals use as a major factor of production. Therefore this study attempts to evaluate the feasibility of applying Chemical Leasing (ChL) approach to pest and disease control in potato cultivation. Data obtained from the 600 plots of 2 acre potato cultivated land in Nuwara Eliya District. Pest and Disease control of 300 plots were done by conventional farmer based method and ChL approach was used for remaining 300 plots. Based on the different plot level yield observations, the technical efficiency was estimated by using Maximum Likelihood Parameter Estimates of stochastic production frontier for chemical leasing and conventional regimes using the switching regression approach. Since observations were obtained from different plots of same field all other input (plot size, fertilizer, irrigation etc.) costs were constant except the labor and Crop Protection Chemical (CPC) costs. Further technical inefficiency among the plots is assumed as constant. Results of the study show that coefficient (Elasticity) of labor (- 0.06, - 0.18 respectively for ChL and conventional) and CPC (0.14, - 0.12 respectively for ChL and conventional) were significant at 5% significance level in both regimes. Elasticity of CPC is higher in ChL regime than the conventional regime which possesses the negative value. Hence ChL regime is more productive than the conventional regime which applies excessive amount CPC in pest and disease control. Elasticity of labor is also higher in ChL regime with compares to the conventional regimes. It reveals the higher labor productivity in ChL regime compared to the conventional regimes. These findings are evidence to conclude that ChL approach increases both CPC and labor productivity in the process of pest and disease controlling in potato cultivation.

Key Words : Chemical Leasing, Crop Protection Chemicals, Pest and Disease Control

