

## **Utilizing Microcatchment Systems to Increase Tree Establishment Rates in the Bolivian High Plains**

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The Bolivian high plains is an area where forestry production is limited. A combination of high altitude, low rainfall, and variable climate all contribute to cause extremely high mortality rates among tree species. The use of microcatchment systems around the world has helped to significantly increase tree survival and establishment rates over time in a number of dry areas. Through the harvesting and collection of rainwater around a plant, these systems serve to moderate climate variations and increase the amount of water available for plant uptake.

The purpose of this study was to examine whether microcatchment systems can improve tree establishment rates in the Bolivian high plains. Five treatments were selected and laid out in a randomized block design of ten blocks along a hillside located on the Centro Experimental Agropecuaria Condoriri (CEAC) in the Bolivian Department of Oruro. Two tree species, one native (*Polylepis tarapacana*) and one introduced (*Cupressus macrocarpa*), were planted in each of the treatments at the beginning of the rainy season. Survival data was collected every two and a half months throughout the one-year study period.

Overall survival rates after the end of the study varied according to treatment. Treatment number two, the pit planting method, showed 80% survival while the control treatment had a survival of only 45%. Survival for the introduced species varied widely among treatments. In the case of the native species, survival rates did not show statistically significant variation among the treatments. Species adaptability and planting treatment structure played a large part in the overall survival of tree species in this study.