

Sub-surface irrigation with clay pots in citrus

Recognize the problem

Citrus cultivation is profitable and provides farmers with income. Citrus provide the much-needed vitamin C and other elements for good body function. Unfortunately, many small scale farmers do not venture into this business due to the lack of irrigation systems for their trees. But citrus needs considerable water, particularly during fruiting. Therefore, quantity and quality of fruits is not reached.

Background

The clay pot technology is used to slowly provide water to citrus trees in the dry season. A water-filled clay pot is put into the soil near the citrus roots, and releases the water slowly. It works in loamy and sandy soils but not in clay soils.

The water moistens the soil around the pot near the roots, and the tree has enough water at all times. There is no need any more to daily fetch for water.

Management

- Build clay pots using very fine clay preferably from an ant hill, as it also includes sand. The reddish clay is better than the grey one. Sometimes, clay pots are made from a mixture of clay and sand in the ratio of 4:1.
- Make the clay wet so that pots can be made by hand. They are of 5 to 12 litres volume.
- Let the pots dry very well in a sunny place for at least a month.
- If you buy such pots, they must be unglazed, and only half-burned or non-burned.
- Otherwise they will not release water.
- Once the pots are dry, dig a small hole in the ground (one to fit the pot) very close to each citrus tree.
- Put the pot into the hole.
- Bury the pot leaving the top/neck exposed
- Fill the pots with water up to the brim.
- Cover the top of the pot, for example with a cloth, or any other cover.
- Such a pot will provide water for a week, in dry hot weather for 3 to 5 days.
- The pots remain functional for a year up to few years. Then they will decompose and must be replaced.

Clay pot to be buried into soil near citrus tree roots. (Photo by M. Mulenga)



Roots of trees take water from the clay pot. (Photo by Kevin Bayuk)



The recommendations in this factsheet are relevant to: Zambia



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