

ABSTRACT

Weed Management Studies in Container-Grown Sour Orange
(*Citrus aurantium* L.) rootstocks

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Phytotoxicity of transplanted sour orange seedlings was observed with the same treatments under glasshouse and open conditions. Weed pressure increased with time and as herbicide application rate decreased. Treatments such as oxyfluorfen (1.0, 2.0), oryzalin (2.0) and oxadiazon (2.0) which significantly delayed time of weed emergence (T.W.E.) and effected good weed control, also promoted good rootstock incremental growth and development. Black plastic mulch was most effective in delaying T.W.E. and performed as well as the best herbicide treatment in promoting good incremental rootstock growth.

Treatments which promoted superior incremental growth produced larger numbers of budlings and marketable citrus plants. These treatments also had correspondingly high total variable cost of production. Under glasshouse conditions, black plastic mulched plots had the lowest per unit cost of plant production and this cost was the same under open conditions. However, oxyfluorfen (1.0, 2.0), oxadiazon (2.0), oryzalin (2.0) as well as black plastic were more cost effective alternatives than the other treatments under open conditions. The additional benefits of using black plastic mulch were discussed.

With direct seeded sour orange sown in containers under open conditions, treatments such as oxyfluorfen (3.0) and the weeded control which had high germination percentages and which also demonstrated superior weed control, produced rootstocks with comparatively higher

incremental growth. At 90 DAT, unsatisfactory weed control was observed with all treatments and the data implied that all plots should be clean weeded before 90 DAT.

Through weed surveys, the quantitative and qualitative distribution of weed flora in the top soil and compost sites were compared with weed flora in container-grown rootstocks under glasshouse and open conditions.

The data obtained from the weed studies in conjunction with solutions advanced in the experimental investigations, were used to formulate an integrated weed management programme recommended for future studies in container-grown sour orange rootstocks.

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