

Influence of Soil Conditioner Rate on Seed Germination and Growth of Cucumber Plants (*Cucumis sativus* L.)

A.R. Al-Harbi¹, A.M. Al-Omran², M.I. Choudhary²,
H. Wahdan¹, and M. Mursi²

¹Plant Production, ²Soil Science Department, College of Agriculture,
King Saud University, P.O. Box 2460, Riyadh 11451, Saudi Arabia

ABSTRACT. The effect of five levels (0, 0.2, 0.4, 0.6 and 0.8% on dry matter basis) of gel-forming conditioner (Broad leaf P4) on seed germination and growth of cucumber, *Cucumis sativus* L. cv. Dina, was investigated. The experiment was carried out in greenhouse with day and night temperature of 25° and 18°C. The gel forming conditioner was added to the top 10 cm of the pots. Increasing gel conditioner rate in the growth media has resulted in rapid germination. The addition of gel conditioner increased the early growth of the seedlings. Control plants had significantly lower leaf number than the treated plants but significantly higher average leaf area. At the end of the experiment, 75 days after sowing, no significant treatments effects were observed on plant height, or on shoot fresh and dry matter weights. Relative water content (RWC), Water use efficiency (WUE) and total yield were significantly increased with addition of gel conditioner.

Cucumber is one of the main vegetable crops grown in Saudi Arabia, especially under protected cultivation. Cucumber production has increased from 70 thousand tons in 1986 to 98 thousand tons in 1990. Almost 59% of the crop is produced under protected cultivation (Ministry of Agriculture and Water 1990). Cucumber growth can be affected by many factors, such as soil moisture content. Constant supply of moisture is necessary during the life of the plant, especially during flowering and fruiting (Loomis 1977).

Keywords: *Cucumis sativus*; soil conditioner; seeds germination; growth; RWC; WUE.