عنوان مقاله:

Interaction of different irrigation strategies and soil textures on the nitrogen uptake of field grown potatoes

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خلاصه مقاله:

Nitrogen (N) uptake (kg ha-1) of field-grown potatoes was measured in 4.32 m2 lysimeters that were filled with coarse sand, loamy sand, and sandy loam and subjected to full (FI), deficit (DI), and partial root-zone drying (PRD) irrigation strategies. PRD and DI as water-saving irrigation treatments received 65% of FI after tuber bulking and lasted for six weeks until final harvest. Results showed that the irrigation treatments were not significantly different in terms of N uptake in the tubers, shoot, and whole crop. However, there was a statistical difference between the soil textures where plants in the loamy sand had the highest amount of N uptake. The interaction between irrigation treatments and soil textures was significant, and implied that under non-limiting water conditions, loamy sand is the suitable soil for potato production because plants can take up sufficient amounts of N and it could potentially lead to higher yield. However, under limited water conditions and applying water-saving irrigation strategies, sandy loam and coarse sand are better growth media because N is more available for the potatoes. The simple yield prediction model was developed that could explains ca. 96% of the variations of fresh tuber yield based on the plant evapotranspiration (ET) .and N uptake in the tuber or whole crop

کلمات کلیدی:

potato, Nitrogen uptake, Partial root-zone drying irrigation, Deficit irrigation, Full irrigation, soil texture