Response to the Suplementary Irrigation of Pasture in Uruguay

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Abstract

Pasture irrigation in Uruguay is used supplementary and strategically in long periods of lack of rainfall between the months of October to March. There are a few studies published nationally on the response of conventional pastures dry matter to the addition of water.This study aimed to know the response to irrigate pasture of white clover, lotus and ryegrass.The experiment was conducted for three consecutive years in the period from October to March of the years 2010-11 , 2011-12 and 2012-13, in a commercial property in "Colonia Rubio", Salto , on a Argiudull soil.The experimental design was random plots with three replications where the treatments were different water depths (surface irrigation) to be applied according to the estimated demand by the Penman - Monteith equation, where it is watered whenever the evapotranspiration of reference reached 20, 40 and 60 mm; plus a rainfed treatment. Determinations of the total dry matter production were done. Irrigation determinations were: applied irrigation depth , soil moisture content in a soil profile up to 80 cm, inflow in each plot, infiltrated depth and uniformity of water application in each treatment. Rainfall occurred during the months of October and March were highly variable among the three years of study, being in some period much higher than the water demand of the pasture so the soil profile had a moisture level throughout the month near the upper limit of water in the soil. Total irrigation depth applied ranged from 508 mm (season 2010-11) to 180 mm in the 2012-13 growing season. The results showed that irrigation applied from October to March caused a significant increase in dry matter of the pasture, this meant an increase in forage production caused by irrigation of almost 3 times more than in some dry periods. Among the different irrigation treatments no significant differences in forage production were observed. The dry matter production when irrigation was applied every 60 mm of evapotranspiration did not differ significantly among treatments with more frequent irrigation.

Keywords: border irrigation, pasture irrigated, depth irrigation response