



## Optimum plant stand and nutrient doses for summer groundnut under check basin irrigation and drip fertigation in light black soils of peninsular Western India

Ram A. Jat<sup>a,b</sup>, Kiran K. Reddy<sup>a</sup>, Rahul Solanki<sup>a</sup>, Raja Ram Choudhary<sup>a</sup>, and Susheel Kumar Sarkar<sup>c</sup>

<sup>a</sup>ICAR- Directorate of Groundnut Research, Junagadh 362 001, India; <sup>b</sup>ICAR- Indian Institute of Soil and Water Conservation, Research Center, Vasad, Anand 388 306 India; <sup>c</sup>ICAR-Indian Agricultural Statistics Research Institute, New Delhi 110 012 India

### ABSTRACT

A field experiment was conducted at Research Farm of ICAR-Directorate of Groundnut Research, Junagadh for consecutive three summer seasons of 2013, 2014, and 2015 with the objectives of identifying optimum plant density and nutrient doses under check basin irrigation and drip fertigation for higher productivity and net returns. The treatments were; three plant densities viz., 3,33,333 plants/ha (100% of recommended plant density; P1); 4,16,666 plants/ha (125% of recommended plant density; P2), and 4,99,999 plants/ha (150% of recommended plant density; P3) in main plots, and three nutrient doses viz., 18.75–37.5–22.5 NPK kg ha<sup>-1</sup> (75% of recommended nutrient dose; F1), 25–50–30 NPK kg ha<sup>-1</sup> (100% of recommended nutrient dose; F2), and 31.25–62.5–37.5 NPK kg ha<sup>-1</sup> (125% of recommended nutrient dose; F3) in sub-plots, and replicated thrice. The same sets of treatments were tested under both check basin irrigation and drip fertigation. The data were analyzed using split plot design. Pod yield, haulm yield, and net returns were significantly higher with P3 as compared to P1 under check basin irrigation but only haulm yield was found significantly higher with P3 under drip fertigation. Under check basin irrigation, NH<sub>4</sub>-N, NO<sub>3</sub>-N, and available P and K in soil were found in the order P1 > P2 > P3 (p < 0.05) while in case of drip fertigation, differences were significant only for available K which was significantly higher in P1 over both P2 and P3. Under check basin irrigation, F2 *i.e.*, application of 100 percent of recommended nutrient doses, being at par with F3, significantly improved pod yield, haulm yield and net returns over that with F1 however, differences were not significant under drip fertigation. NH<sub>4</sub>-N, NO<sub>3</sub>-N and available P and K in soil under both the irrigation systems were in the order F3 > F2 > F1 (p < 0.05).

### ARTICLE HISTORY

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### KEYWORDS

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