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(4 h) and drying at room temperature, T₂: Hydration with 50 ppm GA₃ (4 h) and surface drying at room temperature, T₃: As in T₁ followed by dressing with Thiram @ 0.25%, T₄: 0.5% KNO₃ hydration (4 h) and drying at room temperature. Results revealed that all the treatments enhanced the seed quality (standard germination, seedling length, vigour index and electrical conductivity). Four seed-lots which could not maintain the viability above Indian Minimum Seed Certification Standards up to 12 months were improved by seed priming treatments. However, maximum enhancement/improvement was recorded by treatment T₂: Hydration with 50 ppm GA₃ (4 h) and surface drying at room temperature. So, it was concluded from this study that significant improvement was observed in marginal seed-lots as compare to good quality seed-lot.

Key words: Viability, Accelerated Ageing, Guar, Standard germination and Tetrazolium

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EVALUATION OF CROPSYST MODEL FOR YIELD AND WATER PRODUCTIVITY OF ISABGOL

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Abstract

India grows a large variety of medicinal plant. The most popular being of which are isabgol, guggul, aswagandha, sarpgandha, satavri and tulsi etc. The healthiest parts of isabgol are seeds which are used in medicine with or without its husk. The seeds of isabgol contain two substances Mucilage and Albumin. Isabgol can serve as purgative. It can monitor dysentery and cure diarrhea. It can even cure stomach problems caused by amoebas and also proved beneficial on urinary problems. Water productivity, a concept expressing the value or benefit derived from the use of water, includes various aspects of water management and is very relevant for arid and semi-arid regions. It can be expressed in terms of grain (or seed) yield per amount of water used in different processes such as transpiration, evapotranspiration and percolation, and provides a proper diagnosis of where and when water could be saved. Increasing water productivity is particularly appropriate where water is scarce compared with other resources involved in production. Keeping this view, the study "Evaluation of CropSyst model for yield and water productivity of isabgol" was conducted on farmer's field during *rabi* 2012-13 at Bajju in Bikaner district of Rajasthan. The soils of the area are lomay sand in nature formed under arid climate. The soils of site having 84.2, 5.5 and 7.7 % of sand, clay and silt, respectively in 0-100 cm soil depth with pH 7.8 and low soil organic matter content. Results showed that simulated yield (439 kg/ha) and above ground biomass (1046 kg/ha) of isabgol matched well to the observed yield (462 kg/ha) and above ground biomass (1085 kg/ha). The total water applied in isabgol was 353 mm out of this 211.8 mm consumed in ET. Thus, ET constituted 60% of total water applied and deep drainage constituted 33% and rest 7% stored as residual soil moisture.

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FERTIGATION IN VEGETABLE CROPS FOR HIGHER PRODUCTIVITY AND RESOURCE USE EFFICIENCY

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Abstract

Precise management of irrigation quantity along with the rate and timing of nutrient application are of critical importance to obtain desired results in terms of productivity and nutrient use efficiency (NUE). The fertigation allows application of right amount of plant nutrients uniformly to the wetted root volume zone where most of the active roots are concentrated and this helps enhance nutrient use efficiency. Fertigation has been found as one of most successful way of water and nutrient management particularly N, K and micronutrient application through drip system and yield advantages have