

Water requirement satisfaction index of rainfed sown groundnut cultivars (*Arachis hypogaea* L.) during two individual precipitation years in middle Gujarat Agroclimatic zone

■ P.M. GULED, A.M. SHEKH, H.R. PATEL AND VYAS PANDEY

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SUMMARY : A field experiment for the two years was conducted during the *Kharif* seasons of 2009 and 2010 with six sowing window combinations with the first sowing done at the onset of monsoon followed by successive sowings at an interval of 15 days along with the varieties namely V₁-M 335 (Virginia spreading type), V₂-GG 20 (Virginia semi-spreading type) and V₃-GG 5 (Spanish bunch type) to study the crop water requirement satisfaction index (CWRSI) for assessing the sufficiency of rainfall *vis-a-vis* the crop water requirements and its effect on pod yield. The performance of groundnut crop in terms of pod yield from the present study suggested that, sowing of groundnut should be taken up for variety V₁ between 26th to 27th week, as a good rainfall amount and distribution of 823 to 852 mm under early/normal onset of monsoon as observed during 2010 which resulted in commercial production of groundnut. Whereas, sowing of groundnut should be taken up for variety V₂ between 26th to 27th, because reasonably a good crop can be produced on as little as 269 to 298 mm of rainfall under late onset of monsoon as observed during 2009 crop growing season as the rainfall amount and distribution had determined the crop performance due to the crop water requirements were actually met by the available water *vis-a-vis* soil moisture content, actual evapotranspiration (AET) resulting in improved CWRSI of the crop. The correlation and regression studies revealed that the CWRSI, soil moisture content, AET and rainfall were having highly significant positive correlation during pod development phase and for the entire crop duration. However, the stepwise regression revealed that the CWRSI during pod development phase determined 93% variation in the pod yield. Whereas, rainfall and AET together had resulted in determining 89% variation in the pod yield for the entire crop duration.

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Author for correspondence :

P.M. GULED

Department of
Agricultural
Meteorology, B.A.
College of Agriculture
University, ANAND
(GUJARAT) INDIA
Email:praveenkumargulad@
gmail.com

See end of the article for
Coopted authors'