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Identification of adaptable and stable genotype for seed and opium yield in Opium poppy (*Papaver somniferum* L.) based on various stability models

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Identification of specific, widely adapted and stable genotypes in any crop can be done by evaluation of its expression of stability which may be achieved through one of the finest breeding strategy, genotype x environment interaction. A genotype is stable if it maintains its approximate yield in different environments. Opium poppy (*Papaver somniferum* L.) is one of the most geographically-widespread medicinal plant having multiple medicinal properties due to opium and its alkaloids chiefly morphine, codeine, thebaine, narcotine and papaverine. The response of opium poppy genotypes to different environmental conditions varies which may change the grading of individuals within a set of genotypes, giving rise to genotype x environment interaction. So, there is always a need to develop new high yielding varieties which must be tested for their adaptability and stability in different environments prior to their release for commercial farming. The present study was aimed to identify promising and stable genotypes from few advanced breeding lines using Eberhart and Russell model and simultaneously its comparison with various other stability models like Shukla's si^2 , Wricke's Wi^2 and Tai's λ_i for its aptness and authenticity. Correlations study was also done to find out the interrelationship of each stability parameter with yield and among them. The analysis of variance (ANOVA) for stability revealed highly significant differences between genotypes which suggest presence of considerable difference amongst genotypes. The GEI (linear) as well as pooled deviation mean squares were also significant, representing the presence of both predictable and non-predictable components. Five genotypes LT31, BR231, BR233, BR242 and BR234 were identified stable in yield performance through Eberhart and Russell model and were also confirmed by other stability models. It was interesting to note that mean yield performance and stability parameters had positive association. This study concluded that Eberhart and Russell model can be reliably used for the identification of stable genotypes over environments.

Biography

Rawli Pandey has completed her M.Sc. from Chatrapati Sahu ji Maharaj University, Kanpur in the year 2009 and working as Project Assitant in Genetics and Plant Breeding Laboratory, National Botanical Research Institute, Lucknow.

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Integrated weed management in rabi sweet corn (*Zea mays* L. var. *Saccharata*)

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A field experiment was conducted during *rabi* 2010-11 at Junagadh (Gujarat, India) to find out most efficient and economical method of weed control in *rabi* sweet corn (*Zea mays* L. var. *saccharata* Sturt). The results revealed that treatments viz., hand weeding (HW) and intercultivation (IC) twice at 15 and 30 days after sowing (DAS), pre-emergence application (PRE) of atrazine at 0.5 kg/ha + HW and IC at 30 DAS and pendimethalin at 0.9 kg/ha as PRE + HW and IC at 30 DAS significantly enhanced growth and yield attributes viz., cob length, cob girth, number of cobs per plant, number of kernels per cob, fresh and dry weight of cob and ultimately higher cob and fodder yields over unweeded check. These treatments also recorded the lower weed population at 30, 60 DAS and at harvest, dry weight of weed at harvest and weed index as well as higher weed control efficiency and herbicidal efficiency index along with higher net returns and B:C ratio compared to unweeded check.

Biography

Bhagirathsinh Sahdevsinh Gohil has completed his BSc (Agriculture) with first class distinction and was awarded two gold medals for best all over performance in BSc (Agriculture) batch of 2011 and M.Sc. (Agriculture) with first class distinction under the guidance of Dr. R K Mathukia, Associate Research Scientist, Weed Control Scheme, Department of Agronomy, JAU, Junagadh at the age of 23 years from Junagadh Agricultural University, Junagadh (Gujarat). He is now Ph.D. student of Agronomy Department, JAU, Junagadh. He has participated in All India Agricultural University Games and Sports meet at Kerala as Athletic player and he is also a captain university cricket team.

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