

Trials' for large scale adoption, resulting in the replacement of more than 100 ha area with the high yielding disease resistant varieties. However, none of the bell pepper varieties was resistant to the disease. To make available the planting material/seedlings of these resistant varieties about 70 low cost protected structures of varying sizes (40-500 sq m) constructed by farmers have been adopted for technical support and supply of quality seeds of different vegetable crops. These protected structures are proving very beneficial to raise nursery of different solanaceous vegetables for early transplanting in February which otherwise is not possible under cold weather conditions till March.

Evaluation of cultivated chickpea (*Cicer arietinum* L.) for agro-morphological traits and resistance to rust in Northwestern Indian Himalaya

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First successful attempt was made to grow and evaluate the twenty five cultivated chickpea genotypes for agro-morphological traits to know the nature and magnitude of genetic divergence existing among genotypes alongwith resistance to rust (*Uromyces ciceris arietini*) in the Lahaul valley situated in northwestern Indian Himalaya. The genotypes showed highly significant differences for all the characters studied. The twenty five chickpea genotypes were grouped into seven clusters on the basis of D²-statistics. The cluster I was largest cluster with eleven genotypes followed by cluster II having seven genotypes while remaining clusters accommodated one genotype each. Highest intra cluster distance was observed for cluster II followed by cluster I. Highest inter cluster distance was observed between cluster III and IV. Cluster mean was found highest for days to maturity followed by days to flowering, pods per plant and seed yield per plant. Two characters viz., pods per plant followed by seed yield per plant contributed maximum in manifestation of genetic diversity. Highest range was observed for pods per plant and seed yield per plant. Number of pods per plant had highest range and maximum phenotypic and genotypic coefficient of variation (PCV and GCV), followed by seed yield per plant. High heritability was observed for pods per plant followed by seed yield per plant and plant height. High heritability coupled with high genetic advance was

observed for number of pods per plant and seed yield per plant. Three genotypes viz., ICC 3137, ICCV 9675 and ICCL 87316 were found to be moderately resistant against rust. ICCV 9675 and ICCL 87316 were found to be superior for number of pods per plant and seed yield per plant, respectively. The studies revealed ICC 3137, ICCV 9675 and ICCL 87316 as diverse genotypes moderately resistant to rust (found in different clusters II, I and IV respectively). These can be utilized as promising genotypes for future breeding and hybridization program with susceptible lines which were otherwise superior for other traits.

Management of yellow rust of wheat in Jammu subtropics

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Major wheat growing areas of Jammu sub tropics (Jammu, Samba & Kathua Districts) were surveyed to ascertain the status and distributions of yellow rust of wheat during 2009-10. The disease was reported in all the wheat growing areas of Jammu subtropics with AURPC ranging between 1070.69-1757.05, 705.79-1001.65, 776.5-1146.46 in Jammu, Kathua and Samba districts, respectively. The studies on role of epidemiological parameters like atmospheric temperature, relative humidity and rainfall showed significantly positive correlation between disease severity and minimum and maximum temperature, whereas, relative humidity exhibited negative correlation. The rainfall of 20.7 mm, minimum and maximum temperature of 9.8 and 19.4°C accompanied by relative humidity of 84 - 87% were found conducive for disease development. Fungicidal management of the disease revealed that foliar application of Quadris and Folicur were most effective in reducing the disease severity by 69.60, 71.88, 71.77 and 69.31 per cent and 68.00, 70.00, 63.61 and 65.34 per cent in PBW-343, RSP-561, PBW-550 and Agra Local, respectively, followed by Tilt and Bayleton. Seed treatment with Raxil @ 0.1% also resulted in significant decrease in the disease severity. The foliar application of Quadris showed an increase of 45.83% in yield over susceptible cultivar, Agra local by the of. It was concluded that abiotic factors play an important role in disease development and the timely application of fungicides reduced the disease severity with corresponding increase in yield.