Activity: Screening of lentil germplasm and elite lines for heat tolerance (Karthika)

Title	**:**	Screening of lentil germplasm for tolerance to heat stress
Objectives	**:**	Validate the results of level tolerance in lentil germplasm
Expected outcomes	**:**	Phenotyping protocols for heat tolerance developed and sources of heat tolerance identified. Better understanding of the physiological mechanisms of heat tolerance. Interaction between heat and moisture stress understood.
Observations taken	**:**	Crop phenology Yield and yield attributes Radiation use efficiency Photo thermal quotient Thermal imaging Pollen viability
Genotypes	**:**	1706, 6088, 6361, 7314, 7833 3484, 6094, 6362, 7316, 7835 3635, 6104, 6363, 7344, 7837 4605, 6107, 7223, 7812, 8012 5532, 6246, 7250, 7813, 8015 5918, 6338, 7286, 7815, 8018 5919, 6346, 7295, 7818, 8020 5958, 6356, 7305, 7820, 8025 6075, 6359, 7307, 7824, 8029 6080, 6360, 7308, 7830, 8061
Results	**:**	Lentil is an important food legume crop. The production of the lentil is limited by several stresses, the most important are drought and heat stress, which can affect all stages of crop growth and reduce crop yield and productivity. Identifying source of tolerance to heat and drought in the germplasm would be utilized in the crossing program and to breed new cultivars for the future. In this study a total of 50 different genotypes, selected from previous season experiments from FIGS subset were screened for tolerance to drought and heat stress at ICARDA, Marchouch farm station (Figure 1).  **Figure 1.** The field layout of the heat experiments conducted in Marchouch 2016.

		The data on early growth vigour, days to first flowering, days to 50% flowering, days to pod formation, plant height, total number of filled and unfilled pods, seed yield/plant, and biological yield/plant were recorded. Statistical analysis of the results showed the effect of drought and heat stress throughout the lifecycle of lentil. Overall growth reduction and decline in total number of filled pods was noticed.