

AB147: Optimization of planting time and population density for short duration lentil

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Lentil (*Lens culinaris* Medik.) is a major food legume crop grown in rotation with cereal crops in South Asia, West Asia and North Africa (WANA), and Sub-Saharan Africa regions. In WANA region, lentil is also grown in spring season in order to avoid extreme cold, ascochyta blight and heavy weed infestation often encountered in winter sown crops. Farmers prefer short duration varieties in spring season to avoid the rising temperature and depleting soil moisture. To realize the potential yield of short duration varieties in spring season, crop-specific agronomy including the time of planting, population density and input management is required. Keeping this in mind, the present study was conducted at the International Center for Agricultural Research in the Dry Areas (ICARDA), Terbol, Lebanon to assess the effect of planting season and population density in short duration lentil genotypes. The treatments consisted of two planting dates (1st FN December and 1st FN February), seven short duration genotypes (LIRL22-46, ILL590, ILL6994,



ILL10810, ILL10812, ILL6002, and ILL4605) and three plant densities (66, 100, 133 plants m⁻²). The results of two years (2014-15 and 2015-16) showed that the effect of planting season was significant on all the agronomic traits. The mean plant height and seed yield in winter planting were significantly higher than spring across all the genotypes, so that mean seed yield decreased by 69% from 1074 to 325 kg ha⁻¹ with the delay in planting from 1st FN of December to 1st FN of February. Genotypes ILL590 recorded higher mean seed yield (985 kg ha⁻¹) than local check, ILL4605. Lentil genotypes LIRL-22-46 and ILL590 matured earlier than local lentil genotype. Similarly, seed yield increased by 54% as plant density increased from 66 to 133 plants m⁻². The interactions among planting date, genotypes and plant density showed non-significant for all parameters. However, maximum seed yield with 1600 kg ha⁻¹ was recorded in winter planted ILL590 genotypes at higher density (133 plants m⁻²). These results indicated that variety specific agronomic practices need to be evaluated and identified for maximising yield potential of short duration lentil cultivars.