

Distribution, Seasonal Phenology and Infestation Dispersal of the Chickpea Leafminer *Liriomyza cicerina* (Diptera: Agromizidae) on Two Winter and Spring Chickpea Varieties

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Abstract : In North Africa, the chickpea leafminer *Liriomyza cicerina* (Rondani) (Diptera: Agromizidae) is one of the major damaging pests affecting both spring and winter-planted chickpea. Damage is caused by the larvae which feed in the leaf mesophyll tissue, resulting in desiccation and premature leaf fall that can cause severe yield losses. In the present work, the distribution and the seasonal phenology of *L. cicerina* were studied on two chickpea varieties; a winter variety Beja 1 which is the most cultivated variety in Tunisia and a spring-sown variety Amdoun 1. The experiment was conducted during the cropping season 2015-2016. In the experimental research station Oued Beja, in the Beja region (36°44'N; 9°13'E). To determine the distribution and seasonal phenology of *L. cicerina* in both studied varieties Beja 1 and Amdoun 1, respectively 100 leaf samples (50 from the top and 50 from the base) were collected from 10 chickpea plants randomly chosen from each field. The sampling was done during three development stages (i) 20-25 days before flowering (BFL), (ii) at flowering (FL) and (iii) at pod setting stage (PS). For each plant, leaves were checked from the base till the upper ones for the insect infestation progress into the plant in correlation with chickpea growth Stages. Fly adult populations were monitored using 8 yellow sticky traps together with weekly leaves sampling in each field. The traps were placed 70 cm above ground. Trap catches were collected once a week over the cropping season period. Results showed that *L. cicerina* distribution varied among both studied chickpea varieties and crop development stage all with seasonal phenology. For the winter chickpea variety Beja 1, infestation levels of 2%, 10.3% and 20.3% were recorded on the bases plant part for BFL, FL and PS stages respectively against 0%, 8.1% and 45.8% recorded for the upper plant part leaves for the same stages respectively. For the spring-sown variety Amdoun 1 the infestation level reached 71.5% during flowering stage. Population dynamic study revealed that for Beja 1 variety, *L. cicerina* accomplished three annual generations over the cropping season period with the third one being the most important with a capture level of 85 adult/trap by mid-May against a capture level of 139 adult/trap at the end May recorded for cv. Amdoun 1. Also, results showed that *L. cicerina* field infestation dispersal depends on the field part and on the crop growth stage. The border areas plants were more infested than the plants placed inside the plots. For cv. Beja 1, border areas infestations were 11%, 28% and 91.2% for BFL, FL and PS stages respectively, against 2%, 10.73% and 69.2% recorded on the on the inside plot plants during the for the same growth stages respectively. For the cv. Amdoun1 infestation level of 90% was observed on the border plants at FL and PS stages against an infestation level less than 65% recorded inside the plot.

Keywords : leaf miner, *liriomyza cicerina*, chickpea, distribution, seasonal phenology, Tunisia

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