

# Herbicide tolerance in chickpea, lentil and faba bean

[Home](#) / [Herbicide tolerance in chickpea, lentil and faba bean](#)

 September 20, 2016  Satish Nagaraji  Poster

 No Comments

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Weed management in cool-season legumes (chickpea, lentil and faba bean) is difficult in the absence of effective post-emergence herbicides, while manual weeding is expensive, and pre-emergence herbicides are effective only in the initial stage of plant growth. Over the last three years a large number of germplasm lines of these legumes were screened against different post-emergence herbicides using visual injury score on 1-5 scale. In chickpea, 1251 lines (against imazethapyr), 575 lines (against metribuzin), 376 lines (against carfentrazone-ethyl); in lentil, 315 lines (against imazethapyr and metribuzin); and in faba bean, 750 lines (against imazethapyr, metribuzin and oxyfluorfen) and 300 mutant lines (against glyphosate) were screened. Large genetic variability was observed in chickpea, lentil and faba bean for tolerance to different post-emergence herbicides. In general, chickpea and lentil genotypes were found more sensitive to metribuzin than imazethapyr, while faba bean was found more sensitive to imazethapyr and oxyfluorfen than metribuzin. Most of the genotypes in these legumes were found sensitive to different post-emergence herbicides but later showed a recovery after 15-20 days of spray. In chickpea, a number of genotypes tolerant to imazethapyr (ICC 637, ICC 1398, ICC 17109, GLW68, GLW12039, GLW12040, GL10061, GLK10093), metribuzin (ICC 11378, ICC 14595, GL22044, GL28127), and carfentrazone-ethyl (GL12011, GLK10101, BG3028, GL22044) were identified. In lentil, the genotypes EC28514,

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LL1376, LL1252, LL1203, LL1366, DLP15, ILL262, ILL6447, ILL4400, ILL7668, ILL7547, ILL5533 were found tolerant to imazethapyr, whereas genotypes EC78477, EC267687, LL1336, LL1383, ILL6434, ILL89517, ILL10810 and ILL10833 showed tolerance against metribuzin. Similarly, in faba bean, 25 and 24 genotypes showed tolerance respectively against metribuzin and imazethapyr. Among them, IG99328, Spanish845, Spanish972 and INRA2583 were found tolerant to both herbicides, while Mu418 was found tolerant to glyphosate. These genotypes can be used for developing herbicide tolerant cultivars and for carrying out genetic and physiological studies on herbicide tolerance.



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