

## **Response of lentil genotypes to post emergence application of photosynthesis and carotenoid biosynthesis-inhibiting herbicides**

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Broadleaf weeds are one of the constraints of lentil production in the southern cropping region due to limited in-crop herbicide options. Herbicide resistance due to overreliance on group B herbicides in herbicide resistant crop varieties has also become a concern. Inhibitors of photosynthesis (Group C) and carotenoid biosynthesis (Group F) control many broad leaf weeds. However, some of these herbicides have low safety margin between phytotoxicity to weeds and to the lentil. Field experiments were conducted to evaluate the tolerance of a new genotype (SP1333) with improved metribuzin tolerance to post emergence (PE) application of various rates of Group C herbicides and Group C & F mixes in comparison with a commercial cultivar (PBA Jumbo2). SP133 had no significant injury from PE application of up to 720 gai/ha of diuron, 900 gai/ha of simazine, 376 gai/ha of terbuthylazine, 210 gai/ha of metribuzin and 400 gai/ha of terbutryn, while all the herbicide treatments except diuron and simazine caused significant injury to PBA Jumbo2. In both genotypes, adding 60 gai/ha of diflufenican to the low rates of atrazine, bromoxynil, cyanazine, diuron, metribuzin, terbuthylazine and terbutryn significantly increased the level of herbicide injury. Unlike PBA Jumbo2, SP1333 recovered well from significant injury caused by some of the herbicide treatments earlier in the season and produced dry matter equivalent to the nil treatment. The herbicide tolerance trait in SP133 will offer opportunity for breeding programs to develop group C herbicide tolerant varieties.