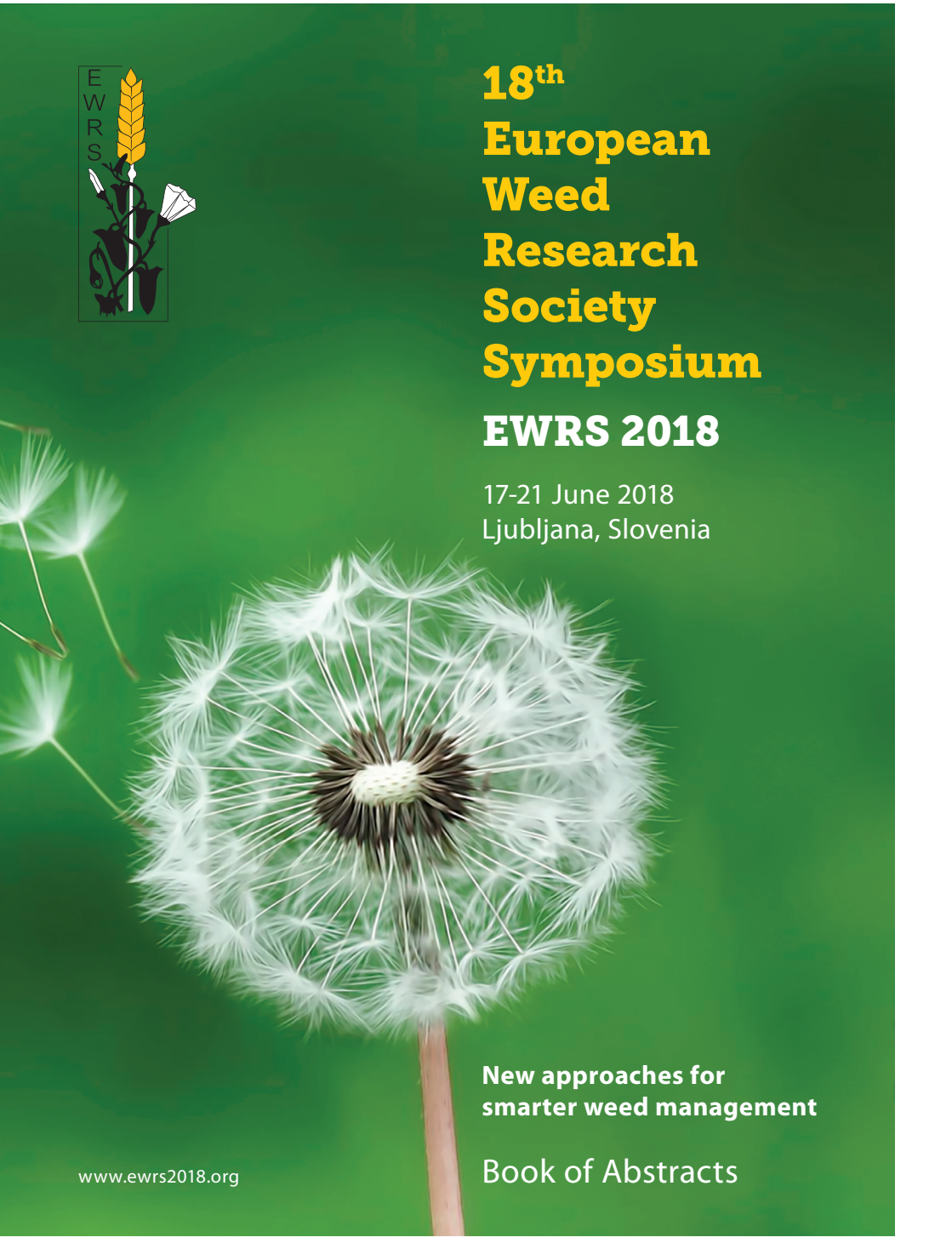

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Foliar fertilizer increases herbicide tolerance in maize inbred lines

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Plant response to herbicides is very important in agriculture, especially in maize seed production. Due to inbreeding process, inbred lines are more susceptible to herbicides comparing to hybrids. Herbicide application is still the most effective method for weed control. Also, insufficient herbicide selectivity can be limited factor in seed crop production. Herbicides can cause visual plant damages or slow down plant development and finally decrease grain yield. On the other hand, dominance of grass weeds in maize crop occurs due to a lack of selective herbicides for their control. With sulfonylurea herbicides this problem became under control, but a problem with selectivity is still present, particularly in maize seed crop. Optimal plant nutrition provides better crop fitness and higher tolerance to herbicides. In case of foliar fertilizing, fast entry of macro- and micro-elements into plants also influence better plants response to herbicides and other negative impacts.
The effect of sulfonylureas and foliar fertilizer on five maize lines was evaluated in three year field experiment. This was done by visual estimation, grain yield measuring, as well as the alterations in the content of antioxidants such as phenolics free thiolic groups, and soluble proteins in the leaves. Positive effects of applied foliar fertilizer were observed on grain yield. Most of the genotypes expressed significant increase of grain yield in the treatments with foliar fertilizer, compared to control and analogous treatments with herbicides. Alternations in free thiolic groups and phenolics content was significantly influenced by applied treatments. The differences in the content of phenolics and thiolic groups in the treatments with herbicides + foliar fertiliser indicated that herbicide stress was more rapidly overcome. On the other hand, soluble protein content did not vary significantly maize leaves from observed treatments.