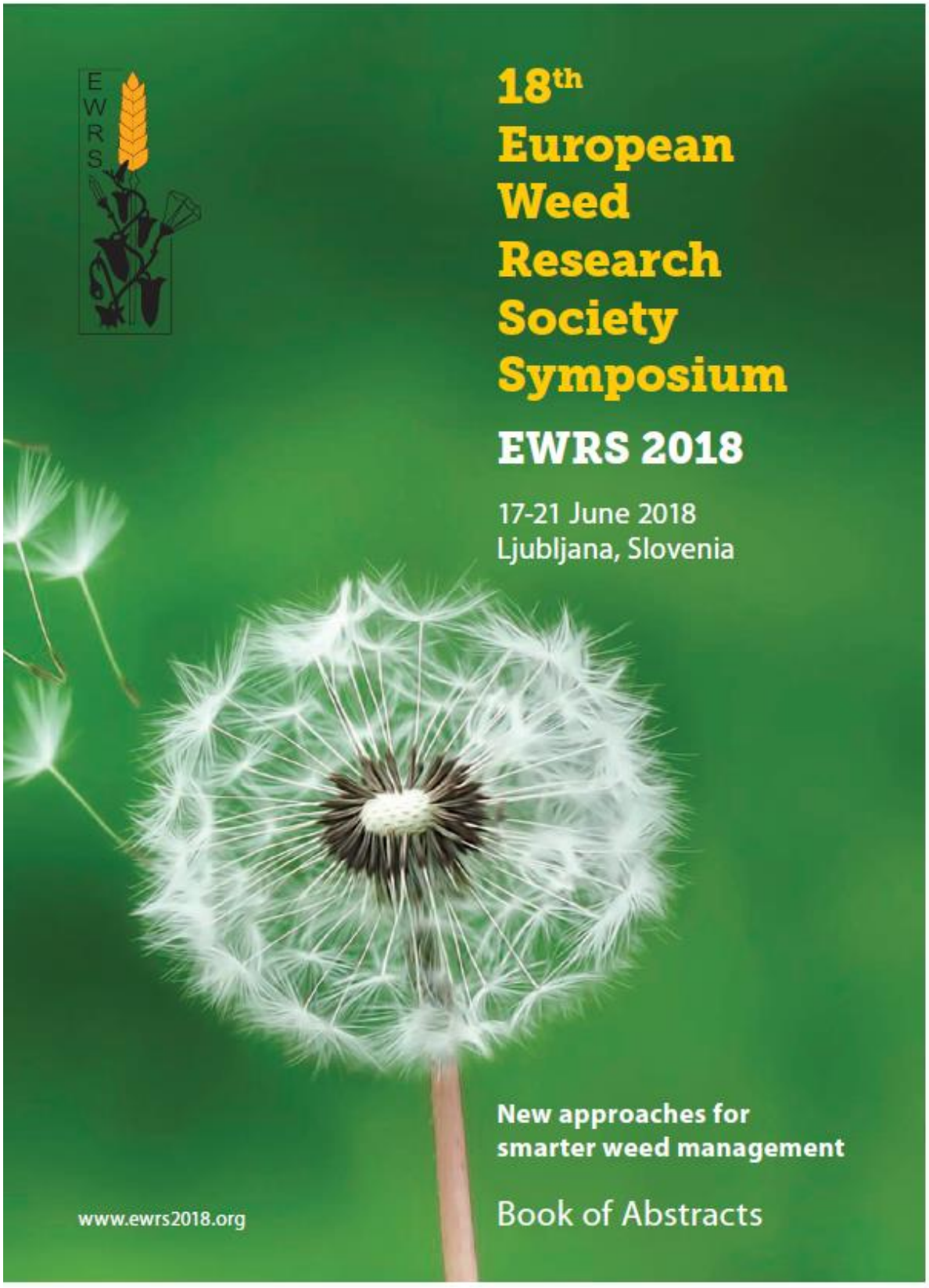
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S08-P Herbicide Resistance – POSTER PRESENTATIONS

Cross resistance patterns of Echinochloa spp. populations among rice herbicides

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In Portugal, *Echinochloa* species are the major troublesome weeds in rice. One hundred percent of paddy rice area is treated annually with ALS-and ACCase-inhibiting herbicides. Do to high selection pressure, resistance to penoxsulam was confirmed in *E. phyllopogon* in 2014 in Tagus river valley. To analyze the distribution of resistance in other rice producing areas – Mondego and Sado – a screening process was carried out in 2016 .

Seed samples were collected from the affected area and tested. The first screening of 16 populations, to assess the sensitivity of *Echinochloa* spp. to penoxsulame was carried out in a growth chamber dose response study (0,01 to 1000 g L^{-1}). Root length was assessed 21 DAT and EC_{50} values were estimated using non-linear regression. In whole plant bioassays resistance indices (RI=ED_{50} R/ ED_{50} S) were calculated for penoxsulam and to other ALS- and ACCase –inhibiting herbicides to assess for possible NTSR.

A susceptible population from each region (EC_{50}= 0,16 mg L^{-1}) was used as reference. For the screening bioassays 50 % of *E. phyllopogon* populations from Sado rice fields (south) were confirmed resistant (R) to penoxsulam (EC50 values 0,66 to 7,01 mg L^{-1}). In Mondego rice fields (center) higher values of EC_{50} (1,22 to 46,5 mg L^{-1}) and more populations were R accounting for 90 % of the total. In dose-response bioassays with whole plant there were no cross resistance to bispiribac-sodium, cyalofope-butyl and profoxydim for all populations.

From 16 populations of *Echinichloa phyllopogon* analysed eleven were confirmed R to penoxsulam with RI ranging from 3,8 to 44,4 in Sado and 5 to 134,5 in Mondego.. Rice fields from Center of Portugal, account for 90 % of resistance cases. There were no cases of cross resistance among ALS and ACCase –inhibiting herbicides, suggesting TSR as the possible mechanism responsible for resistance.