

RIOS, A. ; MAILHOS,V. ; SAN ROMAN, G. , GARCIA, A.2008. Weed communities related to no-tillage systems in the crop belt on the north coast of Uruguay. In International Weed Science Society(5,Vancouver,Canada) p 508.

3. Weed communities related to no-tillage systems in the crop belt on the north coast of Uruguay.

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During the past six years Uruguay has been experiencing a strong and growing expansion of the agricultural sector associated mainly with an increase in the area of glyphosate-resistant crops. This leads to a major dependence on the use of this agrochemical, causing an eventual flora modification process and a risk of weed resistance development. This issue could affect not only crop productivity, but also the economics of farming. Weed populations composition and density generally reflects the continuing agronomic practices, crop rotation, its productivity and intrinsic competitive characteristics of each species. Fields having information about crop rotation, no-tillage years, number and frequency of glyphosate applications were evaluated, in order to understand and characterize eventual changes in weed communities associated with these systems in the country. A photographic survey was carried out in fields located in the crop belt on the north coast of the country. The number of fields studied was 70, totalling 3760 hectares. Based on the pictures, the species were identified and the number of plants of each species was quantified. Presence, frequency and number of weeds per square meter were calculated. Possible associations between weed species and the following variables were analyzed: number of years under no-tillage and number of glyphosate applications. The average period of time that these fields were under non-tillage was three years, with a minimum of two years and a maximum of eight. The total amount of glyphosate used during this period of time for each field turned out to be of 26 L/ha, and 8,6 L/ha/year, with a minimum of 4,12 and a maximum of 13,76 liters. The total number of species evaluated was 75. The species with the most presence was *Digitaria sanguinalis*. 30 families were identified, being the Asteraceae family the most numerous one with 14 species, outstanding in presence *Carduus sp.* (37,1%), *Conyza sp.* (17,1%), and *Bidens sp.* and *Senecio sp.*, both with 15,7%. They were followed by the family of Poaceae and Fabaceae with 10 and 7 species respectively. After analyzing these results it is to be concluded that for presence and frequency, as well as weeds/m², the following species were presented in order of importance: *D. sanguinalis*, *Sida rhombifolia*, *Tragia sp.* and *Trifolium repens*. It seems important to point out that concerning weeds/m² *Echinochloa sp.* was included in third place.

Key words: glyphosate; tolerance; transgenic soybean; resistance.