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**May the Inclusion of a Legume Crop Change Weed Composition in Cereal Fields? Example of Sainfoin in Aragon (Spain)**

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**Abstract**

*Onobrychis viciifolia* (Scop.) (sainfoin) is promoted in the Spanish Aragón region through the Agro-Environmental Schemes (AES) since 2007 with the aim of enhancing biodiversity. Also, in other countries, the interest in this legume crop is growing due to its rusticity and beneficial effects on the soil and livestock. However, the effect of the crop on weed flora in the subsequent cereal crops has hardly been investigated yet. With this aim, weed flora has been characterised in 2011–2014 in sainfoin fields in the second and third year of establishment (S2 and S3), in cereal monocrop (CM), in cereal after sainfoin (CS) and in organic cereal fields (OC). Additionally, the soil seedbank was determined in two years in CM and S3 fields. Weed species richness of emerged flora and of the soil seedbank was highest for sainfoin and lowest for CM, being intermediate for OC and CS regardless of the sampling year. The most feared weed species in winter cereal did not increase by growing sainfoin or in CS compared to CM. Curiously, summer annuals dominated in the soil seedbank. Sainfoin fields cause thus a shift in the weed flora, which does not seem to damage subsequent cereal crops provided fields are mouldboard ploughed after sainfoin.

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