

A NONPARAMETRIC ANALYSIS OF THE DISTRIBUTION OF
CONVOLVULUS ARVENSIS IN WHEAT-SUNFLOWER
ROTATIONS

by

Mario Francisco-Fernández, Montserrat Jurado-Expósito, J. D. Opsomer
and Francisca López-Granados
Universidad de A Coruña, Institute for Sustainable Agriculture (Spain),
Iowa State University and Institute for Sustainable Agriculture (Spain)

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ABSTRACT

This article describes an application of nonparametric regression to study the spatial structure and identify persistent spatial patterns of the perennial weed *Convolvulus arvensis* L. in four years of wheat-sunflower crop rotation in Southern Spain. The annual spatial distributions of weed patches over the study field are estimated using local linear regression. These are then used to delimit areas whose infestation is above an economic threshold. In order to identify the areas at the highest risk of weed infestation across years, a multi-year index is developed and mapped. A parametric bootstrap is used to quantify the variability of the multi-year map. In a precision agriculture environment, such maps can be a useful component of a long-term weed management strategy.