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STUDY ON THE EFFECTIVENESS OF AN AGRICULTURAL TECHNIQUE BASED ON AEOLIAN DEPOSITION, IN A SEMIARID ENVIRONMENT

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Abstract

Wind erosion, which strongly affects both plant and soil development in arid environments, is dependent on soil properties, wind characteristics and plant cover. In a semiarid zone in SE Spain, a new technique consisting of dusting plants with a forced wind stream reduces tillage and significantly increases productivity. By using a blower once a year, dust is raised and partly retained by plants, and eventually ends up in the understory. To assess the influence of this technique on soil properties and test its efficiency, we maximized its effects by performing monthly applications of dust on natural vegetation not subject to any other human intervention, using two native plant species to assess the dust retention capacity and its effects.

Soils were sampled under the canopies of *Retama sphaerocarpa* and *Salsola genistoides*, prior to dust applications generated with a modified mechanical blower. Samples were taken again after trials under the canopies of both species and under control plants to check for changes from blowing. Results show that changes generated are mainly in nutrient content, bulk density and soil texture under *Retama* canopies. Principal components analysis and ANCOVA highlighted the importance of species and exposed plant surface, and its influence on soil features. The effect of interaction between Species and Exposed Surface has relevant role as the main species effect on several soil characteristics, leading to overall higher soil fertility.

Key words: dust deposition, soil fertility, Tabernas Desert, understory soil

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