

removal by agriculture and exposes soil to erosion and degradation, with multiple off-site adverse impacts on soil, air and water quality. Thus, soil amendment with crop residue is necessary to enhance/maintain soil quality and sustain agronomic productivity.

Balanced nutrition contributes to agricultural productivity and soil health. **Figure 3** shows the effect of balanced nutrition on microbial activity and glomalin concentration. Glomalin is a substance that accumulates in the cell walls of soil fungi and contribute to soil aggregate formation. Implementation of 4R Nutrient Stewardship (i.e., application of the right nutrient source at the right rate, time and place) would also help avoid, or decrease, externalities associated to water or air pollution.

Protection and conservation of soil resources through appropriate management techniques is essential to sustainable agro-ecosystems, and to fulfill the global demands for food, feed, biomaterials, and biofuels. Practices, as the ones described above, would contribute to this goal. **DC**

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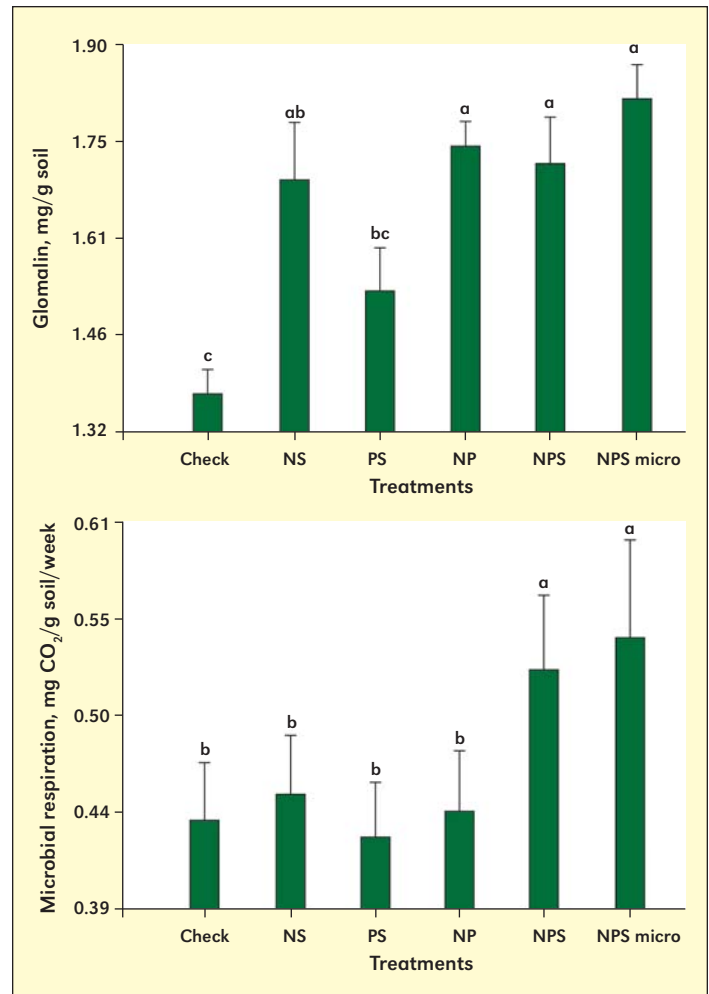


Figure 3. Soil glomalin concentration (top) and microbial activity (bottom) under different fertilization treatments in southern Santa Fe province, Argentina (Grümberg et al. 2012). Letters above columns denote significant differences between treatments at $p = 0.05$.

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