



## Effects of seeding (*Agropyron desertorum*) within the residue and understory soil of harmful plant (*Peganum harmala*)

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### Abstract

Management and control of poisonous and allelopathic plant species are from the main priorities for restoration of range and desert ecosystems. In a glasshouse experiment, seeds of *Agropyron desertorum*, a perennial forage grass, were sown within the soil media containing different proportion of shoots (0, 5% and 20%) and root powder, or soil taken from the under canopy of harmful plant. Experiment was conducted in a completely randomized design with 6 treatments and four replications. Seed germination rate and speed, and seedling morphological growth parameters of *Agropyron* were measured. Under the canopy of harmful plant soil pH (8.13) and texture (sandy loam) was similar to those in open areas, however the electrical conductivity was higher under the canopy (627 vs. 215). A mixture of 20% shoot powder (seed and fruit) and rangeland soil, significantly reduced germination rate and speed, and all growth parameters of *Agropyron*. Root powder and understory soil treatments did not induced negative effects, they even increased shoot weight of the target plant. According to our results; applying a surface root plow, before the flowering stage of harmful plant, may positively increase establishment of *Agropyron* in the field.

**Keywords:** *Allelopathy Peganum harmala*, *Agropyron desertorum*, Seed germination, Desert ecosystems.

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