

# Effects of the Hartmann Lines in the Cultivation of *Phaseolus vulgaris*

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The topic of this investigation is "Effects of the Hartmann Lines in the Cultivation of *Phaseolus vulgaris*". The problem in question was, "What effects do the Hartmann lines cause in the cultivation of bean plant?" The established hypothesis affirms that the Hartmann lines will affect the cultivation of bean plants causing them to have a poor development and quick fading because these electromagnetic waves in its great majority cause negative effects in the plants. The materials used to carry out this investigation were: cones, land, water, rods "L", beans, ruler, notebook, pencil, thread and camera. The procedure was the following: first locate the Hartmann lines with the rods. The lines were identified as North - South and East-West; 12.7 cm holes were excavated in the soil connecting the North to South lines, others on the East and West lines in knots and in a zone where the Hartmann lines cannot be found. Cones were placed in every hole, cutting the bottom part, filling them with organic soil and planting the beans. Data and observations were registered in a chart. The plants were identified by letters in order that the information could be easily understood. The hypothesis was rejected because Hartmann's electromagnetic waves did not cause poor development nor the rapid fading up of the plants. The plants were developing in a stable way. Some of them did not grow since insects or any animal could have eaten them, or drowned since it rained in big quantities.

**Awards Won:**

