Inoculation Methods with Azospirillum lipoferum and Azospirillum brasilense Promoting Germination and Growth of Zea mays

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The purpose of this research is to study various methods of inoculation with Azospirillum lipoferum and Azospirillum brasilense promoting germination and growth of Zea mays. Two experimental groups were tested, with one group containing Pioneer P1498 untreated corn seeds, and the other containing Pioneer P1498 corn seeds commercially treated with insecticide. Within these groups, smaller subsets were inoculated various ways. Subset 1 was not inoculated. Subset 2 contained inoculated soil. Subset 3 contained inoculated seed. Subset 4 contained both inoculated soil and inoculated seed. In both experimental groups, Subset 1 is compared to Subset 2 and Subset 3. Subset 4 is then compared to Subset 2 and Subset 3. It was hypothesized that, in both experimental groups, Subsets 2 and 3 would have faster rates of germination than Subset 1. It was also hypothesized that, in both experimental groups, Subset 4 will have faster rates of emergence than Subsets 2 and 3. These comparisons made for a total of eight hypotheses to be tested. Three replications were performed in order to test the hypotheses. The seeds were inoculated with dry inoculant, and the soil with liquid inoculant. Time of emergence was observed to measure the dependent variables. Data shows that inoculating only the soil or only the seed produced the same results in both test groups, with the inoculant for sure promoting growth. This research is invaluable to agriculturists and scientists around the globe, as food production must drastically increase in the years to come.

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