CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)

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Project Number

J1913

Project Title

The Effect of Endomycorrhizea Fungi on Corn Growth and Production

Abstract

Objectives/Goals

My objective is to determine what effect the inoculation of corn seeds at planting with endomycorrhizae fungi would have on both the overall growth of the corn plant and the fruitfulness of fresh market corn. A bigger corn plant with a bigger root mass should grow a stronger corn plant, able to extract more water and nutrients ultimately leading to increased corn production.

Methods/Materials

Endomycorrhizae fungi were inoculated onto 5 pounds of corn seeds before planting. In a field growing corn, eight rows were planted using inoculated seeds and eight rows were planted without inoculation. Corn plant seedlings were weighed and measured at six weeks and photographed. At eight weeks I limited water on half of the rows of each treatment to observe the effect of water stress and drought tolerance. When the crop matured overall crop growth and crop production was determined for each treatment.

Results

The results of this experiment at six weeks showed that the addition of mycorrhizal fungi increased plant weight from an average of .12 grams for the control to an average of .28 grams for the treated plants. Mature corn stalks grew an average of six feet in height when inoculated and only five feet 6 inches in the control. Corn production averaged two ears when inoculated and 1.7 ears in the control. After limiting water from my drought rows for two weeks, I observed that the inoculated rows had continued to grow at the same rate as fully irrigated plants whereas the control had stopped growing and appeared wilted and were turning yellow at the base.

Conclusions/Discussion

The results of this experiment supported my original hypothesis that inoculating corn seeds at the time of planting with endomycorrhizae fungi increased the overall size of the plant, significantly increased the crop production and greatly enhanced the plants ability to withstand water deprivation during plant development. Future research will be conducted on vegetable transplants this growing season to discover if transplant shock can be reduced with the use of mycorrhizal.

Summary Statement

I tested the effect of endomycorrhizae fungi on corn to see if fresh market corn production could be increased and become more drought tolerant.

Help Received

My mother provided the seeds, endomycorrhizae, land and growing equipment.