



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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Project Title Do Rooting Hormones Affect the Germination Rate of Seeds?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this project is to determine if pre-treating seeds with rooting hormone affects the germination rate of the seeds.</p> <p>Methods/Materials (1) Put soil into 4" plastic baby flats. (2) Make a 1% solution of Rootone rooting hormone by putting 1 gram of rooting hormone into 100 ml of water. (3) Soak the seeds, in batches of 60, in the rooting hormone solution for 24 hr. (4) Plant 12 seeds in each baby flat. (5) Sprinkle soil over seeds to cover the seeds. (6) Water plants as needed. (7) Repeat steps 2-6 with Miracle Grow rooting hormone. (8) Look at the plants every day to see how many seeds have germinated, record observations.</p> <p>Results Our preliminary results indicate that soaking the seeds in rooting hormone did enhance the germination rate of the seeds. With the corn the rooting hormone had an affect with 3 more seeds germinating than the seeds with water. The rooting hormones also had an affect on the beans with two more seeds germinating than the seeds with water. The rooting hormone had the best effect on the peas with 10 more seeds germinating than with the seeds with water. In our initial experiment, Coleus also did well with more seeds germinating than with the water only treatment. The rooting hormones did not have much of an effect on the sunflower seeds, however, with only one more seed germinating than the seeds with water. Overall the rooting hormones did have an effect.</p> <p>Conclusions/Discussion Our hypothesis was that the rooting hormones would affect the germination rate of the seeds. We think that it was worth buying the rooting hormones for the peas and Coleus. If you needed these seeds to germinate in a short length of time we would recommend the rooting hormone treatment. There was no effect with the sunflowers and not enough of an effect with the beans or corn to warrant the extra expense. Indole-3-butyric acid (IBA), which was in the rooting hormones, is very similar to Indole-3-acetic acid (IAA), the most important auxin. We found that one of the roles auxins play in plant development is the regulation of the embryo development. We think that the IBA caused the seeds to germinate faster by affecting the embryo.</p>	
Summary Statement The purpose of this project is to determine if pre-treating seeds with rooting hormone affects the germination rate of the seeds.	
Help Received Mr. Duerr helped us with experimental design and with advice on the design of graphs on Microsoft Excel.	