

# Irish teens' idea of using bacteria to improve crop yields wins Google Science Fair prize

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Hayley, Mihir, Kenneth, Ciara, Sophie and Émer

(Phys.org) —Three high-schoolers from Cork County Ireland have won the top prize at this year's Google Science Fair for their project that demonstrates a way to germinate seeds faster using bacteria as a seed treatment. Sophie Healy-Thow, Émer Hickey, and Ciara Judge won the Grand Prize by developing a way to increase crop yields in food scarce countries.

After discovering nodules growing on pea plants in a family garden, which turned out to be the result of a reaction by the plant to bacteria in the soil, the teens began an investigation. They learned that the presence

of certain bacteria can instill a sort of fear in a plant, causing it to speed up germination, so as to avoid being overtaken. They wondered what would happen if seeds were treated with a bacteria laden liquid before planting. To find out, they planted a garden with several different types of plants, some with treated seeds, others without, then tended the garden to see what impact the treatment would have.

The group found that all of the treated seeds sprouted on average 50 percent faster than those that were left untreated, which, the team reports led to an increase in harvest amounts of some of the oats by as much as 70 percent.

Speeding up germination means bacteria and other pests, such as insects, have less time to wreak havoc on new plants, which in the end results in more food being produced.

The next step for the team (they've already applied for a patent) is to refine their process—to grow the bacteria (in soil), to harvest it and then to bottle and sell it. They may find that path easier than they thought as officials with the European Commission (the executive body of the European Union) have expressed interest in helping them develop their idea. The trio isn't stopping there either, they plan to conduct more research—they want to know what exactly is happening inside the [seeds](#) when exposed to the [bacteria](#)—looking to see if perhaps there is another, simpler, cheaper and easier way to set off the speed-up reaction.

**More information:** — [www.google-science-fair.com/en/](http://www.google-science-fair.com/en/)

— [googleblog.blogspot.com/2014/0 ... -big-announcing.html](http://googleblog.blogspot.com/2014/0...-big-announcing.html)

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