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DISCOVERIES

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Earth/Life

Teen's Sidelong Research Wins Prizes

Lindsey Williams has an unusual point of view that has yielded tons of food and a basketful of awards.

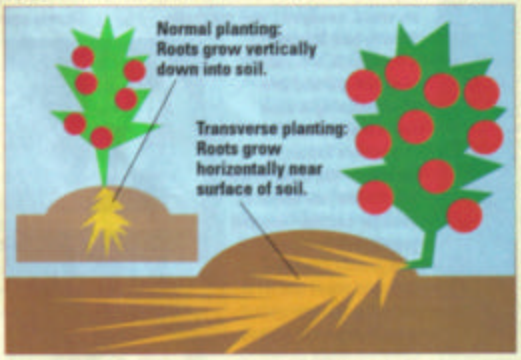
St. JOSEPH, Mo.—When Lindsey Williams decided to enter her seventh-grade science fair, she didn't attack the project head-on. She approached it sideways instead. Five years later, the project has blossomed into a line of research that has yielded astonishing results and won her several national awards.

For the science fair, Lindsey decided to grow tomatoes literally from a new angle. First she nurtured baby tomato plants in a hothouse. Then she built rows of small, circular dirt mounds in her family's big garden. When the plants were about 20 centimeters (8 inches) tall, she transplanted one plant to each mound.

Now, here's the neat part: She inserted each plant into the side of each mound, not the top—a method called *transverse planting*. Lindsey claims that transverse planting is an old idea that had never been tested in the field.

Normally, the roots of a plant grow vertically—straight down into the ground. But the roots of her transverse tomatoes grew horizontally through the topsoil, just an inch or two beneath the surface. The stems grew normally—straight up in the air.

Transverse planting increased the productivity of her tomato garden by 250 percent, says Lindsey. The tomatoes were not only bigger but more abundant. A root analysis revealed that transverse roots are three times as big as vertical roots. "Growing close to the surface of the ground seems to supply transverse roots—and their plants—with more moisture and more nutrients," she told *Current Science*.



Lindsey has since perfected her transverse growing technique and used it to grow equally big crops of peppers, yellow squash, and zucchini. She also invented a new pruning technique, as well as Lindsey's Nutrient Delivery System—a slow-drip irrigation method that uses 50 percent less water than traditional irrigation systems do.

In five years, Lindsey's transverse garden has yielded 40,000 pounds of fresh produce, which she has donated to needy families in the area. Her inventiveness and generosity have also won her national recognition. Last spring, she was named one of the top 10 youth volunteers in the country by the Prudential Spirit of Community Awards. In the fall, she received a Gloria Barron Prize for Young Heroes. The prize is a $2,000 scholarship given to "outstanding young leaders who have made a significant positive difference to people and our planet."

Lindsey, now 18, is a college freshman majoring in chemistry. "This all started as a simple science-fair project," she says. "I never expected any of this and am so grateful my research could help others." ■