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June 7, 2010

For Plants, Resistance to Infection Comes at a Cost

By SINDYA N. BHANOO

Any gardener has seen it happen. One plant in the backyard thrives, while its neighbor of the same species is plagued with infection. Why?

One reason may be genetic. Researchers have discovered that more resistant mouse ear cress plants have a variant of a gene known as ACD6. Plants with this variant produce more quantities of a chemical that battles pathogens.

But there is a trade-off. Plants with the variant gene also tend to grow more slowly and have fewer and smaller leaves than those that are less resistant to pathogens. The [results of the study](#) are published in the June 3 issue of the journal *Nature*.

“Consider that there’s a limited amount of resources, and you have a choice of either growing faster or staying stronger,” said Marco Todesco, a post doctoral fellow at the Max Planck Institute for Developmental Biology in Germany and one of the study’s lead authors. “If you want to put more towards defenses, it has a price in terms of growth.”

In their study, researchers considered samples of the cress plant from around the world. They found that geographic location had nothing to do with the presence of the gene. Plants with the variant often coexist in the same locality as plants without it in many parts of the world.

Ultimately, further studies could help scientists manipulate this gene in crop species, Dr. Todesco said.

“It would be interesting to be able to modulate this so that it confers just the good part, without affecting too much growth,” he said.