

# Battle of the sexes exists in the plant world too

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Seed size can be influenced by the father plant too (image by dmswart)

(PhysOrg.com) -- Research led by the University of Bath has discovered that plants, like animals, also have a battle of the sexes when it comes to raising their offspring.

Their findings could open new avenues to increase [crop yields](#) and improve food security for an ever-growing global human population.

Since mothers give birth to young, they must invest more of their resources into producing [offspring](#) than fathers.

For mothers, it's a balance between giving enough resources to keep their babies healthy, but still making as many babies as they can. In contrast, it benefits fathers to have young that are as large as possible and more likely to survive.

The researchers, from the Universities of Bath, Exeter and the Albrecht von Haller Institute for Plant Sciences in Germany, have now shown that this parental struggle also exists in plants.

The study, funded by the Natural Environment Research Council (NERC) and the Biotechnology & Biological Sciences Research Council (BBSRC), and published in the *Proceedings of the Royal Society B*, shows for the first time that male plants can influence the size of seeds.

Using the model plant *Arabidopsis*, they bred female plants with a variety of different male [plants](#) and measured the size of seeds produced with each pairing.

They found that crossing the female plant with a specific strain, or genotype, of male plant produced bigger seeds, allowing the father to have more healthy offspring at the cost of the mother.

Dr Paula Kover, Senior Lecturer at the University of Bath, explained: “Seed size can make a huge difference to whether a seedling is likely to survive, so you would imagine that there would be an optimum seed size for mothers to produce, balancing the likelihood of survival with the cost in energy of producing them.

“However, we see a lot of variation in seed size. The reason for this is a long-standing debate.

“Previously it was thought that seed size was controlled solely by the mother’s genes, but for the first time we’ve shown clearly that genes passed on from the father plant can also have an effect on seed size.

“The next step will be to identify the specific genes that influence seed size. Previously plant breeders only considered the mother’s genes in the breeding process, so this study could open the door on a whole new

group of genes that could increase crop yield.”

Dr Clarissa House, from the University of Exeter, added: “Relatively few studies have been able to distinguish between the influence of paternal genotypes for offspring fitness and maternal effects. Our study clearly shows that paternal [genes](#) are important.”

**More information:** [rspb.royalsocietypublishing.org ...  
b.2010.0572.abstract](https://rspb.royalsocietypublishing.org/doi/10.1098/rspb.2010.0572)

Provided by University of Bath

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