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Plant insights could help develop crops for changing climates

Crops that thrive in changing climates could be developed more easily, thanks to fresh insights into plant growth.

A new computer model that shows how plants grow under varying conditions could help scientists develop varieties likely to grow well in future.

Scientists built the model to investigate how variations in light, day length, temperature and carbon dioxide in the atmosphere influence the biological pathways that control growth and flowering in plants.

They found differences in the way some plant varieties distribute nutrients under varying conditions, leading some to develop leaves and fruit that are smaller but more abundant than others. Their findings could help scientists develop crops that have high yield in particular environmental conditions.

Researchers at the University of Edinburgh validated their results in lab tests by measuring the leaves of tiny cress plants. They say their findings give valuable insights into how plants adapt to ensure survival in less favourable conditions.

Their study, published in *Proceedings of the National Academy of Sciences*, was funded by the Darwin Trust, the Biotechnology and Biological Sciences Research Council and the European Commission. It was carried out in collaboration with the Max Planck Institute for Molecular Plant Physiology in Germany, Aberystwyth University, Cirad-Amis in France and commercial partner Simulistics of Edinburgh.

Professor Andrew Millar of the University of Edinburgh's School of Biological Sciences, who led the study, said: "The more we understand the underlying reasons governing plant growth in different varieties, the better equipped we will be to breed crop varieties with stable, high yields in the future."

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