Teaching plants to be better spenders
8 February 2017, by David Stacey

"Essentially we've figured out the cost, to a plant, of each protein".

The researchers found that the half-lives of the proteins studied can vary from several hours to several months. This led them to investigate the specific characteristics which determine how quickly a protein is turned over, and how much energy is needed to do it.

The comprehensive study also revealed the features that allow a protein to survive longer. This knowledge could be applied to help plants engineer more robust, less energy expensive proteins.

Co-researcher Professor Harvey Millar said it's much like spending money on a product you need.

"The best option is to balance between whatever will last you the longest, but cost you the least," Professor Millar said.

"If we can teach plants how to more wisely use their energy budget to meet requirements and to face environmental challenges then the result will be more energy efficient and productive plants.

"This is particularly valuable for agriculture, where current crop plants are not going to be able to meet future food requirements.

"In a world faced with increasing populations and limited land for agriculture, more energy efficient plants are necessary to feed us into the future."

The study was published this week in the journal The Plant Cell.

More information: Protein Degradation Rate in Arabidopsis thaliana Leaf Growth and Development. The Plant Cell. doi: http://dx.doi.org/10.1105/tpc.16.00768

Provided by University of Western Australia