

Genetic modifications to make plants ‘fat’ could increase yield, reduce fertilizer run-off

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... [Y]ou probably won't have guessed that [modern wheat] plants are fat. Yet, compared to the wild grasses they are bred from, ... modern cereal plants are grotesquely obese. They have larger and more numerous grain. ... way in excess of what they actually need. This excess weight is our food.

... [T]he race is on to find new ways to persuade plants to put on [even more weight](#). And it turns out that an effective way to do this is to interfere with the signalling systems that control the rate at which plants synthesise their food.

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A team of researchers from agrochemists Syngenta and [Rothamsted Research](#) made a single genetic modification to maize plants to prevent the accumulation of ... a key sugar monitored by the plant. Essentially, the plants were tricked into “thinking” that they were not producing enough sugar and as a result [they increased production](#). ... the genetically-modified plants produced up to 50% more grain in well-watered conditions and outperformed unmodified plants by 123% in drought conditions.

If the same changes could be engineered for the nitrogen control system, then not only might we achieve even higher yields, but we could also address the agricultural run-off problem at the same time. ...

... In a study recently published in [Plant Cell](#), a Swiss-German team describe how ... they found out that a specific form of vitamin B6 (known as a vitamer) tells the plant when it is full of nitrogen. ...

Although not all the details are yet clear, the most telling observation was that the accumulation of the specific B6 vitamer led to the nitrate metabolism system being turned down – it works as an appetite control system.

Read full, original post: [Scientists report breakthrough in the quest for obese plant](#)