

New crops needed for new climate

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Plants grown under high CO₂ and drought conditions show an increase in toxic compounds, a decrease in protein content and a decrease in yield. Dr. Ros Gleadow will present her findings at the Society for Experimental Biology meeting on Monday, June 29, where she will discuss these results and the consequent requirement for new cultivars in order to sustain food production in a future environment.

Global food security in a changing climate depends on the nutritional value and yield of staple food crops. Researchers at Monash University in Victoria, Australia have found an increase in toxic compounds, a decrease in protein content and a decreased yield in plants grown under high CO₂ and drought conditions.

The research, to be presented by Dr Ros Gleadow on 29 June 2009 at the Society for [Experimental Biology](#) Annual Meeting in Glasgow, has shown that the concentration of cyanogenic glycosides, which break down to release toxic hydrogen cyanide, increased in plants in elevated CO₂. This was compounded by the fact that [protein content](#) decreased, making the plants overall more toxic as the ability of herbivores to break down cyanide depends largely on the ingestion of sufficient quantities of protein.

Data have also shown that cassava, a staple [food](#) crop in tropical and subtropical regions due to its tolerance of arid conditions, may experience yield reductions in high CO₂. Combined with an increase in cyanogenic glycosides, this has major implications for the types of crops that can be grown in the future if CO₂ levels continue to rise: "We need

to be preparing for the predicted reduction in nutritional value of many [plants](#) in the coming century by developing and growing different cultivars which, for cassava in particular, may not be easy' says Dr Gleadow.

Source: Society for Experimental Biology

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