Ozone depletes oil seed rape productivity

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With rising ozone levels scientists have found that high ozone conditions cause a 30 percent decrease in yield and an increase in the concentration of a group of compounds with toxic effects to livestock, but anticarcinogenic effects for humans, within oilseed rape plants. Maarten de Bock will present his findings at the Society for Experimental Biology meeting on Monday, June 29.

High ozone conditions cause a 30% decrease in yield and an increase in the concentration of a group of toxic compounds within oilseed rape plants. Combined with the results of previous studies which have shown a decrease in oil, protein and carbohydrate content of oilseed rape seeds in high ozone, these results (to be presented at the Society for Experimental Biology Annual Main Meeting in Glasgow on 29th June 2009) could signal a significant income loss for farmers and an indirect effect on human health and the safety of food in future climates.

The research, to be presented by Maarten De Bock of the University of Antwerp, showed changes in the concentration of glucosinolates, a family of compounds involved in plant defences against herbivores, in oilseed rape plants. Such changes could influence crop resistance to insect pests, or the palatability of food crops. As oilseed rape is important as a feed crop, increased levels of glucosinolates may cause problems due to the large quantities of fodder consumed by farm animals. For human consumption, however, an increase in glucosinolates, in cabbage plants for example, would be favourable due to their anticarcinogenic properties. Interaction of these factors and their impact on the food web in changing climates will be investigated further

throughout the course of this ongoing project.

Source: Society for Experimental Biology