

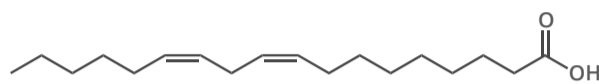
## THE AROMA OF FRESH-CUT GRASS

### GLVs

Grass naturally emits volatile organic compounds (VOCs). However, when cut, the emissions increase significantly. The compounds released are also known as green leaf volatiles (GLVs) and the major contributors have been shown to be a mixture of aldehydes & alcohols containing 6 carbon atoms.



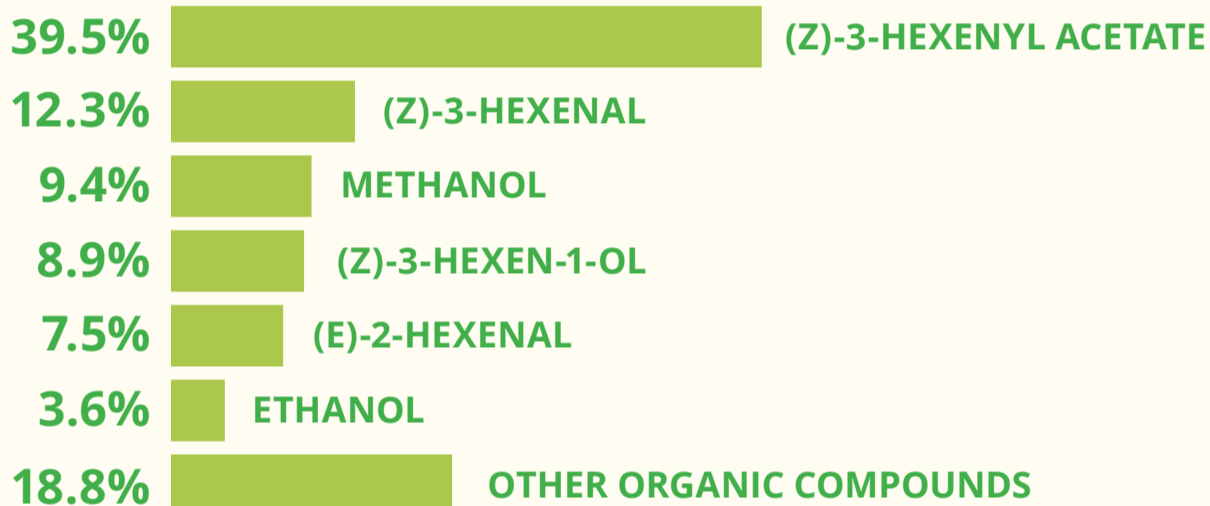
Grass cut. Enzymes break down fats



Linoleic & linolenic acids formed

C<sub>6</sub>-C<sub>12</sub>

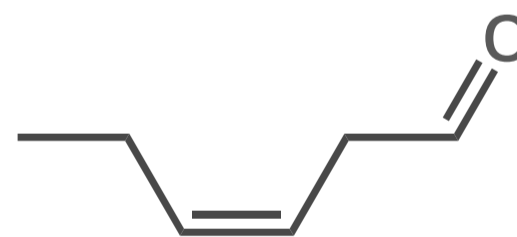
Enzyme breaks into smaller fragments



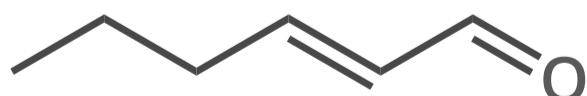
Source: 'Emission of VOCs from pasture', W. Kirtstine et al, 1998, Journal Geophysical Research, Vol 103

### Z-(3)-HEXENAL & CUT GRASS SMELL

(Z)-3-hexenal is the main compound that gives fresh-cut grass its smell. It has a low odour threshold (the amount required for the human nose to detect it) of 0.25 parts per billion. It is unstable and quickly rearranges to form (E)-2-hexenal ('leaf aldehyde').



(Z)-3-HEXENAL



(E)-2-HEXENAL  
'LEAF ALDEHYDE'

### WHY ARE THESE COMPOUNDS FORMED?

It has been suggested that the release of these compounds induces defence responses in other neighbouring plants. They also stimulate formation of new cells at the site of the wound, whilst some act as antibiotics, preventing infection.

