

THE AROMA OF FRESH-CUT GRASS

WHAT CAUSES THE SMELL 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.

WHEN GRASS IS CUT, ENZYMES BREAK DOWN FATS, LEADING TO THE FORMATION OF LINOLENIC & LINOLEIC ACIDS. THESE CAN BE BROKEN DOWN BY ANOTHER ENZYME INTO SMALLER FRAGMENTS, THE MAJORITY OF WHICH CONTAIN EITHER SIX OR TWELVE CARBON ATOMS.

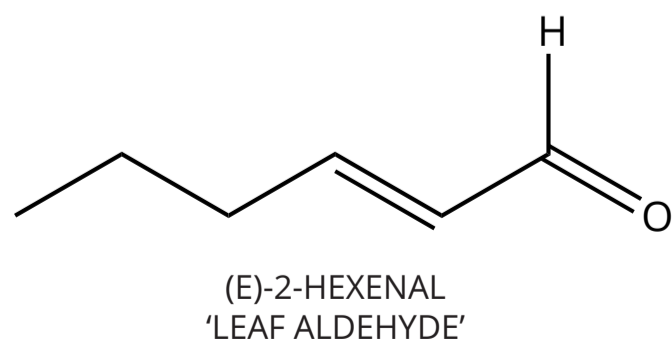
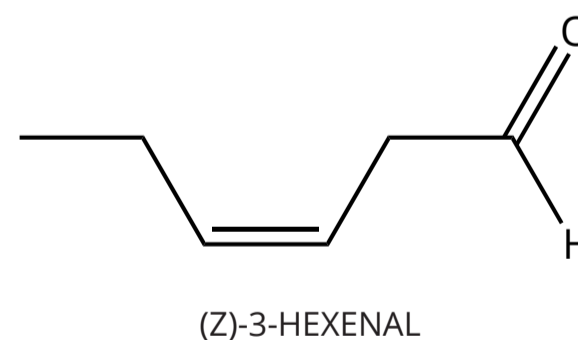


VOLATILES

| | |
|-------|-------------------------|
| 39.5% | (Z)-3-HEXENYL ACETATE |
| 12.3% | (Z)-3-HEXENAL |
| 9.4% | METHANOL |
| 8.9% | (Z)-3-HEXEN-1-OL |
| 7.5% | (E)-2-HEXENAL |
| 3.6% | ETHANOL |
| 18.8% | OTHER ORGANIC COMPOUNDS |

(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').



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.