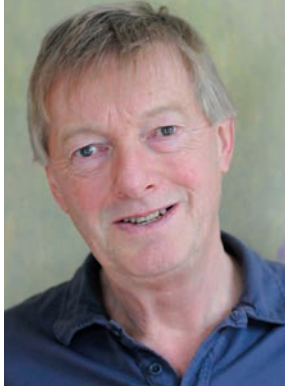

cis-6-Nonenol

This versatile ingredient is useful in cucumber and fruit flavor profil where a more subtle cucumber note is desirable.

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Green notes come in all shapes and sizes, and selecting the best combination for any given flavor profile is one of the most interesting challenges that flavorists routinely face. Green notes are usually, but not always, secondary to the key character recognition aspects of a flavors profile, so they should provide an impression of, say, freshness, rather than imposing too much of their own character. *trans*-2,*cis*-6-Nonadienal (FEMA# 3377, CAS# 557-48-2) is a very powerful green note that is highly characteristic of fresh cucumbers. It is clearly an essential component of cucumber fl vors and can also find a number of uses where a more subtle cucumber note is desirable, or at least acceptable. Outside this narrow field the use of this chemical is rather limited by its highly specific profil

The most obvious alternative with a similar profile is *trans*-2,*cis*-6-nonadienol (FEMA# 2780, CAS# 28069-72-9). This chemical has, in my opinion, a vastly more attractive, soft and natural cucumber character and wider range of uses than the aldehyde. Nevertheless, it is still somewhat limited by its instantly recognizable affiliation to cucumbers

cis-6-Nonenol (FEMA# 3465, CAS# 35854-86-5) provides most of the benefits of the previous two chemicals, but with far fewer limitations. It is fresh and green, with clear elements of melon and cucumber and a hint of vegetables. The most obvious use of this raw material is in melon flavors, but it can also provide very useful, fresh, nuances to a wide range of other flavors. The dose rates given below refer to the level of use in a flavor that is intended for use at 0.05% in a taster, a ready-to-drink beverage or a bouillon.

Melon Flavors

Cantaloupe melon: *cis*-6-Nonenol works well in all of the many different types of melon flavors, but it is most obviously applicable to cantaloupe melon flavors. Levels vary, but an ideal starting point is 300 ppm.

Watermelon: If cantaloupe melon flavors are at one end of the range of authenticity, watermelon flavors generally represent the opposite extreme and often require a very vivid imagination to connect to the real thing. This ingredient is often the most realistic material in an otherwise tutti-frutti environment. A level of 200 ppm is a good place to start.

Honeydew melon: Honeydew and other types of melon can also benefi from this ingredient, but the levels of use are generally more subtle, around 20 ppm.

Berry Flavors

Blueberry: Blueberry flavors always present a challenge because the real fruit is quite subtly flavored. The fresh note is no exception, and this ingredient is effective and quite authentic at levels in the region of 150 ppm.

Strawberry: *cis*-3-Hexenol normally dominates the fresh notes in strawberry flavors, with *cis*-3-hexenyl esters often providing some complexity, but not enough authenticity. The best level for this raw material is 100 ppm in fresh-style strawberry flavors. Wild strawberry flavors can accommodate slightly higher levels.

Raspberry: The fresh, green character of authentic raspberry flavors is interesting and complex. It should also not depend simply on hexenyl derivatives, so *cis*-6-nonenol adds welcome authenticity at around 80 ppm.

Blackberry: The effect in blackberry flavors is similar, but a little more restrained than in raspberry flavors; the best level is around 50 ppm.

Blackcurrant: Blackcurrant flavors like all these berry flavors, rely on hexenyl derivatives but, unusually, they can be best accompanied by bell pepper pyrazine notes for authenticity. *cis*-6-Noneneol provides a welcome link between the vegetable notes of the pyrazines and the grassy notes of the hexenyl derivatives at around 50 ppm.

Tropical Fruit Flavors

Mango: High levels can be used in mango flavors, but that will often push the profile more in the direction of melon than is acceptable for authenticity. That said, modest levels around 40 ppm can be very effective.

Banana: Similar levels work well in banana flavors, and it is similarly important to avoid higher levels of use of this ingredient because they can tend to push

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banana flavors unpleasantly in the direction of green bananas.

Lychee: The best effect in authentic-tasting lychee flavors is at a modest level, in the region of 40 ppm, where there is a requirement for a subtle level of freshness.

Papaya: Here the effect is also quite subtle and acts to counterbalance the overall cloying sweetness of the flavo . A level of 20 ppm is ideal.

Soursop: A touch, around 20 ppm, can also add freshness and realism to soursop flavors

Passion fruit: Even lower levels, as low as 10 ppm, add a slight hint of freshness to passion fruit flavors

Other Fruit Flavors

Apple: The ideal level of *cis*-6-nonenol in apple flavors varies considerably depending on the profile. Levels as low as 50 ppm are effective in sweet, red apple flavors, but levels up to 300 ppm are better in green apple flavors

Peach: Moderate levels of this chemical, around 100 ppm, work well in combination with the furry/skin notes in fresh peach flavors

Apricot: A level of 100 ppm also provides a pleasant fresh, skinny, fuzzy character to apricot flavors

Cherry: Similarly moderate levels are also effective in cherry flavors, but only in those flavors that strive for realism rather than simply benzaldehyde and tutti-frutti notes.

Grapefruit: Low levels work quite well in all citrus flavors, but are particularly effective in grapefruit juice flavors Twenty ppm is a good place to start.

Lemon: A level of 20 ppm is also quite effective in fresh-squeezed lemon juice flavors, adding noticeable freshness and lift.

Other Flavors

Cucumber: As remarked earlier, the character of cucumbers is more complex than it originally appears. This green note softens the overall profile without detracting from the fresh effect at around 500 ppm.

Bread and pizza crust: A level of 100 ppm of this chemical gives a realistic fresh note to freshly baked bread and pizza crust flavors

Shellfish: Low levels, around 50 ppm, of *cis*-6-nonenol add realism to a wide range of fish and shellfish flavors but are especially helpful in crab flavors

Pork: Very low levels, from 10 ppm to 20 ppm, are also effective in meat flavors particularly meat flavors such as pork and lamb where a substantial portion of the profile derives from fats

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