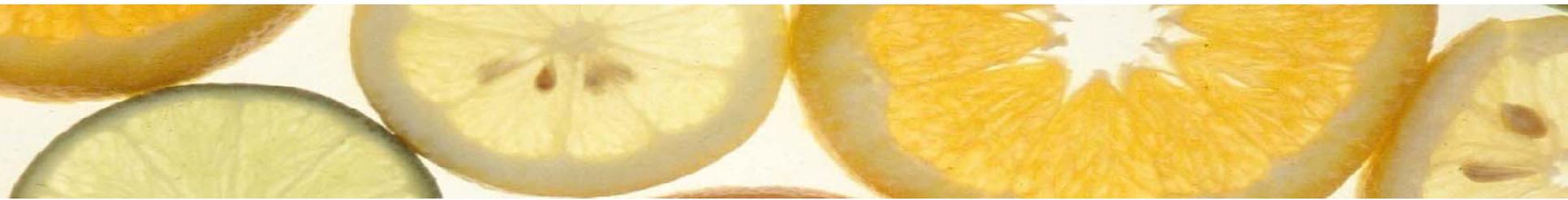

Postharvest Quality of Citrus and Stone Fruit

David Obenland and Paul Neipp



Development of Alternatives to Fumigation Of Fresh Commodities with Methyl Bromide (NP308)

- Non-chemical
- Chemical

Fruit Flavor Quality (NP306)

A variety of postharvest quarantine methods have been utilized/proposed over the years

Fumigation

Heat

Cold

Radiation

Advantages of Heat Treatments

- Relatively rapid
- Leave no chemical residues
- Can be fungicidal

CATTS

Controlled Atmosphere Temperature Treatment System

- Uses heat combined with low oxygen and high carbon dioxide
- Done in collaboration with Lisa Neven, USDA-ARS Wapato, WA



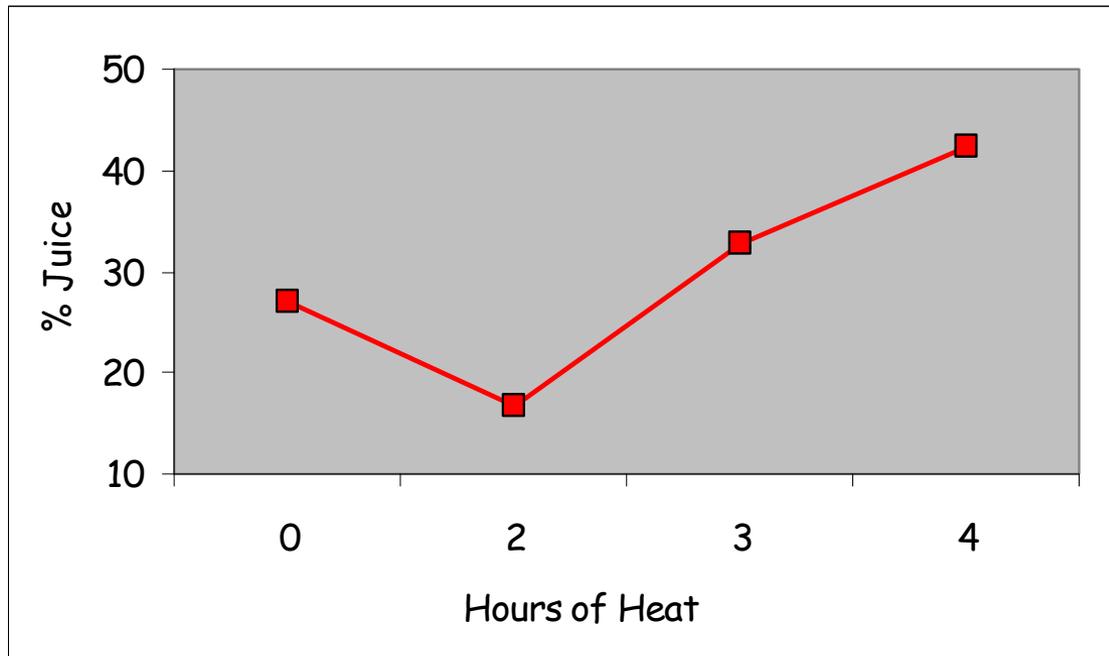


Brown rot (*Monilinia fructicola*) is heat sensitive and is killed by treatment



Heat-treated apricots (cv. Helena), 2 wks storage

Heat treatment can inhibit the loss of juiciness in stone fruit



Peach (cv. Elegant Lady) after 3 wks storage



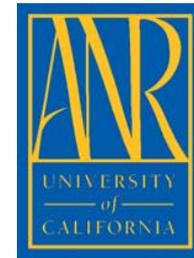
Semi-commercial forced hot air/controlled atmosphere treatment

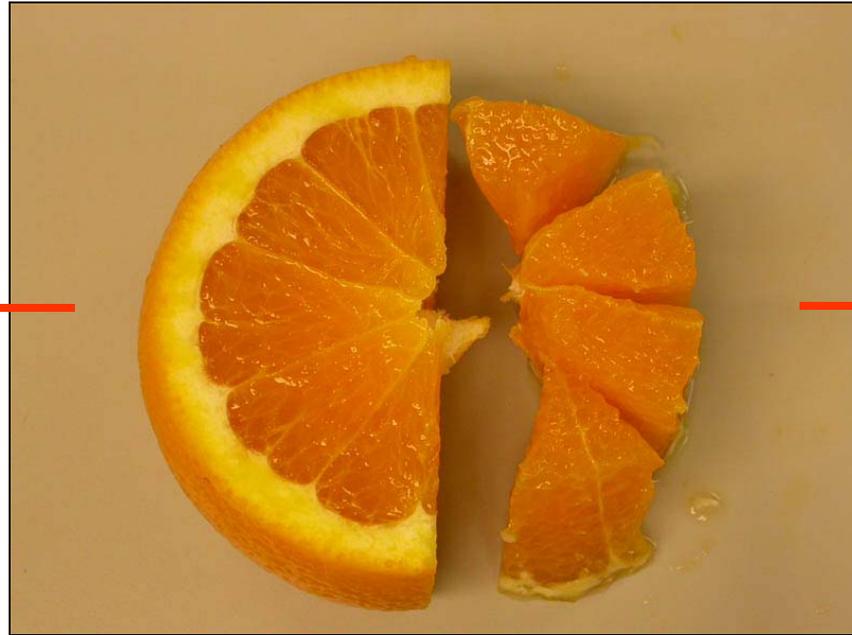


Fruit Flavor

Collaborative Projects with UC Kearney Agricultural Center

Mary Lu Apaia and Sue Collin





Quality Constituents

% Juice
SSC
TA
Flavor volatiles

Sensory Panel

Likeability
Richness
Sweetness
Off-flavor

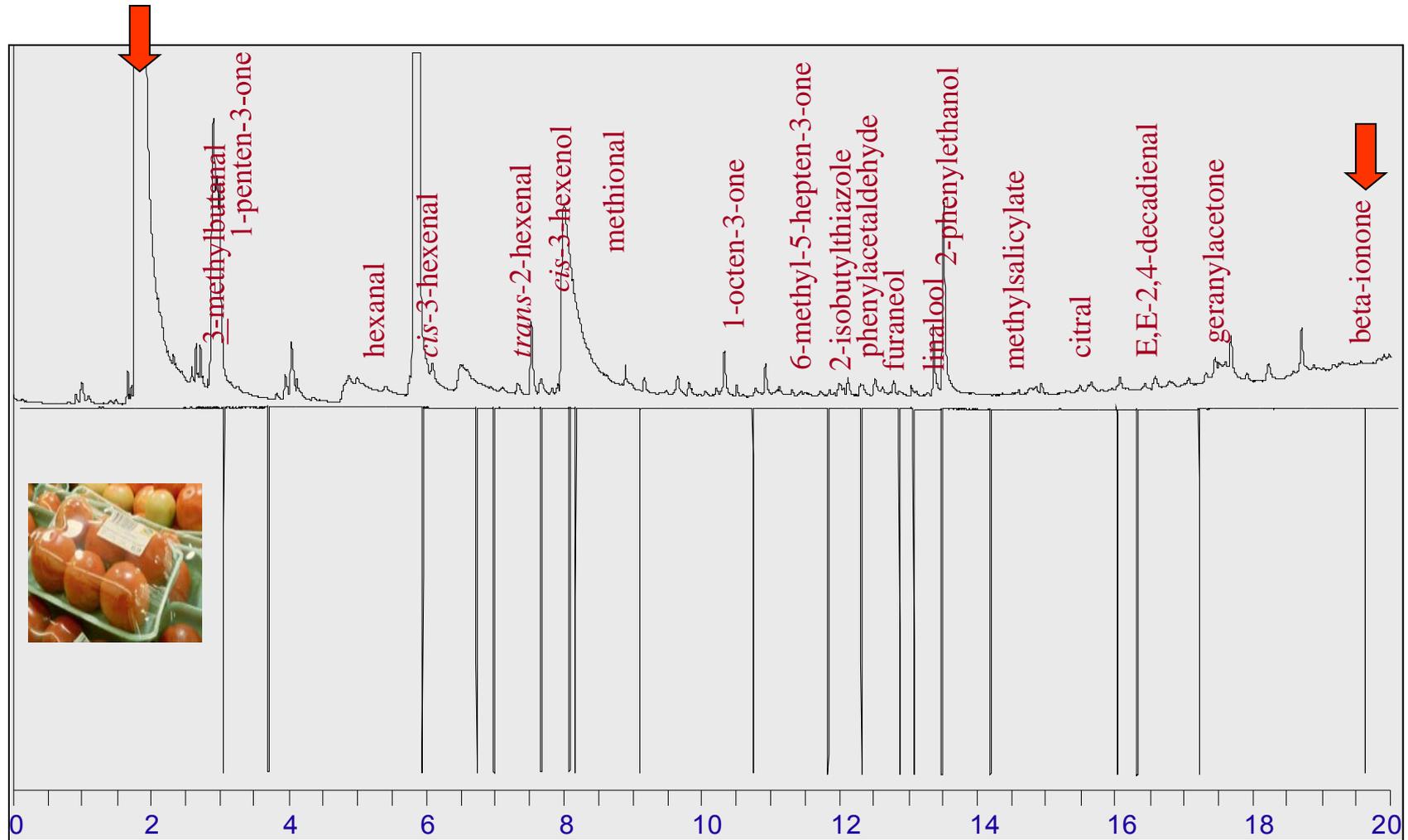
Flavor is not just Sugar/Acid...Volatiles are very important

- 80-90% of taste is aroma
- 2% of the human genome is involved in olfactory perception

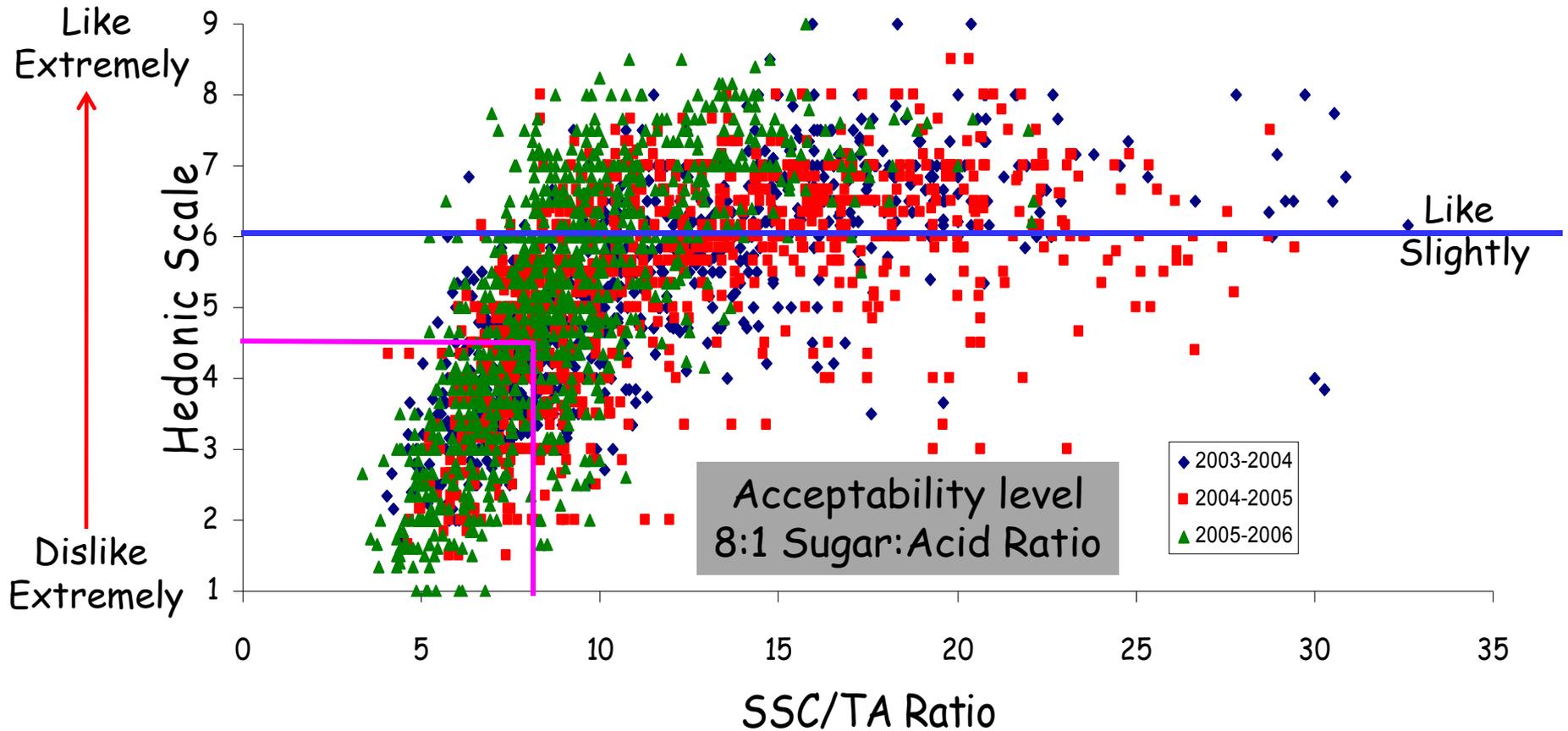
Elizabeth Baldwin
USDA/ARS



A chromatogram showing both GC and sniffing response



Influence of sugar and acid on navel orange flavor

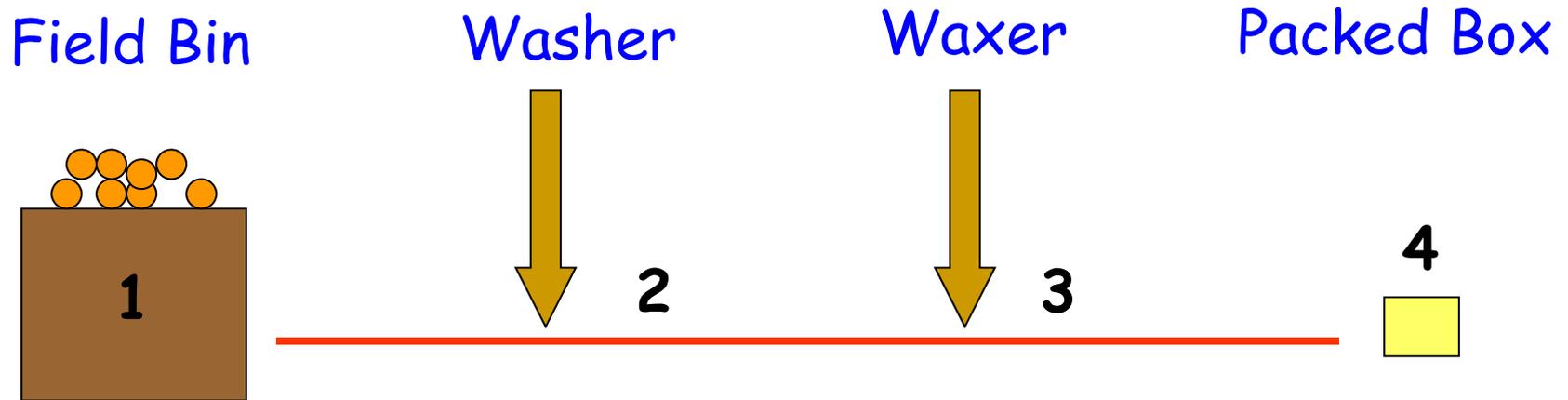


Flavor-active volatiles are related to the development of taste during orange maturation

Compound	Aroma	Relationship with Taste
unknown 1	alcohol, sweet	0.87*
unknown 2	metallic	0.88*
pentanal	sour, pungent	0.59
unknown 3	sour	0.89*
hexanal	grassy	0.64
ethyl butanoate	fruity	0.86*
heptanal	fatty	0.66
α -pinene	spicy	-0.55
1-octen-3-one	mushroom	0.74
unknown 4	fatty, lemony	0.87*
β -myrcene	fatty, musty	-0.71
ethyl hexanoate	fruity	0.91*
octanal	fatty, lemony	0.45
limonene	minty	-0.43
γ -terpinene	citrus	0.65
linalool	citrus	0.13
unknown	cereal, fatty	-0.52
(E)-2-nonenal	fatty	0.68
ethyl octanoate	fruity, floral	0.25

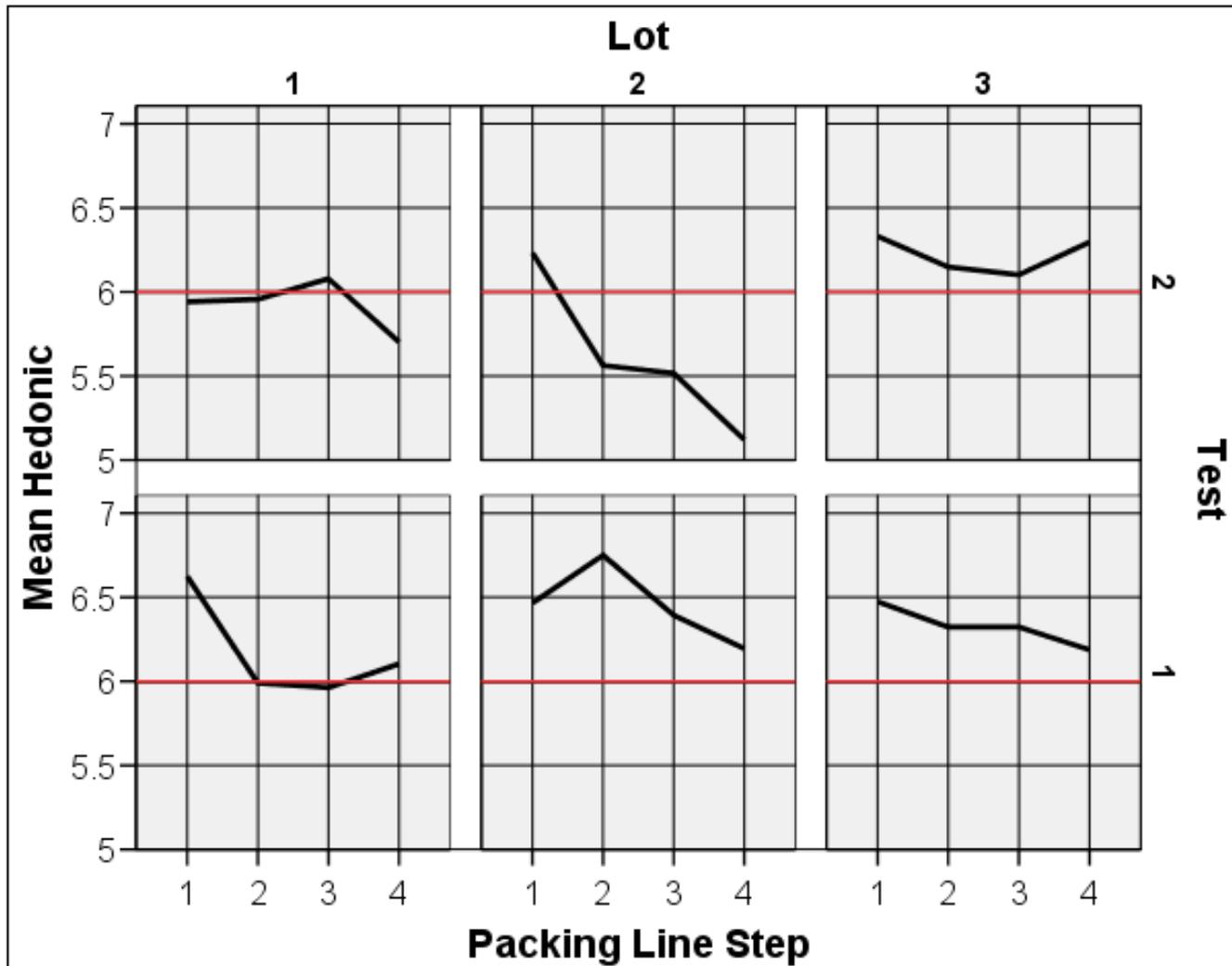
Does the packing line affect fruit flavor?

Packing House Fruit Sampling Scheme



2 tests (January and March)
3 grower lots/test
0, 3, 6 weeks of storage

Fruit lots vary in their response



Thank You

