THE MCCORMICK SPICE WHEEL: A SYSTEMATIC AND VISUAL APPROACH TO SENSORY LEXICON DEVELOPMENT

LYDIA J.R. LAWLESS[1,2], ANNETTE HOTTENSTEIN[3], JOHN ELLINGSWORTH[3]

[1]University of Arkansas, [2]Sensory Spectrum, Inc. and [3]McCormick & Co., Inc.

Introduction

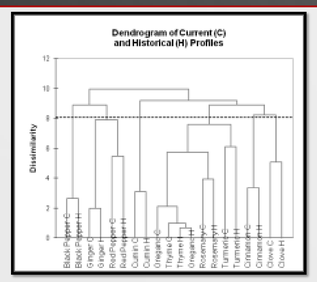
Sensory wheels provide standardized vocabularies for product categories and thus enable better communication among sensory scientists, product developers and their business partners. Recently, increased interest in spices prompted the development of an updated dried spice and herb aroma wheel, the original of which was created at McCormick and Company, Inc. (McCormick) during the mid-1990s. The McCormick Spice Wheel (MSW) was updated with statistical lexicon validation and sensory analyst collaboration.

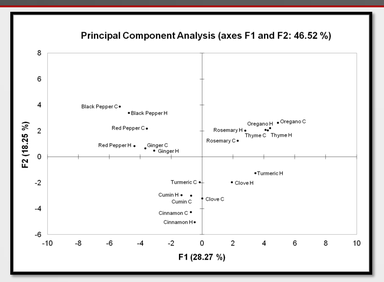
Materials and Methods

Lexicon Validation

- Spectrum-trained panelists (n=9) evaluated a representative sample of spices and herbs (x=10) to generate current descriptive analysis (DA) data.
- Current (C) DA data were compared to historical (H) DA data to validate current lexicon terms.
- Comparisons of current and historical data were made through principal component analysis, cluster analysis, and correlations.

Validation Results





CORRELATIONS BETWEEN HISTORICAL AND CURRENT SENSORY PROFILES

Current product profiles	Correlation to historical counterpart
Black pepper	0.97
Cinnamon	0.93
Clove	0.83
Cumin	0.95
Ginger	0.98
Oregano	0.99
Red pepper	0.86
Rosemary	0.9
Thyme	0.99
Turmeric	0.80

- Cluster analysis, principal component analysis, and correlations all show good agreement between the historical and current spice and herb profiles.
- The analysis supports the development of the McCormick Spice Wheel (MSW) with the current lexicon terms.

Spice Wheel Development

Two sensory analysts made the first draft of the updated MSW.

→

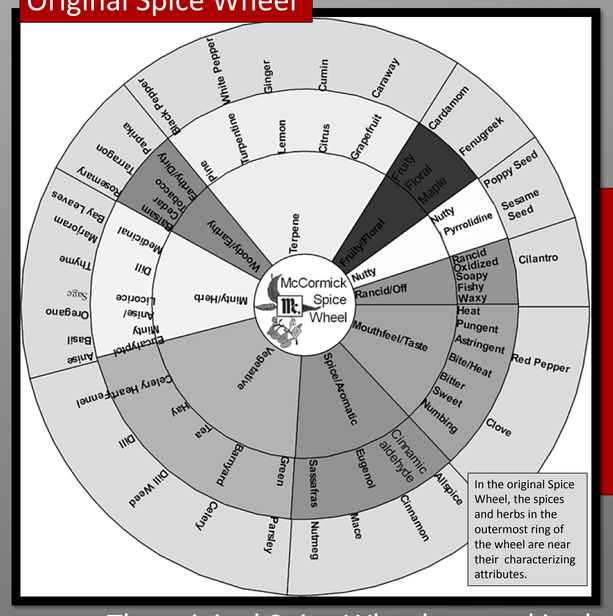
The first draft was subjected to improvements through conversations with active panel leaders (n=3).

→

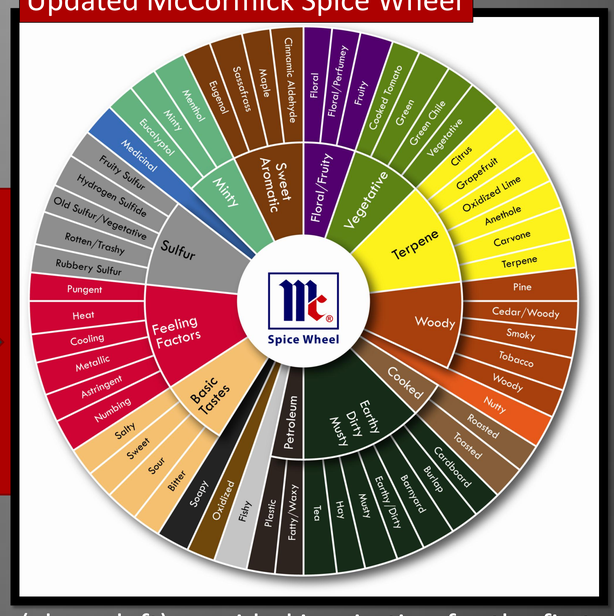
The revised draft was presented to the descriptive panel for further improvement and validation.

Results and Discussion

Original Spice Wheel



Updated McCormick Spice Wheel



- The original Spice Wheel created in the 1990s (above left) provided inspiration for the first draft of the updated MSW.
- Particular changes were made to the first draft of the updated spice wheel from discussions with panel leaders. Originally, there was a category in the first draft referred to as “rancid, off,” which contained fishy, oxidized, rancid, fatty/waxy and soapy. This category was eliminated because the negative connotation the category name entails is not always appropriate. For example, the soapy note in cilantro may not be desirable to some consumers, but soapiness is an integral part of cilantro's sensory profile.
- Additionally, minty and medicinal attributes were separated to demonstrate to new descriptive panelists that these are distinct attributes and to perhaps relieve some of the confusion attributed to the conceptual similarities of these attributes.
- Categories that are perceptually similar are located near each other on the wheel. For example, certain woody attributes (e.g., pine, cedar) can also take on a terpene characteristic; thus, these categories are adjacent.

Conclusions

The visual representation of the spice world effectively communicates the relationships of each group of attributes, which promotes the understanding of sensory relationships and properties. This enables a wide audience to speak in the same language and to better understand sensory conversations.