



CHALLENGE

To offer Kraft Foods' researchers a more effective means of analyzing data from taste tests involving professional tasters and hundreds of consumers.

SOLUTION

The consumer test evaluation tool, developed with JMP® software through a close collaboration between Kraft Foods UK and SAS Professional Services.

RESULTS

This customized tool has halved analysis time, significantly reduced training time, minimized calculation errors, ensured and increased use of Kraft Foods best practices, and reduced software costs.

Building a better taste test

Kraft Foods deploys a unique software tool that cuts analysis time in half

Jeff Stagg knows the value of good tools, and his latest is a classic: a consumer test evaluation tool for Kraft Foods, built on a JMP statistical software platform in collaboration with SAS Professional Services.

This user-friendly software tool analyzes consumers' evaluations of the attributes of commercial products and/or prototype designs compared through taste tests. The proprietary application, designed for Kraft Foods' consumer research scientists worldwide, offers clear graphical representations of analysis results and lets analysts view the data from any angle.

Stagg is a Principal Scientist in Research and Development for Kraft Foods UK, a member of Kraft Foods' global applied quantitative sciences team. Applied quantitative science involves statistics, of course, but it's also about applications. Stagg designs tools based on his and his colleagues' expertise/experience in data handling, validation, analysis and interpretation, and then provides training in how to use those tools to maximal advantage.

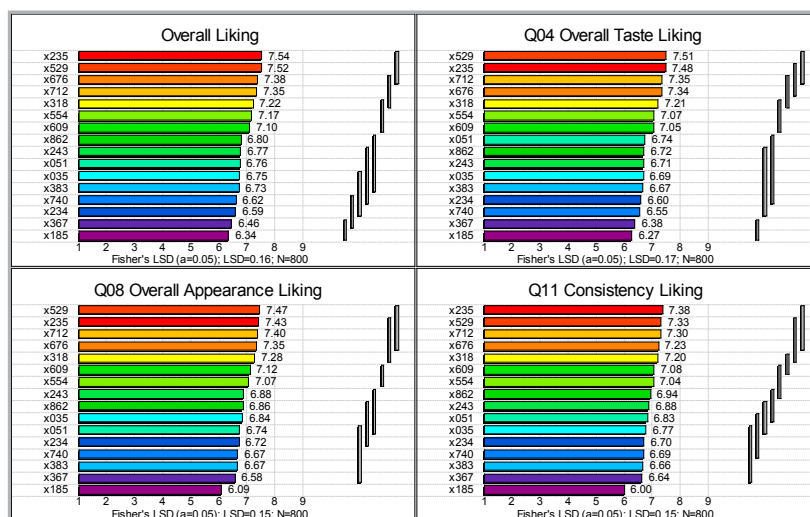
"It's simply about getting the job done efficiently and effectively," Stagg says. "We try to coordinate processes, with best practices incorporated into the system, and then we give people the training in how to interpret and use what they learn."



"I now save considerable time because JMP can assign properties to the products that transport across all the graphical routines."

Jeff Stagg

Principal Scientist
Research and Development, Kraft Foods UK



Color-coded lines represent products in these bar charts, which show relative preference for specific attributes.

“I recognized that with JMP's ease of use, I'd be able to give this tool to sensory/consumer professionals around the globe to do their own analysis, significantly reducing a reliance on experts in the field.”

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‘Tremendous drive’

Kraft Foods’ consumer test evaluation tool uses customized JMP scripts for efficient analysis of results. A typical test involves 200 or more consumers evaluating six or more products. If, for example, the product category is beverages, consumers would be asked to assess how much they like a particular beverage overall and then rate specific attributes like appearance, aroma, taste and more.

The evaluation tool makes it easy to manipulate and analyze the data. It replaces a set of data analysis macros developed by Kraft Foods and written in various software packages. The

JMP scripts combine data handling and calculation with novel, high-quality graphical output tailored for import into PowerPoint presentations.

Not only does the consumer test evaluation tool make it easier to get analysis results, but it also quickly began bringing efficiency to the testing process – showing an impressive 50 percent savings in analysis time soon after its deployment.

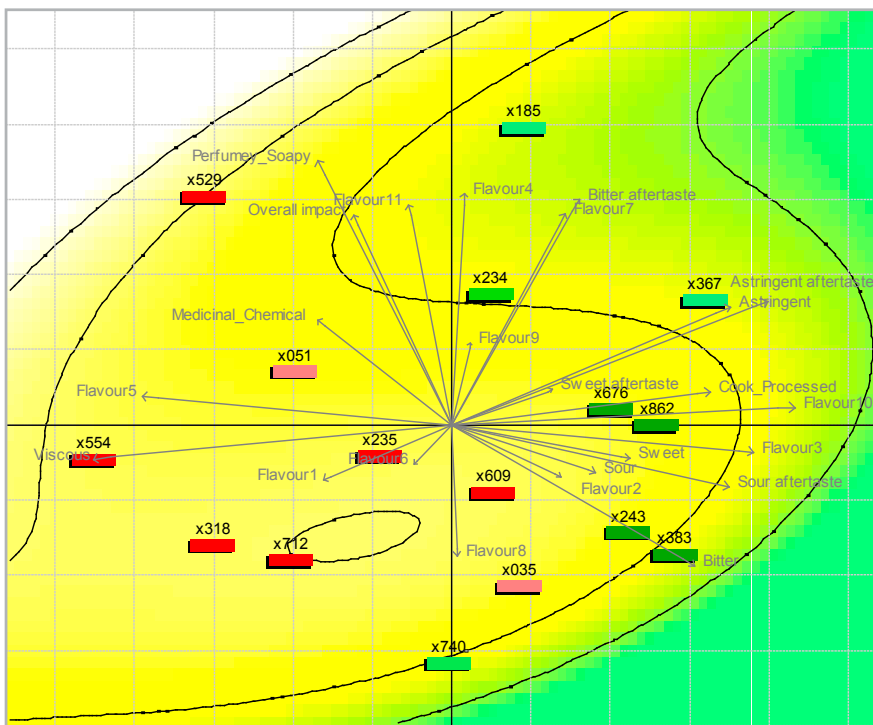
This comes as no surprise to Stagg, a longtime SAS® user who has grown to recognize, in his words, “the tremendous development drive SAS has put behind JMP.”

“For a statistician, SAS does everything you ever want it to do; it’s brilliant,” he says. “But when you put it into a non-statistician’s hands, they sometimes struggle. We needed something a little easier for them to use.”

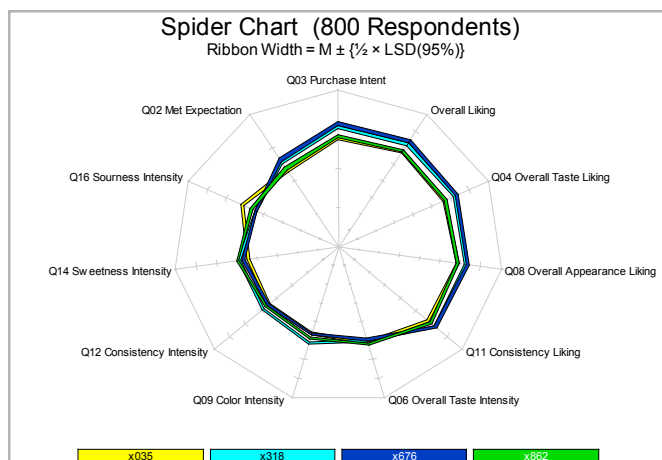
And so, with guidance from David Rose, an implementation consultant for SAS, Stagg set about inventing a tool based in JMP, which, he says, “is very user-friendly and has wonderful graphics. I recognized that with JMP’s ease of use, I’d be able to give this tool to sensory/consumer professionals around the globe to do their own analysis, significantly reducing a reliance on experts in the field.”

The data Kraft Foods researchers analyze is gathered from both in-house sensory analysts and actual consumers via product testing led by a market research agency.

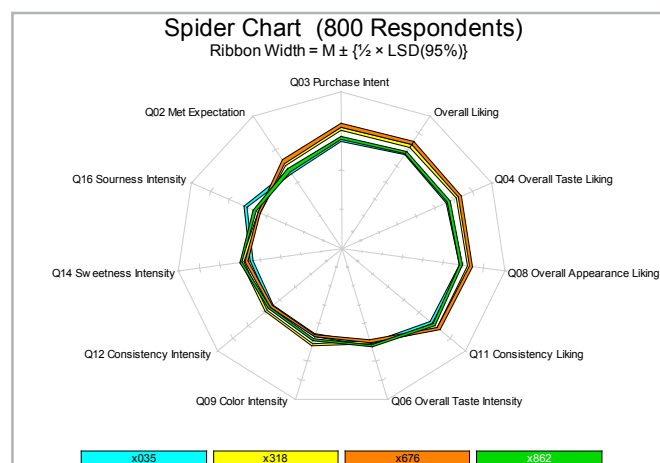
Sensory analysts are trained to evaluate a product objectively – for color, smell, taste and more – with the aim of describing it similarly, reporting the consensus (average) attribute profile. Results from the sensory analysts help provide interpretations of the preferences of consumers, which are expected to be diverse. The analysis of consumer data thus needs to incorporate the identification of clusters that might exist within consumer scoring patterns. Kraft Foods has developed its best-practice approach for identifying differentiated consumer preference groups and coded it within this application. The experience of experts is now more easily passed on to others.



A custom graph designed with JMP shows contours of a response surface and flavor clusters.



Spider charts in these custom graphs enable simultaneous display of large numbers of attributes.



Consumer tests are conducted all over the world, and Stagg's objective was to simplify and standardize the process of analyzing the data so that those most familiar with the product being tested could perform the analysis. With the consumer evaluation tool, any sensory/consumer professional at any site can perform an informed analysis – without reinventing the wheel.

“A standard approach to the analysis can be done, and the reports/graphics are all customized in terms of what management expects to see as an output,” Stagg says. “The managers receiving information will already understand the format of the chart – you don’t lose time explaining again the x-axis and the y-axis and all that sort of thing. They say, ‘Oh, it’s one of those,’ and they get it.”

Products are assigned names, labels and multiple color profiles that are automatically used in all graphical routines. Stagg says that the 3-D graphics in JMP help the user find the best angle from which to look at the data. Both consumer and sensory data are multivariate, existing in more dimensions than can easily be visualized. Principal components analysis in JMP helps the user discover patterns within the data that would otherwise be obscured.

Stagg says that it’s in the color formats of the consumer test evaluation tool that Kraft Foods has gained the greatest efficiency.

“In an Excel graphic, different colors are assigned that are tied to the order of display, not specifically to the product,” he explains. “As a consequence,

changing the order of products in a graphic will show products with color assignments different from the first graphic – which then requires tedious editing. As a data analyst, you want to actually be looking at what the data tells you and interpreting it, not color-coding charts.

“I now save considerable time because JMP can assign properties to the products that transport across all the graphical routines,” Stagg adds. “Not only that, it allows any number of product color profiles to be created that reflect, for example, the sequence of consumer product preferences, the origin of products, an ingredient level, etc. More important still is the seamless ability to switch between them in customizing the graphical output. It’s all about speed and user-friendliness.”

Teamwork

SAS' Rose worked very closely with Stagg in developing the consumer test evaluation tool.

"I worked with Jeff to create a software package around a shared perception of what needed to be written to make this particular data summary and analysis process as slick and pain-free as possible," Rose says.

"I knew what I wanted with this tool," Stagg says. "David has a background in this very area. He has an understanding of consumer and sensory data and what to do with the data, which has really helped in the communication of needs and discussion of options."

The result is a high-quality, robust application that gets the job done.

"This tool leaves the users free to spend as much time as possible doing what they need to be doing," Rose says, "namely, thinking about what the results actually mean."

And the bottom-line benefit for Kraft Foods, Stagg says, is that it now has a more efficient and effective process to arrive at the right business decision. More trained sensory/consumer professionals can now perform analyses efficiently and ensure that local product knowledge is incorporated into the interpretation process. Experts are still on hand to offer support as required but now have more time to work on innovative new applications and method development.

"It's about how to pass along what you've learned through your experience. And that is to customize your knowledge into the software," says Stagg. "This software is doing exactly what we asked it to do, and no doubt both it and our application will continue to evolve."



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