NOW THAT HAS BITE

Bockwurst, Wiener, and Frankfurter sausages are loved by young and old alike and are the epitome of "German fast food."

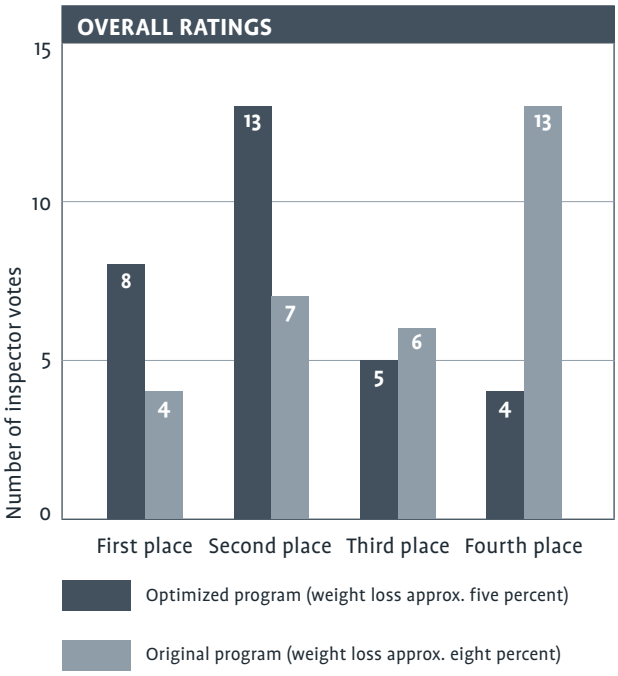
Crisp, delicious, and with a look that makes your mouth water – that's how the perfect bockwurst should be. Controlling the production process has a significant impact on the texture, taste, and color of this favorite German fast food. Now Schröter customers can use well-thought-out optimizations to further increase the quality of their bockwurst sausages in natural casings.

Countless manufacturers today produce hot-smoked, pickled, thin, boiled sausages – making the competition for this mass-produced item accordingly fierce. Thanks to the skilled support the company offers, Schröter's customers have a clear benefit, because they can achieve significant sensory improvements, lower weight loss, and, in addition, shorter processing times. Ultimately the hot-smoking system's processing parameters and the smoke technology used are responsible for the sausage's color, smoke flavor, and texture (i.e. the casing toughness). And the texture isn't only significantly influenced by the sausage meat itself, but also the firmness and toughness of the natural casing. These casings have different levels of thickness depending on the race, feed, and country of origin, which makes it hard to standardize this natural product. Thicker casings (like those from China) offer economic benefits because it is easier to fill them with meat, but they are tougher than their mostly European counterparts. In contrast, collagen casings are easier to standardize, but aren't as widely accepted as natural casings, particularly when it comes to European consumers. The smoke technology used shapes the casing's firmness, since the reaction of the formaldehyde contained in the smoke with the amino group of lysine results in the proteins in the casing crosslinking, which can take place differently depending on the sausage's surface moisture, the smoke parameters (air circulation, temperature, smoke thickness), and smoke type (smolder, friction, steam, or liquid). In addition, the thermal process also causes the pasty, soft sausage meat to become a thermostable, cured boiled sausage.

OPTIMIZATION THAT PAYS OFF

The goal of a specific optimization at a customer was to determine the ideal processing temperature, humidity, smoking period, and intensity for producing their bockwurst sausages. To do so, a total of 6,500 kilograms of product (equal to one week's production quantity) was processed with five different programs. Afterwards, ten trained sensory inspectors put four samples through multiple triangle tests and ranked them in their order of preference. In addition to unpackaged products served at the deli counter, MAP-packaged products and products autoclaved in a package with brine are also manufactured for large-scale consumer markets, which is why the inspectors also tested the effects of process management on how well the sausages maintained their color after ten days using a device that measures the CIElab three-dimensional color space. The

results speak for themselves: The triangle tests with two-page questionnaires resulted in highly significant differences between the optimized and standard program for texture and taste, with a probability of error of α = one percent. The triangle test didn't allow any conclusions to be made about color, since the number of answers did not reach the minimum amount required by the table of significance. The samples were also ranked in accordance with the Friedman test. The test's critical value of p = 0.05 was exceeded for every sample, in other words, there was a significant difference between every sample. Afterwards the samples were compared to each other in pairs as set forth by Friedman. The best optimized batch exhibited a significant difference compared to the standard product in all of the test's criteria for color and texture, with a probability of error of α = five percent. Weight loss was able to be reduced by five percent in the best optimized program, and it also did better in the sensory evaluation as well. Furthermore, processing time was reduced by about ten minutes compared to the original program. So this is truly an on-site service that pays off for the customer!



Ten inspectors rate four different bockwurst sausages from 1 (very good) to 4 (not as good). The test was carried out once for each of the following parameters: texture, color, and taste. Eight inspectors immediately ranked the product from the optimized program in first place. The majority of inspectors ranked the standard program worse, in either third or fourth place.

INFO BOX

Are you interested in optimization? Our technological expert **andre.budesheim@schroeter-technologie.de** would be glad to assist you. We offer Schröter customers a preliminary check of their program free of charge. Simply send us an e-mail with the following information: Type of system (year of manufacture, AB number), control unit (Siemens, JUMO, PRF), the product you wish to have optimized, and the program you currently use with weight loss information and processing times.

Hot smoking systems like the THERMIC*jet* can be optimized for every product.