Corn Protein in RTE Cooked Sausage

Protein ingredients can be added to RTE cooked sausages as an extender to replace a portion of the meat in the formula without sacrificing texture or yield. The protein ingredients' water-holding and gelling functionality allows them to bind water and fat within the meat matrix for a higher yield and desirable/firm bite and texture.

Corn protein was produced by Cargill with at least 85 wt% corn protein (dry basis) and less than about 1.5 wt% oil (dry basis), as described in patent application WO20161544CPI. The formula could be adapted to use corn protein with a minimum of 65 wt% protein and less than 3 wt% oil (dry basis) and anticipate the same finding.

The functionality of corn protein in RTE cooked breakfast sausage was examined. Sausages with and without corn protein were prepared using the formula and process procedures listed. In this example, corn protein and water replaced a portion of the meat in the formula.

FORMULA

Ingredients	Control (%)	Test (%)
Pork (42% fat)	43.02	39.55
Mechanically Separated Turkey (18% fat)	42.32	38.84
Water	11.15	14.65
Seasoning	3.51	3.51
Corn Protein	0	3.45
Total	**100.00**	**100.00**

PROCESSING PROCEDURE

1. Mix corn protein and water using a Hobart stand mixer with paddle attachment on speed 1 until fully dispersed. For control formula, add water directly at step 2.
2. Add mechanically separated turkey and pork. Mix for 30 seconds on speed 1 while adding seasoning.
3. Stop mixer, scrape mixing attachment, then mix for an additional 2 ½ minutes on speed 1.
4. Fill sausage stuffer with the mix and form sausages 3 inches in length using a 5/8-inch tube. Refrigerate overnight.
5. Cook sausages to an internal temperature of 165°F by cooking to 125°F with dry heat, then 165°F with saturated steam.
6. Blast-chill sausages.

Cargill.com

Cargill® Helping the world *thrive*

RESULTS

Sausages were weighed before cooking and after freezing to calculate processing yields. Firmness was measured on sliced, heated sausages using a TPA method.

	Processing Yields (%)	Firmness, g-force
Control	79.34%	1259
Corn Protein	84.16%	1288

Control sausage (left) and test sausage (right) prior to cooking.

Control sausage (left) and test sausage (right) after cooking, freezing, and reheating.

CONCLUSION

Corn protein can be used to replace a percentage of meat in a cooked sausage formula with comparable texture and improved yield.