

# YIELD ENHANCEMENT IN OVEN-ROASTED TURKEY BREAST USING A CLEAN-LABEL INGREDIENT SOLUTION

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## I. OBJECTIVES

The objective of this study was to examine the efficacy of Verdad<sup>®</sup> Avanta<sup>®</sup> Y200 (Corbion, Lenexa, KS), a clean-label yield enhancement solution composed of vegetal protein, fiber, and natural flavor. Testing was conducted to evaluate the impact of Verdad<sup>®</sup> Avanta<sup>®</sup> Y200 on cook yield, sliceability, texture, and purge loss in oven-roasted turkey breast.

## II. MATERIALS AND METHODS

Ground turkey breast was vacuum tumbled with a salt water brine and varying levels of yield enhancement treatments. The control treatment contained no yield enhancement ingredients, whereas the treatment groups contained 0.5% sodium tripolyphosphate (STP) and 0.55% CLY. Each treatment was vacuum tumbled for 60 min, stuffed, cooked to an internal temperature of 72.8°C, and chilled overnight to 4.4°C. After chilling, treatments were sliced, and slice yield was measured as the percentage of intact slices. For each treatment, pH, texture profile analysis (TPA) hardness, and TPA chewiness were measured upon slicing. Sliced samples from each treatment were vacuum packaged and aged for 14 d at 4.4°C. At day 14, purge loss was measured and reported as percentage of total sample weight.

## III. RESULTS

Table 1 illustrates the treatment structure along with pH, cook yield, slice yield, TPA values for hardness and chewiness, and purge loss for the study. While both STP and CLY treatments had pH values greater ( $P < 0.05$ ) than control, the CLY treatment did not result ( $P > 0.05$ ) in finished product with pH values greater than the STP treatment. Additionally, STP and CLY both exhibited increased ( $P > 0.05$ ) cook yield compared to control. Furthermore, CLY demonstrated similar ( $P > 0.05$ ) textural properties compared to STP. Both treatments (STP and CLY) produced samples that were significantly ( $P < 0.05$ ) harder and chewier than control in addition to increasing ( $P < 0.05$ ) slicing yield.

Table 1:

Cook yield, slice yield, pH, TPA hardness, TPA chewiness, purge loss, and color measurements for different yield enhancement treatments

Treatment	pH	Cook	Slicing	TPA Hardness	TPA Chewiness	Purge
		Yield	Yield	(g)	(g)	Loss
Control	6.08	85.90%	0.0%	9951.16	6957.47	5.55%
STP	6.29	90.63%	100.0%	15126.21	11544.81	4.48%
CLY	6.29	90.10%	100.0%	16069.15	12649.63	4.94%

#### IV. CONCLUSION

This study authenticates the efficacy of Verdad® Avanta® Y200 in providing cook yield enhancement, sliceability, and textural properties similar to that of sodium phosphate, thus providing the meat industry with a clean-label, fully functional alternative to sodium phosphate.

Keywords: clean label, processed meat, texture improvement, yield improvement