

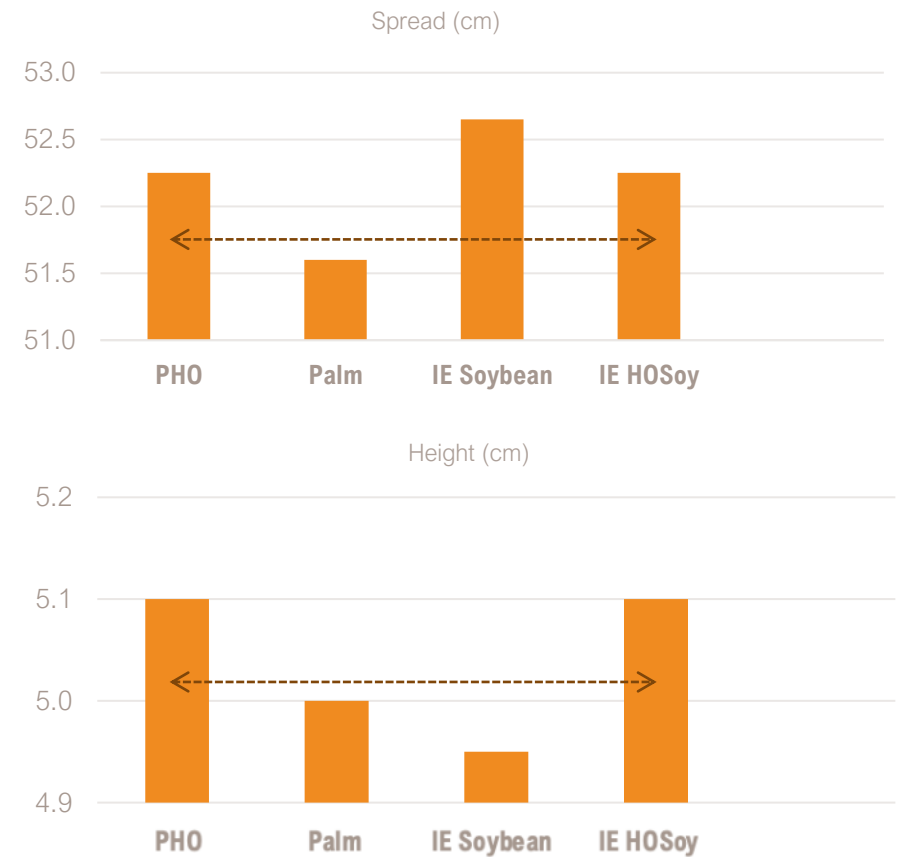
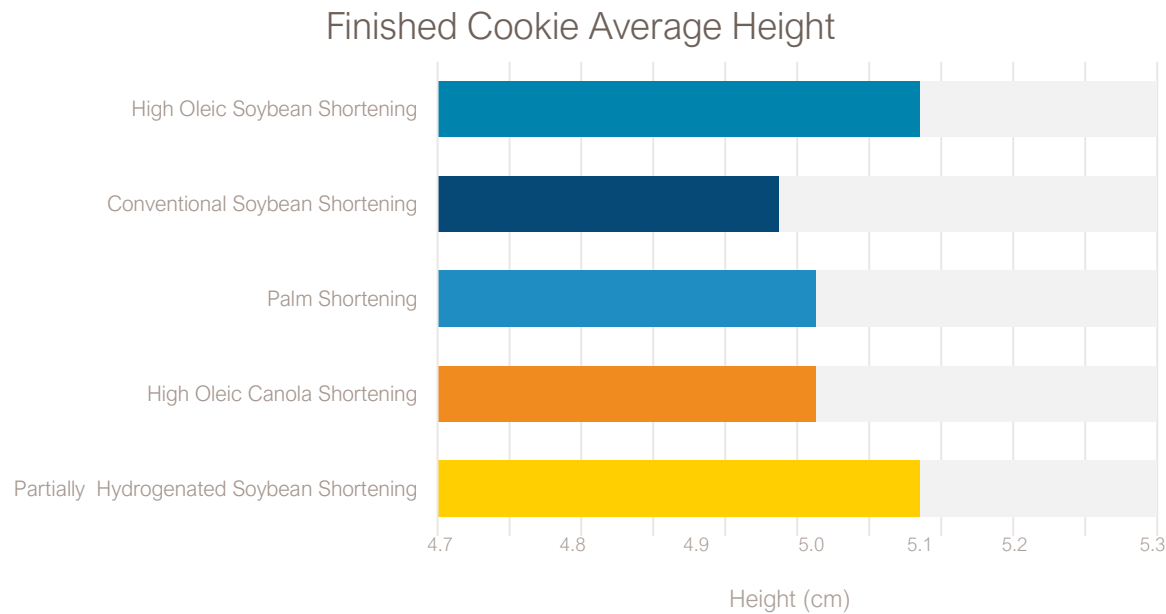
Baking Study

EIE HOSoy as a PHO Replacement



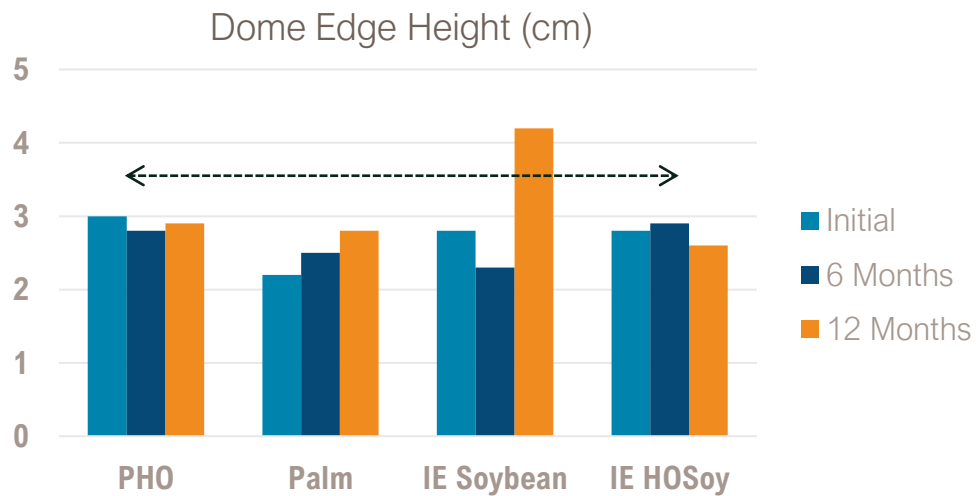
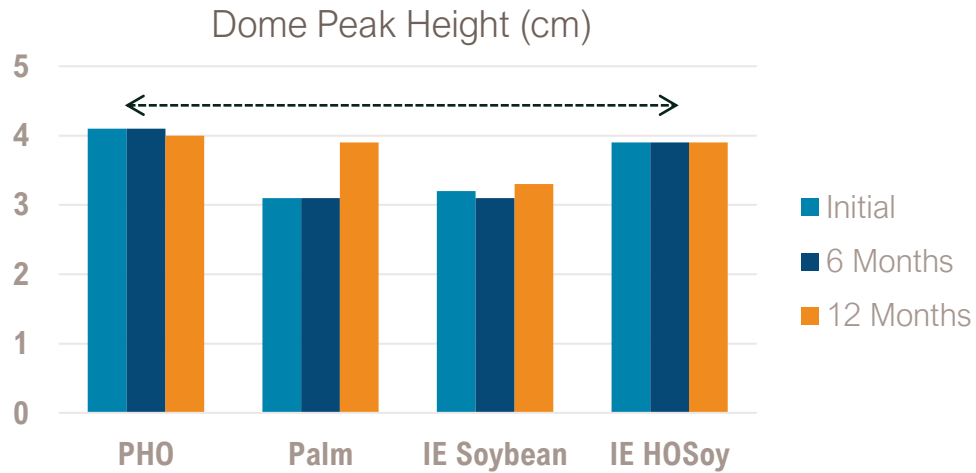
Sugar Cookies

Cookies made with high oleic soybean and conventional soybean shortening had a more tender mouthfeel



Source: Results from Bakery Applications study. "A Bakery Application Review of Partially Hydrogenated Shortening Alternatives."
Stratas Foods, LLC. 2016.

White Cake

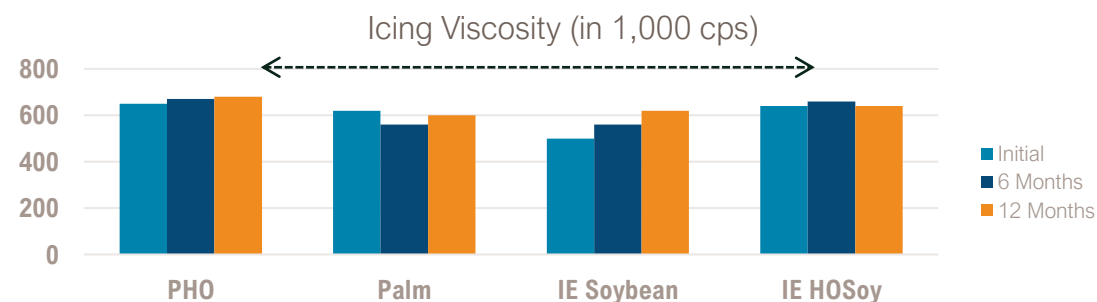
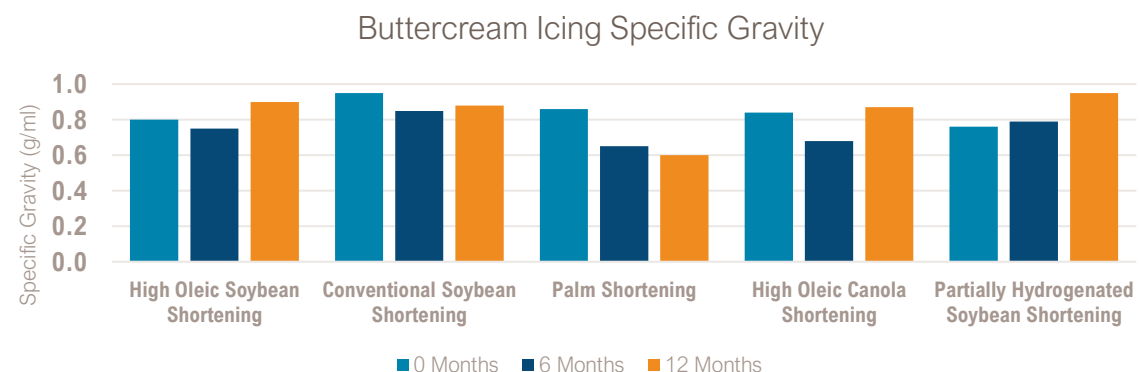
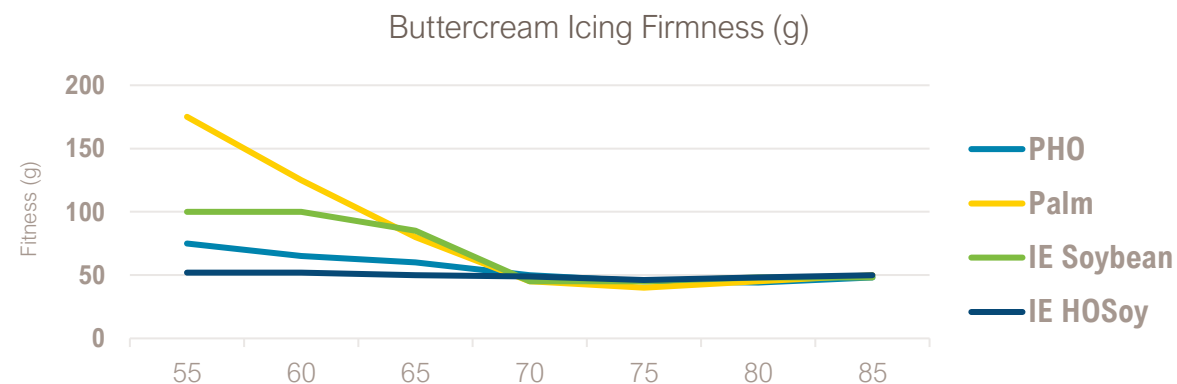


Cakes made with high oleic soybean shortening were most similar to cakes made with partially hydrogenated shortening

Buttercream



Icing made with high oleic soybean shortening is smooth, light and easy to decorate with

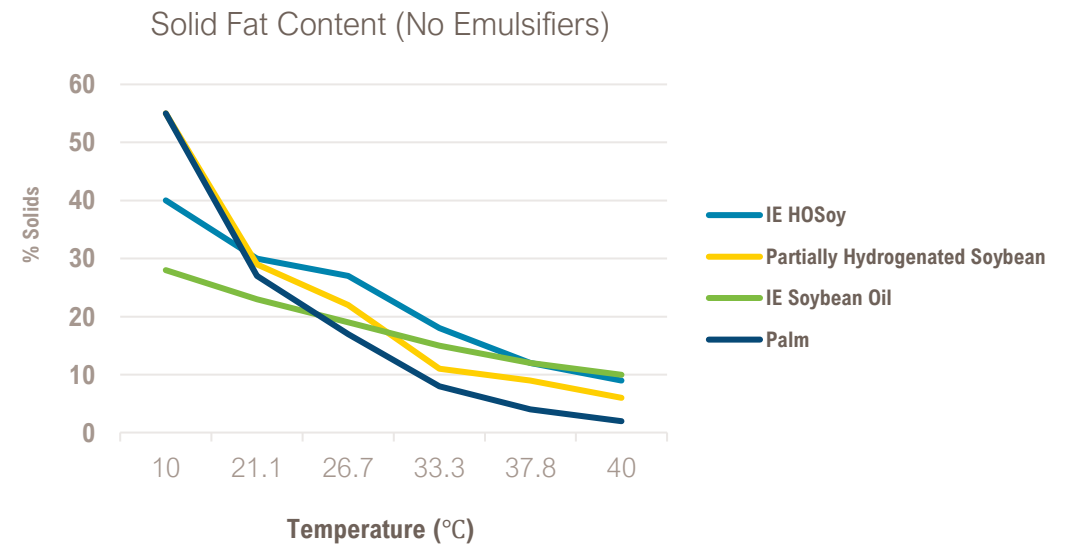
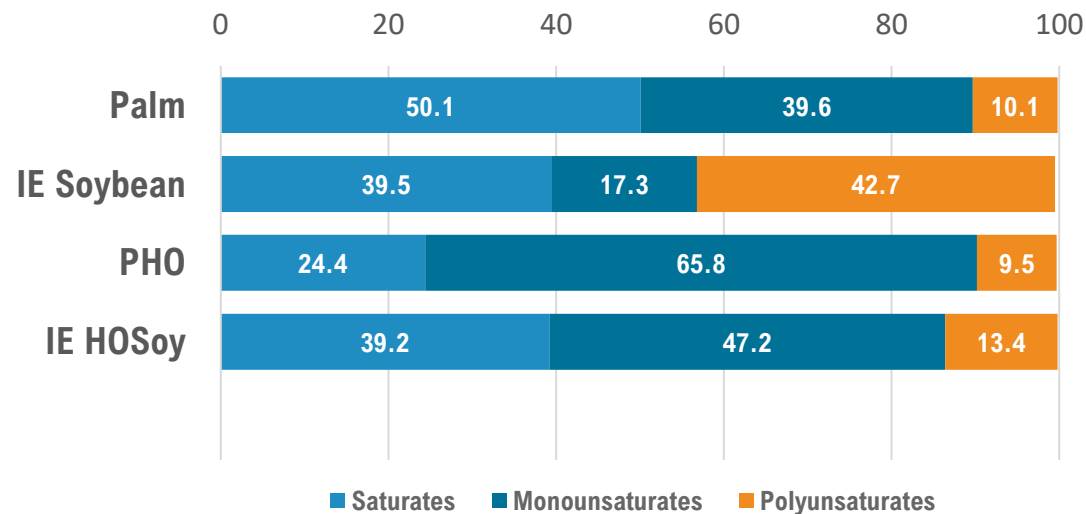


Shortening Performance

Provides barrier between folds and lamination

Most common fats used are butter and margarine:

- Selecting a fat suitable for colder temperatures is a must!
- Must be firm and plastic





Baking Study Conclusions

- Interesterified HOSoy outperforms palm-based shortenings in white cakes and buttercream icing
- IE HOSoy cookies, cakes and icings showed the most consistent and similar results to PHO
- IE HOSoy is a domestically grown “drop in” replacement for palm and PHOs
- HOSoy is the best solution for replacing synthetic antioxidants
- Consumers place high priority on buying foods produced with U.S. grown crops

Source: Results from Bakery Applications study. “A Bakery Application Review of Partially Hydrogenated Shortening Alternatives.” Stratas Foods, LLC. 2016.



Pie Crust Study



Blind Baked Shell (Hand Rolled)

- Results from this study showcase lard and IE High Oleic Soybean with even browning and minimal shrink
- IE Soy had some uneven browning but minimal shrink
- Palm showcased excess shrink causing cracking due to space between dough and pan



IE HOSOY



IE SOY



PALM

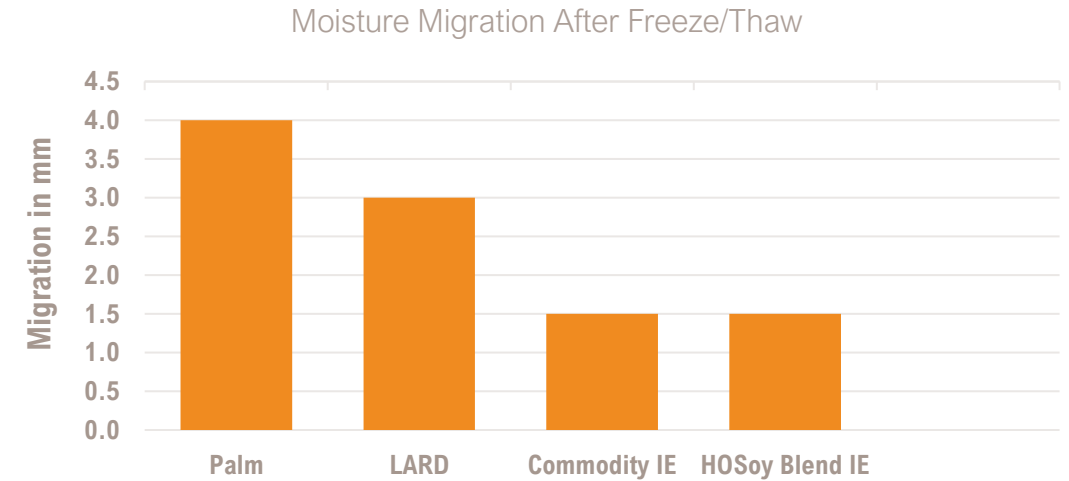


LARD

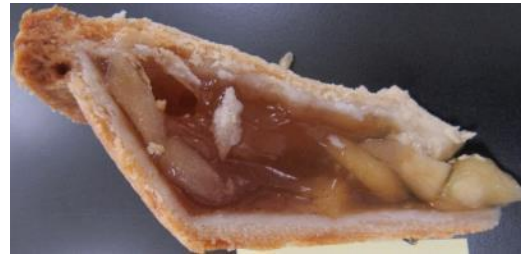
Moisture Migration

Results from this study show both IE soybean shortenings provided minimal moisture migration

Palm showed the most migration due to uneven browning from improper distribution of shortening



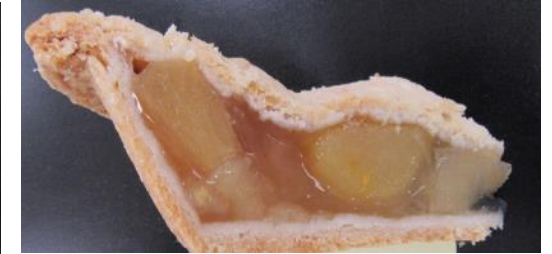
IE HOSOY



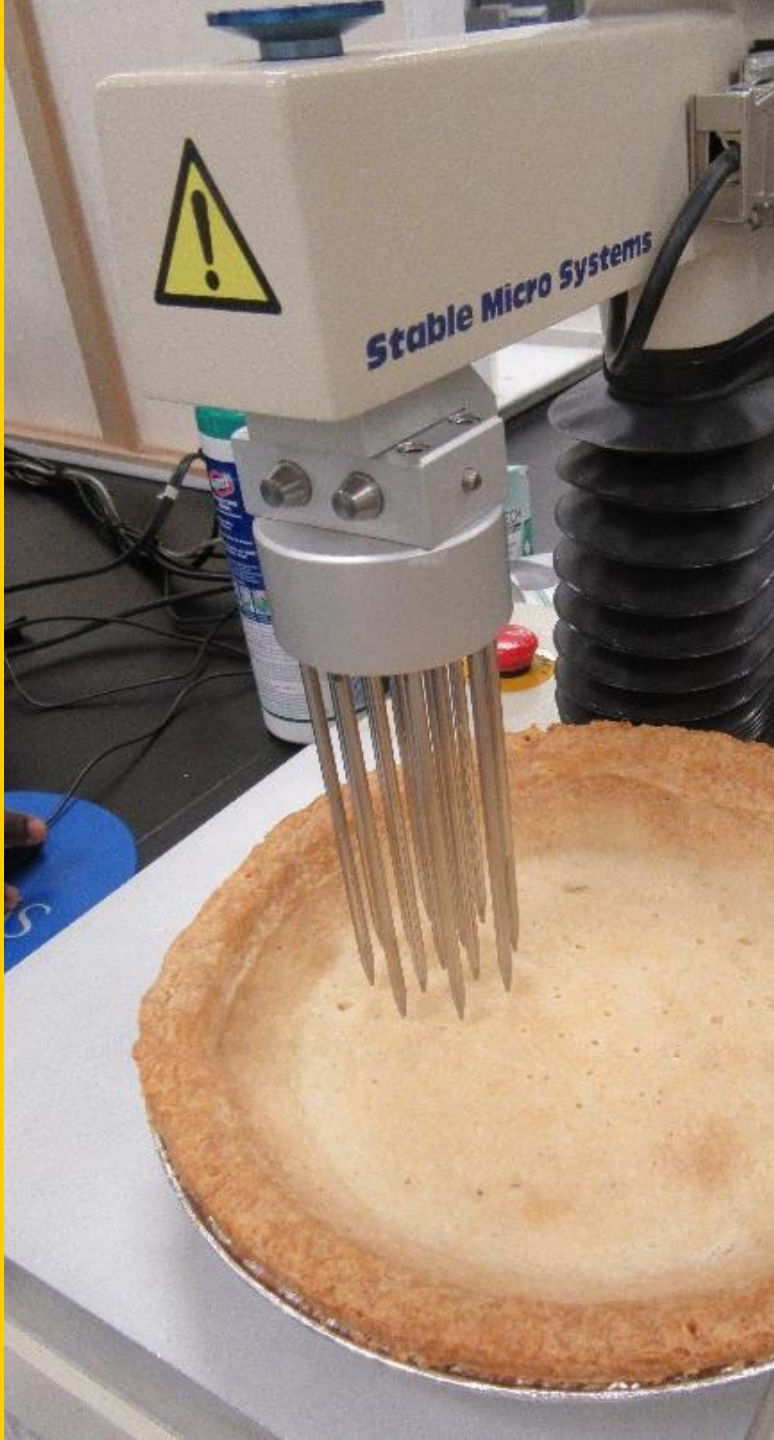
IE SOY



PALM



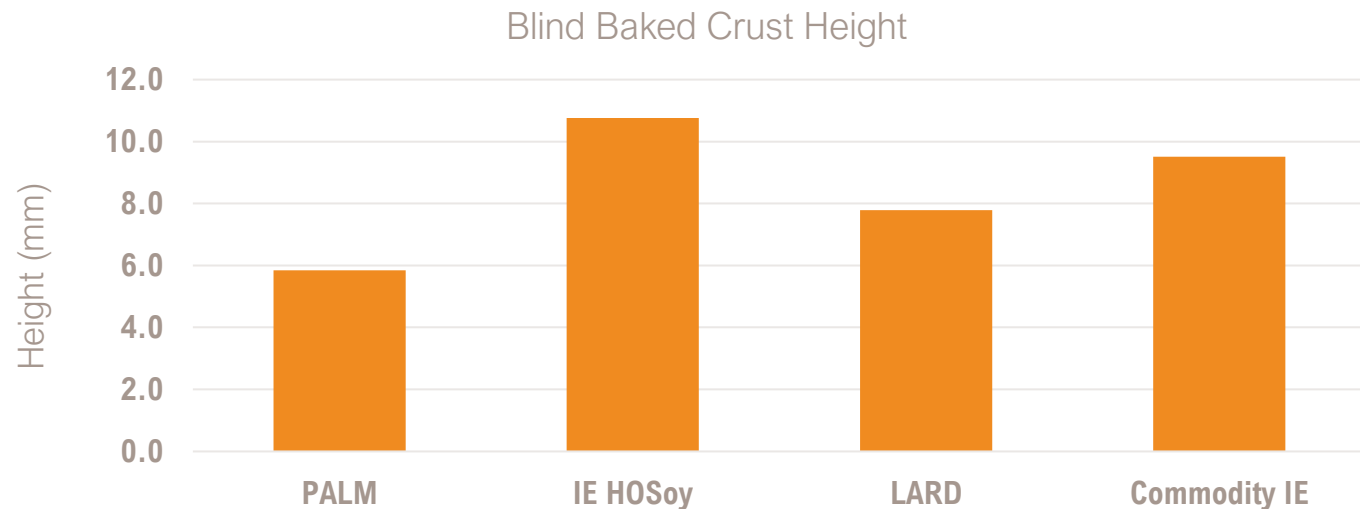
LARD



Baked Crust Height

Lard, IE soybean, and IE High Oleic Soybean resulted in adequate crust height allowing a layered, flaky center

Palm displayed the least amount of height, indicating improper fat layering, which resulted in pockets rather than layers in finished rolled and baked dough



Source: Results of Puff Pastry and Pie Crust Functionality Study. "An In-depth Look at Pie and Puff Pastry Fat Options." Stratas Foods, LLC. 2018.

Pie Crust Summary

- Palm shortening at colder temperatures (40°F) is considerably more firm/brittle than IE HOSoy, IE Soy, and lard
- IE HOSoy and lard showed the most consistent browning and minimal shrink in finished baked crust shell
- Both IE soybean products showed minimal moisture migration in finished pie, with palm shortening showing the most
- Both IE soybean products and lard showed adequate crust height and layering, with palm resulting in thinner crust due to improper fat distribution



Puff Pastry Study



Puff Pastry Dough Squares

Results from this study showcased both IE soybean margarines with similar puff height

Palm showcased the least height and butter actually puffed so much the layers toppled over



IE HOSOY



IE SOY



BUTTER



PALM

Puff Pastry Squares

Results from this study showed butter and IE HOSoy margarine with the most consistent honeycomb structure

IE soy margarine had some large pockets throughout and palm margarine showed one large void with minimal honeycomb structure found



IE HOSOY



IE SOY



BUTTER

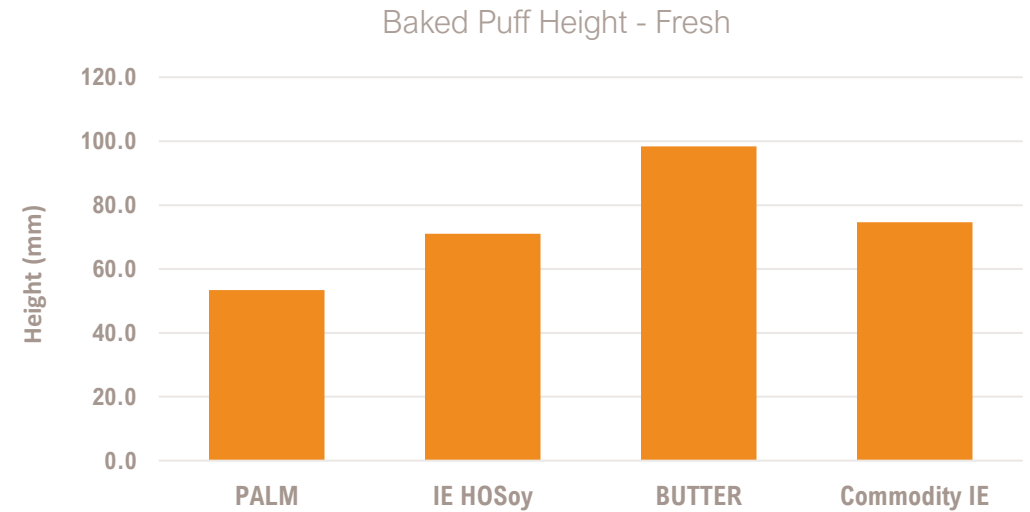


PALM

Puff Pastry Height

Results from this study showed butter averaging the most height

Palm showcased the least height combined with crosscut pictures that indicate poor honeycomb structure which will result in a poor overall eating experience



IE HOSOY



IE SOY



BUTTER



PALM

Puff Pastry Summary

- Butter puffed the highest in the square application. Both IE soybean oil margarines provided nice puff height while the palm margarine did not puff to desired height
- Butter and IE High Oleic Soybean Margarine resulted in excellent honeycomb internal texture. Palm margarine resulted in huge voids with little to no honeycomb structure
- Butter and both IE margarines provided a tender, flaky filled pastry with good layering and puff
- Palm margarine resulted in excess browning and poor puff under the same conditions and will require recipe changes to create a desirable end product

