

Free Fatty Acids

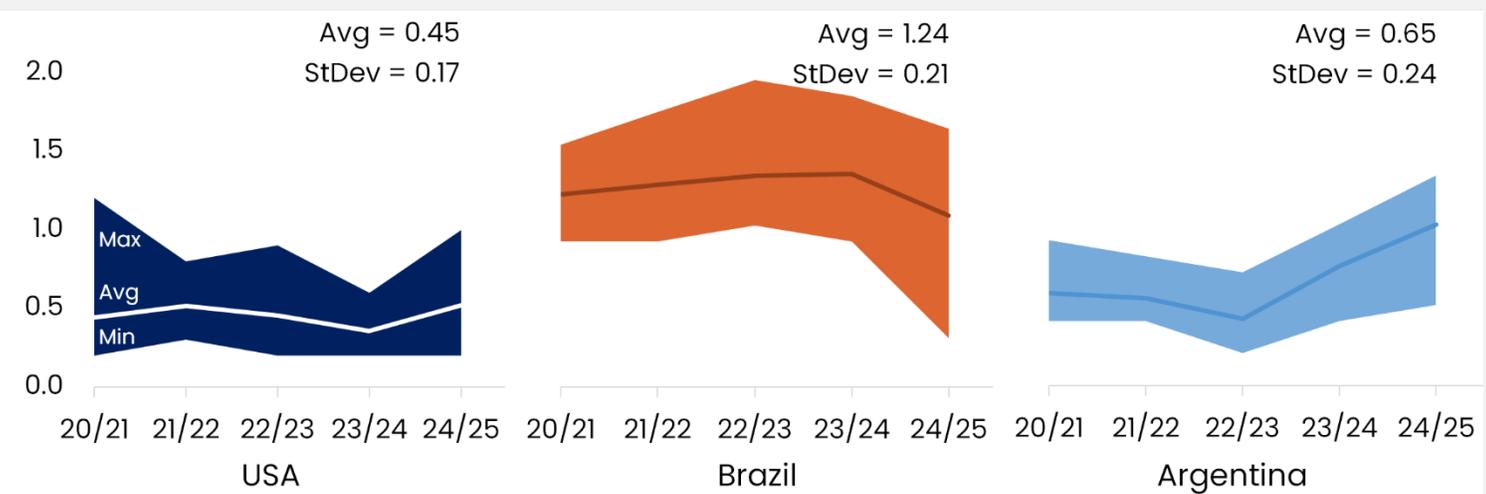
- » Free fatty acids (FFA) are naturally present in soybeans and impact the quality of refined, bleached and deodorized soybean oil (RBD SBO). 
- » FFA impacts the odor, flavor, rancidity and shelf life of RBD SBO. These adverse effects make it necessary to reduce FFA during the refining process.

Refining Cost & Yield

- » The lower the FFA concentration, the lower the alkali dosage required and the lower the neutral oil loss.
- » A low FFA content leads to lower refining cost and yield loss (higher margins).



Free Fatty Acid (FFA, %) by Soybean Oil Origin



FFA concentrations in U.S. soybean oil are lower and more consistent (lower standard deviation) compared to other origins.

Source: USSEC in-market survey

U.S. Soy Advantage

- » Soybean oil derived from U.S. soybeans has lower FFA concentrations compared to soybean oil of other origins.
- » Lower FFA concentrations reduce cost during the refining stage, improving profit margins for the final refined oil.



Refining Benefit

- » On average, FFA in U.S. soybean oil is 2.75x lower than FFA in Brazilian soybean oil
- » Neutralizing costs (cost of the caustic solution) are 2x lower to refine U.S. compared to Brazil soybean oil.
- » That is almost \$2/MT per day in cost savings refining U.S. soybean oil

Source: USSEC Soybean Oil Value Calculator, Centrec Estimates