

## **Analysis of Total Fat and Total Protein Percentages from 2018-2020**

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The seeds of cultivated peanut are an agronomically important crop produced for human nutrition providing protein, lipids, and complex carbohydrates. With an average of 7g of protein per serving, peanuts and peanut butter are an important plant-based protein source. Lipid (fat) content is the predominant macro component, and generally increases as the peanut matures. Given the trend of increasing fat content with maturity, questions regarding the impact of fat content as compared to other macronutrients arise. We examined the relationship between total fat and total protein over 3 different crop years. 78 samples were gathered during harvest from the SE region of the US (provided by Birdsong Co.) and analyzed for total fat by solvent extraction and total protein (Dumas Test, Medallion Laboratories). Total fat ranged from 42.6% to 50.3% and averaged 46.4%, 46.3%, and 45.6% respectively for the 2018-2020 crop years. Total protein averaged 23.9%, 24.0%, and 23.1% respectively, ranging from 21.8% to 25.9% over the three-year period. When comparing the two traits, it was noted that generally total protein decreased as total fat increased demonstrating an inverse relationship. The environmental conditions and overall crop maturity impact the significance of the relationship between fat and protein content. Guidelines for managing maturity as it impacts total protein may be a consideration going forward pending additional data across growing regions and crop years.