

#### Abstract:

Understanding the relationships between raw material properties and how those raw materials should be optimally processed is vital for enhanced utilization of potatoes (*Solanum tuberosum*). Our objective was to investigate the effect of starch swelling properties on the textural response of processed potatoes (cv. 'Russet Burbank'). Potatoes of high and low solids content were selected from a batch of tubers in two growing seasons. Excoriated and whole potato cylinders were excised. Three blanching conditions were selected: standard, low temperature long time (LTLT) and high temperature short time (HTST). After blanching the textural response of the cylinders was measured in compression. Modulus values of the excoriated cylinders were substantially lower than would be expected from a simple reduction in the cylinders' cross-sectional area. Blanching conditions also had a significant effect on the modulus values for the whole and excoriated cylinders. Hunterlab L (lightness) values of the resulting French fries were also monitored, but treatments were not statistically significantly different. The blanching operation is thus an important element for controlling product texture, even for tubers whose colour quality is such that extensive blanching is not required.