**Digital Imaging for Grain Quality in Mungbean**

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Grain quality is an important factor in the production of mungbeans in Australia as price is dependent on quality traits and premium international markets quality specifications. Current grain quality assessments are based on visually scored of clean grain samples. This process is very time consuming, requires specialised skills and training and could be subjective.

In order to obtain objective grain quality data, we investigated digital image analysis using the SeedCount [1] machine. This machine takes an image of the sample of grains evenly distributed in a well plate and analyses the image to retrieve data on traits such as size (length and width), area, area/width ratio and colour (LAB coordinates). The standard results of the SeedCount machine are averaged across all grains in the sample.

When the sample is not clean, this averaging of the sample also includes outliers and noise such as broken, mishappen and discoloured grain. However, individual grain data from each sample can be extracted from the SeedCount machine allowing us the opportunity to investigate the individual grain data, remove the outliers and average the sample excluding the noise.

We have successfully imaged samples from six replicated trials from the National Mungbean Improvement Program (NMIP). The aim of investigation is to use this image data to define a simple algorithm to “clean” the grain sample from each plot and then to define grain quality traits that can be used in linear mixed model analyses to enhance the selection for grain quality traits in earlier stages of the mungbean breeding program.

***References:***

[1] https://www.nextinstruments.net/index.php/products/seedcount