

2020/2021 Summer Crop Case Study

PB Agrifood variety by seeding density

Trial Overview

The purpose of the trial was to assess the performance of two new PB Agrifood soybean varieties for the Central sugarcane region at two different sowing rates.



Figure 1- PB Agrifoods: Ian Morgan "Morgs" inspecting the PB Agrifood soybean trial site.

Trial location/Paddock history

The trial was located at the Farmacist *Professional Grower Network* trial site, east of Walkerston. Prior to the soybean, winter grains were established and taken to harvest. Irrigation at the site was supplied via overhead sprinklers.

Trial design & methodology

Aim

To evaluate the response of two new PBA short to mid-season varieties of soybean at two different sowing rates for the Central sugarcane growing region.

Treatments

PB Agrifood short to mid-season soybean varieties: PBA Dominator and PBA Max were sown at 250k and 300,000k seeds per hectare (seeds/ha) in an un-replicated trial demonstration design.

Planting

Prior to planting the soil nutrient status was determined with following inputs applied: lime at 2.5t/ha, nitrogen (N) at 20kg/ha, potassium (K) at 40kg/ha, sulphur (S) at 20kg/ha and molybdenum (Mo) at 100g/ha.

After fertiliser/lime application, the site was rotary hoed to incorporate inputs and bed formed in preparation for sowing.

Individual treatments were 50 x 3 metre beds at 1.6m spacings, with 2 rows per bed at 40cm row spacing, orientated north-south.

Sowing took place on the 21st of December into existing soil moisture at 5cm depth using the cooperative grower's Covington seeder box. Group H soybean inoculant was applied to the seed prior to sow.

Establishment

Emergence commenced 5 days post sowing with even establishment observed across plots. Over the course of the trial 764mm of rainfall was received and 185mm of irrigation was applied. Soil moisture status was monitored at 30cm depth via a MEA "Gdot", as soil moisture levels fell below threshold, irrigation was applied.

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Maturity

Pest pressure was monitored over the course of the trial with populations of Cluster Caterpillar, Green Vegetable Bug and Red Banded Shield Bug identified and controlled at nominated threshold levels using registered control methods.

Varieties were observed to commence: flowering (R1) 32 days post sowing and pod fill (R5) at 69 days post sowing (R5).

The PBA Dominator (300,000 seeds/ha) treatment was observed to mature first and was desiccated 108 days post sowing, with harvest occurring seven days later. The PBA Dominator (250,000 seeds/ha) treatment was desiccated on the 112 days post sowing, with harvest occurring 8 days later. Limited variation in timing of maturity by seeding rate was observed for PBA Max, with desiccation of both seeding rates occurring on 120 days post sowing, with harvest occurring approximately 10 days later.

Yield Results

Harvest results (Figure 2.) shows that PBA Dominator yielded more tonnes per hectare than PBA Max. Variety by seeding rate shows minimal variation in yield between seeding rates for either variety. Post-harvest soybean protein and oil analysis was conducted by PB Agrifood. Figure 2. shows that PBA Dominator achieved higher protein (%) levels than PBA Max overall, with the PBA Dominator (300,000 seeds/ha) treatment recording the best results; PBA Max achieved higher oil (%) levels overall. There was minimal variation in oil (%) seeding rates within varieties.

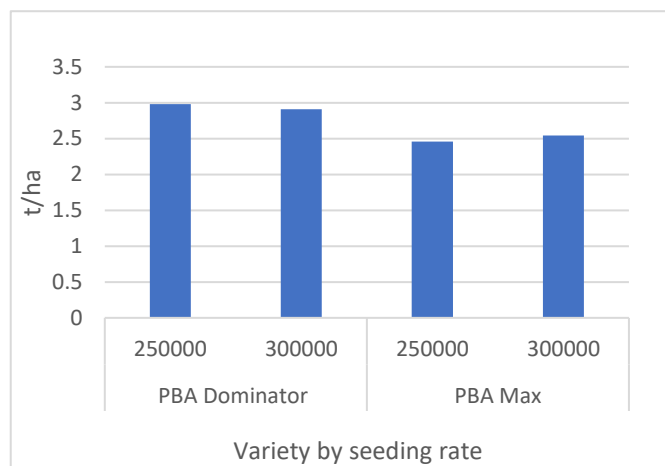


Figure 2. PB Agrifood harvest outcomes; soybean variety by seeding rate, harvest yield.

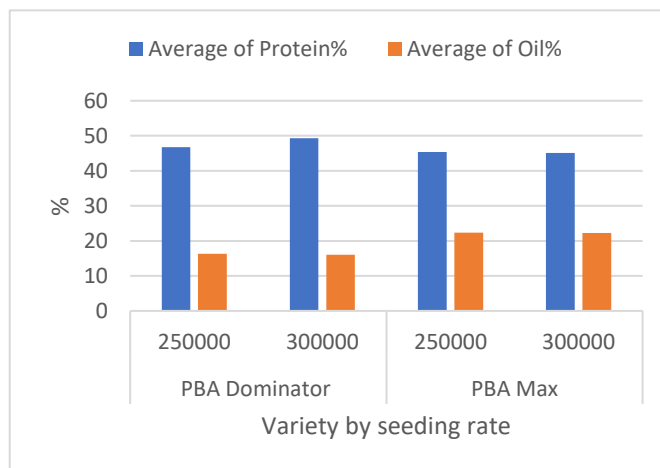


Figure 3. PB Agrifood harvest outcomes; soybean variety by seeding rate. Oil and Protein (%) at time of harvest.

Farmacist would like to acknowledge the assistance of PB Agrifood over the course of the 2020/2021 summer soybean trials.