

## QUARTERLY PROGRESS SUMMARY: July – September 2016

### A New Vision for Pastoral Agriculture through Seed and Nutritional Technology Development

#### Summary of progress during this quarter

- The nucleus seed multiplication of GPT12011 AR501 has established well and is on track for harvest in late-January 2017. AR501 selections continue to perform well in the internal and external trials, and in on-farm evaluations. Pest resistance trials have been completed and the preliminary results indicate better grass grub tolerance of perennial ryegrass plants containing AR501. Argentine stem weevil and root aphid resistance damage is also reduced in the AR501 selections.
- PGP-endophytes reduced facial eczema spore counts under field conditions, and this work is being expanded in newly established field trials. Transmission levels of our PGP-endophyte are sufficient to proceed with multiplication of seed for larger scale trials. Everything is also ready for our first animal toxicology study and for seed multiplication at Lincoln to enable a grazing trial to be run in 2017/18.
- We have continued to make excellent progress on traits that should improve feed conversion efficiency and reduce nitrogen emissions from ruminants. Furthermore the expression and inheritance of a key trait has been shown to be stable, providing good confidence that this project is on track.
- The adoption package for our new hybrid brassica has progressed well and will be highlighted at the PGP Expo in November 2016. A pre-commercial release of our new hybrid brassica is underway on a limited number of farms in both the North and South Islands.
- Herbicide tolerance of our HT kale has been excellent in replicated trials under worst case timing of herbicide application and at rates well above commercial applications. We have progressed our understanding of timing and application rate effects across regions.

#### Key highlights and achievements

- The replacement nucleus seed crop of our perennial ryegrass with AR501 endophyte has been sown. This elite selection has improved bioactivity and has shown excellent agronomic performance, outperforming more than 100 other entries across 8 locations in New Zealand. Our first selection has been entered in National Forage Variety Trials. The animal safety trials have continued to provide strong animal performance results without any adverse animal health problems.
- We have demonstrated improved water-use efficiency (+38%), aphid tolerance (+32%), clubroot resistance (100%), lower glucosinolate levels (-80%), excellent seed yield potential and improved agronomic performance (+14% DM yield) of our new hybrid brassica compared to Goliath rape across a range of regional sites. Furthermore our cattle grazing trial resulted in ~30% higher liveweight gain per hectare without any increase in brassica associated liver disease. Initial on-farm studies have also shown strong improvements in lamb finishing systems with >\$2000/ha profitability gains compared with forage rape and grass pasture.
- A nucleus crop of our new brassica hybrid has been successfully harvested and a two further multiplications have been sown in Canterbury.
- HT-C Kale is proving tolerant to Telar herbicide under worst case scenarios and is now being increased for agronomic evaluation at multiple locations.

#### Upcoming

- The forage quality attributes of our improved feed conversion efficiency project will be determined.
- Information on expanded insect tolerance from our new endophyte bioactivity project
- A conditional release of our new brassica hybrid on 1000 ha, split evenly between North and South Islands, will occur in Spring 2016. This will provide pre-commercial performance information to enhance future adoption plans.

#### Investment

Investment period	Industry contribution	MPI contribution	Total investment
During this Quarter	\$283,099	\$218,486	\$501,584
Programme To Date	\$4,442,018	\$4,218,706	\$8,660,724