

Agriculture & Food Sciences Innovation Pipeline | December 2019

PLANTS AND CROPS

Project name	Description	Partnered / Available	TRL 1 - 3	TRL 4 - 5	TRL 6 - 7	TRL 8 - 9
Crops and Horticulture						
Aussie Colours®	Water efficient flowering ornamental plants	Start-up: Aussie Colours Pty Ltd	●	●	●	●
Ruhbi™ Bayberry	New fruit for the western world - high-yielding, sweet and high in antioxidants	Licensed: PVA (Aus & NZ); AIGN (ROW)	●	●	●	●
TT Canola Hybrids	Triazine tolerant canola variety for high rainfall areas and protoplast fusion hybridization technique	Licensed: Advanta Seeds	●	●	●	●
UQ-1800 (Wheat)	High yielding wheat variety with excellent straw strength	Licensed: Seed Exchange Australia	●	●	●	●
Avocado Tissue Culture	Platform for clonal propagation of avocado rootstock	Industry Partnered	●	●	●	
XPT-UQ1203	Wheat PHS resistance in elite germplasm using UQ speed breeding technology	Licensed: Dow AgroSciences	●	●	●	
Ecoturf	Hard wearing, industrial strength landscaping grass	Available	●	●	●	
O'Hara barley	Multi-disease resistance in elite Scarlett variety using UQ speed breeding technology	Available	●	●	●	
QuGrains	Rapid trait introgression platform for plant breeding	Available	●	●	●	
High Bread	Wheat protein and genomics that give good bread rising properties	Available	●	●		
Midas Maize	Maize and popcorn varieties rich in zeaxanthin for novel food products with reduced artificial colours and macular health	Available	●	●		
RipeStuff™ Ethylene powder	Novel delivery of ethylene for fruit stimulation and growth promotion	Available	●	●		
Sorghum Digestibility	Modified sorghum seed proteins to increase total protein content and digestibility	Available	●	●		
SupaSorghum	Protein modification and genomics for increased grain size, protein content and digestibility	Available	●	●		
UAV crop analysis	Power efficient UAV design platform with long flight times, coupled with crop imaging analysis tools	Available	●			
Plant Disease and Pest Control						
Di-Bak Parkinsonia	Fungal bioherbicide and novel application method for woody weed control	Start-up: BioHerbicides Australia (Aus)	●	●	●	●
Bioclay Layered Double	Nanoparticle platform for delivery of RNAi mediated crop protection against sucking insects & viruses	Industry Partnered	●	●		
Nexgen Plants	Novel platform for development of virus resistant varieties for major crops using transgenic, cisgenic and marker assisted	Start-up: Nexgen Plants Pty Ltd	●	●		
Plant Root Fungal Protection	Novel mechanisms and compounds for plant protection against plant root fungal pathogens	Licensed	●	●		
Flocculation Diagnostic	A simple and effective amplified DNA diagnostic readout system, particularly suited for in-field pathogen testing	Available	●	●	●	
Rapid Nucleic Acid Extraction	Method for extraction of amplification-ready nucleic acids from crude plant tissue or soil samples in just 30 seconds	Available	●	●	●	
Cyclotides	Plant derived biopesticides and stable peptide structures for bioengineering new pesticides	Available	●	●		
Fungal biocontrol	Growth promotion and biocontrol of fungal pathogens with novel bacillus species	Available	●	●		
Nanocapsules for active delivery	Silica micro/nanocapsules for controllable sustained release of active ingredients	Available	●	●		
Rough microcapsules	Silica microcapsules with rough projections to ensure adhesion to plants for active delivery	Available	●	●		
BenPol - Bentonite Complex	Nanoparticle platform for delivery of RNAi mediated crop protection against chewing insects	Available	●	●		

Technology Readiness Levels (TRLs)

TRL 1 Basic principles observed and reported

TRL 2 Technology concept and/or application formulated

TRL 3 Analytical and experimental critical function and/or characteristic proof-of concept

TRL 4 Component/subsystem validation in laboratory environment

TRL 5 System/subsystem/component validation in relevant environment

TRL 6 System/subsystem model or prototyping demonstration in a relevant end-to-end environment

TRL 7 System prototyping demonstration in an operational environment

TRL 8 Actual system completed and "mission qualified" through test and demonstration in an operational environment

TRL 9 Actual system "mission proven" through successful mission operations

● Already partnered ● Asset available for partnering

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ANIMALS	Animal Production						
	PAC-701 & 901	Winter adapted lucerne species with disease and pest resistance	Licensed: PGG Wrightsons	●	●	●	●
	PACL-501	Highly persistent variety of grazing Lucerne	Licensed: PGG Wrightsons	●	●	●	
	Probiotic livestock feed	Novel bacillus inoculation of livestock feed for probiotic gains	Industry Partnered	●	●	●	
	Natural feed additives	Novel additives for preservation of animal feed	Industry Partnered	●	●		
	Rough microcapsules	Natural antibiotic delivery for feed supplements	Industry Partnered (Asia Pac)	●	●		
	Algae livestock feed	Cost-efficient algae production systems for livestock feed and supplements	Available	●	●		
	Animal Health						
	Cane toad trap	Cane toad tadpole attractant	Licensed: SpringStar	●	●	●	●
	Natural anthelmintic	Natural anthelmintics from microbes for treatment of livestock	Industry Partner	●	●		
	Rough microcapsules	Silica microcapsules with rough projections to ensure adhesion to fur for active delivery	Industry Partner	●	●		
	Vaccine delivery platform	Nanovesicles for adjuvant-free delivery of subunit antigen vaccines	Industry Partner	●	●		
	Flocculation Diagnostic	A simple and effective amplified DNA diagnostic readout system, particularly suited for in-field testing and diagnostics	Available	●	●	●	
	Rapid Nucleic Acid Extraction	Method for extraction of amplification-ready nucleic acids from crude tissue samples in just 30 seconds	Available	●	●	●	
EHEC Vaccine	Novel antigens to reduce enterohaemorrhagic E. coli (EHEC) excretion by cattle.	Available	●	●			
Natural cattle tick control	Micro-encapsulated tea tree oil formulations for control of cattle tick	Available	●	●			
Silica Nanocapsules	Silica micro/nanocapsules for high active ingredient loading and controllable sustained release	Available	●	●			
Tick vaccine	Vaccine for the Australian paralysis tick (Ixodes holocyclus)	Available	●	●			
VLP Vaccine System	Recombinant protein derived low cost VLPs that can display large viral sequences	Available	●	●			
Lysozyme Encapsulation	Long-acting, targeted antimicrobial action using a natural antibiotic loaded in silica microcapsules.	Available	●				
FOOD	Post Harvest and Food						
	Novel Bacteria for hay (H57)	Novel bacillus strain for control of mould in cut hay	Industry Partnered	●	●	●	●
	Perkii™	A new juice and water, low calorie probiotic drink using the ProGel™ technology	Start-up: Perkii Pty Ltd	●	●	●	●
	ProGel™	Micro-gel encapsulation of active food supplements, human & animal drugs requiring liquid stable, low cost, scaleable taste masking &	Start-up: Progel Pty Ltd	●	●	●	●
	Healthy Baked Goods	New baked good recipes incorporating specific, cholesterol-lowering functional food additives from plant cells	Available	●	●	●	
	Flocculation Diagnostic	A simple and effective amplified DNA diagnostic readout system, particularly suited for in-field food safety testing	Available	●	●	●	
	Rapid Nucleic Acid Extraction	Method for extraction of amplification-ready nucleic acids from crude food samples in just 30 seconds	Available	●	●	●	
	Ripestuff™	Ethylene powder for in-transit fruit ripening	Available	●	●	●	
	Algal food additives	Natural algal flavour and colour enhancers from cost-effective production systems	Available	●	●		
	Probisafe™	Probiotic lactic acid bacteria which kill/inhibit the growth of Salmonella & Listeria on fresh food products.	Available	●	●		
Algae food products	Food products using whole fresh unprocessed microalgae. Strains with optimum cell wall structure for digestibility matched with high	Available	●				

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