WA Industry Research and Development Priority Investigation Areas 2022-2023

Background

The WA Pome Fruit Industry has recently finalised the strategic plan for 2021 – 2025. As such we have been planning and developing projects to meet our objectives and tactics to work in conjunction with stakeholders across the WA supply chain to ensure consumers are consistently being presented with quality fruit.

These key project areas have been based on the key deliverables of the plan descripted by the following:

1. Our vision is to ensure a profitable and sustainable Western Australian pome fruit industry meeting market requirements and consistently satisfying customer and high quality fruit.

2. Our mission is working in partnership along the value chain with stakeholders to provide industry leadership, strategic direction and innovative solutions to support a profitable and sustainable Western Australian pome fruit industry.

3. Our objectives of the plan are to increase annual retail spend for apples from $68 to $75 per household and pears from $18 to $20 in the next five years. Export 15% of WA's annual apple production and lift WA pear productivity and profitability to 4,750 tonnes and consumption to $20 spend/household/year.

The committee has expressed interest to invest into research and development projects that set out to investigate project concepts that are of interest and value to the WA industry.

Strategy 1 Productivity and Profitability

Improve capability and capacity to build your profitable 'Future Orchard'.

Tactic 1

Support capacity and capability building initiatives and benchmarking for improved decision making to drive productivity and profitability, and manage risk; climate, soil, varieties, water, technology, marketing.

Research and Development Projects to be Investigated

1. Maintaining a consistent and sustainable crop load. Managing canopy variability, assessment of soil moisture and leaf wetness under netting, nutrient management, monitoring fruit growth with non-destructive technology. Dario Stefanelli DPIRD 2021 APC Project
2. Evaluation of the growth of new rootstocks that are becoming available to Australian pome fruit growers suggested rootstocks include but not limited too; Geneva series, CG 11, 16, 41 and 202, Pajam series and M793. Tom Frankcomb APAL 2021? To be implemented
3. Develop a list of rootstocks and scions with known resistance and susceptibility to diseases specifically present in Australia and research conducted under Australian conditions. Knowledge of the interaction between species and potential management of Phytophthora diseases against rootstocks. Andrew Taylor DPIRD ARC project to be submitted…
4. Defining the Asian Palate and their desire for Western Australian Apples.

5. New cultivars of apples for the WA climate that are high colour, have excellent storing qualities and only require one pick and are suitable for robotic picking.
6. Growing systems that lower the cost of production, improve productivity and quality of apples and pears.
7. Carbon neutral Pome fruit orchards and accounting for the carbon credits. Life cycle analysis of the orchard and the packhouse for Pome fruit to analysis benefits of selling carbon credits into the market.

Tactic 4

Promote commercially available and cost effective new technologies to drive productivity improvements including crop protection, remote sensing, robotics.

Research and Development Projects to be Investigated

1. Variable rate spray technology using LIDAR technology.
2. A Kondinin Group style machinery review of the platforms available to WA Pome Growers. Assessing the economic feasibility, pros and cons of the machinery design and workability in the WA orchard. Susie Murphy White Future Orchards Trial 2022 Platform vs Bag & Ladder in Pink Lady Apples time and motion
3. Mapping Technology that is able to analysis; camera-based fruit sizing, flower mapping, pest control, weather damage and harvest forecasting.
4. Internal Browning - using more affordable technology to detect internal browning.
5. Water use, quality and security.
6. Effect of winter chill on chemical thinning options.
7. Using LIDAR technology to improve colour development under netting.
8. Apple bruising, investigating the effects of picking methods and transport during harvest, using the bruising sensor technology.
9. Encourage investment into WA industry to ensure robotic apple picking becomes an option.

Tactic 6

Manage increasingly complex biosecurity issues with investment in the WA Pome Fruit Biosecurity Strategic Plan.

Research and Development Projects to be Investigated

1. Biosecurity Horticulture Liaison Officer Project with Stone, Citrus & Bananas / DPIRD Industry Biosecurity Representation. Rachel Lancaster EATS 2021 HBLO project.
2. Analysis of the suitability of importing Mastris wasp into WA if needed for biological control agent in the event of a Codling Moth incursion was to occur in WA.
3. Explore the work done by National Fruit Fly Program using parasitiod wasp that attacks Qfly and entomopathogenic microbes (nematodes and fungi) that eat Qfly larvae in the soil and the suitability that these biocontrol agents are able to control Qfly and Mediterranean fruit fly in WA.

Strategy 3 Supply Chain Improvement

Identify and manage WA supply chain inefficiencies.

Tactic 1

Drive improvements in cool chain integrity and fruit handling, from harvest to storage and retailing including transport and retail management and display.

Research and Development Projects to be Investigated

1. Investigating the apple quality conditions from orchard to shelf. Temperature sensors monitoring temperature of apples leaving the orchard to packhouse and through DC/market to store shelf.
2. In-store fruit quality expert ensuring the treatment pome fruit in store maintains freshness.
3. Pre-harvest treatments of gala apples and how this effects the storage life and quality aspect in store.

Tactic 6

Identify levels of waste creation across the value chain and opportunities for value-adding to non-first grade fruit.

Research and Development Projects to be Investigated

1. Options for fruit waste - skins, diced fruit, peelers, fruit salad packs.
2. Building profitable beverage options for pome fruit (Cider/juice)
3. Producing advanced precision-nutrition goods: Biological active components from 2nd & 3rd grade apples and apple pomace.