

Plant & Food  
**RESEARCH**

RANGAHAU AHUMĀRA KAI



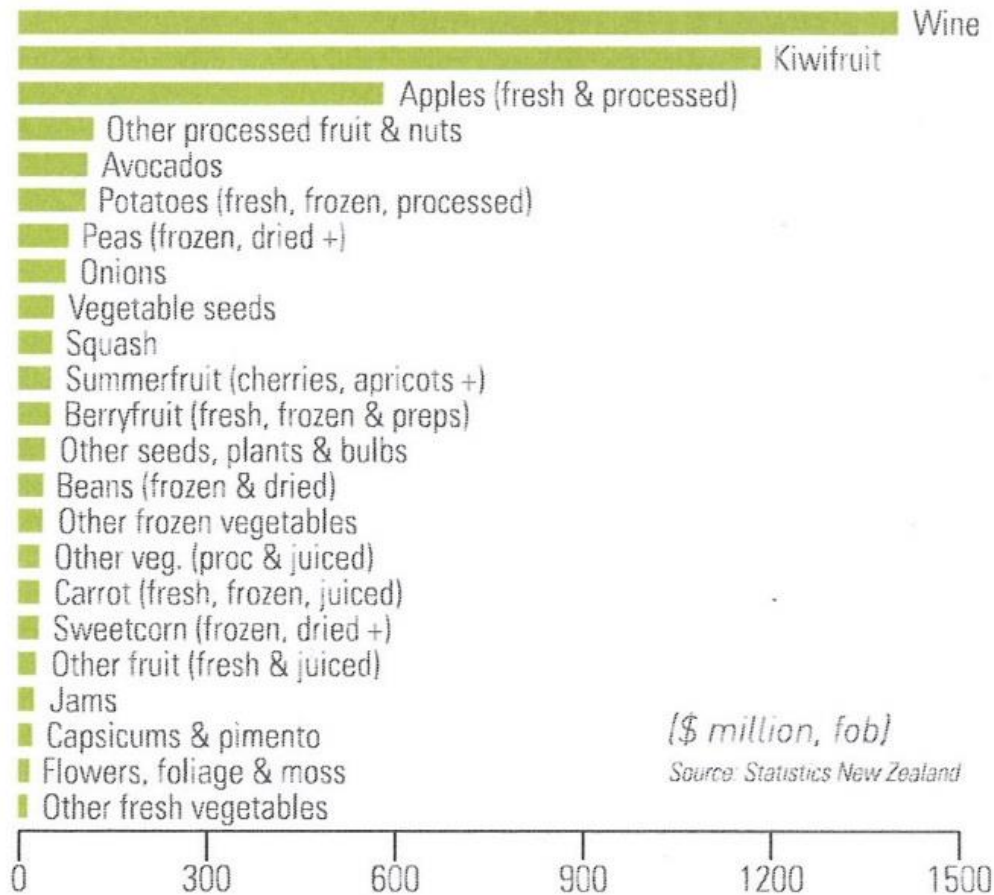
The New Zealand Institute for Plant & Food Research Limited

# The New Zealand Grape & Wine Research Programme (GWRP)

**Damian Martin**  
October 2017

# Wine is New Zealand's largest horticultural export

**Horticultural exports 2015** (\$ million, fob)



(\$ million, fob)  
Source: Statistics New Zealand

Source:  
Fresh Facts 2015



# New Zealand's largest horticultural export

June 16 year \$1.57B

6<sup>th</sup> largest export sector

National GWRP budget of ca. \$7.0M

## **Key partners:**

- » New Zealand Winegrowers (NZW)
- » Plant & Food Research
- » University of Auckland (UoA)
- » Lincoln University

NZWRC Pinot noir bid recently approved

Members rate R&D most valued

NZW service\*



# Key wine sector risks

- » Availability of irrigation water in dry years
- » Key competitors (Chile, SA) closing the style/quality gap
- » Frequency of extra warm vintages (i.e. 1998)
- » Increasing production costs
- » Short commercial vineyard life spans (trunk disease, virus)
- » Biosecurity



**Glassy winged sharp shooter + Xylella**

# Our grape and wine research



## **Authentic and Distinctive Wines**

### **1. Protecting what differentiates NZ wines from international competition**

- » Identifying key components of aroma, flavour and mouthfeel
- » Establishing roles of terroir, seasonality, viticultural and winemaking practices
- » Develop novel tools to decouple flavour from sugar in grapes
- » Te Ao Māori values are adapted into culturally and ecologically responsible viticulture practices



# Authentic and Distinctive Wines

Grape harvest and handling technologies

Desynchronising flavour and sugar

Vine management for flavour

Microbes beyond the soil

Exploiting NZ fungal communities for winemaking

Integrating habitats in the vineyard ecosystem

# Our grape and wine research



## Advancing Viticulture

## 2. Maintain/enhance the international competitiveness of NZ viticulture

Predicting the timing of key phenological stages and forecast potential yield

Provide vineyard and winery strategies to accomplish consistent yields and quality

Protect the vineyard environment through the application of defensible viticultural practices

# Advancing Viticulture

Vinefacts services

Grapevine phenology modelling

Xylem and Phloem fluxes

Reliable yield prediction by incorporating historical data  
into APSIM



# Our grape and wine research



## Vineyard Health

### 3. Improve vine, crop and vineyard ecosystem health

New knowledge of bunch fungal diseases is used to develop control tools and vineyard practices

Control systems for existing terminal disease vectors and tools to enhance biosecurity readiness and response

Cost-effective management practices for terminal vine diseases

# Vineyard Health

Semiochemicals for viticulture

Enhanced conventional control

Botrytis fungicide resistance

Powdery mildew resistance and model validation

Virus/vector management

Vineyard ground cover

Mealybug biocontrol

# Vineyard Health

Trunk disease model system

GTD transition from latency to disease

GTD molecular detection methods

Understanding AMFs in grapevines

Understanding xylella risk in NZ

Novel kairomones for invasive grapevine moths

Exploring natural enemies for GWSS in NZ

# Our grape and wine research



## Grape Genetic Improvement

4. **New clones with traits to enhance vineyard performance**
  - » Establishing a Vitis genetic resource for genetic studies
  - » More efficient grapevine TE activation & mobilisation
  - » Grape gene assembly and trait inheritance research
  - » Establishing populations of advanced selections
  - » Rootstock improvement

# NZ Winegrowers Research Centre

New governmental “Regional Research Institute” initiative

NZ Winegrowers successful application for NZ Winegrowers research Centre

National focus for wine research based in Marlborough

MBIE funding of \$12.5 million over four years and support from Marlborough District Council

Cutting-edge science, research and development to benefit NZ’s wine industry

Strengthen relationships between growers, wineries and researchers

Put the wine industry in a strong position for future growth

# NZ Winegrowers Lighter Wines

**“Position New Zealand as number 1  
in the world for high quality,  
lower alcohol and lower calorie wines”**

Primary Growth Partnership Programme

- » Market research and sensory analysis
- » Tools for vine management and winemaking

NZW + 18 co-investing wine companies + MPI

Key research providers Plant & Food Research and UoA

\$17 million total investment over seven years

Benefit to NZ of \$285 million by 2023





# NZ Winegrowers Vineyard Ecosystems

**“the resilience and profitability of the NZ wine industry has been improved through increased vineyard longevity”**

NZW + Ministry for Business Innovation & Employment Partnership  
(50:50 investment)

» Mix of stretchy science (MBIE) and applied outcomes (NZW)

Key research providers Plant & Food Research and UoA

\$7 million total investment over 7 years

Improve vineyard commercial lifespan  
by 5-10 years

Reduce reliance on synthetic  
herbicides



# NZWRC Pinot noir

## **“Growing returns through dissociating quality from productivity in NZ Pinot noir production”**

Key research providers PFR, LU and UoA

\$9.3 million MBIE total investment over 5 years

Disrupt the seesaw link between  
productivity and quality

Drive export growth

Grow production of Pinot noir wines  
in multiple NZ regions



# ACKNOWLEDGEMENTS

**Marlborough Research Centre** for the use of their vineyards

**New Zealand Winegrowers**



**Foundation for Research Science and Technology**

Many thanks also to the whole team at the **MRC** for their assistance





# Thank you

## Acknowledgements

New Zealand Winegrowers and MPI for funding much of our work

Marlborough grape growers for letting us work in their vineyards

All my colleagues at PFR

