Australian Government
Department of Industry and Science

Business Cooperative Research Centres Programme

CRCHBP

ChemCentre EXPERT SOLUTIONS

USING COMPOSITIONAL CHEMISTRY TO
- ESTABLISH NATURAL HONEY ATTRIBUTES
- BUILD AN INDUSTRY STANDARD

FOR JARRAH, MARRI, YATE AND POWDERBARK HONEY FROM WA

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Introduction

Endemic eucalypt species to WA produce unique mono-floral honeys. The compositional attributes of these honeys have been noted especially for Jarrah and Marri honeys (Manning 2011; Irish et al. 2011)

Eucalypts respond to stress and ecosystem change by varying their biochemistry, this can often express as changes in petiole sap and nectar composition and bloom characteristics.

Sampling and compositional analysis allowed variation in harvest practice employed by the beekeepers to be optimised to retain key attributes found in these honeys.

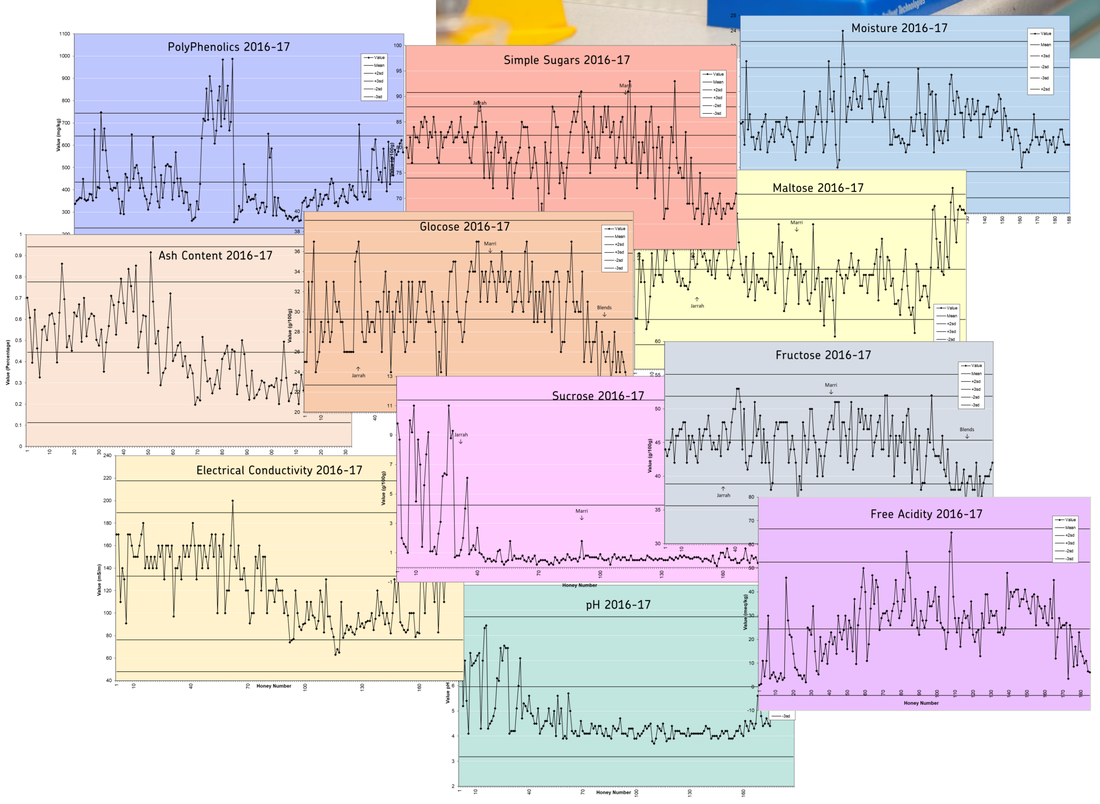
Fig. 1

Materials and Methods

A sampling program was designed to explore natural variability, source location differences and beekeeper practice in producing Mono-floral honey from varied sites in WA across different seasons.

The sites were botanically certified and site conditions noted, samples were taken of soil plant material, pollen, nectar, honey and wax.

From this collection the analytical chemistry of the honey samples was determined. This included NATA certified analysis for Moisture, Ash, Total Acidity, Electrical conductivity, pH, Antioxidant value (ORAC) Polyphenolics, Sugars, Fructose, Glucose, Maltose and Sucrose. Palynological assays were also conducted to confirm Mono-floral status.



Results and Discussion

From this analytical database mono-floral "type" compositions were determined that accounted for the natural variations in composition that presented from each site and season. The "type" outcomes were then used to inform the new industry standard for production of each of these honeys and allow certification of their natural source variety sufficient to allow classification as Jarrah and Marri under labelling regulations.

A comparison was also made between normal beekeeper practice and the outcomes leading from the research introduced frames at start middle and end of bloom and nectar flow.

Compositional chemistry analytical outcomes then informed of best practice in harvest.

Summary

- Forty-six apiary sites were sampled (Jarrah 2016, n=5; Redgum 2017, n=12; Jarrah 2017, n=13; Redgum 2018, n=16).
- Analysis was completed for Moisture, Ash, Total Acidity, Electrical conductivity, pH, Polyphenolics, Sugars, Fructose, Glucose, Maltose and Sucrose
- Climate conditions influenced honey flow and its duration, There were observable differences between honey from different apiary sites (Fig 1,3).

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