



The marri mono-floral honey pollen standard and protocols for avoiding marri blends

Lynne A. Milne
Curtin University

Co-authors: Rob Manning, Charlotte L. Mack, Robert Davis, Kenneth D. Dods

Funding: Western Australian Department of Primary Industry and Regional Development Grower Group Research and Development Grants Program — GGRD 2015-0028-AGSC, Australian Commonwealth Cooperative Research Centre for Honey-Bee Products – Project 15, ChemCentre

Speaker Bio

Lynne is a palynologist with expertise in fossil and modern pollen and spores. She completed a PhD at the University of Queensland and has since held a Re-Entry Fellowship at UWA, lectured in Geology at UWA and Curtin, and in Forensic Science at Murdoch and UWA. Currently she is an Adjunct Research Fellow at Curtin University and a consultant to the mining, petroleum and honey industries. As Australia's only forensic palynologist she was the subject of Australian Story in 2005 and is the author of *A Grain of Truth: How pollen brought a murderer to justice*.

Presentation

Pollen analysis is the primary international method for determining if a honey is mono-floral. *The Codex Standard for Honey* notes that a honey may be designated as coming from a particular floral source if it comes wholly or mainly from that source, but adds that the standard pollen content may differ for different plant species. The high diversity of plant species in Western Australia (WA) will be reflected in the standard for individual mono-floral WA honeys from different species. Establishing the natural diversity of pollen for a mono-floral honey from each of Western Australia's endemic and commercially viable Myrtaceae species is vital, and especially so for that of *Corymbia calophylla*, commonly known as marri or redgum, a honey of high commercial value and known to be highly antimicrobial.

Research was conducted on the pollen content of 298 honey samples collected from 23 beekeeper's apiaries during two marri honey flows (2017 and 2018). Honey was collected from beekeeper's frames and new foundation experimental frames at 2-3 week intervals during the flow. Results established the mono-floral pollen standard for marri honey to be 70% or more marri pollen in a recovered pollen assemblage. The aim of the study was not only to establish a mono-floral pollen standard, but also to ascertain how beekeepers might ensure a honey super contains a mono-floral marri honey rather than a marri blend. Honey from almost all of the experimental frames attained the marri monofloral standard, whereas approximately 50% of honey from the beekeeper's frames could be considered mono-floral. The international and local market for certified mono-floral marri honey is far greater than that for marri blends. We propose beekeeper practices towards ensuring a honey super will yield a marri honey that complies with the marri pollen standard.



International certification of jarrah honey: establishing a mono-floral pollen standard

Lynne A. Milne
Curtin University

Co-authors: Robert J. Manning, Charlotte L. Mack, Robert W. Davis, Kenneth Dods

Funding: Western Australian Department of Primary Industry and Regional

Development Grower Group Research and Development Grants Program — GGRD

2015-0028-AGSC, Australian Commonwealth Cooperative Research Centre for Honey-Bee Products – Project 15, ChemCentre

Speaker Bio

Lynne is a palynologist with expertise in fossil and modern pollen and spores. She completed a PhD at the University of Queensland and has since held a Re-Entry Fellowship at UWA, lectured in Geology at UWA and Curtin, and in Forensic Science at Murdoch and UWA. Currently she is an Adjunct Research Fellow at Curtin University and a consultant to the mining, petroleum and honey industries. As Australia's only forensic palynologist she was the subject of Australian Story in 2005 and is the author of *A Grain of Truth: How pollen brought a murderer to justice*.

Presentation

Mono-floral honey is a honey that comes wholly or mainly from a particular floral source. Pollen analysis is the primary international method for determining if a honey is mono-floral. The Codex Standard for Honey notes that the standard pollen content for a mono-floral honey may differ for different plant species. Certified jarrah (*Eucalyptus marginata*) honey is highly sought after nationally and internationally with the honey coming from beekeeper's apiaries situated in flowering jarrah stands in the southern forests of Western Australia (WA). The pollen standard for marri (*Corymbia calophylla*) honey is high (>70%), whereas that for jarrah honey is lower due to other species flowering in the vicinity at the same time, in particular the very similar Blackbutt (*Eucalyptus patens*). Production of mono-floral honeys requires management of the apiary such that the nectar collected by the bees is predominantly from the targeted mono-floral flowering species. Jarrah grows on hills and rises and blackbutt often occurs nearby in forest depressions, valleys and along stream banks in the same ecosystem. Blackbutt and associated myrtaceous shrub species flower during and after the jarrah flowering period. Apiary practice can result in varying levels of pollen and nectar of these species in the honey, and has prompted the research to provide an industry standard to certify jarrah honey composition and to ensure that Jarrah honey when sold is mono-floral.

Pollen analysis was conducted on 274 jarrah honey samples collected from beekeeper's frames and new experimental frames at 2-3 week intervals from 32 beekeeper's apiaries over three seasons (2016, 2017 and 2019). The morphological differences between jarrah and blackbutt trees are outlined and we identify other co-flowering species found in these ecosystems. To certify and normalise jarrah honey production in Western Australia we propose an industry pollen standard for mono-floral jarrah honey that meets international expectations, and indicate peak collection times and beekeeper practices to ensure a selective mono-floral jarrah honey.