

# The importance of nutrition for honey bee health and colony performance during crop pollination

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There is more to honey bee nutrition  
than nutritional quality!



# Floral sources of Western Australia



## Jarraah

*Eucalyptus marginata*



## Canola

*Brassica napus*



## Clover

*Trifolium repens*

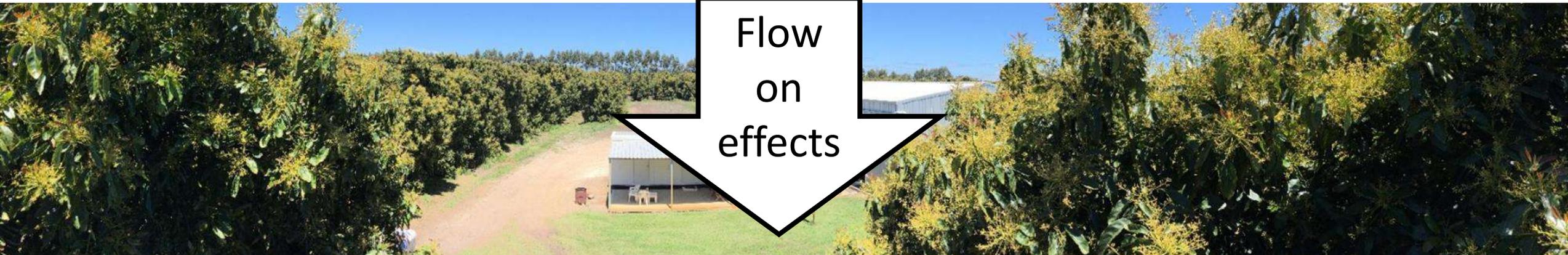


## Marri

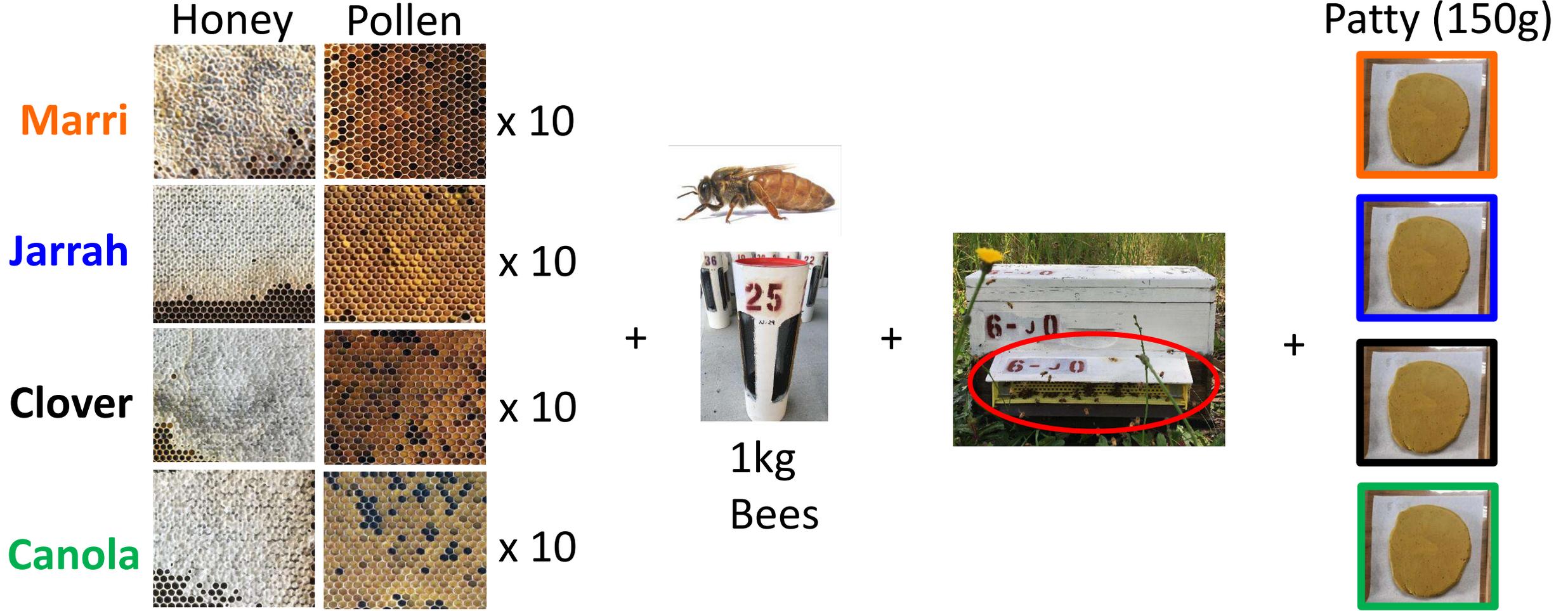
*Corymbia calophylla*



Flow  
on  
effects



# Colony setup



# Experimental timeline



Colony build up



Avocado pollination



Week: 1 2 3 4 5 6 7 8 9 10 11 12



# Jarraah

# Canola

# Clover

# Marri



**Body composition**  
(Amino acid content)



Emerging bees



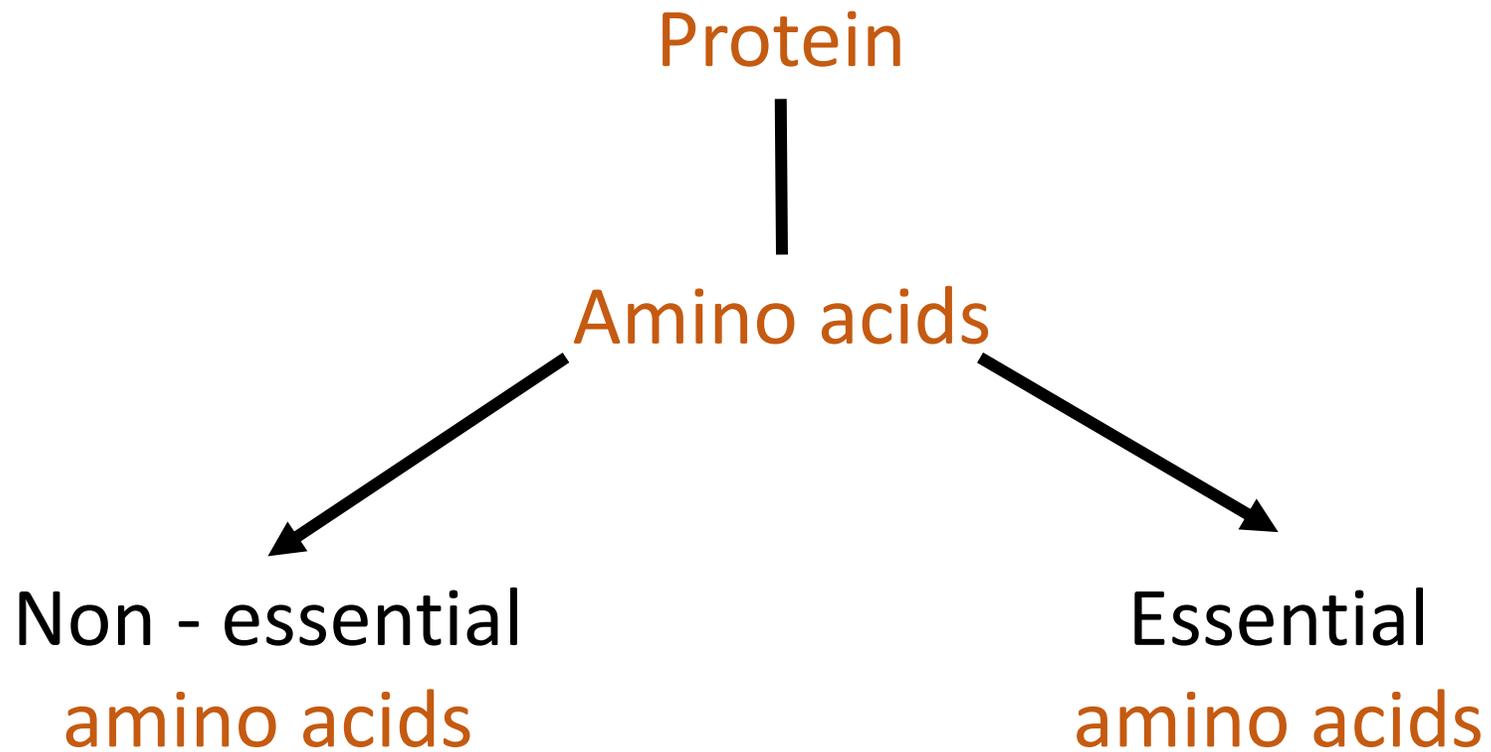
**Longevity**



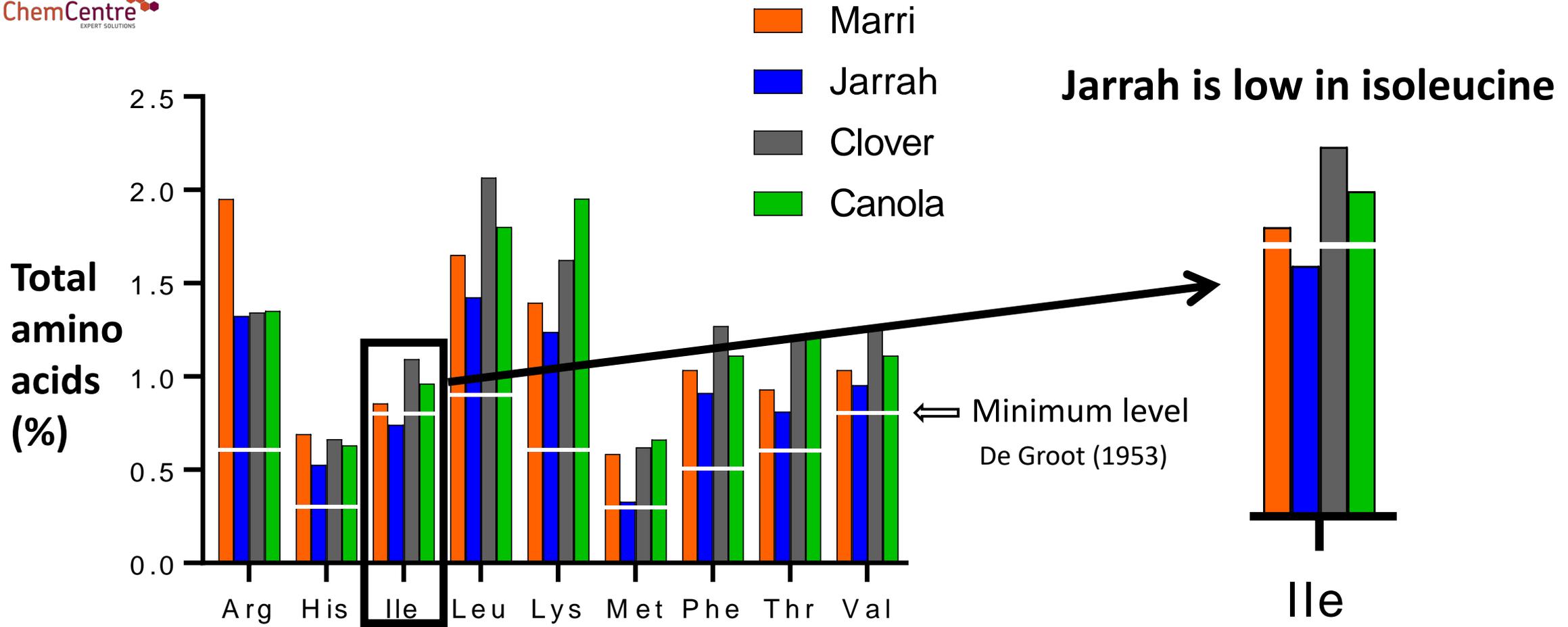
**Colony Productivity**  
(Brood count)



# Protein



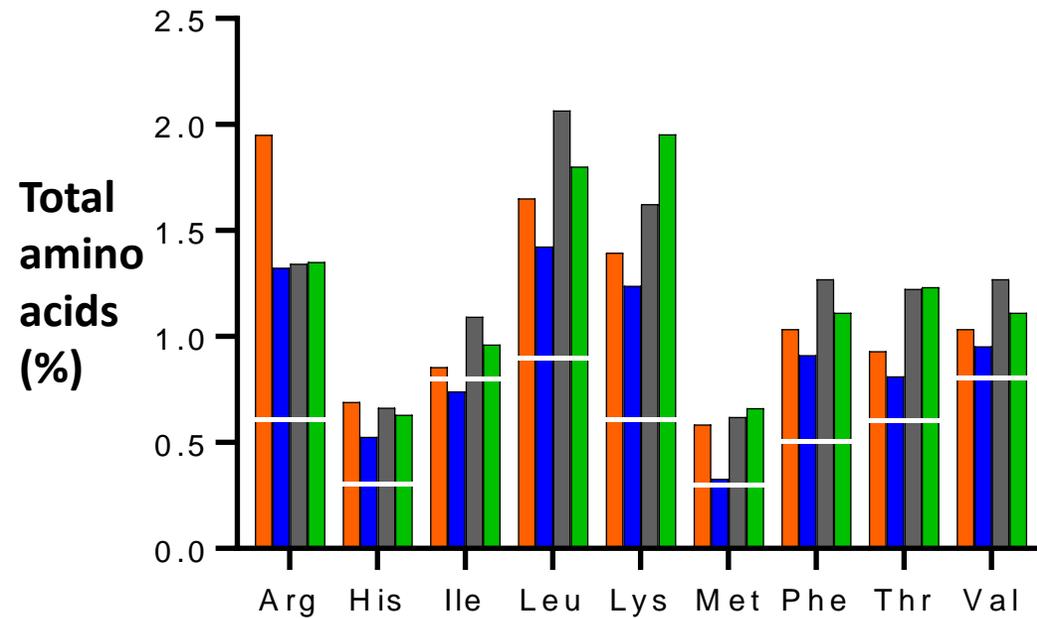
# Essential amino acids in pollen



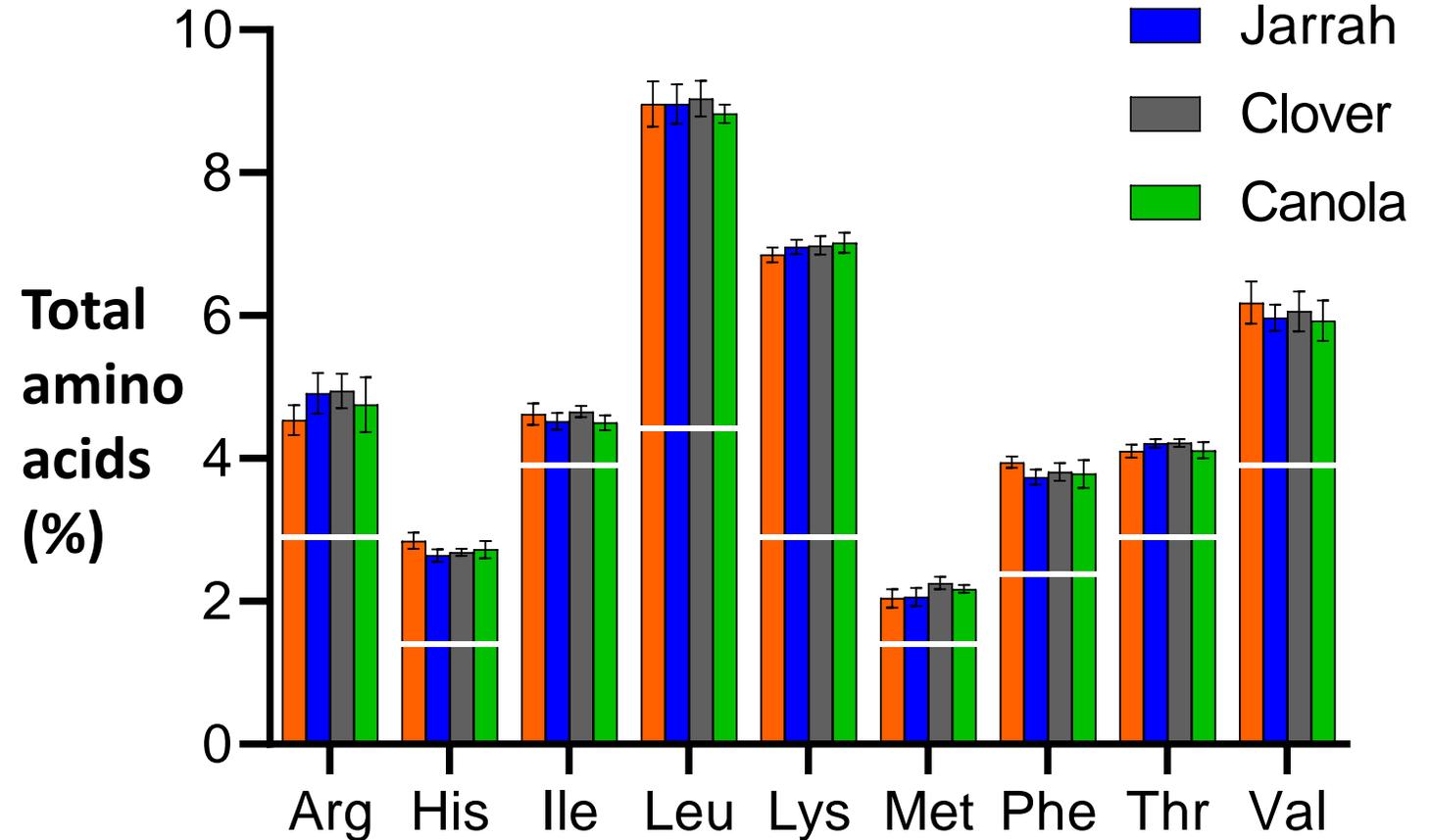
# Essential amino acids in bees



## Pollen



## Bees



# Jarraah

# Canola

# Clover

# Marri



**Body composition**  
(Amino acid content)



Emerging bees



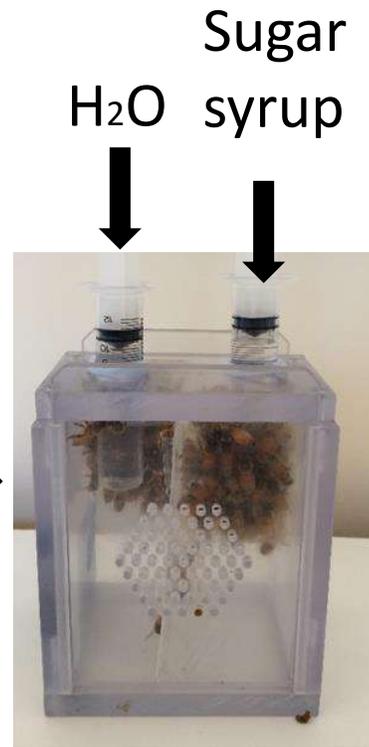
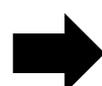
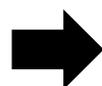
**Longevity**



**Colony Productivity**  
(Brood count)



# Longevity setup

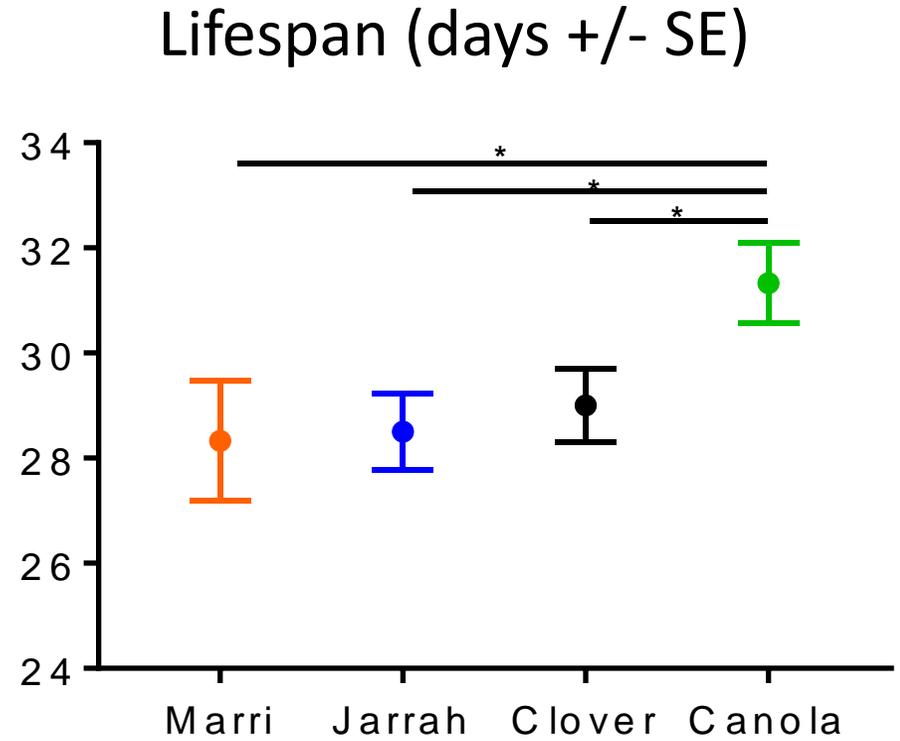
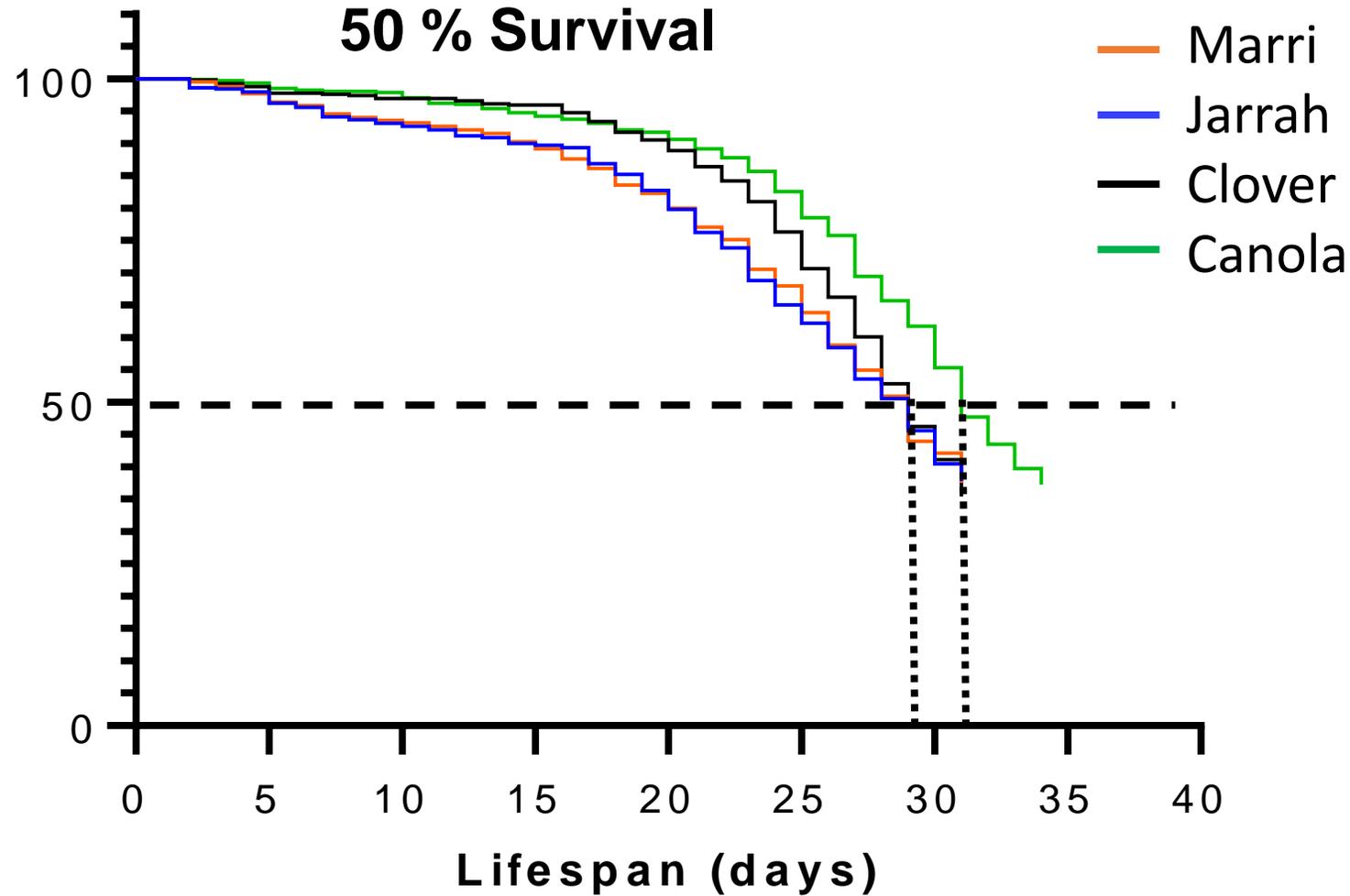


6 replicates/  
treatment

100 bees/box



# Longevity



# Jarraah

# Canola

# Clover

# Marri



**Body composition**  
(Amino acid content)



Emerging bees



**Longevity**



**Colony Productivity**  
(Brood count)



# Colony productivity



**Total**

**1,920**  
Images

**791,398**  
Brood  
cells



**Beestly software**



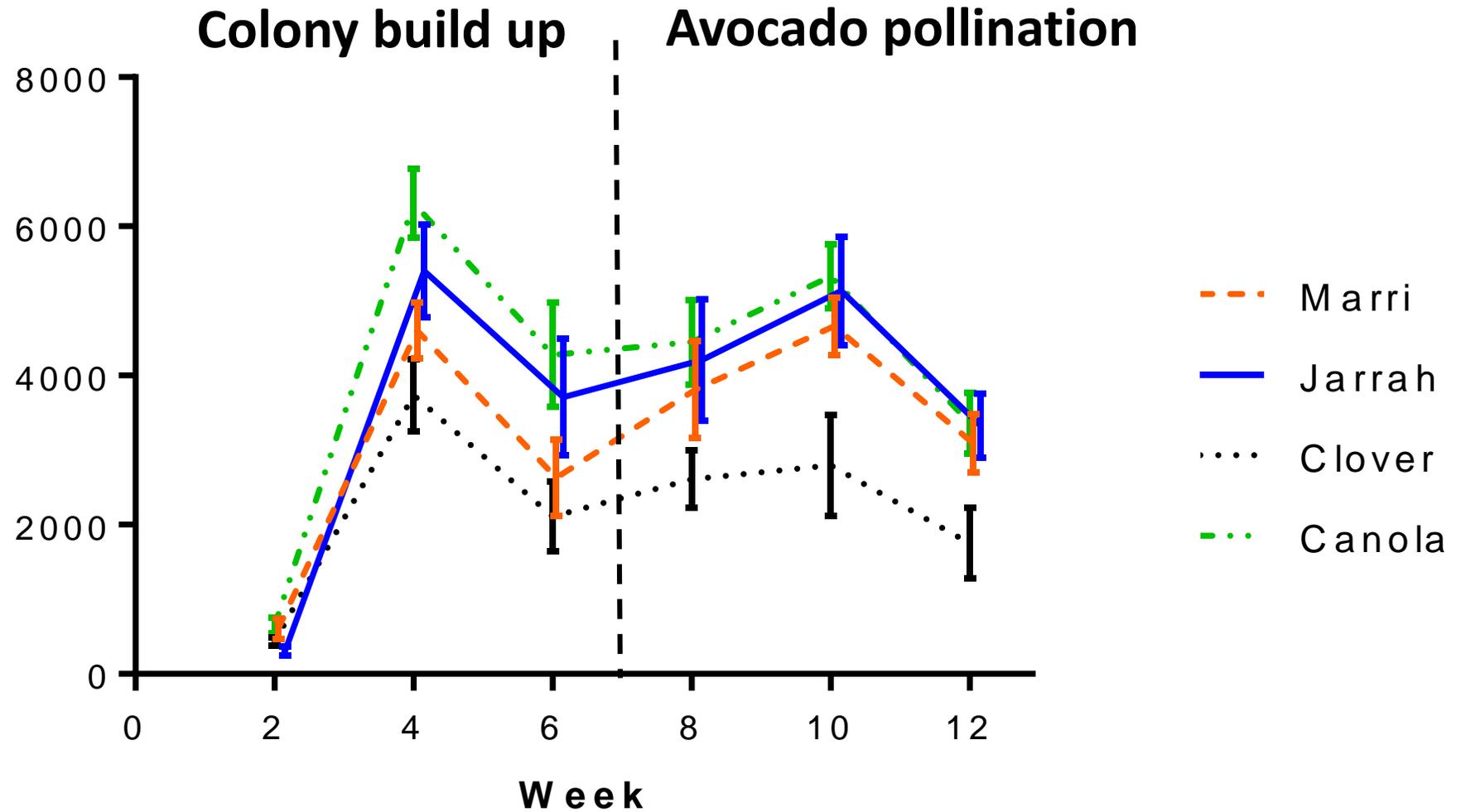
[cyency.com](http://cyency.com)



# Colony Productivity



Total brood count per colony



# What determines optimal nutrition?



	Jarrah	Canola	Clover	Marri
 Complete Food source (Amino acids)	-	+	+	+
 Amino acid body content	+	+	+	+
 Longevity	-	+	-	-
 Colony Productivity	+	+	-	+

We cannot only judge a feed source by its nutritional composition!



Dominique Blache



Rob Manning



Boris Baer



Kingsley Dixon



Ian Small

