Automated Recording Approaches reveal Novel Traits in the Honeybee (Apis mellifera)

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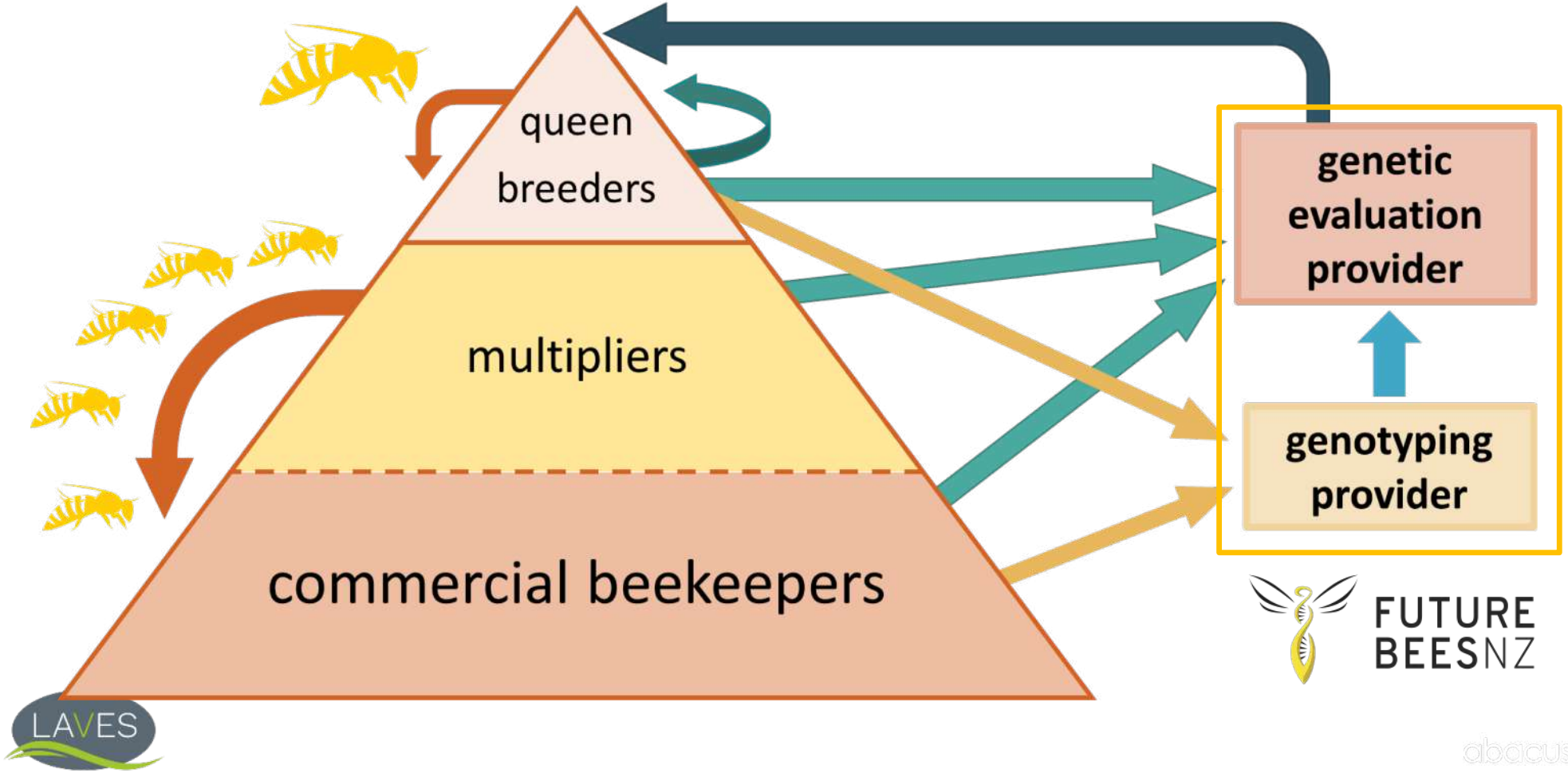
Goal for NZ Genetic Improvement System



Phenotype Collection is challenging

Hive Telemetry as an alternative Source of Data

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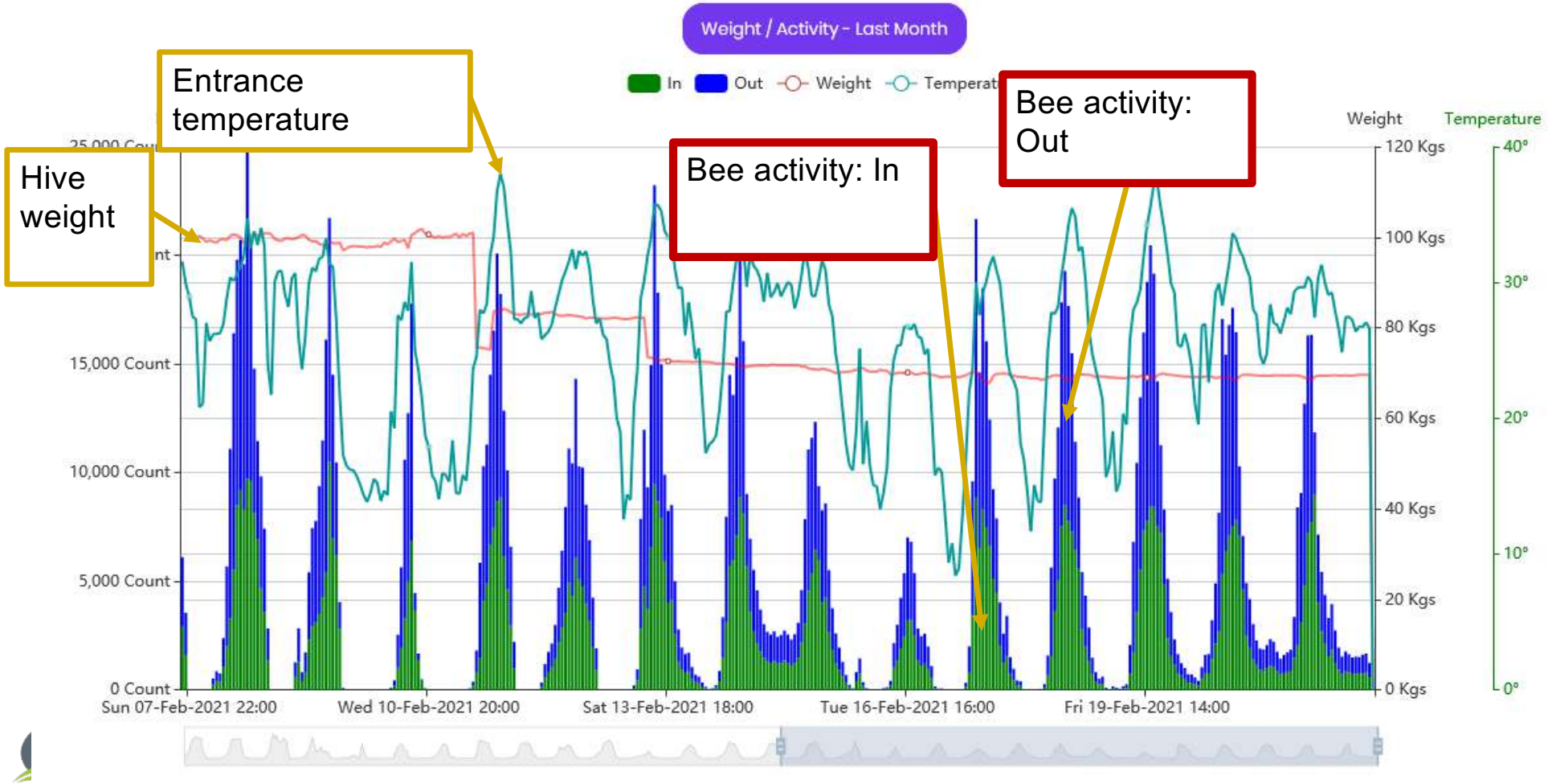
FutureBees NZ

Hive telemetry as a source of information



What can we learn from remote monitoring data?

Individual Honeybee Level

© Ray Tiddy for TPHCo

Colony Level

© Firebrand Ltd

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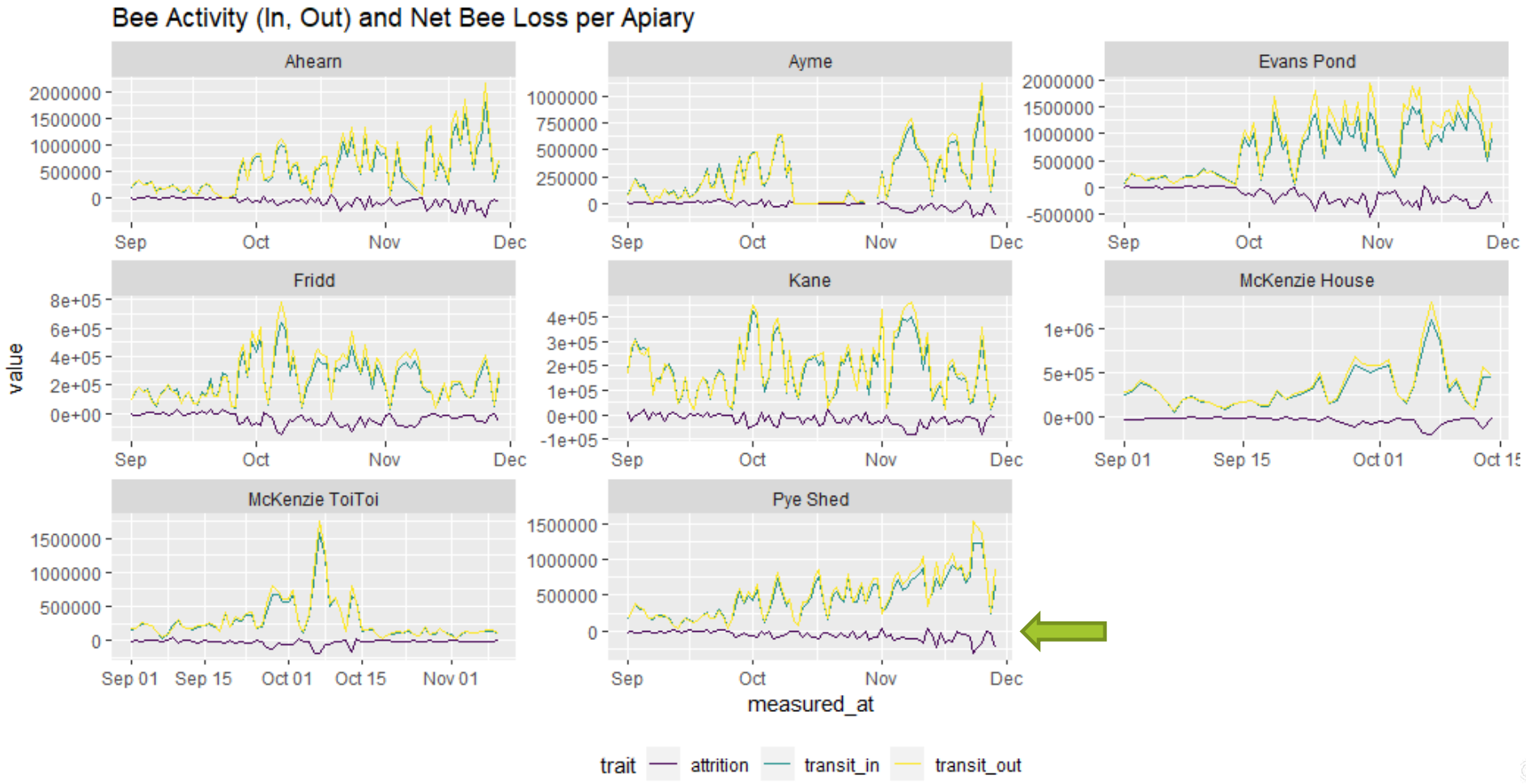
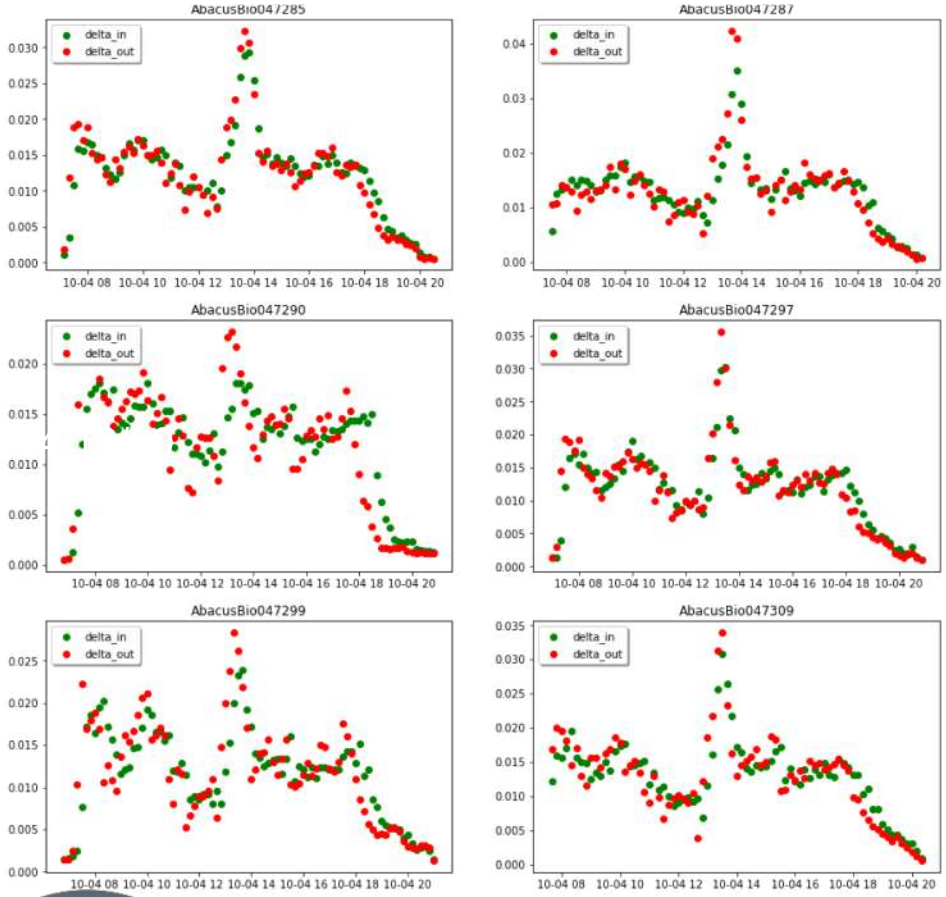
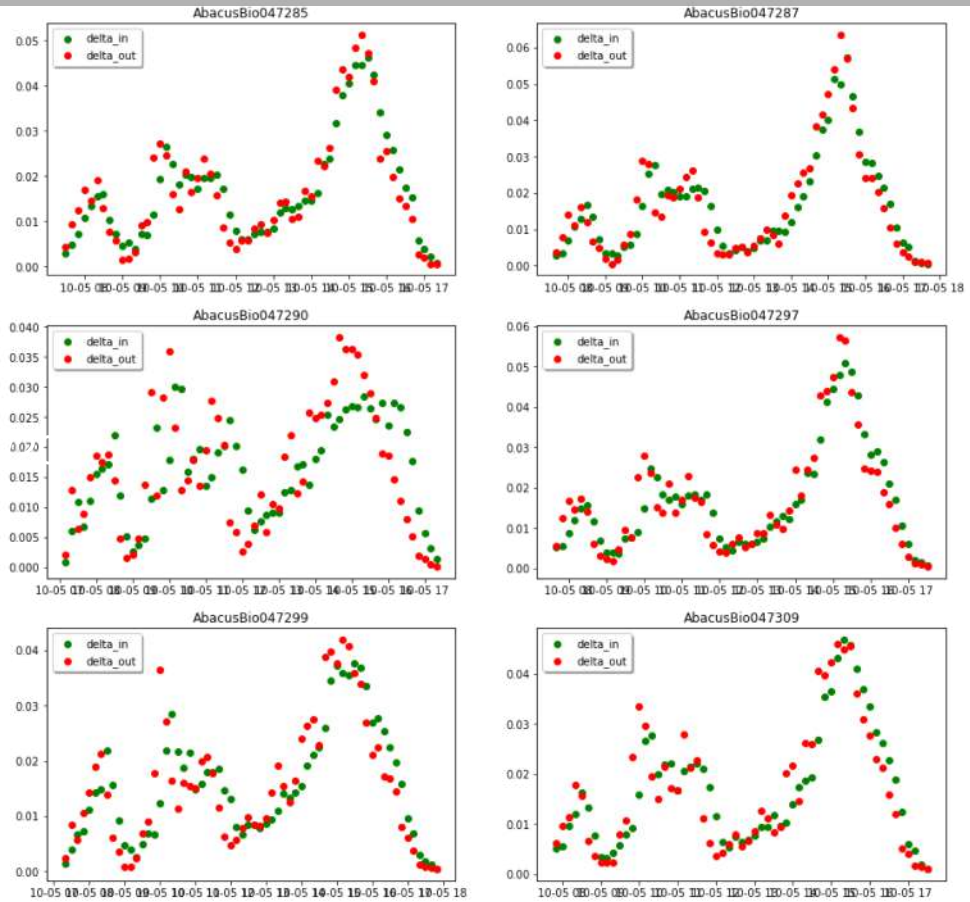
Data limitations: drift and attrition



Understanding bee activity: activity patterns





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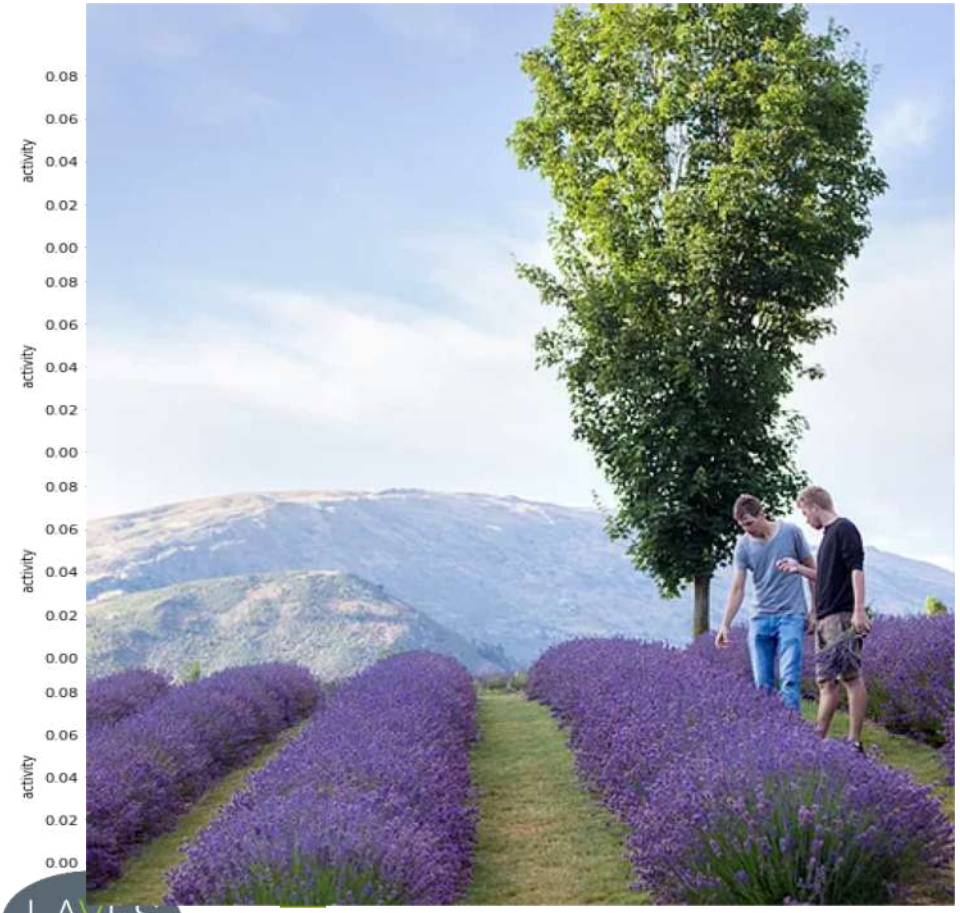
Understanding bee activity: early vs late activity



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Understanding bee activity: early vs late activity

1

Calculate the mean activity on all time stamps covering each hive

2

Perform F stat test : comparing variance of mean activity with variance of each hive activity

3

Classify the hive based on p value

- p value <0.05 : Not as per mean activity
- p value >0.05 : As per mean activity

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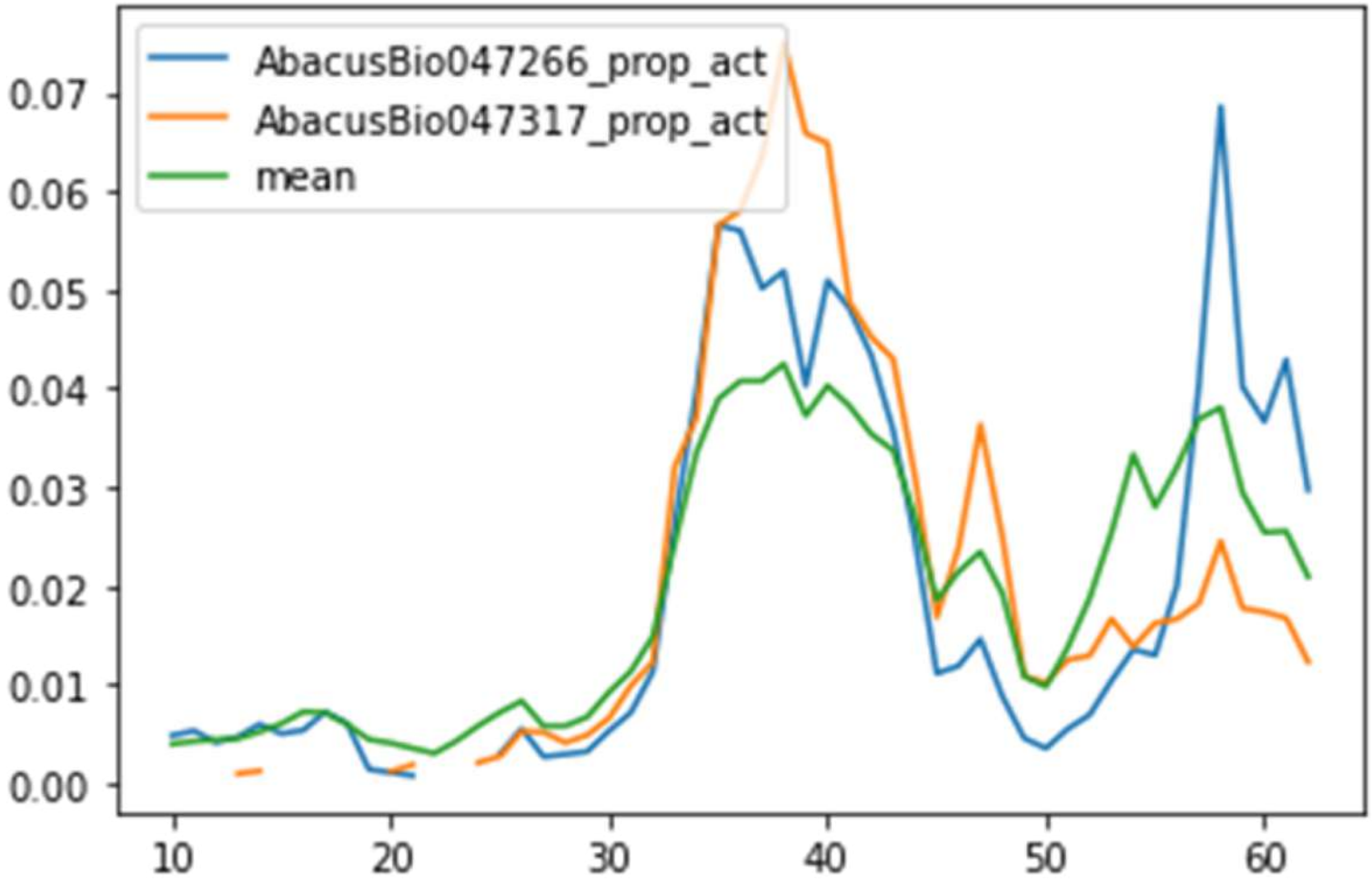
Understanding bee activity: early vs late activity



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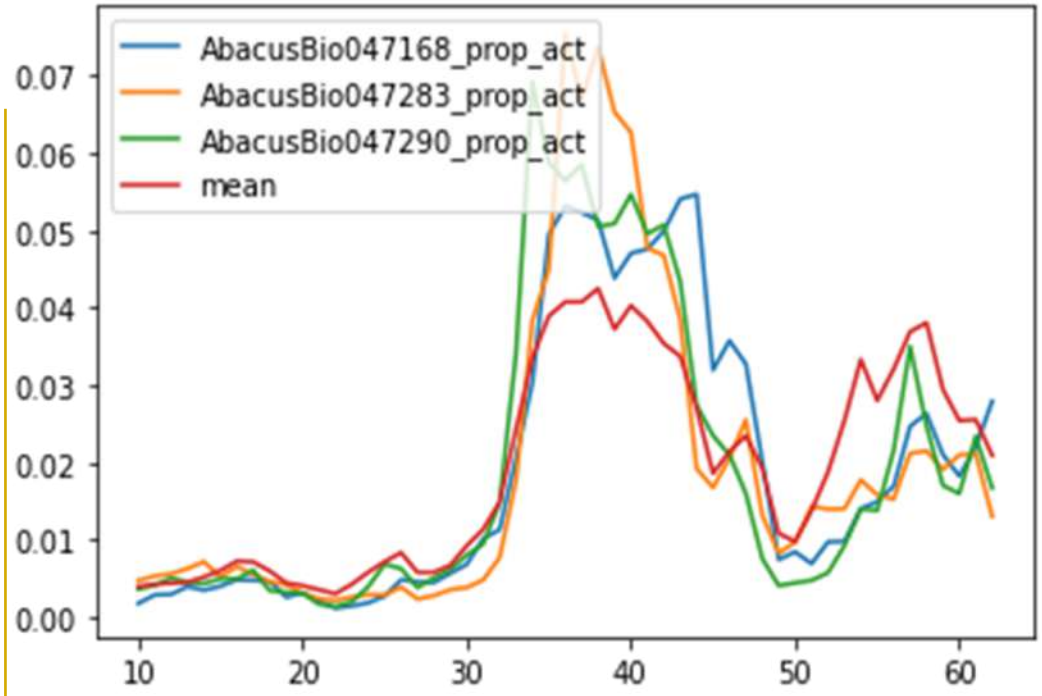
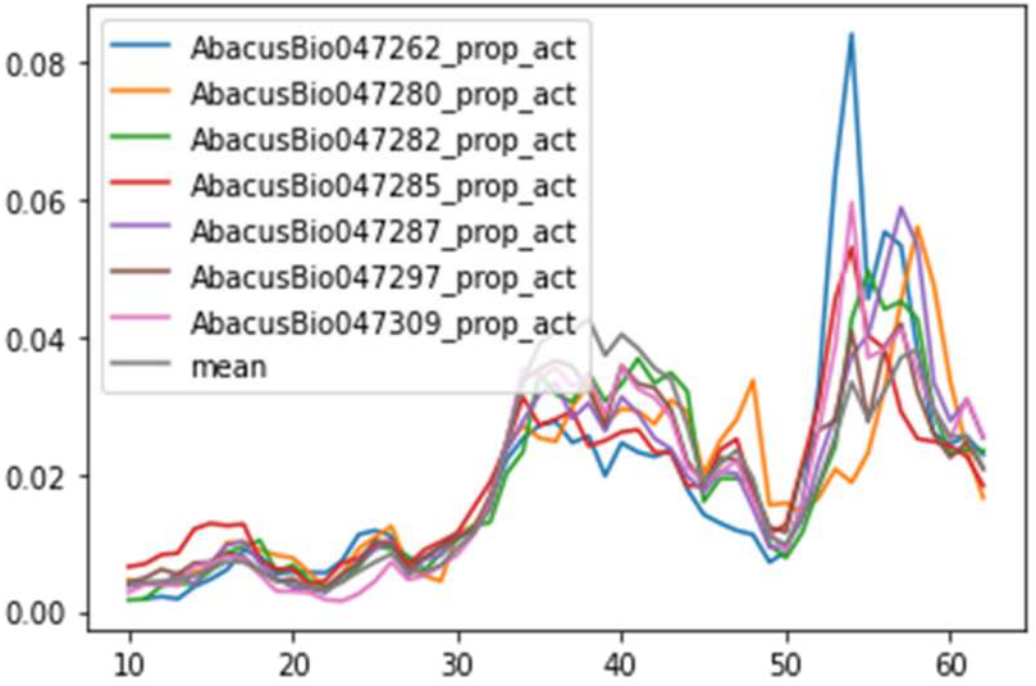
Understanding bee activity: early vs late activity





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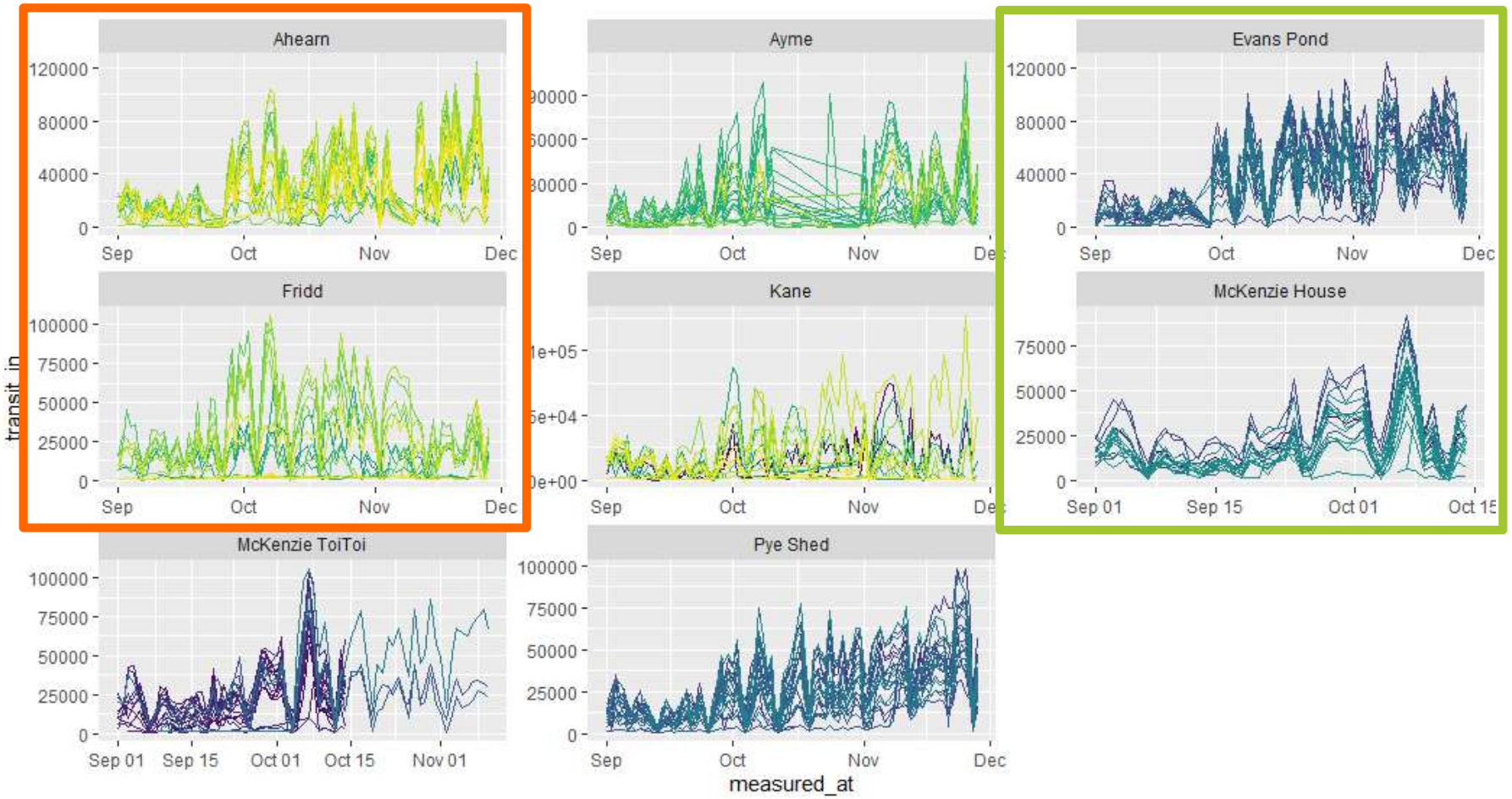
Understanding bee activity: apiary impact



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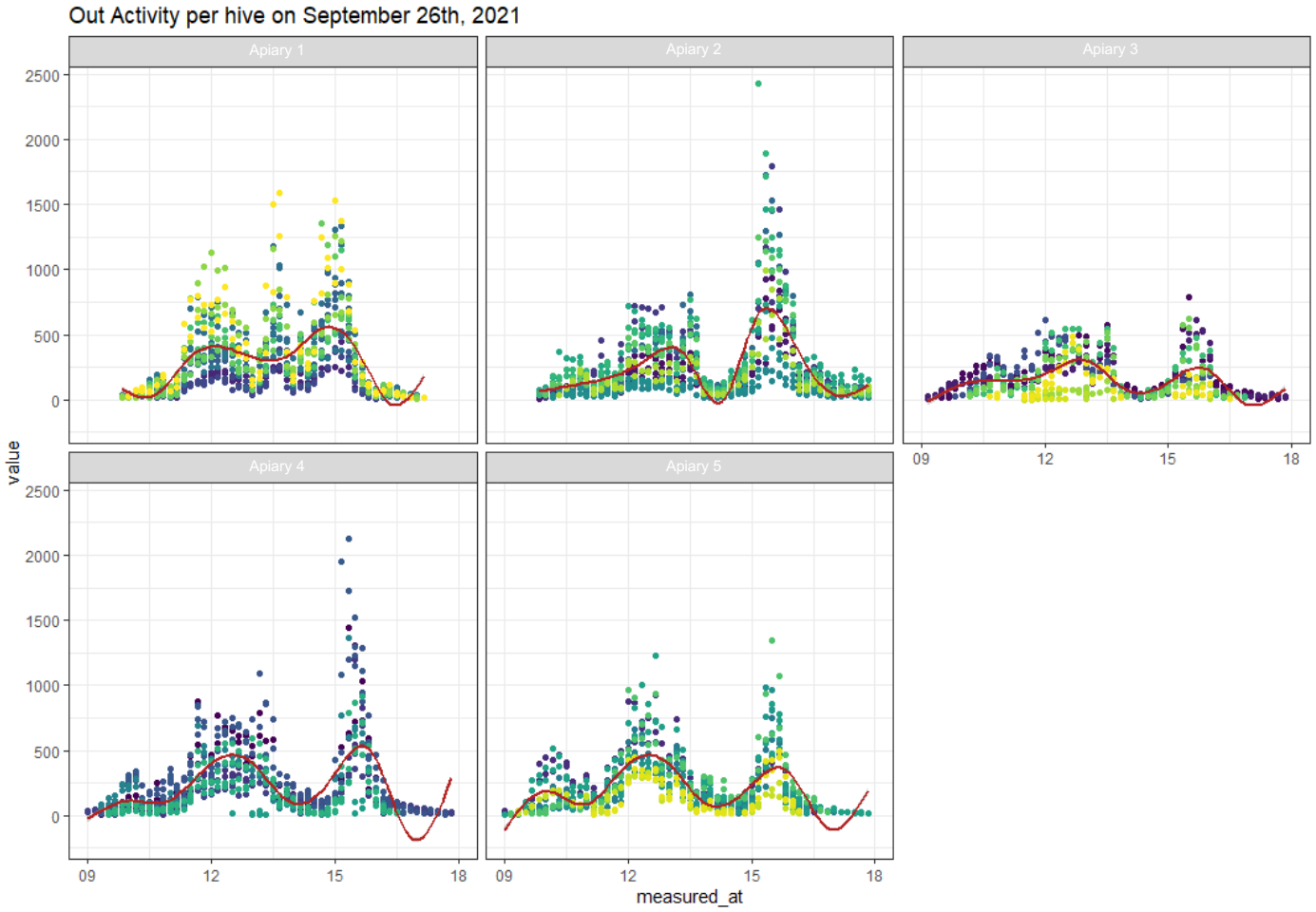
Apiary impact: automated environmental classes



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