



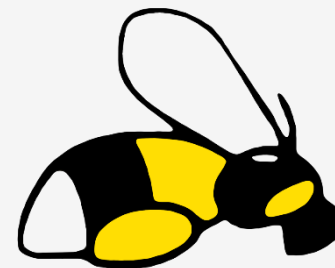
biobees

BUMBLEBEE POLLINATION



Using Bumblebees

Mike Sim





Biobees Limited

- Focused on the supply of bumblebees
 - *Bombus terrestris*
- Operating for over 25 years
- Striving for quality and reliability
- NZ owned and operated
- Production in Hastings



But why not just honeybees?

- Bumblebees typically perform better under crop covers
- Honeybee hive strengths may be low after winter
- A diversity of pollinators improves consistency
 - Higher bumblebee densities can improve honeybee behaviour
 - Bumblebees continue to forage during poorer weather
 - Especially important in winter
 - Weather insurance policy



Bumblebees Benefits

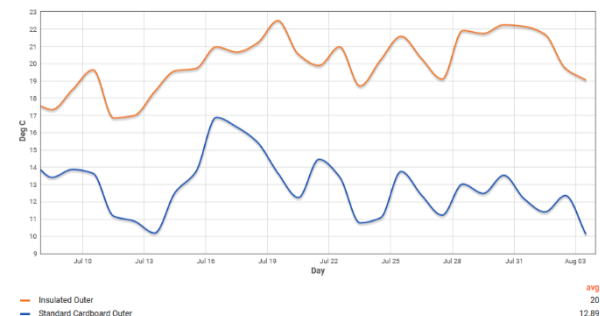
- Buzz pollinate
 - Shake pollen free
- Both nectar and pollen foraging
- Release & deposit more pollen
- Fast working rate
- Excellent at cross-pollination
- Perform under cover
- Work in more marginal conditions
- Easy to manage
- Less aggressive





Hive Types

- Medium (indoor areas less than 1000m²)
 - ~60 adult workers on dispatch
- Standard (all areas greater than 1000m²)
 - ~80 adult workers on dispatch
- Turbo Hive (short flowering crops or peak winter)
 - ~150 adult workers on dispatch
 - Better thermal capability
- Flying Doctors[®] Hives
(Hardware supplied by Biobest)
- Cardboard or Insulated packaging



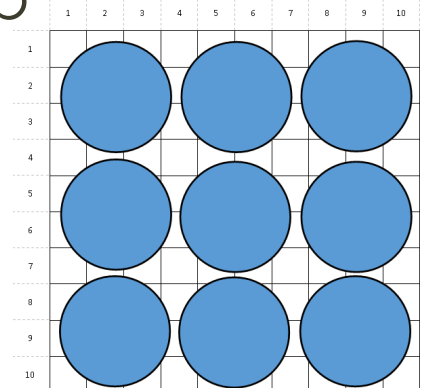
Stocking numbers

- Minimum of 4 per hectare
 - Bumblebee may not forage far from the nest, so this will provide reasonable coverage
 - Ok visibility within crop
- In Europe with the same bee species they recommend 6-9 hives with honeybees



Placement

- Avoid placing bumblebee hives close to honeybees
 - 50m minimum but ideally over 100m
- Spread hives evenly throughout crop
 - Unless targeting trouble spots
- Raise hives off the ground
 - Especially if frosts possible
- Shelter from high wind
- Catch morning sun but avoid peak day sun from September
- Out of the way of people and machinery

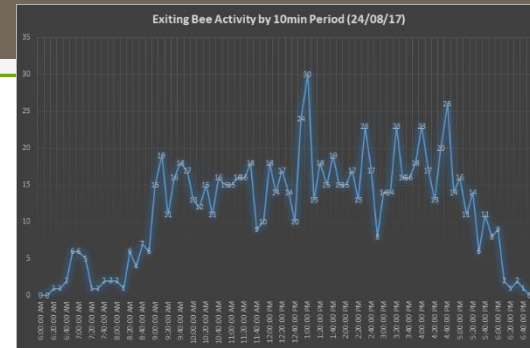


Opening Hives



- Two openings on the box
 - Left hole is for “In Only”
 - Waiting 1-2 hours will see the majority of bees returned to the box. Use when spraying or shifting hives
 - Right hole is “Open” access, or In/Out
 - Normal operating position
- Protective EPS tab must be removed to move slider
- Hives can be shifted to other varieties or crops
 - When movements are shorter than 500m, the hive should remain closed for 24h before reopening

Management



- Hives require minimal management when in use
- If monitoring hives:
 - Assess each hive for a minimum of 15 minutes between 10am and 2pm
 - Make sure conditions are suitable for foraging
 - Expect a minimum rate of 1 bee movement (in or out) per minute over the first 4 weeks
- Be mindful of chemical use before and during flowering
 - Avoid using persistent or systemic insecticides in the months before flowering (consult with Biobees)
 - Bumblebees and honeybees can have varying resistance to chemicals

Life Expectancy

- Hives are guaranteed for 4 weeks but generally last longer (if treated appropriately)
- Activity increases before tapering off
- Turbo hives will have a shorter lifespan (more developed on dispatch)
- Hives should be replaced on a schedule in long flowering crops

Average Daily Activity of 12 Hives During Autumn

