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*Autumn Packdown – Barjarg – 22/04/2018*

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## **NOTES**

### ❖ **Principals of overwintering**

- Relative importance of warmth, low humidity,
  - Bees keep warm in cluster, not entire space of hive. Moisture in warm air from the cluster condenses in the cooler air around the cluster and drips back onto the bees.
  - Therefore the greater the numbers of bees relative to the space in the hive the less condensation produced.
  - Site conditions that promote air and water drainage away from the hive, cover that keeps hive dry, access to full sun and protection from cold winds all contribute to reducing the amount of energy bees need to expend to stay warm.
  
- The wintering brood nest
  - The less brood a colony has to maintain between late May and the end of July the less resources they need. Brood needs to be maintained at a temperature of around 34C whereas broodless colonies can allow the cluster temperature to drop much lower thereby saving resources. The heat required for maintaining a brood nest can only come from honey stored.
  - In larger regional centres of NE Victoria there is often some stimulation of brood rearing throughout winter, and this need not be a problem if hives have plenty of sealed honey and little room for storing fresh nectar.
  - Fresh nectar in winter is difficult for the bees to ripen and does increase risk of nosema infection in early spring. [for more information on nosema see the department fact sheet at <http://agriculture.vic.gov.au/agriculture/livestock/honey-bees>
  - With a background of high quality pollen bees hatching in May will mostly survive to the end of winter.
  - It is normal for colonies that have ceased brood production early in winter, to begin in a modest way to recommence brood rearing some time after the shortest day [June 22/23]. This typically will result in the first brood hatching in late July/early August
  - Colonies are under greatest stress in late winter early spring when the older field bee population is disappearing at a fast rate and the new and expanding broodnest is requiring a great deal of feeding. Remember it takes a box of honey to produce a box of brood. Monitoring of colony weight at this time is very important.
  
- Nutritional background
  - Pollen storage – building stores of high quality pollen in late summer/autumn has a profound effect on the quality of hives in early spring. Note wall combs in the brood nest may look like capped honey but will often contain a store of pollen under a thinner capped layer of honey.
  - Nectar storage – sealed honey will not absorb moisture and limits space and demand for foraging during colder/wetter months. All unsealed honey should be removed prior to the end of April.

## ❖ Preparation for over wintering

- Site selection –
  - As above, seeking full sun, dryness and shelter from wind. Limiting growth of grass in-front of hive will greatly reduce humidity around the hive.
- Vermin –
  - Generally only a problem where hives are weak or have too much space to defend
  - Rodent mesh or simply closing entrance to small space will help keep out rodents
  - Treatment of ant nests should only be necessary in extreme cases. Generally ants help keep apiary clean of dead bees etc.
- Forage conditions or feeding
  - Feeding of sugar for stores – if field conditions have been inadequate, some feeding may be necessary. Feeding in large quantities tends to limit stimulation of brood rearing and instead encourage bees to store and ripen this food source.
  - White sugar mixed 1:1 or stronger. Many frame feeders will take 3-4lt at a time. A reasonably strong colony will process this very quickly. For smaller amounts a freezer bag filled with syrup, tied and pricked with a few pinholes placed on-top of the frames will also work well.
  - Do not use extra heat to dissolve sugar though hot water can be used. Never use brown or raw sugar as this is caramelised and not digestible by the bees.
  - Feeding of pollen supplement for brood production or stores. If feeding pollen supplement, best begun while queen is still laying. Little effect is gained if queen has ceased laying due to poor conditions or lateness of the season. There are a few brands available and all will be taken by bees readily if conditions suit. Ideally a little natural pollen coming in.
  - Dry feeding [open container outside of hive] of pollen supplement may result in your investment supporting the pollen needs of every hive in town. Best feed in urban situation as a patty mixed with your own honey. Give patties in small amounts [say 200gms] initially to see how quickly bees will take up. Patties left unattended by bees may be infested with small hive beetle larvae. Patties can simply be placed on-top of frames under lid.
  - **NEVER** [EVER!] feed honey that you have purchased or not sourced from your own hives, due to risk of AFB infection.
  - Under emergency conditions where you are attempting to overwinter a colony that has not been able to build up sufficient stores, feeding of dry [white] sugar during winter may be tried. Placing dry sugar on-top of hive mat with a hole in the centre may save a colony from starvation.

## ❖ The Packdown

- Stores –
  - How much to leave – For a colony packed to a single, you should have at least 25lbs of stored honey. This can be accommodated in 4 good frames of honey, plus an amount of honey around the brood on the remaining frames.
  - What to do with unsealed honey – provided any unsealed honey does not drip out of combs when shaken it can be extracted along with any surplus capped honey. Fresh nectar should be discarded at pack down.
  - Limiting the amount of empty comb space will limit the inclination for bees to forage during winter.

➤ Bees to space ratio

- As noted above, the more bees per cubic inch of space the better. Any hive with less than say six frames of bees in the super could be packed down to a single that, with at least four good frames of sealed honey will have enough stores to support a colony into spring. As noted above, in the event of a failed spring such a colony may need assistance by mid September, but this is not a common occurrence. Most springs are reliable enough. In the meantime a 'tight' single can more comfortably begin to expand it's brood nest in late August early September than the same number of bees operating in a double.
- Colonies with less than four frames of bees are most profitably united with a stronger colony. Place an excluder then a sheet of newspaper on-top of the stronger colony, then place single box of weaker colony on-top of paper. Excluder will remove danger of queen from underneath entering the strange colony on top prematurely and being killed. After a week the top box could be removed assuming it was probably low on stores.
- If the weaker colony has a queen of suspect quality, she should be killed and removed prior to uniting.
- Well populated triples [or better] can be comfortably packed down to a double leaving at least 6 frames of capped honey in the super.

❖ **Storage of combs/ honey**

➤ Wax moth, rodents, small hive beetles

- Freezing of combs for 72hrs will kill small hive beetle and wax moth eggs.
- During cooler months, storage of combs in rodent proof boxes [lids and bottoms] will most likely not be re-infected until well into spring. But checking is advised and some fumigation such as Naphthalene may be necessary.
- Combs of mostly sealed honey, protected from pests will keep perfectly well over winter
- Combs of pollen are highly attractive to pests of all descriptions and moulds and may need to be frozen until required.

❖ **Final note** – having diligently packed your hive down for winter you can take a break confident that they will be fine. Fiddling with them from May to mid August is entirely counter productive. An occasional feel of the weight by lifting the rear of the hive in late July/August should be all that you need to do.

❖ *Other Final Note/disclaimer* – remember these notes are based on general experience in the North East of Victoria. Details will vary according to local conditions and seasonal variation.

❖ For more information on Honey bee nutrition consult the publication "Fat bees, Skinny bees" found at the Rural Industries Research and Development website  
<http://www.agrifutures.com.au/rural-industries/honey-bee-pollination/>