

INDOOR WINTERING: Outline of Basic Requirements

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D.L. Nelson
. Research Station
Beaverlodge, Alberta

Colony preparation: Colonies should be prepared in late August and September; must be queenright and have enough stores for the bees to winter. Gross colony weights recommended for single and double colonies are as follows:

	<u>Gross Wt. Lbs</u>	<u>Approx. Stores</u>	<u>Ave. Consumption (200 days)</u>
Singles	95 lbs	55	25 - 30
Douglas	135 lbs	70	35 - 40

Building: A well insulated building is desirable, be it an extracting room, garage or converted building. It is not necessary to build a new facility to winter bees. If wintering singles, there should be 15 ft³ per hive and for doubles 25 ft³ per hive. If using air conditioning these can be reduced somewhat.

Temperature: Since the primary factor behind indoor wintering is providing a modified environment, temperature control is very important. The optimum temperature is 40°F ± 2°, however the range that is acceptable is 35 - 48°F. Also when colonies are first placed in the building and as outside temperatures warm-up during spring, temperatures as high as 55 - 60°F are common during the day time periods and do not seem to be harmful if adequate ventilation and airflow are maintained.

Relative Humidity: The best RH seems to be between 50 - 60%, although very little specific information is available on this aspect.

Complete darkness: The wintering facility must be in complete darkness. That means that light traps must be built for intake and exhaust fan ports and any windows must be covered. Bees will be attracted to any light and will not return to their hives.

Ventilation: This is probably the most important aspect of indoor wintering (assuming the other requirements are also being looked after).

The best method of providing intake ventilation is by means of a fan jet and plastic air duct with holes similar to that used by poultry and greenhouse operators. The fan is usually two speed and provides good circulation in the entire room. The important aspect to remember is that colonies should be in rows perpendicular to the direction of the air duct. This allows for good ventilation between the rows of colonies. Exhaust ports that draw air from floor level are also important. These must have a light trap or baffle arrangement so that light does not enter the room. In large buildings these exhausts ports may also have an exhaust fan to help exhaust the air. In general the ventilation system should have two sets of controls (1) to maintain the desired temperature and (2) to exhaust air on a time basis (timer). In general the building should have a complete air exchange once each hour. Do not vent more air than is required to keep the air fresh as this will cause lower RH in the building.

Ventilation (Cont'd)

Some general recommendations for air flow are as follows:

	<u>Winter</u>	<u>Fall & Spring</u> ⁽²⁾
C.f.m. ⁽¹⁾ /lb of bees	0.1	1.5
C.f.m./ super	0.5	9.0

Moving colonies outside: If temperatures can be maintained bees can be kept inside for up to about 230 days. However if temperatures start climbing to 55 - 60°F during the day time, it is probably time to move them out.

Colonies should be placed on bare ground when moved out as this helps bees orient and reduces losses that occur when hives are placed on snow. It may be necessary to clear yards with a front-end loader etc.

Clusters will contract somewhat after colonies are moved outside so adequate food stores and their placement are very important.

Note: It is generally suggested that Wintering be started on a small scale to learn the methods, problems etc., and then work-up to the numbers desired. Wintering is not a simple extension of the beekeeping season, but rather a whole new system requiring different thinking, more planning and continuous assessments and adjustments to situations.

(1) Cubic feet per minute.

(2) Required when temperatures are climbing during day time periods.