



200 Commercial Dr
Columbus, WI 53925
608-444-1493

www.capitalbeesupply.com

Critical Temperatures for Bees, Hive Products and Beekeeping Tasks

Temperatures Important to Bees (°F)

Chill coma. Bees die after 50hrs in chill coma	42.8↓
Bees start to cluster. Cluster size is a function of ambient temperature and can range from 14" @ 50F to 11" @ 20F. Cluster can tighten to 10" @ -14F	57↓
Bees stop taking syrup	50-60↓
Minimum temp for bees to make wax and build comb (interior temp must be 91-97 for bees to secrete wax)	59
Drones fly	61↑

Temperatures Important to Beekeepers (°F)

Open the hive only in emergency, such as to feed or remove chemicals. If feeding is necessary below 30 F, use dry sugar so the feed won't freeze.	30↓
Open the hive only in emergency, such as to feed or remove chemicals. Bees cannot get far from the warmth of the cluster at below 40 F so feed must be placed directly above the cluster.	40↓
The bees are loosely clustered. The hive can be opened but brood combs should NOT be removed. Side combs can be removed to look at brood combs, but must be replaced quickly to avoid letting the brood get chilled.	50
Bees begin to fly at 55 F, especially for cleansing flights.	55
Complete hive inspection can be made, but brood combs should be returned to the hive quickly.	60↑



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Temperatures Important to Bees (°F)

Minimum temp to pump flight muscles and warm up (“shivering”)	64.4
Queens fly	68↑
Minimum thorax temp for flight	80.6
Brood nest temp when rearing brood	89-97
Varroa mites die	108↑
Bees regurgitate their crop	110↑
Bee larva injured and/or die	114↑

Important Temps for Hive Products (°F)

Beeswax softens	90
Beeswax melts	144-147
Heat-treat temp to delay crystallization and prevent fermentation of honey	145 for 30 minutes
Flashpoint of beeswax	400

Temperatures Important to Beekeepers (°F)

Completely disassembly of the hive and frames for a thorough inspection is permitted	70↑
Splits and increases can be made. Use the raising of drones as an indicator of timing for splits	50-70↑

Critical Temperatures for Queens(°F)

Queen fertility is negatively impacted	41↓ or 104↑
Queen survival decreases. Drone fertility impacted.	104↑