

Alfalfa Leafcutter Bee Incubation Calendar

(SASPA - modified from the original SAF FarmFact publication)

Alfalfa leafcutter bee cells are placed into incubation trays and the incubator temperature is set at 30°C. Count "Day 1" of incubation as the first full day at which the bee cells are at 30°C. This calendar of incubation assumes cold storage at 5°C prior to incubation and incubation at 30°C, with use of dichlorvos resin strips for chalcid parasite control.

Day 1	Alfalfa leafcutter bee cells are at 30° C with bees in the prepupal stage. UV light - water traps are in place, and a thermostatically-controlled incubator alarm system is operational.
Day 3	Chalcid parasites undergo their final moult into the pupal stage.
Day 7	Place dichlorvos resin strips in the incubator at the recommended rate (3/4 strip per 1000 cubic feet). If the incubator is only partially full of bee cells, consider using a lower rate of dichlorvos.
Day 8	Leafcutter bees begin to undergo their final moult into the pupal stage. At this stage they are very sensitive to temperature fluctuations so maintain an even temperature - no cooling at this time.
Day 8 - 9	Chalcid parasites begin to emerge. While many parasites will die in the trays, some parasites will make it to the UV light - water traps.
Day 9 - 12	Chalcid parasites continue to emerge.
Day 10	Alfalfa leafcutter bee pupae begin to show some eye colour (the pink-eyed stage).
Day 12	Alfalfa leafcutter bee pupae continue to darken in colour, in the eyes and over the back.
Day 13	Remove dichlorvos resin strips from the incubator. Air the incubator thoroughly for 24 - 48 hours , using an exhaust fan and circulating fans. Maintain the 30° C temperature if possible.
Day 14 - 15	Leafcutter bee pupae continue to darken in colour. If cooling occurred during the airing period following removal of dichlorvos, bring the temperature back to 30° C for continued incubation.
Day 14 - 15	Native leafcutter bees emerge. It is normal for these wild bees to emerge several days earlier than the alfalfa leafcutter bees.
Day 14 - 22	At any time during this period, if incubation must be slowed due to weather or delayed alfalfa bloom, the bee cell temperature can be lowered to 10-15° C for up to two weeks. This virtually stops development. Once the temperature is increased, development resumes until emergence is complete. Note that bee cell temperature within the incubation trays must be 10 - 15° C.
Day 16	The most advanced alfalfa leafcutter bee pupae (primarily male bees) are completely dark in colour, while the more slowly developing female bee pupae are darkening.
Day 18 - 19	Male alfalfa leafcutter bees begin to emerge at this time. Remember that the bees are very susceptible to high temperatures. Make sure that your incubator alarm system is working.
Day 21- 22	Female alfalfa leafcutter bees begin to emerge. Male bee emergence peaks. Second generation chalcid parasites begin to emerge.
Day 23 - 24	Female alfalfa leafcutter bee emergence peaks.
Day 23 - 24	Incubation trays are taken to the field for adult bee release once female bees are 75% emerged.
Day 28	Alfalfa leafcutter bee emergence is virtually complete at 30° C.