

GUIDELINES FOR COOLING ALFALFA LEAFCUTTER BEES DURING THE INCUBATION PERIOD

Saskatchewan Alfalfa Seed Producers Association

- 1. Do not cool alfalfa leafcutter bee cells until after the chalcid parasite control period is finished and the incubator is thoroughly aired out (day 14 or later).**
- 2. Cool the alfalfa leafcutter bee cells to 10 - 15 ° C (50 - 59 ° F). Note that the bee cell temperature within the incubation trays must be 10 - 15 ° C (50 - 59 ° F), not just the air temperature in the incubator.**
- 3. Hold the bee cells at 10 - 15 ° C (50 - 59 ° F) until further incubation is warranted.**
- 4. Following the cooling period, heat the bee cells to 30 ° C (86 ° F) and complete the incubation period.**

NOTES:

1. If possible, continue alfalfa leafcutter bee incubation until the emergence of adult male bees is underway, and then cool the bee cells until good field conditions warrant the resumption of bee cell heating and adult bee release in the field. Several cooling and heating periods may affect the viability and longevity of adult leafcutter bees. Be cautious in heating and cooling of alfalfa leafcutter bee cells.
2. Under experimental conditions, alfalfa leafcutter bee cells were cooled for either a one week period or a two week period at 11 ° C (52 ° F) beginning on day 8, 10, 12, 14, 16, 18, 20, or 22 of incubation at 30 ° C (86 ° F). The following observations were noted:
 - While overall bee emergence averaged 95 %, beginning a two week cooling period at day 8 or day 10 resulted in lower bee emergence (84 % and 90 %, respectively).
 - The emergence period for untreated control bees was about 12 days, while the emergence period for bees in the cooling treatments ranged from 9 to 11 days.
 - The first bee emergence occurred on day 18.5 in untreated control bee cells, day 18 in bee cells cooled for one week, and day 18 in bee cells cooled for two weeks.
 - The time from the start of incubation to 50% female bee emergence was 23 days in untreated control bee cells, 24 days in bee cells cooled for one week, and 23 days in bee cells cooled for two weeks.