

GUIDELINES FOR COOLING ALFALFA LEAFCUTTING BEES DURING THE INCUBATION PERIOD

Saskatchewan Alfalfa Seed Producers Association

- 1. Do not cool alfalfa leafcutting 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 leafcutting bee cells to 10 - 15 degrees C. Note that the temperature in the bee cells within the incubation trays must be 10 - 15 degrees C, not the just air temperature in the incubator.**
- 3. Hold the bee cells at this temperature until further incubation is warranted.**
- 4. Heat the bee cells to 30 degrees C and complete the incubation period.**

NOTES:

1. If possible, continue alfalfa leafcutting 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 leafcutting bees. Be cautious in heating and cooling of alfalfa leafcutting bee cells.
2. Under experimental conditions, alfalfa leafcutting bee cells and adult bees were held for one week or two weeks at 11 degrees C beginning on days 8, 10, 12, 14, 16, 18, 20, and 22 of incubation at 30 degrees C. The following observations were noted:

While overall bee emergence averaged 95%, onset of cooling at day 8 and day 10 for two weeks lowered bee emergence to 84% and 90%, respectively.

The emergence period for control bees was about 12 days, while the emergence period for bees in cold treatments ranged from 9 to 11 days.

The day of first bee emergence was day 18.5 for control bee cells, day 18 for bee cells cooled for one week, and day 18 for bee cells cooled for two weeks.

The number of days from start of incubation to 50% female bee emergence was 23 for control bees, 24 for bees cooled for one week, and 23 for bees cooled for two weeks.