

The Flight Effect on Oviposition and Colony Development of the Bumblebee Queen, *Bombus terrestris*, Terminated Diapause

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It was investigated whether or not flight has any effects on oviposition and colony development of the artificially hibernated *Bombus terrestris* queen and CO₂-treated queen. Flight periods were defined as 0 days (control), 1 day, 3 days and 6 days. The weights of queens after flight were 1.5—8.9% lower than those before flight depending on the flight periods. The oviposition and colony development of artificially hibernated and CO₂-treated *B. terrestris* queen were affected by the flight. Among flight periods tested, in particular, the queens start to flight for 3 days showed better flight effect than those other flight periods in the colony development, rate of colony foundation, rate of progeny-queen production, the number of worker and queen produced. But, the longer the flight periods is, the worse the oviposition and colony development of the queens hibernated artificially and CO₂-treated are (*i.e.*, the 6 days-flight queen).