

Why Mating Failure in Earth Bumblebee (*Bombus terrestris*)?

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Despite its importance of age, size and origin of the bumblebees, time of the day, light intensity on mating success, little was noticed about temperature during copulation, queen preference on experienced and unexperienced males and sexual maturity of itself. Here, we observed the most possible influencing factor on mating success. Five different temperatures combined with three sex ratios were checked on mating success. Then, experienced males were allowed to do mate with both virgin queens and once failure mated queens (unaccepted for mating) after one hour of the first time mating observation in order to check the queen's preference on males. Finally, failure mated queens were retried to do mating on next three days with experienced males. It was found that temperatures and sex ratios effects were not significant among the treatments (temperature from 18°C to 30°C and up to double males, $p=0.11$). Queens seemed prefer to experienced males. However, failure mating was not dependent on the males ability and totally depend on their sexual immaturity. Because once failure queen which could not accept to experienced males, successfully copulated at the range of 31 to 77 % (mean 53%) after three days. It clearly expressed that some individual queens rejected for mating was because of late sexual maturity.

Key words: *Bombus terrestris*, mating failure, copulation