

Establishment of the Mass Rearing System for the Emma Cricket, *Teleogryllus emma* (Orthoptera: Gryllidae)

Namjung Kim, Seong-Jin Hong, Kwang-Youl Seol and Seong-Hyun Kim

Department of Agricultural Biology, NIAST, RDA, Suwon, Republic of KOREA

Cricket is probably the best all around fish bait in the world, as well as a live food for many types of pets. The objective of our study to design a mass rearing system of the emma cricket, *Teleogryllus emma*, for livestock diet material.

The influence of temperature on development and reproduction of emma cricket was investigated under different temperatures, the humidity of $60 \pm 5\%$ R.H., and the 16L · 8D photo regimen. The developmental periods of *T. emma* nymphs had a range of 124.8 days to 44.4 days at the temperature of 21 and 35°C, respectively. At 15 and 18°C, however, all tested individuals died before emergence. In addition, the pre-oviposition and oviposition periods were 32.5 and 26.9 days at 22°C, 22.9 and 34.1 days at 25°C and 22.1 and 21.8 days at 28°C. The highest average fecundity per female was 737.3 at 25°C. As a result, the optimum of temperature for the development and reproduction of *T. emma* were 27~31°C and 25°C, respectively. Artificial oviposition method for the indoor-rearing system of the emma cricket, *T. emma*, was investigated. The oviposition preference experiment on different mats, soil(natural oviposition mat) and floral form(oasis[®]), showed that *T. emma* preferred to oviposit on the oasis[®]. The experiment on the hatching of the eggs showed that eggs could be stocked at 10°C for 40days with 14day pre-period after laying, representing 62.1% hatchability, when considering generation shortening. On the other hand, When it had been kept in cold storage for 90 days at 7.5°C with 14day pre-period after laying it, appeared to be the most suitable for long period-storage method by hatchability 65.1%. Diet experiment showed that animal diet helped to increase the survival rate when applied at the stages after forth nymph. The emma cricket could be successfully reared with all food substrates tested, of which wheat bran(60%)+Fish meal(20%)+Bean-curd dregs(20%) assumed to be proper for mass-rearing in view of cost.