

Title of Presentation: Diapause survival and colony initiation in artificially reared colonies of bumble bees (*Bombus terrestris*)

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Poster only or spoken presentation preferred: (Poster / Spoken) Poster

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Abstract:

Queen diapause and colony initiation are the most critical moments in bumble bees biological cycle, and they represent the main obstacles in bumble bee artificial rearing. The weight of queens is one of the main determining factor in the survival to hibernation and post diapause performances. We measured diapause survival and egg-laying success of artificially reared *Bombus terrestris* queens, basing on their pre-diapause weight. As expected, less-weighted queens survive in a significantly minor number to the diapause regime (3 months at 5°C). Queens' weight have no effect on the deposition rate, but queens with the highest weight lay significantly more egg cells.

Among the different methods of colony initiation, the use of a male pupa is strongly recommended for queen stimulation. We compared the use of a male pupa against that of a queen pupa. The number of egg laying queens do not differ between the two groups, but the amount of egg cells and of developed larvae is higher in the "queen pupae" group. Possible explanations to this result can be found in the bigger size of the queen pupa, and in the destructive behaviour of adult males at their emergence from the pupa.