

Pheromone of the Nasonov gland is involved in the campaigning of individual worker bees for individual larvae to be reared as queens

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Colonies of social insects make numerous group decisions about foraging, nest maintenance and reproduction. Queen production is of extreme importance because the inclusive fitness of the whole colony strongly depends on decisions made during this process. New queens are reared before swarming, in case of supersedure of a failing queen and, if the mother queen dies suddenly, as an emergency queen rearing. In emergency queen rearing, only a few larvae from the many available are selected by workers to rear as gynes.

The initial phase of queen rearing in the honeybee was observed by an infra-red video technique. The percentage of acceptance of larvae for queen rearing and the undisturbed behaviour of the observed bees established this method as suitable for long term observation of this complex behaviour. After the inspection of larvae, exposure of the Nasonov gland (42% of the observed cells) and fanning behaviour (35%) was observed. This is the first observation indicating that the pheromone of the Nasonov gland is involved in gyne production by helping individual worker bees in campaigning for special larvae to be reared as queens.

