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1.4. Ultimate mechanisms shaping bumble bee social behaviour2. Kin Conflict over Sex Ratios in Bumble Bees; 3. Behavioural, Physiological, and Genetic Traits Associated with the Solitary Phase; 3.1. Pre-mating and mating behaviour; 3.2. Diapause in newly mated queens; 3.3. Genomic mechanisms underlying the queen solitary phase; 4. Behavioural, Physiological, and Genetic Traits Associated With the Eusocial Phase; 4.1. Who wins the conflict over male production?; 4.2. Underlying hormonal mechanisms and queen effect on worker reproduction

4.3. The chemistry underlying queen-worker conflict over reproduction-ls there a queen pheromone?4.4. Genomic factors underlying queen-worker conflict; 5. Worker-Worker Conflict over Reproduction; 5.1. Rates of worker reproduction; 5.2. Worker reproductive hierarchy; 5.3. Aggression and hierarchy formation; 5.4. Chemical communication versus dominance behaviour; 5.5. Hormonal regulation of reproduction and dominance; 5.6. Genomic mechanisms underlying worker-worker conflict; 5.7. Factors affecting dominance and reproduction in workers

5.8. Drifting bees: Fortuitous error or intra-specific parasitism?5.9. Extrapolating from QL groups to whole QR colonies; 6. Larval Development and Mechanisms Underlying Caste Determination; 6.1. Larval development; 6.2. The critical period for caste determination; 6.3. Hormonal and genomic regulation of caste determination; 6.4. Physiological and social factors affecting caste determination; 6.5. Nutrition as a factor affecting caste determination; 6.6. The effect of queen-worker conflict on caste determination; 6.7. Is there a queen pheromone that regulates caste determination?

7. Conclusions and Future Directions