Do More Promiscuous Honey Bee Queens Produce Healthier Hives?

It has been estimated that honey bees contribute about $17 billion annually to the United States’ economy through their pollination services and are responsible for 35% of the world’s overall food production. A healthy and productive honey bee queen has much to do with a hive’s overall health as the queen is the sole individual responsible for laying the eggs that replenish the worker bee population. Virgin queens are known to mate a single time during their lifespan with an average of 12 male bees, where the sperm they collect is what will have to last them the duration of their lifespan. The purpose of this study looks to answer the question of whether or not the volume of semen a queen is inseminated with affects the overall health and growth of a colony over time. Hives containing queens artificially inseminated with a low volume of semen were compared to hives containing queens artificially inseminated with a high volume of semen. The growth of each hive was measured over time based on several factors including the total amount of honey comb built, the amount of sealed worker and drone brood (the number of female and male young laid by the queen respectively), and the amount of food storage (honey and pollen) contained within the hive.