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Better steering bees for better crop pollination

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As the climate changes, biodiversity loss accelerates, leading to increasingly unreliable pollination. This threatens global food security, forcing crop producers to rely more heavily on commercial pollinators, such as honeybees (*Apis* spp.), to meet the growing demand for flowering-crop-based products. Although effective pollinators of many crops, honeybees are generalist foragers and are known to have low or even absent affinity for target crops such as strawberries and pear. To mitigate this effect and avoid pollination deficit, farmers typically increase stocking density of honeybee hives, an approach that is not only economically unsustainable but may also have ecological drawbacks as competition with wild pollinators intensifies. Thus, there is a pressing need to enhance honeybee pollination efficiency for target crops, ensuring a more sustainable solution both economically and ecologically for farmers. To achieve this, the first step is to increase the attractiveness of the target crop to the honeybee forager. Here we present a recently commenced project aimed at evaluating a two-step method to enhance pollinator attraction to strawberry flowers, a crop known to have low attractiveness to honeybees. Using olfactory bioassays and free-foraging preference tests in semi-field environments, we investigate how (1) nectivorous flower-volatile-emitting yeasts and other olfactory attractants and (2) dietary conditioning enhance floral constancy and better steer pollinators toward target crops. Better steering honeybees to crops can help reduce stocking rates, minimizing the ecological impact of beekeeping while enabling beekeepers to provide more precise crop pollination for farmers. If successful, this two-step approach could contribute to more sustainable crop-pollination and beekeeping practices with honeybees.