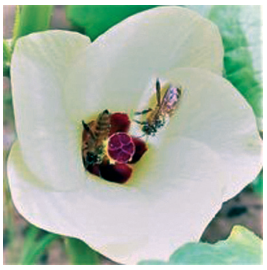
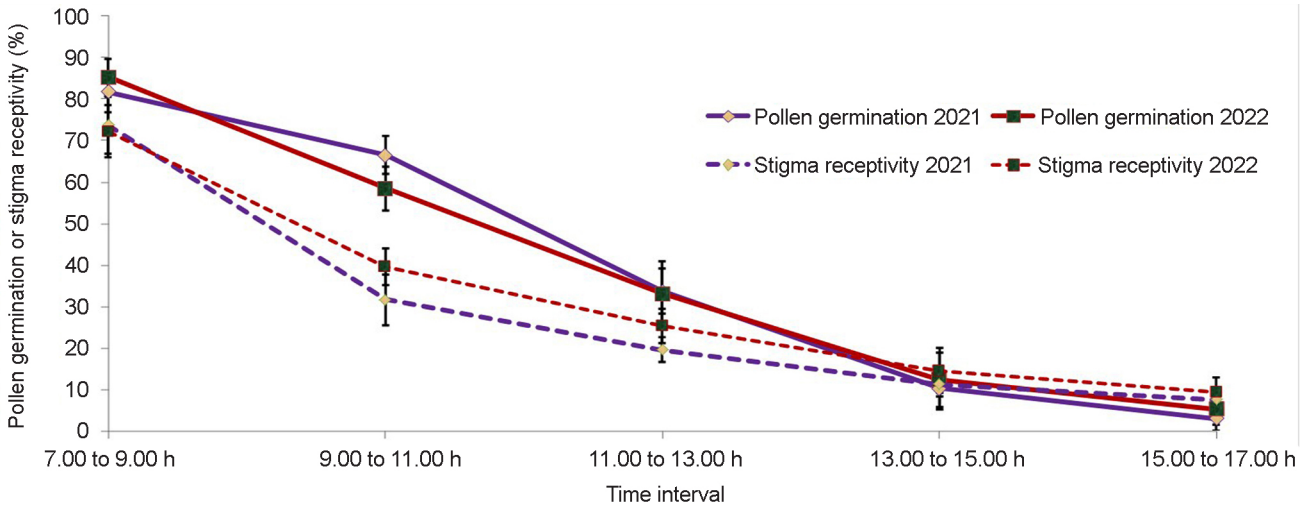
Supplementary Table 1 Details of pollination methods and pollinators used for examining the pollination efficiency and yield advantage in okra

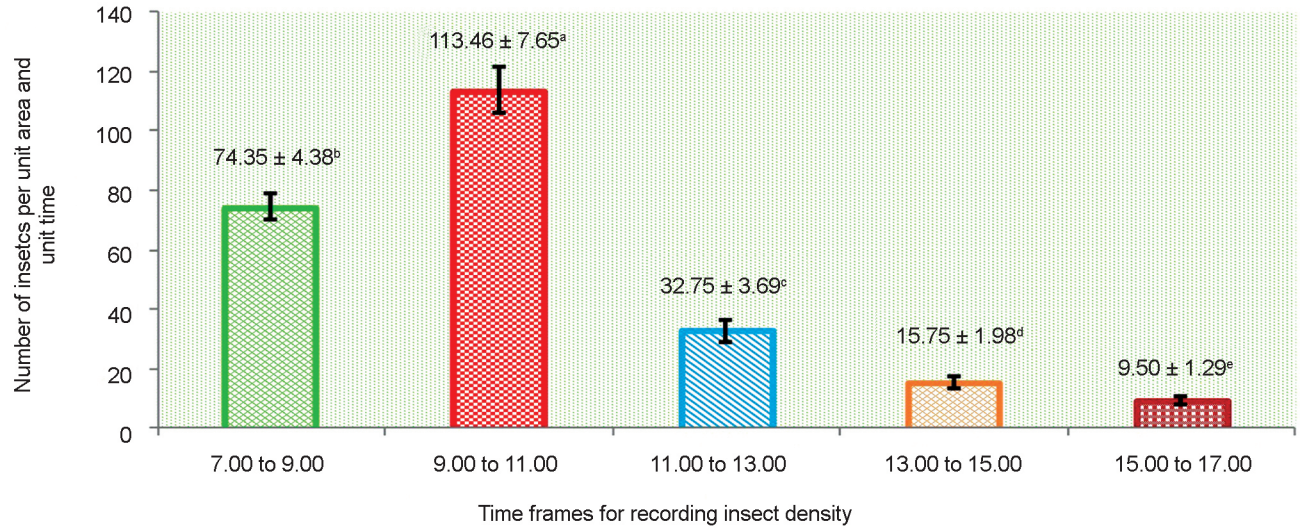
| Sr. no. | Treatment | Methodology followed | Treatment |
|---|---|---|---|
| $T_1$ | Indian Bee (*Apis cerana indica)* | A single bee actively foraging in okra fields was collected through a test tube and released on the marked flowers and allowed to pollinate single flower for a period of 15 min (09.00 to 09.15 h) |  |
| $T_2$ | European bee (*Apis mellifera*) | A single bee actively foraging in okra fields was collected through a test tube and released on the marked flowers and allowed to pollinate single flower for a period of 15 min (09.00 to 09.15 h) |  |
| $T_3$ | Himalayan bumble bee (*Bombus haemorrhodalis*) | A single bee actively foraging in okra fields was collected through a test tube and released on the marked flowers and allowed to pollinate single flower for a period of 15 min (09.00 to 09.15 h) |  |
| $T_4$ | Interaction (*Apis cerana indica* + *Apis mellifera*) | One individual bee of both species foraging actively in the field were collected through a test tube and released on the marked flowers and allowed to pollinate single flower for 15 min (09.00 to 09.15 h) |  |
| $T_5$ | Emasculation and hand pollination | The flower buds were emasculated on the previous day at 16.00 h and the stigma was dusted with sufficient quantities of pollens with the help of paint brush on the next day at 09.00 h. |  |
| $T_6$ | Open control (all the pollinators allowed to pollinate the flowers) | The flowers were not covered with plastic mesh and all the pollinators were freely allowed to visit the flowers |  |
| $T_7$ | Closed control (only self-pollination allowed) | The flowers were covered with plastic mesh and no pollinators were allowed to visit the flowers |  |

Supplementary Table 2 Floral biology and floral characters of VL Bhindi-2

| No. of flowers | Calyx diameter | Style length | Stigma lobes |
|---|---|---|---|
| 1 | 1.9 | 3.7 | 4 |
| 2 | 2.72 | 4.6 | 8 |
| 3 | 2.13 | 4.32 | 5 |
| 4 | 2.45 | 4.21 | 7 |
| 5 | 2.64 | 4.43 | 8 |
| 6 | 2.74 | 4.54 | 5 |
| 7 | 2.68 | 4.58 | 6 |
| 8 | 2.7 | 3.98 | 7 |
| 9 | 1.98 | 4.26 | 6 |
| 10 | 2.45 | 4.37 | 7 |
| 11 | 2.64 | 4.43 | 6 |
| 12 | 2.57 | 4.57 | 5 |
| 13 | 2.75 | 4.62 | 7 |
| 14 | 2.74 | 3.64 | 4 |
| 15 | 2.66 | 4.1 | 7 |
| 16 | 2.58 | 4.23 | 6 |
| 17 | 2.57 | 4.18 | 5 |
| 18 | 2.69 | 3.86 | 7 |
| 19 | 2.73 | 3.99 | 8 |
| 20 | 2.76 | 3.76 | 6 |
| 21 | 2.77 | 4.12 | 6 |
| 22 | 2.64 | 3.72 | 5 |
| 23 | 2.58 | 3.71 | 7 |
| 24 | 2.78 | 4.01 | 4 |
| 25 | 2.78 | 4.04 | 7 |
| 26 | 2.76 | 3.82 | 6 |
| 27 | 2.77 | 3.91 | 5 |
| 28 | 2.8 | 3.77 | 6 |
| 29 | 2.78 | 4.12 | 6 |
| 30 | 2.79 | 4.08 | 7 |
| Average | 2.62 | 4.12 | 6.1 |
| SD | 0.23 | 0.29 | 1.14 |




Supplementary Fig. 1 Per cent stigma receptivity and pollen germination recorded in okra (VL Bhindi-2) at five different time intervals during two consecutive years (2021 and 2022).
F-calculated = 113.86
*P*-value = 0.0000054
CV = 18.29




Supplementary Fig. 2 Peak period of pollinators' visitation in okra crop during peak flowering period at five time frames of the day.
F-calculated = 99.32
*P*-value = 0.0000018
CV = 14.66