The Role of Honey Bees in Cotton Pollination

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Most cotton breeders recognize the bumble bee (Bombus spp.) as one of the most important insects in the cross-pollination of cotton (9), but they also consider the honey bee (Apis mellifera L.) as highly important (1, p. 254), (2, p. 117), (3), (6, p. 37), (10), (11). The pollinating activity of honey bees is commonly used to increase the production of seed in such crops as alfalfa and the clovers. This usage of honey bees seems feasible for cotton if beneficial effects of pollination result from bee activity.

Meade (10) showed that thorough hand pollination caused 11% more bolls to set on Durango and 5% more on Acala cotton than did natural pollination. Kearney (5, p. 50) found no difference between natural and hand pollination in either boll set or seed production on Pima cotton in an area where insect pollinators were abundant. In another area where they were scarce, artificial pollination caused an increase in the number of matured bolls and number of seeds per boll, which suggested a potentially greater crop might be expected if bees were abundant. Meade (10) also suggested that beekeeping might increase cotton yields.

Hybrid vigor, whether defined as an excess production of a hybrid over its better parent or over a standard commercial variety, was shown to exist in Upland cotton by Kime and Tilley (8), Simpson (11), Turner (12), and others. Cook (4), Kearney (6), and Ware (13) also indicated that hybrid vigor exists in hybrids of Upland cotton and foreign species.