

Title: Manually Operated Gun Type Kiwi Pollinator

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Kiwi fruits (*Actinidia deliciosa*) is the most suitable diversified crop among the temperate fruit crops in India and has emerged as an alternate crop after apple in temperate fruit production. In India, kiwi cultivation covers approximately 4 thousand hectares, yielding around 11 thousand metric tonnes (NHB, 2015). Arunachal Pradesh, the largest state of north east India, is the largest producer of kiwi, encompassing 3379 hectares and producing 6047.34 metric tonnes (NHB, 2015).

Kiwi is a dioecious fruit having male and female reproductive parts on different plants. Male vines are usually spaced throughout the vineyard in a number of designs in which the male female ratio varies from 1:6 to 1:9. Despite being naturally pollinated by wind and insects, the farmers prefer artificial hand pollination due to the unevenness of natural pollination that results in lower yields. Few farmers prefer hand pollination because the chances of superior pollen grains reaching the stigma of distant female plants is lowered to a great extent due to external factors in natural pollination. But the main constraints of hand pollination include high labor inputs, skilled labor, high costs and also bad weather conditions. In addition to that, the fruit set of kiwi was found to be 100% when pollination was performed at 9 am, 10 am and 3 pm and yield was found to be the highest at 9 am (35.20 kg/plant) pollination time. To overcome the problem a device has been designed to pollinate a calibrated amount of pollen to the stigma of female flower.

For detailed information on this innovative design, refer to the following description.

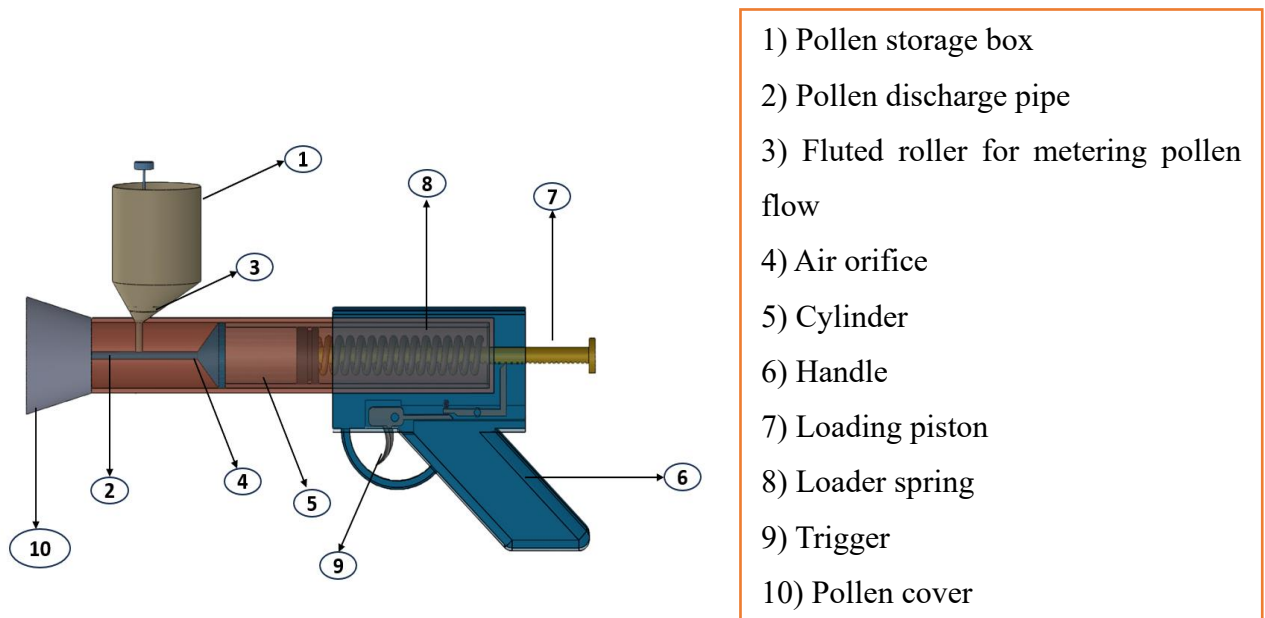


Fig. 1: 3D computer aided design (CAD) of manually operated gun type kiwi pollinator