

**EFFECT OF BIOFERTILIZERS AND LIQUID SMOKE ON PLANT GROWTH
AND ATTACK INTENSITY WHITEFLY PEST (*Bemisia tabaci*)
ON EDAMAME (*Glycine max* L.)**

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ABSTRACT

*Whitefly infestation (*Bemisia tabaci*) can suppress plant growth and reduce edamame productivity by up to 80%. This study aimed to investigate the effects of a combination of biofertilizer and liquid smoke on plant growth, pest infestation intensity, and edamame yield. The experiment was conducted in Curahtakir Village, Jember Regency (coordinates 8°20'17.876"S, 113°42'43.618"E; elevation 150 m above sea level; air temperature 23–32°C) from November 2025 to February 2026. The experiment was conducted by comparing the conventional method, consisting of the application of pesticides containing the active ingredients imidacloprid, diafenthiuron, methomyl, and emamectin, along with 100% chemical fertilizer, with an integrated method consisting of biofertilizer, liquid smoke, and 50% chemical fertilizer. Data were analyzed using the Mann–Whitney test for pest infestation intensity and the Independent Samples T-Test for growth and yield components. The results showed that the integrated method had a significant effect on whitefly infestation intensity only at 21 days after planting (DAP), with lower infestation intensity than the conventional method, although the conventional method showed better overall results. In general, the conventional method significantly produced better results in plant height at 21 and 28 DAP, whereas the integrated method produced better results for yield components, including total pod number, number of two-seeded filled pods, and pod weight. The use of the integrated method was presumed to increase the photosynthetic rate of plants, thereby promoting pod formation and filling in edamame.*

Keywords: biofertilizer, bemisia tabaci, edamame soybean, liquid smoke