

# EFFECT OF NITROGEN, PHOSPHORUS FERTILIZER DOSES ON LEAF YIELD AND OIL YIELD OF JAVA LEMONGRASS (*Cymbopogon winterianus* Jawitt) IN GIA LAI

Pham Thi Minh Tam, Dao Duy Hiep, Nguyen Pham Hong Lan,  
Pham Anh Cuong, Vu Thai An, Vo Thi Thu Oanh,  
Nguyen Duy Nang, Nguyen Van Phu

## Summary

Java lemongrass is common cultivated in Vietnam for the use in industries and in traditional medicine. With the increase of raw lemongrass material demand, the application of fertilizer is one of the most traditional farm practices to raise the productivity. A two factorial experiment was laid out in randomized complete block design to investigate the effect of nitrogen and phosphorus fertilizer doses on growth and essential oil yield of Java lemongrass. On fertilizer foundation (for 1 ha): 2 tonnes of Komix biofertilizer, 60 kg  $K_2O$ , the factor A was three doses of nitrogen fertilizers (0 kg  $N\cdot ha^{-1}$  as control, 45 kg  $N\cdot ha^{-1}$  and 90 kg  $N\cdot ha^{-1}$ ), factor B was three doses of phosphorus fertilizers (0 kg  $P_2O_5\cdot ha^{-1}$  as control, 30 kg  $P_2O_5\cdot ha^{-1}$  and 60 kg  $P_2O_5\cdot ha^{-1}$ ). The application of 90 kg  $N\cdot ha^{-1}$  resulted in the highest leaf yield (10.8 tonnes. $ha^{-1}\cdot 3\text{ times}^{-1}$ ) and oil yield (122.0 kg. $ha^{-1}\cdot 3\text{ times}^{-1}$ ) of Java lemongrass. The application of 60 kg  $P_2O_5\cdot ha^{-1}$  increased the highest leaf yield (10.37 tonnes. $ha^{-1}\cdot 3\text{ times}^{-1}$ ) and oil yield (115.8 kg. $ha^{-1}\cdot 3\text{ times}^{-1}$ ) of Java lemongrass. The combined application of nitrogen fertilizers (45 kg  $N\cdot ha^{-1}$  and 90 kg  $N\cdot ha^{-1}$ ) and phosphorus fertilizers (30 kg  $P_2O_5\cdot ha^{-1}$  and 60 kg  $P_2O_5\cdot ha^{-1}$ ) were not significantly improved leaf yield and oil yield of Java lemongrass.

**Keywords:** *Java lemongrass, lemongrass oil, nitrogen fertilizer, phosphorus fertilizer.*