

ABSTRACT

Soybean (*Glycine max* L.) is one of the most important crops in Indonesia, following rice and maize as staple food crops. However, national soybean production has not been able to meet domestic demand, which continues to increase along with population growth. The limited production of soybean is suspected to be caused by low productivity due to the use of non-superior varieties and inappropriate fertilization systems. This research aimed to examine the effect of different soybean varieties and arbuscular mycorrhizal biofertilizer on growth and yield. The study was conducted in Pulo Rungkom Village, Dewantara District, North Aceh Regency, from May to September 2025. The experimental design used was a two-factor Randomized Block Design (RBD) with three replications. The first factor was soybean varieties consisting of four levels (Anjasmoro, Gepak Kuning, Line M 5.2.1, and Line M 1.1.3), while the second factor was the dosage of mycorrhizal biofertilizer at three levels (0, 10, and 20 g/plant). The observed parameters included both vegetative and generative growth characteristics. The results showed that soybean varieties significantly affected plant height at 4, 6, and 8 weeks after sowing (WAS), stem diameter at 2, 4, 6, and 8 WAS, number of productive branches, flowering time, harvesting time, number of root nodules, number of pods per plant, pod weight per plant, 100-seed weight, dry weight per plot, yield, and root infection. Application of mycorrhizal biofertilizer significantly influenced plant height, stem diameter, number of root nodules, and root infection. Furthermore, there was a significant interaction between soybean varieties and mycorrhizal biofertilizer on plant height at 6 WAS, stem diameter at 2 and 6 WAS, and root nodules.

Keywords: Soybean, mycorrhizal biofertilizer, growth, yield