ABSTRACT

TAUFAN PURWOKUSUMANING DARU. Technique of Cover Crop Development on Coal Mining Reclamation as Pasture. Under direction of SOEDARMADI HARDJOSOEWIGNJO, YADI SETIADI, LUKI ABDULLAH, and RIYANTO.

Land reclamation usually characterized by low of soil fertility. If it will be utilized as a pasture, it required soil amendment such as arbuscular mycorrhizal fungi (AMF), liquid compost, and appropriate grazing management. Seed coating technology with mycorrhizal root and liquid compost have expectation on soil amendment application in coal mining reclamation. Utilization of this pasture should be considered the stocking rate or the number of cattle grazed in the pasture.

The objectives of the research were to find out the proper of inoculation techniques of AMF on signal grass (Brachiaria decumbens) and puero legume (Pueraria phaseoloides), concentration and frequency of liquid compost applied, herbage production on mix culture between signal grass and puero, and stocking rate of signal grass and puero mix pasture on coal mining reclamation.

Four experiments were applied in this research, and was conducted in PT Kaltim Prima Coal (KPC), Sengata, Kalimantan Timur. The first experiment was inoculation techniques of arbuscular-mycorrhizal fungi on Brachiaria decumbens and Pueraria phaseoloides, the second experiment was concentration and frequency of liquid compost applied to mycorrhizal Brachiaria decumbens and Pueraria phaseoloides, the third experiment was mix culture production of mycorrhizal Brachiaria decumbens and Pueraria phaseoloides amended by liquid compost, and fourth experiment was Animal Production in Mix Pasture of Brachiaria decumbens and Pueraria phaseoloides at Coal Mining Reclamation Land. The first and second experiment was done in greenhouse, whereas third and fourth experiment was done in mine reclamation field.

Result of this research showed that seed coating technology of signal grass and puero with mycorrhizal Sorghum sp. root suspension gave high infectivity with mycorrhizal inoculation effect (MIE) 62.30% for signal grass and 54.90% for puero. Thus, it could be used as mycorrhizal seed sources. Generally, planting of mycorrhizal signal grass and puero seeds that applied with liquid compost on concentration 0.50% gave high AMF colonization and may affect on quantity and quality of plant shoot. The highest herbage production was obtained from mix culture of 40% signal grass and 60% puero. Combination of AMF inoculated and liquid compost gave better herbage production than non-AMF inoculated, non-liquid compost applied, or both. Optimum stocking rate on mix pasture between signal grass and puero was 38.69 m².animal⁻¹.day⁻¹. On this optimum stocking rate gave daily weight gain of Brahman cross cattle as 562.75 g.animal⁻¹.day⁻¹.

Key words : B. decumbens, P. phaseoloides, arbuscular mycorrhizal fungi (AMF), liquid compost, stocking rate