

Pertumbuhan dan Hasil Tanaman Jagung yang Ditumpangsarikan dengan
Calopogonium caeruleum Hemsl. disertai Pemupukan Nitrogen

*The Growth and Yield of Corn Plant Intercropping with Calopogonium caeruleum Hemsl.
and Given Nitrogen Fertilizing*

B. H. Tampubolon

Diterima 2 September 2003 / Disetujui 25 Maret 2004

ABSTRACT

The aim of this study was to recognize the influence of *Calopogonium caeruleum* aged 24 months or residue of its mulch and the nitrogen fertilizing on the growth and yield of corn plants, the suppression of weed growth as well as biology and chemistry characteristics of soil. The field experiment was carried out in IPB Experiment Field in Darmaga, Bogor. The treatments comprised legume and nitrogen fertilizing factors. The legumes consisted of 3 elements, namely : without legume, *C. caeruleum*, and its mulch residue. There were 4 dosages of nitrogen fertilizing : 0, 60, 120 and 180 kg N/ha. The design used were Randomized Block Design, 3 replications, experiment plot size 5 x 4 m. The Arjuna variety of corn were planted with minimum tillage system. The weeds growing in the plot without legumes and the one with *C. caeruleum* residue were killed by using herbicide. Dosage of 44 kg P and 83 kg K per ha were applied as the basis fertilizers. The corn planting space was 100 x 25 cm one plant/hole. At planting time $\frac{1}{3}$ dosage of Urea was applied and the rest of it at 30 days later. The result of the experiment revealed that the *C. caeruleum* treatment suppressed the growth of the weeds, increased the plant height, stalk twist, leaf area index, plant dry-weight, the weight of grain/ear and the dried grain/plot. The plot without legumes, the one with *C. caeruleum* and the residue of *C. caeruleum* produced 5.14, 8.65 and 6.25 kg dried grain respectively. The nitrogen fertilizing had no significance effect towards the grain dry-weight. Compared to the treatment without legumes, *C. caeruleum* treatment increased the population of soil fungi 77%, Nitrosomonas bacteria 120% and soil respiration 82%. There was also an increase of soil organic content, N-total, available P and available K as much as 35%, 30%, 11% and 6% respectively.

Key words : Corn, *Calopogonium caeruleum*, Intercropping, Nitrogen fertilizing

PENDAHULUAN

Seiring dengan pertambahan penduduk, pengembangan usaha peternakan dan industri yang menggunakan jagung sebagai bahan bakunya, kebutuhan jagung terus meningkat. Hingga tahun 2001 walau produksi jagung Indonesia telah mencapai 9.347 juta ton dari luas panen 3.285 juta hektar (BPS, 2002), kebutuhan dalam negeri belum tercukupi sehingga masih harus mengimpor jagung. Hal ini berarti peningkatan produksi jagung masih perlu terus diupayakan.

Peningkatan produksi dapat melalui ekstensifikasi dan ataupun intensifikasi. Ekstensifikasi pertanaman jagung dapat dilakukan pada lahan bukaan baru maupun pada lahan yang sebelumnya digunakan bukan untuk komoditi jagung. Salah satu kemungkinan perluasan pertanaman jagung ialah memanfaatkan areal

berpenutup tanah kacang secara tumpangsari dengan tanaman jagung dengan sistem olah tanah minimum. Telah terbukti dari banyak hasil percobaan produksi jagung dengan sistem olah tanah minimum hampir sama dengan sistem olah tanah konvensional (Sinukaban, 1987; Edwards *et al.*, 1988; Munawar *et al.*, 1990).

Areal berpenutup tanah kacang dijumpai pada perkebunan karet dan kelapa sawit pada lahan bukaan baru ataupun dalam melakukan peremajaan tanaman. Pada tahun 2000 luas perkebunan karet mencapai 3 610 225 ha dan kelapa sawit seluas 3 769 609 ha (Ditjenbun, 2002). Jika setiap tahun tiga persen dari areal tersebut diremajakan seperti seharusnya, areal seluas 221 000 ha akan ditanami penutup tanah kacang dan mungkin dapat dimanfaatkan menjadi areal pertanaman jagung secara tumpangsari.

Pertanaman penutup tanah kacang memberikan banyak manfaat, di antaranya meningkatkan kesuburan