

## ABSTRACT

### POT TEST THE EFFECT OF PELLET COMPOST FERTILIZATION ON SOYBEAN PLANTS (*Glycine max (L) merril*)

By

Wahyu Susilowati Sepsiana

Soybean plant is one of the food crops that become the main raw material for various products in the food industry. However, the fulfillment of national soybean consumption figures are lower than the production figures. The main problem is that agricultural land is generally sour (especially in Lampung) so it is not suitable for soybean crops. Another problem is the lack of soil organic matter so there needs to be motivation to increase the provision of organic matter to agricultural land. How to return organic matter to the land, among others, is by providing organic fertilizer or compost. However, compost generally contains very low macro nutrients (especially NPK). This study aims to test pellet compost fertilizer enriched with NPK fertilizer on soybean plants. This study used a complete randomized design (RAL) with 6 levels, and 3 replications to obtain 18 experimental units covering the treatment of compost pellets with the addition of Urea, SP-36, KCL at the beginning of planting (P1), crumb compost at the beginning of planting and urea fertilization, SP-36, conventional KCl (P2), Urea fertilizer, SP-36, conventional KCl (P3), compost crumb at the beginning of planting (P4), compost pellets without Urea, SP-36, KCl at the beginning of planting (P5), and planting medium only as control (P6). The observation parameters consisted of plant height (cm), stem diameter (mm), number of leaves (strands), number of harvested pods, healthy seeds ( % ), weight of 100

seeds/plant (g), water consumption (L), water productivity ( $\text{kg}/\text{m}^3$ ), fresh and dry weight (G), moisture content of roots, stems, and pods (%), number of root nodules, and plant productivity (ton/ha). The results of this study showed that the treatment has a significant effect on all parameters of observation except water consumption (L) and the weight of 100 seeds/plants (g). Based on the growth and yield of soybean plants per treatment obtained the best results lies in the treatment of P2 is the plant height of 110.83 cm, stem diameter of 5.93 mm, the number of leaves as much as 81 strands, the number of harvested pods as much as 64.67 pods, healthy seeds of 80.648 %, water consumption of 9.835 26.809% and plant productivity of 1.636 tons/ha. However, P1 has the highest root moisture content of 76.241%, P5 also has the highest stem moisture content of 72.480%, the average number of root nodules P4 as many as 18 nodules and the weight of 100 soybean seeds /plants in P2 is not greater than P3 is as much as 15.66 g. Based on the results of this study the provision of compost crumb fertilizer at the beginning of planting and fertilizing Urea, SP-36, conventional KCl (P2) has a better production value than the provision of fertilizer with other treatments.

Keywords: enrichment, compost pellet, NPK, soybean

## ABSTRAK

### UJI POT PENGARUH APLIKASI PUPUK KOMPOS PELET PADA TANAMAN KEDELAI (*Glycine max (L) merril*)

Oleh  
Wahyu Susilowati Sepsiana

Tanaman Kedelai merupakan salah satu tanaman pangan yang menjadi bahan baku utama untuk berbagai produk pada industri makanan. Namun pemenuhan angka konsumsi kedelai nasional lebih rendah dibanding dengan angka produksinya. Permasalahan utama adalah karena lahan pertanian umumnya masam (terutama di Lampung) sehingga tidak sesuai dengan tanaman kedelai. Masalah lain adalah kurangnya bahan organik tanah sehingga perlu adanya motivasi peningkatan pemberian bahan organik ke lahan pertanian. Cara pengembalian bahan organik ke lahan antara lain dengan memberikan pupuk organik atau pupuk kompos. Akan tetapi, pupuk kompos umumnya mengandung hara makro (terutama NPK) sangat rendah. Penelitian ini bertujuan untuk menguji pupuk pellet yang diperkaya dengan pupuk NPK pada tanaman kedelai. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan 6 taraf, dan 3 ulangan sehingga didapat 18 satuan percobaan yang meliputi perlakuan pemberian pupuk kompos pelet dengan penambahan Urea, SP-36, KCl diawal tanam (P1), pupuk kompos remah di awal tanam dan pemupukan Urea, SP-36, KCl secara konvensional (P2), pupuk Urea, SP-36, KCl konvensional (P3), pupuk kompos remah di awal tanam (P4), pupuk kompos pelet tanpa Urea, SP-36, KCl di awal tanam (P5), dan media tanam saja sebagai kontrol (P6). Parameter pengamatan terdiri dari tinggi tanaman

(cm), diameter batang (mm), jumlah daun (helai), jumlah polong panen, biji sehat (%), bobot 100 butir biji/tanaman (g), konsumsi air (L), produktivitas air (kg/m<sup>3</sup>), bobot brangkasan segar dan kering (g), kadar air akar, batang, dan polong tanaman (%), jumlah bintil akar tanaman, dan produktivitas tanaman (ton/ha). Hasil penelitian ini yaitu menunjukkan perlakuan berpengaruh nyata terhadap seluruh parameter pengamatan kecuali konsumsi air (L) dan bobot 100 biji/tanaman (g). Berdasarkan pertumbuhan dan hasil panen tanaman kedelai per perlakuan diperoleh hasil terbaik terletak pada perlakuan P2 yaitu tinggi tanaman sebesar 110,83 cm, diameter batang sebesar 5,93 mm, Jumlah daun sebanyak 81 helai, Jumlah polong panen sebanyak 64,67 polong, biji sehat sebesar 80,648 %, konsumsi air sebanyak 9,835 L, produktivitas air/tanaman sebesar 2,798 Kg/m<sup>3</sup>, bobot brangkasan segar sebanyak 72,57 g dan brangkasan kering sebesar 36,95 g, kadar air polong sebanyak 26,809 % dan produktivitas tanaman sebesar 1,636 ton/ha. Akan tetapi, P1 memiliki kadar air akar tertinggi sebanyak 76,241%, P5 juga memiliki nilai kadar air batang tertinggi yaitu sebanyak 72,480%, jumlah rata-rata bintil akar P4 sebanyak 18 bintil dan bobot 100 butir biji kedelai /tanaman pada P2 tidak lebih besar dibanding P3 yaitu sebanyak 15,66 g. Berdasarkan hasil penelitian ini pemberian pupuk kompos remah diawal tanam dan pemupukan Urea, SP-36, KCl konvensional (P2) memiliki nilai produksi yang lebih baik dibandingkan pemberian pupuk dengan perlakuan lain yang lain.

Kata kunci: Kedelai, pelet, NPK.