

EFFECTS OF DIFFERENT TYPES OF ORGANIC  
FERTILIZERS ON THE PRODUCTION OF  
EARTHWORMS (*Lumbricus terrestris*)

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**EFFECTS OF DIFFERENT TYPES OF ORGANIC FERTILIZERS ON THE  
PRODUCTION OF EARTHWORM (*Lumbricus rubellus*)**

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**This project thesis is submitted in partial fulfillment of requirement of the degree  
of Bachelor of Science in Agrotechnology (Aquaculture)**

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## ABSTRACT

The effects of different types of organic fertilizers on the growth and reproduction rate of earthworm, *Lumbricus rubellus* were studied. The organic fertilizers used were horse, cow and goat manure. The earthworm which has high protein content is used to feed the fish especially ornamental fish. Besides, with using earthworm, water pollution can be prevented. The animal manures were used as food resources for the earthworm. Manures contain valuable nutrient such as nitrogen (N), phosphorus (P), potassium (K) and sulfur (S). In this study, five earthworms were put into each polystyrene container which contains soil mixed with animal manures. The ratio of animal manure and soil are 2:3. The growth of earthworms in term of weight was measured weekly while the number of earthworm was calculated at the end of the experiment. Experiment for weight measurement was conducted in one month and two month for reproduction rate experiment. At the end of the experiment, the result showed the weight of earthworm which treated with horse manure, cow manure and goat manure was  $3.85 \pm 0.44$ ,  $3.08 \pm 0.43$  and  $2.92 \pm 0.28$  g respectively. The final number of earthworm was 46, 76 and 161 individuals for goat, cow and horse manure respectively. However, based on the statistical analysis, there was no significant different between in all treatment on the weight measurement experiment. In conclusion, all manures that have been used in this study were suitable as food resources for earthworm.

## ABSTRAK

Kesan-kesan baja organik yang berbeza terhadap pertumbuhan dan kadar pembiakan cacing tanah, *Lumbricus rubellus* telah di kaji. Baja organik yang digunakan adalah najis kuda, lembu dan kambing. Cacing tanah yang mempunyai kandungan protein yang tinggi telah digunakan sebagai makanan kepada ikan terutamanya ikan hiasan. Selain itu, dengan penggunaan cacing tanah sebagai makanan kepada ikan, pencemaran air dapat dielakkan. Najis-najis haiwan yang dinyatakan digunakan sebagai sumber makanan kepada cacing tanah. Najis mengandungi nutrient-nutrient yang bernilai seperti nitrogen (N), fosforus (P), kalium (K) dan sulfur (S). Dalam kajian ini, lima ekor cacing tanah telah dimasukkan ke dalam bekas polistirin yang mana mengandungi tanah yang telah dicampurkan dengan najis-najis haiwan. Nisbah tanah kepada najis adalah 2:3. Pertumbuhan cacing tanah dalam berat disukat setiap minggu manakala bilangan cacing tanah dikira di penghujung eksperimen. Eksperimen untuk penyukatan berat telah dijalankan selama satu bulan dan dua bulan untuk eksperimen kadar pembiakan. Keputusan yang diperolehi menunjukkan berat cacing tanah yang dirawat menggunakan najis kuda, lembu dan kambing adalah  $3.85 \pm 0.44$ ,  $3.08 \pm 0.43$  dan  $2.92 \pm 0.28$  g. Bilangan akhir bagi cacing tanah bagi najis kambing, lembu dan kuda adalah 46, 76 dan 161 ekor. Walaubagaimanapun, analisis statistik menunjukkan tiada perbezaan yang ketara antara semua rawatan. Kesimpulannya, semua najis haiwan yang digunakan dalam kajian ini adalah sesuai sebagai sumber makanan kepada cacing tanah.