Intisari

Penelitian ini telah dilaksanakan dengan pengambilan sampel tanah yang dilakukan di daerah Kopeng, Kecamatan Getasan Kabupaten Semarang, Provinsi Jawa Tengah. Analisis laboratorium dilakukan di Laboratorium Ilmu Tanah Departemen Tanah, Laboratorium Nematologi Departemen Hama dan Penyakit Tumbuhan, Fakultas Pertanian, Universitas Gadjah Mada, dan Laboratorium Fisika Tanah, Balai Penelitian Tanah, Bogor. Tujuan dari penelitian ini untuk mengetahui pengaruh tingkat pengelolaan lahan terhadap agregasi tanah dan kelimpahan fauna tanah pada lahan budidaya hortikultura di Kopeng, Jawa Tengah. Hasil yang didapatkan untuk sifat kimia tanah, nilai kemasaman tanah pada lahan organik berkisar 5,84-6,69, lahan semi organik 5,74-6,25, dan lahan konvensional 5,58-6,25; bahan organik pada lahan organik berkisar 8,56%-9,34%, pada lahan semi organik 7,63%-7,93, dan lahan konvensional 7,42%-7,94%; N-total tanah pada lahan organik berkisar 0,17%- 0,29%, pada lahan semi organik 0,15%-0,18%, dan pada lahan konvensional 0,16%-0,17; KPK pada lahan organik 22,55-24,48 cmol(+1)/kg, pada lahan semi organik 21,95-33,15 cmol(+1)/kg, dan pada lahan konvensional 25,31-30,68 cmol(+1)/kg; kejenuhan basa pada lahan organik berkisar 42,19-72,08%, pada semi organik 47,48-75,19%, dan pada lahan konvensional 34,96-82,30%. Untuk sifat fisika tanah nilai kemantapan agregat pada lahan organik berkisar 115,71%-213,72%, lahan semi organik 146,25%-172,82%, dan pada lahan konvensional 121,07%-270,53%; kandungan air tersedia pada lahan organik berkisar 14,83%-17,67%, lahan semi organik 10,97%-16,43%, dan pada lahan konvensional 12,56%-18,50%; penetrasi akar lahan organik berkisar 30,00kg/cm³-40,00kg/cm³, lahan semi organik 17,50kg/cm³-50,00kg/cm³, dan lahan konvensional 20,00kg/cm³-55,00kg/cm³. Sedangkan untuk sifat biologi tanah nilai kelimpahan cacing tanah pada lahan organik sebesar 1,00-1,50ekor/4dm³, lahan semi organik 0,33-0,50 ekor/4dm³, dan pada lahan konvensional 0,17 ekor/4dm³ ; kelimpahan nematoda parasit lahan organik 17,78 ekor/100g-62,22 ekor/100g tanah, lahan semi organik 11,11 ekor/100g48,89 ekor/100g tanah, dan pada lahan konvensional 6,67 ekor/100g-33,33 ekor/100g tanah; dan kelimpahan nematoda non parasit 104,44 ekor/100g-417,78 ekor/100g tanah, semi organik 144,44 ekor/100g-380,00 ekor/100g tanah, dan pada lahan konvensional 157,78 ekor/100g-338,52 ekor/100g tanah. Kesimpulan yang didapat tipe pengelolaan mempengaruhi kelimpahan fauna tanah khususnya kelimpahan cacing tanah dan kelimpahan nematoda parasit.

Kata kunci : organik, semi organik, konvensional, agregat, fauna

Abstract

This research has been conducted by taking soil samples in Kopeng area, Getasan Sub-district, Semarang District, Central Java Province. Laboratory analysis was conducted at Soil Science Laboratory of Soil Department, Nematology Laboratory of Plant Pest and Disease Department, Faculty of Agriculture, Universitas Gadjah Mada, and Soil Physics Laboratory, Soil Research Institute, Bogor. The purpose of this study was to determine the effect of land management on soil aggregation and abundance of soil fauna on horticultural cultivation in Kopeng, Central Java. The results obtained for soil chemical properties, soil acidity value in the organic field ranged from 5.84 to 6.69, the semi-organic terrain of 5.74-6.25, and the conventional land 5.58-6.25; organic materials in the organic field ranged from 8.56% -9.34%, on the semi-organic land of 7.63% -7.93, and conventional land of 7.42% -7.94%; total nitrogen soil in organic land ranges from 0.17% - 0.29%, in the semi-organic field 0.15% -0.18%, and on conventional land 0.16% -0.17; CEC on organic land 22.55-24.48 cmol (+1) / kg, on semi-organic land 21.95-33.15 cmol (+1) / kg, and on conventional land 25,31-30,68 cmol (+1) / kg; base saturation in the organic field ranged from 42.19 to 72.08%, in the organic semi 47.48-75.19%, and on the conventional land 34.96-82.30%. For soil physical properties, the aggregate stability value in the organic field is 115.71% -213.72%, semi-organic land 146.25% -172.82%, and on conventional land 121.07% -270,53%; water content is available on organic farms ranging from 14.83% -17.67%, semi-organic land 10.97% -16.43%, and on conventional land 12.56% -18.50%; root penetration on organic farm ranged from 30,00 kg/cm³ - 40,00 kg/cm³, semi-organic land 17,50 kg/cm³-50,00 kg/cm³, and conventional land 20,00 kg/cm³ - 55,00 kg/cm³. As for the biological properties of the soil value of abundance of earthworms in the organic field is 1.00-1.50 earthworms/4dm³, the semi-organic land 0.33 - 0.50 earthworms/dm³, and on conventional land 0.17 earthworms/4dm³; abundance of organic terrestrial parasitic nematode 17,78 nematode/100g - 62,22 nematode/100g of soil, semi organic field 11,11 nematode/100g - 48,89 nematode/100g soil, and on conventional land 6,67 nematode/100g - 33,33 nematode/ 100g of soil; and abundance of non-parasitic nematodes 104,44 nematode/100g - 417.78 nematode/100 g of soil, semi-organic 144,44 nematode/100g - 380,00 nematode/100g of soil, and on conventional land 157.78 nematode/100g - 338, 52 nematode/100g of land. The conclusions of this type of management affect the abundance of soil fauna in particular the abundance of earthworms and the abundance of parasitic nematodes.

Keywords: organic, semi-organic, conventional, aggregate, fauna