

RINGKASAN

Kandungan C-organik tanah diperlukan dalam jumlah yang cukup sehingga perlu adanya evaluasi C-organik tanah baik pada sistem pertanian organik maupun konvensional. Tanaman padi sangat besar perannya dalam mempercepat terjadinya degradasi kandungan C-organik tanah pada lahan sawah. Pemupukan merupakan salah satu cara untuk mengatasi degradasi pada lahan sawah. Pemupukan bahan organik yang mengandung unsur C-organik tanah diperlukan untuk mengembalikan kualitas dan produktivitas tanah sehingga hasil tanaman meningkat. Tujuan dilaksanakannya penelitian di Kecamatan Kalibagor, Kabupaten Banyumas yaitu mengetahui: 1) agihan dan kandungan C-organik tanah, 2) perubahan C-organik tanah di lahan sawah pada masa vegetatif tanaman dan paska panen, dan 3) menentukan rekomendasi pemberian pupuk organik yang tepat.

Penelitian dilaksanakan di lahan sawah Kecamatan Kalibagor, Kabupaten Banyumas. Persiapan dan analisis tanah serta jaringan tanaman dilaksanakan di Laboratorium Tanah dan Sumberdaya Lahan, Fakultas Pertanian Universitas Jenderal Soedirman dimulai pada bulan Maret 2019 sampai bulan Juli 2019. Metode penelitian dilakukan dengan penetapan titik sampel diawali dengan pembuatan peta SLH (Satuan Lahan Homogen) yang dibuat dengan cara menggabungkan peta (*overlay*) dari Peta Administrasi Kecamatan Kalibagor Skala 1: 50.000, Peta Jenis Tanah Skala 1: 50.000, Peta Kelerengannya Skala 1: 50.000, dan Peta Penggunaan Lahan Kecamatan Kalibagor Skala 1: 50.000. Penggabungan empat peta tersebut menghasilkan 11 SLH, penelitian lebih perspektif ke satu SLH. Penentuan titik sampel didasarkan pada SLH, dengan memperhatikan penyebarannya secara proposional, mengikuti metode *grid* yang dimodifikasi. Pengambilan sampel tanah dilakukan secara komposit di setiap lokasi pengamatan. Pengambilan sampel tanah (*survei*) dilakukan sebanyak dua kali yaitu pada masa vegetatif padi dan paska panen. Sampel tanah diambil dengan melakukan pengeboran tanah pada kedalaman 0-25 cm dan 25-50 cm pada *survei* yang pertama dan 0-25 cm pada *survei* yang kedua. Pengeboran dilakukan sebanyak tiga titik secara acak dengan jarak antar titik 2-3 m (*zig-zag*). Variabel yang digunakan yaitu pH KCl, pH H₂O, DHL, potensial redoks dan C-organik tanah serta hasil tanaman padi gabah basah.

Hasil penelitian di Kecamatan Kalibagor pada kedalaman tanah 0-25 cm menunjukkan bahwa status C-organik tanah pada *survei* pertama termasuk rendah sampai tinggi (1,01-3,19%), sedangkan *survei* kedua termasuk rendah (1,03-1,90%). Hasil korelasi terbaik sebesar +0,547 terdapat pada *survei* pertama antara C-organik tanah dengan hasil tanaman padi gabah basah. Rekomendasi pemupukan organik di lahan penelitian adalah menggunakan empat jenis pupuk yaitu pupuk kandang (pukan) kambing di Kecamatan Kalibagor dengan rerata sebesar 7,50 ton/ha, pupuk kandang (pukan) sapi 5,12 ton/ha, pupuk kandang (pukan) ayam 4,75 ton/ha dan pupuk kompos jerami 4,32 ton/ha. Rerata kebutuhan pupuk organik di Kecamatan Kalibagor lebih dari 2 ton/ha dengan 15 kali pemberian secara berkala untuk meningkatkan kandungan C-organik tanah lebih dari 0,26%.

SUMMARY

The content of C-organic soil is needed in large enough quantities need evaluation of C-organic soil in both organic and conventional farming systems. Rice plants play a major role in resolving the degradation of C-organic soil reserves in paddy fields. Fertilization is one way to overcome degradation of paddy fields. Fertilizing organic material containing C-Organic elements is needed to improve soil quality and productivity so that crop yields increase. The aim of the research in the Kalibagor District, Banyumas Regency is to find out: 1) the distribution and content of C-organic soil, 2) changes in C-organic soil in paddy fields during vegetative and post-harvest periods and, 3) select compensation..

The study was conducted in the paddy fields of Kalibagor District, Banyumas Regency. Preparation and analysis of soil and plant tissue was carried out at the Soil and Land Resources Laboratory, Faculty of Agriculture, Jenderal Soedirman University, starting in March 2019 until July 2019. The research method was carried out by determining sample points preceded by making the part of map (Homogeneous Land Unit) maps made with how to combine maps (overlay) of the Kalibagor District Administration Map Scale 1: 50,000, Land Type Maps Scale 1: 50,000, Slope Maps Scale 1: 50,000, and Land Use Maps Kalibagor District Scale 1: 50,000. The combination of the four maps resulted in 11 parts where the research was more perspective to one part. Determination of sample points is based on a part of map, taking into account its distribution proportionally, following the modified grid method. Soil sampling was done in a composite manner at each observation location. Soil sampling (survey) was carried out twice, namely during the vegetative period of rice and post-harvest. Soil samples taken by drilling the soil at a depth of 0-25 cm and 25-50 cm in the first survey and 0-25 cm in the second survey. Drilling is carried out as many as three random points with a distance between points 2-3 m (zig-zag). The variables used are pH KCl, pH H₂O, DHL (electric conductivity), redox potential, and C-Organic soil, as well as the results of wet rice paddy plants.

The results of research in Kalibagor District in the 0-25 cm soil showed that the status of C-Organic soil in the first survey was low to high (1.01-3.19%), while the second survey was low (1.03-1.90%). The best research results is +0.547 regarding the first survey between C-Organic soil with the results of wet grain rice plants. Organic fertilizing recommendations in the research location with fertilizer type fertilizers, namely goat manure in Kalibagor District with an average of 7.50 tons / ha, cattle manure of 5.12 tons / ha, fertilizer chicken manure for 4.75 tons / ha, and hay compost for 4.32 tons / ha. The average requirement for organic fertilizer in Kalibagor Subdistrict is more than 2 tons / ha with 15 regular giving to increase soil C-Organic content more than 0.26%.