

Rancang Bangun Alat Penangkap Hama Wereng Berdasarkan Pengaruh Warna Cahaya LED

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ABSTRAK

Tujuan penelitian ini adalah 1). merancang alat penangkap hama wereng berdasarkan pengaruh warna cahaya LED (merah, putih, hijau, kuning biru), dan 2). meneliti pengaruh warna cahaya LED terhadap ketertarikan hama wereng. Penelitian dilakukan pada bulan Juli â€“ Desember 2013. Alat dirancang dan dibuat di laboratorium digital Teknik Elektro Universitas Dian Nuswantoro Semarang, dan uji coba alat dilakukan di sawah milik petani di Dusun Mundingan Kelurahan Cepoko Kecamatan Gunungpati Semarang. Alat pengendali hama wereng ini meliputi 3 buah sensor gerak, dan lampu LED berwarna (Merah, Hijau, Kuning, Biru, dan Putih) dan Accu 12Volt. Alat yang dibuat terdapat corong penyedot berbentuk kerucut dengan lampu dipasang dibagian dalam mengelilingi corong. Ketika alat dinyalakan, lampu akan menyala untuk menarik wereng datang. Ketika wereng datang sensor gerak memberikan sinyal dan mengaktifkan mikrokontroler yang berada satu kotak dengan kotak penampung hama, kemudian wereng tersedot secara otomatis masuk ke dalam kotak penampung hama melalui pipa paralon. Hasil uji coba alat di laboratorium menunjukkan bahwa alat dapat berfungsi dengan baik. Lalu pengujian dilakukan di sawah pada pukul 18.00 sampai 19.000. Luas sawah untuk uji tiap warna lampu 4m², selama 10 menit diulang lima kali. Hasil ujicoba di lapangan diperoleh data lampu LED warna putih rata-rata dapat menarik 149 ekor, Biru 148 ekor, Merah 115 ekor, Hijau 72 ekor, dan Kuning menarik 66 ekor. Analisis statistik menunjukkan ada perbedaan yang nyata pengaruh warna lampu terhadap jumlah wereng yang tertangkap.

Kata Kunci : Hama Wereng, alat pengendali wereng mekanik, lampu LED, Sensor Gerak

Design of Planthopper Pests Catcher Tool Based on LED Light Color Effect

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ABSTRACT

The purpose of this study is 1). tentacle plan mites BPH based on the influence of light color LED (red, white, green, yellow, blue), and 2). examine the influence of the color of the LED light on the interest mites BPH. Research done in July - December 2013. Tools designed and manufactured in the digital lab Dian Nuswantoro Electrical Engineering University of Semarang, and device trials conducted in farmer's fields in Dusun chief Mundingan Cepoko Gunungpati Semarang District. Tool operators BPH mite covers 3 motion sensors, and colored LED lights (Red, Green, Yellow, Blue, and White) and Accu 12Volt. The tools are made available vacuum funnel conical section of the lights installed in the funnel around. When the device is turned on, the lights will flash to attract BPH come. When it comes BPH motion sensor gives the signal and activates the microcontroller which is a box to box bearing mites, then BPH automatically sucked into mites bearing box through a pipe paralon. Test results show that the tool in laboratory tool to work properly. Then the testing is done in the fields at 18:00 reach 19,000. Wide field to test each color light 4m2, for 10 minutes is repeated five times. The results obtained in the field trial data white LED lights to attract an average of 149 pieces, 148 pieces Blue, 115 Red-tailed, Green 72 pieces, 66 pieces and Yellow interesting. Statistical analysis showed no significant differences in the color of light influences the amount of BPH caught.

Keyword : Rodent Planthopper, Tool Control Planthopper Mechanical, LED Light, Motion Sensor