



EFFECT OF FOOD AND SPATIAL PRESSURE ON GROWTH AND DEVELOPMENT OF BPH

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Abstract

This research aims to determine effects of food and spatial availability on growth and development of *N. lugens*. Information about physiological aspect on formation of BPH macropterous imago is limited. The IR64 variety was used as resistant variety, and Ketan Lusi, as susceptible one. This research was conducted in the laboratory of Applied Entomology, Faculty of Agriculture, Gadjah Mada University from October until December, 2015, under the temperature of 29.42°C with relative humidity of 61% and L12:D12. Ten pairs of *N. lugens* brachypterous used as F0 constant and then was added with five male, five female and five couple adult on fifth days after the first infestation (the change of F0). Biology parameters observed were the life cycle, fecundity, a population of nymphs I, II, III, IV, V and adult BPH. Then life cohort parameters observed were reproductive rate (R_0), intrinsic rate of increase (r), the average generation time (T), and the population doubled (DT). The results showed that BPH reared on Ketan Lusi variety has better growth and development than the ones reared on IR64 variety. The presence of individual adult affected the formation of offspring, but plant factor and nutrition feed has not been able to support development of BPH formation macropterous offspring.

Key Word : food and spatial pressure, growth and development, BPH



PENGARUH TEKANAN PAKAN DAN KEPADATAN TERHADAP PERTUMBUHAN DAN PERKEMBANGAN WBC

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INTISARI

Penelitian ini bertujuan mengetahui pengaruh tekanan pakan dan ruang terhadap pertumbuhan dan perkembangan WBC. Selain itu, informasi mengenai terbentuknya imago makroptera belum banyak dikaji. Padi varietas IR64 digunakan sebagai varietas tahan WBC dan padi Ketan Lusi sebagai varietas rentan WBC. Penelitian dilakukan di laboratorium Entomologi Terapan, Fakultas Pertanian, Universitas Gadjah Mada, dari bulan Oktober hingga Desember 2015 dengan temperatur 29.42°C dan kelembaban relatif 61% dan L12:D12. 10 pasang imago brachiptera of *N. lugens* sebagai F0 tetap, kemudian ditambahkan dengan lima ekor imago jantan, lima ekor imago betina dan lima pasang imago makroptera setelah hari kelima perlakuan (F0 diubah). Percobaan biologi terdiri dari siklus hidup, keperidian, jumlah populasi nimfa I, II, III, IV, V dan imago WBC. Sedangkan para meter neraca kehidupan meliputi laju reproduksi bersih (R_0), laju pertumbuhan intrinsik (r), Rataan masa generasi (T), dan populasi berlipat ganda (DT). Hasil penelitian menunjukkan WBC yang dipelihara pada bibit padi pada varietas rentan tumbuh dan berkembang secara optimal disbanding varietas IR64. Kehadiran imago makroptera berpengaruh terhadap pembentukan keturunan makroptera, namun faktor pakan belum mampu untuk mempengaruhi pembentukan generasi makroptera.

Kata kunci : tekanan pakan dan ruang, pertumbuhan dan perkembangan, WBC