

## INTISARI

Kenyataan di lapangan menunjukkan bahwa tidak semua varietas padi sawah yang meliputi kelompok varietas lokal, varietas unggul lama, varietas unggul baru dan varietas unggul tipe baru sesuai pada budidaya organik karena setiap kelompok varietas mempunyai karakter fisiologis dan pertumbuhan yang berbeda. Oleh sebab itu penelitian ini dilaksanakan dengan tujuan : (1) menentukan varietas padi sawah yang sesuai budidaya organik berdasarkan hasil, (2) mengkaji karakter fisiologis dan pertumbuhan varietas padi sawah pada budidaya organik di pot dan di lapangan.

Penelitian dilaksanakan melalui tiga tahap percobaan. Percobaan I adalah percobaan pot untuk mengetahui kesesuaian varietas padi sawah meliputi varietas lokal, varietas unggul lama, varietas unggul baru, dan varietas unggul tipe baru pada budidaya organik berdasarkan hasilnya, selanjutnya dilakukan pemilahan dan pemilihan varietas berdasarkan hasil pada budidaya organik. Percobaan II adalah percobaan pot untuk mengkaji karakter fisiologis, pertumbuhan, dan hasil padi sawah pada budidaya organik dan percobaan III untuk mengkaji karakter fisiologis dan pertumbuhan serta produktivitas padi sawah yang dibudidayakan secara organik di lapangan.

Hasil penelitian menunjukkan bahwa (1) Varietas Mentikwangi meningkat pada karakter, kelembaban daun, kadar air sel daun, pengisian biji lebih lama, ILD 0-3 MST, ULD 0-3 MST, berat GKP per rumpun, berat GKP per petak, berat GKP per hektar dan kadar protein, suhu daun menurun, transpirasi menurun sehingga merupakan varietas lokal yang sesuai budidaya organik

(2) Varietas Cisedane meningkat pada karakter LAB 0-3 MST, laju pengisian biji, berat GKP per rumpun, berat GKP per petak, berat GKP per hektar, dan kadar protein sehingga merupakan varietas unggul yang sesuai budidaya organik.

(3) Varietas Pandanwangi meningkat pada karakter sekapan cahaya, khlorofil a, khlorofil b, CO<sub>2</sub> sel daun, kelembaban permukaan daun, kadar air sel daun, lama pengisian biji, BDK 3 MST, LAB 0-3 MST, berat GKP per rumpun, berat GKP per petak, berat GKP per hektar, kadar protein, umur berbunga lebih cepat dan umur panen tetap sehingga merupakan varietas lokal yang sesuai budidaya organik.

(4) Varietas IR64 meningkat pada karakter CO<sub>2</sub> sel daun, konduktivitas stomata, kadar CO<sub>2</sub> sel daun, ULD 0-3 MST, BDK 3 MST, LAB 0-3 dan 3-6 MST, LPN 0-3 MST, LPT 0-3 MST, berat 1000 gabah, berat GKP per rumpun, berat GKP per petak dan berat GKP per hektar, persentase beras kepala dan persentase kadar protein sehingga merupakan varietas unggul yang sesuai pada budidaya organik.

(5) Varietas Cianjur meningkat pada karakter kelembaban permukaan daun, kadar air sel daun, BDK 0-3 MST, LAB 3-6 MST, LPN 0-3 MST, LPT 0-3 MST, pengisian biji lebih lama, dan kadar amilosa menurun, sehingga merupakan varietas lokal yang sesuai budidaya organik.

(6) Berat GKP per petak dan per hektar varietas Mentikwangi, Cisedane, Pandanwangi, IR64, dan Cianjur pada budidaya organik masing-masing 17,38 kg (9,77 ton/ha), 16,58 kg (9,32 ton/ha), 15,88 kg (8,93 ton/ha), 14,88 kg (8,37 ton/ha), 14,00 kg (7,88 ton/ha) sedang dengan budidaya konvensional masing-masing 12,88 kg (7,24 ton/hektar), 12,38 kg (6,96 ton/ha), 13,13 kg (7,38 ton/ha), 12,38 kg (6,96 ton/ha), dan 13,63 kg (7,66 ton/ha)

Kesimpulan dari penelitian ini adalah : (1) Kesesuaian varietas padi sawah pada budidaya organik tidak dipengaruhi oleh pengelompokan berdasarkan varietas lokal dan unggul. (2) Karakter fisiologis yang menyebabkan



kesesuaian pada budidaya organik meliputi kadar air sel daun, CO<sub>2</sub> sel daun dan laju pengisian biji. Karakter pertumbuhan yang menyebabkan kesesuaian pada budidaya organik meliputi jumlah anakan, laju asimilasi bersih, indeks panen, (3) Peningkatan hasil gabah per hektar dari budidaya konvensional ke budidaya organik masing-masing adalah varietas Mentikwangi 2,53 ton (34,95%), Cisedane 2,36 ton (33,94%), Pandanwangi 1,55 ton (20,95%), IR64 1,41 ton (20,20%), dan Cianjur 0,22 ton (2,75%).

Kata kunci : varietas padi sawah, budidaya organik, karakter fisiologis, pertumbuhan, hasil

## ABSTRACT

*Facts have shown that not all varieties of rice which include local varieties group, old improved varieties, new improved varieties and new type improved varieties are appropriate for organic cultivation because each group of varieties has different physiological and growth characters. This research was conducted with the aims of : (1) sorting and selecting rice varieties appropriate for organic cultivation based on yield, (2) assess the physiological and growth characters of rice varieties under organic cultivation in pots, (3) studying the physiological and growth characters as well as the productivity of lowland rice varieties under organic cultivation in the field*

*The research was conducted through three experiments. Experiment I was a pot experiment to study the response of lowland rice varieties including local varieties, old improved varieties, new improved varieties, and new type improved varieties under organic cultivation, and afterwards sort and select rice varieties based on the yield in organic cultivation. Experiment II was a pot experiment to study the physiological, growth, and yield of rice in organic cultivation and continued with experiment III to study the physiological and growth characters, and the productivity of lowland rice that was organically cultivated in the field.*

*The results showed that : (1) Mentikwangi variety had the characters of decreased leaf temperature, decreased transpiration, increased leaf humidity, increased water content of cells, longer duration of seed loading, increased LAI 0-3 WAP, increased LAD 0-3 WAP, increased yield per clump, per plot, and per hectare, and increased protein content so that it was an appropriate local variety for organic cultivation.*

*(2) Cisedane variety had the characters of increases in NAR 0-3 WAP, seed loading rate, weight of harvested dry grains per clump, per plot, and per hectare, protein content so that it was an appropriate improved variety for organic cultivation.*

*(3) Pandanwangi had the character of increased light interception, increased chlorophylls a and b, increased CO<sub>2</sub> of leaf cells, increased relative humidity of leaf surface, increased water content of leaf cells, faster time of flowering, longer duration of seed loading, increased SLW 3 WAP, increased NAR 0-3 WAP, increased grain weight per clump, per plot, and per hectare, and increased protein content so that it was an appropriate local variety for organic cultivation.*

*(4) IR64 variety had the characters of increases in stomatal conductivity, CO<sub>2</sub> leaf cells, LAD 0-3 WAP, SLW 3 WAP, NAR 0-3 and 3-6 WAP, RGR 0-3 WAP, CGR 0-3 WAP, weight of 1000 grains, weight of harvested dry grains per clump, per plot, and per hectare, percentage of finest quality rice, protein content so that it was an appropriate improved variety for organic cultivation.*

*(5) Cianjur variety had the characters of increased relative humidity of leaf surface, increased water content of leaf cells, increased SLW 0-3 WAP, increased NAR 3-6 WAP, increased RGR 0-3 WAP, increased CGR 0-3 WAP, longer duration of seeds loading, and decreased amylose content so that it was an appropriate local variety for organic cultivation*

*(6) The weights of harvested dry grains per plot and per hectare of Mentikwangi, Cisedane, Pandanwangi, IR64, and Cianjur varieties in organic cultivation were respectively 17.38 kg (9.77 tons/ha), 16.58 kg (9.32 tons/ha), 15.88 kg (8.93 tons/ha), 14.88 kg (8.37 tons/ha) and 14.00 kg (7.88 tons/ha) whereas the weights of harvested dry grains in conventional cultivation were respectively 12.88 kg (7.24 tons/ha), 12.38 kg (6.96 tons/ha), 13.13 kg (7.38 tons/ha), 12.38 kg (6.96 tons/ha), and 13.63 kg (7.66 tons/ha).*



*The results of research can be summed up some of : (1) suitability lowland rice varieties in organic farming is not affected by grouping based on local and improved varieties, (2) The character that causes the physiological suitability in organic farming include cell water content of leaves, leaf cells CO<sub>2</sub>, and rate of grain filling. The character that causes the growth suitability in organic farming include number of tillers, net assimilation rate, and harvest index. (3) Increase in grain yield per hectare from conventional to organic farming, respectively, were varieties Mentikwangi 2.53 tons (34.95%), Cisedane 2.36 tons (33.94%), Pandanwangi 1.55 tons (20.95%), IR64 1.41 tons (20.20%), and Cianjur 0.22 tons (2.75%).*

*Key words : lowland rice varieties, organic cultivation, physiological characters, growth, yield*