

# Brown planthopper development and biotype changes in resistant rice varieties in Indonesia

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BPH on ciherang rice variety, Sukamandi, West Java. Photo credit: Baehaki



BPH on IR64 in Pati, Central Java. Photo credit: Baehaki

Brown planthopper outbreaks have been reported in Indonesia before the 1940s. In the 1960s high yielding varieties from IRRI, like IR5 and IR8 were introduced into Java but they frequently suffered from planthopper damages. In 1975 the BPH resistant variety IR26, also from IRRI, was introduced, but only lasted 4 years because of population changes, often referred to as “biotype shifts”. In the 1980 another IRRI resistant variety IR 42 was introduced but this only lasted a year and in 1981 another IRRI variety IR56 was introduced and this was subsequently followed by IR64 and IR74. Although IR 64 had the initial resistant gene, it had field resistance from numerous QTLs and this variety has wide acceptance. More recently we found that IR64 had also succumbed to BPH attacks (Fig 1) and a new Indonesian variety, Ciherang, was recently released.

Crop damages by BPH was highest in the 1970-1980 period, but since then only small areas of damage had been recorded. Between 1991-2000 damaged areas reached 250.000 ha and the latest record of damage areas between 2001-2006 was about 134,045 ha and about 4,598 ha were completely destroyed by hopperburn.

Three years ago we started evaluating hybrid rice varieties and found that all the hybrid varieties are susceptible to BPH. In the WS-2005 we compared BPH reaction in the field of hybrids, Hipa 3, H45, and H53 with IR64, IR74 and BP360. BPH development on hybrids was higher than on IR74. In the DS 2004, we found the whitebacked planthopper on hybrids Roka, Hipa 3, and Hipa 4, but low in inbred IR64, although this variety was reported to be attacked by BPH . There are indications that in Indonesia hybrids are susceptible to both species of planthopper, BPH and WBPH.