



HPS vs. MH Lamps & Phasic Photoperiod Rep 2

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'Super Dwarf' rice was grown at four plant densities (50, 100, 200, and 600 plants m^{-2}) in each of three growth chambers to replicate two previous trials involving lamp type (High Pressure Sodium; HPS and Metal Halide; MH) and photoperiod (12-h continuous and 12-h until anthesis then 24-h until harvest). Individual plots (0.2 m^2) were separated by polished aluminum to minimize guard row effects.

Environmental Conditions:

PPF: 1100 $Fmol\ m^{-2}\ s^{-1}$
 Temperature: 32/28 d/n pre-anthesis
 30/24 d/n post-anthesis
 *27 d/n for for 24-h photo
 CO₂: 1200 ppm
 Root-zone: recirculating hydroponics

Days to Heading: day 61-62 in all treatments

Days to Harvest: day 92 in all treatments

Unit	Lamp Type	Photoperiod
1	MH	12-h continuous
2	HPS	12-h pre-anthesis/ 24-h post
3	HPS	12-h continuous

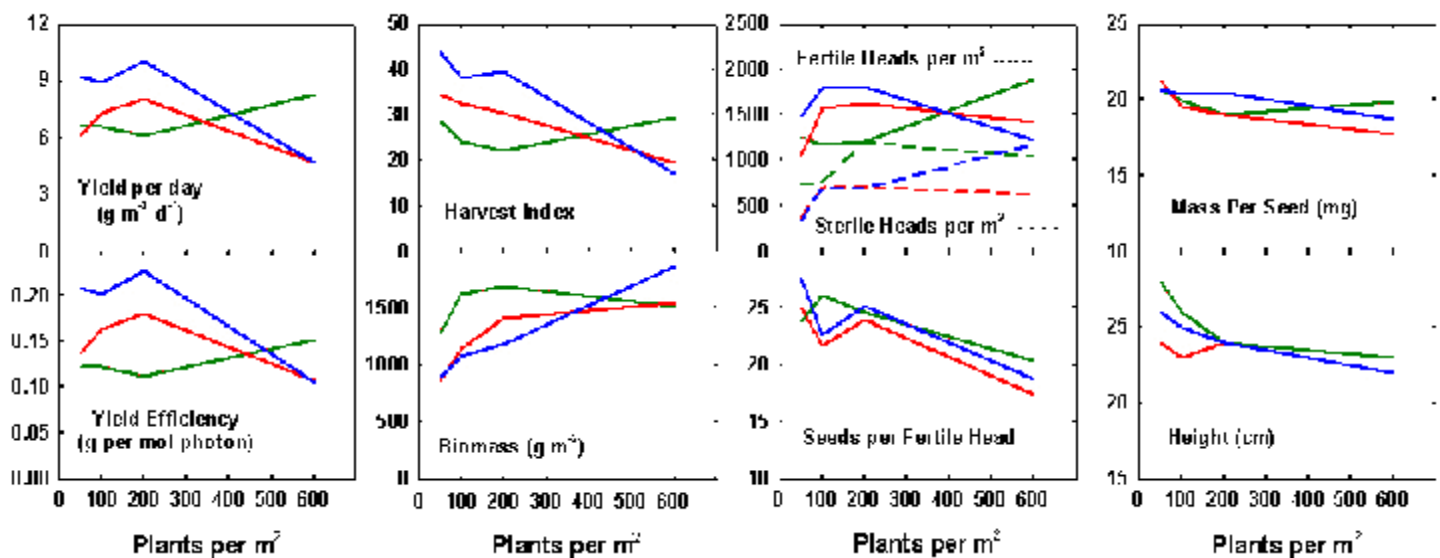
1. Yield and HI were slightly reduced at the highest density (600 plants m^{-2}).
2. Yield Efficiency was lower than in previous studies probably due to late heading and harvest (15 days later).
3. Similar to previous studies, HI decreased with increasing density.
4. Similar to previous trials, height decreased with increasing density.
5. The late heading may be caused by a lack of stress. We hypothesize that the lack of N stress may cause late heading.

Lamp Type:

1. Yield and yield efficiency was slightly higher with MH lamps, but this may be a chamber effect.

Photoperiod:

1. Unlike the previous photoperiod trial, the seed fill period was not shortened with the 12/24-h photoperiod.
2. Sterile heads were high in all treatments, but highest in the 12/24-h photoperiod.



Conclusions: