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[\[PDF \(566K\)\]](#) [\[References\]](#)**Stability of Rice Pollination in the Field under Hot and Dry Conditions in the Riverina Region of New South Wales, Australia**[Tsutomu Matsui](#)¹⁾, [Kazuhiro Kobayasi](#)²⁾, [Mayumi Yoshimoto](#)³⁾ and [Toshihiro Hasegawa](#)³⁾

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Abstract: Even under extremely hot (40°C) conditions during anthesis, heat-induced floret sterility does not appear to be a serious issue for Australian rice growers. This contradicts previously reported temperature thresholds for floret sterility. To determine the factors associated with stable rice production under hot and dry conditions in the Riverina region of New South Wales (Australia), we examined rice (cv. 'Langi') pollination at different distances from the windward edge of a paddy field and its association with canopy microclimate. With an air temperature of 34.5°C and a relative humidity of 20.7% during anthesis, poor pollination of florets occurred at the windward edge, but pollination remained stable farther from the edge. The temperature difference between the air and the panicles in the canopy reached as high as 6.8°C under these conditions because of low humidity and strong transpirational cooling. Moreover, the length of the dehiscence at the base of the thecae during anthesis was long; this is a desirable trait for heat tolerance. The long basal dehiscence of the thecae of this cultivar and the lower panicle temperatures relative to the ambient temperature caused by high transpirational cooling appear to be the key factors responsible for stable pollination under the extremely high temperatures of the Riverina region.

Keywords: [Anther dehiscence](#), [Floret sterility](#), [Heat stress](#), [Oryza sativa L.](#), [Transpirational cooling](#)

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