

**REPORT**

**OUT-CROSSING RATE AND ISOLATION DISTANCE OF RICE  
(*Oryza sativa* L.)**

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An understanding on the out-crossing and isolation distance of a rice (*Oryza sativa* L.) variety would be useful in minimizing off types found in the seed production programmes and to maintain the standards of seed certification in the country. Two rice varieties namely, Bw 364 and Bw 272-6b that were bred by the Regional Rice Research and Development Centre (RRRDC) at Bombuwala, Sri Lanka, were used to estimate the possible out-crossing rates. The rice variety Bw 364 is a red pericarp with a medium size grain that matures in 3½ months while Bw 272-6b is a red samba variety that matures at the age of 3 months. The variety Bw 272-6b was tested for isolation distance.

The two rice varieties showed a potential for out-crossing with rice breeding line Ld-6-18-1-2, which has a dominant marker of purple color stem for selecting the out-crossed offspring in the following generation. The study was conducted during the *maha* season 2010/2011 and *yala* season 2011 at the RRRDC in a Randomized Complete Block Design (RCBD) in two wind directions perpendicular to each other. The male and female rice plant progenies/lines were planted in five different time intervals to achieve the flowering synchronization. The potential out-crossing rate of rice variety Bw 364 is 4.95 %, which less than that of Bw 272-6b (5.74 %) under the present environmental conditions. The mean out-crossing rates of Bw 364 and Bw 272-6b are 0.874 % and 0.156 %, respectively. The rice variety Bw 272-6b recorded out-crossed seeds at a distance of 20 cm with the tested pollen donor, while no out-crossing was recorded at a distance of 40 cm, indicating that the maximum out-crossing lies between 0-40 cm. The distance beyond 40 cm can be demarcated as the isolation distance for the rice variety Bw 272-6b.