

## **Source and Sink Manipulation to Optimize the Yield Potential of Rice in Sri Lanka**

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### **Abstract**

The next biggest challenge for mankind is food security. To feed the growing world population yield of cereal crops need to increase 50% by 2050. This can be made possible only by developing a holistic understanding of plant biology and adopting cutting edge genomic science to fuel this increase. Also, this yield increment is required to maintain the sustainability of the rice industry. In this study, it was hypothesized that source imbalance leads to lower yield potential in Sri Lankan rice. An experiment was carried out to evaluate the optimum source sink balance using a sink limited cultivar (Bg250). Tiller optimization was carried out by maintaining tiller number during plant development. Findings from this study clearly demonstrated that source and sink imbalance exists in the cultivar tested. The highest yield potential was achieved when plants were reduced to 8 tillers. Further, the reduced tiller number promoted an increase in the other yield components select as spikelets per panicle, average grain length and width, 1000 grain weight and the harvest index. Overall findings suggested that there is an opportunity for a major increment in Sri Lankan rice cultivars by developing new ideotypes that have altered source sink balance.

**Keywords:** Ideotype, Source and sink manipulation, Yield potential

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