

EFFECT OF SEED RATE, VARIETIES, NITROGEN AND POTASSIUM  
FERTILIZERS ON WEED CONTROL AND YIELD OF BROADCAST  
RICE IN BATTICALOA AND AMPARA DISTRICTS

By

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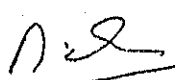
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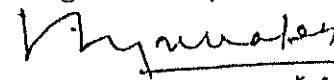
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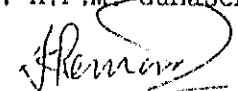
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## ABSTRACT

Rice farmers in the Eastern region use high seed rates varying between 187 to 326 kg/ha contrary to the 100 kg/ha recommended by the Department of Agriculture to ensure high yields and control of weeds.

Field experiments conducted in Yala 1985 in Ampara district under wetland condition, and at Batticaloa in Maha 1985/86 under dryland condition, with 5 seed rates (50, 100, 200, 400, 800 kg/ha), 3 inorganic fertilizers (100N 60K<sub>2</sub>O, 200N 120K<sub>2</sub>O, 400N 240K<sub>2</sub>O kg/ha), and 2 varieties (H<sub>4</sub> and Bg 94-1) with and without weed control, in a split plot design with 3 replicates showed that 40-50% of the seeds sown remain ungerminated by increasing seed rates beyond 50 kg/ha.

Tillering decreased with increasing seed rate above 200 kg/ha at Ampara, and above 100 kg/ha at Batticaloa.

Lower seed rates increased LAI per plant from germination upto maximum tillering than high seed rates due to high tiller production at low densities.

In both varieties at 4 and 8 WAB, dry matter production increased with increasing seed rate. But a week after heading, it decreased at 800 kg/ha. The higher dry matter production of Bg 94-1 than H<sub>4</sub> was due to differences in plant type.

A sharp reduction in weed weight upto 200 kg/ha seed rate and a gradual reduction thereafter suggest that very high

seed rate is not necessary for weed control. Around 40% reduction in weed weight is attainable by increasing seed rate from 50 to 200 kg/ha in both varieties, and only a further 20% by increasing seed rate from 200 - 800 kg/ha upto 4 weeks after sowing. Maximum weed reduction that could be achieved through plant population is around 60% at the 4th week and 45% at the maximum tillering and a week after heading.

Panicle number/m<sup>2</sup> increased with increasing seed rate upto 200 kg/ha. At 200 kg/ha seed rate panicle number is almost the same as the plant number/m<sup>2</sup> showing that it is only the main culm which produces the panicles. Beyond 200 kg/ha seed rate panicle number attain an almost constant figure irrespective of seed rate and fertilizer levels indicating that even some of the main culm do not produce panicles.

Increase in number of panicles progressively reduced the grains/panicle. The % filled grains decreases with increasing seed rate in both varieties, but is higher in Bg 94-1 than in H<sub>4</sub>. 1000 - grain weight is not affected by densities and fertilizer level. Grain : straw ratio increased upto 200 kg/ha seed rate and decreased thereafter. Bg 94-1 has a higher grain : straw ratio than H<sub>4</sub>.

Grain yield, at Batticaloa increased upto 200 kg/ha seed rate and decreased thereafter. Yield decrease beyond 200 kg/ha is more drastic in H<sub>4</sub> than in Bg 94-1. Hence, seed rates above 200 kg/ha is unnecessary for high yield in Batticaloa district.