

Suticha Puntuleng 2008: The Water, Fertilizer and Weed Management in Reduced - tillage Sugarcane Production. Master of Science (Agriculture), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Sombat Chinawong, Ph.D. 126 pages.

Combined treatment of the experiment of water and fertilizer application as well as weed management in reduced - tillage sugarcane production was conducted at Kasetsart University, Kamphaeng Saen Campus during 2003-2004. This experiment was conducted in Split split-plot Design with 3 factors. The combined treatment of water supplied once every 7 days, 15-15-15 fertilizer applied at 25 kg/rai as bed dressing and 21-0-0 fertilizer applied at 25 kg/rai at 6 months after planting together with the hand weeding method was greater than the other methods. The treatment combination showed affect on sugarcane height, diameter and internode numbers were 286.67 cm, 2.96 cm, 28.3 internodes, respectively. Shoot weight was 17,470 kg/ha. Visual rating of effect on this experiment on weed grass control was 97.67%. Weed grass numbers were 0.3 plants/m<sup>2</sup> and dry weed grass weight was 10.3 g/m<sup>2</sup>.

The combined treatment of water supplied once every 14 days, 15-15-15 fertilizer applied at 25 kg/rai as bed dressing and 21-0-0 fertilizer applied at 25 kg/rai at 3 months after planting together with the hand weeding method was greater than the other methods. The treatment combination showed affect on CCS was 14.1 and fiber was 11.4%. Visual rating of effect of this experiment broadleave weed control was 95.33% . Broadleave weed numbers were 2.0 plants/m<sup>2</sup> and dry broadleave weed weight was 5.6 g/m<sup>2</sup>.

The combined treatment of water supplied once every 7 days, 15-15-15 fertilizer applied at 25 kg/rai as bed dressing and 21-0-0 fertilizer applied at 25 kg/rai at 3 months after planting together with the hand weeding method was greater than the other methods. The treatment combination showed affect on sugarcane stalk numbers/clump was 7.6 stalks.

The effect of water supplied once every 14 days was greater on weed changes, which showed affect on visual rating of weed grasses and broadleave weeds control were 78.3% and 90.8%, respectively. Weed grass numbers were 10.1 plants /m<sup>2</sup> and dry weed grass weight was 11.5 g/m<sup>2</sup>. Broadleave weed numbers were 4.3 plants /m<sup>2</sup> and dry broadleave weed weight was 48 g/m<sup>2</sup>.

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Thesis Advisor's signature