

Johazel Hular Bograd 2011: Effect of Supplemental Irrigation on Reducing Cyanide Content of Cassava Variety Kasetsart 50. Master of Science (Tropical Agriculture), Major Field: Tropical Agriculture, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Ed Sarobol, Ph.D. 99 pages.

Cassava's cyanogenic potential, exacerbated during drought period, remains a challenge to optimizing its production and consumption. This research investigated how supplemental irrigation during dry season could reduce the cyanide content in the highly-cyanogenic Kasetsart 50 (KU50).

KU50 stakes were planted on May 2009 at Khao Hin Son Research Station, Inseechandrastitya Institute for Crop Research and Development, Kasetsart University, Chachaengsao province. A split-plot in randomized complete block design was used, with 3 harvest periods (6, 9, 12 months after planting, MAP) as main plots, 3 irrigation treatments (**T0** control, rain-fed no irrigation; **T1**, 30mm/month, 10-10-10 mm split; and **T2** 60mm/month, 20-20-20 mm split) as subplots, and 4 field replicates. Following the major rainy season, monthly irrigation via sprinkler system commenced on November'09. Crops were irrigated every 10th, 20th and 30th of the month. Root samples harvested at 6, 9 and 12 MAP were analyzed for *total cyanide*, *non-glucosidic cyanide* (NGC), and *bound cyanide* content in whole root, peel and parenchyma.

Results showed that roots harvested at 9MAP had the lowest bound and total cyanide content and had the highest starch content. T2 yielded the lowest NGC, bound and total cyanide and the highest starch content. Thus, irrigating with 60mm per month and harvesting at 9 months after planting guarantee the lowest cyanogenic content and the highest starch percentage in cassava roots.

Student's signature

Thesis Advisor's signature

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