

Effect of Scheduled Irrigation and Fertilizer Application on Growth and Fruit Quality of Mandarin (*Citrus reticulata* Blanco) Variety Ehime

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Mandarin (*Citrus reticulata*. Blanco) production in Sri Lanka is very low while the fruit quality is highly variable. As a solution, the Department of Agriculture introduced an improved mandarin variety "Ehime", which is highly responsive to water and nutrients and having a high production capacity. The objective of this study was to evaluate efficiency of different fertilizer mixtures under proper moisture conditions of soil on plant growth and fruit quality of Ehimemandarin variety under Sri Lankan field conditions. Two Irrigation levels; Rain-fed as control (Ir₁), Scheduled irrigation (50L water in five days interval) (Ir₂), were tested with four fertilizer treatments; Department of agriculture (DOA) recommendation (F₁), DOA+Micro nutrients (F₂), DOA+Organic manure (F₃), DOA+Micronutrients+Organic manure (F₄), in a Split Plot design using 4 replicates. Leaf chlorophyll content (SPAD readings), width and height of plant canopy, fruit quality (fruit length, breath, hardness, peel to flesh ratio, brix value, juice content and acidity) were measured. Drastic reduction of leaf yellowing was found in F₄ and F₂ in both irrigation levels after two weeks of treatment, and yellowing was completely disappeared after two months with increasing leaf chlorophyll content. Significant increments of plant height and canopy width were observed, irrespective of the irrigation level in F₄. Heavier fruits were found in F₄ and F₂ irrespective of the irrigation. Hardest fruits were found in F₄ with Ir₂. Except F₁, all other treatments showed an equal juice content irrespective of irrigation. High brix values were recorded in F₂ and F₄ with Ir₂. Peel to flesh ratio was highest in F₂ and F₄ with Ir₂. Proper plant growth and heavier fruits could be achieved when DOA fertilizer recommendation was amended with micro nutrients while supplementary irrigation with micro nutrients and organic manure amendment further improved the fruit quality.

Keywords: Irrigation systems, Lower production, Mandarin, Micro nutrients, Poor quality