Ph.D. in Agricultural Engineering

Settings standard and quality control of Black Chewing Tobacco production (*Nicotiana tobaccum*) in Jaffna peninsula

Ponniah Alvappillai

Abstract

Advanced processing in tobacco production, processing and marketing is considered to be important to meet quality standards. The crop is being cultivated all over the world under different climatic conditions. Varieties of tobacco plants are processed to meet consumer's preference. Increasing quantity and improving quality of tobacco product for trade and expandability are the main objectives of the study. Quantity increment of leaf production is purely based on agronomical practices comprising of both nursery management and field crop management. Postharvest processing technologies associated with engineering aspects are bound with improving quality of leaves in order to practice quality control and grade setting. Plants were selected from different locations randomly for investigation. Head seedlings, head plants, psychrometics for kiln design and mineral status of leaves were investigated. Experiment was conducted in RCBD (Randomized Complete Block Design). Samples were collected from kiln and labeled properly. Colour of smoke leaves including first smoke sample (FSS) and second smoke sample (SSS) were analyzed. Leaf numbering and grouping was used to analyze head plants and seedlings. In addition, usability index chart was produced to set quality standard for black chewing tobacco. It was prepared from the sample obtained from kiln. Result reveled that head seedlings can be obtained by 33 days from germination for transplanting to get quality leaf or processing and ideal plant growth was 100 cm height by 100 days in almost all fields. Kiln gave black tobacco, deep dark brown tobacco, dark brown tobacco and brownish yellow tobacco under specific conditions. Average mineral content of sodium, calcium, magnesium, phosphorus and chlorine in most preferred tobacco were 1.04, 78.0, 4.0, 0.47, 1.41, 11.96 ppm respectively. Post-harvest processing technique and agronomic aspects are good by engineering point of view at Karanawai area to produce good quality chewing tobacco leaves for processing. Usability chart prepared for the production of quality tobacco leaves in Jaffna Peninsula was fitted with R^2 (Regression) value 0.970. This indicates that quality of processed tobacco is highly influenced by raw material quality. Therefore, production and curing of tobacco in Jaffna peninsula had achieved its higher level by local means. It should be protected and maintained in future by using identified usability chart for better marketing procedure and to find good market for chewing tobacco by fascinated procedure with an application of research to upgrade its quality effectively.