Critical Factors that Affect the Post-Harvest Loss in Low-Country Vegetable Farming in Sri Lanka

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An agricultural product provides a base for the major part of the world economy and it is using as a raw material for many other industries. Climatic change is one of the major factors that influence the post-harvest loss (PHL) of vegetables. The reduction of PHL at farm, retail, and consumer levels is important in achieving the sustainability goals of food security and food availability. Only about 5% of the studies in existing literature have focused on reducing the loss of agricultural products. Sri Lanka as an agricultural country where cultivation is based on the monsoons, has to pay a greater level of attention to the impact of climatic changes on the crops which are essential for the daily needs of the citizens. The objectives of this study are to find the Critical Factors Contributing to Post- Harvest Loss (CF-PHL) at the farmer's level, and the effect of Climate on the PHL at the farmer's level in the low country of Sri Lanka. The study was conducted as a cross-sectional survey, in the low country, which is one of the three agro-economical regions in Sri Lanka. Three areas (districts) were selected at random from the three climate zones named as Wet (WZ), Intermediate (IZ), and Dry-climatic-zones (DZ). The annual expected rainfall of these three zones are: 1700mm, 1100mm, and 650mm respectively. The size of the sample was selected in proportion with the cultivated land area of the district, and the farmers within the district were selected randomly. The collection of data was done through interviews, observations, and a self-administered questionnaire. Post-harvest Handling (PHH), Transportation, and Market system (MS) were considered as the CF-PHL of vegetables. The direct relationships of CF-PHL to the PHL and the moderating impact of the climatic zones on the three relationships of CF-PHL to PHL were tested. The analysis revealed that the average PHL of a farmer in one season is as nearly 399, 334, and 171 Kgs in DZ, IZ, and WZ respectively. A good level of PHH, Transportation, and good MS has significant negative direct relationships with PHL. But, the PHH and Transportation are the only critical factors that has a significant impact on PHL. As a moderator, the climatic zone also becomes a significant factor in vegetable cultivation. The Dry-Zone is the climatic area that faces highest level of PHL and the Wet-Zone has it at the lowest level. The accuracy of the model to predict the PHL is nearly 48%. A good marketing system does not have a significant influence on the PHL in this area. The research concludes that the usage of modern and appropriate techniques to handle the harvest and a good transportation system can be helpful in reducing the PHL in vegetable cultivation in the low country in Sri Lanka.

Key words: Climatic zones, Post-harvest handling, Post-harvest loss.