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Exploration of logistics and quality control activities in view of context characteristics and postharvest losses in fresh produce chains: A case study for tomatoes

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1 **Exploration of logistics and quality control activities in view of context characteristics**
2 **and postharvest losses in fresh produce chains: A case study for tomatoes**

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16
17 **Abstract**

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19 Postharvest losses in fresh produce chains are a major threat to food security, especially in
20 transition countries. To develop effective intervention strategies for postharvest losses
21 reduction, it is important to first understand the core logistics and quality control activities
22 that could affect postharvest losses in these chains. In this study, a diagnostic tool was
23 developed and used to assess the implementation level of core logistics and quality control
24 activities, the vulnerability of the system due to the context in which it operates, and the
25 actual postharvest losses. Based upon a literature review, the context characteristics are
26 divided into product, process, organisation, and supply chain environment characteristics to
27 assess the context vulnerability to postharvest losses. The identified core logistics activities
28 are planning on the amount of fresh produce to harvest and process, selecting issuing policies,
29 selecting mode of transportation and type of vehicle, and vehicle scheduling and routing.
30 Maturity determination at harvest, deciding on harvest moment, harvesting, packing, and
31 storage practices, use of grading standards, package material, temperature monitoring during
32 storage and transportation, and equipment maintenance are the core quality control activities
33 identified. The tool was applied to three groups of farmers operating in a tomato supply chain
34 in Zimbabwe. The major findings are that commercial farmers recorded lower postharvest
35 losses (1%) as compared to subsistence farmers (3%), the context for commercial farmers is
36 less vulnerable to the generation of postharvest losses as compared to that for subsistence
37 farmers, and logistics and quality control activities for commercial farmers are implemented
38 at a more advanced level. The tool provides differentiated assessment that allows users to
39 identify improvement opportunities to achieve higher performance for the activities and to
40 reduce context vulnerability.

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42 **Key words:** *postharvest losses; diagnostic tool; logistics control; quality control; context*
43 *characteristics; fresh produce*

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