

**Title** Designing horticultural produce containers to maintain quality and traceability  
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### **Abstract**

**Purpose of review:** The purpose of this review is to identify the existing knowledge concerning the design of the various parts of reusable plastic containers in relation to the steps that must be followed in getting produce from the field to the consumer. The traceability aspect will not be discussed in detail in this review; however, it has been kept in the author's mind. In fact, the proposed design would address the issue of including a type of wireless sensor, allowing for the automation of container tracking (and, indirectly, produce tracking), that will be discussed by other authors in this issue.

**Findings:** There are five main categories of containers used in the handling of fruits and vegetables, based on their construction material: corrugated fibreboard, expanded polystyrene, solid plastic, corrugated plastic and wood. Each type of container presents advantages and disadvantages when the produce to be handled and the cost and availability of construction material are considered. Only plastic material will be considered in depth. This review is presented in the three following sections: the various precooling methods, the design of reusable plastic containers, and the importance of standardisation.

**Limitations/implications:** Since solid plastic containers have proven to be the most durable, allowing long-term traceability, and are gaining an increasing share of the fruit- and vegetable-handling market, this review focuses only on the design of this type of container. Nonetheless, the conclusions of this review could be applied to any type of container when the construction material allows.

**Directions for future research:** Enough information is already available to design traceability systems that will not interfere with handling systems that make use of reusable plastic containers. However, even though some traceability systems are already available, it seems that they cannot be used for horticultural produce before undergoing some adjustments. Further research is needed in this field. Standardising containers would help in improving the efficiency and effectiveness of handling systems; however, the same philosophy of standardisation must be applied to traceability systems. The development of standards must also be addressed to ensure

that various components of any universal system are compatible. The absence of standards will create diversity within traceability systems that will result in inefficiency, ineffectiveness, excessive cost, and frustration for the many actors in the food industry.