

## A Literature review on Investigation of Supply Chain Quality issues/constructs in Agri-fresh Supply Chain

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### ABSTRACT

*Food supply chain (FSC) that is agri-fresh supply chain in today's global market is facing a particular problem concerning timely accurate order commitment. The problem is mostly attributed to the lack of coordinated decision-making of order quantities. Moreover, owing to the limited shelf life of agri-fresh products, these decisions are further complicated due to the additional problem of perishability of products. Short shelf life products pose unique challenges for individual members of the chain due to certain demand and short selling period. The supply chain management is almost 30 years older. But there is not a single study carried out by researcher which prescribes the standard quality constructs (issues/constructs) for agri-fresh supply chain.*

**Keywords:** *Agri-Fresh Supply Chain, Perishable, Constructs.*

### I INTRODUCTION

Agri-fresh produce are products which are in perishable in nature. Agri-fresh produce use as raw material for industries and also use as end product for customer so agri-produce constitutes a major part of the world economy. Other name of fresh produce are food products, agri-food, short shelf-life food products, fresh produce (Fearne and Hughes, 2005), perishables products (Choi et al., 1999), deteriorating products (Lambert, D.M, 1998), etc. The research seems independent and oriented towards problem solving rather theory developing. Min Zhang, Peichong Li, (2012) classified products in three main category a) Fresh and perishable vegetables and fruits: This type of food has both problems of food safety due to chemical residue during production and of cargo damage during transportation. b) Animal and water products (meats, dairy products and fishery products), c) Processing food products: The process of food processing has pollution both to the environment and to the food products themselves. Here define these as agri-fresh produce to clearly differentiate these from other agri-produce and non-agri produce. The term agri-fresh produce supply chains has been coined to describe the activities from production to distribution that bring agricultural or horticultural products (Aramyan et al., 2006) from the farm to the table. **Agri-fresh supply Chain** is a network of food-related business enterprises through which food products move from production through consumption, including pre-production and post-consumption activities. There are many issues/constructs which are should be identified and rectified for improving quality of end product. As all know customer need fulfillment is aim of every supply chain with good quality and safety. The agri-fresh supply chain in

India is very complex with numerous small stakeholders like farmer, wholesaler, retailer etc. They are not connected with proper information network. Each partner works in isolation. Indian products have low yields, which together with inadequate preservation increase the end product costs considerably with lack of suitable processing-grade varieties. There are number of inhibitors which not only affect the efficiency of supply chain but also influence one another significantly. It is therefore, important to understand their mutual relationship so that those inhibitors that are at the root of some more inhibitors (called driving barriers) and those which are most influenced by the others (called driven barriers) can be identified (Shukla and Jharkharia 2012). The former authors are considering one or two issue of quality of supply chain for their case studies (Traceability, Information Sharing, Taste, etc.), may also consider more than one issue while carried out case study. Result shows the different issues/constructs in the agri-fresh produce which may further used for survey in different agri food industries and validate the issues/constructs. Most of the prior literature reviews are focused on a specific issue such as traceability, information sharing and ignore the broader perspective. There exists a need of having a detailed literature review covering all the operational, Logistic, Inventory and Information issues/constructs in agri-fresh supply chain. This review fills this gap in the agri-fresh supply Chain literature. Meredith (1993) defined a literature review as a summary of the existing literature by finding research focus, trends, and issues/constructs. Fink (1998) further modified the definition and defines a literature review as a “systematic, explicit, and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents”. This definition has given emphasis to the review process as well as the desired results. Brewerton and Millward (2001) define a literature review as content analysis, where qualitative and quantitative techniques are used to find the structural and content criteria. Harland et al. (2006) argued that a literature review identifies the conceptual content of the domain and may even contribute to theory development. The critical analysis of the research papers reveals several un-noticed trends in the literature. But, the challenge is in analyzing the whole literature which keeps increasing with the development of the domain. Therefore, we have to put some delimiting criteria to make it possible to provide comprehensive reviews within the defined boundary (Shukla, Jharkharia (2012)). The purpose of a literature review in this study is to find the issues/constructs from Literature from the different researchers. Agri-fresh produce supply chain includes the processes from the production to consumption of agri-fresh Products (Fruits, Vegetables, etc.). Literature review is done by systematically collecting the existing literature over a period of 20 years (1994-2013) and classifying it on the basis of structural attributes such as problem definition, Tools used, Quality Issues/constructs. The literature is also categorized according to the year of publication. The literature on agri-fresh supply chain management describes the reliance of strong and dependable supply chain on the characteristics of these factors, but the influence of interrelationships among the factors on the supply chain efficiency has been hardly taken into account in the literature. If not properly dealt with, these factors can be issues/constructs. The impact of these issues/constructs is a major point of concern that can result loss of quality, hygiene and overall efficiency of a supply chain. Literature review also reveals that especially in Indian context not much independent research has taken place. Kumar (2008) identified commonalities and differences between the supermarket industry and its logistics capabilities in developed and developing

economies. Aramyan (2009) have suggested solutions to post-harvest losses due to gaps in supply chain in India. Khan (2005) elaborated food market in India. Saxena and Sahay (2006) has talked about an inter-regional evaluation of dairy farming systems in India. Wang and Li, 2012 gives that quality of fresh products can be considered as a dynamic state that decreases continuously until the point when it is unfit for consumption. A large number of intermediaries supplement the lack of infrastructure, but add to the waste and increase the per unit consumption price.

**II METHODOLOGY**

Collection of the different Quality Parameters: This collection was based into two main parts. In first part different quality issues were collected from the different literature. In the second part, these quality issues are classified into two segments which are Qualitative and Quantitative.

**Selection of Articles:**

The articles were collected from four major management science publishers viz. Science Direct, Taylor & Francis, Emerald Online and Wiley Inter-science (earlier Blackwell Synergy) as majority of well-referred journals of industrial management are found in these databases. Keywords like “supply chain management” and “quality issues” were searched in all four databases.

**Quality Issues Distribution:** These papers were discussed different quality issues followed with agri-fresh food case studies. After studying the papers conclusion came that there were four main quality issues which are Inventory Management, Production Planning, Demand Forecasting and Transportation. On the background of which or by considering the case study in that paper quality issue was classified on the basis of this four main issues and also qualitative and quantitative.

**Table1: Quality issues/constructs from Literature Review**

Author	Year	Methodology	Product	Quality issue
Jensen, M.C	2013	case study	Fruit	Freshness/ Taste
Wilson N. Et al.	1996	case study	fresh produce	logistic quality, performance measurement
SilpaSagheer	2009	Focus group	food and drink	information quality
Ahumada et al.	2009	case study	vegetable	Collaboration
Aramyan	2009	conceptual framework, case study	perishable	Integration
Zhang, Y. and Chen	2011	Empirical Study	Agri-food	Procurement quality
Ahmed, A. et al.	2005	case study	packaged food	Packaging quality, Quality standards of food

Manning L.	2013	case study	Perishable	Quality of Certification
Reardon, T.	2000	case study	processed food	manufacturer quality standard
Roberta de	2012	case study	vegetable	High competitiveness in Quality
Sebastian et al.	2008	case study	Nestle, Colgate Palmolive, Hindustan Lever	logistic quality
Shukla and Jharkharia	2012	literature review	Fruit and vegetable	operation
Poppo L. Et al.	2003	Empirical Study	Perishable	supplier selection quality
Yang, H.L.	2011	case study	mango, grapes	transactions between buyer and producer
Dorling et al.	2005	Mathematical Modeling	Agri-food	strategic management, Selection of supplier
Aramyan et al.	2009	conceptual framework, survey	Agri-food	Procurement quality
Choi	1999	conceptual framework	fresh produce	Transaction costs
Hepner et al.	2004	Mathematical modeling	Agriculture produce	information management
Cook	1999	Conceptual framework	Perishable	Raw material quality
Jensen et al.	2013	case study	Agriculture produce	Sustainability quality
Hobbs	2004	Mathematical modeling	agri-food	Coordination quality, Traceability
Cadilhon et al.	2005	case study	vegetable	Variety
Gyau and Spiller	2009	Empirical Study	fresh produce	Environmental issue
Raj Kumar et al.	2010	case study	Potato	Inter firm co-operation quality
Hamprecht et al.	2005	Empirical Study	Potato	Raw material quality
Mikkola M.	2008	case study	vegetable	Product quality
Bourlakis M.	2012	Empirical Study	Agri-food	Supplier quality, packaging quality
Beverland M.	2001	case Study	Fruit	brand quality
Manning et al.	2005	case study	perishable	biological quality

### III CONCLUSION

Review of literature introduces various aspects of food supply chain management, and presents a state of the art survey of relevant literature. By developing a quality for classification and codification, overall contribution of researchers in individual areas of food supply chain can be found out which helps the new researchers to identify

relevant areas where work or research is significantly lacking. The value of the methodology presented lies in the fact that it can act as a guide for researchers to analyze the type amount of work that has already been done in the field of SCM.

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