

# **“Walking the Chain”: Training stakeholders from developing countries in agrifood supply chain management**

**R. Collins and X. Sun**

School of Agriculture and Food Sciences, The University of Queensland, Australia

## **Introduction**

Most supply chain management training courses involve classroom or on-line training. Some also require participation or hands-on training, but their activities are typically confined to one or a few firms, giving little opportunity for trainees to understand whole chain issues or to fully appreciate the whole chain as a system.

Through many years' experience in developing countries on projects linking farmers with their markets, we have developed a mentored group training program through which stakeholders study, understand and learn how to apply supply chain management principles. The program has been designed to ensure participants receive a hands-on learning experience of supply chain activities that highlight the integrated and dynamic nature of the whole chain as a system. A balance of theory and application is provided throughout the training process. The objective of this paper is to present the principles of our “Walking the Chain” model, using case studies to illustrate its application and value.

Group mentor training for industry and commercial purposes is regarded as a highly valuable approach (Carven 2011), but there is less evidence of its application in developing countries, and virtually no reference to its use in supply chain development in such a context. This gap is particularly significant given the acknowledged lack of supply chain management skills in the agricultural industries of developing countries (Humphrey, 2006).

## **Training program (method)**

“Walking the Chain” as described in this paper involves physically taking a targeted group of stakeholders ‘backwards’ through a case study chain, starting from consumers and ending up on the farm. Typically, though not necessarily in each case presented here, consumers are in export markets. The rationale for walking ‘backwards’ along the chain is to highlight that meeting consumers’ needs is an agrifood chain’s primary purpose (Verbeke, 2005), and that satisfied consumers result from the value creating activities of the whole chain (Smith, 2008). Knowing consumers’ requirements as a starting point also enables the identification of activities in a chain that do *not* add consumer value, or that create waste (Lehtinen and Torkko, 2005).

Developing country stakeholders for this training approach are drawn from all levels of the chain, as well as from supporting agencies. For example, a typical group may comprise farmers, harvest contractors, processors, wholesalers and exporters, along with researchers and extension officers. Such wide membership not only reflects the chain-based training philosophy, but can also form the basis of a support or reference group once participants return to their home country and engage in chain building activities with others who may not have participated in the activity.

The program begins with a classroom based session on supply chain management principles and an orientation to the particular case study. Each participant receives a pre-formatted workbook in which all results will be documented and that participant's reflections noted. This session is followed by seven consecutive walking the chain activities over a number of days and sometimes in different countries. The seven steps below illustrate a recent example based on a fruit export supply chain.

1. Visits to supermarkets: Pairs of participants each go to a different supermarket, where they observe how consumers select the specific case study fruit. Through semi-structured conversations they ask shoppers what fruit attributes they are looking for when selecting fruit, and why those attributes are important. Based on their own buying experience and preferences, participants also purchase two pieces of fruit from the same display. These fruit are later analysed for objective measurements of quality such as colour, blemish, size and internal quality.
2. Interviews with supermarket fruit category managers: These interviews aim to identify how retailers create value for their shoppers and what they require of their suppliers. Fruit inventory management and logistics between the front of store, back of store and distribution centre are explored. Participants document their findings under three headings: 1) Retail practices 2) In-store systems 3) Supplier relationships and management.
3. Visit to importer: The importer responsible for the case study fruit is interviewed to document the technical (fruit quality, supply management, packaging, storage), relational (supplier and customer management) and financial (costs, margins, exchange risks, waste) aspects of the chain at that point. Fruit is physically inspected as it passes through the importer's part of the chain, such as in cool rooms or storage areas, and objective measures of quality are made.
4. Freight forwarder interview: After travelling to the country of origin of the fruit, participants begin by interviewing the freight forwarder, identifying the functions carried out and the critical issues in maintaining fruit quality, meeting any market access requirements, and holding product in storage. As this is the last point of access to the fruit before it leaves its country of origin, cool chain management issues require special attention. The objective is for participants to evaluate and understand the role of the freight forwarder in the supply chain and what infrastructure is required to successfully carry out this role.
5. Visit to the exporter: Here, the objectives are to understand 1) what functions are carried out by the exporter from receipt to dispatch of the product, 2) if necessary, how fruit are conditioned before export, 3) what activities are outsourced and why, 4) how the cool chain is maintained, what can go wrong and how these risks are managed, 5) how suppliers are selected, 6) what suppliers must do to meet the expectations of both the exporter and importers, and 7) communications with growers, freight forwarders and importers, including the

management of terms of trade and exchange risks, and 8) what are the exporter's costs and margins. Again, fruit are sampled for objective quality assessment.

6. Packhouse visit and experience: Participants first receive training in the nature and purpose of a packhouse and how it operates. They are then required to stand with a packhouse operator and experience what they do, including practical hands-on involvement for a short period of time in an activity such as grading or packing. This exposure reinforces the critical role of the packhouse in achieving consistent levels of fruit quality and food safety, and the need for high levels of management in a high throughput, human resource intensive facility. Costs of set-up and operation are also discussed.
7. Harvesting experience: On the farm, participants are briefed as to harvest standards and procedures, before actually harvesting some fruit and preparing it for transport to the packhouse. This emphasizes the importance correct harvest maturity standards, handling to maintain quality, and using correct postharvest practices.

These seven steps can take 10 to 14 days, depending on the circumstances of the case study. At the end of the process, each participant should have completed the workbook and documented their personal reflections at each step. Finally, each person is required to write an overall reflection to identify how their "Walking the Chain" experience will be of use in the context of their own role in business or government back in their home country.

### **Results of a Case Study**

Although Pakistan is the world's sixth largest producer of mangoes, only 3-4% of production is exported, with an annual value of around USD20 million (Mazhar et al., 2009). Pakistan receives the lowest average price per kilogram (USD0.30) of any major mango exporting country in the world, largely due to the poor quality of its fruit combined with poor marketing practices (Collins, et al., 2006). In spite of these shortcomings its main varieties have significant consumer potential because they are smooth textured, sweet and aromatic. Capitalising on these positive attributes could provide a means to sustainable industry improvement. A joint Australia-Pakistan project to address mango industry improvement began in 2006.

In January 2007, 16 stakeholders from the Pakistan mango industry participated in a mentored group training activity called "Walking the Mango Chain". This activity was designed to actively engage participants in the examination and evaluation of a mango export supply chain from Australian orchards to Singapore supermarkets.

Mentored by five experts from Australia, the Pakistani participants started at retail outlets in Singapore, ending up about a week later on two mango farms in Queensland, Australia, that were supplying those Singapore retail outlets. The variety being examined was R2E2, a large highly coloured mango bred in Australia. As indicated above, at each of the seven

stages of training, learning activities took place and participants recorded measurements, observations and reflections in their workbooks. The aim was to identify how much consumer value existed in a typical R2E2 mango that met consumer needs in Singapore (in this case about USD4.50 for one R2E2 mango) and then to document where and how that value was created by the chain, and how it was shared along the chain.

Since engaging in the “Walking the Chain” activity in 2007, many participants have subsequently demonstrated their capacity to transfer the lessons learnt to the improvement of mango supply chain management practices in Pakistan. Some changes were immediate upon return to Pakistan, such as the use of mango clippers in harvesting (some clippers were purchased while in Australia and quickly copied by a Pakistani manufacturer). Others practices needed to be modified for local conditions, such as determining the correct harvest maturity indicators, the use of lime for removal of sap from fruit after harvest, and improved packaging and transport practices. Now, five years later, the impact of these changed practices on commercial returns in export markets such as Malaysia, and in developing strategies for new markets such as China, are becoming evident. Some of the 2007 “Walking the Mango Chain” participants have become strong advocates for change in the mango industry, based on an appreciation of what is possible when value to the consumer drives supply chain development.

### **Conclusion**

As a mentored group training program, “Walking the Chain” is a combination of theory, hands-on practical training and reflection that is well suited to developing country agribusiness applications. In our experience, the best results are achieved if participants are drawn from all levels of the chain as well as the agencies that support chain development, such as researchers, extension agents and policy makers. Mentors for this kind of training are best drawn from the disciplines that are involved in successful supply chain management – systems thinkers, business managers, postharvest scientists, marketers and human resource managers. Developing a mechanism through which participants can continue to share and apply their learnings after having participated in a “Walking the Chain” program is important to the dissemination of benefits to an industry.

### **References**

- Carvin, N. (2011). The hows and whys of group mentoring. *Industrial and Commercial Training* 43(1): 49-52.
- Collins, R., Dunne, A., Campbell, J. and Johnson, P. (2006). A constraints analysis of mango supply chain improvement in Paksitan. Australian Centre for International Agricultural Research, Canberra, Australia.
- Humphrey, J. (2006). *Global Value Chains in the Agrifood Sector*. UNIDO, Austria, V.05-91450, May 2006, Vienna.
- Lehtinen, U. and Torkko, M. (2005). The Lean Concept in the Food Industry: A Case Study of Contract a Manufacturer. *Journal of Food Distribution Research* 36(3): 57-67.

Mazhar, S., Collins, R., Campbell, J., Malik, A., Johnson, P., Dunne, A., Sun, X. and Amin, M. (2009). Managing mango fruit quality through the supply chain: a Pakistan case study. *Acta Horticulturae* 880:117-125.

Smith, B.G. (2008). Developing sustainable food supply chains, *Philos Trans R Soc Lond B Biol Sci.* 363(1492): 849–861.

Verbeke, W. (2005). Agriculture and the food industry in the information age, *European Review of Agricultural Economics*, 32(3): 347-368.