

Review paper

Enhancing Market-Oriented Agricultural Production in the Pacific Island Countries: Implications for Extension Systems

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ABSTRACT

Import bills of food items in Pacific Island Countries (PICs) is much more than their food export earnings and thus they are suffering from chronic food trade deficit. To ameliorate this situation there is a need to enhance agricultural production and to make it market-oriented. Trading in foreign markets faces competitive environment and supply of high quality food products with health safety assurance. To improve farmers' access to global markets and export diversification, enhancing farmers' knowledge about the modern methods of production and marketing of healthy foods is essential. This paper outlines a marketing training module and the matrix of market information required for rational decision-making by the farmers and other marketers operating at different levels in the agri-food supply chain. A strategy for transforming the exiting production-focused agricultural extension services into the integrated production-cum-market-oriented extension services is also presented. The premise of the paper is that integration of the agricultural production with marketing systems will improve the economic conditions of the small island nations of the South Pacific, and the vibrant extension services would play an important role in the growth and sustainability of this system.

Key words: Market-led agriculture growth, Market-oriented extension, Pacific islands agriculture.

INTRODUCTION

Most countries in the South Pacific region are small in terms of land area and population. Agriculture is the main occupation for majority of population in the Pacific Islands Countries (PICs). Their dependence on imports is high. Import-export ratios vary from 1.04% in Solomon Islands to 94.15% in

Vanuatu (Table 1). In almost all PICs, the values of imports are much higher than exports. PICs are net importers of not only of capital goods, but also of intermediary goods, consumer goods, and raw materials. The value of consumer goods imported into the countries is manifold higher than the exports in this category of products (Table 2). Rice, wheat, maize, milk and meat are the main

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food items imported by PICs. Being located in the tropical region, PICs produce and export tropical root and tuber crop products such as taro, cassava, yams, sweet potatoes,

bananas, and plantation crops of coconut, cocoa, coffee, breadfruit. Fiji's major export crop is sugarcane.

Table 1: Population, area, GDP and trade balance of some Pacific Island Countries, 2016.

| Country | Land area km ² | Population | Labour force in agriculture % | 2016 GDP Million US\$ | Per Capita GDP US\$ | Merchandise trade (million in country currency) | | | | Import-export ratio |
|------------|---------------------------|------------|-------------------------------|-----------------------|---------------------|---|---------|---------|---------|---------------------|
| | | | | | | Monetary Unit | Exports | Imports | Balance | |
| Cook Is | 237 | 14,974 | 16 | 292 | 19,473 | NZ\$ | 20 | 153 | -133 | 7.79 |
| Fiji Is | 18,333 | 837,271 | 41 | 3763 | 4,494 | FJ\$ | 1937 | 4839 | -2903 | 2.50 |
| Kiribati | 811 | 109,693 | 73 | 177 | 1,611 | AS\$ | 14 | 182 | -168 | 12.87 |
| Samoa | 2,934 | 187,820 | 63 | 816 | 4,347 | ST\$ | 144 | 899 | -755 | 6.25 |
| Solomon Is | 28,230 | 515,870 | 74 | 1074 | 2,081 | SBS\$ | 3471 | 3612 | -141 | 1.04 |
| Tonga | 749 | 103,252 | 42 | 405 | 3,921 | TP\$ | 47541 | 507421 | -459881 | 10.67 |
| Vanuatu | 12,281 | 234,023 | 68 | 777 | 3,321 | VT\$ | 5292 | 49835 | -44543 | 94.15 |

Sources: Compiled from, <https://sdd.spc.int/en/stats-by-topic/population-statistics>; and <https://sdd.spc.int/en/stats-by-topic/economic-statistics>

Table 2: Exports and imports of some Pacific island countries, 2016 (US \$ Million)

| Product category | Fiji islands | | Samoa | | Solomon islands | | Tonga | | Vanuatu | |
|--------------------|--------------|--------|--------|--------|-----------------|--------|--------|--------|---------|--------|
| | Export | Import | Export | Import | Export | Import | Export | Import | Export | Import |
| Raw materials | 165 | 219 | 21 | 51 | 326 | 32 | 11 | 25 | 35 | 12 |
| Intermediate goods | 198 | 415 | 2 | 57 | 94 | 55 | 3 | 27 | 22 | 35 |
| Consumer goods | 470 | 1092 | 31 | 182 | 10 | 266 | 5 | 121 | 4 | 184 |
| Capital goods | 84 | 573 | 3 | 60 | 5 | 111 | 1 | 43 | 1 | 42 |
| Overall | 976 | 2316 | 57 | 350 | 437 | 454 | 20 | 218 | 64 | 281 |

Source: Compiled from World Integrated Trade Solutions (World Bank Group) <https://wits.worldbank.org/CountrySnapshot/>

The heavy dependence on imported consumer goods, especially the food products need serious thought to offset the food import bills. To overcome this condition there is a need to boost agricultural production and to make it market-oriented. In PICs, farmers' efforts to increase marketable surplus of crops and livestock production are severely hindered by marketing constraints (Ward & Proctor, 1980; McGregor, 1999; Kumar & Bhati, 2011). If the farmers cannot sell what they produce then all the efforts to enhance production will have been wasted (Mosher, 1966). Hence, efficient marketing system is

an essential element for accelerating agricultural development in developing countries like PICs. Farmers' limited marketing skills and lack of agricultural marketing infrastructure characterize the subsistence-oriented agricultural production systems in PICs (McGregor, 1999; Kumar & Bhati, 2011). As subsistence agriculture and economy develop, marketing becomes more important (Shepherd, 2011, Wand-Schneider & Yen, 2007). To sustain agricultural development, the marketing functions should be operated efficiently (Norwood & Lusk,

2008; Beirlein *et al.*, 2013; Klimer & Armbruster, 1987; Norton & Alwang, 1993).

The marketing functions include: exchange functions (selling & buying), physical functions (storage, transportation, processing, standardization/ grading, financing, market information and risk bearing (Kohls & Uhl, 1998; Breimyer, 1976). Furthermore, trading of food products in export markets faces competitive environment and supply of high quality food products with health safety assurance (Unnevehr, 2003 & 2007). Hence, for sustainable agricultural development farmers should also have knowledge and understanding of product planning and marketing. Agricultural marketing is process of performing marketing functions and creating utilities as the food products flow from the initial point of production until they are in the hands of ultimate consumers (Kohls & Uhl, 1998). Farmers produce raw products, such as root crops, fruits and vegetables, sheep, or cattle, which undergo various marketing functions before they become acceptable products to consumers. The development of market-oriented agriculture not only enhances food and nutrition security of the country, but also reduces foreign exchange deficits (Fleming & Coulter, 1992).

The aims of the paper are to highlight, (i) why there is a necessity for developing skills and knowledge of PICs' farmers on modern agricultural marketing methods and to improve their market access for export diversification, (ii) what marketing subject contents would be more useful to build capability of the trainers of the farmers, and (iii) the way market-oriented extension service can help farmers in transforming their subsistence-oriented agriculture into the commercial-oriented agriculture.

The paper is organized in six sections. After this introductory part, in the next section, an argument is made as to why there is a need for reorienting focus of production-oriented agricultural extension towards market-oriented extension. In the third section, the need for training the trainers of farmers to improving their marketing skills is discussed. What types of market information are useful for marketers in their decision-making are outlined in the fourth section of the paper. In the fifth section, the important topics that should be included the in marketing training are explained. Finally, summary and conclusions are presented.

2. WHY IS MARKETING EXTENSION SERVICES NEEDED IN PICs?

The subsistence farmers mainly produce for meeting their households' food needs and the marketable surpluses of products are small for which the marketing aspects are not very important. When agriculture starts commercializing and surplus outputs emerge which need to be marketed profitably, then the role of extension services becomes important in integrating farmers' agricultural production and marketing activities through advisory and training programs (Mosher, 1966; Rivera & Qamar, 2003). But, there is growing realizations that traditional agricultural production oriented extension services are not sufficiently effective in promoting modern marketing practices (Shepherd, 2007; Wandschneider & Yen, 2007). Since agricultural marketing is a knowledge-intensive system, it requires a new kind of knowledge, which differs from conventional agricultural production practices. The market-oriented farmers need to know the kinds of food products that consumers want, the quality product they must produce they need to maintain the quality of the products during production, the quantity demanded and the prices that

consumers are willing to pay (Lee, 1993; Kahan, 2013). Thus, now-a-days the agricultural extension system confronts new challenges of advising/training farmers in the modern agricultural production methods as well as in efficient marketing practices. The marketing-mix strategies and product standardization and grading, and packaging activities also become equally important for farmers (Barnard *et al.*, 2016).

However, in PICs, adequate attention is not given to inter-link agricultural production decisions with the marketing choices (McGregor, 1999; Moyer & Hollander, 1968). Commercial agricultural production and marketing are knowledge-driven activities. Rogers (2003) identifies three types of knowledge involved in adoption of an innovation (*viz.*, adopting new marketing system): (a) Awareness knowledge, *i.e.* information that a new innovation exists; (b) How-to knowledge about the innovation, *i.e.* knowledge about the method of using an innovation properly, and (c) Principles-knowledge that consists of information about the principles and theories underlying the innovation about how the innovations work/function. Although all three types of marketing knowledge are useful but marketing extension service should emphasize more on second type of knowledge to transform farmers from just production oriented to export-oriented producers. Extension system should provide farmers with holistic knowledge and information about the agricultural marketing opportunities and challenges in the country.

The smallholder producers of PICs, either individually or collectively, cannot afford to collect and analyse all the marketing information they need. Hence, ideally the up-to-date Market Information (MI) should be provided by the public sector extension agencies. Market information serves as a

market equalizer and strengthens farmers' bargaining power when dealing with the marketing firms to sell their produce or buying farm inputs. MI contributes to operational efficiency in the whole agri-food marketing industry (Kohls & Uhl, 1998; Norwood & Lusk, 2008). MI also plays a dynamic role in boosting food production and consumption, the essentials of economic development of a country (Abbott, 1993). Hence, public sector extension services should play an important role in providing marketing training and information to the farmers and other marketers.

3. WHY IS CAPACITY BUILDING OF MARKETING EXTENSION STAFF NEEDED?

Extension services in developing countries have traditionally concentrated on providing only production-focused advice to farmers and marketing issues are ignored. However, as farmers become more productive and market oriented, so must the extension services (Westlake, 2005; Mohapatra, 2016; Salvador, 2016). In many countries, there is a serious lack of trained extension personal to carry out required tasks of providing training to farmers in modern food production and marketing methods and thus, strengthening of local professional capabilities is needed (Riley & Staatz, 1993). Those extension personnel who have not yet had the chance to receive an adequate orientation about agricultural and food marketing, their professional limitations are the cause of shortcomings or restrict further marketing developments (De Andrade & Scherer, 1993).

Capability of marketing extension services is to be built to advise farmers to produce profitable market-oriented products by adopting new farm technologies and post-harvest processes (Rivera & Qamar, 2003;

Westlake, 2005). Keeping in view this requirement, the mission of extension systems of PICs should be made balanced giving equal importance to both the farm production aspects and the food marketing aspects. Hence, the subject matter coverage of existing agricultural extension services and need to be broadened and extension personnel need to be trained on marketing aspects of farm business. Improvement in marketing efficiency would bring remunerative prices and increase profitability to farms and induce higher agricultural production and marketable surpluses (Kilmer & Armbruster, 1987).

4. WHAT TYPES OF INFORMATION ARE NEEDED IN MARKETING?

Understanding of full market information is essential for marketers to make rational decisions (Shepherd, 2011). An indicative list of types of marketing information required by different marketers in the agricultural supply chain is given in Table 3. The information in table highlights that the types of marketing information needed differs for each group of marketers. Also, the diversity of information needed reduces as one move from farmer end to consumer end in the supply chain. Agricultural extension service can play an important role in shaping marketing planning decisions of marketers by providing them with relevant market information. The types of marketing information required by marketers can be classified as follows:

(i) Long-term price trends for farm products: Price trend will help farmers decide about their production plans, e.g. what crop to produce? How much to produce? When to produce it?

(ii) Price received by sellers in different supply channels: It will help farmers decide through which supply channel to sell their produce profitably. Direct to buyer at the

farm gate, to retailer, to wholesaler or by contract marketing. Selecting a suitable distribution agent is important for farmers to get remunerative prices. Extension workers should assist farmers to use this information.

(iii) Price differences according to quality and variety of products: Includes items such as quantity of commodity arrivals, marketing costs and margins of various farm products, international destinations and prices etc.

(iv) Marketing fees and charges: This activity provides information on market charges, number and type of market functionaries operating in the market, marketing disputes settlement system, etc.

(v) Marketing facilitating services: The facilities that are available in the market, such as marketing credit, storage, product grading, re-packing, etc.

(vi) Product grades and standards: Information about the accepted standards and grades of various farm products in the market and phyto-sanitary requirements.

(vii) Government marketing policies: Information about government schemes for marketing various agricultural products both at domestic and export sales. Competing producing areas and major markets and consuming areas in the country and in main export markets.

Special care need to be taken that the market information provided to the farmers is accurate, comprehensive, timely (quickly available), applicable (relevant and usable) and in adequately analysed form (Kohls & Uhl, 1998; Norwood & Lusk, 2008).

Table 3 also indicates that the types of marketing information required by various marketers differ, as each group requires a

different bundle of market information-mix. Thus, it will be necessary for marketing extension agencies to prepare different sets of market information mixes of for each of the target group in the agricultural supply chain. These criteria of assessing the usefulness of marketing information to the users put a great

burden on the marketing extension service in collecting the diverse types of market data and analyzing them sufficiently. Finally, preparing different market briefs containing specific ‘information-mix’ according to the requirements of each group of marketers in the supply chain.

Table 3: Market information needs of marketers at different levels in the supply chain

| Types of market information | Farmers | Middlemen | Consumers |
|---|---------|-----------|-----------|
| 1. Past prices of different crops/ varieties | √ | √ | |
| 2. Minimum, maximum and modal prices of different varieties of crops | √ | √ | √ |
| 3. Price trend analysis, international prices | √ | √ | |
| 4. Accepted standards and grades of farm commodities | √ | √ | √ |
| 5. Facilities for marketing credit and pledge finance | √ | √ | |
| 6. Facilities for crop storage | √ | √ | |
| 7. Facilities available for direct marketing | √ | | √ |
| 8. Facilities for re-packing | √ | √ | |
| 9. What are sanitary and phyto-sanitary requirements? | √ | √ | |
| 10. When to sell or buy different crops? | √ | | √ |
| 11. Seasonal variations in prices | √ | | √ |
| 12. Current prices of different farm products in different markets. Where to buy or sell? | √ | √ | √ |
| 13. What are marketing margins and costs of different farm products in alternative markets? | √ | √ | |
| 14. What quantities of various products are demanded in different markets | √ | √ | √ |
| 15. What is the supply situation in different markets? | √ | √ | √ |
| 16. What new opportunities are available in food marketing? | √ | √ | |

Source: Based on authors’ analysis of available literature.

5. WHAT TOPICS SHOULD BE INCLUDED IN MARKETING TRAINING?

The amount of marketing knowledge needed for an efficient marketing decisions is increasing rapidly and the farmers are lagging in the knowledge gain. In addition to being provided with regular flow of market information, farmers need training in various post-harvest practices and the marketing functions. For a 3-4 weeks intensive training course on marketing for extension personnel,

some key topics are: Product planning; grading and standardisation; improved postharvest handling and packing practices; simple storage practices; contract production and marketing; cooperative marketing arrangements; and designing and operation of agricultural market (Lee, 1993). The following marketing issues have been identified for marketing extension in PICs:

(i) *Product planning:* The marketing-mix strategy of product planning is very

important for commercial agriculture (Kohls & Uhl, 1998). Farmers should make a careful selection of the crop (also variety) or livestock (cattle, pig, poultry) enterprise for marketing keeping in view ‘What do consumers want?, not just What can they produce? The selection of farm product for marketing should be based on consumers’ preferences and tastes (Norwood & Lusk, 2008). Thus, integration of farm production and marketing decisions is important (Viaene & Januszewska, 1999). PICs import rice, wheat, barley and maize products as the agro-climate is not suitable to grow these crop products. Thus, import substitution for these temperate crops is not viable. However, the

production of tropical crops should be enhanced and the products planned suitably for profitable marketing in overseas markets to earn foreign exchange. The farm products of PICs that have proven export supply capacity and efficiency are identified in Table 4. The top performing farm products exported from PICs are coconuts, roots and tubers, vanilla, cocoa beans, coffee, bananas, ginger. This list of products should be further broadened by the extension agency of the country by selecting other promising products for export and providing full production and marketing guidance to farmers.

Table 4: Pacific Island Countries’ top performing export products in terms of proven export supply capacity and efficiency.

| Commodity | Cook Is | Fiji Is | Kiribati | Samoa | Solomon Is | Tonga | Vanuatu |
|----------------------|---------|---------|----------|-------|------------|-------|---------|
| Coconuts | | √ | √ | √ | √ | √ | |
| Cassava | | √ | | | | √ | √ |
| Other Roots & tubers | √ | √ | | √ | | √ | √ |
| Cocoa beans | | √ | | | √ | √ | √ |
| Vanilla | | √ | | | | √ | √ |
| Bananas, plantains | | | | √ | | | |
| Coffee green | | √ | | | | | √ |
| Papayas | √ | √ | | √ | | | |
| Lemons & limes | | | | | | | √ |
| Egg plants | | √ | | | | | |
| Ginger | | √ | | | | | |

Source: ITC’s Trade Map and Market Access Map, FAOSTAT, cited in ITC, 2008

(ii) *Value-Addition*: The role of extension agency would be not only to educate farmers in how to identify the potential marketable products but also to train farmers in the processing methods according to the consumers’ preferences and tastes. Rather than just selling raw products, farmers should be encouraged to do some preliminary processing and value addition. Such post-harvest handling techniques will reduce the bulk of products and would secure better prices, and increase the shelf life of products (Shepherd 1993).

(iii) *Grading and Standardization*: Grading and standardization make farm product’s quality and quantity according to the established uniform measures and thus simplifies and makes possible buying and selling of product by sample and description (Kohls & Uhl, 1998). However, many farmers lack skills of grading and are unable sell their produce to buyers without physical inspection.

(iv) *Selecting Marketing Channels*: To receive remunerative prices for their products, farmers need to be trained to carefully select marketing channel which

gives stable prices for their products such contract sales to wholesalers, processors and bulk buyers (Shepherd, 2007).

(v) *Cooperative Group Action:* In PICs, majority of farmers are small landholders, having small amounts of marketable surplus thus uneconomic for each individual farmer to take their produce to longer distance market for higher prices. However, if they could form self-help groups/ Farmer Producers Organization (FPO) for processing and transportation of their produce this situation could change farmers' bargaining power. Providing training to farmers on the principles of managing co-operative societies and to set up their own self-help groups would be useful (Cobia, 1989).

(vi) *Healthy and Safe Food Production:* Agriculture and health security are linked. New practices of agricultural production using heavy doses of chemical have introduced new health risks into the food marketing process. Pathogens and toxic chemicals may contaminate food products during their agricultural production, harvesting, processing, storage, transportation, and final food preparation. Thus, the most important problems facing the agricultural production and marketing are food safety issues. Unnevehr (2003 & 2007) attributes this increased demand for safer, higher quality foods to increasing affluence of consumers. To prevent food safety failures, the best way for a consumer or processor is to purchase safe inputs, ingredients, and raw materials. (Starbird, 2005).

Food safety issues affect food suppliers as they evaluate marketing options (Holcomb *et al.*, 2013). Food safety should be addressed through Good Agricultural Practice (GAP) or Organic farm production process certification, improved information and

training in trade capacity building for exports (Unnevehr, 2007). The farmers and marketers should be made aware of various procedural steps of HACCP (Hazard Analysis and Critical Control Point) for food safety protection and phyto-sanitary requirements in export markets (Mortimore & Wallace, 1998).

(viii) *Market Information:* Efficient marketing system operate under perfect market information a main prerequisite of competitive market is that both buyers and sellers are well informed about the market condition (Barker, 1981; Kohls & Uhl, 1998). Farmers need market information to decide about the right quantity, right market, the right times, and right form for their produce to sell. Market extension service can provide them with comprehensive, accurate, trustworthy, confidential, timely and understandable market information.

6. SUMMARY AND CONCLUSIONS

In PICs, imports of consumer goods are quite high. There is need for enhancing domestic production. Extension of new farm technology would augment agricultural supply. But if farmers are not able to sell their surpluses profitably, their motivation for higher production wanes. Therefore, learning modern methods of marketing is important for farmers. Hence, extension of scientific knowledge on new agricultural production methods as well as extension of efficient marketing practices both are essential for sustainable agricultural development. Presently agricultural extension systems in PICs are production-focused and lack the orientation towards providing farmers with the necessary skills to handle marketing related problems. This paper emphasizes integration of production and marketing training for farmers. It highlights the market information needs of farmers and other marketers in the agro-food supply chain. The

core contents of farmers marketing training modules are also outlined. It is recommended that where extension personnel themselves lack adequate knowledge of modern marketing principles and practices, they should be trained first so that in turn they can disseminate this new knowledge to the farmers. Improvement in farmers' capability and expertise in profitably marketing their produce will sustain their efforts for boosting agricultural production and exports of PICs in a big way.

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