Value Chain Analysis of Selected Organic Crops in Assam

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"An organic farmer is the best peace maker today, because there is more violence, more death, more destruction, more wars, through a violent industrial agricultural system. And to shift away from that into an agriculture of peace is what organic farming is doing". ……. Vandana Shiva (Environmental Activist).

CHAPTER IX

CONCLUSION

9.1 Introduction

The study systematically achieved its five objectives in the previous five chapters (chapters 4, 5, 6, 7, and 8). This chapter concludes and summarizes the study and presents major findings. This chapter also provides suggestions to strengthen the value chain of selected organic crops and provides recommendations to various chain actors. The chapter also presents the future scope of research.

9.2 Major Findings

The purpose of the study was to perform a value chain analysis of five organic crops in Assam. Based on the criteria (shown in Chapter 3), five organic crops are selected for the study which are organic pineapple, organic pumpkin, organic non-basmati rice, organic red rice, and organic turmeric. To explore and know the existing value chain of these selected organic crops, primary data with a structured schedule is collected from various actors in the chain. The schedule is divided into two parts; one for organic farmers and one for traders involved in the chain (wholesalers, retailers, and commission agents). The study used the value chain framework for developing countries, developed by Trienekans (2011) and Ruben et. al. (2007). Based on this framework, four parameters are considered for the study: mapping of the value chain, value chain upgrading strategies, identification of constraints and opportunities, and governance structure of the chain. In addition to this, the study performs a comparative analysis of the value chain of govt. and non-govt. sponsored organic firms with ten parameters as given by (Kumari, et. al., 2021).

In the following section, the major findings of the study are shown objective-wise.

9.2.1 Major Findings from the First Objective (Network Structure of the Value Chain)

The major findings of the first objective for five selected organic crops are shown separately in the following subsections.

9.2.1.1 Organic Pineapple

From the study, it was found that:

a) Six marketing channels are identified for organic pineapple and products are mostly sold to wholesalers and directly to the local market/street side by the farmers. Channels (II), (III), and (VI) are partly organic whereas, channels (I), (IV), and (V) are organic.

b) Organic pineapples are sold in fresh form through the conventional chain, and only for special orders from distant traders and exporters, it is routed through FPC.

c) Farmers receive the highest price from direct sales and for sales to wholesalers, farmers receive the lowest price in comparison to other actors.

d) Around 77% of the farmers received finance from various sources like Micro microfinance institutions, Banks, etc and 24% of the farmers didn't receive any credits. Among the farmers who received financial assistance, 79.31% of the farmers received financial assistance from MFI, 6.89% from Self Help Groups, and 17.24% from commercial banks.

9.2.1.2 Organic Pumpkin

From the study, it was found that:

a) Four marketing channels are identified in the value chain of organic pumpkin. Channels (I) and (IV) are organic and channels (II) and (III) are partly organic.

b) Organic pumpkins are sold in fresh form and without any value-added products like juice, pumpkin seeds, etc. Similar to organic pineapple, farmers sell the organic pumpkins through conventional chains and only special orders from distant traders are executed through FPC.

c) The majority i.e., 39.51% of the farmers sold organic pumpkins through commission agents and 36.31% of the farmers sold them through wholesalers. Only 24.17% of the farmers sold the organic pumpkins directly to consumers at the local market or in the main city market.

d) Farmers receive the highest price which is Rs. 15.68 per kg with direct sales followed by sales through commission agents and wholesalers which is Rs. 13.03 and Rs. 10.06 for November.

e) Around 82.70% of the farmers have received credit from various sources. Among these, 46.70% took credit from Micro Finance Institutions (MFIs), 24.00% opted from Self Help Groups (SHGs), 16.00% opted from commercial banks and only 1.30% of farmers took credit from money lenders.

9.2.1.3 Organic Non-Basmati Rice

From the study, it was found that:

a) Three marketing channels are identified for the flow of organic non-basmati rice/paddy from farmers to consumers and in all channels, organic paddy is mixed with the conventional chain.

b) The role of the FPC "Puthimari Agro Organic Producer Company Ltd" is found to be inactive as the FPC is not involved in any marketing channel. Around 67.64% of the paddy is sold through commission agents (paikar), 15.65% is sold through the Food Corporation of India and 16.71% is sold directly to rice millers. The organic paddy is mixed with the conventional one and organic produce loses its traceability.

c. Around 60% of the farmers opted for credit from external sources apart from Government subsidies. In an external source of credit, the majority i.e., 64.44% of the farmers opted for credit from Microfinance Institutions followed by commercial banks with 37.77%.

9.2.1.4 Organic Red Rice

From the study, it was found that:

a. Three marketing channels are identified for marketing organic red rice from Dhemaji district. In all the chains, organic red rice is sold to consumers with proper organic standards and the chain is fully organic. The product flow is more structured in organic red rice as compared to organic pineapple, organic pumpkin, and organic non-basmati rice.

c. Farmers sell organic red paddy to FPC "Dol Agro Organic Producers Co. Ltd" at Rs. 2200 per quintal. FPC sells products in two forms, i.e., organic red paddy and organic red rice.

d. The FPC undertakes all the value-adding activities and sales of organic red rice with proper packaging and labeling to local consumers to traders in Hyderabad.

e. Around 58.70% of the farmers receive credit from various sources apart from Government subsidy and 41.30% of the farmers did not receive any external credit.

9.2.1.5 Organic Turmeric

From the study, it was found that:

a) Three marketing channels is identified for marketing organic turmeric in the Golaghat district of Assam. Three channels are organic turmeric seedlings, organic turmeric fingers, and organic turmeric powder.

b) Organic turmeric seedling is sold to various FPC/ turmeric growers in Northeast India at an average price of Rs 25 per kg. In the second way, FPC processes the turmeric with a steam boiler and sells the dry organic turmeric fingers at Rs. 130 per kg. Thirdly, FPC produces organic turmeric powder and sells the same at Rs. 250 per kg, by organic standard.

c) Among the farmers who received credit, the majority i.e., 72.13% received credit from commercial banks followed by microfinance institutions with a share of 18.03%.

To summarize, it was found that except for marketing channels for organic red rice and organic turmeric, none of other crops (organic pineapple, organic pumpkin and organic non-basmati rice) are maintaining end-to-end organic chain. When organic produce is traded by market intermediaries, leakage in the chain happens and only a certain percent of organic produce reaches end consumers. The study by Kwikiriza, et al.(2016), found that only 45% of the organic pineapple produced by farmers reaches organic consumers in Uganda. Similar to this, the present study, for organic pineapple, pumpkin, and non-basmati value chains, market intermediaries like wholesalers, commission agents, and retailers mix the organic pineapple with a conventional chain which results in loss in loss in the value of crops grown organically. Similar problems of mixing organic produce with conventional chains are also encountered in Sikkim, where organic produce is sold to a regulated market in West Bengal which is not designed to handle organic produce (NIAM, 2017). As trades through FPC are not regular and due to a lack of organic market linkage, organic products are sold in conventional chains through various market intermediaries. Among various channels, organic farmers benefited mostly from direct sales as they can have more share in consumer price. Apart from four organic crops: organic pineapple, organic pumpkin, organic red rice, and

organic turmeric, none of the marketing channels for organic non-basmati rice is found to be completely organic, as compared to the marketing channels of the other four organic crops. Farmers don't have any market linkage for organic produce and the FPC "Puthimari Agro Organic Producer Co. Ltd" is not involved in any marketing channel activity to sell the organic produce.

9.2.2 Major Findings from the Second Objective (Value Addition of Organic Crops).

The major findings of second objective for five selected organic crops are shown in following subsections.

9.2.2.1 Organic Pineapple

From the study, it was found that:

a) The gross income per hectare is found to be Rs. 459422.00 which is computed by adjusting the income received from by-products and post-harvest losses. The net income per hectare of organic pineapple is found to be Rs. 302668.64 and income per rupee is found to be Rs. 2.93

b) The highest margin is found for direct sales to consumers with Rs. 13.90 followed by Rs. 12.65 for trades with FPC. The margin for trades executed through commission agents and wholesalers is Rs. 10.15 and Rs. 6.53.

c) For channel II, the highest degree of value addition is found with retailers at 12.60%, followed by commission agents and wholesalers at 11.65% and 10.82% respectively. However, the degree of value addition is only determined by the difference in the buying and selling price and without any actual value addition.

d) The marketing margin for commission agents, wholesalers, and retailers in channel II is found to be Rs.2.04, Rs. 0.94, and Rs. 3.00 respectively indicating a high share of margin by retailers among other intermediaries.

e) Marketing efficiency for channels II and III is 1.69 and 0.99, respectively. Marketing efficiency is high in channel II due to the high price realization of farmers and other actors of the chain as pineapples are sold at market price.

9.2.2.2 Organic Pumpkin

From the study it was found that:

a) The gross income per hectare of organic pumpkin is found to be Rs. 164402.00 by adjusting the post-harvest loss. The net income is found to be Rs. 115036.30 and the income per rupee is found to be Rs. 3.33.

b) Farmers receive the highest margin i.e., Rs. 8.83 through direct sales followed by sell-through FPC with a margin of Rs. 6.56. Among all the chain actors, the lowest margin is found with wholesalers with Rs.3.72 per kg followed by commission agents which is Rs. 4.35.

d. For channel II, the price difference is found to be highest in the hands of wholesalers which is Rs. 924.00, and for retailers it is Rs. 670.00. The Highest degree of value addition is found with wholesalers which is 110.61% followed by retailers with 25.60%. Wholesalers share the highest price which is 40% followed by farmers and retailers with 31% and 29% respectively. Similar to organic pineapple, value addition here is computed based on the difference in the buying and selling price, and the actors were not involved in any value-adding activities.

e) The marketing efficiency for channel III is 0.50 which is high as compared to channel II i.e., 0.44 as farmers receive high prices from commission agents in channel III. The price spread for channel III is 33.72% which is higher as compared to channel II with 31%.

9.2.2.3 Organic Non-Basmati Rice

From the study it was found that:

a) The gross income after adjusting post-harvest losses is found to be Rs. 77183.70 per hectare. Net income is found to be Rs.33,389.70 and the income per rupee is Rs. 1.76.

b) Farmers receive the highest margin from sales of paddy to Food Corporation of India which is Rs. 1006.68 followed by rice millers and commission agents with Rs. 767.93 and Rs. 607.42.

c) For channel I, the highest price difference is found with retailers with Rs. 462.00 per quintal followed by rice millers with Rs. 404.00 per quintal. The highest degree of value addition is found with rice millers with 13.35% followed by retailers with 11.59%.

d) For channel II, farmers sales the paddy directly to rice millers at Rs. 1681.25 per quintal which is around Rs.2586.53 per quintal. Highest degree of value addition is found with rice millers with 17.14% followed by retailers with 11.59%.

e) The marketing efficiency for channel I and channel II are found to be 1.01 and 1.26 as farmers received high price from rice millers as compared to commission agents in channel I.

9.2.2.4 Organic Red Rice

From the study, it was found that:

a) The per hectare gross income for organic red paddy is found to be Rs. 34806.00 and net income is found to be Rs. 7871.00. The income per rupee is Rs. 1.29 for organic red rice.

b) The FPC receive highest margin which is Rs. 3016 per quintal when they supply special orders of organic red rice to Hyderabad followed by Rs. 2016 per quintal from consumers within state.

c) For channel II (FPC process the paddy and sales organic red rice to traders in Hyderabad), degree of value addition is found to be 89.12% which is highest as compare to channel I and III.

d) The marketing efficiency for channel II and III is found to be 0.93 and 1.29. The price spread for channel II and III is found to be 51.65% and 43.60%.

9.2.2.5 Organic Turmeric

From the study, it was found that:

a) The gross income after adjusting the post-harvest losses per hectare is found to be Rs.203234.00 and net income per hectare is Rs. 131555.00. The income per rupee is found to be Rs. 2.83.

b) The highest margin is found with organic turmeric powder followed by organic dry fingers and organic turmeric seedlings.

c) The marketing efficiency for channel II and III is found to be 2.56 and 1.65. The price spread for channel II and III is found to be 28.07% and 37.60%. Highest value addition is found in channel III, which is around 42.30%.

d) As compared to other FPC, The FPC is well equipped with adequate infrastructure like boiler, dryer, assembling centre, input collection centre, transportation facilities and packaging centre to produce value added products from organic turmeric.

To summarize, from the present study it was found that, the value-addition activities in the hands of market intermediaries are confined to non-value-adding (storage, assembling, loading, unloading) and necessary non-value-adding process activities (transportation, weighting). None of the market intermediaries are engaged in value-adding process activities like processing organic crops and packaging by organic standards. The study by Dan & Jitea (2023) in the organic vegetable value chain in Romania is characterized by low-value addition and actors mostly sell the organic crops in fresh form. Similar to this, the present study, it was found that the value-addition activities are in the initial phase, and production facilities in the FPC to produce the value-added products from these crops are yet to start. From the study, it was found that the percentage of value addition by various chain actors for organic pineapple, organic pumpkins and organic non-basmati rice is determined based on the differences in the buying and selling prices and costs incurred by them and not by any production or processing activities. The marketing efficiency for these crops, is determined based on the conventional channel as organic products are mixed with other crops by the chain actors.

Only for organic red rice and organic turmeric, the value-added activities like processing of organic crops, packaging, and labeling are done by the respective FPCs, and the finished products are sold to distant and local consumers. The highest degree of value addition is found in channel II for organic red rice with 89.12% as packaged organic red rice sold to traders in Hyderabad at a premium price For organic turmeric farmers receive Rs. 1177.44 (per quintal) as margin and the degree of value addition is found to be highest for channel III with 42.30%.

9.2.3 Major Findings for Objective Three (Constraints and Opportunities in the Value Chain)

The major findings for third objective of five selected organic crops are shown in following subsections respectively.

9.2.3.1 Organic Pineapple

a) Farmers rank “Policy support” as a major constraint, followed by “Inadequate quality standards” and “Involvement with farmers associations/organizations” in upgrading the value chain.

b) Commission agents rank “Lack of marketing network to trade organic products” as the topmost constraint, followed by “Lack of infrastructure facilities to handle organic products” in upgrading the value chain.

c) Wholesalers ranks “Inadequate and untimely supply of organic products” as the major constraints followed by “Lack of marketing network to trade organic products” in upgrading the value chain.

d) Retailers rank “Buyer’s trust issue in buying organic products” as major constraint in the pineapple value chain followed by “Inadequate labeling of organic products” in upgrading the value chain.

e) To upgrade the existing value chain, farmers strongly agree to improvement in aspects like improving market information, support for new technology development, strengthening producer organization and developing extension services for production and processing as an opportunity to upgrade the existing value chain.

9.2.3.2 Organic Pumpkin

a) Farmers rank “Involvement with farmers association/organization” as a major constraint, followed by “Policy support” in upgrading the organic pumpkin value chain.

b) Commission agents rank “Lack of marketing network to trade organic products” as a major constraint, followed by “Inadequate and timely supply of organic products” in upgrading the value chain.

c) The wholesalers rank “Inadequate and untimely supply of organic products” as major constraints followed by “Lack of marketing network to trade organic products” in upgrading the value chain.

d) The Retailers rank “Lack of market for organic produces” as a major constraint, followed by “Consumer unwillingness to pay a premium price”, in upgrading the value chain.

e) Farmers strongly agree in the improvement / development of direct marketing, establishment of retail stores in various major cities, strengthen of producer organization, government support for certification and standards, improving market information, support for new technology development, development of extension services for production and processing, contract farming and establishment of internal quality management system as major opportunities for upgrading the value chain.

9.2.3.3 Organic Non-Basmati Rice

a) Farmer’s rank “Lack of market for organic produce” as major constraint followed by “Consumer unwillingness to pay the premium price” in upgrading the organic non-basmati rice value chain.

b) Commission agents rank “Lack of infrastructure to handle organic products” as a major constraint followed by “Lack of marketing network to trade organic products” for upgrading the value chain.

c) Wholesalers rank “Lack of marketing network to trade organics products” as a major constraint, followed by “Inadequate labelling of organic products” for upgrading the value chain.

d) Retailers rank “Lack of market for organic produces” as a major constraint followed by “Consumer unwillingness to pay a premium price” for upgrading the value chain.

e) The farmers strongly agree to better management and strengthen the producer organization to upgrade the existing organic non-basmati rice value chain.

9.2.3.4 Organic Red Rice

a) Farmers rank “Low yield during conversion period” as major constraint in upgrading the organic red rice value chain, followed by “Lack of market for organic produce” in upgrading organic red rice value chain.

b) Farmers strongly agree “Improvement in Government support for certification and standards” as major opportunities for upgrading the value chain.

9.2.3.5 Organic Turmeric

a) Farmers rank the “Lack of a market for organic produce” as a major constraint followed by the “Disease and pest control management” in upgrading the organic turmeric value chain.

b) Farmers rate and strongly agree to support for new technology development and direct marketing as prime opportunities for upgrading the existing organic turmeric value chain.

To summarize, the study found that the constraints faced by farmers and various actors in the chain for selected organic crops are not same and uniform. For organic pineapple, farmers ranked “Policy support” as a major constraint and for the organic pumpkin, farmers ranked “involvement with farmers associations/organizations” as a major constraint in upgrading the value chain. Similar to organic pineapple, the commission agents and wholesalers in the organic pumpkin value chain ranked “lack of marketing network” and “inadequate and untimely supply” as major constraints. However, the organic pumpkin value chain retailers ranked “lack of market for organic produce” as a major constraint and a specific market point for organic produce is required to sell the organic items. For the organic non-basmati rice value chain, farmers ranked “lack of market for organic produce” as a major constraint because there are no end-to-end marketing channels for organic products and farmers only sell the organic non-basmati paddy through conventional chain. The study by Dan & Jitea

(2023) found that farmers and chain actors face major constraints due to a lack of market for organic products for their low consumption. Similar to this, the present study also found lack of market for organic produces as major constraints for retailers in the value chain of organic non-basmati rice and organic pumpkin.

Although organic red rice maintained an end-to-end organic chain, however, among all the organic crops, the net income of the organic red rice farmers is very low due to its low production and farmers ranked low yield during the conversion period as a major constraints in upgrading the the value chain.

9.2.4 Major Findings for Objective Four (Governance Structure in the Value Chain)

a) From the study it was found that the FPC acts as a centre of gravity in the value chain as it controls the information flows, provides the necessary information to regulatory bodies and other chain actors, provides inputs and technical assistance, and is involved in value chain upgradation.

b) It was found that farmers have strong trust in the Farmer Producer Company as compared to other actors like commission agents, government officials, retailers, and wholesalers.

c) In the study it was found that in the organic pineapple value chain, the majority i.e., 53.33% of the farmers follow a relational governance structure.

d) It was found that farmers prefer spot market transactions with commission agents/ consumers and contract agreements with the wholesalers for the value chain in organic pineapple, organic pumpkin, and organic non-basmati rice value chain.

e) From the study it was found that for the value chain of organic red rice and organic turmeric, farmers opted for a farmer association-based governance structure which is more structured and formal as compared to the value chain of organic pineapple, organic pumpkin, and organic non-basmati rice.

e) From the study it was found that farmers have weak understanding is found in related to packaging and labeling, grading, and delivery aspects of the organic products.

To summarize, it was found that both formal and informal rules exist among chain actors. The actors, particularly farmers follow both formal rules set up by FPC and informal rules that exist in the chain and mostly determined by mutual trust among the chain actors. The trust lelvel of farmers towards Farmer Producer Company is strong as compared to other actors. However, for organic non-basmati rice, the farmer's trust level in the FPC “Puthimari

Agro Organic Producer Company Ltd" is found to be very low as compared to others. This is due to the non-involvement of the FPC in market linkage activities and could not provide the farmers a platform to sell their organic products. For the organic organic pineapple, organic pumpkin, and organic non-basmati rice, farmers prefer spot market transactions. However, the governance structure of organic red rice and organic turmeric is more structured and formal, and farmers association-based governance structure is opted by the farmers. In the flow of information it was found that farmers receive various information from different actors like FPC, wholesalers, extension officers, farmer association. However, from the study it was found that, farmers have weak understading to information related to packaging and labeling, grading, and delivery aspects of the organic products.

9.2.5 Major Findings for Objective Five (Comparative Analysis of Government and Non-Government Sponsored Organic Value Chain).

a) The mean score of non-govt. sponsored organic firms is 3.77 for all ten parameters is found to be high as compared to govt. sponsored organic firms with mean of 2.96, indicating a better value chain management system for non-govt. sponsored organic firms.

b) The overall mean score for technology usage of non-govt. sponsored organic firm is found to be high as compared to govt. sponsored organic firms which is 3.86. In the inter-firm comparison, it was found that Jeevanksh Eco Products Private Limited has a stronghold in technology usage and the mean score found to be 4.80, followed by Pabhoi Greens and Padumpathar Agro Organic Producer Company Ltd. (PaAOPCL) with a mean score of 3.60 and 3.40 respectively.

c) The highest mean score (4.60) is found with Padumpathar Agro Organic Producer Company Ltd. (PaAOPCL) related to the availability of infrastructure facilities to strengthen the value chain. Compared to all other organic firms, the mean score of Puthimari Agro Organic Producer Company Ltd. (POFCL) is found to be the lowest which is only 1.4, indicating very weak availability of infrastructure facilities to deal with organic value-added products.

d) In customer focus parameter, the highest mean score (4.60) is found with two firms namely Pabhoi Greens and Padumpathar Agro Organic Producer Company Ltd. PaAOPCL sells raw organic turmeric, dry organic turmeric fingerling, and organic turmeric powder as per NPOP standards and ensures timely availability of products to customers when orders are

placed by them. Pabhoi Greens has a strong market to supply organic seeds through the B2C market and the firm ensures timely delivery of the same.

e) The mean score of information flow of non-govt. sponsored organic firms are found to be high with a score of 4.06 as compared to govt. sponsored organic firms which is only 2.92. In inter-firm comparison, the highest mean score of 4.60 is found with Pabhoi Greens and Jeevanksh Eco Products Ltd.

f) In diversified products parameter, the mean score for non-govt. sponsored organic firms are high and found to be 3.86 as compared to govt. sponsored organic firms which is 2.80. In inter-firm comparison, Jeevanksh Eco Products Ltd. ranked first with a mean score of 4.60 followed by Pabhoi Greens with a mean score of 3.80.

g) In awareness and knowledge parameter, the overall mean score of non-govt. sponsored organic firms are found to be higher as compared to govt. sponsored organic firms which are 3.66 and 3.00 respectively. In inter-firm comparison, Jeevanksh Eco Products Ltd ranked first with a mean score of 4.80 followed by Hmar Agro Organic Producer Company Ltd (HAOPCL) and Nahar Organics with a mean score of 3.60 each.

i) In the capacity building parameter, the mean score non-govt. sponsored organic firms are found to be 3.93, which is high compared to govt. sponsored organic firms. organic Among non-government-sponsored organic firms, all three firms have a strong collaboration with various research institutes, engage in training and extension activities, and have collaborated with various Government and private organizations.

j) In the competitive advantage parameter, the mean score of non-govt. sponsored organic firms are found to be 3.80 which is higher as compared to the mean score of govt. sponsored organic firms. However, in inter-firm comparison, the highest mean score is found with HAOPCL(govt. sponsored firm) which is around 4.20 followed by Jeevanksh Eco Products Ltd. with a mean score of 4.00.

k) In the pricing parameter, the overall mean score is found to be high with non-govt. sponsored organic firms which is 3.46 and the mean score of govt. sponsored organic firms are found to be 3.28. In the inter-firm comparison, the highest mean score is found with JeevAnksh Eco Products Ltd. which is 4.80 followed by PaAOPCL and DAOPCL with a mean score of 4.20 each.

l) In the logistics drivers, the overall mean score of non-govt. sponsored organic firms are found to be 3.40 which is high as compared to the overall mean score of govt. sponsored organic firms with a mean score of 2.68. In inter-firm comparison, the highest mean score is

found with Jeevanksh Eco Products Ltd. with a mean score of 3.60 followed by Pabhoi Greens with a mean score of 3.40.

To summarize, it was found that although the mean score of non-govt. sponsored organic firms are high as compared to govt. sponsored organic firms, however, in the individual firm performance, the value chain of few govt. sponsored organic firms are found to be better as compared to non-govt. sponsored firms. In the inter firm comparision, the overall mean score is found highest with JeevAnksh Eco Products Ltd. (non-govt) which is 4.38 and the second rank is scored by Padumpathar Agro Organic Producer Company Ltd (govt.) with mean score of 3.80. In parameters wise comparision also, few govt. sponsored firms has highest mean score for infrstructure (PaAOPCL: 4.60), customer support (PaAOPCL:4.60), and competitive advantage (HAOPCL: 4.20). The overall mean score and individual mean score for eah parameter is found to be low with Puthimari Agro Organic Producer Ltd which is only 1.34 indicating a very week value chain for the same crops.

9.3 Suggestions and Recommendation from the Present Study

The study presents the following recommendation to strengthen the existing value chain of five selected organic crops:

9.3.1 Suggestions and Recommendation from the Findings of the First Objective.

a) Partly organic channel for organic pineapples, pumpkins, and non- basmati rice should be convert to fully organic chain. Separate supply chain should be maintained by commission agents, wholesalers and retailers dealing with organic produces.

b) The transaction with exporters and with distant traders for five organic crops by the FPC is not regular. The FPC/ Farmer association should explore B2B marketing platform like Kisaan Trade, Urjafarms and other organic agro food companies to supply semi-processed or finished organic produces.

c) For organic non-basmati rice value chain, as all the organic produces passed through the conventional chain, the FPC should focus on to explore the marketing opportunities to trade the organic paddy with collaboration with other organic firms.

d) Apart from organic red rice and organic turmeric, other three organic crops (organic pineapple, organic pumpkin and organic non-basmati rice) are selling in fresh form. Investment in technological and infrastructure development is required particularly in these

three organic crops to produce semi-processed organic products or finished goods. As the FPCs are yet to establish a compelet market linkage for organic produces, focus should be given on to produce semi processed organic products and supply the same to various companies producing certified organic products.

e) From the study it was found that for organic pineapple and organic pumpkin, farmers received the highest price from direct sales. For the same organic selling point in each cluster / district is required, so that consumers can to get access to organic foods which in turn will help in brand building for the FPCs. In direct sells, although farmers earn better margin, but there is a risk associated with farmers finds it difficult to sell the entire stock (Abebe, et al., 2022). To avoid this, with a organic selling point, farmers will have fix selling point/ location which will be helpful to consumer also to purchase organic produces.

f) Timely and adequate financial assistance to organic farmers during cultivation and harvesting process is to be given with minimal documentation and with fast process.

g) As organic products are being mixed with conventional products/chains, timely training to various stakeholders in the chain like commission agents, wholesalers and retailers is to be given to handling of organic goods, certification system to maintain end to end organic chain.

9.3.2 Suggestions and Recommendation from the Findings of the Second Objective.

a) The income per rupee for organic red rice farmers is found to be Rs. 1.20 which is lowest among all the crops. The FPC should organize more capacity building programme to improve the farmers net income from organic red rice.

b) The marketing efficiency and marketing margin for organic pineapple, organic pumpkin and organic non-basmati rice is determined only by difference between buying and selling price as products are sold in fresh forms. The FPC should start production of semi processed or processed value-added organic products to fetch premium price and to improve farmers income.

c) The value addition in the hands of wholesalers, commission agents and retailers are confined only to non-value adding and necessary non-value adding activities. There should be a coordination and collaboration between farmers, FPCs, wholesalers, commission agents and retailers to engage in value processing activities like production value added organic products with proper packaging and labeling.

d) Collaborations are encouraged with private organic farms for input supply and to establish better market linkage for the organic produces. The organic farmers can have collaboration with Pabhoi greens for organic seed supply, inputs and JeevAanksh Eco Products for market linkage.

e) For Cachar district, it was found that micro industry are using organic pineapple as raw material to produce value added products without any organic logo and certification. Special technical training is to be given to local food processing units and are to be encouraged to shift to organic production system and to produce valued added products like organic jam, jelly, pineapple slices, squash, etc., with proper certification, standard and labelling.

f) Technology of best practices are need to be transferred for product process and functional upgradation of existing organic crops value chain. The study suggest collaboration with JeevAnksh Eco Products and Pabhoi Greens to exchange technology know how to produce value added products from five selected organic crops.

g) Establishment of processing plant is not yet completed for organic pineapple, organic pumpkin and organic non-basmati rice. The CEO of the FPC should take prompt action to establish the processing unit.

9.3.3 Suggestions and Recommendation from the Findings of the Third Objective.

a) Strong policy support for warehouse development, processing unit and market linkage need to be developed for an efficient end-to-end organic value chain.

b) For value chain of organic pumpkins, FPC should engage more capacity building programme which will encourages the farmers to have more involvement with farmers' association.

c) With a collaborative approach from various stakeholders in the chain, FPC should focus on to build a structured network which will help the commission agents, wholesalers and retailers to maintain end -to-end organic chain and to establish a strong marketing network to trade organic produces.

d) Crops specific value-added products with adequate packaging, labelling, and timely supply should be ensured as the same will help wholesalers and retailers for market building for organic products.

e) Collaborative approach is required with research institutions like Assam Agricultural University for developing high yield organic red rice seeds to improve farmers benefit cost ratio.

9.3.4 Suggestions and Recommendation from the Findings of the Fourth Objective.

a) The current governance structure of organic pumpkin and organic non-basmati rice is market driven indicates more informal rule, market price acts as central governance, and with limited knowledge and information sharing among chain actors. The FPCs should have control over bargaining and encourage the farmers to adopt farmer association-based governance structures where farmer and FPC can have baigaing power and can fetch premium price for organic produces.

b) For organic pineapple, organic pumpkins and organic non-basmati rice, the rules and regulations are mostly adhered by verbal agreements and follows informal rules that exist in the conventional chain. To ensure tracabilty of organic produces, FPC should take proper measures to maintain formal and written agreements.

b) Extension officers / Farmers Association / FPC should ensure strong flow of information to farmers particularly to labelling, grading, and delivery aspects of the organic products by conducting more training activities.

c) Except for FPCs, farmers trust level is low with other chain actors. Trust among chain actors is very impornat and regular interactions with chain actors like wholesalers, retailers and Government official with farmers are encouraged to build up trust.

9.3.5 Suggestions and Recommendation from the Findings of the Fifth Objective.

a) The mean score of technology parameter for govt. sponsored organic firms are found to be 2.44 which is very low as compared to the non-govt. sponsored firms. Government sponsored organic FPCs should have technology transfer and market linkage collaboration with JeevAnksh Eco Products for production, processing and marketing of organic crops.

b) Although the overall mean score of non- govt. sponsored organic firms are high as compared to govt. sponsored organic firms, however, in inter-firm comparision and parameter wise comparision, few govt. sponsored organic firms are found with strong value chain. Special focus is required for Hmar Agro organic Producer Co. Ltd., Pagladiya Agro Organic Producer Co., Ltd and Puthimari Agro Organic Producer Co. Ltd., to improvement in

the various parameters like infrastructure, product diversification, capacity buildings, logistics driver and customer focus.

c) Public Private Partnership is encouraged among Government sponsored and non-Government sponsored organic firms for supply of input, market linkage and to train the farmers related to various aspects of organic farming. JeevAnksh Eco Products, Nahar Organics and Padumpathar Agro Organic Producer Co. Ltd. is identified with strong market linkage and inter- firm collaboration is suggested will help to strengthen the value chain

d) Pabhoi Greens, the only seed bank of Northeast India can be a hub to supply quality of organic seeds and other organic inputs as required by organic farmers across the states.

9.4 Implication and contribution of the Study

The social and managerial implications of the study are as follows:

a) The study observed the various aspects of the value chain of five organic crops and found that the value chain is in initial stage. The findings will help the policy makers and stakeholders to develop network structure, improve value addition of organic produces and to build an efficient governance structure to develop end-to-end organic value chain.

b) The study will be helpful to government to know the current condition of organic crops value chain of MOVCD-NER scheme. The same will help the Government to frame or changes the existing policies for a strong value chain.

c) India with the highest number of organic producers, shares less than one percent of global organic food market, indicates lack of value-added organic product. The present study discussed the existing value chain of organic crops of Assam and found that value chain of organic pineapples, organic pumpkin and organic non-basmati rice identified with non-value adding and necessary non -value adding activities. The findings of this study will help the concerned FPCs, Horticulture Dept. and policy makers to improve the value processing activities.

d) The present study found that the organic products from Assam is yet to establish a regular market. The organic commodity (fresh, semi-processed, and processed) from Assam shall explore the B2B market with organic key players Suminter India Organics Private Limited, Nature Bio-foods Limited, Organic India Private Limited, Sresta Natural Bioproducts Limited, Phalada Agro Research Foundations Private Limited, Mehrotra Consumer Products

Pvt., Morarka Organic Foods Limited, Nature Pearls Private Limited, Conscious Food Private Limited, Nourish Organics Foods Pvt. Ltd., etc, by which farmers and FPC can fetch premium price for the organic produces.

e) In the inter-firm comparision of value chain of organic firms, few govt. sponsored organic firms are identified with strong value chain (PaAOPCL: rank 2nd and DAOPCL: rank 4th) which indicates that govt. sponsored firms are performing well as per non-govt. sponsored organic firms. However, the score of Puthimari Agro Organic Producer Co. Ltd. is found to be lowest which is 1.34, and needs adequate policy measures to revive the same.

e) The study will help the academician and researcher to add new dimension to the existing literature of organic food sector and will encourages for further research.

9.5 Scope for Future Works

a) Comparative analysis of the value chain of organic crops across the states of North-eastern region.

b) Comparative analysis of the value chain of selected organic and inorganic crops in Assam.

c) Comparing the value chain of organic crops of Assam and Sikkim.

d) Comparing the value chain of organic Farmer Producer Organization/Companies in Assam and Sikkim.

e) Study the network structure of the value chain of organic crops in Assam and other states of India.

f) Study the quantum of value addition in various organic crops in across various states of India.

g) Study the constraints faced by various actors in the organic value chain in across the states of India.

h) Study the governance structure of organic crops and FPCs in across the states of India.

i) To frame a model for efficient value chain development for organic produces.

j) To study the global value chain and integration of smallholder farmers therein.

k) Future research is encouraged to improve the schedule used in the study by bringing more objectivity to it.

l) Organization characteristics of organic farms in Assam and other states of India.

m) To study the feasibility of technological advancement like block chain in the value chain of organic commodities from Assam and Northeast India.