

PROMOTING GOOD AGRICULTURAL PRACTICES (GAP) TO ENHANCE COMPETITIVENESS, RESILIENCE AND SUSTAINABILITY OF SMALLHOLD SABA/CARDABA BANANA GROWERS

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ABSTRACT

This paper presents an overview of saba/cardaba banana production in the Philippines, the existing practices of smallhold growers vis-à-vis the expanding demand for reliable supply of fruits complying with the quality requirements of buyers. Generally, the smallhold banana sector is not yet prepositioned towards certification despite the support and subsidy by the Government program for PhilGAP and Organic Certification. The authors posit that shifting of smallhold banana growers from traditional to compliance to either of these standards, if not certification, is an important strategy to sustain the country's competitive advantage in the export market, to propel inclusive growth in the local banana industry sector and increase income and profitability of smallhold farmers. Realizing the optimistic potential of the local banana sector to increase fruit supply to feed the growing demand of both fresh and processing markets calls for a transformation of small hold banana farms into viable enterprise that is profitable, resilient, competitive, and sustainable aligned with the standards of the international market. These objectives are interconnected and need to be considered holistically. Proposed strategies to effect this shift, using already available technologies, approaches/strategies and lessons from past and on-going projects, and the Department of Agriculture, Bureau of Plant Industry's (DA-BPI) programs to strengthen support and intensify the PhilGAP program are presented.

INTRODUCTION

Overview of banana production and trade in the Philippines

Banana is the number one fruit grown in the Philippines in terms of volume, value and area of production. It is also one of the top agricultural exports of the country. Globally, in 2014, the Philippines ranked 2nd largest banana producer, and 3rd in the export market, 6th in fresh fruits and 1st in banana chips (PSA, 2015).

Production system of banana in the country differ starkly between the small scale grower and commercial plantations. Cavendish, the export cultivar, is produced in Mindanao in extensive plantations, high external inputs, highly efficient, productive and profitable. Dominated by multinationals, these companies are generally compliant/certified with a number of local and /or international standards accrediting bodies. While accounting for only 19% of the total area planted, Cavendish contributes 50.3% in production volume with mean yield of 53.2 t/ha, about 2.2x above the Philippine Development Plan (PDP) target yield of 24.6 t/ha for 2016 (NEDA, 2016). In 2015, though lower than previous years, 1.6 million metric tons (Mmt) or 121 million boxes of fresh fruits were exported. The banana industry paid out Php 44 Billion on wages and Php 6.5 Billion in taxes in 2014 (PBGEA, 2015). Exported bananas comprise only 20% of the total fruits produced in 2015 (PSA, 2015).

Local banana cultivars account for 80% of banana hectareage, and about 90% of banana growers are backyard in scale and smallholders (DA-HVCC, 2007). Popular types are Cardaba and Saba (cooking types and used for chips) while Lakatan and Latundan are dessert types. Banana is one of the few locally grown fruits available year-round and is the most popular fruit consumed by Filipinos contributing 75% of the total fruit intake (FNRI, 2013). Per capita consumption of Filipinos consumption of banana by Filipinos is about 136 g/d or 50 kg/ year which is only 41% of 400g/d dietary target for fruits and vegetables (FNRI-DOST 2013). Market prospects for local banana cultivars is promising. Increasing banana consumption of Filipinos by another 50 g /day (18.25 kg/yr) will further increase the domestic demand by 1.825 Mmt/year. The many uses of Saba banana is not yet fully exploited and when harnessed could further increase demand.

Local cultivars are generally produced by small farmers spread across all regions of the country. The traditional practice of chronic neglect in growing local banana cvs. is surreptitiously spreading destructive pests and diseases that threatens the sustainability of local banana industry. Exceptions are small to medium scale agripreneurs and groups adapting the plantation type management. Yields of local bananas Cardaba/Saba and Lakatan are highly variable across the country but on the average still 10 kg and 7.0 kg short of the PDP target for 2016, respectively. There is much room for improving the productivity of small hold banana growers and while technologies are already available to improve and align traditional practices towards GAP farmers adoption remains low and unsustainable.

There is an expanded, market- driven demand for local bananas particularly Cardaba and Saba, the cultivars preferred for banana chips. The high nutritional value of banana, low glycemic index (GI) rating makes it a health food gaining world acceptance in a snack food market expected to be worth up to \$300 Billion by 2015 (Sta Romana, 2012). However, prevalence of low and fluctuating yields outside of Mindanao constrains bridging of demand-supply gap in the processing sector. Only SOCCSKSARGEN in Mindanao consistently exceeded the 2016 PDP yield target of 24.5 t/ha for banana (NEDA, 2016). Five other regions had yields above the national mean yield of 12.6 from 2010-2015 (PSA, 2016). Increasing yield of top 5 regions to the PDP2016 target of 24.5t/ha will increase supply by over 1M mt, nearly 40% of volume produced in 2015. Increasing yield of regions with below average yield to the national mean yield will increase supply by about 630,000 MT/yr (Fig. 1).

Quality Requirements of banana along the various value chains *vis-a-vis* Philippine National Standards (PNS) for banana farming and fruit quality

The private sector was quick to respond to the prospect of being part of the growing demand for healthy snack food market with increased number of large processors-exporters from 15 in 2006 to 35 in 2014, and 41 in 2016, reportedly with capacities ranging from 20-60 tons a day. Actual use, however, is only 60-80% of capacity. (Briones 2014). Fluctuating supply of raw materials is a critical constraint to this underutilization (*Personal communication* with processor, 2016). Markets in developed countries are increasingly demanding that their food suppliers be GAP certified, and in addition could impose stricter environmental and health regulations.

Government supported certification programs

The Philippine Good Agricultural Practices (PhilGAP) is based on the legal framework of the Food Safety Act of the Philippines (RA 10611). The integration of Quality Assurance System like Good Agricultural Practices (GAP) on food supply chain ensures the safety of harvested crops like fruits and vegetables. The Code of Practices (GAP) includes practices used to prevent or reduce the risk of hazards occurring during production, harvesting, and postharvest handling of produce (RA 10611). The government issued GAP certificate after an assessment, evaluation and verification procedure is being done in accordance with the established standard. A total of 154 certificates were

issued from 2007 to 2016 (BAFS).

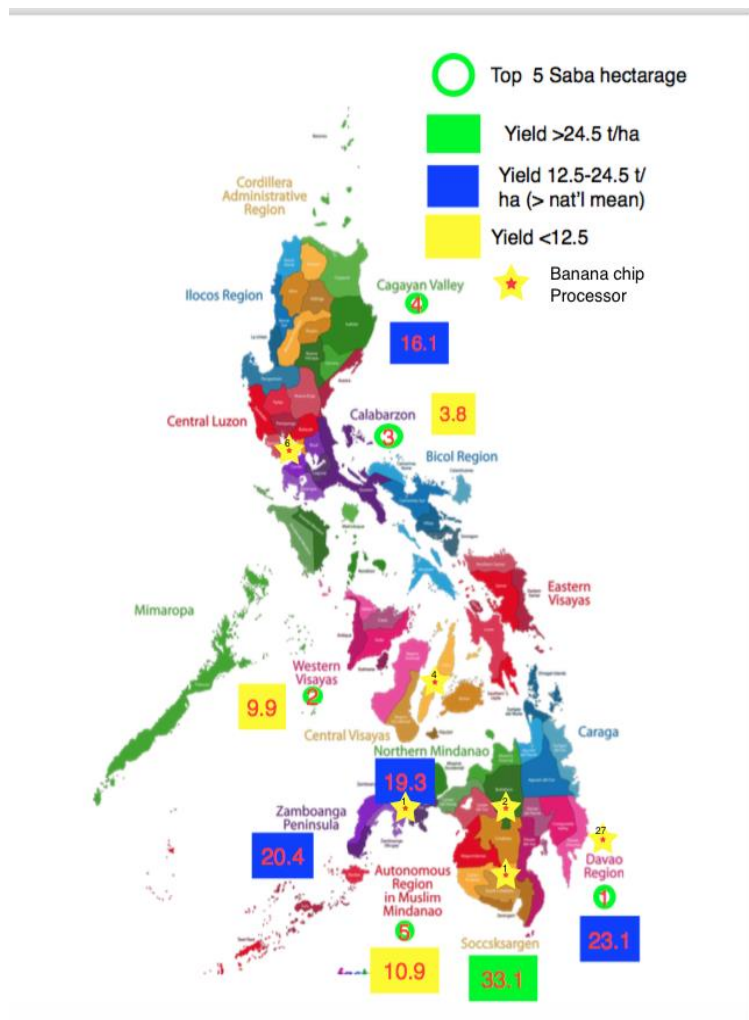


Fig.1. Yield (t/ha) of top five saba banana producing regions (ha) relative to location of banana processing centers.
(Source: *philippinesmap.facts.co*)

According to the Department of Agriculture, PhilGAP will be a basis for bilateral memorandum of agreement or mutual recognition arrangement with trading partners to increase Philippine exports (de la Cruz 2007). The criteria and experiences of national GAP implementation in Malaysia, the Philippines, Singapore, and Thailand and the relevant GAP systems and guidelines from other countries and regions, on the other hand, were the bases for the ASEANGAP which aimed at preventing the risks associated with production, harvesting, and post-harvest handling of fresh fruit and vegetables but also at facilitating trade within and beyond the region (Banzon et al. 2013) Revisions of PhilGAP are in the pipeline for alignment of produce quality, environmental management and workers health, safety and welfare modules with ASEANGAP.

For Organic Agriculture Certification, BAFS grants official accreditation to Organic

Certifying bodies (OCB) according to the Philippine National Standards (PNS) for Organic Agriculture (OA) and other relevant standards. Equivalence with the ASEAN Standard for OA (AOSOA) was achieved with the revision of PNS for OA (PNS/BAFS 07:2016). Philippine National practices and products standards are benchmarked against Global GAP and aligned with ASEAN GAP. Applicable PNS for banana are the following:

Code of good agricultural practices (GAP) for fruits and vegetable farming (PNS/BAFPS 49:2011 ICS 67.020) This standard code of practice covers the general hygienic practices for the production and primary processing of fresh fruits and vegetables that are field-grown with or without cover, or those grown under protected facilities and cultivated for human consumption, particularly those intended to be consumed raw.

Code of good agricultural practices (GAP) for banana production (PNS/BAFPS 129:2013 ICS 67.020) This standard provides specific guidance to ensure the minimization of microbiological, chemical and physical food safety risks associated with the production of banana intended for fresh consumption during production, harvesting, and post-harvest handling and distribution. Also included are practices aimed towards protection of workers' health and safeguarding their safety and welfare; and environmental management. Additional and specific guidelines for banana production are provided meant to be read in conjunction with of the Code of good agricultural practices (GAP) for fruits and vegetable farming, PNS/BAFPS 49:2011.

PNS –BAFPS 08-2004 for fresh fruit- Saba and Cardaba Banana- standard establishes a system of grading and classifying 'Saba' and 'Cardaba' type bananas grown from *Musa balbisiana* of the Musaceae family produced in the Philippines

PNS/BAFPS 64:2008 ICS 67.080. Fresh fruits-Banana standard establishes a system of classifying and grading banana (generally considered table banana) grown from *Musa* spp., of the Musaceae family, in the mature stage, to be supplied fresh to the consumer, after preparation and packaging. Banana intended for cooking only (plantains) or for industrial processing are excluded.

PNS/BFAD 14:2007 ICS 67.080 Recommended code of practice for the processing and handling of banana chips. This Code of Practice is concerned with the receipt of raw materials and ingredients, preparation and processing of banana chips products to conform with the required standards in *PNS/BFAD 13:2007 Standards for Banana Chips*. The product shall be prepared from banana fruit of *Musa* variety used for banana chips processing. This Code is intended to provide guidelines to achieve compliance with the standards for banana chips products packed in any suitable container.

ASEAN Standard for Banana (ASEAN Stan 12:2009, Rev.1-2012) benchmarked against Global GAP, these specifically excludes Banana intended for cooking only (plantains) or for industrial processing. There is a need to develop PNS standards specific for production of Saba banana (ABB) that is benchmarked against accepted International Standards.

Changing farmers existing practices to comply to requirements of the international market means saba banana production need to transform into a sustainable and profitable agribusiness

Majority of Saba/Cardaba farmers are small hold growers. Generally, given their traditional practices characterized by under management due to chronic neglect or 'organic by neglect', this sector is not yet prepositioned towards the government supported GAP certification programs- either hilGAP (issued by the Bureau of Plant Industry starting in 2017) or Organic Agriculture certification. The Bureau of Agriculture and Fisheries standards accredits private certifying bodies.

Whichever track the farmers would opt to go, the bottom line is, the yield and fruit quality on the production side need to improve and this can be attained only if the farmers shift from their

existing practices to technology-based good agricultural practices. GAP compliance or certification of the small hold growers is a good strategy to increase the competitiveness of their produce and to capture a bigger share of the increasing domestic market and eventually participate in the International trade to support the ASEAN Vision in 2020 by the ASEAN Economic Community 2015 “To create a stable, prosperous and high competitive, ASEAN Economic Region in which there is free flow of goods, services and investments, a freer flow of capital, equitable economic development and reduced poverty and socio-economic disparities..” Sixth ASEAN Summit, Ha Noi (December 1998)

Achieving more yield with better fruit quality that comply with the *PNS –BAFPS 08-2004 for fresh fruit- Saba and Cardaba Banana* will increase farmers’ income, reduce rejects at the processor side. Increase income and profit will encourage farmers to improve existing practices. So GAP compliance, if not certification yet, is needed to sustain the competitive advantage we have in the fresh fruit and chips export market, propel inclusive growth in the local banana industry sector and increase income and profit of smallhold farmers and their communities, elevating them from poverty and the increasing concern of malnutrition.

Beyond production, major challenges for future market growth appear to be associated with a coordinated approach to managing the field-to-market-supply chain, for both fresh and processed products (FAO, 2011). Saba/Cardaba (ABB) and other local banana cvs. flow of materials is still traditional, multi layered and inefficient (Fig. 2). Mindanao to Luzon Banana Commodity Flow, based on supply chain studies by the Post –Harvest Horticulture Training Center of the University of the Philippines Los Banos, for example, involves up to 10 key players, multiple handling of fruits; high risk for shippers and consignees due to high losses due to inefficient, sub-optimal conditions in bulk loading, inter-island and road transports (Artes et al., 2013). Improving efficiency of commodity flow would require increasing yield and quality of fruits in and around Luzon to minimize multiple handling and transport, and integration of farmers in the higher level of the supply chain through shorter or direct link of producers to processors

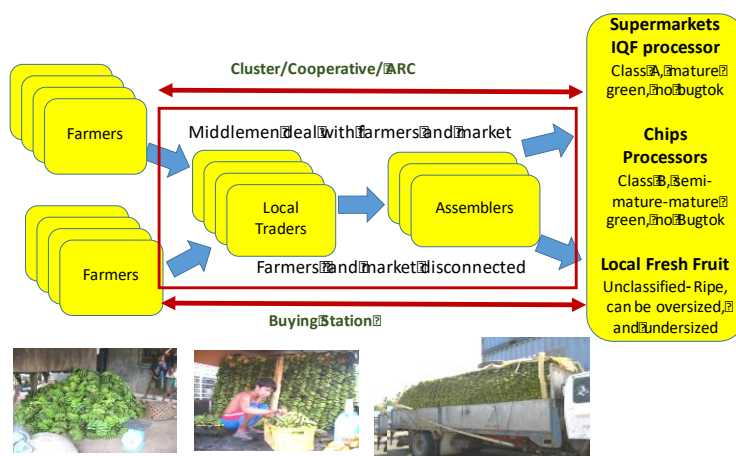


Fig. 2. Supply chain of Saba banana

Way forward - learning’s, technologies, government support program

Replicate and upscale successful models wherein farmers’ changed practices towards GAP alignment and integration into the banana value chain were effected. There are lessons to be learned and good strategies to adapt from previous projects such as the following:

The “good enough approach” (B-ACE project USAID and SDCAsia) of incremental

innovations and improved practices, effectively supported mobilization of public-private partnerships to upgrade initiatives in cardava production. Strategic Development Cooperation (SDC) Asia's "good enough", approach with incremental improvements in practices increased yield and profit, rather than attempting to achieve full GAP certification. Farmers' interest to learn and upgrade their practices was triggered by good prices and model farms with yields higher than the average (B-ACE 2007.) *Thus, incentives of equitable pricing for quality produce for increase farm productivity and income, is a strategy to convince farmers of the benefits of changing traditional practices and adopt new technologies.*

The DAR CRS Misamis Oriental Agroenterprise (Banana Cardava Marketing) 2014- Linking Agrarian Reform Beneficiaries to Corporate Supply Chain implemented in eight (8) agrarian reform areas in Luzon and Mindanao involved 800 Agrarian Reform Beneficiaries (ARBs) comprised of 4,000 farmers/ARB households. (<https://youtu.be/9dgd-pRi030>). The project utilized the eight steps in agro-enterprise clustering approach popularized by Catholic Relief Services (CRS) to increase the production and income of ARBs and their household through Agricultural Extension, Marketing Assistance, and Capacity-building. DAR funded the project and coordinated with the LGUs and other stakeholders. CRS provides the counterpart fund and spearheads the generation of support from the LGUs and stakeholders (DAR, 2014) Strengthened public - private sector partnership to integrate farmers in an efficient value chain while clustering and cooperative marketing was proven effective in integrating the farmers in the value-chain, thus contributing to inclusive growth.

IFC with Unifrutti Group provided extension services to banana farmers in its supply chain on new farming techniques, resulting in improved social and environmental practices. The farmers received Rainforest Alliance (RA) certification. Company benefited by commanding higher prices and farmers given premium price to encourage adoption of certification standards, which helped farmers to cover costs and increase their profit (IFC, 2014)

In the models above, the provision of technical support to farmers to do incremental changes towards GAP alignment and extension support by higher value chain player enabled the farmers to comply with international certification requirements that meet consumer needs for food quality, safety and nutrition. At present, PhilGAP standard is fully aligned with Food Safety Module however, government should also focus on strengthening the alignment of the remaining 3 modules: Produce Quality, Environmental Management and Workers Health Safety and Welfare. This is critical to sustaining competitiveness of saba/cardaba banana in existing markets and in penetrating new ones.

Participatory approaches, funded by government agencies Philippine Council for Agriculture, Aquatics, and Natural Resources Research and Development of the Department of Science and Technology (PCAARRD-DOST) and the Department of Agriculture, Bureau of Agricultural Research (DA-BAR) have proven effective in transforming traditional banana production to good agricultural practices, though sustainability after project phase-out is a concern.

In Infanta and Nakar, Quezon, a combination of academe-based technology development, farmer managed field adaptation trials and developing local capacities to have a cadre of technically competent staff of DA-MAO, farmer leaders and NGO's operating in the areas through training, technical support and farm cross-visits was implemented. The Local Government Units provided financial and technical support for scaling-up of project gains (Aguilar et al. 2007).

Projects promoting adoption of S&T based production technologies for local banana cultivars by PCAARRD-DOST using interpersonal (training, technical assistance and mentoring, farmer managed field trials, farmers field days and farm cross-visits) and mediated IEC (printed and audio-visual training guide, realistic and fantasy genre comics) in Cavite, Quezon and Mindoro Oriental (Aguilar, et. al. 2010). An action project implemented S&T based coconut-banana cropping

pattern in a total of 30 ha in Laguna, Bohol and Quezon. This model linked NGO facilitation of farmer organizations with the academe providing technical support for technology transfer. Immediate feedback and response to and from farmers and the academe resulted to adaptive management appropriate for the farmers' needs, skills and resources. Intercropping banana with coconut farmers' productivity and income and resilience to climate change

The DA-BAR, through its flagship programs—Community- based Participatory Action Research (CPAR) and National Technology Commercialization Program (NTCP), provided platforms to accelerate technology transfer and commercialization with successful implementation of projects on coconut-based farming systems (Lakatan+ pinakbet vegetables) in three LGUs (Magdalena, Liliw and Pagsanjan) in Laguna and Integrated Management of BTB and Bugtok diseases of Saba banana in an LGU (Macalelon) in Quezon (DA, 2014).

CONCLUSION AND RECOMMENDATIONS

Realizing the optimistic potential of the smallhold local banana sector to increase supply of quality products to meet the growing demand of both fresh and processing markets need a transformation of these farms into viable agribusiness that is profitable, resilient, competitive, and sustainable. These objectives are interconnected and has to be considered holistically. While there are available technologies to improve and align traditional practices towards GAP, climatic disturbances, uncertainties and extremes that recurrently devastate banana farms constrain farmers from investing their limited resources in S&T based production system. Thus, improving farmers' resilience to a changing climate by diversification of livelihood sources is key to encourage farmers to invest in system innovations and new technologies. Capacity building and materials' support to intensify and diversify production and income sources to build assets and increase agrobiodiversity, conduct of Farmer Field School trainings that integrate early warning and farm advisories using localized weather forecast for adaptive management, risk transfer mechanisms such as crop insurance, immediate support to farm rehabilitation after a devastating typhoon are examples of interventions that help build farmers' resilience. Cooperative support, increased income, biodiverse and clean environment will support good nutrition and health of the farm family and community contributing further to the continuous improvement and sustainability of their farm production system. High efficiency and productivity, through clustering of farms for cost-effective inputs procurement and technical support, assurance of food safety (as increasingly being demanded by buyers) using already available GAP compatible technologies, and collective marketing will improve competitiveness. When ready, target PhilGAP certification for clustered/organized farmer groups. Sustained Government support to infrastructures, demand driven R&D and quick and effective technology dissemination. The proposed Banana Research Center should have a dedicated program to support local banana cvs.

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