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Item No.: 15
Date: 05 2024 JAN

Republic of the Philippines
PROVINCE OF LEYTE
Palo, Leyte

Province of Leyte
Legal Office
Received by:
Time: 9:10
Date: 12.18.23

PROVINCIAL LEGAL OFFICE

SANGGUNIANG PANLALAWIGAN
DEC 13 2023
PROVINCE OF LEYTE

2nd INDORSEMENT
December 12, 2023

Respectfully returned to the Sangguniang Panlalawigan of Leyte, through the SP Secretary, the attached amended Ordinance No. 13, S. 2023 of the Sangguniang Bayan of Baybay, Leyte, recommending for the declaration of its validity, pursuant to its power under Section 56 (C) of R.A. 7160, to the opinion of the Provincial Legal Office (PLO), a valid exercise of authority mandated under Section 17 (b)(2)(i)(ii)[i] of the Local Government Code.

ATTY. JOSE RAYMUND A. ACOL
Asst. Provincial Legal Officer

[i] (i) Extension and on-site research services and facilities related to agriculture and fishery activities which include dispersal of livestock and poultry, fingerlings, and other seedling materials for aquaculture; palay, corn, and vegetable seed farms; medicinal plant gardens; fruit tree, coconut, and other kinds of seedling nurseries; demonstration farms; quality control of copra and improvement and development of local distribution channels, preferably through cooperatives; interbarangay irrigation system; water and soil resource utilization and conservation projects; and enforcement of fishery laws in municipal waters including the conservation of mangroves;
(ii) Pursuant to national policies and subject to supervision, control and review of the DENR, implementation of community-based forestry projects which include integrated social forestry programs and similar projects; management and control of communal forests with an area not exceeding fifty (50) square kilometers; establishment of tree parks, greenbelts, and similar forest development projects;

Republic of the Philippines
PROVINCE OF LEYTE
Palo, Leyte

OFFICE OF THE SANGGUNIANG PANLALAWIGAN

Province of Leyte
Legal Office
Received:
Time:
Date: 12-7-23

1ST INDORSEMENT
07 December 2023

The Provincial Legal Office is respectfully requested to review and submit recommendations on the herein enclosed **CITY ORDINANCE NO. 13, S. 2023** of the **CITY OF BAYBAY, LEYTE,** entitled: **AN ORDINANCE PROMOTING ORGANIC AGRICULTURE AND GOOD AGRICULTURAL PRACTICES IN BAYBAY CITY, LEYTE OF 2023 AND FOR OTHER PURPOSES.**

FLORINDA JILL S. UYVICO
Secretary to the Sanggunian

Republic of the Philippines
PROVINCE OF LEYTE
City of Baybay
-oooOooo-
Office of the Sangguniang Panlungsod

Telefax No. (+63-53)335-4808/563-9009 2nd Floor, Legislative Bldg., Magsaysay Ave., Baybay City, Leyte 6521 @ sangguniangpanlungsod@gmail.com

November 30, 2023

SANGGUNIANG PANLALAWIGAN
DEC 07 2023
RECEIVED
PROVINCE OF LEYTE

The Sangguniang Panlalawigan
Province of Leyte
Tacloban City

Sir/Madam

I am pleased to transmit herewith the Soft and Hard copies of City Ordinance No. 13 S. 2023 of the Sangguniang Panlungsod of Baybay City:

It is hoped that said Ordinance is in order and therefore, merits your kind consideration.

Thank you very much.

ATTY. VIVIAN E. VIDALLON
SP Secretary

Incl.: as stated

6th SANGGUNIANG PANLUNGSOD

CITY ORDINANCE NO. 13, SERIES. 2023
39TH Regular Session

AN ORDINANCE PROMOTING ORGANIC AGRICULTURE AND GOOD AGRICULTURAL PRACTICES IN BAYBAY CITY, LEYTE OF 2023 AND FOR OTHER PURPOSES.

Sponsored by SP Members Romulo B. Alcala, Philip Siu, Ramon Ronald J. Veloso, and Simoune Astorga

*Authored by **SP Member Jose L. Bacusmo***

PREFATORY STATEMENT

WHEREAS, Section 15, Article II of the 1987 Philippine Constitution declares that the State shall protect and promote the right to health of the people and instill health consciousness among them;

WHEREAS, organic agriculture (OA) cumulatively condition and enrich the fertility of the soil, reduce pollution and destruction of the environment, prevent the depletion of natural resources, protect the health of farmers, consumers, and the general public, save on imported farm inputs and promote food self-sufficiency;

WHEREAS, good agricultural practices (GAP) are collection of principles applied to on-farm production and post- production processes, resulting in safe and healthy food and non-food agricultural products, while taking into account economic, social and environmental sustainability;

WHEREAS, promoting both OA and GAP, without excluding other productive and beneficial agricultural novel technologies, is beneficial to the consuming public of Baybay City, Leyte;

WHEREFORE, on a motion of SP Member JOSE L. BACUSMO and seconded unanimously;

BE IT RESOLVED AS IT IS RESOLVED, to pass and enact an ordinance in this chamber on October 19, 2023 at the City of Baybay, Leyte known as:

TITLE: "AN ORDINANCE PROMOTING ORGANIC AGRICULTURE AND GOOD AGRICULTURAL PRACTICES IN BAYBAY CITY, LEYTE OF 2023."

ROMULO B. ALCALA, SP Member
SIMOUNE L. ASTORGA, SP Member
DR. FULTON JOE C. ARRADAZA, SP Member
JOSE L. BACUSMO, SP Member
FLEMON F. AVILA, SP Member
CARMEN L. CARI, SP Member
RAMON RONALD J. VELOSO, SP Member
ATTY. JOSE ROMMEL A. PEÑARANDA, SP Member
DOMINIC JOHN F. MURILLO, SP Member
JORGE V. REBUCAS, SP Member
PHILIP L. SIU, President, LIGA ng mga Barangay, Ex-Officio SPM
MARK MICHAEL O. UNLU-CAY, SK Chair, City Federation, Ex-Officio SPM

SECTION I. DEFINITION OF TERMS

As used in this Ordinance, the terms below shall mean the following:

a. ***Organic Agriculture*** – includes all agricultural systems that promote ecologically sound, socially acceptable, economically viable and technically feasible production of food and fibers. Organic agriculture dramatically reduces external inputs by refraining from use of chemical fertilizers, pesticides and pharmaceuticals. It also covers areas such as, but not limited to, soil fertility management and other cultural practices that are consistent with the principles and policies of RA 10068, as amended by RA 11511, and enhance productivity without destroying the soil and harming farmers, consumers and the environment as defined by the International Federation of Organic Agriculture Movements (IFOAM);

b. ***Good Agricultural Practices*** - Good Agricultural Practices (GAP) is a set of consolidated safety and quality standards for on-farm fruit and vegetable production to provide safe products to the consumers. The focus is to reduce microbial and pesticide contamination while protecting the environment and well-being of the farm workers.

c. ***Accreditation*** - is the procedure by which a government agency having jurisdiction formally recognizes the competence of an inspection and/or certification body to provide inspection and certification services;

d. ***Certification*** - is the procedure by which official certification bodies or officially recognized certification bodies provide written or equivalent assurance that foods or food control systems conform to requirements;

e. ***Participatory Guarantee System (PGS)*** – refers to a locally-focused quality assurance system which is developed and practiced by people actually engaged in organic agriculture and Good Agricultural practices. It is built on a foundation of trust, local surveillance and monitoring, social network, and knowledge exchange, and used to certify producers and farmers as actual and active practitioners of organic agriculture and good agricultural practices;

f. ***PGS group*** - refers to a legal association or cooperative of city officials, technical staff from the city agriculture office and universities, registered farmer members and other stakeholders in a participatory guarantee system;

SECTION II. PROMOTION OF ORGANIC AGRICULTURE AND GOOD AGRICULTURAL PRACTICES ON FRUITS AND VEGETABLES

Towards this end, the City of Baybay, Leyte shall:

a. Develop a participatory guarantee system (PGS) for good agricultural practices (GAP) for fruits and vegetables and implement the PGS for OA in accordance with the provisions of Republic Act 11511;

b. Support the extension activities including the conduct of training and seminars on OA and GAP;

c. Provide assistance in the OA and GAP in the production of fruits and vegetables which may include:
   1) Production inputs such as seeds/seedlings and fertilizers (organic or inorganic)
   2) Small farm tools, equipment and supplies
   3) Subsidies in farm operation

ROMULO B. ALCALA, SP Member
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JORGE V. REBUCAS, SP Member
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MARK MICHAEL O. DULU-CAY, SK Chair, City Federation, Ex-Officio SPM

d. Provide assistance in the marketing of vegetables and fruits grown through OA and GAP which may include:
   1) Establishment of trading post or allocation of selling area
   2) Conduct of and/or support for participations in trade fairs and market matching activities
   3) Provision of shared post-harvest and processing facility (packing plant), equipment and supplies
   4) Regulate the branding of produce with OA and GAP indications
   5) Establish a digital market information system
   6) Facilitate marketing arrangements with institutional buyers

e. Support the documentations and certification of farms in Baybay for OA and GAP.

f. Support livelihood programs that serve as business integrators of OA and GAP farms such as producing and supplying organic inputs, providing farm services, as well as consolidating and marketing the produce of OA and GAP farms.

g. Support a city-wide educational and awareness campaign among consumers on the benefits of consuming organic and GAP-certified produce and products.

SECTION III. CREATION OF THE BAYBAY CITY SUSTAINABLE AGRICULTURE COORDINATING COMMITTEE

The City shall organize the Baybay City Sustainable Agriculture Coordinating Committee which shall oversee the implementation of policies, plans and programs towards the promotion of Organic Agriculture and Good Agricultural Practices in the City.

The City of Baybay Sustainable Agriculture Coordinating Committee shall be composed of the following:

a. The Local Chief Executive;
b. City Agriculturist;
c. Chairman of Sanggunian Panlungsod Agriculture Committee;
d. Three representative from small farmer associations representing crops, livestock and fisheries, and preferably with OA and GAP-certified/ponds farms;
e. Representative from the agribusiness sector;
f. Representative from civil society organizations dealing with agriculture;
g. Sangguniang Kabataan representative;
h. ABC President
i. Representative from consumer groups; and
j. One representative from the academe with focus on Agriculture.

The City Mayor shall be the Chairperson of the Baybay City Sustainable Agriculture Coordinating Committee. The City Agriculturist shall serve as vice-chairperson.

SECTION IV. Functions of the City of Baybay OA and GAP Committee

1. Form a technical working group to develop a Participatory Guarantee System (PGS) for GAP in Baybay using the scalable GAP introduced by ACIAR with the end view of having the GAP farms of Baybay accredited by the proper national body.
2. Support the formation of PGS groups for OA and GAP.
3. Support technically and financially the promotion of OA and GAP as well as the implementation of PGS for OA & GAP in the City.

ROMULO B. ALCALA SP Member
SIMOUNE L. ASTORGA SP Member
Dr. FULTON KE C. ARRADAZA SP Member
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PHILIP L. SIU President, LIGA ng mga Barangay Ex-Officio SPM
MARK MICHAEL O. UNLU-CAY SK Chair, City Federation Ex-Officio SPM

4. Review and approve the organic agriculture and GAP plans and programs of the city.
5. Monitor and evaluate the implementation of the OA and GAP programs of the city.

SECTION V. SEPARABILITY CLAUSE - If by any reason(s), any provision in this ordinance is declared unconstitutional and or illegal, the remaining portion of this ordinance shall not be affected, and therefore, remain in full force and effect;

SECTION VI. REPEALING CLAUSE - local ordinances, orders, rules and regulations, that are inconsistent with this ordinance, are hereby repealed, modified or amended accordingly;

SECTION VII. EFFECTIVITY CLAUSE - This Ordinance shall take effect 15 days upon its approval by the Sangguniang Panlalawigan and after due compliance with all the requirements as provided for under R.A. 7160, otherwise known as the Local Government Code of 1991.

Enacted: October 19, 2023
Baybay City, Leyte, Philippines.

CARRIED BY ALL OF THE MEMBERS PRESENT:

ROMULO B. ALCALA (zoom)
SP Member

SIMOUNE L. ASTORGA
SP Member

DR. FULTON IKE C. ARRADAZA
SP Member

JOSE L. BACUSMO
SP Member

FILEMON F. AVILA
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President, LIGA Ng Mga Barangay
Ex-Officio SPM

MARK MICHAEL O. UNLU-CAY
SK Chair, City Federation
Ex-Officio SPM

RESOLVED FURTHER, that certified copies of this ORDINANCE be furnished to the City Mayor Honorable Jose Carlos L. Cari, City Administrator Florante Cayunda Jr.; City Legal Officer, Atty. Avito C. Cahig, Jr.; City Budget Officer, Raul Mabini; City Accountant Jay Ryan Austero; City Treasurer Alberta A. Manatad, CLGOO Juvy C. Pedrera, and to all other offices/agencies/entities concerned for their information, guidance and appropriate action.

I HEREBY CERTIFY to the correctness of the foregoing Ordinance.

ATTY. VIVIAN C. ENARIO-VIDALLON
SP Secretary

Attested & Certified True & Correct:

ATTY. ERNESTO M. BUTAWAN
City Vice Mayor, Presiding Officer

Approved by His Honor:

ENGR. JOSE CARLOS L. CARI
City Mayor

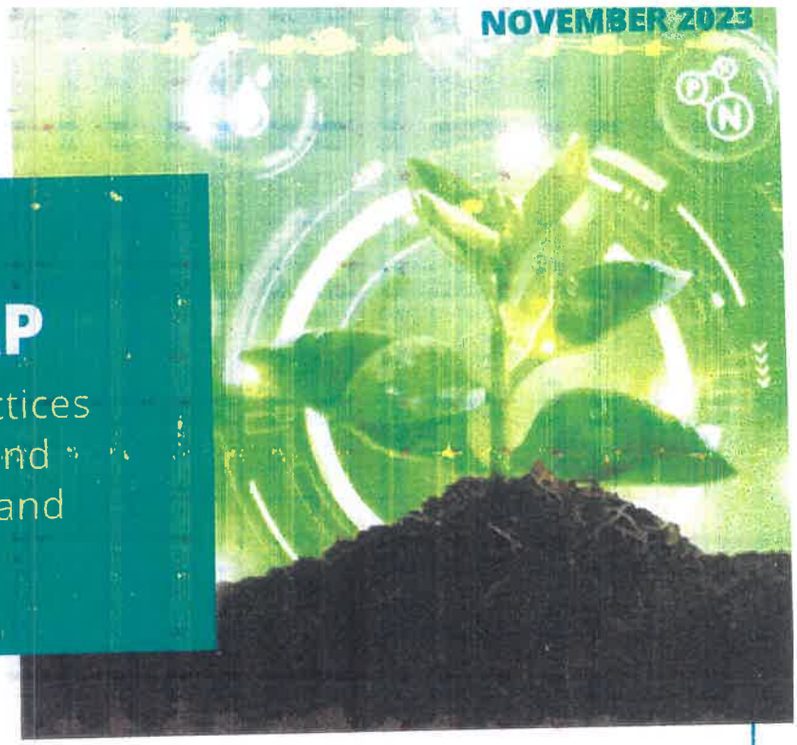
Date Approved: 11-29-23

NOVEMBER 2023

POLICY BRIEF:

BRIDGING THE GAP

Advancing Good Agricultural Practices (PhilGAP) for the Safety, Health, and Prosperity of Vegetable Farmers and Consumers in the Baybay Region



Mainstreaming Good Agricultural Practices (PhilGAP) is poised to become a cornerstone for comprehensive agricultural development in Baybay City, Leyte. Advancing PhilGAP in the region elevates food and environmental safety standards, while potentially boosting farmers' incomes. By integrating elements such as close monitoring, community engagement, infrastructure development, and market access, the proposed policy aligns with the Food Safety Act of 2013 in fostering a safer food system, healthier communities, and a more sustainable environment.

WHAT IS PHILGAP?

PhilGAP stands for **Philippine Good Agricultural Practices**. It is a certification program that aims to ensure food safety and quality of agricultural products while keeping high regard on environmental protection and workers' health, safety, and welfare. The program is being promoted and facilitated by the **Department of Agriculture's Regulatory Division**. Certification is awarded to farmers who follow the guidelines set by the program in their farming and food safety practices. Training to smallholder farmers to help them move towards PhilGAP certification for their farming and food safety practices is provided by the DA, LGUs, and Universities.

BACKGROUND & CHALLENGES

Food Safety & Community Health

Food safety extends from seed to table and is the assurance that food will not cause harm to the consumer when it is prepared and eaten according to its intended use (DA-BPI 1980). At the same time, the lack of fresh fruit and vegetable consumption has been linked to malnutrition, obesity, and chronic diseases. In the absence of accessible, clean, and affordable fruits and vegetables aggravates community health concerns.

- The WHO reports that about one in ten people fell ill in 2020 after consuming contaminated food (2021).
- In the Philippines, there were 209 foodborne disease outbreaks (FBDOs) from 13,577 recorded morbidity cases between 2005 and 2018 (Azanza, Membrebe et al. 2019).

The table below (Absulio-Morales 2023) shows food safety hazards reported in the Philippines fruits and vegetables.

Foodborne Disease Outbreaks (FBDO) is as an occurrence in which at least two persons experience a similar illness resulting from the ingestion of a common food (CDC 1996).

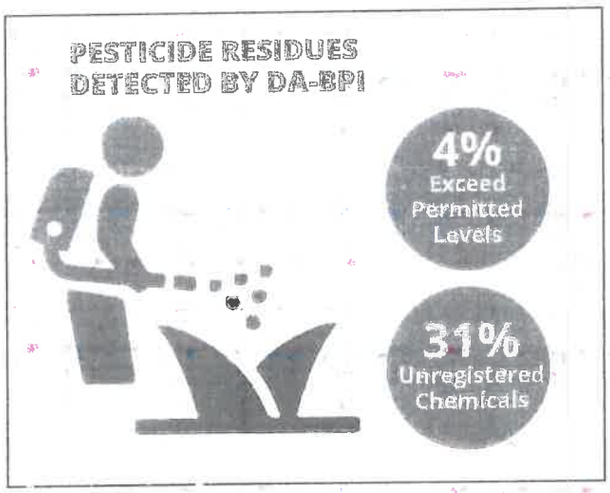
REPORTED FOOD SAFETY HAZARDS IN FRUITS AND VEGETABLES IN THE PHILIPPINES

FOOD SAFETY HAZARD	COMMODITY
Chemical: Pesticide residues (pyrethroid, carbamate, organophosphate)	Bittergourd, Eggplant, Tomato, Celery, Chinese cabbage, Pechay, Lettuce, Commercial fresh green salad, Yardlong bean, Snap bean, Cabbage, Broccoli, Cauliflower, Mango
Chemical: Heavy metal (lead, cadmium, mercury)	Water spinach
Biological: Pathogenic microorganisms	Banana, Mungbean sprouts, Bell pepper, Carrot, Cabbage, Lettuce, Tomato, Pechay, Chinese cabbage, Fresh-cut fruits
Biological: Naturally occurring	Banana, coffee, corm, peanut, sorghum, soybesn, gabi, cassava

Sources: Alexander, 2005; Balendres et al, 2019; Baysa et al, 2006; Lu, 2011; Nuevo et al, 2019; Nuevo et al, 2015; Lu, 2014; Perez et al, 2015; Cubelo et al, 2021; Manuben et al, 2022; Alvindia et al, 2000; Gabriel et al, 2007; Vital et al, 2014; Sia Su et al, 2011; Mathay, 2018; Vizon et al, 2019; Sacdal et al, 2021

Concerns over pesticide residues also deter produce consumption, evidence by recent findings from the Department of Agriculture:

- Analysis of pesticide residues on popular market vegetable (DA-BPI 2022) show that:
  - 4% contained residues above permitted levels,
  - 31% contained residues from unregistered chemicals.



Farmer Health

Farmers' well-being is compromised by pesticide use, harsh labor, climate change, and poor financial conditions. Remote locations make healthcare access difficult. The elevation of health and safety standards is urgently required to halt the decline in both the physical and mental well-being of farmers. Further exacerbating the issue is the remote location of many farming communities, which hinders access to essential healthcare services.

Environmental and Human Health Impact

Agriculture has a substantial environmental footprint operating at the interface between society and natural resources (soil, water, forests). Protection of natural resources will guard society from food related illness and support food security.

- Water is a critical input in fresh fruit and vegetable production and is used for pesticide and fertilizer application, irrigation, postharvest operations, and sanitation. Preliminary results from irrigation water quality tests in the Baybay region show the presence of high E.coli counts after significant rain events which may indicate fecal matter, organic fertilizer (manure and sewage sludge), and decaying vegetables that flow from surrounding land into the water ways and subsequently into the food production system (VSU 2023).
- Soil can contain pollutants that find ways to enter the food system and threaten human health. An example is from Marinduque island, known for farming and it faces a temporary fresh vegetable consumption reduction recommendation because of high levels of heavy metals detected in vegetables collected from public markets due to heavy metal soil contamination (DA 2020).

Economic Challenges

Smallholder farmers often face financial constraints that can impede their ability to invest in the infrastructure and equipment required to implement sustainable farming practices like PhilGAP. In addition, smallholder farmers are vulnerable to financial instability due to the destructive impacts of natural disasters and inclement weather on

their food production. Furthermore, smallholder farmers may not have access to the same markets as larger producers, which can limit their ability to sell their products at a premium price. To address these challenges, it is essential to provide smallholder farmers with adequate financial support and resources.

Slow Take-up of PhilGAP

Despite over a decade of efforts to promote Philippine Good Agricultural Practices (PhilGAP), adoption rates remain low due to challenges in knowledge, cost, procedural complexities, and insufficient rewards or incentives. Government support, especially from Local Government Units (LGUs), is vital for breaking these barriers, as they directly interact with farmers and can efficiently disseminate crucial information and resources.

Further boosting PhilGAP adoption necessitates a multi-stakeholder approach. Non-governmental organizations, export markets, and the private sector contribute by implementing good management practices and fostering a sustainability-focused corporate culture. Collaborative efforts among these entities can help realize PhilGAP's goal of nationwide sustainable, safe, and profitable agriculture.

POLICY STRATEGIES & SOLUTIONS

The Baybay City Council can support local farmers transition into the PhilGAP system through the following recommendations:

Recommendation 1: Provide a minimum of Php40,000 financial assistance in the form of material procurement to an individual farmer during their transition toward PhilGAP certification.

- **Rationale:** Low crop yields keep farmers' incomes small, preventing them from providing collateral to a financial institution so they can receive a loan, purchase inputs and transition from subsistence farming to PhilGAP farming that provides positive outcomes for worker health, environment, and safe production of food. Incentives that alleviate financial costs towards PhilGAP are more likely to lead to the adoption of better practices under PhilGAP, especially if they are voluntary.
- **Evidence:** Smallholder farmers lack access to financial services, farming inputs, agricultural training, and fair crop markets, which prevent them from optimizing their productivity and increase their earnings (Opportunity International 2023). Several studies suggest that financial support can be used to improve production practices for smallholder farmers that deliver positive outcomes (health, climate, environment) and increase resilience (Palmer 2023).

Recommendation 2: Increasing the number of Agriculture Extension Workers (AEW) dedicated to PhilGAP to support farmer training and transition to PhilGAP certification.

- **Rationale:** AEWs provide valuable information, skills, and support to farmers who face various challenges and constraints in their transition to PhilGAP To maximize the investment, it is important the AEWs are well-trained, well-equipped, well-supervised, and well-incentivized to use participatory and demand-driven approaches tailored to local farmer needs. These AEWs can help farmers to access training, inputs, technologies, markets, credit, coordinate with other stakeholders and other services that can support their PhilGAP transition and improve quality and quantity of produce, worker health, and the environment.
- **Evidence:** A meta-analysis of 292 studies from 31 countries found that extension services had an average impact of 17.6% on crop yields and 13.5% on farmer incomes. Specific studies on farmer participation in agriculture extension programs show crop yields increase by 29% and income by 34% (Buehren, Goldstein et al. 2018, Danso-Abbea, Ehiakpor et al. 2018)

Recommendation 3: Sustainable cold chain solutions that use renewable energy sources, energy-efficient equipment, natural refrigerants, and smart management systems.

- **Rationale:** Cool chains help reduce food loss and waste by preserving the safety and quality of food; however, conventional cold chain technologies are energy intensive and harm the environment and climate. This is a recommendation of public good for the Baybay City government to carefully design a cool chain investment that can help farmers increase their productivity, profitability, and market access; and also improve the health of the Baybay community without harming the environment.
- **Evidence:** Cool chains can improve food security and nutrition, especially for people who cannot afford a healthy diet. Studies show that farmers and value chain actors experience at least a 15% reduction in income due to post-harvest food losses (UNEP 2022). Cold storage can enable year-round access to nutritious food, reduce postharvest losses, and improve profit margins for farmers (Ekka 2020).

Recommendation 4: Financial support for PhilGAP Farmer Field Schools (FFS). The FFS is comprised of 14 stepwise training sessions (once/week half day) over one cropping season (3 months) provided by 2 AEWs to a group of farmers (25 pax). One three month FFS costs Php100,000.

- **Rationale:** Farmer Field Schools (FFS) are a participatory approach to agricultural extension that aims to educate farmers on PhilGAP and improve their farm management, skills and practices to become PhilGAP certified by the DA-BPI. To be successful, an FFS requires appropriately trained AEW facilitators. Training includes farmer record keeping that is an essential component of traceability.
- **Evidence:** FFS can enhance the Capitals of rural communities (Human, Social, Financial, Physical, Natural) (van den Berg, Phillips et al. 2020). Studies have shown FFS to successfully reduce food loss and waste (Waddington and White 2023) , and contribute to the reduction of poverty, improvement in production, income, food security, and the health and well-being of farmers (Davis, Nkonya et al. 2012) and adapt to sustainable natural resource practices (LWD 2008).

Recommendation 5: Promotion and awareness strategies for PhilGAP that target farmers to obtain certification (push strategy); and the general public on the benefits of PhilGAP (pull strategy).

- **Rationale:** Farmer adoption and community awareness of PhilGAP will improve food security, reduce food loss and waste, create jobs and income opportunities, improve natural resource management, and improve the health and well-being of farmers and the community of Baybay. Promotion strategies include the use of media (radio, social media), posters, store banners, and awards i.e., VSU PhilGAP farmer award. The DA-ATI currently undertakes PhilGAP promotion with farmers through their PhilGAP training.
- **Evidence:** PhilGAP reduces food loss and waste, keeps food safe nutritious and safe, and can enhance the availability and affordability of diverse high-quality food products. A sustainable agriculture sector is essential to underpin the long-term health and prosperity of the country (Mailler 2020).

Recommendation 5: Market monitoring that will help farmers make informed decisions on selling their produce.

- **Rationale:** Market monitoring is an essential tool for smallholder farmers to make decisions about their produce. Knowledge of current produce prices and by tracking market trends, farmers can adjust their production and pricing strategies to maximize profits and minimize losses. Through market monitoring, farmers can make informed decisions about their crops and stay competitive in the local and global marketplace. Pesticide residues, water and soil quality, microbial and heavy metal contaminations, are food safety data that is expensive to monitor but should be collected periodically through a national scheme that Baybay City can support and disseminate information. Currently, Eastern Visayas State University is developing a digital prototype for online market monitoring that could be trialed by Baybay City.
- **Evidence:** Farmer access to market information can help them make informed decisions about the crops to grow, when to harvest, how much to charge, and identify opportunities for growth, challenges, and potential risks (Brown, De Costa et al. 2020).

Recommendation 6.1: Support to the DA-BPI and DA-AMAD for access to domestic and international markets for Baybay City area products.

Recommendation 6.2: Creation of an exclusive area for PhilGAP certified farmers to sell their produce within the Baybay City public markets.

- **Rationale:** New market access can help increase the demand for fresh produce which can lead to increased revenue for farmers and the Baybay City economy. New markets can also help improve the quality of fresh produce by encouraging farmers to adopt PhilGAP technologies and standards that are accepted in the international markets
- **Evidence:** Government support for farmers to access new domestic and international markets will support economic growth and ongoing prosperity for the region. It will increase the number of local full-time secure jobs supported by the food sector, drive productivity growth and innovation, and secure access to affordable fresh produce through increased production and efficiency gains (AFPA 2022)

Recommendation 7: Support for the current proposed Ordinance (Organic & GAP) to encourage farmers to collaborate in a PhilGAP production and marketing cluster

- **Rationale:** Agricultural clusters are geographic concentrations of interconnected smallholder farmers who collaborate in production and/or marketing of the same produce in the same supply chains. A cluster can benefit smallholders through increased profits by encouraging innovation, reducing costs, sharing risks and increasing production (Oakeshott 2018).
- **Evidence:** A number of studies have shown agricultural clusters and Participatory Guarantee Schemes, where buyers partner with farmers for quality and quantity of PhilGAP products, can contribute to the improvement of regional socio-economic conditions (UNDESA 2021)

CONCLUSION

The success of any agricultural policy relies on its multifaceted nature, and this PhilGAP strategy is no different. By integrating food safety, farmer income, environmental sustainability, and public health, this policy aims to contribute significantly to the agricultural landscape in the Baybay region. A concerted effort from local governments, communities, and other stakeholders is essential for the successful implementation of this policy. When effectively deployed, PhilGAP can act as a catalyst for a healthier, more environmentally responsible, and economically vibrant agricultural sector in the Philippines.

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Australian Government
Australian Centre for International Agricultural Research

Developing vegetable value chains to meet evolving market expectations

(HORT/2016/188)

End of project review
Component 3:Food safety

Background

Overview of the Component:

The Food Safety Component assesses the microbial and chemical challenges from production up to postharvest handling by collection of irrigation water, soil, and crop samples from farms in Ormoc, Baybay, and Mahaplag, Leyte. Several trials were also conducted in determining and assessing food safety risks and controls in production and retail chains of vegetable produce both in the Philippines and Australia.

In many cases farmers are not trained in the appropriate use of pesticides for control measures and other on-farm production risks. Helping farmers for Good Agricultural Practices (GAP) certification would not only perceive produce safe and of good quality but also attract market linkages.

Research questions

- What is the nature and extent of vegetable food safety in the Philippines, including food safety risk points in current vegetable value chains?
- What are the factors that increase/decrease the food safety risks from production up to postharvest of produce?

Approach taken

Microbial analysis on irrigation water, soil, and crops on farms and retail

Sampling


Soil


Water



Sampling on retail markets

Microbial analysis of water


Colitag solution


5-tube 3-dilution MPN

Microbial analysis of crop and soil


Sample preparation


Homogenize


Plating

Approach taken

Conduct of different trials and surveys

Manure trials

Washing trials

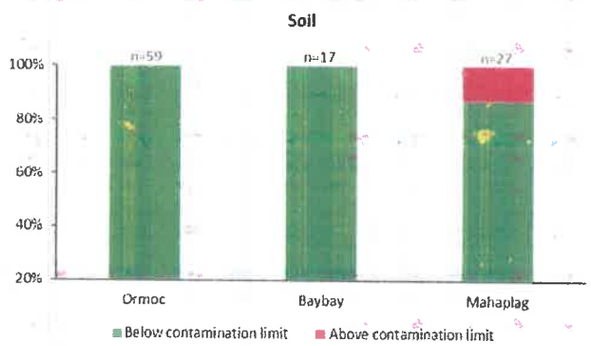
Concoctions

Farm and retail surveys

Key findings

Summary of soil microbial result from different pilot farms

- Soil samples in most farms in different site locations are generally safe of *E. coli* as an indicator of fecal contamination.

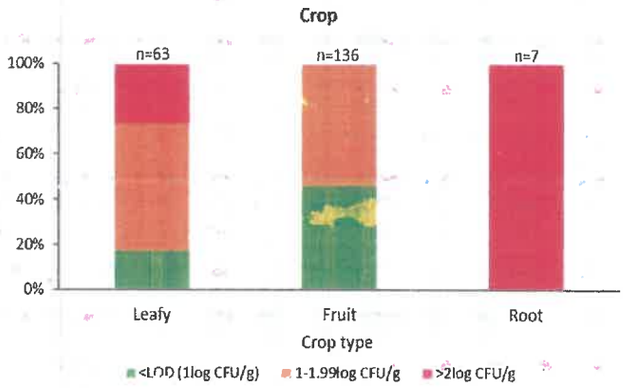


N= 107; Above contamination limit= 4; Below contamination limit= 103
Contamination limit of soil: $<10^2$ cfu/g

Key findings

Summary of crop microbial result from different pilot farms

- Fruit type vegetables are generally satisfactory (e.g tomato, sweet pepper, eggplant, bottle gourd, green chili)
- Leafy greens (e.g. lettuce, chinese cabbage, water spinach) are unsatisfactory
- Vegetables grown close to the ground are susceptible to contamination

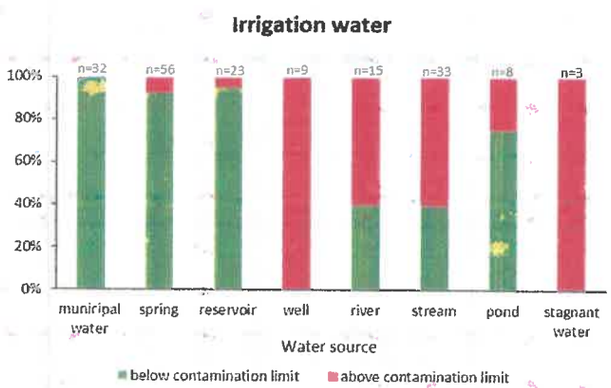


N= 206; Satisfactory= 74; Marginal= 108; Unsatisfactory= 24

Key findings

Summary of irrigation microbial result from different pilot farms

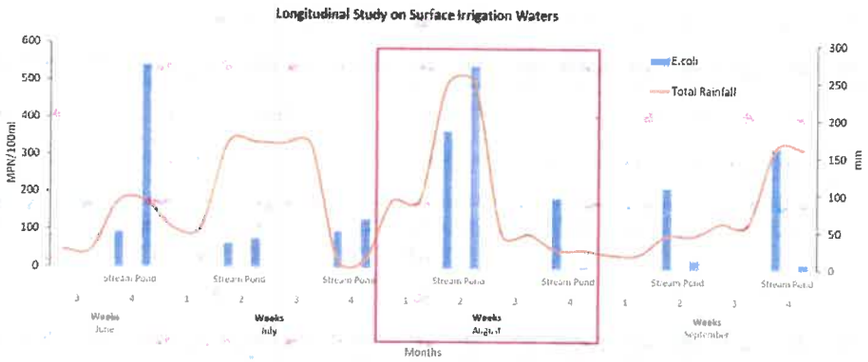
- Municipal/town water generally below detection limit
- Surface waters like rivers, streams, and stagnant water are sources contributing to the above the contamination limit in Baybay and Mahaplag



N= 179; Above contamination limit= 48; Below contamination limit= 131
Preharvest water: above contamination limit ≤ 235 MPN/100mL; below contamination limit <2 MPN/100mL

Key findings

- Increased in microbial contamination, especially in surface waters, are affected by increased rainfall or during heavy rains.
- Spring water and reservoir source are constantly have low *E. coli* counts.

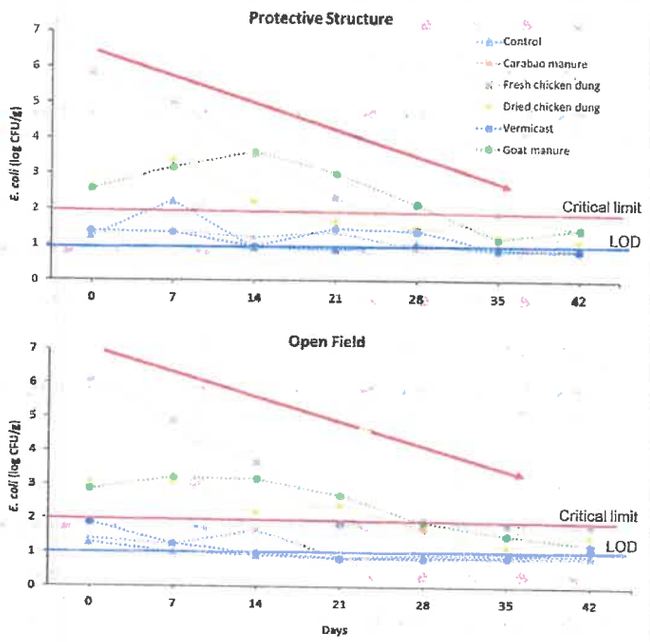


Limit of detection of MPN Plate LOD <2 to 1,600 MPN/100 mL; <2 MPN/100mL means no detection in all 15 wells at 95% confidence limit. Contamination limit of *E. coli* in pre-harvest water: ≤ 235 MPN/100mL; Contamination limit of post-harvest water: Generic *E. coli* negative or below DL/100mL

Key findings

Die-off rates of *E. coli* on manure-amended soils planted with lettuce in open field and protective structure

- Fresh chicken dung had the highest microbial count at Day 0 (prior to transplanting)
- *E. coli* contamination of soil and crop was within marginal limits after 30 days or during harvest
- Different cultivation system has no difference in terms of microbial contamination in the soil
- Harvested lettuce had no detection of *E. coli* coinciding with the decrease of microbial load in the soil during harvest



Key findings

Microbial assessment of different concoctions

List of concoctions:

1. Fermented Fruit Juice (FFJ)
2. Fermented Plant Juice (FPJ)
3. Indigenous Microorganism 2 (IMO2)
4. Lactic Acid Bacteria Serum (LABS)
5. Fish Amino Acid (FAA)
6. Indigenous Calcium (IC)
7. Calcium Phosphate (CALPHOS)
8. Oriental Herbal Nutrient (OHN)
9. Natural Insect Repellant (NIR)
10. Natural Insect Attractant

- The increase of lactic acid bacteria (LAB) lowers the pH thus eliminating the *E. coli* and *Salmonella* after fermentation

Table 1. Microbial results of different concoctions

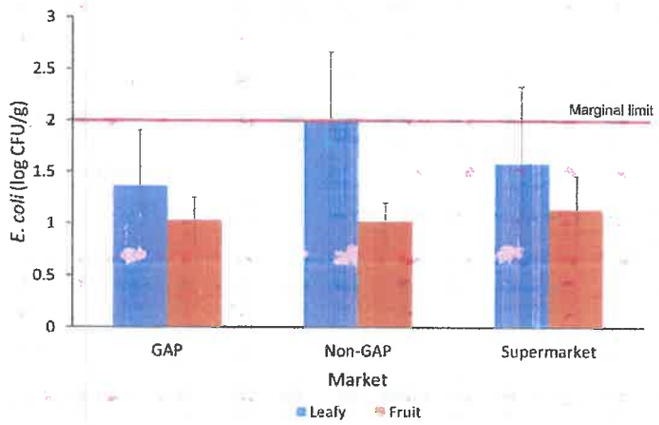
Sample	Before fermentation (log cfu/g)			After fermentation (log cfu/g)		
	LAB	*E. coli*	*Salmonella*	LAB	*E. coli*	*Salmonella*
FFJ	3.09	1.23	ND	8.92	<1	ND
FPJ	3.18	1.21	ND	8.43	<1	ND
IMO2	7.30	2.62	ND	7.91	<1	ND
LABS	8.44	2.45	D	7.68	<1	ND
FAA	3.76	<1	ND	8.75	<1	ND
IC	3.85	<1	ND	7.84	<1	ND
CALPHOS	3.65	<1	ND	7.06	<1	ND
OHN	3.64	<1	ND	7.24	<1	ND
NIR	3.29	<1	ND	2.95	<1	ND
NIA	2.36	<1	ND			

Note: The limit of detection is <1log CFU/g; <1 log CFU/g means no growth was observed. Salmonella: ND means Salmonella is not detected in 25g sample, D means Salmonella is detected in 25g sample

Key findings

***E. coli* contamination of crops in retails (GAP produce, non-GAP produce, crops sold in supermarkets)**

- Leafy greens are more susceptible to high counts of contamination
- Fruit type/hanging vegetables have less contamination
- Levels of contamination in Supermarkets and public markets (GAP and non-GAP) are comparable



N= 368; Leafy vegetable: n=136; Fruit vegetable: n=232

Key findings

Controlling *E. coli* on Harvested Fresh Produce using Different Washing Treatments

- Chlorine solutions were effective in reducing *E. coli* in lettuce after washing
- Acetic acid eliminated a high count of *E. coli* in lettuce but deteriorated its quality
- Citric acid and sodium bicarbonate were not effective in removing or reducing the pathogen in lettuce after washing

Table 3. Microbial results of lettuce after washing with different treatments

Treatments	*E. coli**
no washing	5.99 ± 0.17^{c}
1min in sterile water	5.58 ± 0.27 ^{c}
1min in sterile water repeated 3 times	5.55 ± 0.16 ^{c}
1min in 100ppm chlorine	4.01 ± 0.26 ^{b}
3min in 100ppm chlorine	4.00 ± 0.22 ^{b}
3min in 200ppm chlorine	3.63 ± 0.45 ^{b}
3min in 1% acetic acid	<1 ± 0.00 ^{a}
3min in 1% citric acid	5.86 ± 0.50^{c}
3min in 2.5% sodium bicarbonate	5.77 ± 0.09 ^{c}

Note: Lettuce were irrigated with contaminated irrigation water at ≥2400MPN/100mL *E. coli*

Key findings

Controlling *E. coli* on Harvested Fresh Produce using Different Washing Treatments

- Possible cross contamination of the pathogen from the water to the produce was eliminated with the use of chlorine and acetic acid

Table 4. Microbial results of water with different treatments after washing of lettuce

Treatments	After washing	
	Coliform	*E. coli*
	MPN/mL	MPN/mL
1min in sterile water	≥2400	≥2400
1min in sterile water repeated 3 times	≥2400	350
1min in 100ppm chlorine	<2	<2
3min in 100ppm chlorine	<2	<2
3min in 200ppm chlorine	<2	<2
3min in 1% citric acid	<2	<2
3min in 1% acetic acid	<2	<2
3min in 2.5% sodium bicarbonate	≥2400	≥2400

Note: <2 MPN/100mL means no detection

Key findings

Pesticide residue of crops in retails in Baybay

- Detected pesticide residue in pechay and tomato are below MRL

Table 5. Pesticide residue analysis of crops sold in Baybay retail markets.

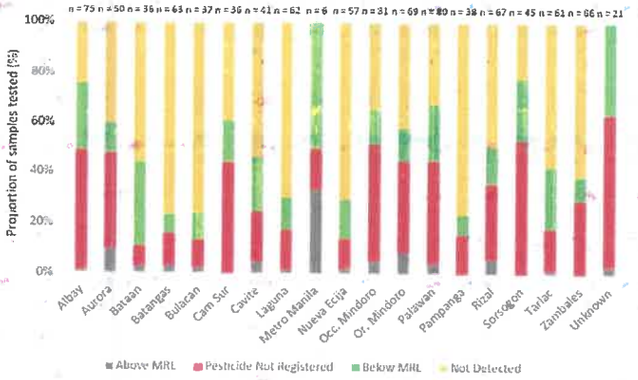
Crop	Source	Detection	Concentration (mg/kg)	Reference MRL	Remarks
Pechay (n=3)	GAP	<LOQ	-	-	No detection
	Non-GAP	Cypermethrin	0.05±0.02	0.7 (leafy vegetable)	Below MRL
	Supermarket	<LOQ	-	-	No detection
Tomato (n=3)	GAP	Profenofos	0.07±0.03	2.0	Below MRL
	Non-GAP	B-cyfluthrin Cypermethrin	0.018±0.007 0.10±0.05	0.2 0.2	Below MRL Below MRL
	Supermarket	L-cyhalothrin	0.10±0.04	0.3 (fruiting veg. except cucurbit	Below MRL

Limit of Quantification (LOQ) for Multi-Residue Mix is 0.01mg/kg. Analysis conducted using Gas Chromatography Mass Spectrophotometry. MRL means maximum residue limit.

Key findings

Pesticide residue status in Luzon

Areas in the Philippines where samples were taken for pesticide residue monitoring last 2022.



Pesticide residue sample testing results from produce grown in the Philippines in 2022, categorized by location that the sample was obtained from.

What do these findings tell us?

- What is the nature and extent of vegetable food safety in the Philippines, including food safety risk points in current vegetable value chains?
  - Food safety risks of the vegetable industry in the Philippines are associated with the inputs and handling during production up to the market especially on the **use of irrigation water and the washing system** of produce

- What are the factors that increase/decrease the food safety risks from production up to retail of produce?
  - The risks associated during production are the **application of untreated or fresh manures and contaminated sources of irrigation water.**
  - In retails, **improper postharvest activities and washing system increases the possible cross-contamination of the produce.**

Key outcomes

- Irrigation water constitute the source of most risk of microbial contamination in crop production or farm level.
- Increased microbial contamination is associated with increased or heavy rainfall.
- *E. coli* tends to die-off after the addition of manure which coincides with the low microbial count of produce during harvest.
- Proper fermentation of concoctions reduces the pathogenic bacteria such as *E. coli* and *Salmonella.*
- Vegetables sold in different markets (public markets and supermarkets) are comparable in terms of microbial load (*E. coli*).
- The use of chlorine is effective in reducing the microbial load of contaminated produce without degrading the quality of the produce.
- The use of sanitizers (e.g. chlorine and acetic acid) is effective reducing the risk of cross contaminating the pathogen from the water to the produce.

Impacts

- Redirecting irrigation water source directly into the spring source in Cabintan, Ormoc

Before

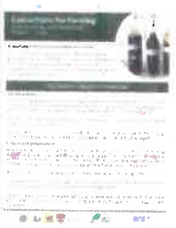
After

- Use of drip irrigation in Baybay

- Installation of water pump for improved water source in a farm in Mahaplag
- Inclusion of results to the policy brief for legislation of city ordinances

Outputs

- Factsheets on manure application, postharvest washing, concoction, and general hygiene



- Information on the food safety risks from production to retails
- Draft reports for publish

Future direction

- Outcomes can be sustained or expanded by working with GAP farms and local government units to reduce contamination
- Continued communication with DA-BPI Satellite Pesticide Analytical Laboratory (SPAL) for pesticide residue monitoring
- Addition of other food safety risk indicators like parasites and other foodborne pathogens

Conclusion

- Avoid using surface water for irrigation after heavy rains
- As much as possible avoid irrigating in close contact with the crop
- Use properly composted or treated animal manures
- Municipal/city waters are recommended for postharvest washing
- Using sanitizers effectively prevents cross contamination of pathogen from the water to the produce
- Always follow pesticides' pre-harvest interval (PHI) when harvesting
- Previous studies on the microbial and chemical contamination of produce from production and retails in the Philippines were mostly conducted in Luzon, hence, information from the current surveys/trials would contribute to generating policies and regulations for the improvement of food safety practices

THE UNIVERSITY OF SYDNEY

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Australian Government
Australian Centre for International Agricultural Research

Developing vegetable value chains to meet evolving market expectations

(HORT/2016/188)

End of project review

Australian Food Safety Component

BUREAU OF PLANT INDUSTRY

LANDCARE PHILIPPINES

PHILIPPINES

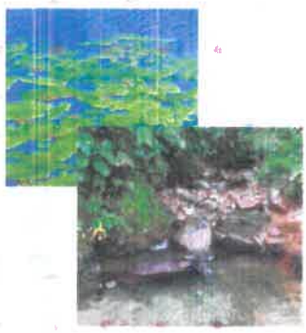
ACIAR

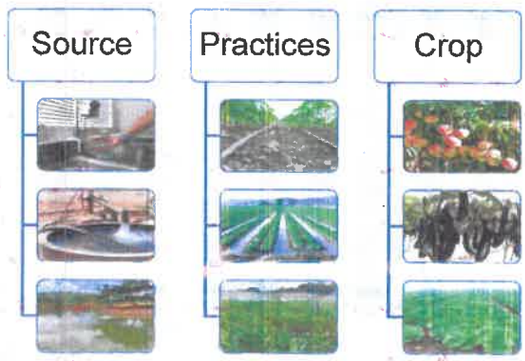
A brief interlude

ACIAR

Management of contaminated irrigation water

Potential hazards





What are the options?

- Well head/pump replacement
- Runoff retention
- Remove animal access to water source
- Crop is grown off ground
- Water treatment
- Fence pond
- Preharvest test
- Water monitoring
- Wait to use water after heavy rain event
- Extend time between application & harvest
- Water end point testing
- Flood irrigation instead of overhead

Relative risk reduction

Food safety – Australian component

Background

Water that contains human pathogens such as *E. coli*, *Salmonella* spp. or *Listeria monocytogenes* can contaminate fruit and vegetables if it contacts the edible part

It is recommended that vegetables are not harvested for at least two days if they have been in contact with contaminated water

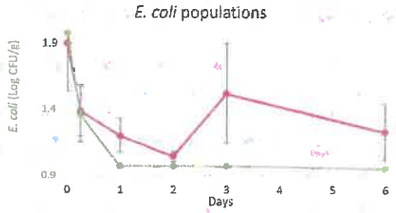
BUT – what happens if they have been damaged?

Grown in the glasshouse | Some lightly damaged | Contaminated water added (log 5 CFU/100ml *E. coli* + log 4 CFU/100ml S. Sofia) | Whole plants for testing (After 0 & 3 hours; 1, 2, 3, 6 days)

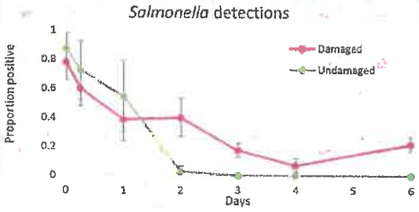
Food safety – Australian component

Even a small amount of physical damage **increases** persistence of human pathogens

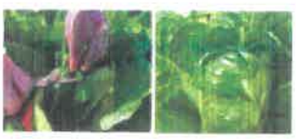
E. coli populations



Salmonella detections



But what do we mean by damage?

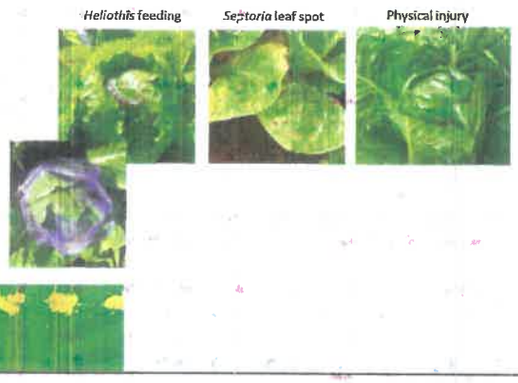


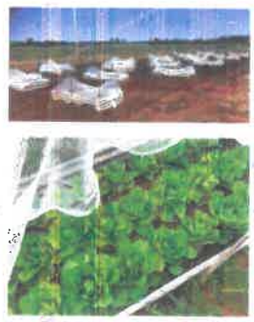
Food safety – Australian component

Trial: Die off rates of *E. coli* on naturally damaged lettuce

Aim: To examine whether insect feeding, disease or physical injury increase persistence of *E. coli* present in water following irrigation of cos lettuce

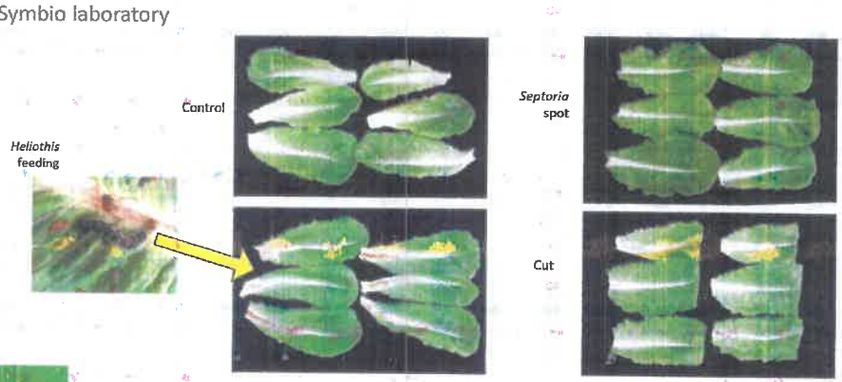
Treatments:





Food safety – Australian component

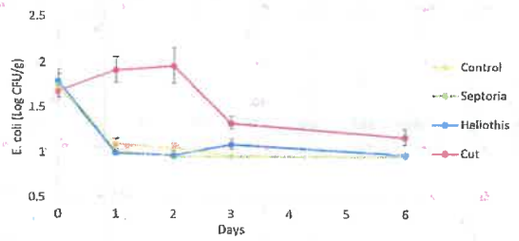
- Irrigated with water containing log 3.2 CFU/ml *E. coli*
- Samples taken after 0, 1, 2, 3 and 6 days
- Each sample consisted of approximately 50g leaf – 7 small leaves, 6 medium or 5 large
- Tested by Symbio laboratory



Trial repeated **3x** – December 2020, November 2021, December 2021
Total = 30 measurements / time interval / treatment

Food safety – Australian component

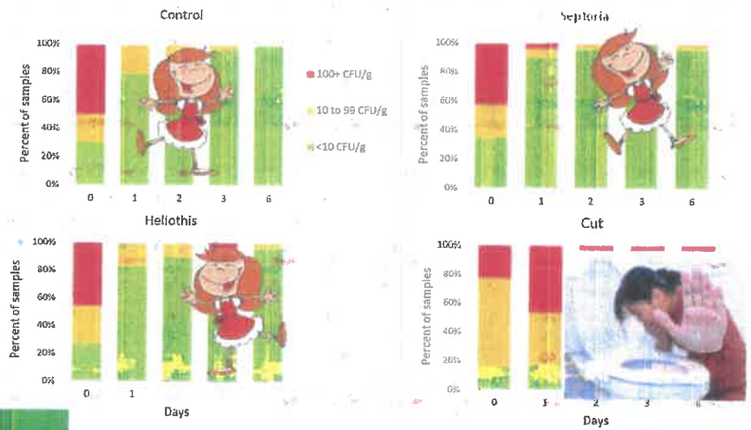
- *E. coli* persisted more than two days on cut lettuce, as previously observed
- Feeding by Heliothis caterpillars appeared to very slightly increase persistence BUT this difference was not significant
- Leaves infected with Septoria leaf spot were no more likely to harbour *E. coli* than the undamaged controls.



	Day 0		Day 1		Day 2		Day 3		Day 6	
Control	1.72	a	1.09	a	1.05	a	0.96	a	0.95	a
Septoria	1.69	a	1.02	a	0.96	a	0.95	a	0.96	a
Heliothis	1.80	a	1.00	a	0.97	a	1.09	a	0.97	a
Cut	1.69	a	1.91	b	1.96	b	1.32	b	1.17	b

Food safety – Australian component

BUT – Averages are not what matters……. What matters is the likelihood of someone becoming sick



Cyanobacteria trials

- What causes a Cyanobacteria (blue-green algae) blooms in surface water?
  - Fertiliser runoff into waterways
  - Warm weather
- Why is this bad?
  - Many cyanobacteria species produce toxins
  - We know that the toxins can end up on produce through irrigation and cause harm to people

Cyanobacteria trials (underway)

Methods

- Grow cos lettuce to maturity
- Physically damage half of the lettuce
- Spray half of the lettuce with non-toxin producing strain of cyanobacteria at the concentration of a moderate algal bloom (5 x 10^5)
- Surface sterilise half of the lettuce with chlorine
- Test for the presence of cyanobacteria in and on lettuce leaves by using quantitative PCR

Cyanobacteria trials (underway)

Methods

- Grow cos lettuce to maturity
- Physically damage half of the lettuce
- Spray half of the lettuce with non-toxin producing strain of cyanobacteria at the concentration of a moderate algal bloom (5 x 10^5)
- Surface sterilise half of the lettuce with chlorine
- Test for the presence of cyanobacteria in and on lettuce leaves by using quantitative PCR

Cyanobacteria trials (underway)

Initial results

- The 16S cyanobacteria PCR primers were cross reactive with the lettuce's chloroplast, so results were obscured
- Looking for alternate gene targets for quantification

Future steps:

- Use a toxin producing strain of cyanobacteria for lettuce inoculations
- Quantify lettuce colonisation and contamination using the toxin gene as a qPCR target

What have we learned?

- If plants are **undamaged**, an exclusion period of 48 hours significantly reduces risk from contact with bacterial contaminated water
  - Regardless of growing environment (field or glasshouse)
  - Even if water contains a relatively high population of pathogens
- If plants are **damaged**, it may not be safe to harvest them for **a week or more**
  - Severe physical damage (cutting) is required
  - *Human pathogens can internalize and multiply in damaged leaves*
- **Journal article ready for publication**
- **Articles in Vegetables Australia magazine**

Republic of the Philippines
PROVINCE OF LEYTE
City of Baybay
-oooOooo-
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Telefax No. (+63-53)335-4808/563-9009 2nd Floor, Legislative Bldg., Magsaysay Ave., Baybay City, Leyte 6521 @ sangguniangpanlungsod@gmail.com

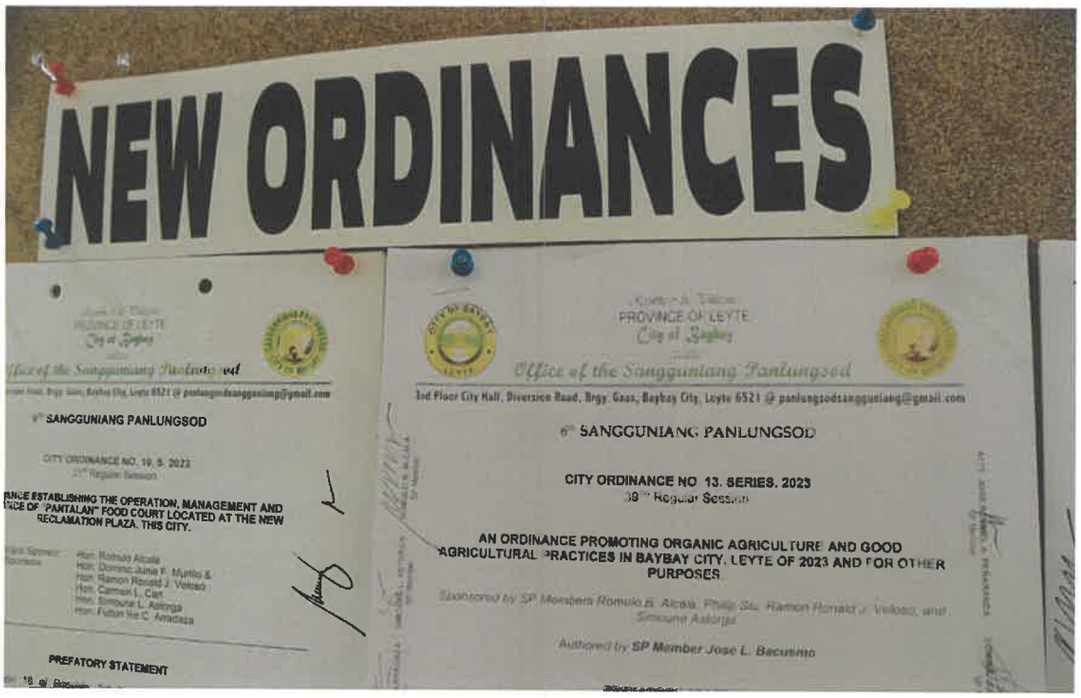
CERTIFICATION

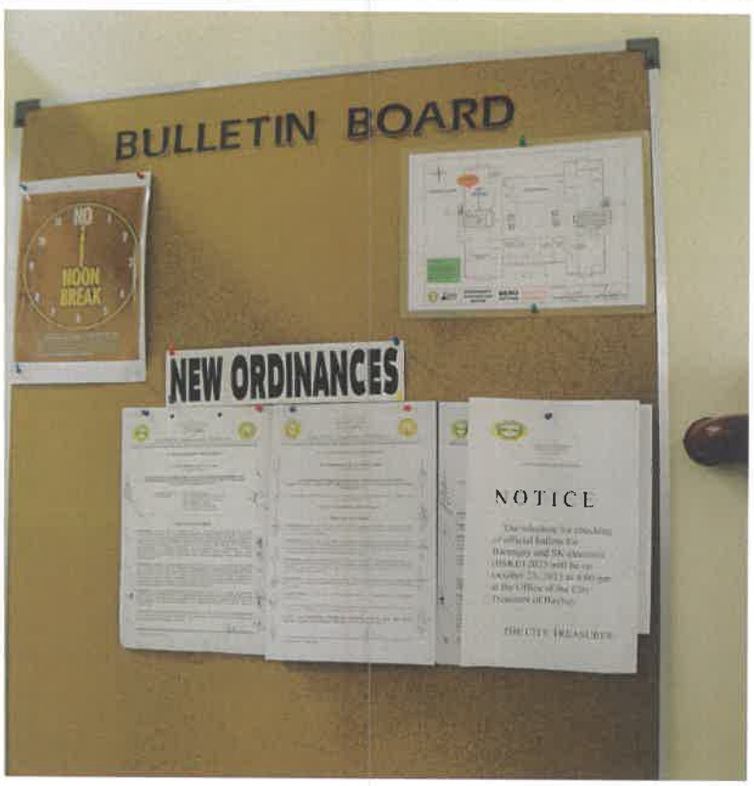
TO WHOM THIS MAY CONCERN:

THIS IS TO CERTIFY that the **City Ordinance No. 13 s. 2023 " AN ORDINANCE PROMOTING ORGANIC AGRICULTURAL PRACTICES IN BAYBAY CITY, LEY7TE OF 2023 AND FOR OTHER PURPOSE"** was posted in the bulletin board at Legislative Department, New City Hall, Diversion Road, the public market and Baybay City Bus and Terminal immediately upon approval thereof.

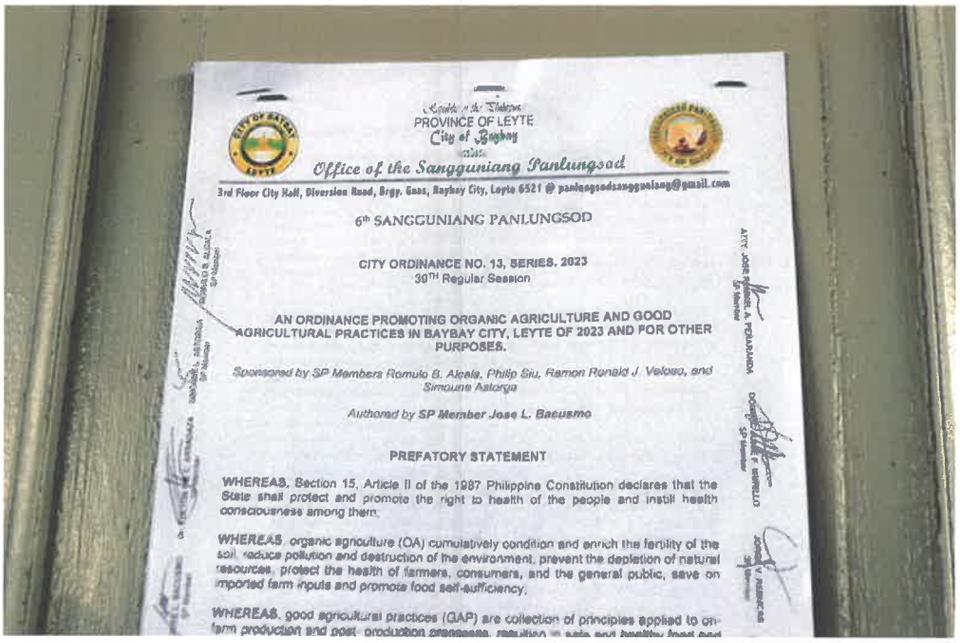
Issued this 30th day of November, 2023, at Baybay City, Leyte.

ATTY. VIVIAN E. VIDALLON
SP Secretary





NEW BAYBAY CITY HALL BULLETIN BOARD



Province of the Philippines
PROVINCE OF LEYTE
City of Baybay
Office of the Sangguniang Panlungsod
3rd Floor City Hall, Diversion Road, Brgy. Guas, Baybay City, Leyte 6521 @ panlungsodsanggunianq@gmail.com

6th SANGGUNIANG PANLUNGSOD

CITY ORDINANCE NO. 13, SERIES, 2023
39TH Regular Session

AN ORDINANCE PROMOTING ORGANIC AGRICULTURE AND GOOD AGRICULTURAL PRACTICES IN BAYBAY CITY, LEYTE OF 2023 AND FOR OTHER PURPOSES.

Sponsored by SP Members Romulo B. Alcala, Philip Siu, Ramon Ronald J. Veloso, and Simoune Astorga

Authored by SP Member Jose L. Bacusmo

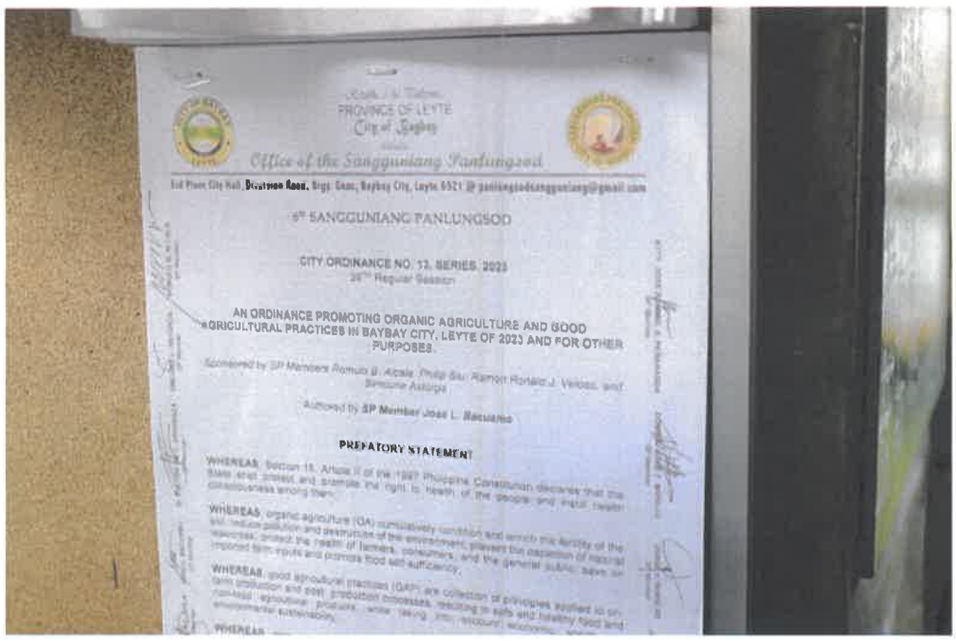
PREFATORY STATEMENT

WHEREAS, Section 15, Article II of the 1987 Philippine Constitution declares that the State shall protect and promote the right to health of the people and instill health consciousness among them.

WHEREAS, organic agriculture (OA) cumulatively condition and enrich the fertility of the soil, reduce pollution and destruction of the environment, prevent the depletion of natural resources, protect the health of farmers, consumers, and the general public, save on imported farm inputs and promote food self-sufficiency.

WHEREAS, good agricultural practices (GAP) are collection of principles applied to on-farm production and post- production processes, resulting in safe and healthy food and

BAYBAY CITY BUS TERMINAL



PROVINCE OF LEYTE
City of Baybay

Office of the Sangguniang Panlungsod

6TH SANGGUNIANG PANLUNGSOD

CITY ORDINANCE NO. 12, SERIES 2023
26TH Regular Session

AN ORDINANCE PROMOTING ORGANIC AGRICULTURE AND GOOD AGRICULTURAL PRACTICES IN BAYBAY CITY, LEYTE OF 2023 AND FOR OTHER PURPOSES.

Sponsored by SP Members Romulo B. Alcala, Philip Siu, Ramon Rontal J. Velasco, and Simeone Astorga

Authored by SP Member Jose L. Recuenco

PREPATORY STATEMENT

WHEREAS, Section 15, Article II of the 1987 Philippine Constitution declares that the State shall protect and promote the right to health of the people and instill health consciousness among them;

WHEREAS, organic agriculture (OA) systematically sustain and enrich the fertility of the soil, reduce pollution and destruction of the environment, prevent the depletion of natural resources, protect the health of farmers, consumers, and the general public, save on imported farm inputs and promote food self-sufficiency;

WHEREAS, good agricultural practices (GAP) are collection of principles applied to on-farm production and post production processes, resulting in safe and healthy food and environmental sustainability;

BAYBAY CITY TRICYCLE TERMINAL AND SUPERMARKET