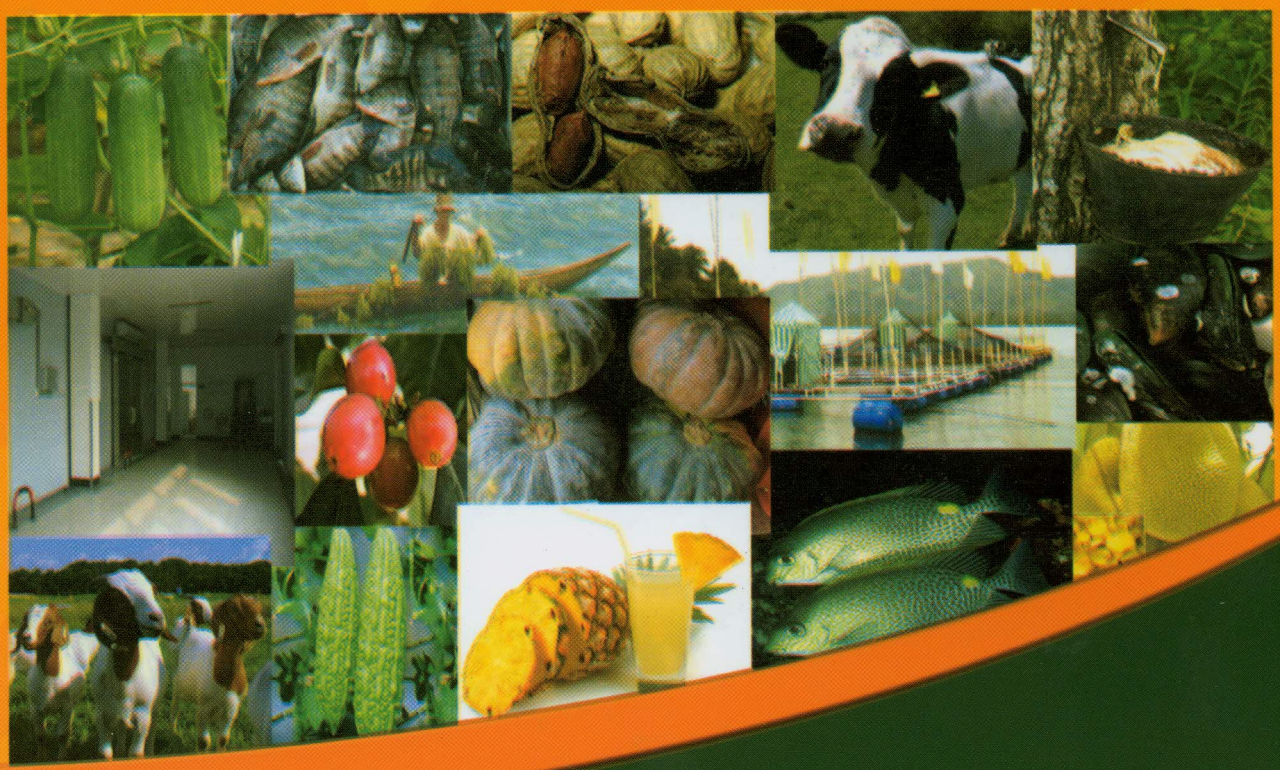
PHILIPPINE AGRIBUSINESS INVESTMENT OPPORTUNITIES



Department of Agriculture

Agribusiness and Marketing Assistance Service

FOREWORD

Being a land of bountiful opportunities, the Philippines possess a wide variety of crops, livestock and fisheries that can be harnessed not only for livelihood but to build agribusiness enterprises as well. The purpose in preparing the cost and return brochure on a wide-range of agricultural commodities and related support facilities is to entice numerous private sectors to invest in agribusiness sector. The brochure will serve as a start-up of business information in preparation of business plan for aspiring agribusiness entrepreneurs. Having a simple business idea can ignite a desire to develop into an agribusiness enterprise that is globally competitive. Further this publication likewise spells-out in general the Department of Agriculture's (DA) interventions and assistance to strengthen partnerships with the private sector.

Agribusiness and Marketing Assistance Service (AMAS) (as a DA unit) serves as a facilitating and coordinating unit of DA for agribusiness entrepreneurs who need assistance on investments as well as on marketing their products.

We hope that this brochure will serve as a catalyst in Philippine agribusiness development.

ENGR. LEANDRO H. GAZMIN
Director, AMAS

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One Hectare Asparagus Production

Preferred Location : All over the country

Product : Fresh asparagus

Market : Local wet market/ Supermarket, Export

Image: http://www.7star-ocean.com

Cost and Return for the 1st year alone

Cost of Production	:	PhP 154,489.00
Gross Income	:	PhP 280,000.00
Net Income	:	PhP 125,511.00
Farm Price / kilogram	:	PhP 40.00
Return on Investment	:	44.82%
Gestation Period	:	1 year after planting

Source: Dept. of Agriculture Regional Field Unit IV-B: Production Guide of Asparagus

Uses

- Asparagus (*Asparagus officinalis*) is an herbaceous perennial crop. A well-cared plant can be productive up to 10-15 years without replanting. The shoots are prepared and served in a number of ways around the world, typically as an appetizer or vegetable side dish. In Asian-style cooking, asparagus is often stir-fried along with chicken, shrimp or beef. Asparagus may also be quickly grilled over charcoal or hardwood embers. It is also used as an ingredient in some stews and soups. In recent years, it is popularly eaten raw in salad. Asparagus can also be pickled and stored for several years. http://en.wikipedia.org/wiki/Asparagus
- Asparagus is a nutrient-dense food which in high in Folic Acid and is a good source of potassium, fiber, vitamin B6, vitamins A and C, and thiamine. Asparagus has No Fat, contains No Cholesterol and is low in Sodium http://www.asparagus.org/maab/facts.html
- Among the medicinal properties of asparagus: good diuretic, useful in cases of hypertension, prevents Alzheimer's disease as it provides good amount of folate and has skin blemishes clearing properties. It was discovered to help lessen the effect of hang over as it has extracts that boosts enzyme levels to break down alcohol http://en.wikipedia.org/wiki/Asparagus

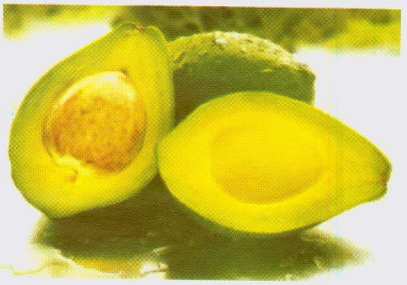
Government Support

Training, market linkage, technical assistance

Proposed Investment Arrangements/Modalities

- Joint Ventures
- Partnership/Contract Growing
- Sole Proprietorship

One Hectare Avocado Production



Preferred Location	:	Throughout the country
Product	:	Fresh Fruit
Market	:	Local Markets, Fruit Stands, Processors

Cost and Return (10-Year Period)

Initial Investment Cost	:	PhP 38,003.00
Cumulative Gross Income (Yr. 4-7)	:	PhP 389,826.00
Cumulative Net Income (Yr. 4-7)	:	PhP 292,699.00
Farm Price/kilogram	:	PhP 15.00
Return on Investment	:	93.00%
Economic Life	:	20 years or more

Source: Bureau of Plant Industry, 2013

Assumptions:

1. One-hectare land is owned
2. Population density – 125 trees/ha
3. Preparation of planting materials (138 seeds = 125 + 10% allowance)
4. Mortality rate in the field = 5%
5. Cost of Labor = P200.00/MD and P300/MAD, 10% increase every after 3 years
6. Cost of material inputs = increase by 10% every after 3 years
7. Marketing System: produce are sold at farm level or buyers pick the fruits at farmgate price
   - farm owner take charge in the harvesting and postharvest handling activities
8. Price of produce is assumed to be the same from Year 4 to Year 10
9. Bearing starts at Year 4
10. Weight of fruit = 550 g/fruit (based on the average weights of the 3 NSIC varieties of avocado)
11. Non-marketable yield = 10%
12. Net Yield = Gross Yield- 10% Non-marketable Yield
13. % ROI = (Net Return-Total Costs)/Total Costs x 100

Uses

- Ripe avocado fruit is commonly eaten fresh or can be prepared as sweetened dessert. It can also be used as a flavoring ingredient for ice cream.

- Leaves, fruit skin and seed can be taken as herbal treatment and for medicinal purposes.

Government Support

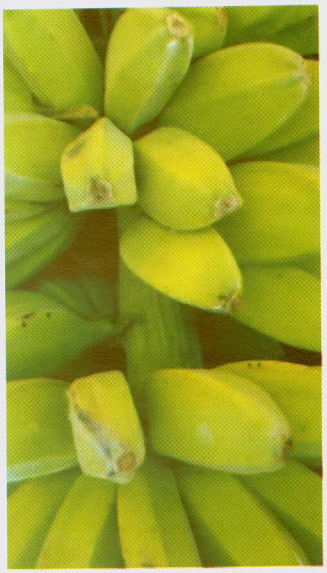
Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

One Hectare Banana (Saba) Production

Preferred Location : Davao Region, Northern Mindanao, Soccskargen, ARMM, CARAGA, Zamboanga Peninsula, Eastern, Western and Central Visayas, Region 4-b, CALABARZON, Central,and Northern Luzon



Project Cost : Php 156,704.00

Product : fresh banana fruit

Market : wet market, fruit stalls and processors

Cost and Return

Production Cost	: PhP 156,704.00
Planting Preparation & Field Establishment	: PhP 103,767.00
Harvesting & Postharvest	: PhP 52,937.00
Gross Income*	: PhP 295,245.00
Cumulative Net Income**	: PhP 144,544.00
Return on Investment	: 92.24 %
Economic Life	: 5 yrs.

Source: Philippine Council for Agriculture, Forestry and Natural Resources Research and Development, 2012
**Gross Income (1st Harvest-3rd Harvest)*
***Cumulative Net Income (Y^1-Y^3)*
Return On Investment (Cumulative on the 3rd year)

Assumptions:

1. One-hectare is owned.
2. Population density = 625 hills/hectare
3. Mortality rate= 5%
4. 1st Harvest (18th – 22nd month after planting) 625 bunches@135 fingers/bunch
5. 2nd Harvest with 781 bunches @135 fingers/bunch
6. 3rd Harvest with 781 bunches @ 135 fingers/bunch
7. Farmgate Price @PhP 1.00/piece

Uses

Cooked mature banana, especially of the saba or cardaba variety, is a common starchy food with a nutritional value (2.5% fats and 97.5% carbohydrates). It is also a popular variety used for processed banana products such as banana chips, catsup, flour, wine, cakes, or pastries.

Government Support

Training, market linkage, local government incentives, provision of credit (Rural Banks, Development Banks) technical information, site identification, facilitation of business licenses and other relate matters.

Proposed Investment Arrangement/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing
- Cooperative Plantation
- Joint Venture

One Hectare Bell Pepper Production

Preferred Location : Cordillera Region, Upland Quezon, Cavite, Bukidnon

Product : Fresh bell pepper

Market : Local wet market/ Supermarket

Image: forevernaturesremedies.blogspot.com

Cost and Return

Cost of Production	:	PhP 161,282.00
Gross Income	:	PhP 800,000.00
Net Income	:	PhP 638,718.00
Farm Price / kilogram	:	PhP 40.00
Return on Investment	:	396.03 %
Gestation Period	:	60 to 80 days

Source: Quiambao A., Cruz, B., DAM, Pampanga Agricultural College

Uses

- Bell pepper (*Capsicum annuum)* is also known as sweet pepper. **Bell peppers** can be enjoyed either raw or cooked. When served raw, bell peppers have a crisp texture that lends itself to salads and makes a perfect complement to dips. When bell peppers are cooked they take on a smoky, sweetness that enhances many dishes. *http://www.fitday.com*

- It has cultivars that produce red, green, yellow and orange fruits. Green bell peppers are somewhat bitter in flavor while red and orange peppers tend to be much sweeter. Red bell peppers are used to make pimentos and paprika. In addition to their great flavor, bell peppers have great nutritional value.

- Red pepper has a good amount of carotene and lycopene and has twice the vitamin C content of green peppers. One (1) large red bell pepper contains 3x the vitamin C of an average orange. *http://en.wikipedia.org/wiki/Bell pepper*. Deeply colored peppers are high in Bioflavonoids, plant pigments that help prevent cancer. It has anti-inflammatory properties that can potentially reduce arthritis, rheumatism, and headache. It can also improve digestion as well as help in preventing acidosis (deficiency of alkalinity in the blood). *forevernaturesremedies.blogspot.com*

Government Support

Training, market linkage, technical assistance

Proposed Investment Arrangements/Modalities

- Joint Ventures
- Partnership/Contract Growing
- Sole Proprietorship

One Hectare Cashew Production

Preferred Location	:	Throughout the country
Product	:	Fresh Fruit, Wine, Cashew Nuts, Cashew Nut Shell Liquid (CNSL)
Market	:	Local Markets, Fruit Stands, Processors, Export Market

Cost and Return (10-Year Period)

Initial Investment Cost	:	PhP 65,397.50
Cumulative Gross Income (Yr. 4-10)	:	PhP 417,485.00
Cumulative Net Income (Yr. 4-10)	:	PhP 240,580.00
Farm Price/kilogram	:	PhP 30.00 for nuts PhP 5.00 for apple
Return on Investment	:	78.7%
Economic Life	:	40 years or more

Source: Bureau of Plant Industry, 2013

Assumptions:

1. One-hectare land is owned
2. Planting density – 277 trees/ha, spacing 6 m x 6 m
3. Based on May 2011 prices

Uses

- As an edible product, the cashew fruit or "apple" can be eaten as fresh fruit, and can be processed into jams, candies, juice and juice blends and chutneys.
- The juice extract can be processed into wine that are of high export value.
- The apple is also utilized as animal feeds.
- The cashew nuts or its kernels are consumed primarily as "dessert nut" used in bakery goods and confectionery and as flavoring ingredient for ice cream.

Government Support

Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

One Hectare Durian Production

Preferred Location : ARMM, Davao Region, Soccskargen and Region 4-b

Initial Project Cost (1-3 Years) : Php 135,717.00

Product : fresh durian fruit

Market : wet market, fruit stalls and processors

Cost and Return

Planting Materials & Preparation		: Php 2,787.00
Field Establishment	Year 1	: Php 93,357.00
	Year 2	: Php 16,390.00
	Year 3	: PhP 25,970.00
Net Income (Year 5)*		: PhP 44,378.00
Cumulative Net Income (Y4-Y10)**		: PhP 1.46 million
Returns On Investment ***		: 235 %
Economic Life		: more than 20 yrs.

Source: Bureau of Plant Industry, 2011
**Second Year of fruiting at Year 5*
***Cumulative Net Income (Y^4-Y^{10})*
**** Return On Investment (Cumulative on the 7th year)*

Assumptions:

1. One-hectare land is owned.
2. Population density = 156 trees/hectare
3. Preparation of planting materials (172 seeds =156 +10% allowance
4. Mortality rate= 5%
5. Cost of Labor = PhP 200/MD & PhP 300/MAD, 10% increase every after 3 years
6. No. Of fruits/tree (age of tree (yrs) 4 = 5; 5 = 15; 6 = 25; 7 = 40; 8 = 55; 9 = 70; 10 = 85
7. Farmgate Price @PhP 30.00/kilogram

Uses

- The pulp when ripe, is eaten fresh.
- It can be processed into food preparations such as, candies, jam, pulp preserve, toppings and flavouring for ice cream, sherbet, milkshakes etc.
- Unripe durian can be cooked as vegetable except in the Philippines.
- Young leaves and shoots are cooked as greens.
- The seeds are eaten when boiled, roasted or fried in coconut oil.
- The husk is used as fuel and the nectar and pollen of durian flower that honeybees collect is an important honey source.
- Fruit contains a high amount of sugar, vitamin C, potassium and the serotonergic amino acid tryptophan.
- Good source of raw fats .
- Decoction of the leaves and roots can be used as remedies for fever.

Government Support

Training, market linkage, local government incentives, provision of credit (Rural Banks, Development Banks) technical information, site identification, facilitation of business licenses and other relate matters.

Proposed Investment Arrangement/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing
- Cooperative Plantation
- Joint Ventures

One Hectare Ginger Production

Preferred Location : All over the country

Product : Ginger

Market : Wet markets, supermarkets, processors

Cost and Return

Cost of Production	:	PhP 98, 276.00
Material Cost	:	PhP 37,340.00
Labor Cost	:	PhP 37,400.00
Contingencies	:	PhP 11,061.00
Interest on Capital/land rent	:	PhP 12,475.00
Estimated Production	:	20,000 kilograms
Farm Price/kilogram	:	PhP 10.00
Gross Sales	:	PhP 200,000.00
Net Income	:	PhP 101,724.00
Return on Investment	:	103%
Break even yield	:	9,828 kilograms
Maturity	:	8-10 months

Source: Philippine Council for Agriculture, Forestry and Natural Resources Research and Development -Organic Production

Uses

- Ginger can be consumed fresh, dehydrated, powdered, or pickled. 'Salabat,' or ginger tea, a popular hot drink, is made from boiled fresh ginger or powdered ginger. Ginger adds flavor to some common Filipino dishes. It is also used as an ingredient in the manufacture of perfumes and softdrinks and in the preparation of preserves, candies, and pickles.

- Ginger stimulates gastric juice secretion and relieves cough and flu. It is also used to treat migraine, travel sickness, and rheumatoid arthritis. It is known to improve blood circulation and reduce fat deposits in the arteries. The curative properties of ginger come from the volatile oil that contains cingibereno, cingiberol, borneol, felandreno, citral, cineol, starch, mucilage, and resin, among other substances.

Government Support

AFMIS/on line service, market linkage, seminar/training on value adding, provision of technical and financial assistance.

Proposed Investment Arrangement/Modalities

- Sole proprietorship
- Partnership
- Contract growing
- Cooperative plantation
- Joint venture

One Hectare Lanzones Production

Preferred Location	:	Throughout the country
Product	:	Fresh Fruit
Market	:	Local Markets, Fruit Stands

Cost and Return (12-Year Period)

Initial Investment Cost (Yr. 1-6)	:	PhP 227,785.00
Cumulative Gross Income (Yr. 7-12)	:	PhP 1,659,450.00
Cumulative Net Income (Yr. 7-12)	:	PhP 769,598.00 (Farmgate)
Farm Price/kilogram	:	PhP 80.00
Return on Investment	:	87.27%

Source: Bureau of Plant Industry, 2013

Assumptions:

1. One-hectare land is owned
2. Population density – 204 trees (7 m x 7 m distance of planting)
3. Preparation of planting materials (204 seeds + 10% allowance)
4. Mortality rate in the field = 5%
5. Cost of Labor = P200.00/MD and P300/MAD, 10% increase every after 3 years
6. Cost of material inputs = increase by 10% every after 3 years except for water, fuel and vehicle and marketing space rental
7. Yield estimates is based on DNCRDC's yield observations
8. Marketing System:
   - Contract - produce sold in all-in wherein all fruits are taken by the buyers
     - orchard owner does not have any harvesting, postharvest handling and marketing costs
     - contractors shoulder all the harvesting and postharvest handling costs
   - Farmgate- produce are sold at farm level or buyers pick the fruits at farmgate price
     - farm owner take charge in the harvesting and postharvest handling activities
   - Wholesale- Farm owner deliver or sell his produce to wholesaler-retailers
   - Retail – Farmer owner sell or retail his fruits by himself in the market
9. Prices of outputs are based on current buying and selling prices in the local markets particularly in Davao City
10. Ten percent of gross yield is accounted for non-marketable fruits or rejects. Net Yield = Gross Yield –10%
11. % ROI = (Net Return-Total Costs)/Total Costs x 100

Uses

- The fruit is always eaten fresh but seedless fruit maybe bottled in syrup.
- The bark, dried rind of the fruit and the seeds possess some medicinal properties useful to mankind.
- The sturdy wood can be utilized for charcoal, house post, tool handles and furniture.

Government Support

Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

One Hectare Mango Production

Preferred Location : North, Western, Central and Southern Luzon, Western Visayas and Northern and Southern Mindanao

Establishment Cost : Php 50,787.00

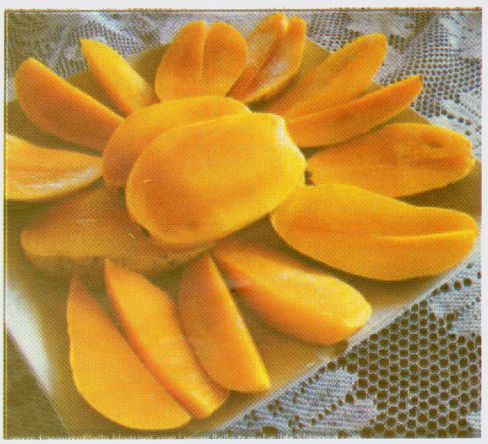
Product : fresh mango fruit

Market : wet market, fruit stalls, processors and export market

Cost and Return

Production & Maintenance Cost (4 -15 Yrs.)	: Php 794,496.00
Gross Income	: PhP 1,665,300.00
Cumulative Net Income (Y^4-Y^{12})	: PhP 1,052,139 .00
Returns on Investment *	: 140%
Economic Life	: 15-100 yrs.

Source: Bureau of Plant Industry, 2011
**Computed from the Average ROI for 15 years.*



Assumptions:

1. One-hectare land is owned.
2. Only 60% of trees will be induced to flower every year
3. Fruits farmgate price @ Php30/kg (Year 1-10) and Php35/kg (Year 11-15)
4. Cost of Labor = P200/MD & P300/MAD, 10% increase every after 3 yrs.
5. Yield/year: (kg) Y^4 = 60 ; Y^5 = 150; Y^6 = 300; Y^7 = 600; Y^8= 1,500; Y^9= 2,400 ; Y^{10}= 3,600 Y^{11} = 4,800; Y^{12} = 6,000; Y^{13} =7,800; Y^{14}= 9,600; Y^1 = 12,000

Uses

- When ripe, as fresh fruit dessert and when unripe (green mangoes) as salad
- It can be processed into food preparations such as canned segments, candies, jam, pulp preserve, toppings and flavouring for ice cream, sherbet, and wine.
- Contains a lot of phytochemicals and nutrients.
- High in prebiotic dietary fiber, vitamin C, diverse polyphenols and pro vitamin A carotinoids.
- Also rich in vitamin B6, folate and other B vitamins and essential nutrients such as potassium, copper and amino acids.

Government Support

Training market linkage, local government incentives, provision of credit (Rural Banks, Development Banks) technical information, site identification, facilitation of business licenses and other relate matters.

Proposed Investment Arrangement/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing
- Cooperative Plantation
- Joint Ventures

One Hectare Mangosteen Production

Preferred Location : ARMM, Zamboanga Peninsula, Davao Region, Soccskargen and Western Visayas

Initial Project Cost : Php 114,496.00

Product : fresh mangosteen fruit

Market : wet market, fruit stalls and processors

Cost and Return

Planting Preparation	: PhP	5,307.00
Field Establishment (Yr.1-4)	: PhP	109,189.00
Cumulative Net Income (15th Yr)	: PhP	801,554.00
Net Income*	: PhP	21,703.00
Return on Investment **	: 155%	
Economic Life	: more than 50 yrs.	

Source: Bureau of Plant Industry, 2011
** Computed on the 5th Year (First Fruiting)*
*** Computed on the 12th Year*

Assumptions:

1. One-hectare land is owned.
2. Population density - 125 trees (10x8 m distance of planting)
3. Preparation of planting materials (138 seeds = 125 + 10% allowance)
4. Mortality rate = 5%
5. Cost of Labor = P200/MD & P300/MAD, 10% increase every after 3 yrs
6. Yield/year: no. of fruits Y^5 = 10-20 ; Y^6 = 30-60; Y^7 = 70-90; Y^8 = 100-150; Y^9 = 200-300; Y^{10} = 350-500; Y^{11-14} = 500-900; Y15 onward = 1,000-1,500
7. Price: Farmgate @ P35/kg is assumed from Y^5 to Y^{15}

Uses

- It can be processed into food preparations such as canned segments, candies, jam, pulp preserve, toppings and flavouring for ice cream, sherbet, and wine.
- The pulp and seed when boiled with sugar have a delicious nutty flavour.
- The leaves and bark and rindcan be used as an astringent for the cure of aphtha or thrush, a fungal disease affecting the tongue and throat and intestinal catarrh. A leaf infusion can be applied to wounds.
- Rind consists of 7.15% tannin, and is used to tan leather and dye fabric black.
- Seed contains 30% valuable oil used in skin preparations, soap and shampoo.
- Fruits contain flavones and xanthones, which are compounds used in medicines (antibacterial agents).
- As timber, the heartwood of the trunk is dark brown and strong, used for furniture making and in carpentry.

Government Support

Training, market linkage, local government incentives, provision of credit (Rural Banks, Development Banks) technical information, site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangement/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing
- Cooperative Plantation
- Joint Ventures

One Hectare Pechay Production

Preferred Location : All over the country

Product : Fresh pechay

Market : Local wet market/ Supermarket

Image: www.pinoy-entrepreneur.com

Cost and Return

Cost of Production	:	PhP 87, 538.00
Gross Income	:	PhP 420,000.00
Net Income	:	PhP 332,462.00
Farm Price / kilogram	:	PhP12.00
Return on Investment	:	379.79 %
Gestation Period	:	120 days

Source: Quiambao A., Cruz, B., DAM, Pampanga Agricultural College

Uses

- Pechay or Chinese Cabbage (Brassica rapa subsp.) is popularly known in the Philippines, as Pechay or Petsay. It was one of most often used vegetable in many Filipino dishes. Petsay is added to Filipino stews such as nilagang baka (boiled beef) or bulalo (boiled beef shank). People who choose to eat it raw can enjoy it tossed in a salad mixed with other greens. The tough outer leaves of the cabbage are common in soups and stews, while the tender inner leaves are often eaten raw, roasted or used in kimchi.

- Pechay is rich in Vitamin C, fiber, and folate. The color of the leaves suggest that it is rich in beta-carotene and calcium, especially in comparison to other types of cabbages that are less green. It is a vegetable that is generally low in fat but high in potassium which makes it ideal for dieters. http://healthyeating.sfgate.com/nutrients-pechay-1538.html and http://www.pinoy-entrepreneur.com/2010/04/23/chinese-cabbage-or-pechay-production/

- The health benefits include treatment of constipation, stomach ulcers, headache, excess weight, skin disorders, eczema, jaundice, scurvy, rheumatism, arthritis, gout, eye disorders, heart diseases, ageing, and Alzheimer's disease. http://www.organicfacts.net/health-benefits/vegetable/health-benefits-of-cabbage.html

Government Support

Training, market linkage, technical assistance

Proposed Investment Arrangements/Modalities

- Joint Ventures
- Partnership/Contract Growing
- Sole Proprietorship

One Hectare Radish Production

Preferred Location : All over the country

Product : Fresh radish

Market : Local wet market/ Supermarket

Image: Qingdao Langrun Int'l Trading Co.,

Cost and Return

Cost of Production	:	PhP 91,490.00
Gross Income	:	PhP 350,000.00
Net Income	:	PhP 258,510.00
Farm Price / kilogram	:	PhP 10.00
Return on Investment	:	282.56%
Gestation Period	:	60 days

Source: Quiambao A., Cruz, B., DAM, Pampanga Agricultural College

Uses

- Radish (*Raphanus Sativus*), is well known part of salad, is a root crop, pungent or sweet in taste with a lot of juice. It can be white, red, purple or black color and either long cylindrical or round in shape.

- Radish can be eaten raw, cooked or pickled. Other parts of radish can also be consumed i.e. the leaves, the flowers, the pods and the seeds. The oil obtained from its seeds can also be used.

- Radish provides a lot of health benefits. It is a good detoxifier as it purifies blood. It also useful on Leucoderma treatment as it has anti-carcinogenic properties. Besides, it can help cure many types of cancer particularly those of colon, kidney, intestines, stomach and oral cancer. It is reach in vitamin-C, folic and anthocyanins and has good amount of roughage or indigestible carbohydrates. It is also good for the skin and for the kidney being a good diuretic/ cleanser. http://www.organicfacts.net/health-benefits/vegetable/health-benefits-of-radish.html

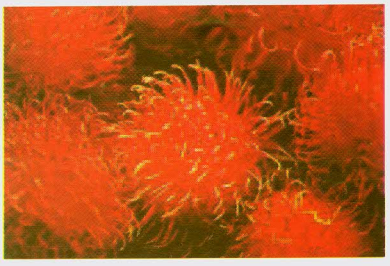
Government Support

Training, market linkage, technical assistance

Proposed Investment Arrangements/Modalities

- Joint Ventures
- Partnership/Contract Growing
- Sole Proprietorship

One Hectare Rambutan Production



Preferred Location	:	Throughout the country
Product	:	Fresh Fruit
Market	:	Local Markets, Fruit Stands, Processors

Cost and Return (10-Year Period)

Initial Investment Cost	:	PhP 37,409.00
Total Production Cost	:	PhP 337,300.00
Cumulative Gross Income (Yr. 3-10)	:	PhP 1,255,500.00
Cumulative Net Income (Yr. 4-10)	:	PhP 913,640.00
Farm Price/kilogram	:	PhP 25.00
Return on Investment	:	167.26%
Economic Life	:	20 years

Source: Bureau of Plant Industry, 2013

Assumptions:

1. One-hectare land is owned
2. Population density – 100 trees/ha
3. Preparation of planting materials (110 seeds = 100 + 10% allowance
4. Mortality rate in the field = 5%
5. Cost of Labor = P200.00/MD and 300/MAD, 10% increase every after 3 years
6. Cost of material inputs = increase by 10% every after 3 years
7. Marketing System:
   Farmgate- produce are sold at farm level or buyers cpick the fruits at farmgate price
   - farm owner take charge in the harvesting and and postharvest handling activities
   Contract- produce are sold to contract buyers who take charge in the harvesting activities
   - orchard owner does not have any harvesting, postharvest and handling costs
8. Price of produce is assumed to be the same from Year 3 to Year 10
9. Bearing starts at Year 3
10. Non-marketable yield = 10%
11. Net Yield = Gross Yield- 10% Non-marketable Yield
12. % ROI = (Net Return-Total Costs)/Total Costs x 100

Uses

- Rambutan fruit is commonly eaten fresh and the peeled fruits are occasionally stewed as dessert.
- Roots, leaves, fruits and seeds have medicinal uses for dysentery, diarrhea, fever and headaches.
- The edible fat or oil contained in the seeds is suitable for culinary purposes and in the manufacture of soap and candles.

Government Support

Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

One Hectare Soursop (Guyabano) Production

Preferred Location : Nationwide from sea level to 500 meters above sea level

Project Cost : Php 111,810.00

Product : fresh soursop fruit

Market : wet market, fruit stalls and processors

Cost and Return

Initial Production Cost	: Php 111,810.00
Labor	: PhP 46,100.00
Materials	: PhP 53,910.00
Contingencies	: PhP 9,870.00
Additional Cost*	: PhP 2,030.00
Gross Income (Yr. 4-7)	: PhP162,000.00
Net Income (Yr. 7)	: PhP 50,190.00
Return on Investment	: 44.88 %
Economic Life	: 25 yrs.

Source: Bureau of Plant Industry, 2011
**to cover negative income of P2,030 at Yr. 6*

Assumptions:
1. One-hectare land is owned.
2. Population density – 400 trees /hectare (5 x 5m)
3. Php15/kg farmgate price
4. Fruit weighs from 300 -1000 g
5. Income gets positive at Year 7

Uses

- The pulp when ripe, is eaten fresh
- It can be processed into food preparations such as, nectar, juice and flavouring for ice cream, sherbet, milkshakes etc.
- Fruit contains various types of nutrients beneficial to human health (vitamin C, B1 and B12.
- Rich in carbohydrates, particularly fructose.
- Fruit, leaves and seeds are a remedy to various types of diseases such as cancer, heart disease, Gallbladder problems, leprosy, cough, diarrhea, dysentery, fever and indigestion.

Government Support

Training, market linkage, local government incentives, provision of credit (Rural Banks, Development Banks) technical information, site identification, facilitation of business licenses and other relate matters.

Proposed Investment Arrangement/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing
- Cooperative Plantation
- Joint Ventures

One Hectare Soybean Production

Preferred Location : All over the country

Product : soybean

Market : Wet markets, processors
Oil millers, feed millers

Cost and Return

		Organic	Conventional
Cost of Production	:	PhP 18,092.00	PhP 19,952.00
Material Cost	:	PhP 4,840.00	PhP 6,040.00
Labor Cost	:	PhP 11,800.00	PhP 12,100.00
Interest on Capital	:	PhP 1,452.00	PhP 1,812.00
Estimated Production	:	2,000 kg	2,000 kg
Farm Price /kilogram	:	PhP 25	PhP 25
Gross Sales	:	PhP 50,000	PhP 50,000
Net Income	:	PhP 31,908	PhP 30,048
Return on Investment	:	176%	150 %
Break even yield	:	724 kg	798 kg
Maturity	:	90-100 days	

Source: Handbook on Soybean Production Technology and Product Utilization DA- RFO No. 2 , Tuguegarao City, Cagayan

Uses

The **soybean** or **soya bean** (***Glycine max***) is widely grown for its edible bean which has numerous uses. It contains 18% oil and 38% protein. Because soybeans are high in protein, they are a major ingredient in livestock feed. Most soybeans are processed for their oil and protein for the animal feed industry. A smaller percentage is processed for human consumption and made into products including soy milk, soy flour, soy protein, tofu and many retail food products. Soybeans are also used in many non-food (industrial) products

Government support

The DA in coordination with research institutions had crafted the Soybean Development Road Map whose aim is to reactivate and expand soybean production in the Philippines. The country is importing huge volume of soybean seeds and soybean meal to supply the demands of food, industrial and poultry and livestock industries.

Proposed Investment Arrangement/Modalities

- Sole proprietorship
- Partnership and or/ Contract Growing

One Hectare Starapple Production

Preferred Location	:	Throughout the country
Product	:	Fresh Fruit
Market	:	Local Markets, Fruit Stands, Processors

Cost and Return (10-Year Period)

Initial Investment Cost	:	PhP 36,617.00
Cumulative Gross Income (Yr. 4-10)	:	PhP 947,400.00
Cumulative Net Income (Yr. 4-10)	:	PhP 681,586.00
Farm Price/kilogram	:	PhP 15.00
Return on Investment	:	156.00%
Economic Life	:	more than 40 years

Source: Bureau of Plant Industry, 2013

Assumptions:

1. One-hectare land is owned
2. Population density – 83 trees/ha
3. Mortality rate in the field = 5%
4. Cost of Labor = P200.00/MD and P300/MAD, 10% increase every after 3 years
5. Cost of material inputs = increase by 10% every after 3 years
6. Marketing System: produce are sold at farm level or buyers pick the fruits at farmgate price
   - farm owner take charge in the harvesting and postharvest handling activities
7. Price of produce is assumed to be the same from Year 4 to Year 10
8. Bearing starts at Year 4
9. Weight of fruit = 356 g/fruit (based on the average weights of the 2 NSIC varieties of caimito)
10. Non-marketable yield = 10%
11. Net Yield = Gross Yield- 10% Non-marketable Yield
12. % ROI = (Net Return-Total Costs)/Total Costs x 100

Uses

- The fruits are eaten as fresh dessert fruit.
- The fresh fruit is also often added to salads and may also be used as an ingredient of ice cream and sherbet.
- The bark, leaves, latex, fruit and seeds possess medicinal properties and are used to treat some ailments such as dysentery, diabetes, hypertension among others.
- The reddish-brown wood is suitable for construction purposes and the mature branches are used as a medium to grow orchids.

Government Support

Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

Strawberry Production (1,000 sq.m.)

Preferred Location : Benguet, Bukidnon

Project Cost : Php 97,915.00

Product : fresh strawberries

Market : wet market, fruit stalls and processors

Cost and Return

Production Cost	: Php 97,915.00
Labor	: PhP 30,160.00
Fertilizers	: PhP 16,655.00
Pesticides	: PhP 6,500.00
Other Expenses (land Rental, seedlings, tools & Equipments, fuel, transport & plastic mulch)	: PhP 44,600.00
Gross Income	: PhP 160,000.00
Net Income	: PhP 70,085.00
Return on Investment	: 71.5 %
Economic Life	: 3 years

Source: Office of the Municipal Agriculturist, La Trinidad, Benguet, 2010

Assumptions:

1. 1,000 sq,m. plot.
2. 7,000 seedlings with yield of 2,600 kgs.
3. Price = P60/kg.

Uses

- As fresh fruit
- As shortcake, jam, muffins, sundae, pies, salad toppers, smoothies, cereal additions, chocolate dip, etc.
- Rich in vitamin C, folic acid and fiber and contain significant levels of phytonutrients and antioxidants
- Also contains vitamin k, manganese, magnesium, potassium, riboflavin, vitamin B_5, B_6 and omega 3-fatty acid.

Government Support

Training, market linkage, local government incentives, provision of credit (Rural Banks, Development Banks) technical information, site identification, facilitation of business licenses and other relate matters.

Proposed Investment Arrangement/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing
- Cooperative Plantation
- Joint Ventures

One Hectare Taro Production

Preferred Location : All over the country

Product : Taro Tubers

Market : Wet markets, processors

Cost and Return

Cost of Production	: PhP 54,368.00
Material Cost	: PhP 23,703.00
Labor Cost	: PhP 19,000.00
Contingency	: PhP 4,710.00
Interest on loan	: Php 2,355.00

Estimated Production	: 18,000 kilograms
Farm Price/kilogram	: PhP 8.00
Gross Sales	: PhP 144,000.00
Net Income	: PhP 90,791.00
Return on Investment	: 171%
Break-even price	: PhP2.94 kg
Maturity	: 6-8 months after planting

Gabi or Taro (*Xanthosoma violaceum Schoot*) know as gabing San Fernando is one of the most important root crops in the Philippines. It is widely cultivated throughout the country. Although this crops has the ability to grow in marginal areas, it normally grows well and produces high yield when cultivated in suitable areas with the right soil, rainfall and application of recommended technologies.

Taro has low caloric content. One serving of cooked, unsalted taro has only 187 calories. It has a lot of fiber which can help in the digestive process which can prevent the occurrence of colon cancer. It is also a good source of Vitamin C. Taro also provides about 19% of the daily required Vitamin E, which is essential in minimizing the risks of a heart attack.

Uses

Food- (offsets or tubers) can be eaten boiled as substitute for rice, prepared into snack foods, process into taro chips and other food products. The corms or body can be used as animal feed.

Government Support

AFMIS/on line service, market linkage, seminar/training on value adding, provision of technical and financial assistance.

Proposes Investment Arrangement/Modalities

- Sole proprietorship
- Partnership
- Contract growing
- Cooperative plantation
- Joint venture

One Hectare Tomato Seeds Production

Preferred Location : All over the country

Product : Fresh tomato

Market : Local wet market/ Supermarket

Image: www.homecooksonline.com

Cost and Return

Cost of Production	:	PhP 110,168.00
Gross Income	:	PhP 240,000.00
Net Income	:	PhP 129,832.00
Farm Price / kilogram	:	PhP 80.00
Return on Investment	:	118 %
Gestation Period	:	70-90 days

Source: Bureau of Plant industry

Uses

- Tomato (*Lycopersicon esculentum*) belongs to Family Solanaceae originated in Tropical America. It is an annual herbaceous plant; stems are soft, brittle and hairy when young, hard and woody when old. It thrives in relatively cool, dry climate for high and premium quality but can adapt to a wide range climatic condition with an optimum temperature requirements is 21-24 degrees Celsius.

- Tomato is a common ingredients vegetable to many dishes (fresh market tomatoes) and can also be processed into ketchups, sauces and seasoning (processing tomatoes). The fruit is rich in Vitamin C, Beta-carotene and lycopene. The stem can be used in paper manufacture. An antibiotic *tomatin* can be extracted from the seeds. The dried tomato pulp mixed with pectin is used in the treatment of diarrhea and dysentery. (Source : Tomato Production Guide, BPI 2013)

Government Support

Training, market linkage, technical assistance

Proposed Investment Arrangements/Modalities

- Joint Ventures
- Partnership/Contract Growing
- Sole Proprietorship

One Hectare Yacon Production

Product : Yacon

Market : Wet markets, supermarkets processors

Cost and Return

Cost of Production

Material Cost	:	PhP 34,720.00
Labor Cost	:	PhP 36,800.00
Other Cost	:	PhP 700.00
Contingencies	:	PhP 10,728.00
Interest on Capital/land rent	:	PhP 5,700.00
Estimated Production (kg)	:	20,000 kilograms
Farm Price/kilogram	:	PhP 20.00
Gross Sales	:	PhP 408,000.00
Net Income	:	PhP 318,336.00
Return on Investment	:	355 %
Break even yield	:	4,483 kilograms
Maturity (months)	:	6 months

Source: Dept. of Agriculture Regional Field Unit 2

Brief Commodity Description

Yacon (*Smallanthus sonchifolius*) also known as apple of the earth is a perennial plant traditionally grown in the South America for its crisp, sweet-tasting tuberous roots.

Uses

The extract from the leaves was found to show potent anti-diabetic activity. Its syrup is a good source of fructooligosaccharides and its long-term consumption produced beneficial health effects on obese pre-menopausal women with insulin resistance. As a prebiotic , yacon is good for digestion, stimulates positive colon health and helps with the absorption of calcium, magnesium and B vitamins. Yacon helps to regulate friendly intestinal flora, and especially improves the growth of certain probiotics, thus helping to reduce to reduce constipation. Yacon root contains significant quantities of potassium nd antioxidants. Because of its high antioxidant value, yacon is beneficial in reducing free-radical damage in the body, especially in the colon.

Yacon root can be processed into a variety of products, including dried yacon root slices, dried and ground yacon powder and yacon syrup.

Government Support

AFMIS/on line service, market linkage, seminar/training on value adding, provision of technical and financial assistance.

Proposed Investment Arrangement/Modalities

- Sole proprietorship
- Partnership
- Contract growing
- Cooperative plantation
- Joint venture

African Catfish/Hito(*Clarias gariephinus*) Production
(8700 sq. m. fishpond@ 15 pieces/sq. m. stacking density)

Preferred Location	:	Throughout the country
Project Proponent	:	Los Amigos Aqua Culture Producers Organization
Product	:	Fresh Hito
Market	:	Wet Markets, Institutional Buyers, Processors, Export Markets


www. 21food.com

Cost and Return

Production Cost	:	PhP 1,061,500.00
Gross Income	:	PhP 2,610,000.00
Net Income	:	PhP 1,548,500.00
Expected Farmgate Price	:	PhP 100.00/kilogram
Return on Investment	:	146 %

Source: Bureau of Fisheries and Aquatic Resources

Use

- Food

Government Support

Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

Note* *all projections are calculated for five (5) months culture period*

Freshwater Prawn (*Macrobrachium rosenbergii*) Production

Preferred Location	:	Throughout the country
Initial Project Cost	:	Php 288,000.00
Product	:	Fresh Prawn
Market	:	Wet Markets, Institutional Buyers, Processors, Export Markets

Cost and Return

Production Cost	:	PhP 207,147.00
Gross Income	:	PhP 800,000.00
Net Income	:	PhP 592, 853.00
Expected Farmgate Price	:	PhP 250.00/kilogram
Return on Investment	:	85.28%
Payback Period	:	1.09 Years

Source: Bureau of Fisheries and Aquatic Resources-National Integrated Fisheries Technology Development Center

Use

- Food

Government Support

Training, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), technical information, site identification, facilitation of business licenses and other related matters.

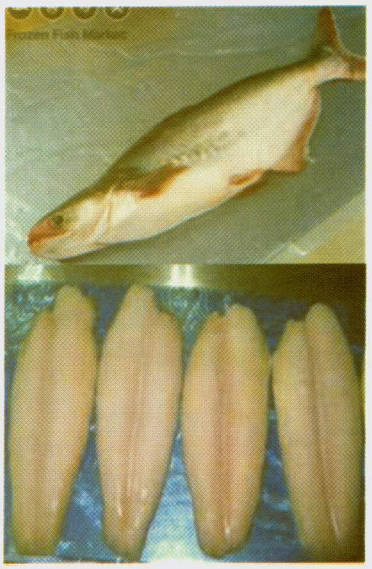
Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

Note* *all projections are calculated for six (6) months culture period in a one hectare earthen pond*

River Catfish (*Pangasius spp.*)Production

Preferred Location	:	Throughout the country
Product	:	Fresh Pangasius
Market	:	Wet Markets, Institutional Buyers, Processors, Export Markets
Cost and Return		
Operational Cost of Production	:	PhP 161, 852.00
Gross Income	:	PhP 270,895.00
Net Income	:	PhP 109,043.00
Expected Farmgate Price	:	PhP 100.00/kilogram
Return on Investment	:	68%



Source: Bureau of Fisheries and Aquatic Resources

Assumption: with existing pond

Use

- Food

Government Support

Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

Note* *all projections are calculated for five to six (5-6) months culture period in a 1,600 to 2,400 sq. m. pond*

Tilapia (*Oreochromis niloticus*) Production

Preferred Location	:	Throughout the country
Product	:	Fresh Tilapia
Market	:	Wet Markets, Institutional Buyers, Processors, Export Markets

www.fishfarming.com

Cost and Return

Capital Investment	:	PhP 1,127,775.00
Operating Cost	:	PhP 335,900.00
Gross Income	:	PhP 1,455,000.00
Net Income	:	PhP 1,099,100.00
Expected Farmgate Price	:	PhP 75.00/kilogram
Return on Investment	:	97.50 %
Rate of Return	:	12.3 months

Source: Bureau of Fisheries and Aquatic Resources

Use

- Food

Government Support

Technical assistance, market linkage, local government incentives, provision of credit (Rural Banks and Development Banks), site identification, facilitation of business licenses and other related matters.

Proposed Investment Arrangements/Modalities

- Sole Proprietorship
- Partnership and/or Contract Growing

Note* *all projections are calculated for five (5) months culture period in a one hectare earthen pond, 2 croppings*

Estimated Banana (Saba) Chips Processing Cost and Return

Description:

Banana chips are under-ripe bananas that are cut into slices, dipped in syrup solution, dried under the sun or by artificial means, fried and eaten as snack food or dessert. These can be sold both in the local and export markets.

Estimated Investment Costs: (Php)

A. Utensils/Equipments:		B. Ingredients	
Slicing knife	100.00	100 pcs under-ripe green bananas @ 3.50/pc	350.00
Chopping board	100.00	2 kgs. brown sugar @ 35.00/kg	70.00
Plastic bucket for soaking	50.00	1 bottle honey	150.00
Plastic sieve for draining	30.00	50 pcs calamansi/lemon @0.50/pc	25.00
Frying pan/wok	500.00	5 bottles cooking oil @ 15.00/bottle	75.00
Frying mesh basket	100.00	*Sub-Total*	*670.00*
Weighing scale	300.00	C. Packaging	
Bag sealer	300.00		
5 pcs. Drying tray @ P80/pc.	400.00	50 pcs. Polyethylene bags @ 2.00/pc	100.00
Sub-Total *1,880.00*			
Depreciation cost	376.00	D. Others	
		Cooking gas	550.00
		Electricity	21.00
		Water	10.00
		Labor Cost	300.00
		Transportation Cost	100.00
		Sub-Total	*981.00*
Total Investment Cost:	**3,821.00**	Total Operating Cost	**2,027.00**

Procedure:

1. *Peel under-ripe green bananas and evenly slice crosswise into 5-8mm thick Saba.*
2. *Immediately soak the sliced banana chips into citric acid solution (made by mixing 1 part lemon or calamansi juice with 2-3 parts water) for 3-5 minutes to prevent them for turning brown.*
   Note: Solution can be used twice.
3. *Drain chips from the solution using plastic sieve.*
4. *Dip the drain chips in syrup solution (mix 1 cup sugar with 3 cups of boiling water + 1 cup honey) For 3-5 minutes.*
5. *Drain the chips from syrup solution and place them in drying tray.*
6. *Dry chips under the sun for 2 days until texture becomes rubbery soft.*
7. *Heat vegetable oil in frying pan to 180°C-200°C and dip the chips until golden brown.*
8. *Drain the oil from the chips and allow to cool to room temperature.*
9. *Place the chips in moisture-proof polyethylene bags, label, and seal the bags. Place in a cool place away from direct sunlight.*
10. *Banana chips are now ready for market.*

Assumption: 100 pcs. Bananas of about 10 kgs can produce 5 kgs of fried banana chipa, which yield 50 packs.
Product Pricing (C+ 10% mark-up) = P2,230.00
Estimated Selling Price/pack = P44.60
ROI= 10% or P10.00/pack

Note: But if the under-ripe green bananas came from the farm (P1.00/pc x 100 = P100.00, ROI = 25.49% or P25.49/pack as profit.

Source: dti.gov.ph updated to 2012

Estimated Banana (Saba) Wine Making Cost and Return

Description:

Banana wine is a liquor made from banana fruit. It can be made dry or sweet depending upon the recipe and can be blended with other wines to add body and flavours.

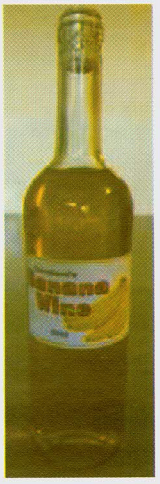
Estimated Investment Costs: (Php)

A. Utensils/Equipments:

Stove with tank	3,500.00
Double boiler	900.00
Colander, 2pcs. @180	360.00
Mixing bowl	360.00
Weighing Scale	500.00
Measuring Cups	90.00
Measuring spoons	35.00
Earthen jars (8 gal, 2 pcs @ 400/pc	800.00
Knife, 2 pcs @ 70/pc	140.00
Casseroles, 2pcs (big) @ 220/pc	440.00
Cheese cloth, 2 yrds, @20/yrd	40.00
Sub-Total	*7,165.00*

B. Ingredients

100 pcs ripe bananas @ 1/pc	100.00
4 kgs brown sugar @ 35.00/kg	140.00
1 small can yeast	35.00
Mother liquor, 4 L @30/L	120.00
Eggs, 30 pcs @5/pc	150.00
Bottles, 3 cases @400/case	1,200.00
Plastic Seal, P25/100 pcs	25.00
Sub-Total	*1,770.00*



Procedure:

1. *Peel ripe bananas and slice thinly.*
2. *Measure. For every 1 part of sliced banana, add 11/2 parts of water.*
3. *Boil for 30 minutes or longer, depending upon the quantity of the pulp.*
4. *Strain.*
5. *Add sugar to the extract (1 part sugar to every 3 parts of banana extract).*
6. *Boil mixture while stirring constantly to dissolve the sugar. Sugar content should be 22-24°C in temperature.*
7. *Allow to cool*
8. *Place in a clean glass container.*
9. *Inoculate with yeast (1tbsp of yeast to every 40 liters of boiled sweetened juice).*
10. *Plug mouth of glass container with a clean piece of paper to protect from dust.*
11. *Ferment for a month.*
12. *Siphon out the clear fermented liquid.*
13. *Filter and transfer to a sterilized oak barrel for aging.*
14. *Cover hole with a wooden plug and seal with melted paraffin.*
15. *Age for 2 years or longer.*
16. *Clarify the wine by heating the aged wine in steam bath or double boiler to a temperature of 55-60°C. While heating the wine, add well-beaten egg whites (8 egg whites to every 30 liters of wine).*
17. *Stir for 15-10 minutes to maintain the temperature.*
18. *Cool*
19. *Filter the wine and bottle by siphoning into clear and sterilized bottles.*

Cost and Price per 1 bottle of wine:

Direct Cost

Ripe Banans	100 pcs @ 1/pc	100
Brown sugar, 4 kgs	@35/kg	140
Yeast, 1 small can		35
Mother Liquor, 4 L	@30/L	120
Eggs, 30 pcs	@5/pc	150
Bottles, 3 cases	@400/c	1,200
Plastic Seal,	P25/100 pcs	25
Labor		21.22
Total Direct Cost		**1,791.22**

Indirect Cost

Water (P220 consumption/36 bottles/22 days	0.28
Electricity consumption (P750/36 bottles/22 days	0.95
Contingency cost (10% of direct cost -P1,791.22 x 10%)	4.98
Total Indirect Cost	**6.21**

Production Cost

Total Direct Cost + Total Indirect Cost
P1,791.22/36 = 49.76 + 6.21 = 55.97/bottle

Product Pricing

Production Cost/bottle -	55.97
Add 20% mark-up	11.19
Selling Price/bottle	**67.16**
Market Price/piece	**P100-P150**

Source: dti.gov.ph, 2011

Estimated Micro-scale Strawberry Jam and Strawberry Wine Production (1-2 year operation)

Description:

Strawberry jam is composed of strawberry, white sugar, acid (lemon juice, lime juice or citric acid or a combination of acids) and pectin. Strawberry wine contains fresh strawberry extract, sugar (range of 10°Brix to 15°Brix) and other sweeteners, alcohol (range of 7% to 14%) water and may contain flavors.

Estimated Investment Costs: (Php) 823,071.39

Gross Income:		
Strawberry jam (300 gms)	92,160.00	
Strawberry jam (500 gms)	331,200.00	
Strawberry wine (700 ml)**	423,966.12	
Total	*847,326.12*	
Fixed Capital Investment	74,050.00	
Operating & Maintenance Cost		
Materials & Inputs	438,261.39	
Labor Costs	45,800.00	
Other Operating Costs		
Overhead Costs	18,640.00	Net Income 323,304.73
Rental Fees	6,000.00	Return On Investment (ROI %) = 39.28
Store Outlet-Electricity Expense	4,320.00	
Delivery Expense	6,000.00	
Business permits (DTI, BIR, etc.)	10,000.00	
BFAD Accreditation & Licensing)	20,000.00	
Total Operating Costs	*549,021.39*	
Total Processing Costs	*623,071.39*	
(Contingency to cover negative income)	200,000.00	
Total Gross Costs	**823,071.39**	

** produced on the 2nd year, Income from strawberry jams reached only Php 423,360 on the 1st year giving a negative income of Php 199,711.39. However, on 2nd year Net Income reached Php323,304.73.
Source: Benguet State University, Philippines, 2009

Procedures:

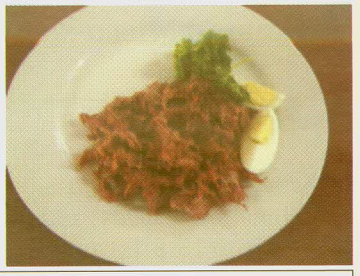
Strawberry jam

1. Remove calyx from freshly gathered strawberries.
2. Wash strawberries in clean water. Drain.
3. Weigh berries. For every kilogram of berries, add a kilogram of white sugar and 5 gms. citric acid.
4. Cook until thick in consistency. End point can be determined by pouring a small amount of syrup in a cup of cold water. If a soft ball forms, jam is cooked.
5. Remove scum and pack immediately in a sterilized jar.
6. Seal completely, cool, label and store.

Strawberry wine:

1. Select ripe strawberries. ort out rotten berries, clean. Wash and weigh.
2. Add water three times the weight of strawberries then boil for 20 minutes or until very soft.
3. Strain to obtain the strawberry extract. Add 1.2 kg of sugar to every 3.5 kg of extract, then boil for another 3 minutes.
4. Pour in fermenting pail. Cover partially and let cool. Add 1 tsp. of yeast to every 3.5 kg must and ferment for 5-7 days.
5. Siphon to transfer in a narrow mouthed container (e.g. 5 gal water containers) leaving the sediments settled in the pail; apply airlock and ferment for 25 days.
6. Pasteurize for 10 minutes and pour back to the narrow mouthed container then seal.
7. Rack twice with at least one month interval.
8. Age for at least 5 months.
9. Pack in sterilized bottles, seal and label. Heat or chemical sterilization may be used provided that chemicals are used judiciously.

Corned Beef Production

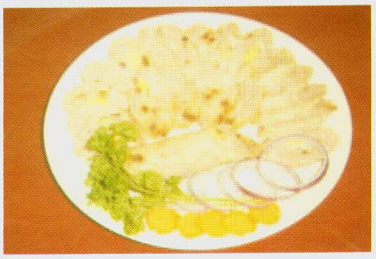


		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
100.00%	Beef	1.0000	280.00	280.00
B. Brine:				
12.00g	Salt, refined	0.0120	15.00	0.18
2.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0020	28.00	0.06
2.00g	Phosphate	0.0020	140.00	0.28
250.00g	Potable water	0.2500	4.00	1.00
12.50g	Sugar, refined	0.0125	48.00	0.60
0.50g	Sodium erythorbate	0.0005	335.00	0.17
C. Seasonings:				
1.00g	Monosodium glutamate	0.0010	177.50	0.18
1.60g	Peppercorn	0.0016	580.00	0.93
2.00g	Garlic, fresh, chopped	0.0020	119.00	0.24
1.00g	Bay leaf	0.0010	700.00	0.70
5.30g	Corned beef seasoning	0.0053	160.00	0.85
1.00g	Oregano strands	0.0010	700.00	0.70
250.00g	Potable water	0.2500	4.00	1.00
Sub - Total (A to C)				285.18
D. Labor Cost (10% of A to C)				28.52
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				57.04
Total				370.73
II. Production Outputs				
A. Yield of Finished Product (kg)				1.00
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				444.87
III. Net Profits				
A. Total Sales				444.87
B. Total Production Inputs				370.73
C. Net Profit				74.14

PROCESSING

CUT	fresh/chilled meat into 1 by ½ inch cubes
PREPARE BRINE	by mixing cold water (<+4°C) with other ingredients; start with phosphate, nitrite curing salt, sugar, and sodium erythorbate
CURE	by placing meat in a clean container and covering with brine; store at <+4°C for 1 day
WASH	cured meat once with tap water
COOK	meat with spices (oregano strands, bay leaf, and peppercorn wrapped in gauze) and seasonings either by the use of: a. pressure cooker for 45 minutes to 1 hour at 15 lbs pressure; or b. an open fire (ordinary casserole) for 4-6 hours (slow cooking)
FLAKE/GRIND	meat and remix broth (1 part of broth: 3 parts of meat)
PACK	in polyethylene (PE) or vacuum bag according to desired weight
STORE	in freezer (below -18°C)

Embutido Production



		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
80.00%	Pork lean, ground	0.8000	170.00	136.00
20.00%	Pork backfat	0.2000	85.00	17.00
B. Curing mix:				
12.00g	Salt, refined	0.0120	15.00	0.18
2.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0020	28.00	0.06
3.00g	Phosphate	0.0030	140.00	0.42
0.50g	Sodium erythorbate	0.0005	335.00	0.17
62.50g	Potable water	0.0625	4.00	0.25
C. Seasonings:				
125.00g	Cheese, grated	0.1250	225.00	28.13
60.00g	Sugar, refined	0.0600	48.00	2.88
32.00g	Pickle relish	0.0320	226.00	7.23
30.00g	Raisins	0.0300	275.00	8.25
28.00g	All-purpose flour	0.0280	93.75	2.63
24.00g	Vienna sausage	0.0240	164.25	3.94
16.00g	Carrots	0.0160	48.00	0.77
15.00g	Skimmed milk	0.0150	225.00	3.38
11.40g	Onion, fresh	0.0114	62.00	0.71
70.00g	Chorizo de bilbao	0.0700	555.00	38.85
2.50g	Black pepper, ground	0.0025	580.00	1.45
2.00g	Monosodium glutamate	0.0020	177.50	0.36
4pcs	Eggs		6.00	24.00
	Sub - Total (A to C)			252.63
D. Labor Cost (10% of A to C)				25.26
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				50.53
	Total			328.42
II. Production Outputs				
A. Yield of Finished Product (kg)				1.50 (*6 rolls*)
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				262.74 (*43.79/roll*)
III. Net Profits				
A. Total Sales				394.11
B. Total Production Inputs				328.42
C. Net Profit				65.69 (*10.95/roll*)

PROCESSING

CUT	pork trimmings and backfat into small pieces
GRIND	pork trimmings and backfat using 5 mm plate
MIX	meat with additives and seasonings until tacky
GREASE	aluminum foil with butter or cooking oil
WRAP	by placing ¼ kg or 1 cup of the meat mixture into the aluminum foil, putting slices of hardboiled egg in the middle part, if desired, and twist both ends
STEAM	for 1 hour; allow to cool
STORE	in chiller (below 4°C) or freezer (below -18°C)

Fresh Native Sausage Production

		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
70.00%	Pork lean, ground	0.7000	170.00	119.00
30.00%	Pork backfat	0.3000	85.00	25.50
B. Curing mix:				
6.00g	Salt, refined	0.0060	15.00	0.09
2.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0020	28.00	0.06
3.00g	Phosphate	0.0030	140.00	0.42
62.50g	Potable water	0.0625	4.00	0.25
C. Seasonings:				
40.00g	Sugar, refined	0.0400	48.00	1.92
34.00g	Vinegar	0.0340	23.75	0.81
24.00g	Anisado wine	0.0240	72.00	1.73
22.00g	Soy sauce	0.0220	35.00	0.77
22.00g	Garlic, fresh, chopped	0.0220	119.00	2.62
5.00g	Black pepper, ground	0.0050	580.00	2.90
2.00g	Monosodium glutamate	0.0020	177.50	0.36
	Sub - Total (A to C)			156.41
D. Labor Cost (10% of A to C)				15.64
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				31.28
	Total			203.34
II. Production Outputs				
A. Yield of Finished Product (kg)				1.30
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				187.70
III. Net Profits				
A. Total Sales				244.01
B. Total Production Inputs				203.34
C. Net Profit				40.67

PROCESSING

CUT	fresh meats into small pieces
GRIND	fresh meats, 5 mm
CUT	backfat into cubes
MIX	ground meats, backfat, additives, and seasonings
CURE	at refrigerator temperature (4-10°C) for 1 day
STUFF	into natural hog casings (26-28 mm)
PORTION	by linking into desired length (4-6 inches)
PACK	in polyethylene (PE) bags
STORE	in freezer (below -18°C)

Hamburger Production

		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
45.00%	Pork lean, ground	0.4500	170.00	76.50
45.00%	Beef lean, ground	0.4500	280.00	126.00
10.00%	Pork backfat	0.1000	85.00	8.50
B. Curing mix:				
12.00g	Salt, refined	0.0120	15.00	0.18
3.00g	Phosphate	0.0030	140.00	0.42
62.50g	Potable water	0.0625	4.00	0.25
C. Seasonings:				
10.00g	Sugar, refined	0.0100	48.00	0.48
1.00g	Celery powder	0.0010	285.00	0.29
130.00g	Onion, fresh	0.1300	62.00	8.06
11.00g	Garlic, fresh, chopped	0.0110	119.00	1.31
5.00g	Black pepper, ground	0.0050	580.00	2.90
28.00g	All-purpose flour	0.0280	93.75	2.63
10.00g	Skimmed milk	0.0100	225.00	2.25
1.50g	Monosodium glutamate	0.0015	177.50	0.27
2pcs	Eggs		6.00	12.00
	Sub - Total (A to C)			242.03
D. Labor Cost (10% of A to C)				24.20
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				48.41
	Total			314.63
II. Production Outputs				
A. Yield of Finished Product (kg)				1.50
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				251.71
III. Net Profits				
A. Total Sales				377.56
B. Total Production Inputs				314.63
C. Net Profit				62.93

PROCESSING

CUT	lean meat and pork backfat into small pieces
GRIND	pork backfat and lean meat in 5 mm plate
MIX	lean meat, backfat, additives, and seasoning until tacky
FORM	into patties (50 g per patty or as desired) in paperlyne (plastic wrap)
PACK	in polyethylene (PE) bag
STORE	in freezer (below -18°C)

Siomai Production

		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
80.00%	Pork lean, ground	0.8000	170.00	136.00
20.00%	Pork backfat	0.2000	85.00	17.00
B. Curing mix:				
12.00g	Salt, refined	0.0120	15.00	0.18
2.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0020	28.00	0.06
3.00g	Phosphate	0.0030	140.00	0.42
0.50g	Sodium erythorbate	0.0005	335.00	0.17
62.50g	Potable water	0.0625	4.00	0.25
C. Seasonings:				
7.00g	Shrimp powder	0.0070	600.00	4.20
48.00g	Garlic, fresh	0.0480	119.00	5.71
2.50g	Black pepper, ground	0.0025	580.00	1.45
50.00g	Cheese, grated	0.0500	225.00	11.25
1.50g	Monosodium glutamate	0.0015	177.50	0.27
96.00g	Carrots	0.0960	48.00	4.61
10.00g	Sesame oil	0.0100	795.00	7.95
2pcs	Eggs		6.00	24.00
	Sub - Total (A to C)			213.51
D. Labor Cost (10% of A to C)				21.35
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				42.70
	Total			277.56
II. Production Outputs				
A. Yield of Finished Product (kg)				1.50
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				222.05
III. Net Profits				
A. Total Sales				333.08
B. Total Production Inputs				277.56
C. Net Profit				55.52

PROCESSING

GRIND	meat 3 mm
MIX	ground meat, additives and seasonings
WRAP	in molo wrapper (2 tsp or 10 g of meat mixture per molo wrapper)
STEAM	30 minutes (grease steamer before steaming)
STORE	below +4°C, shelf life < 4 days or at -18°C

Skinless Longganisa Production

		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
70.00%	Pork lean, ground	0.7000	170.00	119.00
30.00%	Pork backfat	0.3000	85.00	25.50
B. Curing mix:				
12.00g	Salt, refined	0.0120	15.00	0.18
2.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0020	28.00	0.06
3.00g	Phosphate	0.0030	140.00	0.42
62.50g	Potable water	0.0625	4.00	0.25
C. Seasonings:				
90.00g	Sugar, refined	0.0900	48.00	4.32
34.00g	Pineapple juice	0.0340	235.00	7.99
24.00g	Anisado wine	0.0240	72.00	1.73
22.00g	Garlic, fresh, chopped	0.0220	119.00	2.62
5.00g	Black pepper, ground	0.0050	580.00	2.90
2.00g	Monosodium glutamate	0.0020	177.50	0.36
	Sub - Total (A to C)			165.32
D. Labor Cost (10% of A to C)				16.53
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				33.06
	Total			214.91
II. Production Outputs				
A. Yield of Finished Product (kg)				1.30
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				198.38
III. Net Profits				
A. Total Sales				257.90
B. Total Production Inputs				214.91
C. Net Profit				42.98

PROCESSING

CUT	pork trimmings and backfat into small pieces
GRIND	pork trimmings and backfat using 5 mm plate
MIX	ground meats, backfat, additives, and seasonings until tacky
CURE	at refrigerator temperature (4-10°C) for 1 day
WRAP	in paperlyne (plastic wrap) approx. 40 g/pc or 12 pcs/500 g pack
PACK	in polyethylene (PE) bags
STORE	in freezer (below -18°C)

Slab Bacon Production

		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
100.00%	Pork belly	10.0000	170.00	1,700.00
B. **Pumping pickle**:				
1250.00	Potable water	1.2500	4.00	5.00
180.00g	Salt, refined	0.1800	15.00	2.70
20.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0200	28.00	0.56
30.00g	Phosphate	0.0300	140.00	4.20
25.00g	Sugar, refined	0.0250	48.00	1.20
5.00g	Sodium erythorbate	0.0050	335.00	1.68
3.00g	Smoke flavor	0.0030	360.00	1.08
0.06g	Oil of anise	0.00006	1,480.00	0.09
0.08g	Oil of cloves	0.00008	2,360.00	0.19
0.12g	Maplein	0.0001	348.00	0.04
C. **Dry cure:**				
350.00g	Sugar, refined	0.3500	48.00	16.80
180.00g	Salt, refined	0.1800	15.00	2.70
20.00g	Phosphate	0.0200	140.00	2.80
	Sub - Total (A to C)			1,739.03
D. Labor Cost (10% of A to C)				173.90
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				347.81
	Total			2,260.74
II. Production Outputs				
A. Yield of Finished Product (kg)				10.00
C. Mark up or Profit Margin				0.20
D. Retail cost (PHP)				271.29
III. Net Profits				
A. Total Sales				2,712.90
B. Total Production Inputs				2,260.74
C. Net Profit				452.16/10 = 45.22

PROCESSING

TRIM	meat by removing all bones; shape muscle
CHILL	meat at <+4°C
PREPARE BRINE	by mixing cold water (<+4°C) with other ingredients; start with phosphate, nitrite curing salt, refined salt, sugar, sodium erythorbate, smoke flavor, and oils
INJECT	prepared brine solution (10% of weight of meat), using a brine pump
APPLY	dry cure mixture to meat, fat side first
CURE	at refrigerator temperature (4-10°C) for 1 day
WASH	cured meat once with tap water and place in freezer
SLICE	frozen cured meat into thin slices
PACK	in polyethylene (PE) or vacuum bag according to desired weight
STORE	in freezer (below -18°C)

Smoked Longganisa Production

		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
80.00%	Pork lean, ground	0.8000	170.00	136.00
20.00%	Pork backfat	0.2000	85.00	17.00
B. Curing mix:				
12.00g	Salt, refined	0.0120	15.00	0.18
2.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0020	28.00	0.06
3.00g	Phosphate	0.0030	140.00	0.42
62.50g	Potable water	0.0625	4.00	0.25
C. Seasonings:				
90.00g	Sugar, refined	0.0900	48.00	4.32
44.00g	Anisado wine	0.0440	72.00	3.17
50.00g	Garlic, fresh, chopped	0.0500	119.00	5.95
5.00g	Black pepper, ground	0.0050	580.00	2.90
2.00g	Monosodium glutamate	0.0020	177.50	0.36
	Sub - Total (A to C)			170.60
D. Labor Cost (10% of A to C)				17.06
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				34.12
	Total			221.78
II. Production Outputs				
A. Yield of Finished Product (kg)				1.30
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				204.72
III. Net Profits				
A. Total Sales				266.14
B. Total Production Inputs				221.78
C. Net Profit				44.36

PROCESSING

CUT	pork trimmings and backfat into small pieces
GRIND	pork trimmings and backfat using 5 mm plate
MIX	ground meats, backfat, additives, and seasonings until tacky
CURE	at refrigerator temperature (4-10°C) for 1 day
STUFF	into natural sheep casings (22-24 mm) or natural pork casings (26-28 mm)
PORTION	by linking into desired length (4-6 inches)
DRY/SMOKE	by drying for 1-2 hr at 45-50°C; smoking for 30-45 min at 70°C
PACK	in polyethylene (PE) bags according to desired weight
STORE	in freezer (below -18°C)

Tapang Taal Production

	Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs			
A. Raw materials:			
100.00% Beef	1.0000	280.00	280.00
B. Curing mix:			
6.00g Salt, refined	0.0060	15.00	0.09
3.00g Phosphate	0.0030	140.00	0.42
62.50g Potable water	0.0625	4.00	0.25
C. Seasonings:			
60.00g Sugar, refined	0.0600	48.00	2.88
60.00g Soy sauce	0.0600	35.00	2.10
60.00g Vinegar	0.0600	23.75	1.43
24.00g Anisado wine	0.0240	72.00	1.73
22.00g Garlic, fresh, chopped	0.0220	119.00	2.62
5.00g Black pepper, ground	0.0050	580.00	2.90
2.00g Monosodium glutamate	0.0020	177.50	0.36
Sub - Total (A to C)			294.77
D. Labor Cost (10% of A to C)			29.48
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost			58.95
Total			383.20
II. Production Outputs			
A. Yield of Finished Product (kg)			1.30
B. Mark up or Profit Margin			0.20
C. Retail cost (PHP)			353.72
III. Net Profits			
A. Total Sales			459.84
B. Total Production Inputs			383.20
C. Net Profit			76.64

PROCESSING

CUT	meat into ¼ inch thick slices
MIX	refined salt and phosphate to the sliced beef
CURE	at refrigerator temperature (4-10°C) for 1 day or at room temperature for 8-10 hours
MIX	again before packing
PACK	into desired weight
STORE	in freezer

Tocino Production

		Amount (kg)	Cost/kg in PHP	Total Cost in PHP
I. Production Inputs				
A. Raw materials:				
100.00%	Pork (from shoulder or leg or any portion with fat)	1.0000	170.00	170.00
B. Curing mix:				
12.00g	Salt, refined	0.0120	15.00	0.18
2.00g	Nitrite curing salt (94.0 % salt, 6.0% nitrite)	0.0020	28.00	0.06
3.00g	Phosphate	0.0030	140.00	0.42
62.50g	Potable water	0.0625	4.00	0.25
C. Seasonings:				
90.00g	Sugar, refined	0.0900	48.00	4.32
34.00g	Pineapple juice	0.0340	235.00	7.99
18.00g	Anisado wine	0.0180	72.00	1.30
11.00g	Garlic, fresh, chopped	0.0110	119.00	1.31
2.00g	Monosodium glutamate	0.0020	177.50	0.36
	Sub - Total (A to C)			186.18
D. Labor Cost (10% of A to C)				18.62
E. Fixed Cost (Indirect Cost, 20% of A to C) - administrative cost, contingency, packaging cost				37.24
	Total			242.03
II. Production Outputs				
A. Yield of Finished Product (kg)				1.30
B. Mark up or Profit Margin				0.20
C. Retail cost (PHP)				223.41
III. Net Profits				
A. Total Sales				290.43
B. Total Production Inputs				242.03
C. Net Profit				48.40

PROCESSING

CUT meat into ¼ inch thick slices

MIX meat with curing mix first, then seasonings

CURE at refrigerator temperature (4-10°C) for 1-2 days

PACK in polyethylene (PE) or vacuum bag according to desired weight

STORE in freezer (below -18°C)

THE AGRIBUSINESS AND MARKETING ASSISTANCE SERVICE (AMAS), DEPARTMENT OF AGRICULTURE (DA)

AMAS serves as central body that coordinates and facilitates the efforts on marketing, investment and entrepreneurial development of all the DA units, bureaus and attached agencies and establish networking with other entities (i.e NGO, business sectors, LGUs, SCUs, government agencies, and financial institutions, among others).

It takes the lead in the promotion of agriculture and fisheries products and in the promotion of agribusiness investment potentials in the local and international arena. There are numbers of regular agribusiness and investment fairs being organized and participated by AMAS in collaboration with local and foreign partners.

For effective market assistance/linkage and useful information systems, the DA AMAS devotes resources on market intelligence work to assess evolving market trends and scan emerging demand for agricultural products in both the domestic and export markets. Likewise, to ensure sustainable and effective information systems, the AMAS and the Information Technology Center for Agriculture and Fisheries (ITCAF) work together and formed the Agriculture and Fisheries Market Information System (AFMIS) at the national and local levels.

The country's agribusiness investment promotion and enterprise development assistance focuses on high-value value commodities with comparative advantage. The livelihood entrepreneurial activities include assistance and support for agribusiness entrepreneurs in Micro-SMEs. In strengthening the small farmers/ fisher folk groups and for easy market access and support services the trading centers and food terminal systems are being established in strategic areas in partnership with private sector and local government units.

AMAS has fivefold programs: 1) market access and development; 2) industry support and development; 3) investment assistance and promotion; 4) enterprise development assistance; and, 5) market research and information.

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