Chapter 3

economic

**ECONOMIC**

The economic sector is divided into various sub-sectors to define the proportion of the population engaged in various activities towards financial gain. This categorization is seen as a scale of distance from the natural environment. The field starts with the primary sector, which concerns itself with the utilization of raw materials from the earth such as agriculture, industry, and others.

The primary sector of the economy extracts or harvests products from the earth. It includes the production of raw materials and basic foods. Activities associated with the primary sector include agriculture, commerce and trade, industry, and tourism.

**AGRICULTURE**

A good agricultural performance operates to reduce measured poverty through both the income and the expenditures. Most of the population belonging to the poverty threshold, depend on agriculture for their income. It is natural to think that an increase in farm income would be poverty reducing and as findings from these sectoral studies suggest, a general rise in income alleviates poverty.

Similarly, because food constitutes such a high share of consumer expenditures by the poor it is also tempting to think that lower food prices, accompanied by increased food production per capita, would be poverty reducing. Vagueness arises precisely because so many poor people depend on farming for a living. Thus, depending on what causes prices to fall, how much they decrease and their commodity composition, a decline in food prices might simultaneously reduce the earnings and the purchasing power of some poor farmers while increasing the purchasing power of some poor consumers. These possibilities put a question mark on the relationship between poverty and food production as areas requiring further exploration.

***Situational Analysis***

Mangaldan is an agricultural municipality and most of its populace depends on farming as their source of income. Presently, the municipality has a total agricultural area of 3,378.50 hectares based on the Mangaldan Cadastral Map updated by the Office of the Municipal Assessor.

The total agricultural area is categorized into two (3) types of ecosystem such as irrigated, rainfed and permanent crops with areas of 1,350 and 1,384, 644.50 hectares respectively.

The agricultural lands of the municipality are utilized to produce crops that are suitable to the soil and climatic conditions in the locality. The main crops presently grown by the farmers are rice, corn, vegetables, mango and rootcrops. Among the crops mentioned, rice dominates as far as area, volume and peso value are concerned. Twenty-nine (29) out of thirty (30) barangays are engaged in rice production as shown on the table below.

**Table 67: Rice Production Areas in Hectares by Barangay, CY 2016**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Barangay** | **Irrigated** | **Rainfed** | **Barangay** | **Irrigated** | **Rainfed** |
| 1. Alitaya | 387 | 387 | 16. Lanas | 85 | 10 |
| 2. Amansabina | 70 | 70 | 17. Landas | - | 45 |
| 3. Anolid | 101 | 101 | 18. Maasin | 80 | 10 |
| 4. Banaoang | 30 | 25 | 19. Macayug | 30 | 30 |
| 5. Bantayan | 10 | 5 | 20. Malabago | 90 | 90 |
| 6. Bari | 5 | 10 | 21. Navaluan | - | 37 |
| 7. Bateng | 40 | 2 | 22. Nibaliw | - | 36 |
| 8. Buenlag | 120.5 | 110 | 23. Osiem | - | 47 |
| 9. David | 60 | 60 | 24. Palua | - | 35 |
| 10. Embarcadero | - | 25 | 25. Poblacion | - | - |
| 11. Gueguesangen | 50 | 50 | 26. Pogo | - | 36 |
| 12. Guesang | 6.5 | 6 | 27. Salaan | - | 25 |
| 13. Guiguilonen | - | 10 | 28. Salay | 35 | - |
| 14. Guilig | 35 | 25 | 29. Talogtog | 50 | 2 |
| 15. Inlambo | 65 | 65 | 30. Tebag | - | 30 |
| **Total Prod. of Irrigated Area= 1,350** | | | **Total Prod. of Rainfed Area = 1,384** | | |

*Source: Municipal Agriculture Office, 2016*

Technically, crop production is highly dependent on water. Water is a big contributory factor to attain optimum yield and higher income for the farmers. With this, the Local Government Unit of Mangaldan excerpts all its efforts to develop and construct new systems/facilities to increase the irrigation area in the locality with the assistance of the Department of Agriculture (DA), and the National Irrigation Administration (NIA).

Presently, Mangaldan has an irrigated area of 1,350 hectares and are sourced out from various types as shown in table 68. The construction of additional Shallow Tube Wells also helped in increasing the area of our irrigated lands.

Moreover, the installation of Shallow Tube Wells in the municipality provided a potential source of water for a better crop production. Most of the projects of the local and national government pertaining to STWs development are focused on all thirty (30) barangays where water table is shallow.

**Table 68: Source of Irrigation Water**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of Irrigation** | **No. of Units** | | | |
| **2012** | **2013** | **2014** | **2015** |
| 1. Shallow Tube Wells (STW) | 400 | 400 | 403 | 450 |
| 2. Communal Irrigation System (CIS) | 1 | 1 | 1 | 1 |
| 3. NIA Irrigation System | 1 | 1 | 1 | 2 |

*Source: Municipal Agriculture Office, 2015*

***Farmers and Farming Practices***

As per records of the Municipal Agriculturist Office of Mangaldan, there are about 2,656 farmers engaged in farming as their major source of livelihood. Around two and a half percent (2.5%) of the total population of 107,883 in 2016 are dependent on agriculture production, such as crop production, livestock and poultry and fish production.

The farmer to agricultural land ratio at present is 1:0.75, meaning to say that every farmer is tilling an average area of 7,500 squares meters. Comparing this piece of information from previous data in the past years, it decreased due to the increasing constructions of residential and commercial establishments, which were formerly used for agricultural purposes.

Farming practices today are more advance due to new technological innovations infused by the Department of Agriculture and other related government agencies in partnership with the private sector. One of the remarkable interventions in present farming is the Farms Mechanization Program of the Department of Agriculture where 90% of the total cost of farm machinery is the government subsidy and only 10% is the counterpart of the crop/association as recipient. Due to this project, there was a great shifting in harvesting activity where most of the farmers are utilizing farm workers. Moreover, it is convenient on the part of the farmers and the quality of grains is better which in return command a higher price and eventually higher income for the farming families.

We can truly say that in any development there are positive and negative results. The negative effect of this development is the farm workers displacement during the harvesting season of rice. The government both local and national should address this problem by providing them other job opportunities to be able to survive in their daily living.

Another piece of intervention that made a big change in farming practices is the utilization of high quality seeds, such as registered seeds, certified seeds and hybrid seeds.

The Department of Agriculture through the years has institutionalized seeds subsidy to the farmers. There is a gradual increase in the utilization of high quality seeds every year reaching to at least 10% increase in yield using the high quality seeds compared to traditional seeds previously used. With this positive result, 100% of the farmers in Mangaldan habitually use high quality seeds with discount or government subsidy.

The supply of high quality seeds for corn and vegetables is not a problem for the reason that multi-national private companies are capable of producing sufficient volume to meet the seed requirements during cropping season. But, in the case of rice registered/certified seeds where there is a limited supply during the planting season, it is really a problem on the part of the farmers.

The shortage of supply of rice quality seeds in the locality is attributed by limited number of seed growers who want to engage in seed production. At present, there are only four (4) registered seed growers who are actively involved in seed production. The Office of the Municipal Agriculturist is consistently encouraging potential farmers to venture on rice seed production to lessen the burden of the users of high quality seeds.

With the problem mentioned, farmers in the locality are resorting to buy their seeds in the neighboring municipalities of Sta. Barbara and Rosales or they travel as far as Nueva Ecija and procure registered/certified rice seeds from PhilRice or to registered seed growers. With strong and appropriate interventions of the local and national government, it is expected that the present number of farmers utilizing high quality seeds for better and productive crop production will positively increase by the next years. There are farmers in the locality who started establishing organic farming specifically in growing vegetables.

As far as the livestock production is concerned, the Municipality of Mangaldan is gaining popularity because of its support facilities like the Livestock Auction Market, Municipal Abattoir (Class AA), the Meat & Fish Processing Center and the Mangaldan Pasalubong Center where we showcase our One Town One Product (OTOP), the Mangaldan TAPA and other processed meats like Batutay, Longganisa and Tocino.

**Table 69: Comparative Livestock Population (2012-2016)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Livestock** | **2012** | **2013** | **2014** | **2015** | **2016** |
| Large Cattle | 2,150 | 2,240 | 2,300 | 1,902 | 2,400 |
| Carabao | 205 | 205 | 175 | 382 | 148 |
| Swine | 6,150 | 5,940 | 9,150 | 6,882 | 10,585 |
| Goat | 2,050 | 2,355 | 2,050 | 2,980 | 2,315 |
| Poultry | 46,500 | 95,000 | 46,500 | 36,790 | 111,900 |
| Ducks | - | 5,250 | 6,575 | 4,863 | - |
| Native Chicken | - | - | 11,700 | 11,927 | - |
| Chicken Poultry | - | - | 100,000 | 80,000 | - |

*Source: Municipal Agriculture Office, 2016*

The numerous commercial and backyard hog-raising in the municipality supports the production of fresh and processed meat. Large cattle production is also supportive of our famous Mangadan Pindang production as presented in the previous table:

Fishery production in Mangaldan is a promising commodity since the sources of production are near the famous Bonuan District of Dagupan City where bangus as a product is world-class. Aside from Bonuan Bangus, as what they are also called Mangaldan, Tilapia, Prawn and Oyster are also produced in the municipality. Various kinds of fish are dispersed in the communal bodies of water which also give additional income to the population alongside the Angalacan River in Barangays Inlambo, Macayug, Pogo, Palua, Salaan, Nibaliw, Embarcadero, Navaluan, Osiem, Landas and Guesang. The production of fisheries in Mangaldan is presented in the following table below:

**Table 70: Production of Fisheries by Hectare in Metric Tons, 2011-2016**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COMMODITY** | **AREA/ PRODUCTION/ NUMBER** | | | | | |
| **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
| **Bangus (Brackishwater)**  Area Covered (has.)  Production (MT)  No. of Operators | 260  650  143 | 260  650  143 | 260  650  143 | 261  652.5  144 | 260  487.5  165 | 260  671.2  165 |
| **Tilapia (Freshwater)**  Area Covered (has.)  Production (MT)  No. of Operators | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  34.0  22 |
| **Prawn (Polyculture)**  Area Covered (has.)  Production (MT)  No. of Operators | 18  18  7 | 18  18  7 | 18  18  7 | 18.3  18.3  7 | 18  18  7 | 18  18  11 |
| **Oyster**  Area Covered (has.)  Production (MT)  No. of Operators | 0.26  29.25  8 | 0.26  29.25  8 | 0.26  29.25  8 | 0.27  30.375  8 | 0.27  20  20 | 0.27  29.6  30 |
| **Communal Bodies of Water**  Area Covered (has.)  Production (MT) | 16.2  1.8792 | 16.2  1.8792 | 16.2  1.8792 | 16.2  18.908 | 16.2  18 | 16.2  6 |

*Source: Municipal Agriculture Office, 2016*

***Physical Considerations***

Physical factors like soil, water and climate are important considerations in farming and fishing. Parallelism should exist among these factors in relation to crops. While soil is where a rooted plant derives essential nutrients, water, in its liquid state and as a dissolvent to complex compounds transforming them to their simplest form and serve as an agent in chemical bonding, is also essential in forming soil nutrients.

Climate on the other hand, is a determinant of the average rainfall, humidity, air pressure, and precipitation which affects movements of molecules in soil and in bodies of water. These factors directly affect the whole process of farming as well as production.

With due reference to the soil series and soil types found in Mangaldan, updated data was provided for by the National Economic Development Authority (NEDA). Rice, corn, camote, peanut, mongo, rootcrops, tobacco, vegetables and some fruit bearing trees are best suited in Mangaldan. As far as land capability is concerned, approximately 50.21 percent of the total agricultural land area fall under Capability Class “A” which is the best for farming, as it could be cultivated to numerous crops as above-stated while about 39.75 percent fall under Capability Class “Be”, also suited for cultivation. Most of the barangays in the Municipality of Mangaldan are equally-gifted with good soil type which is of great advantage for agriculture. While it is true that the soil type of certain barangays are combination of two, where one type is Very good and moderately good, the last type is under Capability Class “X”. This land is level, is wet most of the time and cannot be economically drained. This is suited for fishpond comprising 5.549 percent of the total land area. Considering the prevalent farming practices of most farmers, where similar crops are planted for the first and second cropping and where legumes, which is catalyst in increasing soil fertility, is rarely cultivated, soil nutrients are gradually exhausted. It is foresighted, that for the next ten years, the volume of essential soil nutrients in soil like phosphorous, nitrogen, sodium, salt and others, will soon be inadequate to sustain crop requirements and continuous addition of commercialized chemical fertilizers would instead destroy the physiological composition of the soil rather than supplement the exhausted nutrients.

Climate in relation to farming is an advantage to the Municipality of Mangaldan. Type 1 where usually it is dry in the months of November to April and wet during the rest of the year, make two cropping possible. First cropping basically is during the months of June to October and second cropping is in the months of October or November to February or March. Only the irrigated croplands are viable for crop production during the second cropping.

Considering the previous discussions, it was stipulated that only 38.07 percent of the total agricultural farms are irrigated and that water deficiency is not a negligible fact. But as per survey, surface waters are strategically located that can be tapped for purposes of irrigation.

These bodies of water could be utilized in irrigating crop farms, but the foreseen problem is the absence of motorized device with complete accessories to channel water from the sources, and would not be enough for irrigation purposes especially in the absence of rainfall where drying up is to be anticipated. Nonetheless, as was surveyed, there were three (3) barangays spotted to be potential irrigable locations. Should shallow tube wells be installed in Barangays Alitaya, Anolid and Malabago to augment water supply to the constructed irrigation canals, at least 20 more hectares in each barangay would be irrigated, enabling production of rice and corn for the whole year.

***Loan Facilities***

Capital investment in farming operation is very vital to employ the necessary inputs and in return produce a profitable output. In the Municipality of Mangaldan, it is estimated that about 60% of farmers are seeking credit assistance to government and private banks, agricultural traders, fellow farmers, informal lenders and other financing institutions.

In case of Mangaldan, individual farmer mostly availed loans to Tulay sa Pag-unlad, Inc. (TSPI) for crop and livestock production. TSPI is accessible for credit assistance for a group of farmers with a minimum of 3 members and above. Their loan ceiling for agricultural production is P40,000,00 per hectare with an interest of 3 percent per month.

Farmers who are members of duly registered irrigators association are also qualified to avail loans from Land Bank of the Philippines under the Sikat Saka Program of the Department of Agriculture. Each qualified farmer could avail P40,000.00 per hectare of inbred palay and P50,000.00 per hectare for hybrid palay at a minimal interest/annum.

Another form of financing to farmers include the most popular and easiest way to borrow capital through the agricultural traders and usurers without collateral and the anticipated rice or palay to be harvested will serve as payment or otherwise known sa “tampa” in the local dialect. The farmers have no choice but to accept the exorbitant rate of interest rather than not to plant at all.

The government should find ways and means to lessen the burden of farmers in pursuing agricultural production. A government subsidy in farming either in agricultural inputs or services must be provided to enhance farmer’s productivity and profitability.

***Technical Extension Services***

The agricultural extension arm of the Local Government Unit of Mangaldan is the Office of the Municipal Agriculturist with ten (10) Agricultural Extension Workers (AEWs). The present staffing pattern of the said office comprises one (1) Municipal Agriculturist and ten (10) Agricultural Technologists.

The whole force of the Office of the Municipal Agriculturist covers the four (4) banner programs of the Department of Agriculture (DA) such as: rice development program, corn development program, high value crops development program and livestock/poultry development program. Through the Office of the Municipal Agriculturist, all farmers have accessibility to all agricultural technical support. The delivery of extension services in the area is very much accessible due to the widespread concreting of the road networks from the national, provincial, municipal down to the barangay roads. In addition, there are new openings of farm to market roads to link farm produce to the market without much expense and provide accessibility to extension services to remote barangays.

The extension services extended by the Office of the Municipal Agriculturist are: conduct of trainings/seminars to crops and livestock producing; organization/strengthening of irrigators association/farmers association/RIC and other rural based association; conduct of technology demonstration on crops and livestock; assist farmers to avail agricultural loans; farm mechanization program and other equipment/facilities procurement program; conduct of anti-rabies vaccination, deworming/ castration/ treatment of livestock; distribution of agricultural inputs; and many other equally important services. The means of transportation of AEWs going to the thirty (30) barangays of the Municipality of Mangaldan for the delivery of extension services are: 1-municipal multi-cab and 1-mini tractor (4-wheel). Some of the AEWs use their own private motorcycles and vehicles in extending services to our farmers in remote areas of the municipality.

***Marketing Facility for Agriculture Products***

Marketing of agricultural products is indispensable otherwise all efforts will turn to nothing without market accessibility.

The Municipality of Mangaldan has one (1) public market, a bigger and more convenient to the public located at Poblacion with all seven days of the week as market days. The Mangaldan Public Market is the place for selling vegetables, root crops, freshwater fish and other agricultural products raised by farmers. However, bigger volume of farmer’s produce are still traded to the neighboring municipalities of Binmaley, Lingayen and Agoo, and the cities of Dagupan, Urdaneta and Baguio. The main reason is that those markets could accommodate big volumes and dictate higher price which is more advantageous to the farmers.

The other market outlets in the municipality are the private buyers of rice and corn coming from the province of Nueva Ecija. Buyers from these places are agents of middlemen, which also offer attractive price per kilo. But bigger volumes of produce are sold to the traders residing in the locality.

For the year 2015, there are one hundred sixteen (116) traders of rice and corn with business permits in the municipality where 70% of local farm harvests are sold to them. Another option where the farmers could market their palay and corn is through the National Food Authority (NFA) at Binalonan or Rosales. This is a good market option especially when the price of palay is low at P32.00 per kilo.

***Transportation Facilities and Postharvest Facilities***

Transportation and postharvest facilities are both vital to agricultural growth and development. With the absence of these facilities, farmers have difficulties in attaining higher production, better-quality of produce and higher income.

Through continuous development, the means of transportation of farm products have gained a lot of improvement. The new opening and concreting of farm to market roads connecting to vital road networks are contributory to the improvement of transportation facilities in the locality. The existing means of transporting farm products to market or households are hand tractor with trailer locally known as “kuliglig”, motorized tricycles, jeepneys, mini elf and the likes. Transporting of agricultural products is now easier and cheaper on the part of the farmers.

On the other hand, postharvest facilities are also improving in terms of number, quality and type. As of today, the Municipality of Mangaldan has 45 units of Multi-Purpose Drying Pavements (MPDP) with a capacity of 60 cavans per drying period and 3 Flat-Bed Dryers (FBD). For the year 2016, additional four (4) units of MPDP shall be constructed under the Bottom-Up-Budgeting (BUB).

These existing postharvest facilities are instrumental in the reduction of postharvest losses, improvement of grain quality, dictate of higher price and consequently increase in income of farmers towards a better living.

It is expected that in the coming years, the transportation and postharvest facilities shall be more improved and fitted to the modern technology as it goes with the agricultural modernization program of the government.

**Table 71: Existing Agricultural Support Facility & Services, Year 2015**

|  |  |  |  |
| --- | --- | --- | --- |
| **Post-Harvest Facility/ Service** | **Number** | **Type Capacity** | **Remarks** |
| Rice Mill | 22 | Rubber Cono Single pass 15 cavans/ hour | Operational |
| MPDP | 45 | 60 cavans/ drying period | Operational |
| Market Centers | 2 | 1 Public Market  1 Livestock Market | Operational  Operational |
| Flat Bed Dyer | 3 | Mechanical 6 tons/ 10 hours | Operational |

*Source: Municipal Agriculture Office, 2016*

**Table 72: Strategic Agriculture & Fisheries Development Zones (SAFDZ)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Name of SAFDZ Area (if applicable)** | **Barangay** | **Area (ha)** | **Type of SAFDZ** | **Hazard Susceptibility (H/ M/ L)** | | | | | | |
| **F1** | **Tc** | **Eq** | **Vo** | **Ln** | **Ts** | **Others** |
| 1. Strategic Crop Sub-Development Zone | Alitaya  Anolid  Amansabina  Buenlag  Malabago | 768.5 | 1 | L | L | L | NA | NA | L |  |
| 1. Strategic Fishery Sub-Development Zone | Bantayan  Bateng  Lanas  Maasin  Talogtog | 331.54 | 3 | L | L | L | NA | NA | L |  |

*Source: Municipal Agriculture Office, 2016*

These are the barangays assisted by NIA covering Alitaya, Anolid, Amansabina, Buenlag and Malabago. However, there are other irrigated lands in others barangays as shown in table 72.

***Other Facilities***

Through the initiative and strong desire of the Local Chief Executive and other local officials to establish facilities that will promote agricultural productivity and profitability, the municipality was able to establish the Mangaldan Pasalubong Center in its own lot located at Poblacion. This is where the famous Mangaldan Pindang and other processed meat like Tocino, Longganisa and Batutay are displayed.

**Table 73: Agrarian Related Concerns, Year 2015**

|  |  |  |
| --- | --- | --- |
| **CONCERNS** | **AREA COVERED (has.)** | **No. of Farmer Beneficiaries** |
| 1. **LAND ACQUISITION & DISTRIBUTION** | | |
| 1. **Covered already** |  |  |
| Alitaya | 1.5423 | 4 |
| Bari | 3.0484 | 3 |
| Bateng | 3.3756 | 7 |
| Buenlag | 1.9255 | 1 |
| David | 0.8018 | 1 |

*Continuation of Table 73………*

|  |  |  |
| --- | --- | --- |
| **CONCERNS** | **AREA COVERED (has.)** | **No. of Farmer Beneficiaries** |
| 1. **LAND ACQUISITION & DISTRIBUTION** | | |
| 1. **Covered already** | | |
| Gueguesangen | 0.9196 | 3 |
| Inlambo | 5.2378 | 17 |
| Osiem | 3.881 | 3 |
| 1. To be covered | None |  |
| 1. **AGRARIAN REFORM COMMUNITIES (ARC):** | | |
| Name of ARC | Barangays Covered | Project Implemented |
| Southern Mangaldan ARC | Alitaya, Anolid, Amansabina, Buenlag, Malabago | * Road graveling – 6.386 kms. * Road leveling – 1.988 kms. * Post-Harvest Facilities * Multi-Purpose Pavement * Capacity Trainings for Cooperative |

*Source: Provincial Agrarian Reform Program*

**Table 74: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Rice Production** | **2016** | | **Areas Devoted to Rice Production** | **2016** | |
| **Area** | **Production**  **In Metric Tons** | **Area** | **Production**  **In Metric Tons** |
| 1. Alitaya | 387 | 3,524.4 | 16. Lanas | 85 | 814 |
| 2. Amansabina | 70 | 638 | 17. Landas | - | - |
| 3. Anolid | 101 | 950.4 | 18. Maasin | 80 | 792 |
| 4. Banaoang | 30 | 308 | 19. Macayug | 30 | 365.2 |
| 5. Bantayan | 10 | 198 | 20. Malabago | 90 | 836 |
| 6. Bari | 5 | 242 | 21. Navaluan | - | - |
| 7. Bateng | 40 | 431.2 | 22. Nibaliw | - | - |
| 8. Buenlag | 120.5 | 1,124.2 | 23. Osiem | - | - |
| 9. David | 60 | 594 | 24. Palua | - | - |
| 10. Embarcadero | - | - | 25.Poblacion | - | - |
| 11. Gueguesangen | 50 | 506 | 26. Pogo | - | - |
| 12. Guesang | 6.5 | 26 | 27. Salaan | - | - |
| 13. Guiguilonen | - | - | 28. Salay | 35 | 110 |
| 14. Guilig | 35 | 418 | 29. Talogtog | 50 | 506 |
| 15. Inlambo | 65 | 638 | 30. Tebag | - | - |
|  | | | **TOTAL** | **1,350** | **13,021.40** |

*Source: Municipal Agriculture Office, 2016*

**Table 75: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Corn Production** | **2016** | | **Areas Devoted To Corn Production** | **2016** | |
| **Area**  **Yellow Corn (YC)**  **White Corn (WC)** | **Production**  **In Metric Tons** | **Area**  **Yellow Corn (YC)**  **White Corn (WC)** | **Production**  **In Metric Tons** |
| 1. Alitaya | YC = 2.0  WC = 0 | YC = 10.4  WC = 0 | 16. Lanas | YC = 13.8  WC = 0 | YC = 73.1  WC = 0 |
| 2. Amansabina | YC = 11.5  WC = 0 | YC = 59.8  WC = 0 | 17. Landas | YC = 20.0  WC = 11.25 | YC = 110  WC = 28.125 |
| 3. Anolid | YC = 0  WC = 0 | YC = 0  WC = 0 | 18. Maasin | YC = 0  WC = 0 | YC = 0  WC = 0 |
| 4. Banaoang | YC = 32.10  WC = 2 | YC = 176.6  WC = 5 | 19. Macayug | YC = 49.50  WC = 30.40 | YC = 287.1  WC = 72.96 |
| 5. Bantayan | YC = 14.0  WC = 0 | YC = 74.2  WC = 0 | 20. Malabago | YC = 0  WC = 0 | YC = 0  WC = 0 |
| 6. Bari | YC = 0  WC = 0 | YC = 0  WC = 0 | 21. Navaluan | YC = 20.0  WC = 4.0 | YC = 116  WC = 9.2 |
| 7. Bateng | YC = 0  WC = 0 | YC = 0  WC = 0 | 22. Nibaliw | YC = 12.5  WC = 5.0 | YC = 65  WC = 12.5 |

*Continuation of Table 75….*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Corn Production** | **2016** | | **Areas Devoted To Corn Production** | **2016** | |
| **Area**  **Yellow Corn (YC)**  **White Corn (WC)** | **Production**  **In Metric Tons** | **Area**  **Yellow Corn (YC)**  **White Corn (WC)** | **Production**  **In Metric Tons** |
| 8. Buenlag | YC = 34.75  WC = 0 | YC = 201.6  WC = 0 | 23. Osiem | YC = 29.5  WC = 16.9 | YC = 171.1  WC = 42.25 |
| 9. David | YC = 39  WC = 2.0 | YC = 226.2  WC = 4.6 | 24. Palua | YC = 28.20  WC = 13.85 | YC = 163.6  WC = 33.24 |
| 10. Embarcadero | YC = 9.5  WC = 9.5 | YC = 50.4  WC = 24.7 | 25.Poblacion | YC = 0  WC = 0 | YC = 0  WC = 0 |
| 11. Gueguesangen | YC = 11.25  WC = 0 | YC = 58.5  WC = 0 | 26. Pogo | YC = 0.5  WC = 2.8 | YC = 2.35  WC = 5.875 |
| 12. Guesang | YC = 76.70  WC = 20.25 | YC = 444.9  WC = 56.7 | 27. Salaan | YC = 6.70  WC = 5.15 | YC = 34.2  WC = 11.845 |
| 13. Guiguilonen | YC = 0  WC = 0 | YC = 0  WC = 0 | 28. Salay | YC = 5.0  WC = 0 | YC = 25.5  WC = 0 |
| 14. Guilig | YC = 0  WC = 0 | YC = 0  WC = 0 | 29. Talogtog | YC = 3.5  WC = 0 | YC = 18.2  WC = 0 |
| 15. Inlambo | YC = 4.30  WC = 18.80 | YC = 21.5  WC = 45.12 | 30. Tebag | YC = 3.70  WC = 7.0 | YC = 18.5  WC = 15.4 |
| **Total Yellow Corn Prod Area = 428**  **Total Production in MT = 2,408.9** | | | **Total White Corn Prod Area = 148.45**  **Total Production in MT = 367.515** | | |

*Source: Municipal Agriculture Office, 2016*

**Table 76: Major Agricultural Crops By Area And Production**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Root Crops (RC)** | **2016** | | | | **Areas Devoted to Root Crops (RC)** | **2016** | | | |
| **Devoted to Camote** | | **Devoted to Cassava** | | **Devoted to Camote** | | **Devoted to Cassava** | |
| **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** |
| 1. Alitaya | 0 | 0 | 0 | 0 | 16. Lanas | 0 | 0 | 0 | 0 |
| 2. Amansabina | 0 | 0 | 0 | 0 | 17. Landas | 0 | 0 | 0 | 0 |
| 3. Anolid | 0 | 0 | 0 | 0 | 18. Maasin | 0 | 0 | 0 | 0 |
| 4. Banaoang | 0 | 0 | 0 | 0 | 19. Macayug | 6.5 | 78 | 0 | 0 |
| 5. Bantayan | 0 | 0 | 0 | 0 | 20. Malabago | 0 | 0 | 0 | 0 |
| 6. Bari | 0 | 0 | 0 | 0 | 21. Navaluan | 0 | 0 | 0 | 0 |
| 7. Bateng | 0 | 0 | 0 | 0 | 22. Nibaliw | 0 | 0 | 0 | 0 |
| 8. Buenlag | 0 | 0 | 0 | 0 | 23. Osiem | 1 | 12 | 0 | 0 |
| 9. David | 0 | 0 | 0 | 0 | 24. Palua | 3.5 | 42 | 3.5 | 19.25 |
| 10. Embarcadero | 1.50 | 18 | 0 | 0 | 25.Poblacion | 0 | 0 | 0 | 0 |
| 11. Gueguesangen | 0 | 0 | 0 | 0 | 26. Pogo | 3 | 36 | 2.5 | 13.75 |
| 12. Guesang | 0 | 0 | 0 | 0 | 27. Salaan | 3 | 36 | 1 | 5.5 |
| 13. Guiguilonen | 0 | 0 | 0 | 0 | 28. Salay | 0 | 0 | 0 | 0 |
| 14. Guilig | 0 | 0 | 0 | 0 | 29. Talogtog | 0 | 0 | 0 | 0 |
| 15. Inlambo | 6.5 | 78 | 1.25 | 6.87 | 30. Tebag | 0 | 0 | 0.5 | 2.75 |
| **TOTAL** | **8** | **96** | **1.25** | **6.87** | **TOTAL** | **17** | **204** | **7.5** | **41.25** |
| **Total Area Production of Camote = 25 has.** | | | | | **Total Area Production of Cassava = 8.75 has.** | | | | |
| **Total Production of Camote = 300 MT.** | | | | | **Total Production of Cassava = 48.12 MT.** | | | | |

*Source: Municipal Agriculture Office, 2016*

**Table 77: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Legumes** | **2016** | | | | **Areas Devoted to Root Crops (RC)** | **2016** | | | |
| **Devoted to Munggo** | | **Devoted to Peanut** | | **Devoted to Munggo** | | **Devoted to Peanut** | |
| **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** |
| 1. Alitaya | 3.1 | 3.72 | 0 | 0 | 16. Lanas | 0 | 0 | 2.0 | 2.4 |
| 2. Amansabina | 0 | 0 | 0 | 0 | 17. Landas | 0 | 0 | 4.5 | 5.4 |
| 3. Anolid | 0 | 0 | 0 | 0 | 18. Maasin | 0 | 0 | 0 | 0 |
| 4. Banaoang | 1.5 | 1.8 | 0 | 0 | 19. Macayug | 8 | 9.6 | 6.0 | 7.2 |
| 5. Bantayan | 0.5 | 0.6 | 3.0 | 3.6 | 20. Malabago | 0 | 0 | 0 | 0 |
| 6. Bari | 0 | 0 | 0 | 0 | 21. Navaluan | 6.5 | 7.8 | 0 | 0 |
| 7. Bateng | 1.5 | 1.8 | 3.0 | 3.6 | 22. Nibaliw | 0 | 0 | 0 | 0 |
| 8. Buenlag | 1.5 | 1.8 | 0 | 0 | 23. Osiem | 1.5 | 1.8 | 0 | 0 |
| 9. David | 0.5 | 0.6 | 0 | 0 | 24. Palua | 0 | 0 | 6.5 | 7.8 |
| 10. Embarcadero | 1.50 | 1.8 | 0 | 0 | 25.Poblacion | 0 | 0 | 0 | 0 |
| 11. Gueguesangen | 3.1 | 3.72 | 0 | 0 | 26. Pogo | 0 | 0 | 0.5 | 0.6 |
| 12. Guesang | 3.1 | 3.72 | 0 | 0 | 27. Salaan | 2.5 | 3 | 0.5 | 0.6 |
| 13. Guiguilonen | 1.5 | 1.8 | 0 | 0 | 28. Salay | 0 | 0 | 1 | 1.2 |
| 14. Guilig | 1.5 | 1.8 | 0 | 0 | 29. Talogtog | 0 | 0 | 0 | 0 |
| 15. Inlambo | 8 | 9.6 | 1.5 | 1.8 | 30. Tebag | 4.2 | 5.04 | 1.5 | 1.8 |
| **TOTAL** | **27.3** | **32.76** | **7.5** | **9** | **TOTAL** | **22.7** | **27.24** | **22.5** | **27** |
| **Total Area Production of Munggo = 50 has.** | | | | | **Total Area Production of Peanut = 30 has.** | | | | |
| **Total Production of Munggo= 60 MT.** | | | | | **Total Production of Peanut = 36 MT.** | | | | |

*Source: Municipal Agriculture Office, 2016*

**Table 78: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Vetables** | **2016** | | | | **Areas Devoted to Root Crops (RC)** | **2016** | | | |
| **Devoted to Ampalaya** | | **Devoted to Eggplant** | | **Devoted to Ampalaya** | | **Devoted to Eggplant** | |
| **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** |
| 1. Alitaya | 0 | 0 | 0 | 0 | 16. Lanas | 0 | 0 | 0 | 0 |
| 2. Amansabina | 0 | 0 | 0 | 0 | 17. Landas | 0 | 0 | 6.5 | 162.5 |
| 3. Anolid | 0 | 0 | 0 | 0 | 18. Maasin | 0 | 0 | 0 | 0 |
| 4. Banaoang | 0 | 0 | 0 | 0 | 19. Macayug | 0 | 0 | 0.5 | 12.5 |
| 5. Bantayan | 0 | 0 | 0 | 0 | 20. Malabago | 0 | 0 | 0 | 0 |
| 6. Bari | 0 | 0 | 0 | 0 | 21. Navaluan | 0 | 0 | 1.1 | 27.5 |
| 7. Bateng | 0 | 0 | 0 | 0 | 22. Nibaliw | 0 | 0 | 0 | 0 |
| 8. Buenlag | 0 | 0 | 0 | 0 | 23. Osiem | 0.2 | 4 | 4.5 | 112.5 |
| 9. David | 1.0 | 20 | 1.0 | 25 | 24. Palua | 0 | 0 | 0 | 0 |
| 10. Embarcadero | 0 | 0 | 0 | 0 | 25.Poblacion | 0 | 0 | 0 | 0 |
| 11. Gueguesangen | 0 | 0 | 0 | 0 | 26. Pogo | 0 | 0 | 1.6 | 40 |
| 12. Guesang | 31 | 620 | 12.5 | 312.5 | 27. Salaan | 0.8 | 16 | 1.5 | 37.5 |
| 13. Guiguilonen | 0 | 0 | 0 | 0 | 28. Salay | 0 | 0 | 0 | 0 |
| 14. Guilig | 0 | 0 | 0 | 0 | 29. Talogtog | 0 | 0 | 0 | 0 |
| 15. Inlambo | 0 | 0 | 0.8 | 20 | 30. Tebag | 0 | 0 | 0 | 0 |
| **TOTAL** | **32** | **640** | **14.3** | **357.5** | **TOTAL** | **1** | **20** | **15.7** | **392.5** |
| **Total Area Production of Ampalaya = 50 has.** | | | | | **Total Area Production of Eggplant = 30 has.** | | | | |
| **Total Production of Ampalaya = 660 MT.** | | | | | **Total Production of Eggplant = 750 MT.** | | | | |

*Source: Municipal Agriculture Office, 2016*

**Table 79: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Vegetables** | **2016** | | | | **Areas Devoted to Root Crops (RC)** | **2016** | | | |
| **Devoted to Squash** | | **Devoted to Tomato** | | **Devoted to Squash** | | **Devoted to Tomato** | |
| **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** |
| 1. Alitaya | 0 | 0 | 0 | 0 | 16. Lanas | 0 | 0 | 0 | 0 |
| 2. Amansabina | 0 | 0 | 0 | 0 | 17. Landas | 0.5 | 6 | 9 | 180 |
| 3. Anolid | 0 | 0 | 0 | 0 | 18. Maasin | 0 | 0 | 0 | 0 |
| 4. Banaoang | 0 | 0 | 0 | 0 | 19. Macayug | 0 | 0 | 0 | 0 |
| 5. Bantayan | 0.5 | 6 | 0.4 | 8 | 20. Malabago | 0 | 0 | 0.5 | 10 |
| 6. Bari | 0 | 0 | 0 | 0 | 21. Navaluan | 13 | 156 | 4 | 80 |
| 7. Bateng | 0 | 0 | 0 | 0 | 22. Nibaliw | 0 | 0 | 0 | 0 |
| 8. Buenlag | 0 | 0 | 0 | 0 | 23. Osiem | 0.5 | 6 | 0.6 | 12 |
| 9. David | 0 | 0 | 1.5 | 30 | 24. Palua | 0 | 0 | 0 | 0 |
| 10. Embarcadero | 0 | 0 | 0 | 0 | 25.Poblacion | 0 | 0 | 0 | 0 |
| 11. Gueguesangen | 0 | 0 | 0 | 0 | 26. Pogo | 0 | 0 | 0 | 0 |
| 12. Guesang | 5.5 | 66 | 23 | 460 | 27. Salaan | 0 | 0 | 1 | 20 |
| 13. Guiguilonen | 0 | 0 | 0 | 0 | 28. Salay | 0 | 0 | 0 | 0 |
| 14. Guilig | 0 | 0 | 0 | 0 | 29. Talogtog | 0 | 0 | 0 | 0 |
| 15. Inlambo | 0 | 0 | 0 | 0 | 30. Tebag | 0 | 0 | 0 | 0 |
| **TOTAL** | **6** | **72** | **24.9** | **498** | **TOTAL** | **14** | **168** | **15.1** | **302** |
| **Total Area Production of Squash = 20 has.** | | | | | **Total Area Production of Tomato = 40 has.** | | | | |
| **Total Production of Squash = 240 MT.** | | | | | **Total Production of Tomato = 800 MT.** | | | | |

*Source: Municipal Agriculture Office, 2016*

**Table 80: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Vegetables** | **2016** | | | | **Areas Devoted to Root Crops (RC)** | **2016** | | | |
| **Devoted to Pechay** | | **Devoted to Turnip** | | **Devoted to Pechay** | | **Devoted to Turnip** | |
| **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** | **Area (has.)** | **Production**  **in Metric Tons** |
| 1. Alitaya | 0 | 0 | 0 | 0 | 16. Lanas | 10 | 80 | 0 | 0 |
| 2. Amansabina | 0 | 0 | 0 | 0 | 17. Landas | 0 | 0 | 0 | 0 |
| 3. Anolid | 0 | 0 | 0 | 0 | 18. Maasin | 0 | 0 | 0 | 0 |
| 4. Banaoang | 0 | 0 | 0 | 0 | 19. Macayug | 0 | 0 | 2.6 | 52 |
| 5. Bantayan | 5 | 40 | 0 | 0 | 20. Malabago | 0 | 0 | 0 | 0 |
| 6. Bari | 0 | 0 | 0 | 0 | 21. Navaluan | 0 | 0 | 0 | 0 |
| 7. Bateng | 0 | 0 | 0 | 0 | 22. Nibaliw | 0 | 0 | 0 | 0 |
| 8. Buenlag | 0 | 0 | 0 | 0 | 23. Osiem | 0 | 0 | 0 | 0 |
| 9. David | 0 | 0 | 0 | 0 | 24. Palua | 3 | 24 | 2 | 40 |
| 10. Embarcadero | 0 | 0 | 0 | 0 | 25.Poblacion | 0 | 0 | 0 | 0 |
| 11. Gueguesangen | 0 | 0 | 0 | 0 | 26. Pogo | 0 | 0 | 8.55 | 171 |
| 12. Guesang | 0 | 0 | 0 | 0 | 27. Salaan | 20 | 160 | 2.9 | 58 |
| 13. Guiguilonen | 0 | 0 | 0 | 0 | 28. Salay | 0 | 0 | 0 | 0 |
| 14. Guilig | 0 | 0 | 0 | 0 | 29. Talogtog | 0 | 0 | 0 | 0 |
| 15. Inlambo | 0 | 0 | 6 | 120 | 30. Tebag | 1.0 | 20 | 0 | 0 |
| **TOTAL** | **5** | **40** | **6** | **120** | **TOTAL** | **34** | **284** | **16.05** | **321** |
| **Total Area Production of Pechay = 39 has.** | | | | | **Total Area Production of Turnip = 300 has.** | | | | |
| **Total Production of Pechay = 324 MT.** | | | | | **Total Production of Turnip = 441 MT.** | | | | |

**Table 81: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Tobacco** | **2016** | | **Areas Devoted to Tobacco** | | **2016** | | |
| **Area** | **Production**  **in Metric Tons** | **Area** | | **Production**  **in Metric Tons** |
| 1. Alitaya | 0 | 0 | 16. Lanas | | 0 | | 0 |
| 2. Amansabina | 0 | 0 | 17. Landas | | 0 | | 0 |
| 3. Anolid | 0 | 0 | 18. Maasin | | 0 | | 0 |
| 4. Banaoang | 0 | 0 | 19. Macayug | | 1.5 | | 3.0 |
| 5. Bantayan | 0 | 0 | 20. Malabago | | 0 | | 0 |
| 6. Bari | 0 | 0 | 21. Navaluan | | 0 | | 0 |
| 7. Bateng | 0 | 0 | 22. Nibaliw | | 0 | | 0 |
| 8. Buenlag | 0 | 0 | 23. Osiem | | 0 | | 0 |
| 9. David | 0 | 0 | 24. Palua | | 0 | | 0 |
| 10. Embarcadero | 0 | 0 | 25.Poblacion | | 0 | | 0 |
| 11. Gueguesangen | 0 | 0 | | 26. Pogo | | 0 | 0 |
| 12. Guesang | 0 | 0 | | 27. Salaan | | 0 | 0 |
| 13. Guiguilonen | 0 | 0 | | 28. Salay | | 0 | 0 |
| 14. Guilig | 0 | 0 | | 29. Talogtog | | 0 | 0 |
| 15. Inlambo | 0 | 0 | | 30. Tebag | | 0 | 0 |
| *Source: Municipal Agriculture Office, 2015* | | | | **TOTAL** | | **1.5** | **3.0** |

**Table 82: Major Agricultural Crops by Area and Production**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Areas Devoted to Mango** | **2016** | | **Areas Devoted to Mango** | | **2016** | |
| **Area** | **Production**  **in Metric Tons** | **Area** | **Production**  **in Metric Tons** |
| 1. Alitaya | 1.8 | 21.6 | 16. Lanas | | 3.7 | 44.4 |
| 2. Amansabina | 2 | 24 | 17. Landas | | 0 | 0 |
| 3. Anolid | 4.6 | 55.2 | 18. Maasin | | 3.5 | 42 |
| 4. Banaoang | 1.6 | 19.2 | 19. Macayug | | 4.5 | 54 |
| 5. Bantayan | 1.5 | 18 | 20. Malabago | | 5.8 | 69.6 |
| 6. Bari | 0.9 | 10.8 | 21. Navaluan | | 2.7 | 32.4 |
| 7. Bateng | 0.8 | 9.6 | 22. Nibaliw | | 1.3 | 15.6 |
| 8. Buenlag | 3.8 | 45.6 | 23. Osiem | | 3.1 | 37.2 |
| 9. David | 3.2 | 38.4 | 24. Palua | | 6.6 | 79.2 |
| 10. Embarcadero | 0.75 | 9 | 25.Poblacion | | 0.25 | 3 |
| 11. Gueguesangen | 9.8 | 117.6 | 26. Pogo | 4.8 | | 57.6 |
| 12. Guesang | 1.9 | 22.8 | 27. Salaan | 3 | | 36 |
| 13. Guiguilonen | 1.4 | 16.8 | 28. Salay | 3.5 | | 42 |
| 14. Guilig | 2.8 | 33.6 | 29. Talogtog | 7.5 | | 90 |
| 15. Inlambo | 8.9 | 106.8 | 30. Tebag | 3 | | 36 |
| *Source: Municipal Agriculture Office, 2016* | | | **TOTAL** | **99** | | **1,188** |

***Comparative Agricultural Crop Areas and Production***

The table below shows that rice has the biggest crop production in the Municipality of Mangaldan, it also has the largest area of 1,350 hectares in year 2016 and has produced 13,021.40 Metric Tons higher than the previous year of 6,480.00 Metric Tons. Corn followed with a total land area of 546.45 hectares in 2016 reaching 2,776.415 metric tons production higher than the previous year of 1,009.65 metric tons. All other crops produced in year 2013 to 2015 are shown in the following table:

**Table 83: Comparative Crop Areas and Production, Year 2013-2016**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Major Crops** | **Area (has)** | | | | **Volume of Production** | | | |
| **2013** | **2014** | **2015** | **2016** | **2013** | **2014** | **2015** | **2016** |
| 1. Rice  a. Irrigated  b. Rainfed | 1,350  783 | 1,350  721 | 1,350  721 | 1,350  1,058 | 12,875.2  3,828.4 | 9,112.4  6,197.4 | 6,480.00  6,962.00 | 8,905.96  5,501.6 |
| 2.Corn  a. Yellow Corn  b. White Corn | 310.5  - | 562.9  - | 460.55  - | 428  148.45 | 1,847.46  - | 2,355.25  - | 2.272.25  - | 2,408.9  367.515 |
| 3.Rootcrops   1. Camote 2. Cassava | 26.75  0 | 40.4  0 | 20.8  0 | 25  8.75 | 321  0 | 716.25  0 | 312  0 | 300  48.12 |
| 4. Legumes  a. Mongo  b. Peanut  c. Beans | 5.6  36.2  0 | 31.55  48.3  34.01 | 36  139.9  24.4 | 50  30  0 | 84  108.6  0 | 48.825  57.96  693.2 | 54  93.18  488 | 60  36  0 |
| 5. Fruits & Vegetables  a. Ampalaya  b. Eggplant  c. Squash  d. Tomato  e. Watermelon | 8.5  20.35  10.4  34.4  41.5 | 37.2  41.2  13.18  42.55  29.8 | 1.8  34.31  44.7  17.92  - | 33  30  20  40  - | 51.85  397  208  670  830 | 757  1,236  395.40  1,276.50  596 | 36  93.18  351  1,008.5  - | 660  750  240  800  - |
| 6. Leafy Vegetable  a. Pechay | 8 | 13.1 | 9.07 | 70 | 416 | 157.20 | 88.84 | 560 |
| 7. Root Vegetable  a. Turnip | 22 | 22.05 | 35.15 | 22.05 | 289.5 | 441 | 703 | 441 |
| 8. Industrial Crops  a. Tobacco | 25 | 0 | 1.25 | 1.5 | 50 | 0 | 25 | 3.0 |
| 9. Fruit Trees  a. Mango | 84 | 100 | 89.61 | 99 | 1,700 | 1,640 | 1,100.7 | 1,188 |

*Source: Municipal Agriculture’s Office, 2016*

***Existing Livestock and Poultry***

Livestock are domesticated animals raised in an agricultural setting to produce commodities such as food, fiber and labor. Livestock are defined as being useful animals; which imply commercial purpose, or financial gain. However, in recent years, livestock are also raised to promote the survival of rare breeds, leading to many charities on animal welfare being formed contesting livestock production for commercial purposes.

Raising animals is a component of modern agriculture. It has been practiced in many cultures since the transition to farming from hunter-gather lifestyle.

The Municipality of Mangaldan has a total land area utilized in raising livestock and poultry of 3.0 hectares with a total volume production of 46,500 heads and 5,000 eggs per day.

**Table 84: Comparative Livestock Population (2012-2016)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Livestock** | **2012** | **2013** | **2014** | **2015** | **2016** |
| Large Cattle | 2,150 | 2,240 | 2,300 | 1,902 | 2,400 |
| Carabao | 205 | 205 | 175 | 382 | 148 |
| Swine | 6,150 | 5,940 | 9,150 | 6,882 | 10,585 |
| Goat | 2,050 | 2,355 | 2,050 | 2,980 | 2,315 |
| Poultry | 46,500 | 95,000 | 46,500 | 36,790 | 111,900 |
| Ducks | - | 5,250 | 6,575 | 4,863 | - |
| Native Chicken | - | - | 11,700 | 11,927 | - |
| Chicken Poultry | - | - | 100,000 | 80,000 | - |

*Source: Municipal Agriculture Office, 2016*

***Existing Fishing Grounds***

Fishing grounds are unnatural water environments that farmers must manage in order to produce profitable fish harvests. Ponds should provide a good environment for fish to live in, and should provide all requirements for fish to live a healthy life, grow well and reproduce well.

The physical characteristics of fishponds affect water quality and influence their production potential for the farmers. They have to be sited in locations where they can be managed well to achieve the highest production potential.

The Municipality of Mangaldan fishing areas are located in Barangays Anolid, Maasin, Bateng and Talogtog. The table on the next page presents fish production in the municipality

**Table 85: Production of Fisheries by Hectare in Metric Tons, 2011-2016**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COMMODITY** | **AREA/ PRODUCTION/ NUMBER** | | | | | |
| **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
| **Bangus (Brackishwater)**  Area Covered (has.)  Production (MT)  No. of Operators | 260  650  143 | 260  650  143 | 260  650  143 | 261  652.5  144 | 260  487.5  165 | 260  671.2  165 |
| **Tilapia (Freshwater)**  Area Covered (has.)  Production (MT)  No. of Operators | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  31.5  22 | 9.0  34.0  22 |
| **Prawn (Polyculture)**  Area Covered (has.)  Production (MT)  No. of Operators | 18  18  7 | 18  18  7 | 18  18  7 | 18.3  18.3  7 | 18  18  7 | 18  18  11 |
| **Oyster**  Area Covered (has.)  Production (MT)  No. of Operators | 0.26  29.25  8 | 0.26  29.25  8 | 0.26  29.25  8 | 0.27  30.375  8 | 0.27  20  20 | 0.27  29.6  30 |
| **Communal Bodies of Water**  Area Covered (has.)  Production (MT) | 16.2  1.8792 | 16.2  1.8792 | 16.2  1.8792 | 16.2  18.908 | 16.2  18 | 16.2  6 |

*Source: Municipal Agriculture Office, 2016*

***Comparative Production***

The production of major agricultural crops in the Municipality of Mangaldan in 2016 reached 89.17 percent share of the total crop areas production. Livestock and poultry has 6.88% share and the fish production has percent share of 3.95%.

**Table 86: Comparative Crop Areas and Production, Year 2013-2016**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Commodity** | **Crop Production (MT)** | | | | | | | |
| **2013** | **%** | **2014** | **%** | **2015** | **%** | **2016** | **%** |
| Crop Production | 23,677.01 | 91.78 | 25,680.39 | 90.64 | 17,795.40 | 89.02 | 22,270.10 | 89.17 |
| Livestock & Poultry Production | 1,210.00 | 4.69 | 1,718.00 | 6.06 | 1,407.00 | 7.04 | 1,718.00 | 6.88 |
| Fishery | 910.63 | 3.53 | 932.58 | 3.29 | 789.00 | 3.95 | 986.80 | 3.95 |
| **TOTAL** | **25,797.64** | **100.00** | **28,330.97** | **100.00** | **19,991.40** | **100.00** | **24,974.90** | **100.00** |

*Source: Municipal Agriculture Office*

***Agricultural Land***

Agriculture is an integral part of the Municipality of Mangaldan, covering a total land area of 3,378.50 hectares or 69.69 percent of the total land area of the Municipality. The area devoted to agriculture in the municipality provides open space and wildlife habitat while the proximity of farmland to natural areas challenges growers to use management techniques that reduce the negative impacts of farming on sensitive areas.

Despite agriculture’s importance, the only comprehensive description of agriculture production and practices is in the form of statistics. While these statistics are helpful, they can be used to infer the future impact of various policy options on different aspects of agriculture system.

***Current and Projected Needs***

Projected Volume Production of Major Crops

**Table 87: Projected Volume of Rice & Corn Production**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Projected Volume of Production (MT)** | | |
| **Rice** | **Yellow Corn** | **White Corn** |
| 2016 | 18,670.4 | 2,416.86 | 371.12 |
| 2017 | 17,670.2 | 2,458.53 | 385.97 |
| 2018 | 19,003.8 | 2,500.20 | 400.81 |
| 2019 | 19,337.2 | 2,541.87 | 415.66 |
| 2020 | 20,004.0 | 2,583.54 | 430.50 |
| 2021 | 19,670.6 | 2,625.21 | 445.35 |
| 2022 | 18,003.6 | 2,666.88 | 460.19 |
| 2023 | 18,337.0 | 2,708.55 | 475.04 |
| 2024 | 20,337.4 | 2,750.22 | 489.88 |
| 2025 | 19,337.2 | 2,791.89 | 504.73 |
| 2026 | 20,670.8 | 2,833.56 | 579.57 |

*Source: Municipal Agriculture Office Computation, 2015*

***Per Capita Dietary Food Requirement***

Food requirement or recommended dietary allowances (RDAs) are the levels of intake of energy and essential nutrients considered adequate to maintain health and provide reasonable levels of reserves in body tissues of nearly all healthy persons in the population. The table below show the current and projected dietary and food requirement for the planning period as presented.

**Table 88: Per Capita Dietary Food Requirement of Agricultural Products**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year**  **&**  **Projected Population** | **Cereals & Cereal Products (kg/yr)** | **Sugars & Syrups (kg/ yr)** | **Root-crops & Tubers**  **(kg/yr)** | **Veg.**  **(kg/yr)** | **Fruits**  **(kg/yr)** | **Dried Beans, Nuts & Seeds**  **(kg/yr)** | **Milk & Milk Products**  **(kg/yr)** | **Eggs**  **(kg/yr)** | **Fish, Meat & Poultry**  **(kg/yr)** | **Misc.**  **(kg/yr)** |
| Standard Requirement (kg/yr) | | | | | | | | | |
| **124** | **70** | **60** | **39** | **28** | **4** | **16** | **4** | **54** | **7** |
| 2016 **107,883** | 13377492 | 7551810 | 6472980 | 4207437 | 3020724 | 431532 | 1726128 | 431532 | 5825682 | 755181 |
| 2017 **109,549** | 13584076 | 7668430 | 6572940 | 4272411 | 3067372 | 438196 | 1752784 | 438196 | 5915646 | 766843 |
| 2018 **111,057** | 13771068 | 7773990 | 6663420 | 4331223 | 3109596 | 444228 | 1776912 | 444228 | 5997078 | 777399 |
| 2019 **112,678** | 13972072 | 7887460 | 6760680 | 4394442 | 3154984 | 450712 | 1802848 | 450712 | 6084612 | 788746 |
| 2020 **114,303** | 14173572 | 8001210 | 6858180 | 4457817 | 3200484 | 457212 | 1828848 | 457212 | 6172362 | 800121 |
| 2021 **115,992** | 14383008 | 8119440 | 6959520 | 4523688 | 3247776 | 463968 | 1855872 | 463968 | 6263568 | 811944 |
| 2022 **117,686** | 14593064 | 8238020 | 7061160 | 4589754 | 3295208 | 470744 | 1882976 | 470744 | 6355044 | 823802 |
| 2023 **119,404** | 14806096 | 8358280 | 7164240 | 4656756 | 3343312 | 477616 | 1910464 | 477616 | 6447816 | 835828 |
| 2024 **121,147** | 15022228 | 8480290 | 7268820 | 4724733 | 3392116 | 484588 | 1938352 | 484588 | 6541938 | 848029 |
| 2025 **122,916** | 15241584 | 8604120 | 7374960 | 4793724 | 3441648 | 491664 | 1966656 | 491664 | 6637464 | 860412 |
| 2026 **124,771** | 15471604 | 8733970 | 7486260 | 4866069 | 3493588 | 499084 | 1996336 | 499084 | 6737634 | 873397 |

***Food Sufficiency Level***

Food security is a complex, multi-dimensional phenomenon which varies through a continuum of successive stages as condition becomes more severe. Each stage consists of characteristics conditions and experiences of food insufficiency to fully meet the basic needs of household members, and of the behavioral responses of household members to these conditions.

**Table 89:**

**SUFFICIENCY LEVEL OF MAJOR COMMODITIES**

**CY 2015-2016**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RICE** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 12,662.30 | 12817.23 | 12993.67 | 13183.33 | 13373.45 | 13571.06 | 13769.26 | 13970.27 | 14174.20 | 14381.17 | 14598.21 |
| **Production**  **(MT)** | 18,670.40 | 17,670.20 | 19,003.80 | 19,337.20 | 20,004.00 | 19,670.60 | 18,003.60 | 18,337.00 | 20,337.40 | 19,337.20 | 20,670.80 |
| **Surplus/ Deficit (MT)** | 6,008.10 | 4,852.97 | 6,010.13 | 6,153.87 | 6,630.55 | 6,099.54 | 4,234.34 | 4,366.73 | 6,163.20 | 4,956.03 | 6,072.59 |
| **Sufficiency (%)** | 147.45 | 137.86 | 146.25 | 146.68 | 149.58 | 144.95 | 130.75 | 131.26 | 143.48 | 134.46 | 141.60 |
| **CORN (Yellow & White)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 813.4 | 826.00 | 837.37 | 849.59 | 861.84 | 874.58 | 887.35 | 900.31 | 913.45 | 926.79 | 940.77 |
| **Production**  **(MT)** | 2,787.98 | 2,844.50 | 2,901.01 | 2,957.53 | 3,014.04 | 3,070.56 | 3,127.07 | 3,183.59 | 3,240.10 | 3,296.62 | 3,413.13 |
| **Surplus/ Deficit (MT)** | 1,974.58 | 2,018.50 | 2,063.64 | 2,107.94 | 2,152.20 | 2,195.98 | 2,239.72 | 2,283.28 | 2,326.65 | 2,369.83 | 2,472.36 |
| **Sufficiency (%)** | 342.76 | 344.37 | 346.44 | 348.11 | 349.72 | 351.09 | 352.40 | 353.61 | 354.71 | 355.70 | 362.80 |
| **VEGETABLE (Ampalaya)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 157.51 | 159.94 | 162.14 | 164.51 | 166.88 | 169.35 | 171.82 | 174.33 | 176.87 | 179.46 | 182.17 |
| **Production**  **(MT)** | 660.00 | 726.00 | 798.60 | 878.46 | 966.31 | 1,062.94 | 1,169.23 | 1,286.15 | 1,414.77 | 1,556.25 | 1,711.87 |
| **Surplus/ Deficit (MT)** | 502.49 | 566.06 | 636.46 | 713.95 | 799.42 | 893.59 | 997.41 | 1,111.82 | 1,237.89 | 1,376.79 | 1,529.70 |
| **Sufficiency (%)** | 419.02 | 453.92 | 492.53 | 533.99 | 579.03 | 627.66 | 680.49 | 737.77 | 799.87 | 867.20 | 939.73 |
| **VEGETABLE (Pechay)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 858.75 | 872.01 | 884.01 | 896.92 | 909.85 | 923.30 | 936.78 | 950.46 | 964.33 | 978.41 | 993.18 |
| **Production**  **(MT)** | 324.00 | 356.40 | 392.04 | 431.24 | 474.37 | 521.81 | 573.99 | 631.38 | 694.52 | 763.98 | 840.37 |
| **Surplus/ Deficit (MT)** | -534.75 | -515.61 | -491.97 | -465.67 | -435.48 | -401.49 | -362.79 | -319.07 | -269.81 | -214.44 | -152.80 |
| **Sufficiency (%)** | 37.73 | 40.87 | 44.35 | 48.08 | 52.14 | 56.52 | 61.27 | 66.43 | 72.02 | 78.08 | 84.61 |
| **VEGETABLE (Eggplant)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 50.71 | 51.49 | 52.20 | 52.96 | 53.72 | 54.52 | 55.31 | 56.12 | 56.94 | 57.77 | 58.64 |
| **Production**  **(MT)** | 750.00 | 825.00 | 907.50 | 998.25 | 1,098.08 | 1,207.88 | 1,328.67 | 1,461.54 | 1,607.69 | 1,768.46 | 1,945.31 |
| **Surplus/ Deficit (MT)** | 699.29 | 773.51 | 855.30 | 945.29 | 1,044.35 | 1,153.37 | 1,273.36 | 1,405.42 | 1,550.75 | 1,710.69 | 1,886.66 |
| **Sufficiency (%)** | 1479.14 | 1602.31 | 1738.61 | 1884.96 | 2043.98 | 2215.64 | 2402.12 | 2604.31 | 2823.53 | 3061.18 | 3317.24 |

**Table 89:**

**SUFFICIENCY LEVEL OF MAJOR COMMODITIES**

**CY 2015-2016**

Continued…

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **FISHERY (Bangus and Tilapia)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 3.24 | 3.29 | 3.33 | 3.38 | 3.43 | 3.48 | 3.53 | 3.58 | 3.63 | 3.69 | 3.74 |
| **Production**  **(MT)** | 705.20 | 775.72 | 853.29 | 938.62 | 1,032.48 | 1,135.73 | 1,249.30 | 1,374.24 | 1,511.66 | 1,662.82 | 1,829.11 |
| **Surplus/ Deficit (MT)** | 701.96 | 772.43 | 849.96 | 935.24 | 1,029.05 | 1,132.25 | 1,245.77 | 1,370.65 | 1,508.02 | 1,659.14 | 1,825.36 |
| **Sufficiency (%)** | 21789.04 | 23603.44 | 25611.23 | 27767.06 | 30109.54 | 32638.22 | 35385.26 | 38363.74 | 41592.96 | 45093.80 | 48865.71 |
| **LIVESTOCK (Carabeef)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 10.79 | 10.95 | 11.11 | 11.27 | 11.43 | 11.60 | 11.77 | 11.94 | 12.11 | 12.29 | 12.48 |
| **Production**  **(MT)** | 1.5 | 1.63 | 1.79 | 1.97 | 2.17 | 2.38 | 2.62 | 2.88 | 3.17 | 3.49 | 3.84 |
| **Surplus/ Deficit (MT)** | -9.31 | -9.33 | -9.31 | -9.30 | -9.26 | -9.22 | -9.15 | -9.06 | -8.94 | -8.80 | -8.64 |
| **Sufficiency (%)** | 13.72 | 14.86 | 16.13 | 17.48 | 18.96 | 20.55 | 22.28 | 24.15 | 26.19 | 28.39 | 30.77 |
| **LIVESTOCK (Beef)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 459.58 | 466.68 | 473.10 | 480.01 | 486.93 | 494.13 | 501.34 | 508.66 | 516.09 | 523.62 | 531.52 |
| **Production**  **(MT)** | 24.00 | 26.40 | 29.04 | 31.94 | 35.14 | 38.65 | 42.52 | 46.77 | 51.45 | 56.59 | 62.25 |
| **Surplus/ Deficit (MT)** | -435.58 | -440.28 | -444.06 | -448.06 | -451.79 | -455.47 | -458.82 | -461.89 | -464.64 | -467.03 | -469.27 |
| **Sufficiency (%)** | 5.22 | 5.66 | 6.14 | 6.65 | 7.22 | 7.82 | 8.48 | 9.19 | 9.97 | 10.81 | 11.71 |
| **LIVESTOCK (Pork)** | | | | | | | | | | | |
| **Particulars** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Demand (MT)** | 1318.33 | 1338.69 | 1357.12 | 1376.93 | 1396.78 | 1417.42 | 1438.12 | 1459.12 | 1480.42 | 1502.03 | 1524.70 |
| **Production**  **(MT)** | 423,400 | 465,740 | 512,314 | 563,545 | 619,899 | 681,889 | 750,078 | 825,086 | 907,595 | 998,355 | 1,098,190 |
| **Surplus/ Deficit (MT)** | 422,081.67 | 464,401.31 | 510,956.88 | 562,168.47 | 618,503.16 | 680,472.51 | 748,640.80 | 823,627.70 | 906,115.09 | 996,853.02 | 1,096,665 |
| **Sufficiency (%)** | 32116.38 | 34790.76 | 37750.18 | 40927.82 | 44380.56 | 48107.75 | 52156.80 | 56547.00 | 61306.77 | 66466.90 | 72026.59 |

For the year 2016, a total of 820.60528 MT of rice is produced. Compared to 2015, increase of 100.114 MT of rice was realized due to increase in productivity from 7.70 MT to 8.20 MT per hectare.

Similarly, rice sufficiency level has increased to 6.48 compared to 5.79 in 2015 due to continuous increase of population of the municipality.

For corn, the sufficiency level in 2016 increased to 341.32% from its 125. 93% level in 2015. Its production increased to 2,776.415 MT in 2016 from 1,009.65 in 2016.

For vegetable, ampalaya and pechay tremendously increased in sufficiency level in 2016 to 419.02% and 638.09% from 21.90% and 177.77% in 2015 respectively.

Eggplant reduced in sufficiency level in 2016 at 87.34% from 109.83% in 2015. This is due to non-prioritization of eggplant which generates less income for farmers than ampalaya and pechay.

The fishery (Bangus and Tilapia) the sufficiency level in 2016 increased to 21,789.04% from 16,269.95% in 2015.

For livestock, beef and pork production increased in sufficiency level in 2016 to 5.22% and 32,116.38% from 4.20% and 21,185.74% in 2015 respectively.

For carabeef, the sufficiency level in 2016 reduced to 13.72% from 35.93% in 2015. This mean that carabao’s slaughtered in the Municipal Abattoir are no longer raised locally but come from other province like Masbate and Nueva Ecija.

***Agriculture Matrix Analysis***

Agriculture remains as the main source of livelihood of the people in the surveyed farms as more than half of the population derive their livelihoods from land. Majority of the households are in traditional farms. There are farmers that lack appropriate technology and remove subsidies from the production inputs such fertilizers which make them as the main factors for having poor yield in their farms.

Farmers need to increase their returns to fill the gap of their food crops spending. Consequently, the importance of increasing output of all cultivated crops and gross margin often affected the returns of the tenants and their income, which consequently alleviate their poverty condition.

**Table 90: Agriculture Matrix Analysis**

|  |  |  |
| --- | --- | --- |
| **Technical Findings** | **Implications/effects** | **Policy Options/ Interventions** |
| Low Crop Production | Increase poverty incidence of farmers | 1. Introduce innovative techniques in farming  2. Conduct trainings and workshops of farmers |
| Inadequate Irrigation Support Facilities | Low crop production | 1. Allocate budget for the construction of irrigation canals  2. Improvement and construction of farm to market roads |
| Flood Prone Areas | Low crop production | Rehabilitation and improvement of drainage canals to arrest water run-off during rainy season |
| Lack of Investors | Low income of farmers | Encourage the use, reproduction and dissemination of material in this information product |
| High cost of inputs | Poverty incidence | Government subsidy for farmers |
| Agrarian Reform Communities & Areas covered by Land Acquisition & Distribution should be protected | Conversion to commercial for better potential of land | ARC & LAD should be zoned as prime agricultural lands and should not be subjected to conversion |
| Promotion of organic farming | Provide alternative income of farmers | Implementation of Organic Agriculture Land (RA 10068) |