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Industry Career Guide: Agribusiness

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INDUSTRY CAREER GUIDE: AGRIBUSINESS¹

¹ This career guide was written by Roderick Bugador as part of the project *Career Guides for Selected Industries*, commissioned by the Bureau of Local Employment of the Department of Labor and Employment to the Angelo King Institute of De La Salle University.

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EXECUTIVE SUMMARY

Agribusiness is generally the commercial aspect related to agriculture or agricultural activities and its products. The Agribusiness sector is engaged in the production and operations of a farm, the manufacture and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities. The very core of the industry is agriculture, which is supported by the manufacturing sector and service sector. As a whole, the Agribusiness sector is quite diverse as it encompasses input production, farm operations and management, equipment and supplies manufacturing, food/non-food processing, trading, and retailing.

Being a country rich in natural resources, the Philippines rely heavily on agriculture to provide for its people and to drive its economy. With approximately 32 percent of total land area dedicated to agriculture and agricultural activities, 51% and 44% are arable and permanent croplands, respectively. This shows a clear picture as to how large and significant the agriculture industry is. In 2009, Gross Value Added (GVA) in agriculture and fishery amounted to a current price of P1, 121.78 Billion (inched up by 0.03 percent) and accounted for 18 percent of the GDP (BAS, 2010). Its exports totaled P150 billion in 2010. In terms of employment, there were 12.04 million people employed in the primary agriculture industry in 2009. This excludes workers who are working and involved in agri-related industries like manufacturing and services. These workers are directly engaged in agro-processing, professional services and agricultural goods distribution.

The Philippine Agribusiness sector is roughly composed of five (5) subsectors; these are: crop production, animal production (includes livestock and poultry), Forestry and Logging, Fishery (including aquaculture) and Agri-support services and manufacturing. Crop production subsector includes farms that mainly grow crops and fruits that are eventually processed for food and fiber. It remains the major activity of the industry with 49% of the overall production. Following crop production is the Fishery subsector occupying 25% of the overall production. Fishing activities include local and commercial fishing, fish cage/pen operations and seafood production. Animal production comes third capturing 21% (11% livestock; 10% poultry), which activities range from small farming to large ranches that raise

animals for sale or for animal products. Lastly, Forestry, Logging, and Agri-support services share the remaining activities of the industry.

The occupations in this industry vary widely as it contains the agriculture, manufacturing, and service sectors. Training, skills, and qualifications depend on the nature and scope of work some of the industry participants engage in. It may range from knowledge in basic farming technology and maintenance to four to five-years for degree courses in tertiary level education. Some require professional licenses. The occupations in the Agribusiness industry are segregated according to their involvement in the industry. They are categorized under primary agriculture, agricultural manufacturing/processing, and agri-entrepreneurial and support occupations. Under the primary agriculture category, *workers* perform a whole spectrum of daily chores involved in crop and livestock preparation and production, fishing and processing, breeding and management in a farm. *Agriculturists, Biotechnologists, Agricultural engineers, Plant Pathologists and Entomologists* are usually *in-charge* of ensuring the quality of the agricultural commodities in the farm. *Animal farmworkers including breeders and veterinarians* tend to animals raised for animal products. These workers may also maintain records on animals. *Forester and conservation workers* perform a variety of tasks to reforest and conserve timberlands and maintain forest facilities. Loggers and logging operators are the ones transforming forest products into different wood related commodities. Fishers and related fishing workers trap and catch various types of marine life for human consumption, animal feed, bait, and other uses. Fishing boat captains plan and oversee fishing operations. Under agricultural manufacturing/processing, raw and intermediate products from the agricultural sector are processed for final use. Food Technologists and Chemists work as food processors who handle the transformation of raw materials (from the farm) into valuable food products for consumption. Accessories, craft and furniture makers process various durable natural products to become decorations and furniture. Under the Agri-Entrepreneurial and support occupations, workers may not require agriculture-related degrees and could encourage professionals from different fields. This group connects the upstream and downstream segments of the market for agricultural goods.

Despite erratic weather conditions and declining number of graduates of agriculture-related degrees, there is still a steady

demand of Agribusiness workers. Another major prospect for working in the Agribusiness industry is that it is flexible since it encompasses entrepreneurship. Many people are engaged in entrepreneurship which focuses on agricultural products, which are a quick and cheap to source. This secures them higher income, especially when their ventures are managed well.

There is much to be gained from the Agribusiness industry as Free Trade Agreements with other nations are easing the flow of goods by reducing tariffs on imports and exports. The recent ASEAN-ANZ, which eliminates tariffs for import and export of agricultural products between Philippines and Australia and New Zealand, will provide exporters with greater market access to Australia and New Zealand. Another opportunity for the industry is the rapid development of biotechnology which is quickly developing the quality of agricultural products by significantly reducing growth time and increasing yield in crops and animal subsectors. In the past few years, breakthroughs in biotechnology have created more nutritional and disease-resistant strains of crops and livestock.

I. NATURE OF THE INDUSTRY

A. Overview. For many years, the Agribusiness sector played a significant role in the Philippine economy. It steadily contributed to the country's Gross Domestic Product (GDP), boosting production and employment. In 2009, Gross Value Added (GVA) in agriculture and fishery amounted to a current price of PhP 1, 121.78 Billion (inched up by 0.03 percent) and accounted for 18 % of the GDP (BAS, 2010) ². Its exports totaled PhP 150 Billion in 2010, attempting to compete with those of neighboring countries in South East Asia. Being rich in natural resources, the Philippines relies heavily on the activities of the agriculture industry which produces and transforms farm goods and services for its people. About 32 % of the country's total land area constitutes the agricultural land. Of this, 51% and 44% were arable and permanent croplands, respectively.

² Agriculture Facts and Figures 2010

The wide variety of products produced from this sector helps nourish even the most remote communities in the country. Recently though, trends in the shifting of global production networks have affected the performance of Philippine agriculture. For example, the booming electronics and services industry has shifted the overall production of the Philippines from highly agricultural to becoming industrial. It is a challenge for the Philippine government and its related institutions to revive the agriculture industry and continue to respond to the need of many local communities. At present, the Philippine government, through the Department of Agriculture (DA) and related bureaus, pushes for the implementation of many programs including the “Farm to Plate” strategy for the Agribusiness sector thereby broadening its scope and services to all the consumers. The overarching agenda is about food security which entails meeting the food requirements of the present and future generations of Filipinos in substantial quantity, ensuring the availability and affordability of food to all, at all times.

B. Scope of the Agribusiness Sector. It has been difficult to delimit the scope of Agribusiness sector due to the dynamism of the activities and the interconnected industries that constitute it. By definition, the Agribusiness sector is engaged in the production and operations of a farm, the manufacture and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities. Agriculture (agricultural production and management) is clearly the core of Agribusiness. It includes all the activities in the agricultural sector (as inputs) and some portions of the Industrial/Manufacturing and Services sectors (for processing, distribution or consumption, and financing). Thus, the nature of work in agribusiness has a very wide scope from input production, farm operations and management, food/non-food processing, equipment and supplies manufacturing, trading, and retailing.

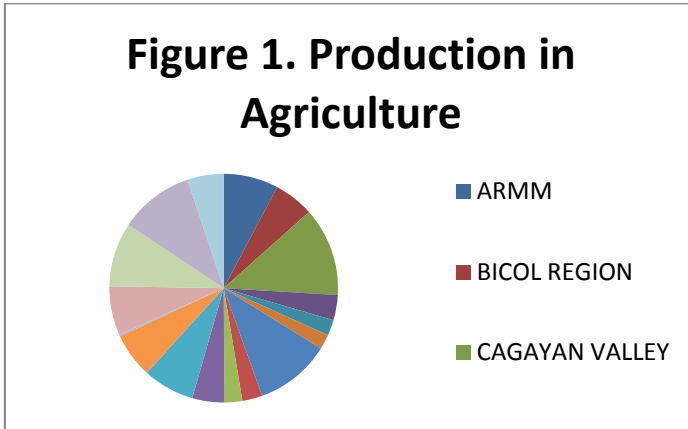
C. Major Commodities. The lush tropical vegetation of the Philippines offers variety of crops and fruits produced and processed by the Agribusiness sector. Palay or rice is the most widely produced in almost all regions, especially in Luzon. This is followed by sugarcane in Visayas, and corn, coconut, and coffee in Mindanao. Fruits for exports such as pineapple and banana are heavily produced in Mindanao while mango is the primary output from Luzon. In the animal production subsector, hog/pork occupies the largest volume of production followed by cattle/beef, carabao, goat and dairy. For poultry, chicken being common followed by duck, and egg products. Most of these livestock produce come from the Luzon. The Fishery subsector produces heavily through Aquaculture by its operation in fish ponds/cages/pens that produces bangus, tilapia, prawns and other types of seafood (i.e. oyster, mussel) and seaweed. The rest of the Fishery subsector generates other species of fish including Tuna (best known for export), coming from municipal and commercial fishing in Mindanao. Lastly, the Forestry subsector primarily produces logs, followed by lumber, plywood and other types of veneer. These agricultural produce are the main source of the activity in the sector through its value-adding processes. The direct outputs of these processes are food products ready for consumption or numerous materials for different utilization.

D. Industry Subsectors and Activities.³ The Philippine Agribusiness sector is roughly composed of five (5) subsectors; these are: crop production, animal production (includes livestock and poultry), Forestry and Logging, Fishery (including aquaculture) and Agri-support services and manufacturing. Crop production subsector includes farms that mainly grow crops and fruits that are eventually processed for food and fiber. It remains the major activity of the industry with 49% of the overall production. Following crop production is the Fishery subsector occupying 25% of the overall production. Fishing activities include local and

³ Bureau of Agricultural Statistics (BAS), 2009

commercial fishing, fish cage/pen operations and seafood production. Animal production comes third capturing 21% (11% livestock; 10% poultry), which activities range from small farming to large ranches that raise animals for sale or for animal products. Lastly, Forestry, Logging, and Agri-support services share the remaining activities of the industry.

a. Regional Distribution/Concentration of Subsectors.⁴



Regions in Luzon dominate most of the subsectors with a combined average of 44.51% production for all the sectors. Animal production (Livestock and Poultry) has the biggest share for Luzon which animal produce comes from Central Luzon, CALABARZON, Ilocos and Cagayan Valley regions. Fishing and Aquaculture is also notable in Luzon seizing 60.42% of the overall production. The majority of this is from Inland and Aquaculture in the regions of Central Luzon, CALABARZON, MIMAROPA and Bicol. Mindanao, which is known as the food basket in the country, occupied the highest in crop production contributing 53.5% of the total crop production in the country. Most of these crops come from Northern Mindanao, Davao and SOCCSKSARGEN regions. Mindanao relatively produces an average of 28% for all of its

⁴ Selected Statistics in Agriculture, BAS, 2010

subsectors, quite lower compared to Luzon. Lastly, the Visayas region is contributing an average of 17.11% in its overall production; this is the lowest among the three main regional groups. Higher production is Livestock, coming from the Western and Central Visayas regions.

b. Industry Organization of the Subsectors.

Each subsector in Philippine Agribusiness is a coordinated system of input, production/processing, storage and distribution/retailing. The main differences among the subsectors are their size and marketing strategy. Sometimes, consumers and traders are involved even at the start of the whole process. Inputs are usually supplied by the Agricultural services sectors such as nursery operators, breeders, chemicals and equipment distributors. This input can also be part or internal in the whole operations of a farm (especially the larger ones) or consigned from external suppliers. The processing or production function can also be internal or external depending on the size of the farm/enterprise or its market arrangements. Most of the time, farmers coordinate with traders or buyers even before they harvest their commodities. Again, this is very relevant to the nature of Agribusiness as highly seasonal and perishability as far as its output is concern. Historically, the storage and distribution/retailing functions had been handled by middlemen. These middlemen are part of the whole sector and provide agricultural services that include finance, networking, and distribution of farm products.

c. Type of Establishments. Agribusiness subsector has four main market entities, these are: agricultural input suppliers, farmer-producers, processor-wholesaler-distributors, and retailers. Each of these establishments has its own unique contribution for the whole agribusiness system to work. Input suppliers can be a small or a large enterprise. Breeders, greenhouse

operators, fertilizer and pesticides manufacturers are some of the examples of establishments in the input category. Farmer-producers are those establishments that are usually farms, directly operating and managing day-to-day operations that produce all sorts of raw commodities for processing or consumption. Processors-wholesalers-distributors are establishments that take care of the processing of any produce from the farm. This can be meat, milk, egg, fish, raw materials or any type of fruit. Establishments are usually part of the manufacturing sector that transform or process agricultural products into different value-added and consumable products. These establishments can range from backyard enterprises to multinational companies such as DOLE, Del Monte and Top Philippine corporations (e.g. Universal Robina Corporation, San Miguel Foods, Swift Foods, etc.). Retailing of agribusiness products can vary greatly from local establishments like public market stalls to big grocery stores in shopping malls. Another type of establishment that exists in the industry is cooperative organizations. Cooperatives could sometimes combine all the functions of the four market entities. They form an association among farmers and pool their resources together which then caters to all the needs (from inputs, financing and marketing) of every farmer-member.

d. Recent Development and Performance.

The significant development in the Agribusiness sector lately was the creation of the Roll-on-Roll-off or Ro-Ro transport infrastructure that has connected major islands in the Philippines from Mindanao to Luzon. This paved the way for easier way to transport agricultural produce from Mindanao to Luzon and vice versa. This is very important development considering that the bulk of demands for agricultural products is in Luzon while a number of these products are produced in Mindanao. However, due to the inherent

problems of the perishability of agricultural produce, utilization of the Ro-Ro is mostly in short distances or islands at the moment.

A number of irrigation infrastructures is also being established and improved in many regions (especially in Bicol and Negros) to help farmers boost their production. This has been implemented to secure enough water for farms during drought seasons. In the area of livestock production, Philippines was declared to be free from foot and mouth disease (FMD) without vaccination by the Office International des Epizooties (OIE) or World Organization for Animal Health. This is followed by the DA Secretary issuing Administrative Order (AO) No. 19 in 2 August 2011, lifting all FMD-related transport restrictions for swine, cattle, carabao, sheep, goats, and other cloven-footed animals, including their meat, meat products, and other by-products nationwide. It made possible and facilitated the stable supply to the demands of livestock in many parts of the country.

II. EMPLOYMENT

Countrywide, there were 12.04 million persons employed in the primary agriculture in 2009. This excludes workers who are working and involved in agri-related industries such as manufacturing and services. These workers are directly engaged in agro-processing, professional services and agricultural goods distribution. It is estimated that the overall employment generated by primary agriculture and its related industries could be around 40% to 60% of the country's total employment⁵. However, due to the absence of a consolidated data, most of these numbers are reported separately by different government bodies. Overall, the total number of employed persons has expanded by an average of 1% yearly from 2006 to 2009. The sector's share in total

⁵ Source: Department of Agriculture (2009)

employment went down to 34.3%. The shares contracted by an average of 1.4% annually.

Due to its vulnerability to weather conditions, political and economic crisis, labor intensity in the Agricultural sector has also been dramatic (as illustrated on Figure 2). Most notably, it significantly dropped in the last 1997 financial crisis and steadily declined beginning 2000 until 2006. The following years depicted a slight stability but always sensible to many challenges. Philippine agriculture has been a laggard due to poor unsupportive policy environments in land reform and rural infrastructure (despite CARP), poor national and local governance, low budget for research and development as well as poor regulatory framework which is often based on outdated legal mandates that do not consider current developments and issues (Dy, 2005). Another challenge is the number of trade protection policies in many agricultural products.

There are basically three (3) broad areas where agricultural employment is generated. The first area is in inputs, where acquisition of farm supplies and farm preparation take place. Employment activities range from buying, selling and transporting of farm inputs, land preparation and financing activities. This can involve laborers, growers, sales representatives from agrochemical companies, logistics, banks, and loan providers. The second area is in actual farming and agricultural processing. This area occupies the bulk of agricultural employment being the major activity of the sector. Farmers and other professionals participate in this area for the purposes of quality production and value-adding innovations to the agricultural produce. Work can require expertise of contractual and regular agriculturists/farmers and managers, veterinary workers, pesticides and chemicals experts, agricultural engineers, food technologists, chemists, and food processors.

Lastly, a mix of agribusiness activities that employs people, cut across many industries like biotechnology, logistics, finance and import/export, and retailing. This area generally works around the agricultural output from

the farm to the end consumers or household consumption.

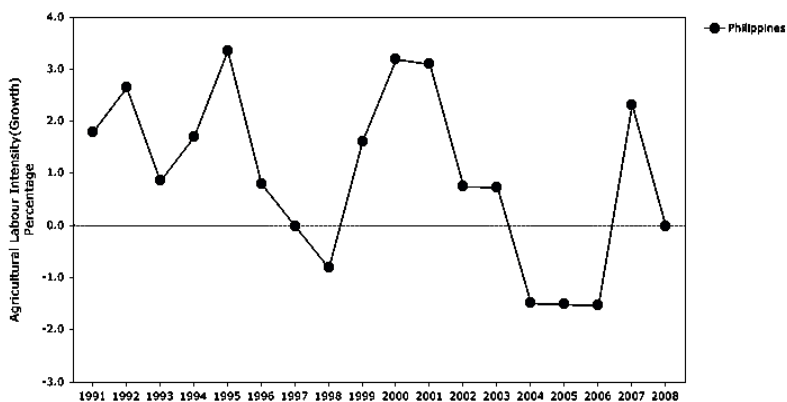


Figure 2. Philippine Agricultural Labor Intensity Growth, 1993-2008
(Source: Datamonitor)

A. Number of Employed Workers per Sub-sector by Geographical Region⁶.

Region	% employed in agriculture	Region	% employed in agriculture
Philippines	34.3	Western Visayas	40.1
NCR	0.7	Central Visayas	32.0
CAR	54.1	Eastern Visayas	45.5
Ilocos Region	39.2	Zamboanga Peninsula	51.4
Cagayan Valley	59.3	Northern Mindanao	43.7
Central Luzon	22.1	Davao Region	41.2
CALABARZON	17.7	SOCCKSARGEN	52.1
MIMAROPA	51.3	Caraga	42.0
Bicol Region	43.1	ARMM	71.7

Table 1. Proportion of employed persons in agriculture by region. Source: Agricultural

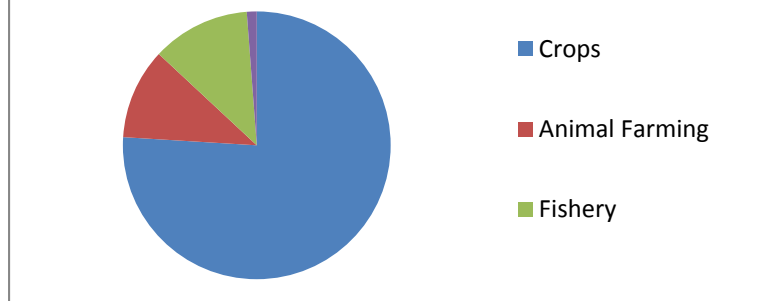
⁶ Agricultural Indicators System (AIS) Report, BAS, 2009.

Indicators System (2010), Bureau of Agricultural Statistics.

As can be seen in Table 1, agricultural employment remained biggest in Western Visayas. However, it declined to 1.16 million persons in 2009 by yearly average of 0.6%. Its corresponding share in the region's total employment went down to 40.1% in 2009 or by an average of 2.4%. Moreover, ARMM exhibited the highest proportion of agricultural employment at 71.7% with 0.81 million employed persons. The region recorded the highest average yearly gain in number at 3.3%. Its proportion increased by 0.1% over the reference years. In contrast, NCR had only 31,000 persons employed in agriculture and this comprised 0.7% of the region's total employment. The number and proportion were declining by averages of 4.2% and 7.4 percent, respectively. Decreasing numbers of employed persons in agriculture were also noted in CALABARZON, Bicol Region, and Eastern Visayas. On the other hand, the proportions in all regions except ARMM were likewise decreasing over the four reference years.

B. Distribution of the Employment.

Figure 3. Employment in Agriculture



The number of employed persons engaged in growing of crops reached 9.16 million in 2008. They comprised 76.2% of the total agricultural employment. Over the three year period (2006 to 2008), the numbers expanded by an annual average growth of 3.35% while the proportion inched up by 1.9 %. Decreasing employment levels were reported in fishing, farming of animals, animal husbandry and forestry activities. In fishing, there were 1.43 million persons in 2008 but the number was declining by an average of 0.06%. Employment in fishing accounted for 11.9 percent. Persons involved in farming of animals and animal husbandry activities numbered more than half a million each and they comprised a total of about 11% in the total employment in agriculture. Only about 1.2% or 0.15 million persons were employed in forestry, logging, hunting, and related service activities.

C. Type/Account of Employment.

Class of Workers	2006	2007	2008
Wage and Salary Workers	24.4	25.4	25.8
Worked for Private Household/Establishment /Family-Operated Activities	24.2	25.2	25.7
Worked for Government/Government	0.2	0.2	0.1

Corporation			
Own-account Workers	50.6	49.6	48.8
Self-Employed	42.9	42.2	41.6
Employer	7.7	7.4	7.2
Unpaid Family Workers	25.0	25.0	25.4

Table 2. Proportion of employed persons by class of workers. Source: Agricultural Indicators System (2010), Bureau of Agricultural Statistics.

The own-account workers (self-employed or employer) constituted half of the total employed persons in agriculture. This is tied to the increasing number of entrepreneurs and second career individuals in the country. In 2008, this class of workers numbered 5.87 million persons and they represented 48.8% of the country's agricultural employment. Own-account employment was dominated by self-employed workers comprising 41.6%. However, the number of own account workers dropped by 0.4% and the proportion by 1.8% over the years 2006 to 2008. The wage and salary workers and unpaid family workers accounted for one fourth each of the total employment in agriculture. In 2008, there were 3.11 million wage and salary agricultural workers which expanded by 4.4% over the three reference years. The unpaid family workers at 3.06 million persons went up by an average of 2.3%. The proportions of these two classes in the total agricultural employment were increasing.

D. Workers' Gender Characteristics by Region.

Region	# employed		Region	# employed	
	Male	Female		Male	Female
Philippines	8,965	3,078	Western Visayas	861	294
NCR	28	3	Central Visayas	578	278
CAR	231	136	Eastern Visayas	594	162
Ilocos Region	569	165	Zamboanga	496	200

			Peninsula		
Cagayan Valley	588	244	Northern Mindanao	540	261
Central Luzon	650	145	Davao Region	533	170
CALABARZON	600	163	SOCCKSARGEN	628	208
MIMAROPA	449	170	Caraga	305	105
Bicol Region	689	186	ARMM	627	187

Table 3. Number of employed males and females in agriculture in 2009 (in thousands). Source: Agricultural Indicators System (2010), Bureau of Agricultural Statistics.

As can be seen from Table 3, males dominated employment in agriculture by around 75%. In 2009, there were about 8.96 million males and 3.08 million females employed in agriculture. The numbers expanded by an average of 1% each annually over the years 2006 to 2009. Across regions, Western Visayas recorded the biggest number of agricultural workers at 0.86 million males and 0.29 million females. On the average, employment of males in the region grew by 0.1% while that of the females declined by 2.6% annually. NCR posted the least numbers of male and female workers in agriculture at 28,000 and 3,000, respectively. The region's employment was going down at 1.9 percent for males and 18.9% for females. Declining agricultural employment of both sexes was noted in Bicol Region while CALABARZON exhibited declining male employment. Meanwhile, the numbers of female agricultural workers dropped in Ilocos, Eastern Visayas, and Northern Mindanao regions. Employment growth among the males was biggest in CAR, MIMAROPA and SOCCKSARGEN at more than 2% each. On the average, the number of female agricultural workers grew at a faster rate in ARMM at 9.4%.

Region	% employed		Region	% employed	
	Male	Female		Male	Female

Philippines	41.9	22.5	Western Visayas	49.3	25.8
NCR	1.2	0.2	Central Visayas	37.4	24.7
CAR	57.5	49.1	Eastern Visayas	57.2	26.0
Ilocos Region	47.2	24.8	Zamboanga Peninsula	57.9	39.8
Cagayan Valley	65.3	48.5	Northern Mindanao	50.0	34.8
Central Luzon	28.9	10.8	Davao Region	48.9	27.6
CALABARZON	24.0	9.1	SOCCKSARGEN	61.2	35.9
MIMAROPA	62.3	36.4	Caraga	49.5	29.1
Bicol Region	54.0	24.7	ARMM	77.4	57.5

Table 4. Proportion of employed males and females in agriculture to total male and female employment respectively, in 2009. Source: Agricultural Indicators System (2010), Bureau of Agricultural Statistics.

Of the total male employment, the proportion of employed males in agriculture went down to 41.9% in 2009 as can be seen in Table 4. This decreased by an average of 1.2% annually. On the other hand, the proportion of female agricultural workers to total female employment went down to 22.5% by 1.6% annually. ARMM contributed the highest proportion of agricultural employment to total employment at 77.4% for male workers and 57.5% for female workers. The proportion was declining for males by 0.1% while it was increasing for females by 2.2 percent. In contrast, NCR had the least proportions of agricultural employment and it also posted the highest average reduction for both sexes. Decreasing proportions of male agricultural workers were observed in all regions. For females, the proportions were declining except in Central Luzon, Central Visayas, and ARMM.

E. Terms of Employment. The employment contracts of workers in the various subsectors are highly dependent on the agricultural production cycle and the size and type of establishments that they belong to. In small farms, which most of the work is seasonal, farmer-owners often hire seasonal or contractual workers as the farm progresses from planting to harvesting. After this initial cycle, another group of

workers will be hired for drying, sorting and storing. Most of the workers in these small farms are family members or community folks whose employment contracts that can be very informal at times. On the other hand, larger farms can be very formal following the strict employment procedure set by the government particularly the Department of Labor and Employment (DOLE) with regards to contractualization or permanency of employed workers. By law, workers in these farms should be made permanent after 6-12 months of continuous employment. In general, the distinctive nature of the agricultural production permits farm owners or companies to maintain only a minimum number of permanent workers; others or sometimes the majority of the employees are contractual.

III. INDUSTRY OCCUPATIONS

A. Working Conditions. Working conditions vary greatly in each subsector in the Agribusiness sector. Working hours is very different compared to the working hours in many contemporary industries. Primarily, the working hours in the agribusiness respond to the distinct characteristics of its production cycle (i.e. seasonality and perishability). In other words, aside from producing specific type of products in certain intervals, work cannot be delayed when crops must be planted, harvested, transported or when animals must be sheltered and fed. Workers usually work along the cycle of the production activities needed for specific commodities.

Agribusiness work generally does not strictly follow 8-hour day and 5-days or 40-hour a week working hours, except for administrative positions where work is being done inside an office specifically those of the agricultural services and processing subsectors. Work schedule varies from early in the morning to late evening chores. In the crop production subsector for example, working hours usually begin early in the morning (especially during planting season), relaxes during noontime until early afternoon, and finishes late

in the afternoon. Working in plantations also follows specific hours (e.g. cultivating, weeding, watering and spraying pesticides, etc.). Harvesting is where the work is continuous in nature until storage. The Fishery subsector also has its own specific time of work. Municipal fishermen and commercial fishers usually spend days in the sea to get some catch. They only return home after having consumed their food or when the catch has to be transported back for selling. They are also obliged to refrain from working during bad weather conditions. In Aquaculture, the working hours depend on the type of fish or seafood that the farm is growing. Mostly, the working time is devoted to feeding (which can be three times a day) and the rest is checking the safety and sanitation of the cages/ponds. The Animal Production subsector follows almost the same working hours with the Aquaculture subsector. The only difference is that the workers in the Aquaculture subsector take care of animals that can be very vulnerable to insects, heat and diseases. Majority of their time is spent for checking health conditions, vaccinations and sanitation; this is done anytime of the day. On the other hand, in the Forestry subsector the workers have very different working hours because of the sporadic nature of their work. They can work all day preparing, cutting and transporting the logs which give them little time to rest. However, there is also much of idle time in the course of the week or month while waiting for the demand of products from prospective buyers.

As for the trading or selling of all the outputs, farmers regularly establish contract agreement with buyers or with their cooperative if they have one. Hence, disposing their products does not take so much of their time since the tasks are assumed by these buyers or traders, including middlemen.

a. Working Environment. The Agribusiness work can be extremely independent or collaborative at many times in the production cycle. Although in general, it is assumed to be more on a collaborative type of work. During the input stage as in planting, breeding, weeding or fishing, most

of the work is done independently. Workers make sure that they are able to apply their individual skills and techniques to ensure the quality of the input-output progression. However, during the processing period (i.e. harvest or post-harvest, distribution and transporting) workers greatly need much manpower to carry all necessary tasks or else spoilage may take place.

Much of the work on farms, ranches, fish ponds/cages usually takes place outdoors. They can be very laborious or physical in nature, and highly exposed to all kinds of weather. Harvesting for example, requires manual labor wherein workers have to do more bending, stooping, and lifting. Thus, agribusiness work attracts people who enjoy working with nature, living an independent lifestyle, or working outdoors on the land. For many, the wide-open farm area, the variability of day-to-day work, and the rural setting provide benefits that help to offset the hard labor and the risks associated with it, to shifting outlook for good revenues.

b. Occupational Injuries/Hazards⁷. Given the physically demanding tasks, uncommon working schedule, and working environment in the Agribusiness sector, risks on injuries/hazards are inevitable. For example, farm workers are commonly exposed to pesticides and other hazardous chemicals sprayed on crops or plants. Some of these chemicals can cause minor irritation or even impotence. Those who work with machine in the farm or processing plants can have injuries when working with their tools and heavy equipment. Those who work directly with animals risk being bitten or being exposed to animal diseases. Foresters risk being in the forest along with wild animals that can be unfriendly at times. From 1991 to 1996 almost 45% of all the establishments in the agribusiness subsector reported work-related injuries throughout the years

⁷ Occupational Injuries Survey, BLES, 1996.

(it became lesser recently). It varies from disabling to non-disabling, caused by common injuries e.g. cuts, lacerations, punctures, avulsions, hematoma, abrasions, burns, etc.). With higher possibility of getting injuries, extra care and control is necessary to avoid them.

B. Average Earnings of Occupations

a. Primary Agriculture Earnings. Among the wage and salary workers in agriculture, the average basic wage and salary paid to them in 2009 amounted to PhP145.14 per day. It registered an average annual gain of 3.17% from 2006 to 2009. Those in the fishing activity received higher daily salary and wages at PhP174.62 compared to those engaged in crops, livestock and forestry activities at PhP142.87. Average annual wage increase was higher in fishing at 3.58 percent than in agriculture, hunting and forestry at 3.16%. For regional agricultural wage rates, farm workers tend to be higher in Luzon, especially Central Luzon (PhP170.26), Ilocos (PhP154.74) and CALABARZON (PhP157.45) regions. On the other hand, farm workers from the Visayas receive the lowest earning compared to other regions in the country. Rate were given the lowest in Central Visayas (PhP95.21), Western Visayas (PhP116.69), and Easter Visayas (P101.37). Mindanao agricultural workers in CARAGA (PhP122.17) and Northern Mindanao (PhP118.6) received a bit higher earnings than those in the Visayas regions. As of May 2011, the average daily basic wage and salary paid to agricultural workers amounted to PhP220 for plantation workers and PhP230 for non-plantation workers, respectively⁸. These numbers are higher compared from that of 2009 figures (see table below for comparison).

⁸ DOLE-National Wages and Productivity Commission, 2011.

Region	Average Daily Earnings in 2009	Average Daily Earnings in 2011	
		Plantation	Non-Plantation
NCR	-	389	389
CAR	-	235	235
Ilocos	154.74	228	200
Central Luzon	170.26	233	213
CALABARZON	157.45	312	292
Central Visayas	95.21	235	240
Bicol	-	225	205
Western Visayas		233	223
Eastern Visayas	101.37	215	198
CARAGA	122.17	235	235
Northern Mindanao	118.6	226.5	220
Central Mindanao	-	225	220

Table 1. Average Daily Earnings (excluding COLA) in Agriculture in 2009 and 2011 (in Pesos).

b. Agricultural Manufacturing/Processing and Support Earnings. There is a wide gap in the earnings for different occupations belonging to the agricultural manufacturing and support subsectors. Since the nature of these occupations is not considered farming, they are accounted as part of the manufacturing or service sectors. Thus, their daily wage follows that of the non-agriculture category ranging from PhP230 - PhP404 depending on the region. On the other hand, professionals within this subsector such as food technologists, chemists and plant managers could earn up to PhP500 - PhP1000 depending on the size of their company or employer.

C. Training and Advancement

a. Internal and External Training Program. Agribusiness workers' advanced skills and techniques are expected to be acquired during

the course of their work within the farm or the enterprise. Employers usually expect their new workers to learn the routine and innovate later on through the combination of their earned skills and the resources that the enterprise have. On the other hand, internal and external training in the Agribusiness is highly contingent with the development of the whole agriculture industry in the country. The trend is not for individual training but mostly team or group trainings. Most of these trainings are offered by external sources belonging to the agri-services sector and agricultural related bureaus of the government like the Department of Agriculture. Training as well as the education in agribusiness are found mostly in provincial universities such as Silliman University, Benguet State University, Mindanao State University and Universidad de Zamboanga which offer courses such as those in Forestry, Agricultural Engineering, Animal Science, Crop Science, Agronomy and Agricultural Business and Economics. There is the MFI Farm Business School in Jalajala, Rizal, in partnership with the University of Rizal System and the Management Association of the Philippines which offers a Diploma on Agriculture Entrepreneurship which makes use of Dual Training System which entails education given both at the school and at the students' family farm (Gayo, 2009). Students of this program are expected to venture into agricultural projects as agriculture entrepreneurs or as farm supervisors/managers. The curriculum is centered on the practicum wherein students will work firsthand in the early morning and late afternoons and engage in classroom discussions at mid-day. The Agricultural Training Institute (ATI) Philippines which is

based in Central Mindanao University administers training programs that emphasize the acquisition of relevant knowledge, appropriate skills and desirable attitudes towards work, focusing on entrepreneurship, extension delivery, project development, farming systems development, management and supervisory development, institutional development and package of application technology (NOMCARRD website).

b. Education and Training Providers. Agriculture or Agribusiness related education and technology are commonly offered by various Higher Educational Institutions (HEIs) in the country. Most of these HEIs or tertiary institutions are public or government-owned. They offer lower fees compared to most private universities or colleges, attracting learners mostly from low-income households. Many of these government-owned HEIs are also located in the countryside, where farms are also predominant.

c. Basic Educational/Training/Skill Requirements. The basic requirement for working in the Agribusiness sector is a degree mostly earned in HEIS or Tertiary educational institutions. Some degrees/skills can also be earned from vocational schools in the country, which may serve as the foundation for higher degrees. These degree courses belong to the “Agriculture, Forestry and Natural Resources (AFNR) courses”. These are offered from two (2) to five (5) year of full time study in the undergraduate level. Some courses with specialization are expected to train themselves further after completing the initial undergraduate course (see list below).

<ul style="list-style-type: none"> • Agriculture • Agricultural Engineering • Agribusiness, Agribusiness 	<ul style="list-style-type: none"> • Entomology, Pest Management, Plant Pathology
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<ul style="list-style-type: none"> • Management • Agri-Biotechnology • Agricultural Technology • Agricultural Education, Rural Sociology, Community Development • Agricultural Economics • Agro-Forestry, Forestry, Forest Ranger • Agricultural Extension • Agricultural/Development Communication • Agricultural Chemistry • Poultry-Animal Husbandry, Dairy-Animal Science 	<ul style="list-style-type: none"> • Entrepreneurial Technology • Environmental Science and Natural Resource Management, Landscape Architecture • Fisheries, Fishery Technology • Food Technology • Marine Biology • Plant Breeding • Rubber Production
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Table 2. List of Undergraduate Courses Required in the Industry

d. Professional Licensure Requirements. Not all occupations require professional licensure in the Agribusiness sector. However, selected occupations that undergo special training and expertise need to be certified. The basic licensure requirements are for Agricultural/Fishery technologist and Agriculturists. Highly specialized/technical occupation like Agricultural engineer, Food Technologists, Entomologists, Marine Biologists and Veterinarian are required to obtain license to practice their respective occupations.

D. Specific Industry Occupations

a. Primary Agriculture. Primary agricultural workers include occupations that perform a whole

spectrum of daily chores involved in crop and livestock preparation and production, fishing and processing, breeding, and management in a farm (refer to Table 2).

Agriculturists, bio-technologists, agricultural engineers, plant pathologists and entomologists are usually in-charge of ensuring the quality of the agricultural commodities in the farm. Their responsibilities can include managing nursery and greenhouses or manually plant, maintain, and harvest food crops; apply pesticides, herbicides, and fertilizer to crops; and cultivate plants. Agricultural engineers mostly take care of irrigation, mechanization and efficient use of space and resources of the farm.

Animal farm workers including breeders and veterinarians tend to animals raised for animal products, such as meat, fur, skins, wool, feathers, eggs, milk, and honey. Duties may include feeding, watering, herding, grazing, castrating, weighing, catching, and loading animals. These farm workers also may maintain records on animals, examine animals to detect diseases and injuries, assist in birth deliveries, and administer medications, vaccinations, or insecticides, as appropriate. Animal breeders select and breed animals according to their genealogy, characteristics, and offspring. Usually, these workers need knowledge of the techniques of artificial insemination.

Forester and conservation workers perform a variety of tasks to reforest and conserve timberlands and maintain forest facilities, such as roads and campsites. They may plant tree seedlings to reforest timberland areas, remove diseased or undesirable trees, and spray trees with insecticides. They also may clear away brush and debris from trails, roadsides, and camping areas. Other forest and conservation workers are involved in forest nurseries, sorting out tree seedlings and discarding those that do not meet prescribed standards of root formation, stem development, and foliage condition.

Loggers and logging operators are the ones transforming forest products into different wood related commodities. They are in-charge of sorting, cutting, and transporting forest products to the end users.

Fishers and related fishing workers use nets, fishing rods, or other equipment to catch and trap various types of marine life for human consumption, animal feed, bait, and other uses. Fishing boat captains plan and oversee fishing operations—the fish to be sought, the location of the best fishing grounds, the method of capture, the duration of the trip, and the sale of the catch.

Top Occupations	Basic Skills and Requirements, Working Environment, Training and Advancement, Tenure and Salary Range⁹
<p>Agricultural Technologists, Agronomists, Plant Pathologists, Foresters, Fishery Technologists/Aquaculturists</p>	<ul style="list-style-type: none"> • Knowledgeable in basic farming technology and maintenance • Two (2) years for Technology courses and four (4) years for Degree courses in Tertiary level education • Professional License required • Work is often physically demanding, routinary, done outdoor, and in rural settings • Working hours do not follow 8-hour/day • Trainings are from external providers • Tenure requires 6-12 months in a private

⁹ Based on DOLE minimum wage rates and DBM Salary grade for entry and middle level government employees

	<p>company while an eligibility is required in Government offices</p> <ul style="list-style-type: none"> • Salary ranges from PhP7,000 to PhP15,000 per month
Agricultural Engineer, Entomologists, Veterinarian	<ul style="list-style-type: none"> • Knowledgeable in the theory and practice of agricultural production, machinery/animal care and medication • Four (4) to six (6) years of degree course in tertiary level education • Professional license required • Work is non-routine and done in rural or urban settings • Working hours do not follow 8-hour/day • Trainings are from external providers • Tenure requires 6-12 months in a private company while an eligibility is required in Government offices • Salary ranges from PhP17,000 to PhP25,000 per month
Farm Supervisors and Managers	<ul style="list-style-type: none"> • Knowledgeable in the overall operations of a farm coupled with 5-10 years of experience • Degree or Professional license can be required • Work is non-routine and done in rural or urban settings • Working hours do not follow 8-hour/day • Trainings are from

	<p>external providers</p> <ul style="list-style-type: none"> • Tenure requires 6-12 months in a private company while an eligibility is required in Government offices • Salary ranges from PhP15,000 – PhP35,000 per month depending on the size of the farm and employees
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Table 2. Primary Agriculture Top Occupations and Employment Conditions

b. Agricultural Manufacturing/Processing Occupations. There are a wide number of occupations under the service and manufacturing operations of Agribusiness. The major activity of the sector is agro-processing, which transforms almost all farm products or raw agricultural harvest into consumable goods. The Food and Agriculture Organization (FAO) considers agro-processing as a subset of manufacturing that processes raw materials and intermediate products derived from the agricultural sector between harvesting and final use. Agro-processing is one of the major contributors in the total performance and growth of the agricultural industry especially on exports and employment.

Food technologists and chemists work as food processors who handle the transformation of raw materials (from the farm) into valuable food products for consumption. Their tasks involve ingredients preparation, mixing, tasting, and labeling. Major raw ingredients include meat from poultry and livestock, fruits, and vegetables. The advanced food technology and equipment in the workplace recently enable food processors to increase their output efficiency, quality, and convenience. Another major processing operation in Agribusiness is from fish and aquaculture produce. It produces tons of processed marine products, which is one of the

major sources of export in the country. Canned goods are common finished products processed by many of the plants. Other processes include drying, smoking, and salting.

In many cottage industries, processing of agricultural products (especially wood and fiber) is also notable. End products are mixture of crafts, clothing/textile, accessories, paper products, furniture, and fixtures. Many of these products are also used for export.

Top Occupations	Basic Skills and Requirements, Working Environment, Training and Advancement, Tenure and Salary Range
<p style="text-align: center;">Food Technologists, Chemists, Fish and Aquaculture processors, Dairymen, Butchers</p>	<ul style="list-style-type: none"> • Skilled in basic/advanced processing technology and hygiene • Four (4) to five (5) years for degree courses in tertiary level education (Butchery and Dairy processing can be taken through vocational courses) • Professional license required • Work is often routinary, done indoor, and in rural settings • Working hours often follow 8-hour/day • Trainings are from internal and external providers • Tenure requires 6-12

	<p>months in a private company while an eligibility is required in Government offices</p> <ul style="list-style-type: none"> • Salary ranges from PhP10,000 to PhP30,000 per month
Accessories, Craft and Furniture maker	<ul style="list-style-type: none"> • Skilled in basic carpentry and maintenance • Six (6) Months to 2 years vocational course • Professional License can be required • Work is often physically demanding, non-routinary and done indoor • Working hours do not follow 8-hour/day • Trainings are from external providers • Tenure depends on the contract in a private company • Income depends on output/productivity

Table 4. Agricultural Manufacturing/Processing Top Occupations and Employment Conditions

c. Agri-Entrepreneurial and Support Occupations. Agri-entrepreneurial and support occupations play important roles from the beginning of the input stage until the final product consumption stage. These occupations encourage other professionals from different fields to join the industry as they do not necessarily require specific agricultural related degrees. As a whole, these occupations complete the agribusiness system combining the upstream and downstream manpower support to fully meet the production and marketing cycle (refer to Table 5).

Top Occupations	Basic Skills and Requirements, Working Environment, Training and Advancement, Tenure and Salary Range
Seed growers, Plant breeders, Greenhouse operators	<ul style="list-style-type: none"> • Knowledgeable in basic agronomy and farm maintenance • Two (2) years for Technology courses and four (4) years for degree courses in tertiary level education • Professional license can be required • Work is often physically demanding, routinary, done indoor, and in rural settings • Working hours do not follow 8-hour/day • Trainings are from external providers • Tenure depends on the contract in a private company • Income depends on output/productivity or profit
Agri-biotechnologists, Researchers, Extentionists/ Community development workers, Economists/Bankers	<ul style="list-style-type: none"> • Knowledgeable in the theory and practice of agricultural production in a specific area of expertise • Four (4) to five (5) years of Degree course in Tertiary level education • Professional license can be required • Work is non-routinary and done in rural or urban settings

	<ul style="list-style-type: none"> • Working hours may follow 8-hour/day • Trainings are from external providers • Tenure requires 6-12 months in a private company while an eligibility is required in Government offices • Salary ranges from PhP17,000 to PhP25,000 per month
<p>Traders/Exporters, Marketer/Advertisers, Sales representatives, Warehouse operators, Cargo forwarders</p>	<ul style="list-style-type: none"> • Knowledgeable in basic agricultural production or economics • A Degree can be required • Work is often physically demanding, non-routinary, done outdoor, and in rural and urban settings • Working hours do not follow 8-hour/day • Trainings are from external providers • Tenure depends on the contract in a private company • Income depends on output/productivity or profit

Table 5. Agri-entrepreneurial and Support Top Occupations and Employment Conditions

IV. IN-DEMAND AND HARD-TO-FILL OCCUPATIONS IN THE SUB-SECTORS¹⁰

¹⁰ PROJECT JOBSFIT, DOLE, 2010.

A recent study by DOLE concluded that there is a need not only for top occupations in agribusiness but also for related occupations link to the operations of the agribusiness system. The increasing entrepreneurial activities in the countryside, which boosted the number of small and medium enterprises, also created jobs especially for primary agricultural occupations. As regards hard-to-fill occupations, jobs in food processing are in great demand. Although jobs related to management of agricultural production and trading are also on the rise.

In-demand Occupations:	
Animal Husbandry Agricultural Economist Aqua-culturist Coconut Farmer Entomologist (Plant) Farmer (Fruit, Vegetable and Root Crops)	Plant Mechanic Rice Tresher Operator-Mechanic Veterinarian Pathologist
Hard-to-fill Occupations:	
Food Processor/Food Technician Fishery Technologist	Fisherman Horticulturist

V. JOB OUTLOOK AND PROSPECTS

A. Industry Outlook. One significant development in the industry was the institutionalization of various Free Trade Agreements (FTAs), which offer zero or minimal tariff in export and import trading among neighboring countries in the Asia-Pacific region. The newest of these FTAs is the ASEAN-ANZ, which eliminates tariffs for import and export of agricultural products between and among the Philippines, Australia and New Zealand. This FTA took effect on 10 February 2010. Philippine exporters are now able to benefit from the opportunities presented by this FTA, through improved market access to the Australian and New Zealand economy. Beginning in January 2010, most

of the country's exports to Australia have enjoyed zero tariffs. And by 2020, nearly all sectors, especially exporting companies, would benefit when Australia and New Zealand eliminate tariffs on all products. The FTA is beneficial to larger agribusiness firms due to the elimination of tariffs and larger market access, but may prove to be a challenge to smaller "backyard" farms. A good model for business is for companies to partner with indigenous communities comprised of several "backyard" farms in order to ship to the export market, this model has in fact, large potential for generating employment particularly in areas with favorable growing conditions for crops (Arangkada Philippines 2010). This goes for small, natural organic farmers since many middle-income families are willing to pay premiums for products such as free-range chicken and natural-grown tomatoes which can only be grown by small farmers. Oil palm trees and rubber trees are easily exportable although security is a problem in areas for these plantations. The engagement with FTAs is most beneficial to the Mindanao region and the crops grown there since the costs of transporting produce to other countries is actually cheaper than that of transporting them to Manila (Arangkada Philippines, 2010).

Another futuristic development in the industry is the rapid development in the biotechnology sector that contributed to augmented production in crops and animal subsectors. This biotechnology has been taken over by various universities for research development and applications. Example of this is the application of genetic modification to create disease-resistant corn and eggplants and a variety of delayed-ripening papaya. Experts say that the country is near the end phase of the first generation and is entering second generation biotechnology, which involves the development of crops rich in amino acids, with high nutritional values and which provide premium quality and low allergenicity¹¹.

¹¹ Datamonitor, 2010

- B. **Employment Prospects.** A significant prospect for working in the Agribusiness sector is the field of entrepreneurship. Many students and professionals alike engage in entrepreneurial activities derived from the agricultural production. These activities are usually in the field of processing, buying and selling and manufacturing. This may not give them minimum wage or secured monthly income but if their enterprises are managed well, the income is way higher than the usual employment contract with a particular employer. Hence, the role of formal agricultural entrepreneurship education (diploma courses or actual 4-year courses) is essential to the development of the industry. Working in the agribusiness industry does not limit students to become farmers, but rather become agricultural entrepreneurs, agricultural engineers and scientists and agricultural systems developers.

The El Nino (drought) has had a major negative impact on agricultural employment, with more than 800,000 jobs lost. This phenomenon contributed to the rising overall unemployment of the country. On the potential manpower sources, a declining trend in the supply of graduates in the Agribusiness sector has been evident in recent years. Degrees in Agriculture, Forestry and Natural Resources (AFNR) are not usually the top choice in the enrolment of students in Higher Education Institutions (HEIs). The AFNR graduate unemployment has increased to 7.6% per annum, which primarily contributes to the total unemployment rate in the Agribusiness sector of 2.6% per annum. This supports the common belief in the Philippines that employment prospects in Agribusiness sector are not as attractive compared to other occupations in leading industries. On the other hand, the workforce in the

Agribusiness sector is rising at 1% per annum while jobs (for AFNR graduates) at .07% per annum¹². This indicates that in fact, there is steady demand of Agribusiness workers.

¹² PIDS, Synthesis for the prospects of AFNR graduates/jobs, 2011

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