

Indonesian Maize Production and Trading for Feed

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ABSTRACT. Indonesia's GDP for the last five years were always beyond 6 percents with inflation about five percents. Along with other Asian countries Indonesia drives the future of world economic growth, which also means that poultry industry growth will be stable high. Indonesian per capita income is expected to exceed US\$ 5,000 by 2015. This means plenty of growth potential for domestic poultry meat and egg consumption, considering the chicken consumption per capita is still much very low in comparison to other Asian countries. However, Indonesia has brought a big change in the lineup of world's top egg producers from #14 in year 2000 became #7 in 2010. Poultry meat and egg consumption are continuously boosting due to its easiness to cook and broad acceptability, more affordable as the major protein sources. Feed industry has been growing in the last 10 years to a doubled volume now. Agro-feed consumption was 6.5 MMT in 2002 and predicted in 2012 will be 12.7 MMT, with over than 12% annual growth in the last three years. While Aqua-feed consumptions are 1.03; 1.10 and predicted (2012) 1.23 MMT with average 9% annual growth. The feed industry competitiveness are still depending on grains production and crop productivity, climate and cost, technology adoption (efficiency), industry structure, and also business environment. The feed cost structure is about 85-90 percents due to raw materials. Feedmills are spread out across the country in 10 provinces. There are 68 feedmills with total capacity is about 18.5 MMT, where 48 feedmills with about 70 percents of total production are located in the main Java island. About 90 percents of its total feed produced are poultry feeds, as corn-soy base diet; in the poultry formulation the use of corn and soybean are about 50 and 25 percents respectively. Regardless its high corn production for the last three years based on the government data, about 17 to 19 MMT, the country had been importing corn in the amounts of 1.9; 3.1 and estimated 1.8 MMT (2012). While imported corn in 2008 and 2009 were only 0.17 and 0.33 MMT coming from various country of origin: US, BRZ, ARG, IND, THAI, and MYAN. Actually, feed millers have no or little benefits by importing corn, besides not fresh and consuming current exchange, also uncertain quality (for some suppliers/traders), supply and arrival; even often are not at competitive prices. While supply and price of local corn are fluctuating a lot. This perhaps due to corn market information is not established, low productivity, lower production and un-reachable corn production area. Other problems faced by the corn farmers such as post-harvesting facility, sun-drying system, lack of warehouse and storage capacity, infrastructure, and immature market i.e. long and inefficient SCM (farmer-collector-traders-agent-consumer). This has led to another problem of the conversion of arable land use for other purposes which in turn may reduce the capacity of production. There are some possible solution can be offered: build more new corn producing centers well equipped with corn dryer and silo or bulk warehouse for storage (involving private sectors or PPP), establishing market information locally, and build better infrastructure including logistics (ports) and (road) transportation system. It is better to have new corn producing centers outside Java with the use of hybrid seed. In line with 'two digits' growing feed industry, corn will be persistently high demand.

Introduction

Indonesia has the potential for future world economic growth, due to its stable high growth of per capita income. This economic growth has driven the growth of domestic poultry meat and egg consumption. Indonesia has also brought a big change in the lineup of world's top egg producers, from rank 14 in year 2000 became rank seven in 2010. Poultry meat and egg consumptions are continuously increasing due to its easiness to cook and broad acceptability, as well as more affordable as the major protein sources.

Steady increases of income per capita will certainly drive poultry meat and egg consumption. The country income per capita is expected to exceed US\$ 5,000 by 2015, which means that a plenty of growth potential for domestic poultry meat and egg consumption. So, it is very likely

that chicken consumption per capita is expected to reach 10 kg by 2015, almost 50% increase within the next two years (Table 1). This condition has led new comers jump into poultry and feed business which opens a big opportunity, aside of the broiler demand to continue, at rate of 15-20% in the last five years.

Considering from the bright side, that low income and low per capita consumption provides plenty potential for growth, of which chicken is the most favorable animal protein source due to its cheap as source of protein, no religious restriction (compare to pork), and easily to get and to cook. However, the industry still will have been facing a lot of constrains and challenges in the future, to deal with. This includes the challenge to constantly upgrades the farming and manufacturing technology; transforming wet market to the more clean and healthy market by producing more chicken with value added in

Table 1. Poultry meat and egg consumption in some Asian countries.

Country	China	Indonesia	Malaysia	Spore	Phil	Thai
Egg	304	87	298	64	93	145
Poultry meat (kg/cap)	50	7,1	30	28	8,5	16

term of hygiene and sanitation, to comply with consumers' higher expectation which recently growing among the middle class in the big cities. The poultry consumption in Indonesia is also directly influenced by the macro economic growth which determines the people purchasing power. Fortunately, Indonesian per capita income is expected to maintain strong growth in the short to mid terms, based on the economic analysis during the last five years.

Challenges of Indonesian Feedmills Business and Poultry Industry

Feed industry in Indonesia is depending to the poultry industry, taking into account that over than 90% of the manufactured feeds are for poultry. The feedmill industry growth is relying on the growth of poultry consumption within the country. Regardless of Indonesia's low poultry meat and eggs consumption, the country has been changing in lineup of the world's top egg producers. The feed cost structure is about 85-90%, due to high prices of raw materials. Feedmills are spread out across the country in 10 provinces. There are 68 feedmills with total capacity of about 18.5 MMT, where 48 feedmills producing about 70% of the total feed are located in Java island. About 90% of its total feed produced are poultry feed, as corn-soy base diet; in the poultry feed formulation the use of corn and soybean is about 50 and 25%, respectively.

Probably, the difference in term of feed prices in this country is its cost structure of manufacturing feed, which is about 90% accounted for raw materials' cost. There are so many components of raw materials which have to be imported for manufacturing feed. Perhaps in term of volume, the imported raw materials contribute of only about 30 to 35% of the total ration of feed; but in term of value it could be costing about 60-70% of the total cost. Therefore, the feed business profitability depends on the input costs of commodity, exchange rate of the currency, and the adoption of more efficient manufacturing technology. While the business output, in a form of feed consumption, is depending to macro-economy growth, purchasing power, and level of animal (poultry) protein consumption.

Table 2. Common ration of poultry diets in Indonesia.

Maize	50-60%
Grain by-products	10-30%
Protein meals	10-30%
Vitamins/trace minerals	1-5 kg/t
Limestone	1-80 kg/t
Di-calcium phosphate	0-15 kg/t
Added fat/oil	3-40 kg/t
Salt	1-3 kg/t

Similarly to the US animal feed composition, Indonesian compound feed is a corn-soy based diet; corn as the major energy source and soy, mostly as soy bean meal, as the protein source. The typical feed composition of poultry diet structure is listed on Table 2.

Feed Consumption and Production

Nationwide in the last decade the feed consumption kept increasing, with a very promising growth rate. Feed industry has been growing in the last 10 years to a doubled volume by 2012. Agro-feed consumption was 6.5 MMT in 2002 and is predicted at 12.7 MMT in 2012, with over than 12% annual growth in the last three years. While Aqua-feed consumptions during that three years were 1.03, 1.10 and 1.23 MMT, as predicted (2012) with an average of over than 9% annual growth. The feed industry competitiveness is still depending on grain production and crop productivity, climate and cost of raw materials, technology adoption (efficiency), industry structure, and also business environment. Among the total layer feed market, there is always locally feed made by self-mixing farmers, which contributing persistently of about 20% in the market. This is due to the fact that layer feed can be consumed in the mash form and does not require any pelleting process. The self-mixed layer feed has been consumed locally and distributed in the integrated layer farming system, mostly in the center of maize production, which is often not recorded quantitatively.

Although the feed consumption is about 13.5 MMT but the total capacity of those feedmills is around 18.5 MMT (Table 3) and scattered mostly in Java and Sumatra islands where the poultry population is concentrated.

Table 3. Feedmills location and capacity nation wide.

Province	# Feedmills	Capacity (000) ton
N. Sumatera	8	2,250
S. Sumatera	4	1,500
W. Sumatera	1	250
Banten	11	3,500
DKI Jakarta	4	750
W. Java	8	2,000
C. Java	6	1,500
E. Java	20	5,250
S. Sulawesi	5	1,250
S. Kalimantan	1	250
Total	68	18,500



Figure 1. Corn producing areas in Indonesia (ha).

Maize for Feed Industry: Imported vs Local

Data of major corn producing area for 2012 production based on the data published by Center Bureau of Statistics (BPS). Regardless of the dispute of the data accuracy, these figures provide the picture of corn producing area which shows that the production share is dominated by the Java island (about 60%) in which Java is only about 7% of the total land area of the country (Figure 1). Corn production for the last three years based on the government data was about 17 to 19 MMT. However, the country had been importing corn at the amounts of 1.9; 3.1 and estimated of 1.8 MMT in 2012.

Feed millers actually prefer to use local corn for manufacturing feed and have little benefits by importing corn. Not only that imported corn is not fresh and less pigment content, but it also is consuming current exchange. However, dealing with local corn suppliers face some difficulties due to its varied quality for several traders, in continuity of supplies and time of arrival; even, they often are not at competitive prices. This perhaps due to the corn market information has not been well established, lower production, and some of them are grown in the unreachable corn production area. Other problems faced by the corn farmers include lack of post-harvesting facility, sun-drying system, lack of warehouse and storage capacity, poor infrastructure and immature market, i.e. long and inefficient supply chain management (SCM) (farmer-collector-traders-agent-consumer). This has led to another problems, such as conversion of arable land use for other purposes, which in turn may reduce the capacity of corn production.

Solution May Be Taken, to Attain Corn Self-sufficiency

There are some possible solutions that can be offered in solving the corn supply problem in this country, such as creating and opening more new corn producing centers which are well equipped with corn dryer and silo or bulk warehouse for storage. For this purpose the government has to encourage and to involve private sectors, in a form of PPP (Public – Private – Partnership), establishing market information locally, and build better infrastructure, including logistics (ports) and (road) transportation system. It is strongly suggested to have new corn producing centers outside Java with the use of hybrid seed. In line with 'two digits' growing feed industry, corn will be persistently having a high demand.

Having an official figure of high corn production from time to time, however it seems that the local corn supply and availability is not enough for supporting and fulfilling the needs of the feedmillers. The data provided from different sources shows that the official data of national corn production are very high, whilst other sources provide a much lower prediction, as shown in the Figure 2. This dispute of the data had caused the feedmillers had to import corn in 2008 and 2009, fluctuating from only 0.17 to 0.33 MMT coming from various country of origin: United States, Brazil, Argentine, India, Thailand and Myanmar, to as high as 3.14 MMT in 2011.

Recently the list of country of origin for importing corn has been added by several new corn producers, such as Pakistan and Ukraine. Most of the corn importers can deliver more reliable product in a certain time and volume, compare to the local traders. There are still classical dispute in a mismatched problem in supply and demand. While corn farmers can provide corn on seasonal supply with varied quality and from scattered areas, in the mean time

feedmillers require continuous supply, with high and uniform quality from accessible-large scale supplier at market price. The problems may due to the pattern of planting which mostly depending on the rainy season. Maize planting and harvesting pattern in Indonesia for the majority farmers just simply rely on the rain water, instead of employing an irrigation system. This issue can be solved by the (local) government by providing infrastructure of irrigation system to avoid seasonal supply. The seasonal pattern shows also in times of harvesting, which is securing during three months periode of the peak production (January to March), as shown in the Figure 3. The peak harvest season is accounted for almost one third of the total yearly production, which causing in decreasing of corn prices.

The volumes of corn import fluctuated between the highest of over three millions MT in 2011, to the lowest of 0.17 millions MT in 2008, and of 0.33 millions MT in 2009.

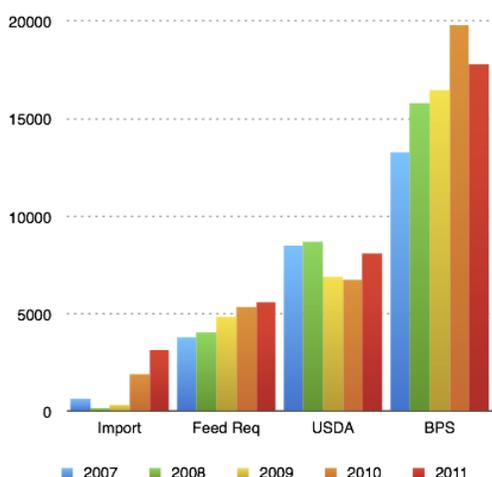


Figure 2. Corn production and import during the last five years, released by different sources.

These differences may be partly due to the government policy to provide subsidy for the corn farmers, by giving free hybrid seeds and subsidized price of fertilizers. However, when the subsidy was stopped then suddenly the corn importation started to jump up in the following years. In order to push the importation to the minimum level, the Minister of Agriculture limited the allowable import level at 1.5 millions MT in 2012 which created an uncomfortable situation for the stakeholders of poultry industry. However, it seems effectively workable.

Feed-millers often keep saying that they prefer to have local maize rather than imported ones due to its freshness, relatively cheaper due to no import duty and freight cost, and usually local maize has higher xanthophyll-pigment level; beside it is more helpful in improving pellet quality and throughput tonnage per hour in feed manufacturing process. However, major constrain in having local maize is its discontinuity of the supply.

The seasonal pattern of corn production has inevitably forced the feedmillers to import corn and other raw materials for feed manufacturing throughout the years. The figure of imported raw materials from year 2009 till mid of August 2012 is shown in Table 4.

Table 4. Raw materials imported by feedmillers.

Raw Material	2009	2010	2011	2012*
Corn (ton)	334	1,553	3,144	878
Soybean meal (ton)	2,171	2,839	2,938	2,154
Fishmeal (ton)	66	52	100	61
DDGS (ton)	145	201	261	152
MBM (ton)	267	300	343	241
CGM (ton)	152	148	164	161
Feather Meal (ton)	163	129	196	95
Rapeseed M (ton)	105	60	143	94

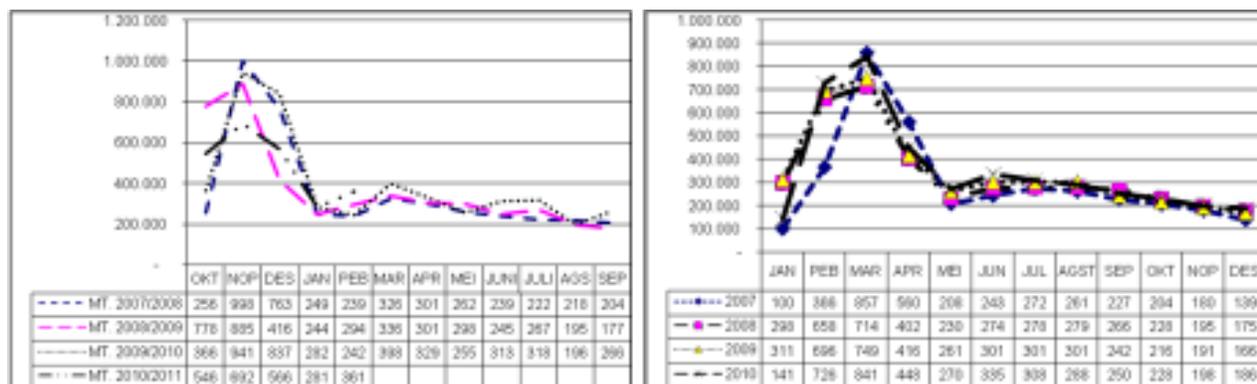


Figure 3. Pattern of corn planting and harvesting.

Feed business together with the poultry industry in Indonesia expect to have a better business climate, including better infrastructure facilities (road, port, electricity, water) for doing feed manufacturing and poultry business under firm regulations. These conditions are to boost their competitiveness to be more efficient to face the global competition, in particular to compete with poultry products from Brazil, USA and other neighboring countries.

The government should not questioning regarding the business etiquette on the vertical integration, which is recently very fast growing business collaboration. Perhaps, the government should be focusing on corn self-sufficiency, and actually there is a possibility to become an exporting country, considering that there are still abundant land areas that can be utilized for planting corn, especially outside Java but again, it requires a better infrastructure facilities for product transportation. It just needs a little energy to be more focus on one of the most critical raw materials for animal feed, the corn. Again, a firm regulation on land-use for producing maize is critical and has to be explicitly regulated for long term sustainability, by creating new corn producing area with a large scale of production by employing mechanization.

Small to medium poultry industry businessmen have also to be facilitated with the financial institution support, considering that the facilities of feed and poultry farming are not a bankable industry yet. This should be in combination with the campaign on increasing corn productivity by planting hybrid seed under an integrated farming system.

Further Action May Be Taken to Support Corn Self-Sufficiency

One of the many reasons farmers keep producing poor quality of corn is due to lack of knowledge and poor post-harvesting facilities. Farmers do not have corn drying facilities, only few dryer is available, mostly farmers still depending on the sun drying system. The availability of corn silos or warehouses to guarantee the corn quality during the storage is very limited. This has led to over supply during the peak production season due to harvesting almost occur at the same time in a region, which leads to decreasing of corn prices during the season. In this condition, a possible form of collaboration as PPP (Public-Private Partnership) program can be initiated in the new corn producing areas outside Java, such as in Nusa Tenggara Barat/ NTB in the eastern part of Indonesia.

A private sector (PT. AGRICO International) has already offered and ready to operate under the scheme. In addition, a more reliable data on national maize production has to be established with an accurate data on maize consumption in order to precisely figure out the amount of maize to be imported. It should be taken into account, that maize is also being consumed by non-feedmill industries, such as for corn oil, corn flake, corn meal, coffee industry, and for the silage and as roughages for ruminants. To summarize, to get more competitive in feed manufacturing and poultry business, it has to be supported by low raw material costs, good business climate, including firm regulation, allowable vertical integration to match with economic of scale, and lastly, to be able to access the right technology in the manufacturing operation.