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# Myanmar's Livestock Sector:

## An overview of production and consumption in 2022

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# ABSTRACT

The poultry and pig production subsectors are facing significant financial stress, primarily due to a combination of increasing production costs and declining consumer demand. Among the challenges reported by livestock raisers, the most frequent ones were sickness or death of animals, followed closely by high input prices. The cost of production for poultry and swine doubled over a two-year period, largely driven by rising feed and other input costs. Specifically, the price of 50 kg of broiler chicken feed increased by 61 percent between 2021 and 2022, while the price of 30 kg of pig feed increased by 51 percent during the same period. These significant cost increases have led to a notable decrease in livestock income in real terms. Moreover, the triple crisis has affected consumption patterns, with households reducing their expenditure on food, particularly animal-sourced food. As a result, livestock consumption has also decreased, adding to the challenges faced by the livestock industry.

In our sample, we found that 44 percent of households were involved in livestock raising, with 33 percent of households earning income from this activity. However, it's concerning that 18 percent of these households had to resort to selling livestock as a coping strategy to meet their daily needs rather than as a deliberate business decision.

This paper presents a comprehensive overview of the Myanmar livestock sector during the period from September 2021 to August 2022. It delves into various aspects, starting with livestock production, examining the challenges faced by farmers, production costs, and income. Additionally, the study analyzes the trends in animal-sourced food consumption in Myanmar. Finally, the paper discusses the critical issues and challenges that the sector is likely to encounter and proposes several recommended actions.

# 1. INTRODUCTION

Livestock holds a vital position within Myanmar's economy and rural communities, serving as a key source of meat, milk, eggs, and income for both urban and rural residents. Myanmar boasts a rich tradition of livestock rearing, encompassing various species such as chickens, pigs, cattle, and water buffalo. While certain livestock, including backyard chickens and draught animals, are primarily raised for household consumption and agricultural purposes, others hold significant value in terms of commercial transactions. Broiler chickens, semi-broiler chickens, layer chickens, swine, and to a lesser extent, dairy cattle constitute the livestock for commercial sales.

During the socialist regime from 1962 to 1988, the growth of the livestock sector was prioritized to meet the demands of domestic consumption. However, due to the country's closed economy which limited outside investment, the sector faced constraints in its overall development. Since the shift to a market economy in 1988, Myanmar's livestock industry has been growing. In recent years, the establishment of poultry farms, pig farms, and feed mills by foreign companies has been on the rise. Consequently, the poultry and pig sectors have witnessed substantial growth over the past decade, as indicated by increased commercial layer and broiler populations and expansion of large-scale pig farms. There has also been a steady rise in cattle and buffalo ownership and sales (Belton et al., 2020; Ebata, 2022; LBVD, 2019).

Recently, however, the livestock sector's growth has been significantly impeded by a triple crisis of COVID-19, the military coup, and inflation. Firstly, the decline in real consumer incomes has led to a decrease in the demand for animal-sourced foods. Secondly, the soaring prices of young animals, animal feed, medicines, and electricity have caused a drastic surge in production costs. Thirdly, although farm-gate prices increased in 2022 compared to 2021, the rate of increase has been outpaced by the rise in input prices. Consequently, profits within the sector have been declining, particularly for poultry farmers, making it difficult for them to maintain the same level of operation.

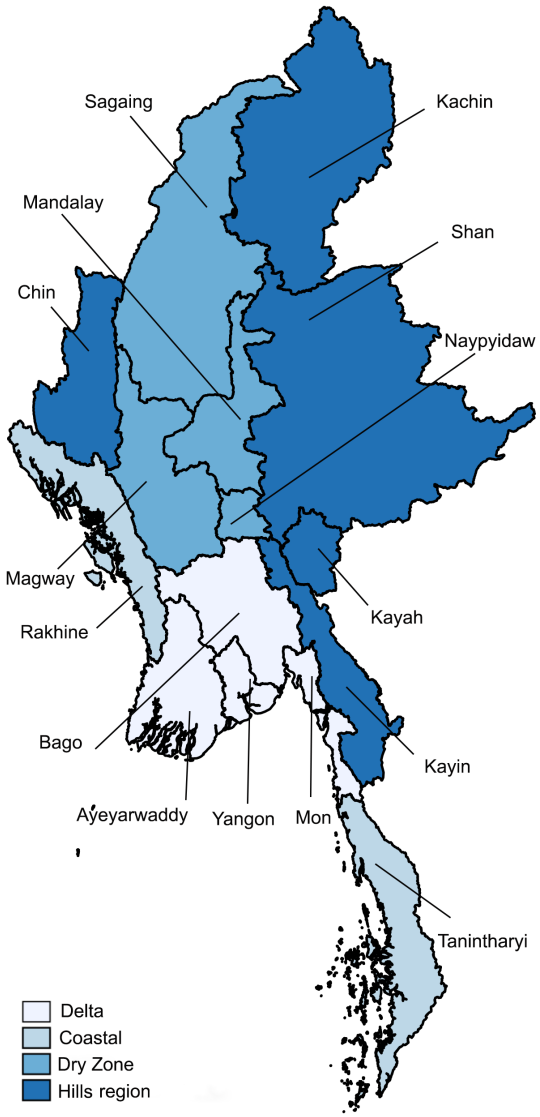
This paper provides an overview of the Myanmar livestock sector from September 2021 to August 2022. More specifically, this paper explores livestock production, including challenges for livestock farmers, costs of production and income. Further, the paper analyzes trends in animal-sourced food consumption in Myanmar. Finally, the paper discusses key issues for the sector moving forward.

## 1.1 Overview of the Livestock Sector

According to the National Livestock Baseline Survey conducted in 2018, more than half of rural households in Myanmar engaged in animal rearing, encompassing a variety of species such as cattle, buffaloes, goats, sheep, pigs, and poultry. The most common animals raised were poultry, raised by 40 percent of livestock rearing households, followed by cattle raised by 23 percent, and pigs, raised by 22 percent. Yangon has the largest broiler chicken population with 24 percent of all broilers, while southern Shan has the largest layer chicken population with 28 percent of all layers. Ayeyarwady has the highest indigenous chicken and pig populations, accounting for 16 percent and 17 percent of the national populations, respectively. The Dry Zone[1] holds particular significance for cattle, sheep, and goat production due to its favorable climatic conditions for grazing (Figure 1). Finally, Sagaing, Kachin, and Shan have high populations of buffalo.

[1] Throughout the paper agroecological zones are defined as follows: the Hills region includes Kachin, Kayah, Kayin, Chin, and Shan; the Dry Zone includes (Sagaing, Magway, Mandalay, and Nay Pyi Taw; and the Delta includes Ayeyarwady, Bago, Mon, and Yangon. Costal includes Rakhine and Tanintharyi (Figure 1).

**Figure 1. Myanmar's agro-ecological zones**




Source: Authors

Prior to the pandemic, between 2015/2016 and 2018/2019 the Gross Output Value (GOV) of the livestock sector exhibited rapid growth, with an average growth rate of 11.4 percent per year (DOP, 2020).[2] The GOV encompasses the overall value of livestock production, including the estimated value of livestock products sold, such as meat, milk, eggs, skins/hides (cattle and sheep, goats), honey, and silkworms. It also considers the net increase in the population for each type of animal, including cattle, buffalo, sheep, goats, and poultry.

Chicken and egg production experienced the most substantial growth in GOV, with growth rates of 20 percent and 22 percent between 2015/2016 and 2018/2019, respectively (DOP, 2020). Other sectors also witnessed significant growth: pork grew by 9.8 percent, beef by 8.6 percent and fresh milk by 7.3 percent (DOP, 2020). Additionally, the growth in GOV of draft cattle grew at an average rate of 11 percent per year (DOP, 2020).

The COVID-19 pandemic had significant negative impacts on the livestock sector in Myanmar, as highlighted by key informant interviews conducted at poultry and pig farms. Movement restrictions and stay-at-home orders disrupted the supply of inputs and the distribution of livestock products to

[2] The GOV of livestock sector is collected from Department of Planning, Ministry of Finance, Planning, and Industry.

markets. Consequently, farmers faced challenges in purchasing feed and transporting their products for sale. Additionally, lockdown measures implemented in April 2020 resulted in decreased demand for meat as restaurants, shopping malls, and public gatherings were closed, and travel restrictions and curfews were imposed.

According to Fang et al. (2020), 81 percent of broiler farms and 83 percent of layer farms were operational in November 2020 but around 40 percent of livestock workers had lost their jobs by June 2020. Further, 78 percent of households heavily reliant on livestock income encountered challenges in maintaining their farm operations during COVID-19 (Belton and Fang, 2022). The livestock sector experienced further setbacks after the coup in 2021 as reduced demand and higher costs of production resulted in financial difficulties and the closure of some poultry and pig farms.

Prior to COVID-19 Myanmar traders exported cattle to China, Laos, Thailand, Malaysia, and Bangladesh. However, the legitimate Myanmar cattle market was disrupted due to the COVID-19 pandemic, resulting in the suspension of live cattle exports to China. Despite the suspension, Chinese traders continued to purchase cattle on the black market, leading to a decline in prices for Myanmar exporters due to a combination of decreased demand and the illegal nature of the export trade.

## 1.2 Poultry

Poultry plays an important role in rural livelihoods as a source of animal protein and household income, especially for poor rural and peri-urban households. Since religious beliefs in Myanmar limit beef and pork consumption, poultry meat is the most widely consumed animal-sourced food (SAPA 2023). Poultry reared in Myanmar include native, broiler (meat), semi-broiler (meat) and layer chickens, ducks, turkeys, geese, and quail (LBVD 2019).[3]

A widely used type of poultry farm is the integrated chicken and fish farming system, where chickens are raised over fishponds. In this system, chicken manure falls into the fishpond below, fertilizing the phytoplankton in the fishpond. Further, chicken feed spills into the fishpond, which the fish can consume. This system is more economical for farmers because they can produce fish without buying expensive fish feed. At the same time however, the integrated farms may be harmful to human health as the fish may consume chicken feces which carry harmful bacteria.

According to the National Livestock Baseline Survey conducted in 2018, 10,747 holdings (farms and households) raised 16.2 million broilers; 6,278 holdings raised 13 million layers; and around 4 million holdings raised 45 million native chickens. The major broiler farms are in Yangon, Mandalay, and East Bago, while semi-broiler farms are in Ayeyarwady, Rakhine, Yangon, and East Bago, and layer farms are mostly found in southern Shan, Mandalay, and Yangon (LBVD 2019).

Prior to 1988, domestic chicken meat production was limited to native chickens. However, in 1988, government restrictions on the importation of improved breeds of broiler and layer chickens were eased. In 1991, the Myanmar C.P Livestock Company, Ltd, often referred to as “CP”, a Thai-owned company and the largest business in Myanmar’s agro-food sector, initiated a contract farming system for broiler production. Today the company has the largest market share, accounting for 40 to 45 percent of Myanmar’s broiler market (Birhanu et al. 2021).

After the transition to a democratic government in 2010, foreign direct investment in the poultry sector took off. Foreign-owned companies are engaged in day-old chick production, feed manufacturing, breeder farms, hatcheries, and broiler farms. An estimated 60 percent of broilers and 76 percent of layers raised in Myanmar are currently produced by foreign-owned companies. The country’s feed industry is also led by foreign companies including CP, De Heus, SunJin, and New Hope, who together supply 60 percent of the domestic feed in Myanmar. As in the broiler segment of

[3] Native, broiler, and semi-broilers are for consumption, while layer chickens are for eggs.

the industry, CP also dominates the poultry feed sector accounting for 55 percent of broiler feed and 30 percent of layer feed.

Foreign direct investment enabled a dramatic expansion of the poultry sector. From 2009 to 2018, the poultry population increased at an annual rate of 10.9 percent (Birhanu et al. 2021). Over the same period, the annual per capita consumption of chicken meat grew from 5.8 kg to 29.1 kg, as poverty fell (Birhanu et al. 2021). Annual per capita consumption of eggs also increased from 2.0 kg to 9.5 kg over the same period (Birhanu et al. 2021).

While foreign investment has benefitted the poultry sector, there have also been drawbacks. Local farmers face challenges in competing with large foreign farms due to disparities in technology, capital, and unit costs. Furthermore, the entry of large foreign farms into local markets can also lead to a drop in chicken prices driven by the lower production costs of larger farms, resulting in an increased supply of poultry. Falling chicken prices pose a threat to the viability of local producers.[4] Illegally imported chickens from Thailand and China further exacerbate the challenges faced by local poultry farms.

## 1.3 Pigs

The second most important meat after poultry in Myanmar is pork, which contributes 30 percent to total meat output (LBVD 2019). According to the National Livestock Baseline Survey, 22 percent of holdings raised pigs, with an average of 2.6 pigs per holding, totaling 5.8 million pigs in 2018. Pig rearing is most common in upland areas, such as Chin, eastern Shan, Kayah, and Kachin States, followed by Ayeyarwady Region, northern Shan and the Dry Zone. The pig population is highest in Chin State, where 57 percent of households own pigs, followed by eastern Shan (52 percent), Kayah (48 percent), and Kachin (43 percent). Raising pigs is common among both landless and landed households in rural areas as an income supplement.

More than 90 percent of local swine production comes from small-scale farms, which are dominated by backyard farms with two to four pigs. Swine production is nevertheless becoming increasingly commoditized, particularly on the peripheries of large cities, with an increase in the number of large farms which raise more than 100 pigs per year (Ebata 2022). Such commercial pig farms are mainly located in Yangon Region and account for 9 percent of the total pig population (LBVD 2019). According to Belton et al. (2020), local farms produce 25 percent of total swine production. Over 50 percent of local farms obtain piglets from their own breeding sows; 20 percent obtain piglets from farms nearby; and 17 percent buy piglets from foreign-owned companies, including CP, New Hope and Sunjin. Myanmar produces enough pork to be self-sufficient. However, a small amount of pork is imported for high-class hotels, supermarkets, and restaurants (Frima and Brinks 2018).

Several foreign companies and projects with foreign aid are increasing their investment in the pig sector. CP's pig breeds dominate the market, accounting for 51 percent of all swine. Pig feed supply is dominated by the CP company with a 48 percent market share, followed by Sunjin (16 percent) and New Hope company (11 percent) (Belton et al. 2020).

Due to the spread of porcine reproductive and respiratory syndrome (PRRS) disease in Myanmar, the pig population and pork production decreased considerably in 2016-2017. Beginning in August 2019, African Swine Flu (ASF) also spread, resulting in a sharp decrease in pig production in early 2020. ASF is an extremely devastating, deadly disease for which there is no vaccine and no cure. The only way to stop its spread is by depopulating all affected and exposed herds (USDA 2022). Therefore, the LBVD needs to remain active in the sector to prevent future outbreaks.

[4] Key Informant Interview January 28, 2023.

Compared to fish or poultry meat, per capita pork consumption is relatively low, due in part to relatively high prices. Further, many people in Myanmar avoid eating pork for cultural or religious reasons. Consumption of pork per capita was 5.5 kg in 2010, but significantly decreased to 4.3 kg in 2015 (Belton et al. 2020).

## 1.4 Cattle and Buffalo

Cattle and buffalo play an important role in Myanmar's agriculture sector, providing an important source of draught power for crop production even though mechanization has increased rapidly in many areas. Cattle and buffalo are also used for dairy production, but less so for meat production. According to the 2018 National Livestock Baseline Survey, 23 percent of households raised 9.6 million domestic cows, less than 1 percent of households raised 129,000 dairy cows, and 4 percent of households raised 1.9 million buffalos (LBVD 2019). Around 73 percent of cattle and buffalo owning households raise the animals mainly for draught power; about 15 percent of households use manure as a crop fertilizer; and about 30 percent of households sell cattle and buffalo or sell their products (Belton and Fang 2020).

Cattle are most common in the Dry Zone, kept by 42 percent of households, and buffalo are most common in the Hills region (Belton et al. 2020). Milk is primarily produced by small dairy farmers in Mandalay, Yangon, and Nay Pyi Taw. Small farmers raise an average of 4 head of cattle primarily for draught power and milk production, while commercial farmers have more than a hundred cattle mainly for milk production.

To prevent a decline in the availability of draught animals, beginning in 1982 the government restricted the age of slaughtering cattle and buffalo to 13 years to 16 years (Laitha et al. 2022), as a result limiting the use of draught animals for meat. Annual beef production increased from 0.13 million tons to 0.40 million tons between 2005/6 to 2017/18. The total production of milk was around 620 million kilograms in 2018, which is less than 50 percent of the national milk demand (Chan 2018). Due to the low level of milk production, around 6 million USD of dairy products were imported in 2019 to meet demand.

Beef consumption is low in Myanmar due to beef avoidance by the Buddhist population. Furthermore, increased chicken and egg consumption resulted in a sharp decline in annual per capita beef consumption from 3 kg in 2010 to 1.5 kg in 2015 (Belton et al. 2020). The annual fresh milk consumption is relatively low at the national level accounting for 1.4 kg per capita in urban areas and 0.5 kg per capita in rural areas in 2015 (Belton et al. 2020).

The low consumption of beef in Myanmar, coupled with a surplus of cattle and buffalo, prompted exports of live animals to neighboring countries such as China, Thailand, and Vietnam (Myint, Mu, and San, 2018). The transition to mechanized farming practices in Myanmar's agricultural sector may also have contributed to increased exports of cattle. Chinese companies have made investments in cattle production within Myanmar with the aim of breeding and exporting cattle to China.

Prior to 2017, cattle were illegally exported to China via the Muse border and through Thailand. However, in late 2017, the Government of Myanmar authorized the export of live cattle to China. To regulate the escalating formal exports, the Myanmar government introduced restrictions mandating exporters to obtain export permits for each consignment (Waldron et al., 2022). Exporters must comply with specific requirements, including presenting vaccination certificates, health certificates, and land registration certificates. The Ministry of Commerce is responsible for issuing cattle export licenses to approximately 5,000 companies across the country (GNLM, 2021). Each company is permitted to export only 50 head of cattle. However, farmers and companies often apply for licenses repeatedly under different names to bypass quota restrictions.

# 2. CURRENT SITUATION OF THE LIVESTOCK SECTOR

To analyze the current livestock sector, we use data from the Myanmar Household Welfare Survey (MHWS). MHWS was collected by phone in four rounds from December 2021 to December 2022 – hereafter referred to as Q1, Q2, Q3, and Q4 – from more than 12,000 households each quarter in 310 townships. For most of our analysis we compare the situation of livestock farmers between the first and last calendar quarters of 2022, or Q1 and Q4. We complement this analysis using data from the Myanmar Agricultural Performance Surveys (MAPS) which surveys a sub-sample of farmers over three rounds focusing on monsoon and pre/post monsoon production in 2021 and 2022.

## 2.1 Livestock Ownership and Income in 2021/2022

Around 44.1 percent of households in our sample raised livestock in any three-month period between April and December 2022 (Table 1). Livestock owning households were predominantly rural – 55.3 percent of rural households owned livestock compared with 15.1 percent of urban households. Dividing the country into four agroecological zones (Delta, Dry Zone, Coastal, Hills), livestock ownership was the highest in Coastal areas (51.3 percent), followed by the Hills and the Dry Zone (47.2 percent), and the Delta (39.3 percent). The Hills region has the highest urban livestock ownership with 26.3 percent of urban households owning livestock. Livestock ownership was highest among households who earn their main income from their own farm, fish/aquaculture, and farm wages. Livestock ownership was lower among rural income poor households compared to rural non-income poor households but higher among urban poor households compared to urban non-poor (see MAPSA 2022 for an explanation of the income poverty variables). This may be because urban poor households are more often located on the periphery of the city making livestock ownership possible.

**Table 1. Percent of households who own livestock by location, main income source and poverty status**

| | National | Rural | Urban |
|---|---|---|---|
| **Location** | | | |
| Myanmar | 44.1 | 55.3 | 15.1 |
| Hills | 46.9 | 54.4 | 26.3 |
| Dry | 47.2 | 55.5 | 16.9 |
| Delta | 39.3 | 54.7 | 10.7 |
| Coastal | 51.3 | 59.0 | 16.6 |
| **Main income source** | | | |
| Non-farm income | 33.3 | 47.4 | 14.2 |
| Non-farm salary | 22.8 | 41.3 | 8.6 |
| Non-farm wage | 35.8 | 46.4 | 17.7 |
| Farm wage | 48.9 | 49.8 | 30.4 |
| Own farm | 67.0 | 67.7 | 47.3 |
| Fish\aquaculture | 58.7 | 59.9 | 31.4 |
| Income poor | | | |
| HH is income poor | 46.5 | 54.5 | 18.3 |
| Non-poor | 41.7 | 57.7 | 12.4 |

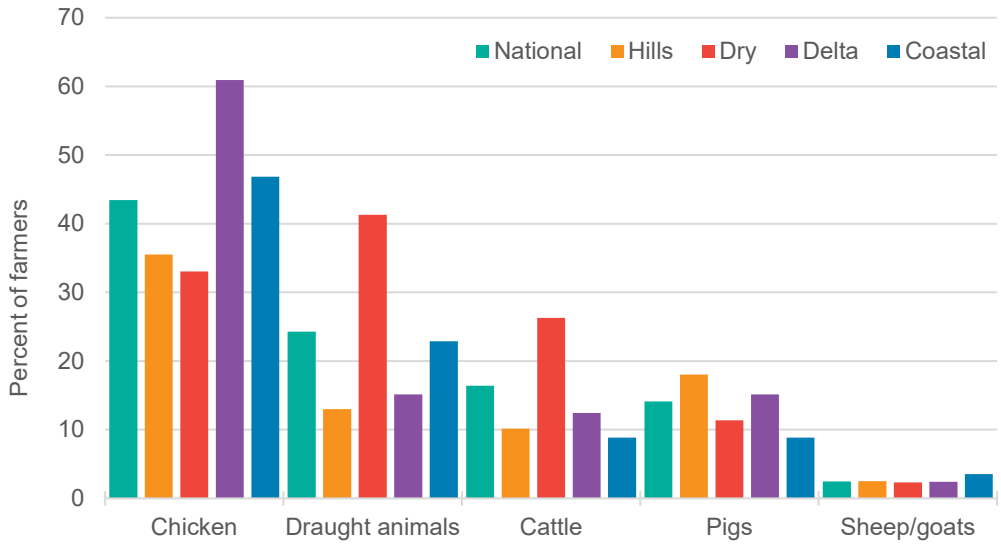
Source: Authors' estimates from MHWS data.
Note: We did not collect this information in Q1-Q3 of MHWS. The information on households' ownership of livestock is a recall variable collected in Q4.

While we did not collect detailed information on the types of livestock owned in MHWS, we did collect this information from a sub-sample of crop farmers in MAPS. For our sample of farmers, 64.8 percent raised livestock. Livestock rearing was the most common in the Delta, with 70.0 percent of

farmers raising livestock there. The proportion of farmers raising livestock in the Delta is much greater than the proportion of rural households raising livestock in the Delta (Table 1). This was followed by the Dry, Coastal, and then the Hills region.

Among farmers, chicken ownership was the most common; 43.4 percent of farmers owned chickens during the 2022 pre/post monsoon and monsoon seasons (Figure 2). Chicken ownership was the highest among farmers in the Delta, with 60.9 percent of farmers owning chickens, followed by farmers in the Coastal and Hills regions, and then the Dry Zone. Fourteen percent of farmers owned pigs in the 2022 pre/post monsoon and monsoon seasons (Figure 2). Pig ownership was highest in the Hills and lowest in the Coastal zone. Draught animal ownership was 24.1 percent during the same period, and highest in the Dry Zone with 41.3 percent of farms owning draught animals. Ownership of dairy, beef, and breeding cattle was 16.4 percent nationally over the two farming seasons and was the highest in the Dry Zone as well.

**Figure 2. Livestock ownership among farmers in 2022**




Source: Authors' calculations from MAPS data.

Table 2 shows the percentage of MHWS sample households who earned income from livestock. Because livestock income can be seasonal (due to production cycles) we present results for the share of households earning income in any three-month period during the four survey rounds, as well as for the share of households earning income over a full twelve-month period between September 2021 and December 2022. Around 15.4 percent of households earned some income from livestock in any three-month period between September 2021 and December 2022. In any twelve-month period between September 2021 and December 2022, by contrast, around 32.9 percent of households earned some income from livestock rearing. Main income is the primary income source for the household. Only about 2.4 percent of households earned their main income from a livestock business in any given quarter, while it was the main source of income for 6.2 percent of households in a full twelve-month period. Salaried and wage work in livestock was a source of income for less than one percent of households in any quarter in 2022.

Overall, the Hills and Dry Zone regions had the largest percentage of households earning income from livestock (17.6 percent), followed by the Delta (13.6 percent), and the Coastal zone (11.8 percent) (Table 2). At the same time, the Coastal zone had the highest share of livestock ownership (Table 1), which shows the importance of subsistence livestock production in this region.

### Table 2. Percent of households earning income from livestock, by agroecological zone

| | National | Hills | Dry | Delta | Coastal |
|---|---|---|---|---|---|
| **Any income (3-month period)** | | | | | |
| Livestock income | 15.4 | 17.6 | 17.6 | 13.6 | 11.8 |
| Salaried work, livestock | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 |
| Casual wage work, livestock | 0.4 | 0.1 | 0.4 | 0.5 | 0.4 |
| **Main income only (3-month period)** | | | | | |
| Livestock main income | 2.4 | 2.9 | 2.7 | 2.0 | 2.1 |
| **Any income (12-month period)** | | | | | |
| Livestock income | 32.9 | 39.5 | 35.6 | 29.3 | 26.2 |
| **Main income (12-month period)** | | | | | |
| Livestock income | 6.2 | 8.6 | 6.8 | 4.7 | 6.8 |

Source: Authors' calculations from MHWS data.
Note: The three-month estimates use pooled data with 49,294 observations. The 12-month estimates are panel households who participated in every quarter of the survey. There are 4,831 panel observations.

Compared to results from the Myanmar Living Conditions Survey (MLCS), which was carried out in 2017, it appears there has been an increase in the share of households earning some income from livestock, from 19.7 percent in 2017 to 32.9 percent in 2021/2022 (Table 3).[5] At the agro-ecological level, compared to 2017, earning income from livestock in the Hills has increased tremendously from 14.7 percent to 39.5 percent. The percentage of households earning income from livestock also increased in the other agro-ecological zones, but at the slowest rate in the Delta.

### Table 3. Percent of households earning income from livestock, MLCS 2017 and MHWS 2022

| | National | Hills | Dry | Delta | Coastal |
|---|---|---|---|---|---|
| Livestock business (MLCS) | 19.7 | 14.7 | 20.0 | 22.1 | 16.6 |
| Number of observations (MLCS) | 13,730 | 4,524 | 3,455 | 4,023 | 1728 |
| Livestock business (MHWS) | 32.9 | 39.5 | 35.6 | 29.3 | 26.2 |
| Number of observations (MHWS) | 4,831 | 744 | 1,722 | 2,060 | 305 |

Source: Authors' calculations from MHWS and MLCS data.

Column 1 of Table 4 breaks down the percentage of households with livestock income by their different income sources. For households who earn some income from livestock, they also earn income from crop production (63 percent of livestock farmers), farm wage work (33 percent), and non-farm business (36 percent) (Table 4). Column 2 of Table 4 breaks down the percentage of households with livestock income by their different main income sources. For households who earn some income from livestock, it is not necessarily their main source of income. In fact, only 15 percent of households who earn some income from livestock rely on it as their main source of income. For most households with livestock income, their main source of income is their own farm, followed by their own non-farm business.

[5] In MLCS households were asked for the value of livestock sales from slaughtered, processed, or livestock by-products. In MHWS households were asked if the household received income from an own or household livestock business.

### Table 4. Other sources of income for livestock and fish farmers (percentages)

| Any income from | Any income | Main income |
|---|---|---|
| Livestock income | 100 | 15 |
| Fish\aquaculture income | 5 | 2 |
| Crop production income | 63 | 35 |
| Farm wage | 33 | 10 |
| Non-farm wage | 20 | 9 |
| Farm/Non-farm salary | 13 | 5 |
| Own non-farm income | 36 | 18 |

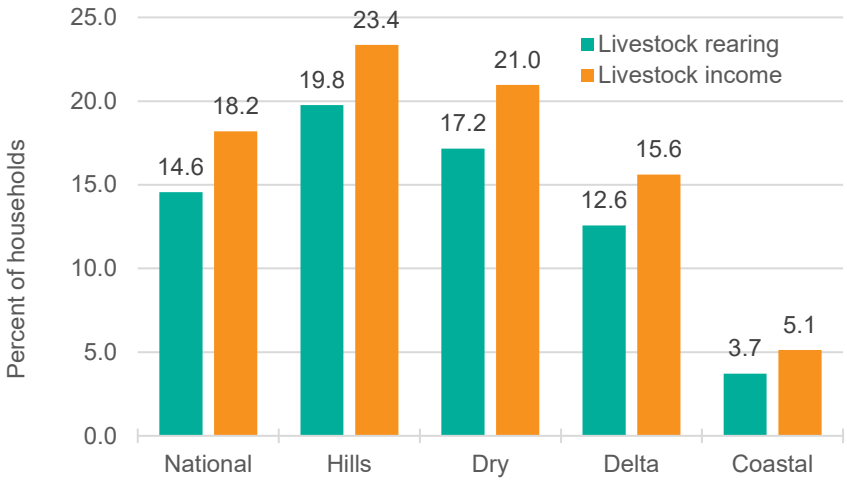
Source: Authors' calculations from MHWS data.
Note: Sample size is 49,294 observations.

## 2.2 Impact of Shocks on Livestock Ownership and Livestock Production

The triple crisis – pandemic, political, economic – has had an enormous impact on welfare and livelihoods in Myanmar. The livestock sector has been particularly hit hard by the rising prices of inputs including gasoline, animal feed, and the animals themselves. While more households appear to be earning income from livestock in 2022 versus 2017, this is likely due to a large increase in farms between 2017 and 2019 (Belton et al. 2020). Qualitative interviews with poultry and pig farmers suggest that many farmers have had to shut down their livestock business because of unaffordable inputs.

As a coping mechanism, many households have had to sell livestock assets. Our measure of the number of households who have sold livestock is an underestimate because we do not have a baseline estimate of livestock ownership in Q1 of 2022. Nonetheless, it still sheds light on the negative impact of conflict and economic shocks on the livestock sector. As shown in Figure 3, 14.5 percent of households who owned livestock at any point in 2022 had to sell some livestock. Further, and concerningly, 18.2 percent of households that earn income from livestock had to sell their livestock to cope as opposed to a business decision. In the Hills region, 19.8 and 23.4 percent of livestock rearing and income earning households had to sell their livestock at some point over the twelve-month period, respectively. Far fewer livestock rearing and earning households in the Coastal zone sold livestock assets over the year, 3.7 and 5.1 percent, respectively. This may be why the Coastal zone became home to the largest number of livestock raisers.

### Figure 3. Percent of households who sold livestock assets as a coping strategy in any twelve-month period in 2021/2022




Source: Authors' calculations from MHWS data.

Note: The 12-month estimates are panel households who participated in every quarter of the survey. There are 4,831panel observations. This figure refers to households that have sold livestock assets as a coping strategy in contrast to seeking income as a normal business activity.

Table 5 shows the main challenges faced by livestock producers in any three-month period between September 2021 and December 2022. Overall, sickness or death of animals was the most frequently reported challenge for raising livestock. This was particularly an issue for livestock farmers in the Hills, where 36.7 percent of farmers had livestock that were sick or dying.

**Table 5. Most important challenge for livestock production and for livestock sale by zone**

| | National | Hills | Dry | Delta | Coastal |
|---|---|---|---|---|---|
| **Livestock production** | | | | | |
| No challenges | 35.4 | 27.4 | 40.7 | 33.8 | 38.9 |
| Sickness or death of animals | 26.8 | 36.7 | 22.9 | 25.0 | 27.2 |
| High prices of inputs | 23.3 | 19.2 | 20.4 | 28.3 | 24.8 |
| Unable to acquire enough inputs | 9.8 | 11.6 | 10.9 | 8.6 | 5.4 |
| Other challenges to raising livestock | 4.8 | 5.1 | 5.2 | 4.3 | 3.7 |
| **Livestock sale** | | | | | |
| No challenges | 60.5 | 58.5 | 60.6 | 59.1 | 72.2 |
| Low prices for livestock/livestock products | 22.3 | 23.0 | 25.4 | 21.1 | 10.3 |
| Few traders | 7.3 | 11.2 | 5.8 | 7.6 | 1.9 |
| Buyers cannot reach the farm or farmer cannot reach them | 6.2 | 3.6 | 6.1 | 7.6 | 6.7 |
| Other challenges to selling livestock | 3.2 | 1.8 | 1.7 | 4.3 | 9.0 |

Source: Authors' calculations from MHWS data.
Note: The estimates use pooled data with 49,294 observations. The estimates are for any three-month period in 2022.

Another important issue was the high prices of inputs, including animal feed, animals, and medicine. This was the most widely faced challenge in the Delta, with 28.3 percent of households citing this as their main production issue. Households also reported that they were unable to acquire enough inputs; but the number of households reporting this issue declined significantly across rounds.

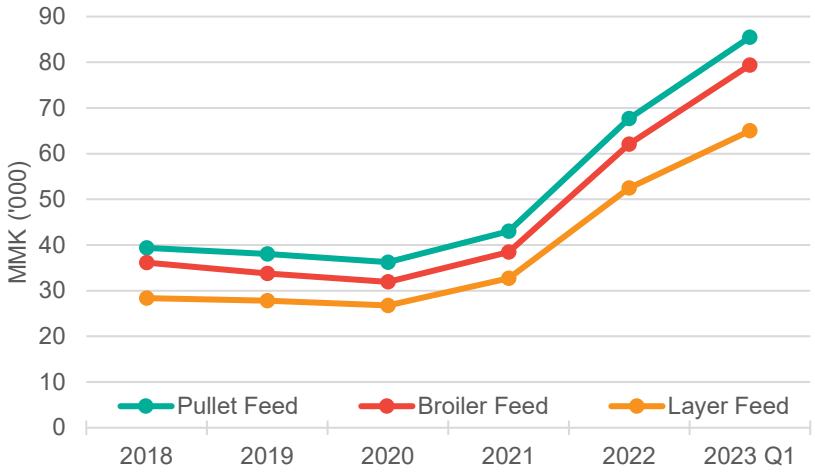
The majority of farmers (60 percent) reported no challenges in livestock sales. Among those who reported challenges, low prices were the most important. More livestock farmers in the Dry Zone faced this issue, compared to farmers in the other agro-ecological zones. Two other important issues were lack of traders, a relatively greater issue in the Hills and limited access to traders, which was a significant challenge in the Delta.

Interviews with poultry and pig farmers reveal that the cost of raising livestock has increased tremendously over the past year. For chicken farmers, the cost of production may have doubled between 2020 and 2022. A chicken farmer in Hlegu Township, Yangon estimates that between 2020 and 2022, the cost of production of chicken meat increased from 2,200 MMK to between 4,500 to 4,700 MMK per viss. A poultry farmer in Myaungmya Township, Ayeyarwady estimated that the cost of production of broiler chicken and layer chicken in September 2022 was approximately 4,700 to 5,000 MMK per viss. Finally, a broiler chicken farmer in Eainme Township, Ayeyarwady estimated that his production costs in December were around 6,250 MMK per viss.[6]

[6] These numbers are cost of production estimates for the production cycle of the farmers from qualitative interviews with the farmers.

Increases in the cost of production of poultry has been driven by increases in the price of chicken feed, which constitutes 70 to 75 percent of total costs. The average price of feed for pullets (chicks), layers, and broilers has increased by 57 to 61 percent between 2021 and 2022. As shown in Figure 4, the price of a 50 kg bag of broiler chicken feed has increased from 38,494 MMK in 2021 to 62,043 MMK in 2022, a 61 percent increase. Interviews with poultry farmers echo these massive price hikes in the cost of feed. One poultry farmer in Myaungmya Township, Ayeyarwady, estimated that the price of feed per 50 kg bag increased from 44,000 MMK in 2021 to between 70,000 and 76,000 MMK in 2022. Another farmer in Eainme Township, Ayeyarwady estimated that the price for animal feed was around 80,000 MMK per 50 kg in Q4 2022. Further, farmers highlighted that despite the higher price of feed, the quality seems to be worse. The same farmer in Eainme Township had to feed his 1,000 broiler chickens 100 bags instead of 80 bags to achieve the same weight gain for his flock.

**Figure 4. Poultry feed prices in Myanmar between 2018 and Q1 2023**



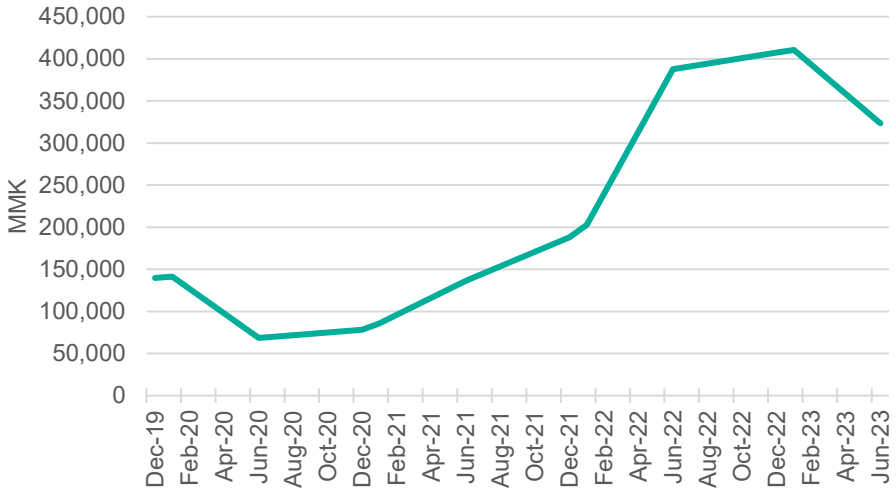

Source: Authors' calculations from Universe Animal Feeds Facebook Page: https://www.facebook.com/universefeedshop/

Poultry farmers suggest that commercial farms, including integrated fish-poultry farms and foreign and local companies that raise broilers, can get a 20 percent discount on the price of feed, while traditional backyard farms do not benefit from any discounts.[7] This makes it difficult for smaller farms to compete with the larger commercial chicken farms.

Other costs have also increased including the price of chicks, medicine, and electricity. Poultry farmers use electricity to keep their chickens cool. Because of electricity outages and the increasing price of fuel, these costs are increasing. The same farmer in Myaungmya Township, who raised 15,000 birds, estimated that due to power outages, the cost of fuel is approximately 55,000 to 60,000 MMK per night in Q4 2022 (around 1.4 million MMK per month). This is because the price of diesel increased from 200,000 MMK per barrel in January 2021 to over 400,000 MMK per barrel in January 2023 (Figure 5).

[7] Interview with poultry farmer 6th July 2023.

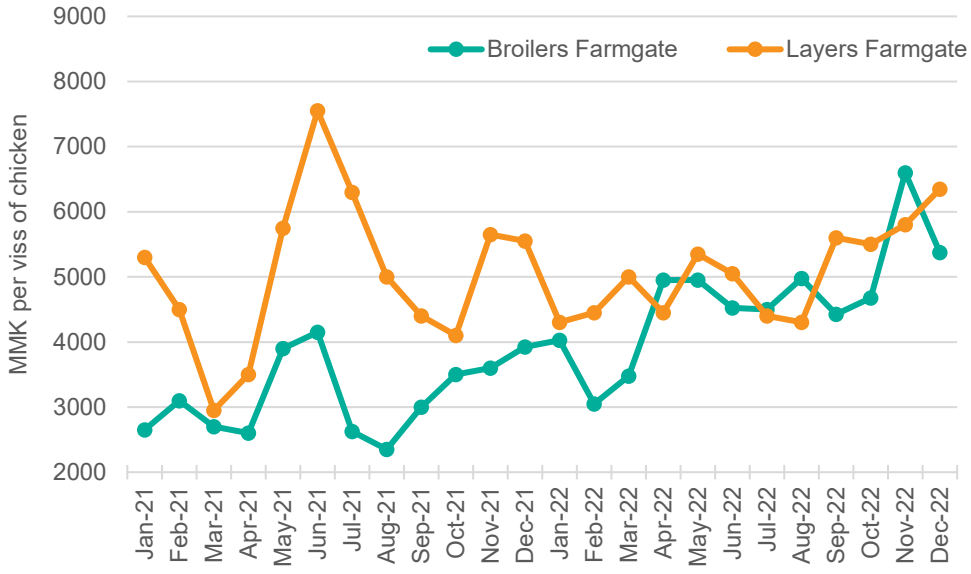
**Figure 5. Price of diesel per barrel between 2019 and 2023**




Source: Authors' calculations from https://starfishmyanmar.com/market-price

At the same time, the farm-gate price of chicken has not increased enough to make up for the high costs of livestock production. Figure 6 shows how the farm-gate price of broiler chickens has evolved over the period January 2021 to December 2022 in Yangon and at the Yangon-Mingalar Taung Nyunt live bird market (LBM) in Yangon. Mingalar Taungnyunt LBM is the largest wholesale market in Yangon; the live birds sold there mainly come from the Delta Region. As shown in Figure 6, the price of a viss of broiler chicken has increased by 47 percent between 2021 and 2022, less than the increase in the cost of feed. By comparison the price of a viss of layer chicken increased by 41 percent.

**Figure 6. Farm-gate chicken prices from Yangon per viss, September 2021 to December 2022**



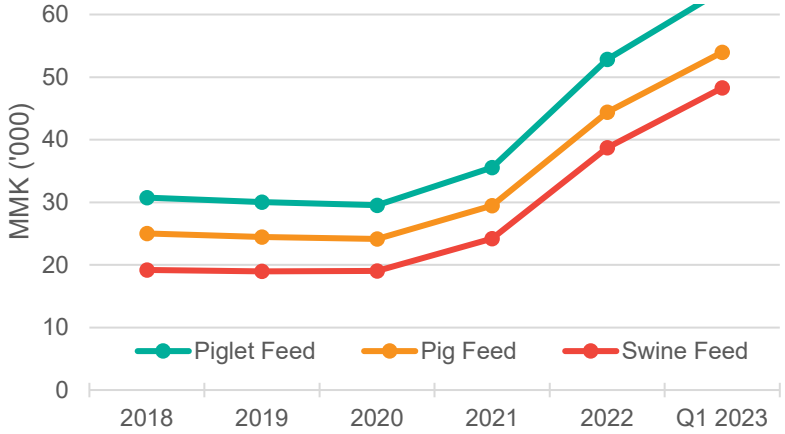

Source: Authors' calculations from Silver Sea Journal Facebook Page: https://www.facebook.com/silverseajournal/

During Q1 of 2022 the average farm-gate price for broiler meat was 3,516 MMK. This increased to 5,269 MMK in Q4. Interestingly, during Q1 there was a large wedge between the wholesale price and the farm-gate price, around 720 MMK, this dropped to 250 MMK in Q4. Further, key informant interviews show that there were large differences in price within the same month depending on the

day and the region. Broiler chicken farmgate prices are generally lower in Yangon, Bago, and some towns in Ayeyarwaddy compared to other states and regions. This is because the majority of commercial farms and integrated poultry fish farms are located in these regions.

Pig producers are facing similarly high costs of production. The production costs for swine are increasing because of the increasing cost of piglets, animal feed, and petrol. According to a pig farmer in Yangon, the price of a piglet has increased from 40,000 MMK in 2021 to between 80,000 and 100,000 MMK in Q4 of 2022. A swine farmer in Yeni Township in Bago region reported it cost her 120,000 MMK to buy a piglet in 2022. The price of pig feed has also increased from 29,494 MMK for a 30 kg bag in 2021 to 44,421 MMK in 2022 and 54,000 MMK in Q1 2023 (Figure 7). Farmers are supplementing or substituting formulated feed with their own feed mixed from broken rice and rice bran, the prices of which are also increasing. For farmers who need to hire a boar, the price has increased from 35,000 MMK in 2021 to 45,000 MMK in 2022. Finally, the cost of electricity is also increasing because of raising diesel prices.

**Figure 7. Prices of 30 kg bag of feed for pigs, 2018 to Q1 2023**




Source: Authors' calculations from Universe Animal Feeds Facebook Page: https://www.facebook.com/universefeedshop/

In contrast to the poultry sector, the farm-gate price of pig meat has increased. In 2021, the farm-gate price for a live pig was between 4,000 and 5,000 MMK per viss, but now the sales price of young pigs ranges between 8,500 MMK and 10,000 MMK per viss. Smaller farms tend to receive less, around 8,500 MMK per viss, while larger farms receive around 9,000 MMK per viss. This estimate is similar across regions; for example, a farmer in Yeni Township, Bago, estimates that the farm-gate price of a six-month old pig has increased to between 8,000 and 8,600 Kyat per viss. In Taikkyi Township, Yangon, a farmer can receive as much as 10,000 MMK per viss.

As a result of increasing production costs, average income among livestock farmers decreased in 2022. Table 6 presents estimated changes in livestock income in Q4 2022 MMK based on fixed effect regressions holding households fixed. First, compared to Q1, livestock income among households that raised livestock for income decreased by 13,688 MMK on average in Q2, 19,600 MMK in Q3 and 21,074 MMK in Q4. Given that the mean livestock income over the period was 96,634 MMK per month, this is a decrease of 14, 20, and 22 percent by quarter, respectively. Farming households surveyed in MAPS who also raised livestock experienced a decrease in livestock income as well. Because these farmers who also raised livestock earned 55,362 MMK per month over the period, their income decreased by 18 percent in Q2, 23 percent in Q3, and 25 percent in Q4 compared to Q1.

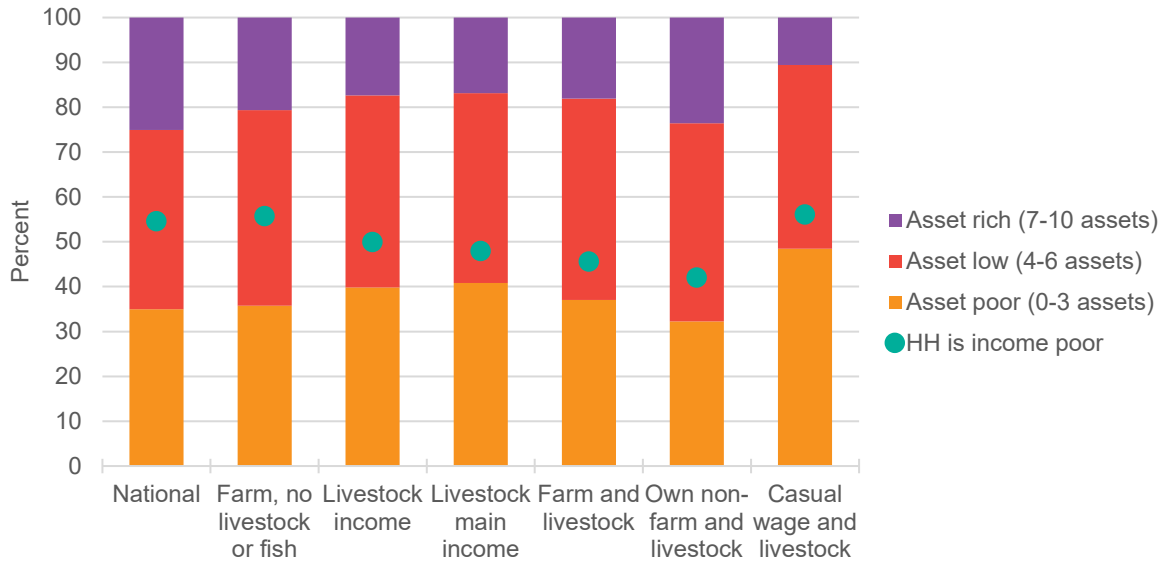
### Table 6. Change in income in Q4 2022 MMK for different livestock farmers

| | Livestock income HHs | Farmers | Chicken | Pig | Cattle | Draught animals |
|---|---|---|---|---|---|---|
| Mean income | 96,633 | 55,361 | 58,004 | 114,050 | 78,210 | 60,425 |
| Std. Dev. | 263,061 | 207,235 | 209,379 | 287,887 | 245,172 | 219,475 |
| **Estimates** | | | | | | |
| Q2 vs Q1 | -13,688** | -9,694** | -8,617 | -6,674 | -17,590* | -1,712 |
| Q3 vs Q1 | -19,600*** | -12,573*** | -16,201*** | -20,112 | -8,486 | -3,664 |
| Q4 vs Q1 | -21,074*** | -13,826*** | -16,385*** | -11,348 | -16,854 | -10,976 |
| No. of Obs. | 13,663 | 14,288 | 10,731 | 3,818 | 4,844 | 6,840 |

Source: Authors' calculations from MHWS and MAPS data.
Note: Asterisks show significance at p-values * p < 0.10, ** p < 0.05, *** p < 0.01. Farmers, chicken, pig, cattle, and draught animal only includes respondents in the MAPS survey.

While in the MHWS sample we do not know which type of livestock the household raises, for our sub-sample of farmers in MAPS we have details about their livestock ownership. For this analysis we merge the MAPS data with the MHWS data at the household level. Farmers who raised chicken saw a significant decline in their real earnings in Q3 and Q4 compared to Q1. Further, farmers who raised cattle saw a significant decline in their real earnings in Q2 compared to Q1.

### Figure 8. Income and asset poverty among livestock producers




Source: Authors' calculations from MHWS pooled data

Despite falling incomes among livestock farmers, a slightly smaller share of households who have livestock income are income poor compared to all households nationally (50 percent compared with 55 percent of households nationally) (Figure 8). On the other hand, a larger share of livestock income earning households are asset poor and asset low, 40 percent and 43 percent compared to the national average of 35 percent and 40 percent.[8] Households that depend on livestock income for

[8] Households were categorized into three asset-class groups based on the number of assets they own: asset-poor (0-3 assets), asset-low (4-6 assets) and asset-rich (7-10 assets). This categorization is based on a count of 10 assets including: improved housing (semi-pucca, bungalow/brick, apartment/condominium), flush toilet, improved water source (piped into house or bottled water), grid-based electricity (not solar), rice cooker, fridge, TV, wardrobe, car/motorcycle/tuk-tuk, and a working computer/laptop/iPad.

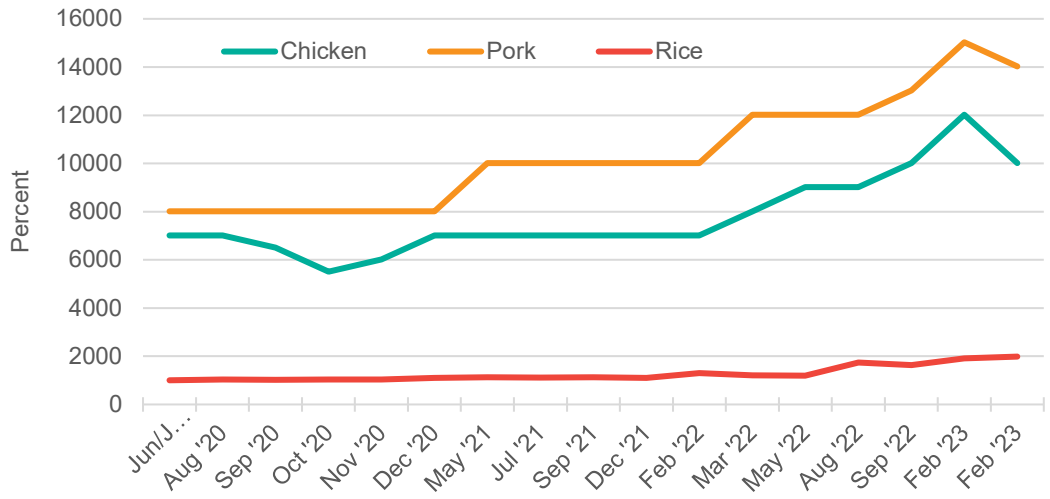
their main source of income have a similar level of income poverty and asset poverty as households that earn some income from livestock. The combination of own-farm crop income with livestock income or own-non-farm income with livestock income reduces both income and asset poverty. On the other hand, households with casual wage income and livestock income are more asset poor and more income poor.

## 2.3 Consumers

The market price of chicken and pork increased from Q1(December 2021) to Q4 (December 2022) by 44 percent and 62 percent, respectively, with the largest increase in price occurring between Q1 and Q2 (March 22) (Figure 9). Overall, the price of animal sourced foods increased by 29 percent from Q1 to Q4 (MAPSA 2023). This is because dried fish prices only rose by 4 percent while fresh fish prices rose by 22 percent over the same period. On the other hand, rice and oil prices increased by 51 and 50 percent, respectively, over the same period. Excluding onions, the increase in the market price of chicken and pork was greater than that of all the other food groups. Given the decrease in income among households across Myanmar, and the increase in livestock prices,

**Figure 9. Median market price of chicken and pork per viss**

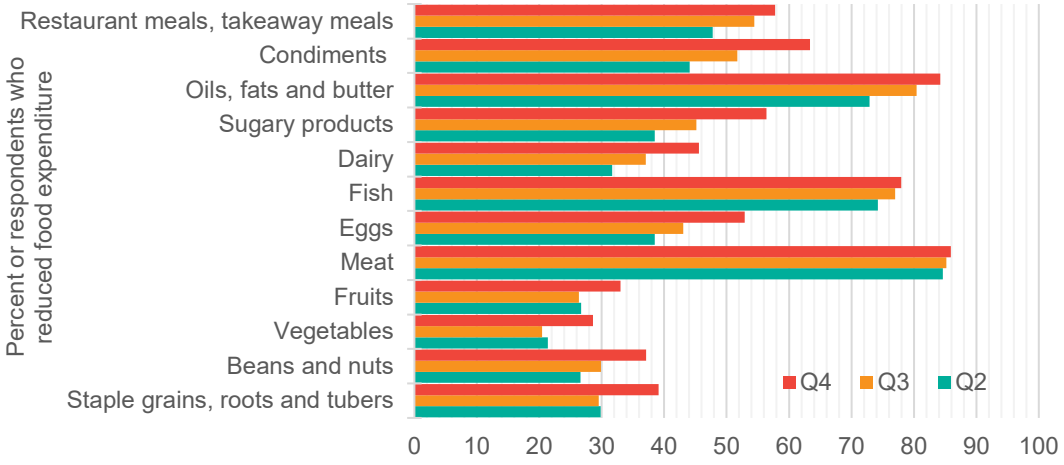
households have reduced their meat consumption.




Source: Authors' calculations from Food Vendor Surveys

Figure 10 shows the percentage of households who have decreased their food expenditure. About 55 percent of households reported reducing their food expenditures in each of rounds 2, 3 and 4 (we do not have data from Q1). Households who reduced their food expenditure did so by decreasing their spending on animal sourced foods: 85 and 86 percent of households in Q3 and Q4, respectively. This is more than the share of households who have decreased expenditure on other food groups. Most households also decreased their spending on fish, 74 and 77 percent of households in Q2 and Q3, respectively. Given the importance of animal sourced foods for growth and brain development, this decrease is concerning.

### Figure 10. Percentage of households who have reduced their food expenditure




Source: Authors' calculations from MHWS pooled data.

Table 7 shows the food consumption score (FCS) by food groups. The FCS combines data on the frequency and the diversity of food groups consumed over the previous seven days. It is calculated as the weighted sum of the frequency of food groups eaten over the seven days prior to survey where weights reflect the relative nutritional value of the food group (Arimond et al., 2010). Over the period there was a decline in animal sourced food consumption from 5.0 days a week in Q1 to 4.3 days a week in Q4. This was the largest decline in any food group except sugar/sweets. There was a significant urban/rural disparity with consumption of meat, fish, and eggs with urban areas consuming these foods 4.8 days compared to 4.1 days in rural areas in Q4. At the national level, the percentage of households with inadequate food consumption increased from Q1 to Q4. This was mainly driven by a decline in the consumption of milk and dairy products as well as meat, fish, and eggs which are weighted the highest in the calculation of the FCS because of their nutritional value. Many young children were not consuming meat, fish, and eggs. In Q4, only 61.2 percent of children aged 6 to 23 months consumed meat and fish, and only 48.5 percent consumed eggs.

### Table 7. Number of days consuming different food groups and FCS based on seven-day recall, nationwide and by urban/rural

| | Q1 | Q2 | Q3 | Q4 | Change: Q4 – Q1 | Q4 – Q3 |
|---|---|---|---|---|---|---|
| | **Number of days consumed in past 7 days** | | | | ***% points*** | |
| Main staples | 7.0 | 7.0 | 7.0 | 7.0 | 0.0*** | 0.0* |
| Pulses/legumes/nuts | 3.1 | 2.5 | 2.5 | 2.5 | -0.6*** | 0.0 |
| Milk and other dairy products | 1.2 | 0.9 | 0.8 | 0.7 | -0.6*** | -0.1*** |
| Meat, fish, and eggs | 5.0 | 3.9 | 4.0 | 4.3 | -0.7*** | 0.3*** |
| Vegetables | 5.2 | 5.5 | 5.6 | 5.5 | 0.3*** | -0.1*** |
| Fruits | 2.5 | 3.5 | 2.9 | 2.4 | -0.1** | -0.5*** |
| Oil, fats, and butter | 6.6 | 6.7 | 6.7 | 6.7 | 0.1*** | 0.0 |
| Sugar or sweet | 3.3 | 2.1 | 2.2 | 2.1 | -1.2*** | -0.1** |
| Food Consumption Score (0-112) | 60.9 | 53.9 | 53.6 | 53.8 | -7.1*** | 0.1 |
| | | **Percentages (%)** | | | ***% points*** | |
| Acceptable food consumption | 90.6 | 83.2 | 82.8 | 84.3 | -6.3*** | 1.5** |
| Borderline food consumption | 8.9 | 15.7 | 16.1 | 14.8 | 5.9*** | -1.3** |
| Poor food consumption | 0.5 | 1.2 | 1.1 | 0.9 | 0.4*** | -0.1 |
| No. of observations | 12,100 | 12,142 | 12,128 | 12,924 | | |

Source: Authors' calculations from MHWS data.
Note: Q1 from Dec 2021 – Feb 2022; Q2 from Apr 2022 – Jun 2022; Q3 from Jul 2022 – Aug 2022; and Q4 from Oct 2022 – Dec 2022.

# 3. THE FUTURE OF THE LIVESTOCK SECTOR: KEY ISSUES MOVING FORWARD

The livestock sector in Myanmar, particularly poultry and pig farming, has experienced significant challenges since 2021, despite their earlier rapid development. The increasing price of animal feed has emerged as one of the main difficulties faced in both subsectors. With poultry feed accounting for 70 percent of total animal feed consumption and the pig sector utilizing 25 percent, the rising prices of animal feed have significantly increased the cost of production for chicken and poultry farmers (USDA 2018).

Because feed is produced with both imported and locally produced ingredients, the deteriorating exchange rate has been a significant contributor to rising feed prices.[9] Another factor, however, is the rising cost of grains both domestically and globally. It is estimated that domestically produced maize makes up 35 to 45 percent of total feed composition in the poultry complete feed sector. Maize is also a key ingredient in pig feed. Maize prices in Myanmar have surged by 45 percent in 2022 compared to the previous year. Additionally, the prices of low-cost feed alternatives like rice bran and broken rice have increased by 40 percent.[10]

Moreover, animal feed mills have encountered their own set of challenges, including the high prices of both imported and domestically produced raw materials, restrictions on imports, foreign exchange instability, electricity shortages, and fuel availability. Maize, a crucial component of animal feed, is exported to Thailand and China, with only 30 percent remaining in Myanmar for domestic consumption.[11] The feed mills now must pay higher prices to purchase maize, resulting in an increase in animal feed costs.

These feed costs, constituting 70-75 percent of total production costs for broiler and layer chickens, and nearly 70 percent for pigs have added to the financial burden faced by farmers. Compounded by factors such as higher fuel prices, Myanmar's currency depreciation, and power outages, the overall production costs for farmers have increased.

In response to the escalating feed costs, some breeder farms have had to reduce day-old chick production, while small and medium-sized poultry farms have been forced to shut down due to lower domestic meat demand and soaring production expenses. Some farmers have resorted to selling breeding stock for meat or focusing on egg production instead of hatching eggs by using incubators. Pig farms are not able to raise numerous pigs and many farms are having to sell off their pigs when they are still piglets.

Pig farmers have encountered challenges from illegal imports of pigs, pork products, and frozen pork from Thailand. The availability of lower-priced imported pigs and pork has led to a decline in the local pig sector. Slaughterhouses have been opting to purchase smuggled pigs rather than supporting local farms, resulting in lower prices offered to domestic pig farmers. It is recommended that strict measures are taken to prohibit the illegal imports of live pigs and pork products to safeguard the interests of local farmers.

The rising production costs and low farm-gate prices have prompted some livestock farms to reduce their animal numbers, temporarily suspend farming activities, or switch to alternative businesses. While commercial farms and integrated fish and poultry farms continue to be able to turn a profit, traditional backyard farms are struggling to survive. Many smaller local farms and backyard farms have already stopped production.

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[9] Key informant interview on 30th January 2023.

[10] Key informant interview on 28th January 2023.

[11] Keynote from Myanmar Feed Submit on 28th May 2023.

At the same time, the decline in demand for these products represents a major issue that needs to be addressed. Because of decreased income owing to COVID-19 and the coup, households have reduced food expenditures, leading to decreased spending on animal-sourced foods. Additionally, the outmigration of many young individuals has further contributed to the decline in meat and egg demand. These disruptions have resulted in a decrease in meat production from 3.3 million tons to 2.5 million tons (Keynote from Myanmar Feed Summit 2023). Given the importance of animal-sourced products for food and nutrition security, bolstering the demand side through cash transfers, or food vouchers, for the most vulnerable households may be a different way to encourage production.

The livestock industry also faces obstacles concerning land ownership and access to credit. Although many livestock farms possess licenses, such as Form 7, they lack the rights to utilize the land specifically for livestock purposes. Consequently, these farmers are ineligible to apply for loans from banks as they cannot provide land ownership as collateral. There should be fewer restrictions in the current land use policy to allow for conversion from paddy land (Form 7) to another use such as raising livestock and constructing fishponds (LaYa 30/ LaNa 39). Further, there should be a focus on developing alternative systems so that livestock farmers can access private credit for their livestock activities. This could include creating an enabling environment so that NGOs, INGOs, UN agencies and other foreign livestock companies can offer rural credit. Finally, integrated fish and poultry farms in Ayeyarwady Region are not currently allowed to access credit from the public sector. Integrated fish and poultry farms are some of the only farms that remain financially viable. Restrictions need to be lifted on integrated poultry-fish farmers so that they can get access to loans.

Sickness and diseases are still one of the most important issues faced by livestock farmers in Myanmar. But because of the political instability, it is becoming increasingly difficult for the Livestock Breeding and Veterinary Department (LBVD) to reach livestock farmers across Myanmar. It is critical that livestock farms receive veterinary services including vaccines and knowledge on vaccination practices to control outbreaks and raise healthy livestock. The LBVD should cooperate and coordinate with international organizations and foreign livestock companies to advance the activities of animal disease prevention and control. But supporting village-based animal health services by training leaders in animal health care and administering vaccines may be critical to reach remote or conflict-affected areas.

Considering these challenges, it is imperative to undertake several measures to mitigate the impacts and ensure the resilience of the livestock sector in Myanmar. To address the challenges identified and support the livestock industry, several actions are proposed:

- Encourage and promote backyard poultry and pig raising systems that utilize waste products for food. Additionally, focus on ruminant production, such as cattle, water buffalo, and goats, which can be fed through grazing, thus reducing production costs.
- Liberalize land zoning to enable any land use certificate to be used as a loan guarantee. This will facilitate the conversion of paddy land (Form 7) to other purposes, including livestock raising and constructing fishponds (La Ya 30/ La Na 39).
- Lift restrictions on integrated poultry-fish farmers, granting them access to loans, thereby fostering greater integration in farming practices.
- Encourage the Livestock Breeding and Veterinary Department (LBVD) to collaborate with a wider group of stakeholders to advance animal disease prevention and control activities.
- Support village-based animal health services by providing training to leaders in animal health care and facilitating the administration of vaccines.

- Implement policies to regulate and control illegal imports that may negatively impact the domestic livestock industry.
- Foster the establishment of associations of poultry farmers, enabling them to access feed discounts similar to what commercial farms benefit from.
- Promote the establishment of small-scale processing plants to produce seed oils and animal feed from the by-products, thus adding value to the livestock industry and minimizing waste.

These recommendations may help the livestock industry overcome key issues related to high input prices, limited access to credit, and animal disease.

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