

Mapping the Agricultural Sector of Thailand: Holdings, Activities & Trends

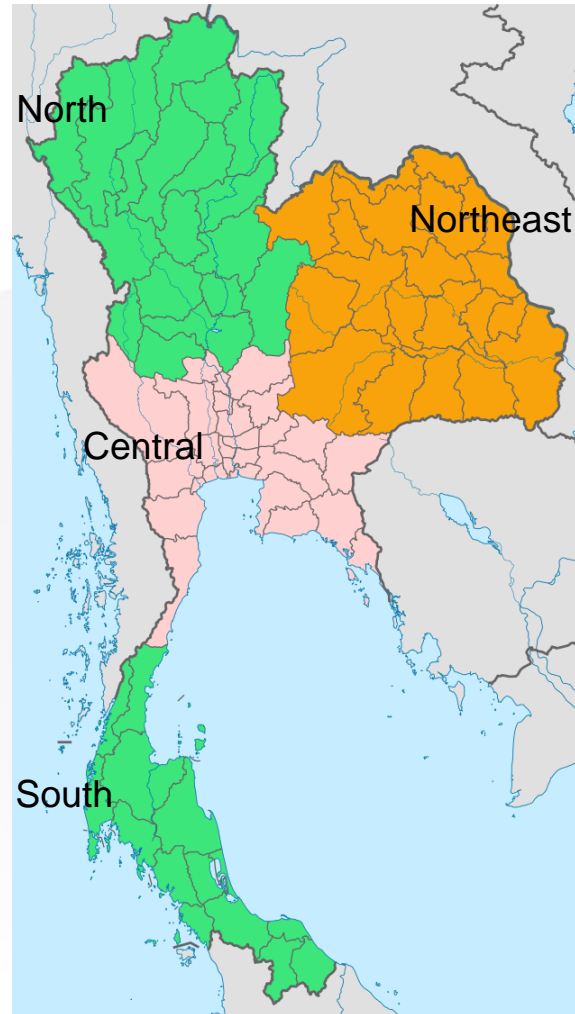
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1. General Data and Map of Regions
2. Holdings: Number, Size, Use of Machinery & Agricultural Activity
3. Land Use: Rice, Field Crops & Rubber
4. Livestock: Milk & Meat
5. Renewable Energy: Biomass & Biogas
6. Summary & Political Outlook

Annotation: If not explicitly noted, the data refer to the year 2013.

- Share of GDP generated in agriculture: 12%
- Employment in agriculture: 40% (2012)
- Rural population: 52%
- Area for agricultural use: 22 million ha (42,8% of total land area)
- 70% of agricultural land used for crop production
- 50% of area used for crop production occupied by rice; sugarcane, maize, cassava and rubber present further important crops in terms of production quantity and value
- Average size of holding: 3.15 ha [19.7 rai]

Regions of Thailand



Number, Size, Use of Machinery & Agricultural Activity

HOLDINGS

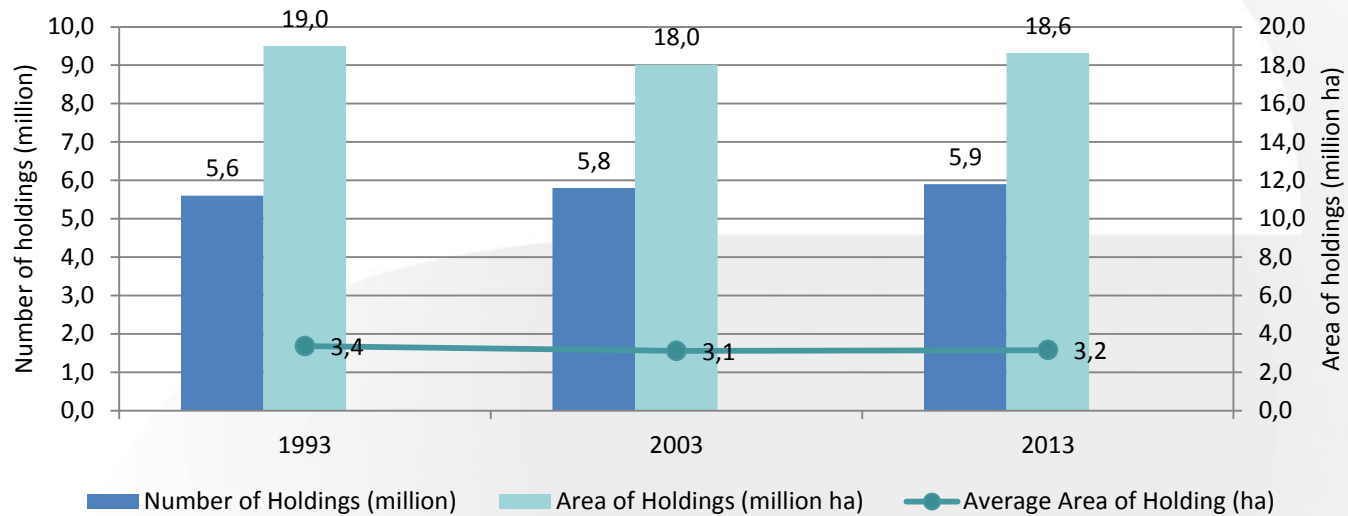
Number and Area of Holdings

Region	Number of holdings (million)		Area of holdings (million ha)		Average area of holding (ha)
	Number	%	Number	%	
Whole Kingdom	5.9	100	18.64	100	3.15
Central	0.9	14.3	3.12	16.8	3.68
North	1.3	22.0	4.34	23.3	3.34
Northeast	2.7	46.4	8.75	46.9	3.18
South	1.0	17.3	2.43	13.0	2.37

Source: National Statistical Office, 2014, p. xv

- The largest number of holdings are located in the Northeastern region. They also cover the majority of farmed land.
- The farms in Central Thailand feature the largest average area of holding.
- Yet, even the largest average area of holding is relatively small.

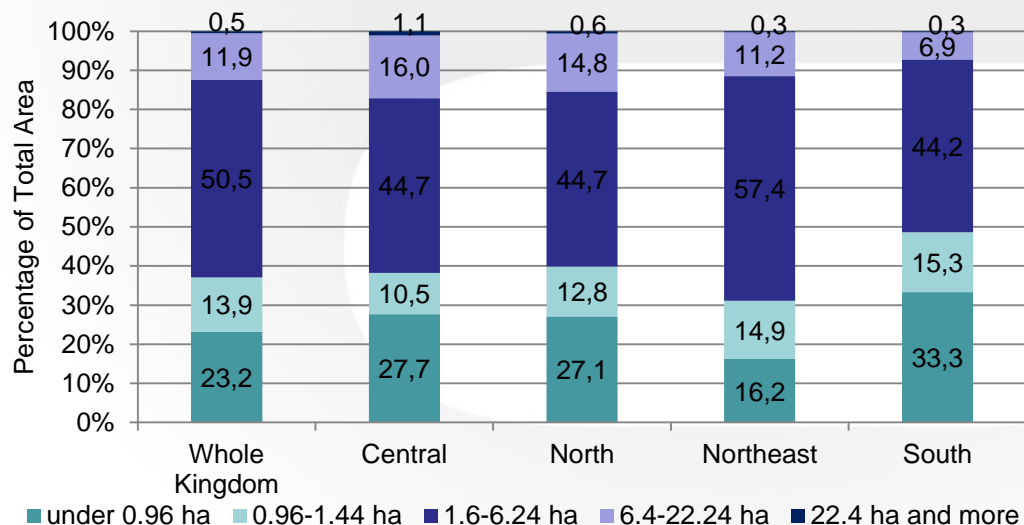
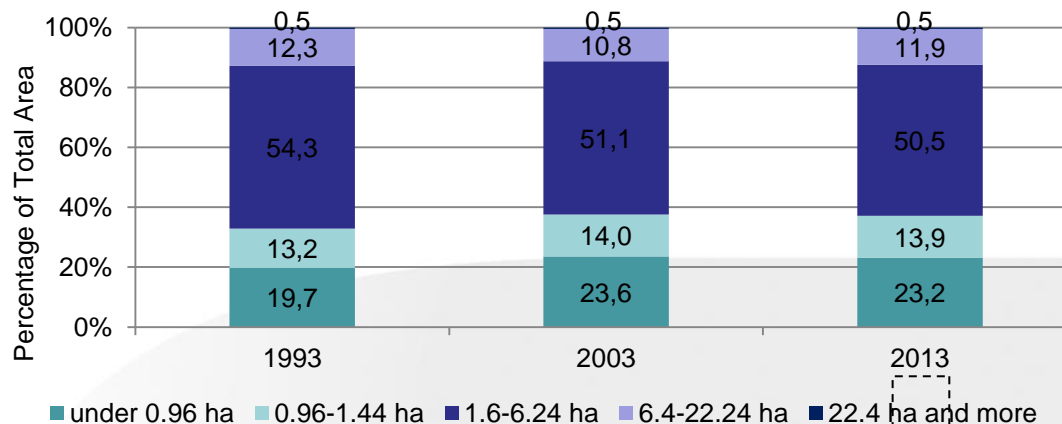
Number and Area of Holdings over Time



Source: National Statistical Office, 2014, p. xv

- The number of holdings, the area of cultivated land and average area of holding have remained relatively constant over the past twenty years. There is hence no trend towards large-scale farms in terms of area.

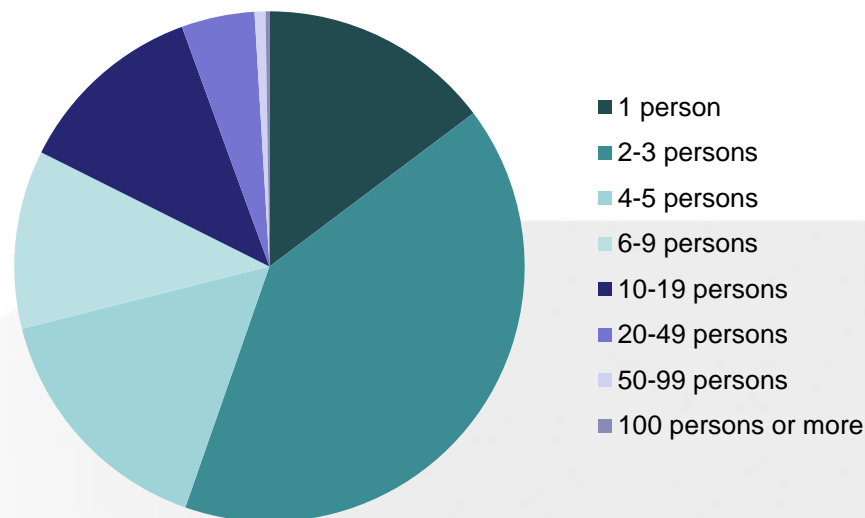
Zooming in: Size of Area of Holding



Zooming in: Size of Area of Holding (cont'd)

- Only a small share of holdings has an area of 22.4 ha [140 rai] or more at its disposal (0.5%).
- The majority of all holdings in all regions occupies a small area of 1.6-6.24 ha [10-39 rai].
- The Central region has the highest share of holdings with area of at least 22.4 ha [140 rai] (1.1%).

Number of Employed Workers



Source: National Statistical Office, 2014, p. 76

- More than half of the total holdings employ only 1-3 workers which once again illustrates the highly fragmented structure of the agricultural sector.

Use of Machinery and Equipment

Type Machinery/ Equipment	Number of Holdings reporting the Use (million)
<i>Total Number of Holdings: 5.9 million</i>	
Tractor 4 wheels	2.24
Tractor 2 wheels	2.43
Water Pump	
• Engine	1.49
• Electrical motor	0.34
• Natural energy	0.03
Sprayer	
• Manual	1.35
• Engine	1.32
Weeder	
• Manual	1.09
• Engine	1.12

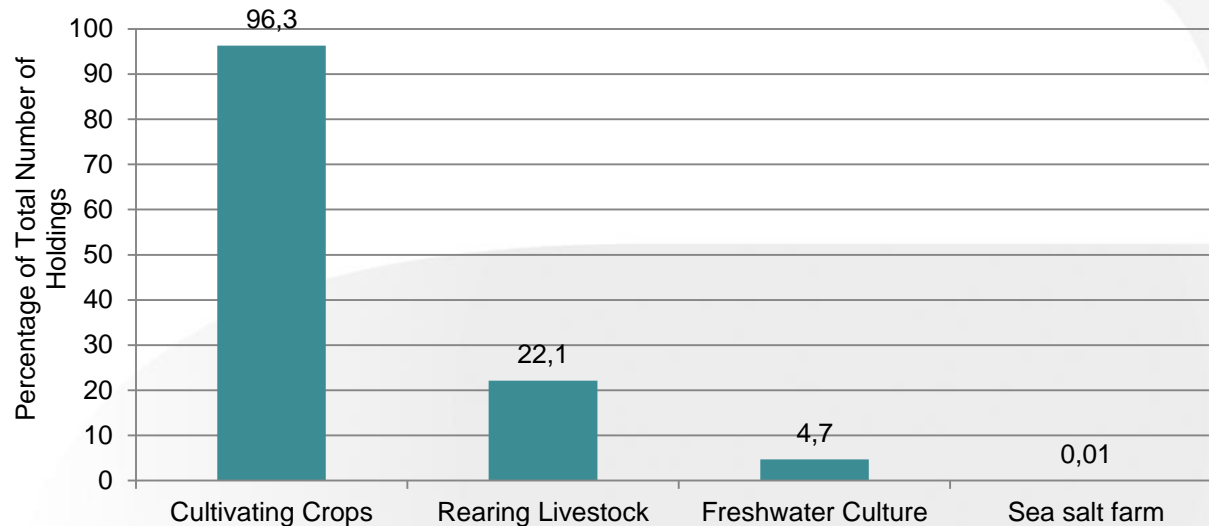
Type Machinery/ Equipment	Number of Holdings reporting the Use (million)
Planter and seeder	
• Manual	1.09
• Engine	1.12
• Attach to tractor 2 wheels	0.14
• Attach to tractor 4 wheels	0.19
Harvesting machine	
• Reaper (sugarcane)	0.09
• Combined harvester	1.58
Thresher	
• Rice and cereal thresher	0.53
• Corn sheller	0.17
• Rice and cereal winnower	0.2
Rice mill	1.74
Milking machine	0.01

Source: National Statistical Office, 2014, p. 68

Use of Machinery and Equipment (cont'd)

- Due to the fragmented structure of the Thai agricultural business, farmers build on simple, low-scale technology. The majority of machines/equipment listed above are used by holdings with an area of 1.6-6.26 ha [10-39 rai].
- The usual horse power of tractors ranges from 30 to 130 HP. Weakly-motorized tractors are used in rice production. The cultivation of sugarcane requires higher-motorized machinery. For the production of cassava, maize and rubber, farmers use medium-motorized tractors.

Type of Agricultural Activity

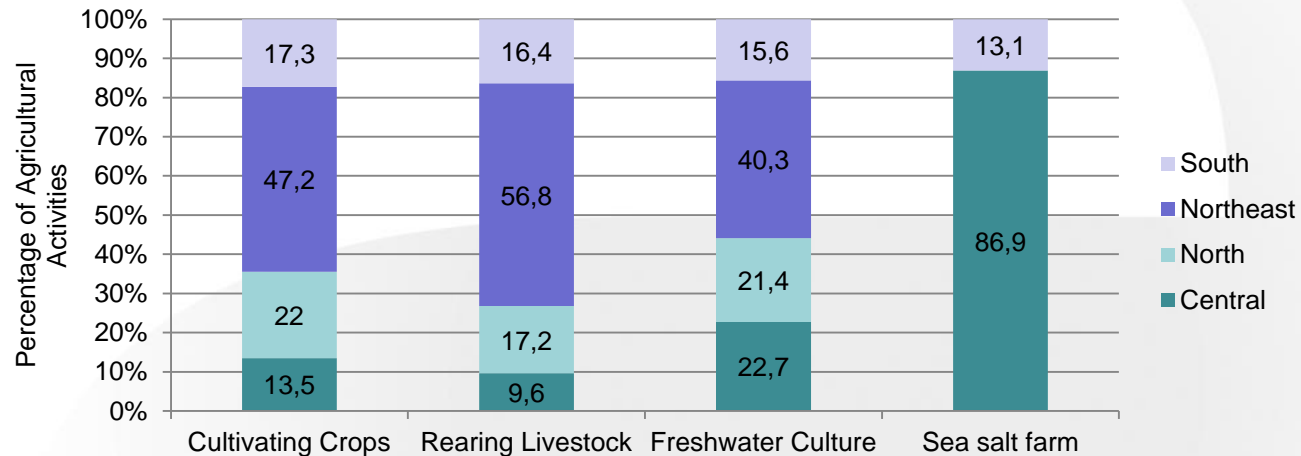


Source: National Statistical Office, 2014, p.xvi

Note: repondents could choose more than one type of agricultural activity

- The large majority of farms cultivate crops, followed by rearing livestock.
- Almost 80% of the total holdings focus on one type of agricultural activity. Involvement in three or more activities is an exception (less than 2%).
- Given the dominance of crops and livestock, the analysis will focus on these two areas.

Type of Agricultural Activity by Region



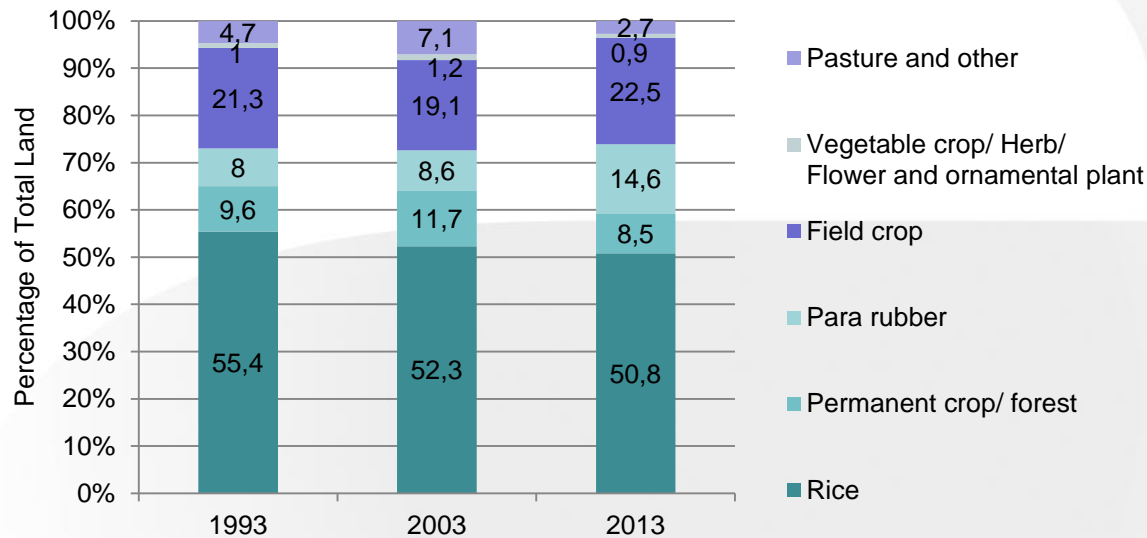
Source: National Statistical Office, 2014, p. 19

- The two most significant agricultural activities, namely cultivating crops and rearing livestock, are primarily pursued in the Northeastern region, followed with a large gap by Northern and Southern Thailand.

Rice, Field Crops & Rubber

LAND USE

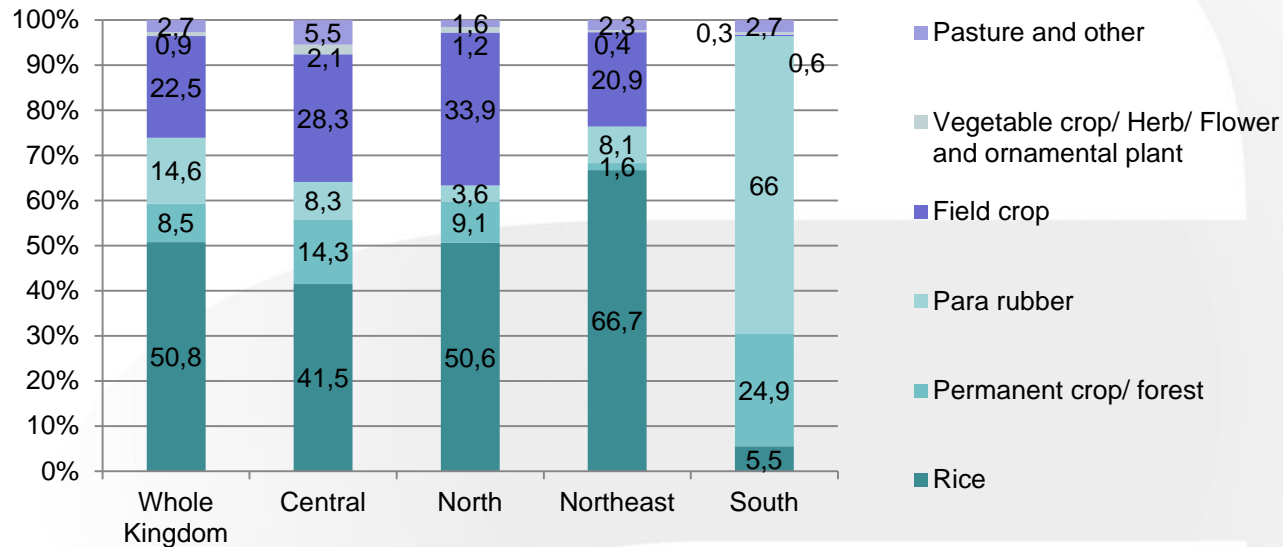
Area of Holding by Land Use



Source: National Statistical Office, 2014, p. xvii

- Half of the total cultivated area was used to grow rice, followed by field crops, permanent crop/ forest and para rubber.
- During the past ten years the area of para rubber (+70%) and field crops (+17%) grew considerably.
- The area of permanent crop/forest (-27%) and pasture (-62%) decreased during the same period of time.

Comparing Regions' Area of Holding by Land Use, 2013



Source: National Statistical Office, 2014, p. xvii

- Rice is mainly cultivated in the Northeastern region, followed by the Northern and Central region.
- Field crops account for a considerable share in the Northern region, followed by Central and Northeast Thailand.
- The production of rubber occupies more than half of the cultivated land in the South.

Production of Rice

Rank	Country	Production (1,000 t)
1	China (Mainland)	203,290
2	India	159,200
3	Indonesia	71,280
4	Bangladesh	51,500
5	Vietnam	44,039
6	Thailand	38,788

Source: Food and Agriculture Organization, 2013

- In 2013, Thailand was the sixth largest producer of paddy rice.
- Rice production in Thailand is however inefficient. The average yield per ha was 2.9 t in 2013. Competitor Vietnam achieves productivity rates of 5.3 t/ha in conventional rice (2010) .

The Controversial Thai Rice Price Policy...

- In 2011, the government under Yingluck Shinawatra introduced a new rice price policy to cater its electorate in the rural North. Rice farmers sold their total rice harvest to the government for a guaranteed price of USD 457-609/t (15,000-20,000 Baht/t) which was 30-40% more than the global market price. The government in turn stored the rice and hence sought to centralize trade. The controversial policy caused tremendous costs (2% of GDP).
- As the global market leader, Thailand aimed at increasing the international price for rice. Instead, the domestic price for rice rose; Internationally, Thailand lost its competitive edge and was overtaken by India and Vietnam.

...The New Rice Support System

- Since stopping the rice price policy in June 2014, the new government has veered away from direct market intervention to producer assistance. With the help of an agreement with input manufacturers, production costs are meant to be cut by USD 83/ha; paddy farmers are to get better access to short-term credits at reduced loans.
- Thailand is expected to return to the pole position of global rice exports again in 2015.

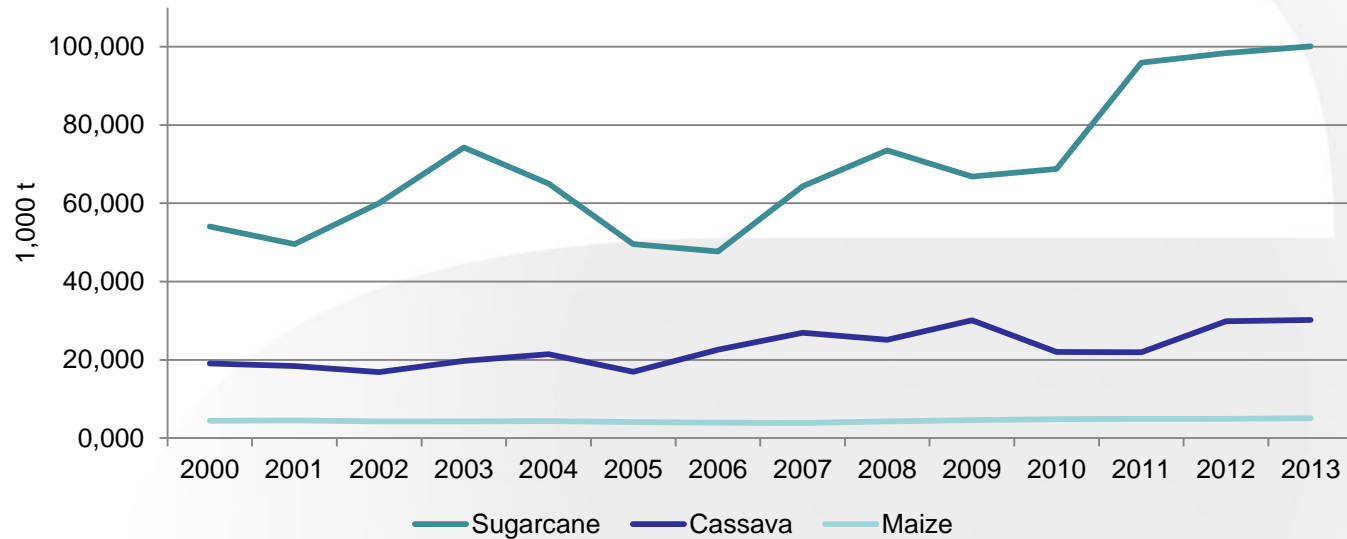
Number of Holdings & Area by Field Crop

Field Crop	Number of Holdings	Planted Area (ha)	Harvested Area (ha)
Cassava	621,385	1,503,018.6	1,479,987.4
Sugarcane (industry)	400,305	1,382,649	1,354,807
Maize	405,540	1,196,766.4	1,183,699.2
Mung Bean	8,996	29,333.6	28,430.4
Tobacco	19,116	15,431	15,399
Peanut	16,377	12,080.6	11,986
Soybean	11,636	9,992.3	9,922.4
Sugarcane (Chewing)	5,549	7,682.1	9,151.8
Pasture	1,165	1,998.9	1,998.9

Source: National Statistical Office, 2014, p. 59

- Sugarcane, cassava and maize present the most important field crops in terms of number of holdings and size of area.

Production over Time



Source: Food and Agriculture Organization, 2013

- The production of the three most important field crops increased over the past decade, yet at different scales: Sugarcane has accounted for a rapid growth of 85% since 2000; the produced amounts of cassava and maize grew by 58% and by 13% respectively during the same time period.

Production of Rubber

- 1.17 million holdings produce rubber on in total 2,6 million ha.
- 95% of the rubber farmers have small holdings.
- With an average yield of 1.7 t/ha, the Thai rubber sector is acknowledged as relatively efficient.
- Thailand is the biggest rubber producer in the world: in 2012, Thailand produced 3.5 million t rubber accounting for a value of USD 4 trillion (1/3 of global rubber output).
- 90% of the total rubber output is sold abroad. The main export destinations are China, Malaysia, Japan, the EU and the US.
- The market price for rubber hit its five-year low in September 2014 of USD 1.60/kg among others due to a slower Chinese demand. The price decline affected the rubber farmers and mobilized protests demanding government support.

Thai Rubber Support Policy

- In order to lift the income of rubber farmers, the government adopted a new rubber support policy in September/October 2014:
 - *Subsidies:* USD 258 million [8.5 billion Baht] for small rubber farmers (≤ 4 ha), USD 30/0,16 ha [1,000 Baht/rai], maximum amount USD 456.50 [15,000 Baht]
 - *Loans for cooperatives:* Bank for Agriculture and Agricultural Cooperatives provides USD 152 million in loans for two dozen cooperatives to support rubber processing
 - *Restricting output and reducing stockpiles:* 1. To slow rubber tapping, Thailand will cut down old rubber trees on an area of 64,000 ha within seven years. This measure will result in an annual supply cut of 27,000 t. 2. The Thai government will encourage rubber farmers to grow crops or raise livestock on vacant land. 3. The national rubber stockpiles are to be reduced by requiring higher rubber content, e.g. in road paving and mattress manufacturing.

Milk, Meat & Eggs

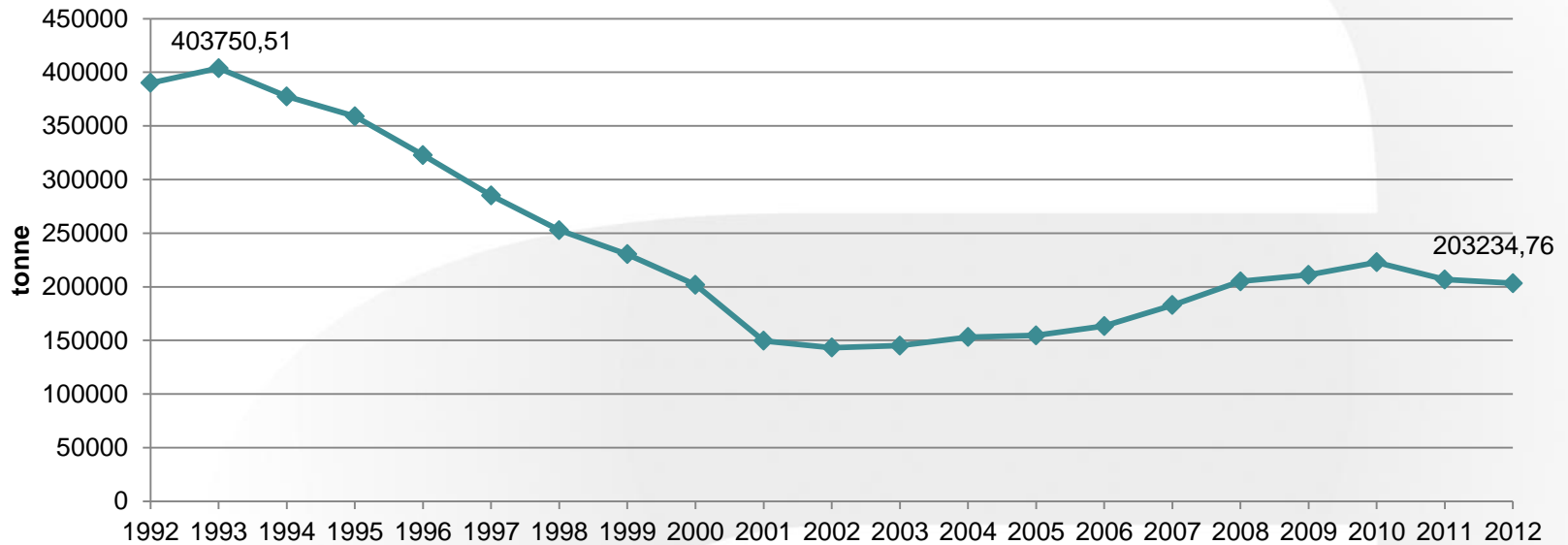
LIVESTOCK

Livestock and Holdings

	Beef Cattle	Dairy Cattle	Pigs	Layer Chicken	Broiler Chicken
Number of Holdings	592,699		169,587	616,417	
Total Stock (million)	3.15	0.4	4.43	102.69	123.1
Average	6.3		26	399	
Number large-scale farms	205 ¹		2,870 ¹	642 ²	

Source: National Statistical Office, 2014, p. 60ff.

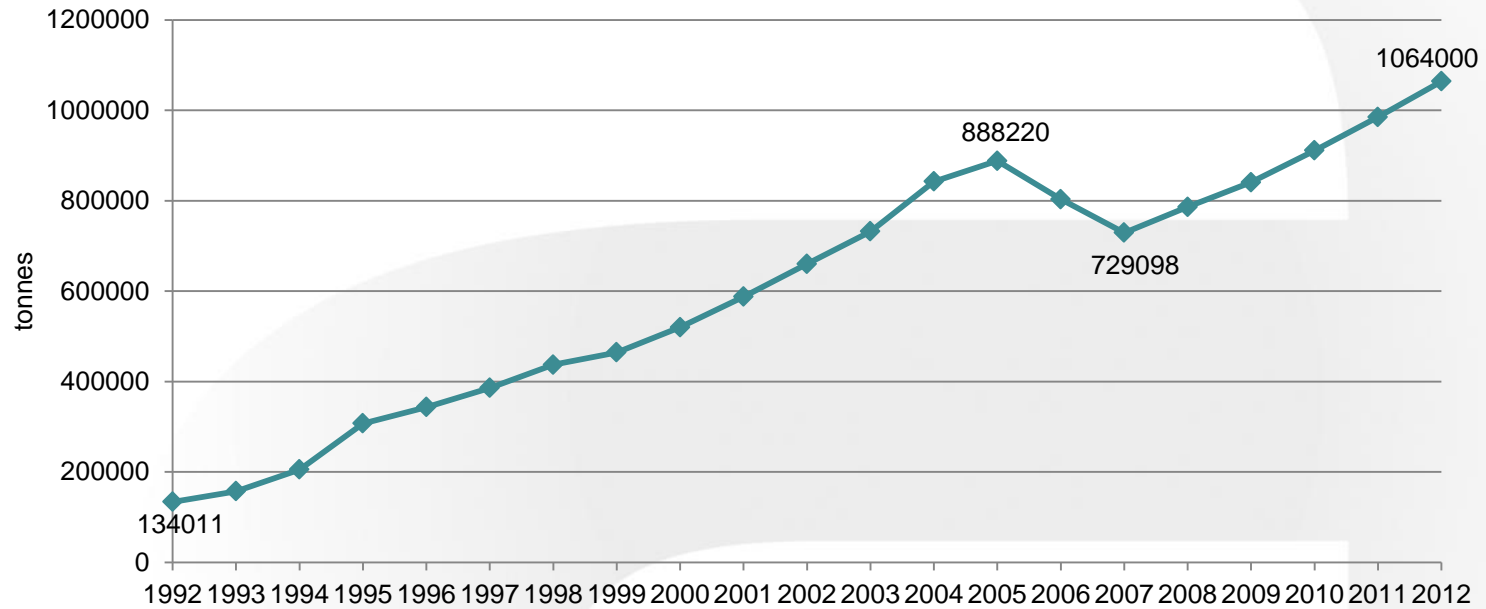
¹ 300 and more animals; ² 50,000 and more animals



Source: Food and Agriculture Organization, 2013

- The production of beef and buffalo meat has increased over the past decade by 42%. Yet, the amount has never reached the all-time-high of almost 404,000 t of 1993 again.

Milk Production

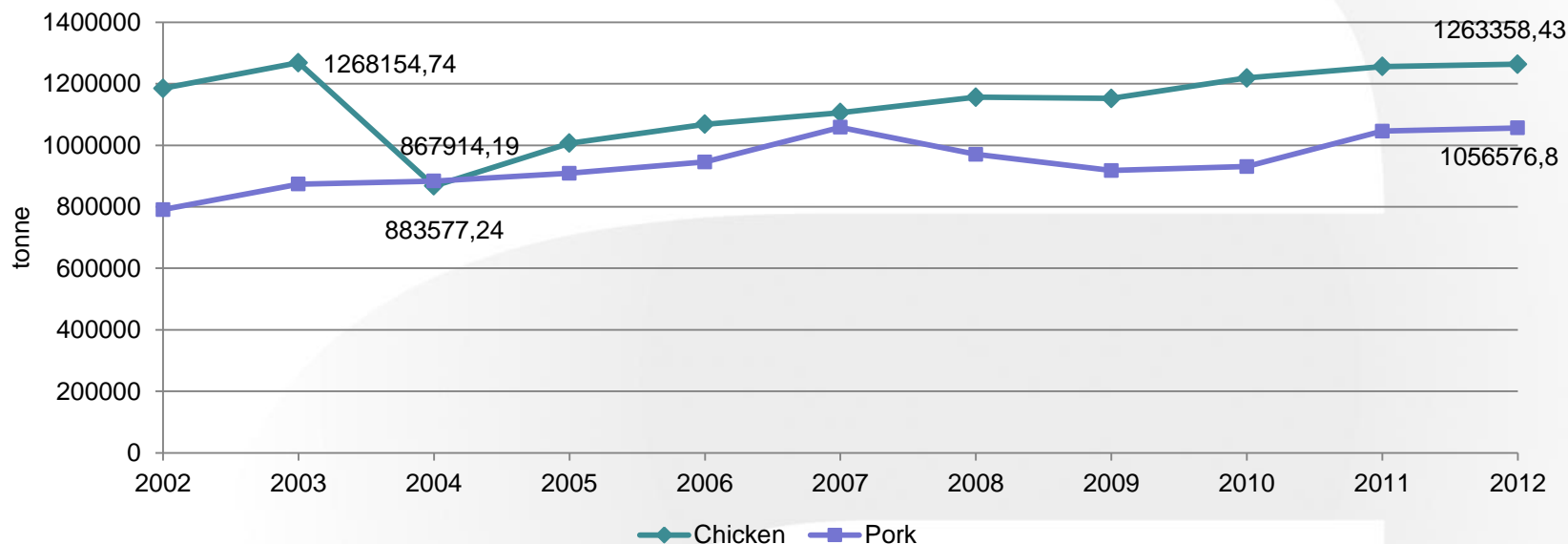


Source: Food and Agriculture Organization, 2013

- Thailand extended its milk production capacities over the past two decades significantly. Between 1992 and 2012, the amount of milk increased by almost 800%.

Milk Production (cont'd)

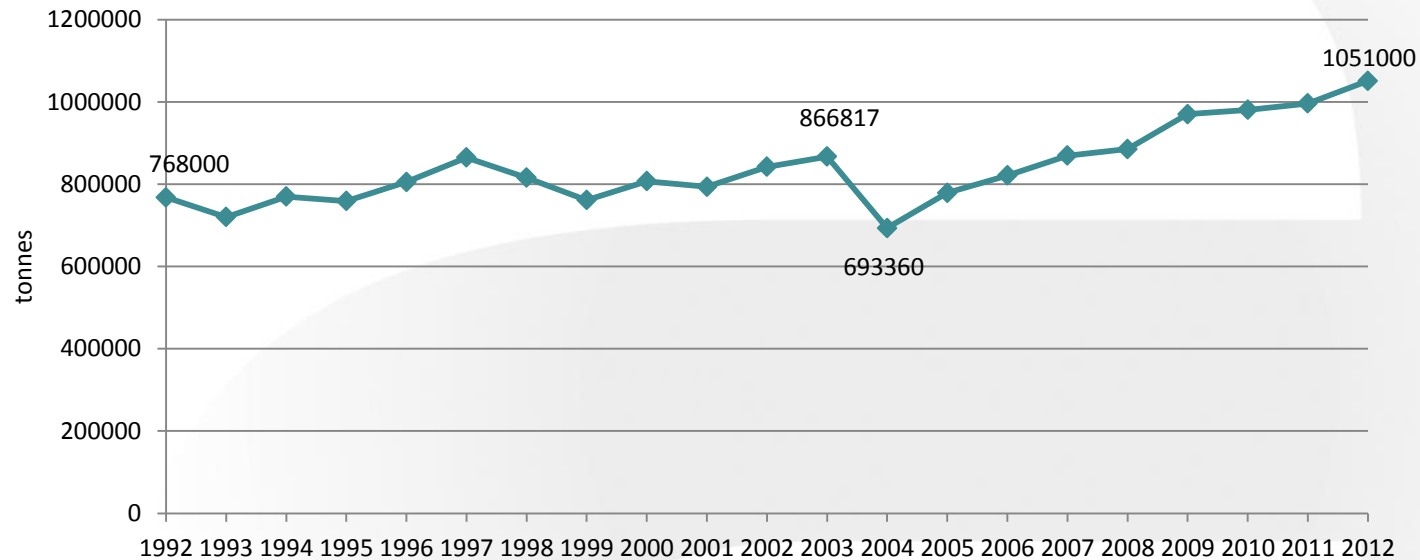
- Four provinces located in the Central and Northeastern region feature a high density of dairy cattle: Saraburi (central), Nakorn Ratchasima (northeast), Lopburi (central), Ratchaburi (central)
- With an average amount of 12 kg/cow/day, the productivity in the dairy sector is low.
- The area to grow pasture and roughages is insufficient so that farmers require alternative fodder.
- Thailand has a negative trade balance in dairy products. The main import dairy products are skimmed milk powder, whole milk powder and whey. The country exports condensed milk, sweetened condensed milk and milk and cream (not concentrated) to other countries in ASEAN.
- The government provides funding to help manage dairy cooperatives and launched pilot projects to enhance technology transfer to dairy farmers.



Source: Food and Agriculture Organization, 2013

- The production of pork and chicken is on the rise: chicken meat production recovered after the avian influenza in 2003/2004 and almost reached the all-time-high again in 2012. The production of pork has increased over the past ten years by one third.
- In 2012, chicken meat and pig meat accounted for a production value of USD 1.8 billion and USD 1.6 billion respectively. They ranked 5th and 6th on the list of the top ten commodities in terms of production value.
- Meat exports have almost quadrupled since the mid 1990s.

Egg Production



Source: Food and Agriculture Organization, 2013

- The production of eggs increased by 36% over the past twenty years. After the first wave of avian influenza in 2003 resulting in a 15-year-low in output, production capacities have caught up fast.
- In 2012, eggs accounted for a production value of 1.1 billion USD and hence was the 8th most important commodity in terms of production value.

Biomass & Biogas

RENEWABLE ENERGY

Bioenergy on the Rise

- According to the Alternative Energy and Development Plan (AEDP) 2012-2021, Thailand aims at increasing the share of renewable energies to 25% of total energy consumption by 2021 (13.9 GW).
- Biomass is meant to contribute 4.8 GW in 2021 (2012: 2 GW). In 2013, almost 1,000 biomass power plants were in place, mainly in Northeastern, Central and Northern Thailand. Sources for biomass energy are primarily agricultural waste or byproducts, including rice husks, sugarcane waste, oil palm wastes etc.
- The capacities of Thai biogas plants are to be expanded the most: in 2021, biogas is meant to account for 3.6 GW (2012: 193 MW). In 2013, 156 biogas power plants were on grid, primarily located in the South, followed by Central Thailand. The main raw materials in the production of biogas are industrial waste, farm waste, waste water and municipal solid waste. In order to increase the production of biogas, the Thai government promotes the development of energy crops, especially fast-growing, high-energy grasses, such as Napier and Bana.

Subsidies for Bioenergy*

- In 2013, the former government launched a financial support program for biogas power plants of 1 MW or smaller using Napier grass. 13 projects were supported with 20% of total investment (max. USD 610,000 [20 million Baht] each).
- A feed-in-tariff of at least USD 0.14/kwh [4.5 Baht/kwh] was defined for power generated by biogas of 1 MW or smaller for a period of 20 years.
- The Department of Alternative Energy Development and Efficiency (DEDE) is planning to give subsidies worth USD 9.16/t of raw material crops to farmers [300 Baht/t] . DEDE proposed sites for the cultivation of Napier grass which are located in the Central and Northeastern region.

**The information provided here is a snap-shot. The interims government is in the process of comprehensive reforms which may also target subsidies for bioenergy.*

Summary & Political Outlook

TRENDS IN THAILAND'S AGRICULTURAL SECTOR & POLITICS

- The Thai agricultural sector features a high degree of fragmentation, resulting in small farms, use of low-scale machinery and equipment.
- Almost all holdings cultivate crops, especially rice, sugarcane, cassava, or maize.
- Rearing livestock, particularly pigs and chicken, is on the rise.
- The following commodities feature particularly high growth potential:
 - Field crops: sugarcane, cassava, maize
 - Livestock: milk, meat (beef, pork, chicken), eggs
 - Energy Crops, esp. Napier and Bana grass
- Thailand seeks to increase the production of energy from alternative sources, among others biomass and biogas.

- After half a year anti-government protests that left at least 28 people dead and the government paralyzed, the army seized power on 22nd May, 2014 in a bloodless coup overthrowing the government of Yingluck Shinawatra. Shinawatra had been elected Prime Minister of Thailand three years before.
- Army commander and head of government General Prayuth Chan-ocha initiated constitutional reforms which are, according to official rhetoric, meant to strengthen democratic principles in Thailand's political system. Critics argue that General Prayuth rather aims at constraining influence of the people.
- The next General Elections are tentatively scheduled for October, 2015.
- In order to overcome the ethnic-based division between the capital-based elite and the rural population and thus to stabilize the country in a sustainable manner, efforts to level out the development gap will be necessary.

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