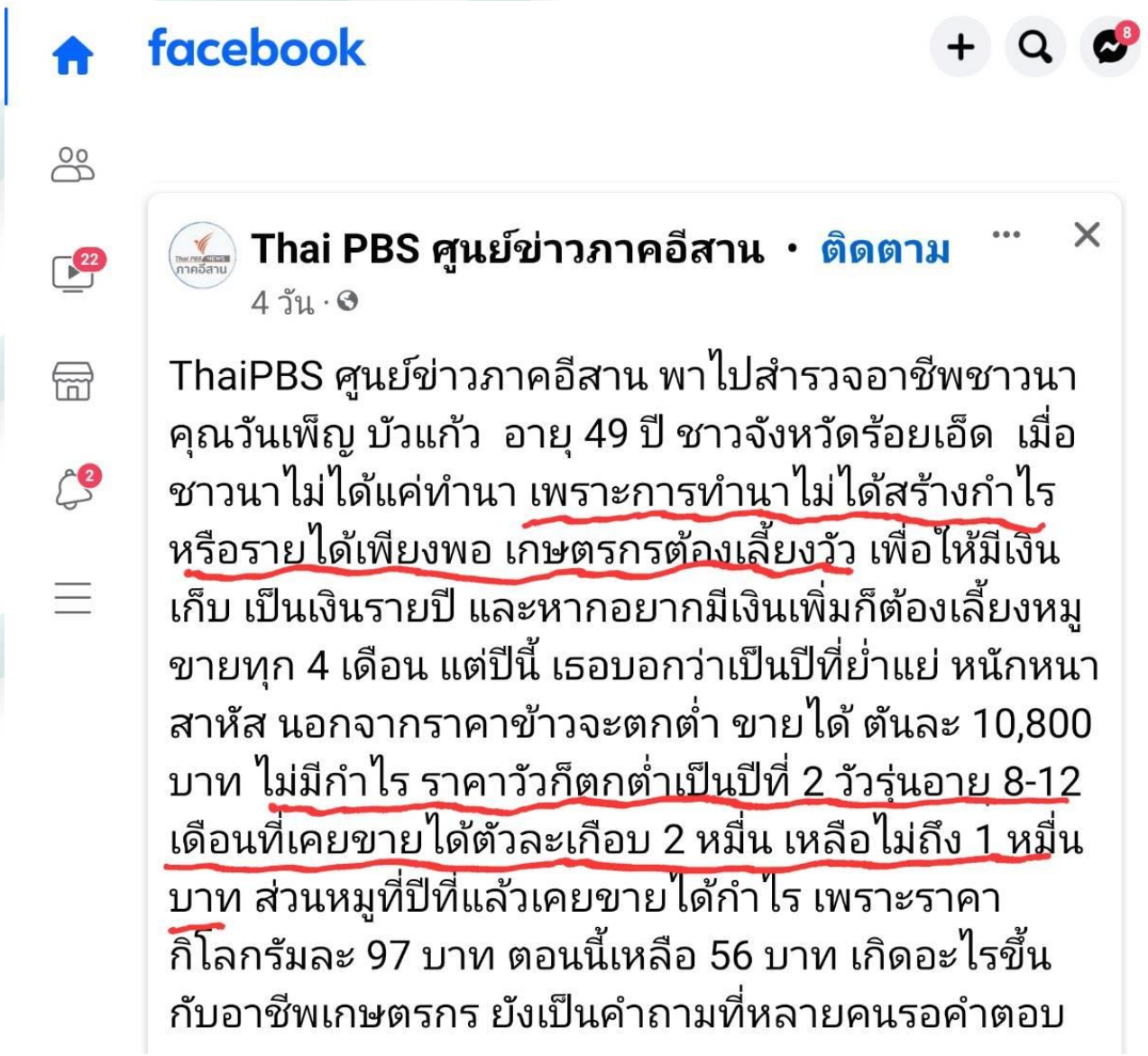
เศรษฐศาสตร์เกษตรและทรัพยากร
มหาวิทยาลัยเกษตรศาสตร์

01123362

Economics of livestock and management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4 วัน ·
ThaiPBS ศูนย์ข่าวภาคอีสาน พาไปสำรวจอาชีพชาวนา คุณวันเพ็ญ บัวแก้ว อายุ 49 ปี ชาวจังหวัดร้อยเอ็ด เมื่อชาวนาไม่ได้แค่ทำนา เพราะการทำนาไม่ได้สร้างกำไร หรือรายได้เพียงพอ เกษตรกรต้องเลี้ยงวัว เพื่อให้มีเงินเก็บ เป็นเงินรายปี และหากอยากมีเงินเพิ่มก็ต้องเลี้ยงหมูขายทุก 4 เดือน แต่ปีนี้ เธอบอกว่าเป็นปีที่ย่ำแย่ หนักหนาสาหัส นอกจากราคาข้าวจะตกต่ำ ขายได้ ตันละ 10,800 บาท ไม่มีกำไร ราคาวัวก็ตกต่ำเป็นปีที่ 2 วัวรุ่นอายุ 8-12 เดือนที่เคยขายได้ตัวละเกือบ 2 หมื่น เหลือไม่ถึง 1 หมื่นบาท ส่วนหมูที่ปีที่แล้วเคยขายได้กำไร เพราะราคากิโลกรัมละ 97 บาท ตอนนี้เหลือ 56 บาท เกิดอะไรขึ้นกับอาชีพเกษตรกร ยังเป็นคำถามที่หลายคนรอคำตอบ

เศรษฐศาสตร์ปศุสัตว์และการจัดการ
Economics of Livestock and Management

Course description

- ความสำคัญและบทบาทของภาคปศุสัตว์ในระบบเศรษฐกิจ
- ทฤษฎีเศรษฐศาสตร์ที่เกี่ยวข้องกับการผลิตและการค้าปศุสัตว์
- หลักการจัดการฟาร์มปศุสัตว์
- การจัดการอาหารสัตว์
- นโยบายปศุสัตว์และมาตรการทางกฎหมายการวิเคราะห์เศรษฐกิจปศุสัตว์
- การวิเคราะห์ต้นทุนและผลตอบแทน
- การวิเคราะห์ความคุ้มค่าในการลงทุน
- ผลกระทบด้านสิ่งแวดล้อมจากการผลิตปศุสัตว์
- ความเสี่ยงและการบริหารจัดการความเสี่ยงในโซ่อุปทานปศุสัตว์

Course objectives

- เพื่อให้นิสิตสามารถวิเคราะห์ผลกระทบทางเศรษฐกิจของการผลิตและการค้าปศุสัตว์โดยใช้เครื่องมืออย่างเหมาะสมได้
- เพื่อให้สามารถออกแบบการจัดการโครงการผลิตปศุสัตว์โดยใช้การวิเคราะห์ต้นทุน ผลประโยชน์ และความคุ้มค่าในการลงทุนโครงการผลิตปศุสัตว์ได้
- เพื่อให้นิสิตสามารถวิเคราะห์ผลกระทบของนโยบายและมาตรการด้านปศุสัตว์ต่อผู้บริโภคและผู้ประกอบการจากกรณีศึกษาได้ให้ทราบแนวทางในการขยายตลาดที่มีอยู่เดิมและการแสวงหาตลาดใหม่

Course outline

เนื้อหา	ระยะเวลา
บทที่ 1 ความสำคัญและบทบาทของภาคปศุสัตว์ต่อการพัฒนาเศรษฐกิจ	6
บทที่ 2 ทฤษฎีเศรษฐศาสตร์ที่เกี่ยวข้องกับการผลิตและการค้าปศุสัตว์	3
บทที่ 3 การจัดการฟาร์มปศุสัตว์	3
บทที่ 4 การจัดการอาหารสัตว์	3
บทที่ 5 นโยบายปศุสัตว์และมาตรการทางกฎหมาย	3
บทที่ 6 ผลกระทบด้านสิ่งแวดล้อมจากการผลิตปศุสัตว์	3
บทที่ 7 การวิเคราะห์ต้นทุน ผลตอบแทน และความคุ้มค่าในการลงทุนการผลิตปศุสัตว์	6
บทที่ 8 โซ่อุปทานอุตสาหกรรมการผลิตสุกรและผลิตภัณฑ์	3
บทที่ 9 โซ่อุปทานอุตสาหกรรมการผลิตโคเนื้อ โคนมและผลิตภัณฑ์	6
บทที่ 10 โซ่อุปทานอุตสาหกรรมการผลิตไก่เนื้อ ไก่ไข่และผลิตภัณฑ์	6
บทที่ 11 โซ่อุปทานอุตสาหกรรมการผลิตสัตว์เศรษฐกิจอื่น ๆ	3

กลางภาค

ปลายภาค

การวัดผลสัมฤทธิ์ในการเรียน

	จำนวนเปอร์เซ็นต์
สอบ	50
- สอบกลางภาค	25
- สอบปลายภาค	25
รายงานกลุ่ม	30
รายงานเดี่ยว	10
การมีส่วนร่วมในชั้นเรียน	10
รวม	100

การประเมินผลการเรียน

ใช้วิธีตัดเกรดแบบอิงเกณฑ์ร่วมกับอิงกลุ่ม

การเข้าพบนอกเวลาเรียน

นัดหมายล่วงหน้าทางเมล

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หรือ

MS Teams ประจำวิชา

- **Microeconomics**
  - Demand & Supply
  - Price
  - Elasticity
  - Welfare
  - etc.

- Cow
- Cattle
- Buffalo
- Pig
- Goat
- Sheep

- Poultry
- Hen
- Boiler
- Duck
- Bird
- Insects?

Farm and business

Economics of Livestock and Management

Any animals for use or profit

- **Macroeconomics**
  - Inflation
  - exchange rate
  - Employment
  - etc.

Food and Agriculture Organization of the United Nations

CHAPTER THREE

Global livestock production systems: Classification, status, and future trends

Hari Om Pandey[a] and Deepak Upadhyay[b]
[a]ICAR-Indian Veterinary Research Institute, Bareilly, Uttar Pradesh, India
[b]ICAR-Indian Grassland and Fodder Research Institute, Jhansi, Uttar Pradesh, India

- Using area almost 30% of planet (Steinfeld et al., 2006)
- Global asset value at least $1.4 trillion (Thornton, 2010)
- Livestock sector employs at least 1.3 billion people (Thornton et al., 2006)

LIVESTOCK PRODUCTION ACCOUNTS FOR **20–24% OF AGRICULTURAL GDP** IN DEVELOPED AND DEVELOPING COUNTRIES

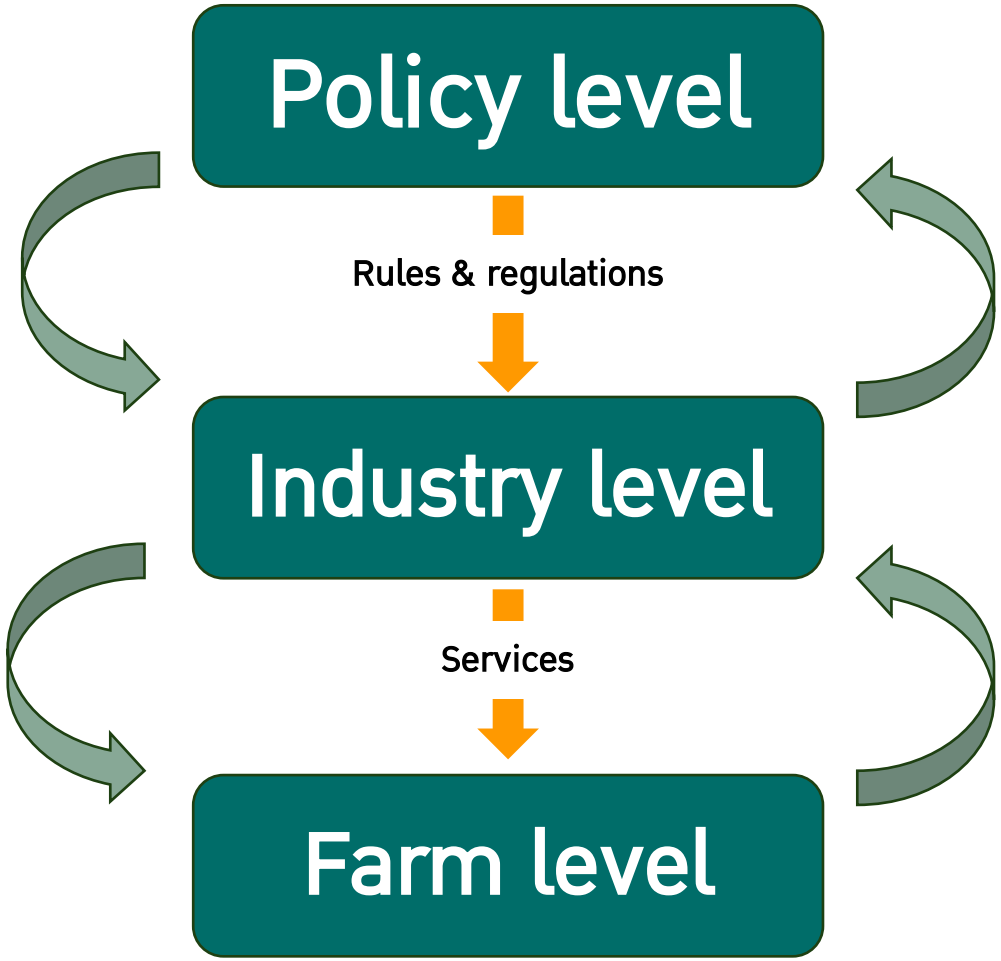
GLOBALLY, LIVESTOCK PROVIDE **34% OF PROTEIN INTAKE AND 18% OF DIETARY ENERGY,** BUT THIS IS NOT EQUITABLY DISTRIBUTED

600 MILLION OF THE WORLD'S POOREST HOUSEHOLDS KEEP LIVESTOCK AS AN ESSENTIAL SOURCE OF INCOME

Sources: Besbes, B., Alary, V. & Baltenweck, I., 2019. Livestock sector investment and policy toolkit (lsipt), making responsible decisions. FAO. https://www.fao.org/3/ca6335en/CA6335EN.pdf


LIVESTOCK

The livestock sector

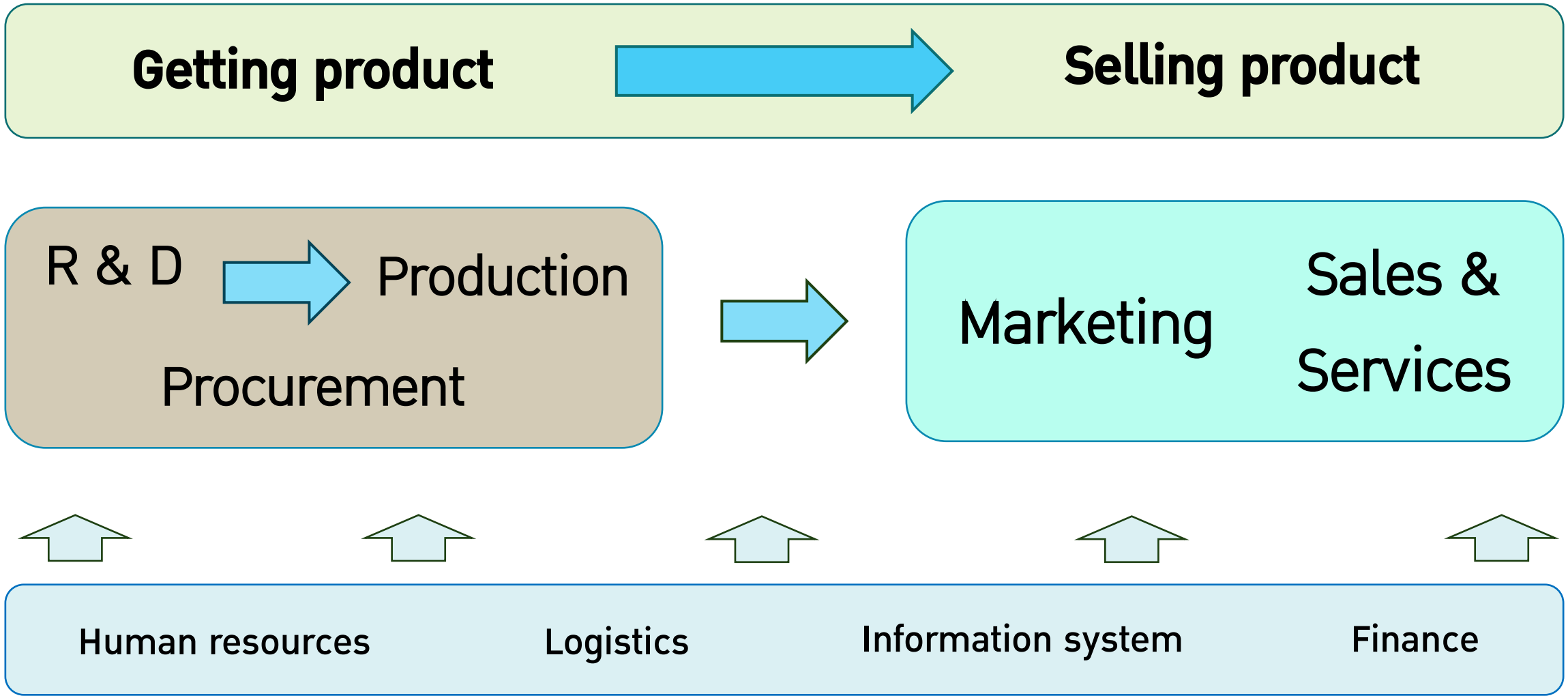


- International agreements
- Law & Legislation
- Political priorities
- Policy & planning

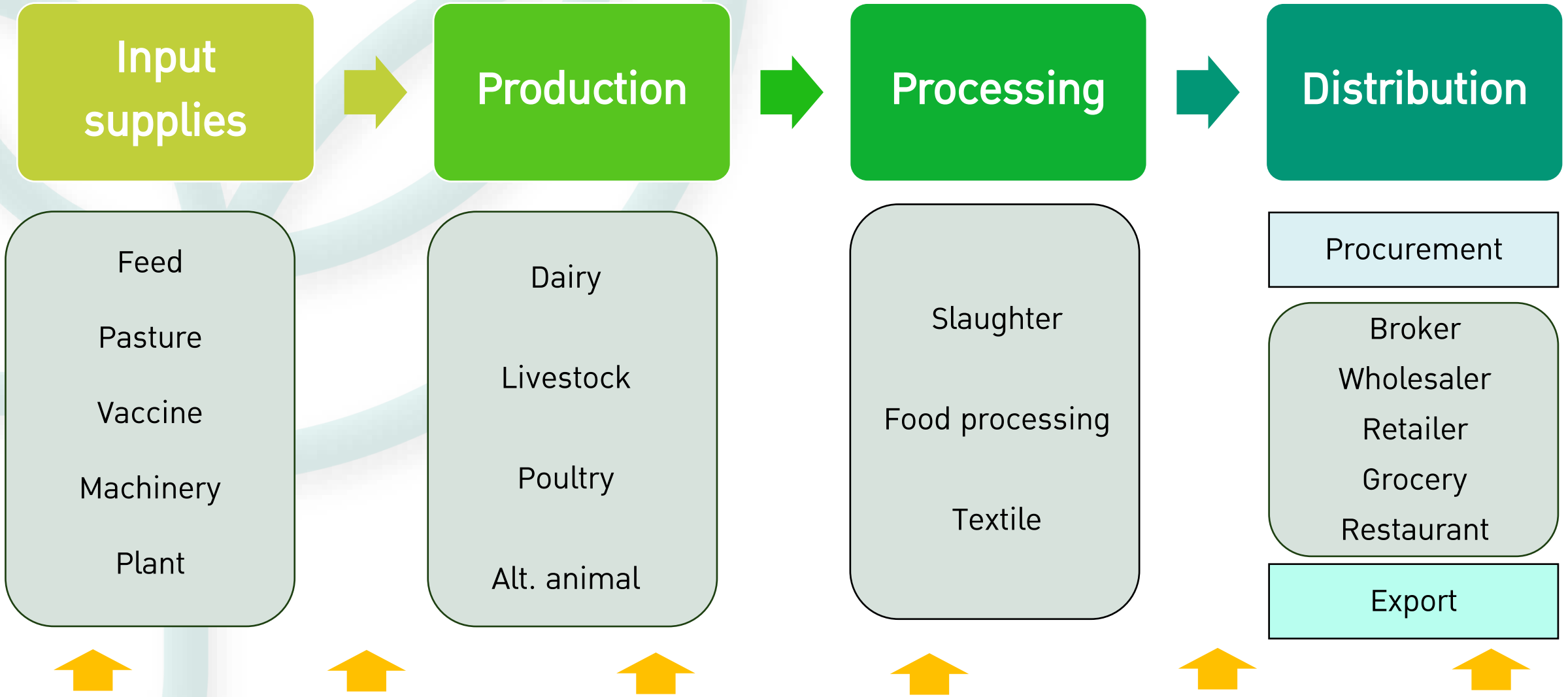
- Farmer organisations
- Organisations
- Services and research institution
- Agricultural credit institution

- Communities
- Household
- Individual

KEY Business and Activities

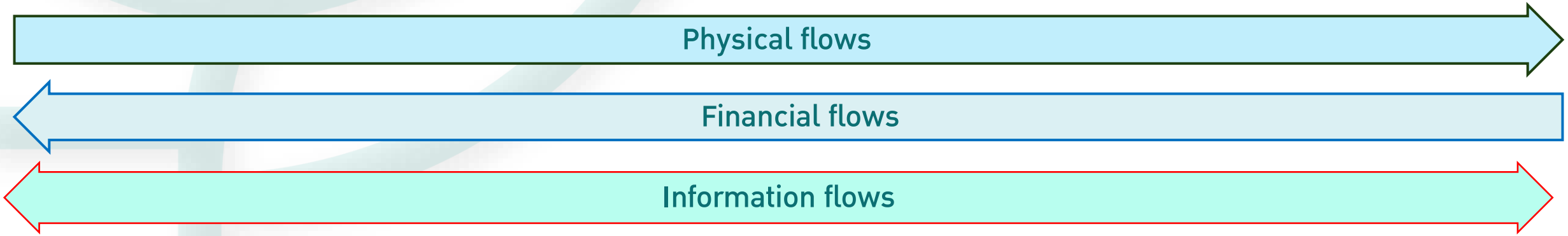


ภาพรวมธุรกิจเกษตร

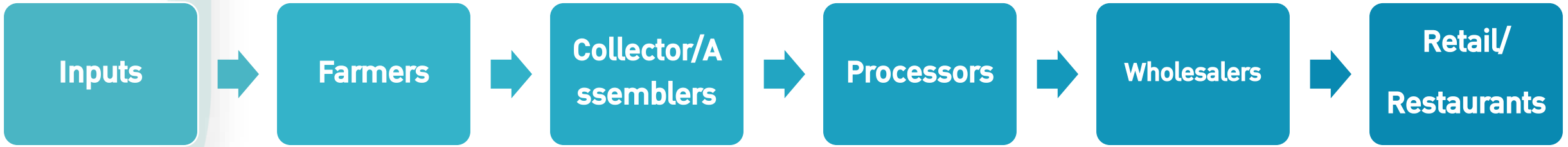


Supply chain concept

Business



Agribusiness



เศรษฐศาสตร์เกษตรและทรัพยากร
มหาวิทยาลัยเกษตรศาสตร์

Chapter 1
The importance and role of the livestock sector in economic development

Outline

1. Situation of global production and consumption
2. Situation of production and consumption in Thailand
3. Trade of livestock and products

เศรษฐศาสตร์เกษตร
และทรัพยากร
มหาวิทยาลัยเกษตรศาสตร์

1. Livestock situation of global production and consumption

FAO focusing on…

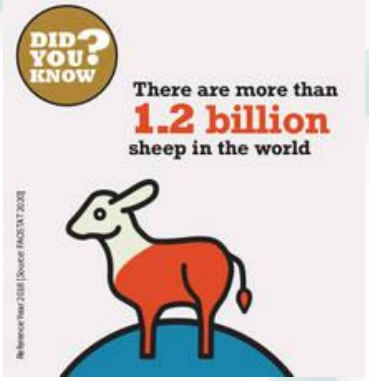
- Water buffalo
- Wild African buffalo

1. Cattle

2. Chickens

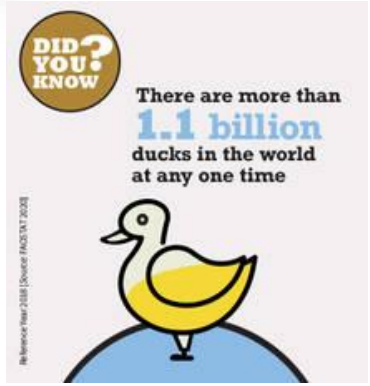
3. Pigs

4. Buffaloes

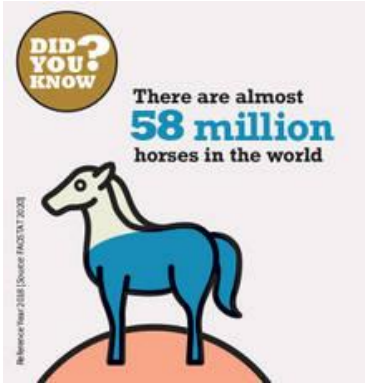


5. Sheep

6. Goats



7. Ducks



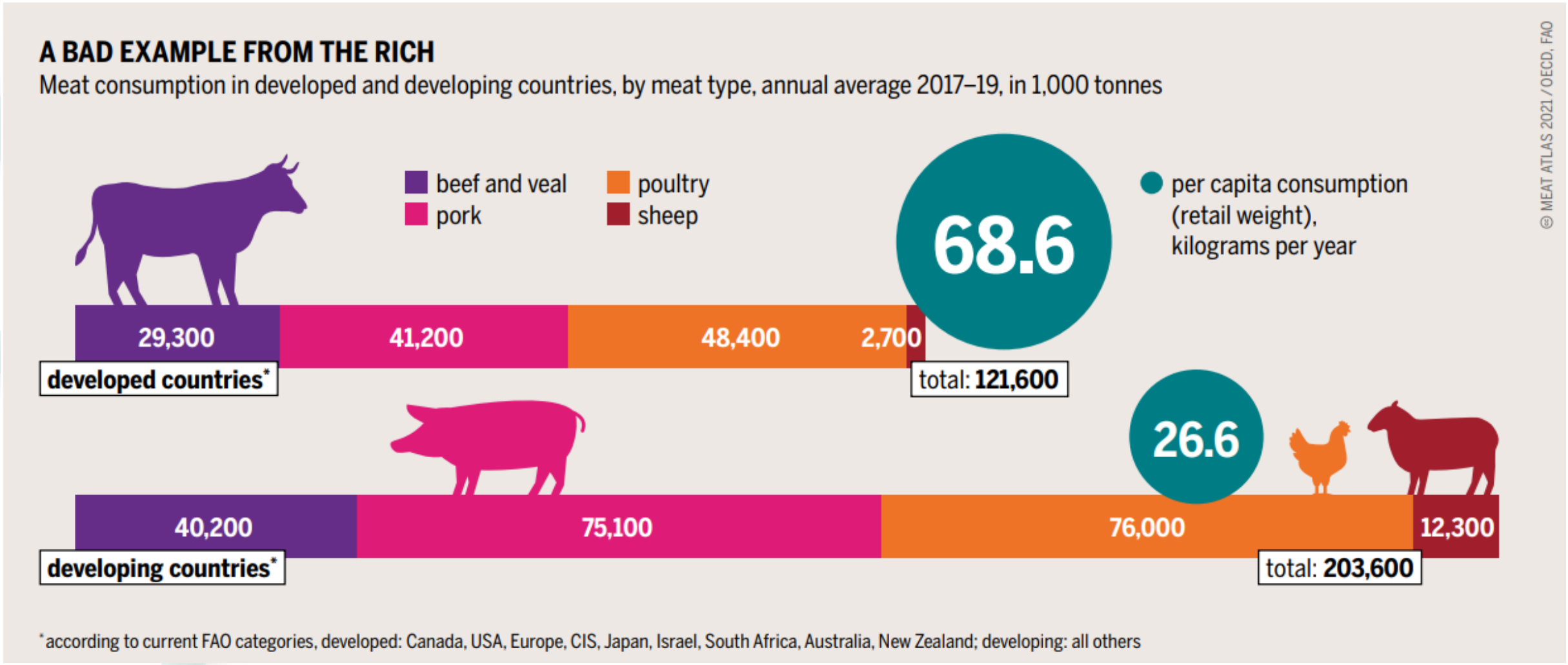
8. Horses

Livestock commodities included in the FAO projections

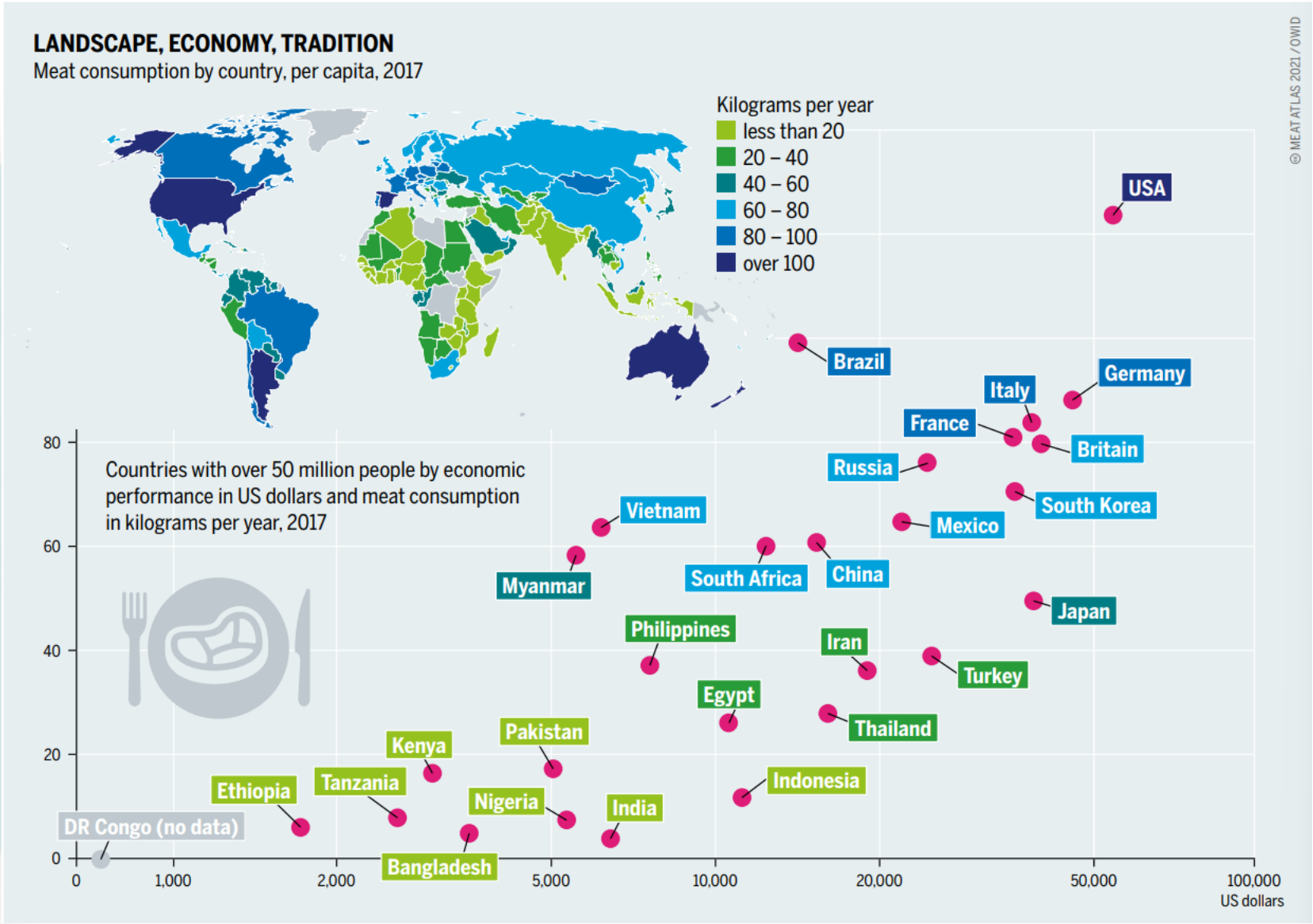
Commodity groupings
Beef, veal and buffalo meat
Mutton, lamb and goat meat
Pig meat
Poultry meat
Milk and dairy products (whole milk equivalent)
Eggs

Source: Alexandratos (1995)

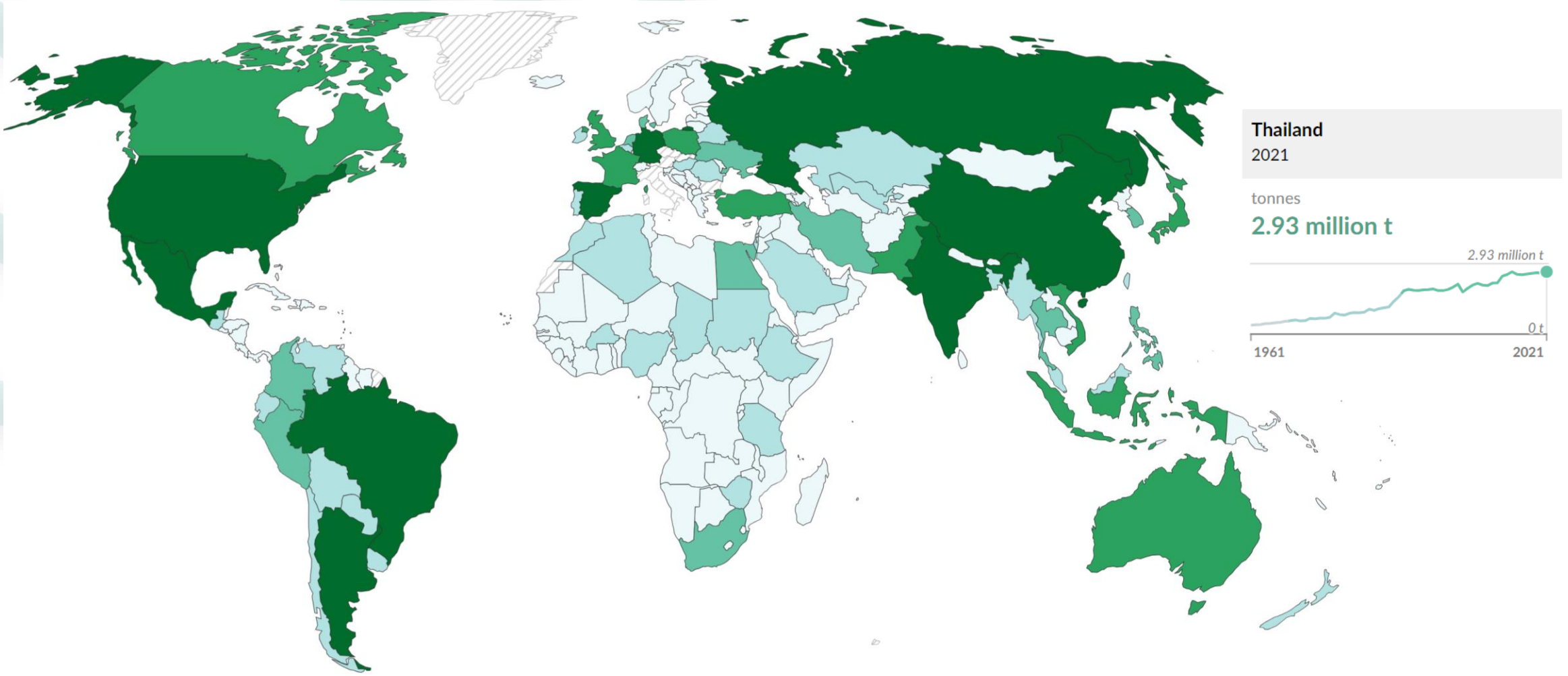
Meat consumption in developed and developing countries



Meat consumption 2017

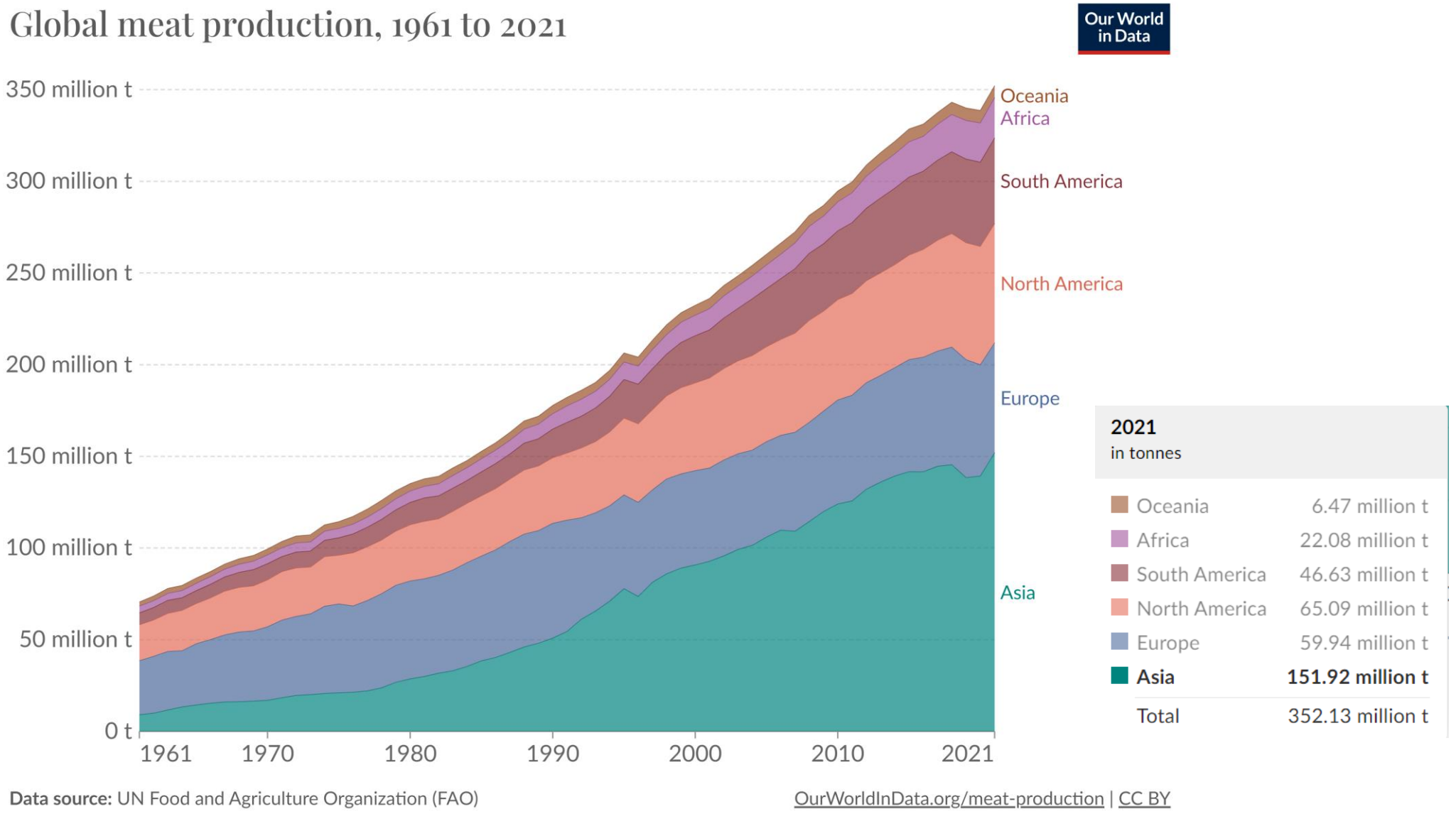


Global meat production in 2021



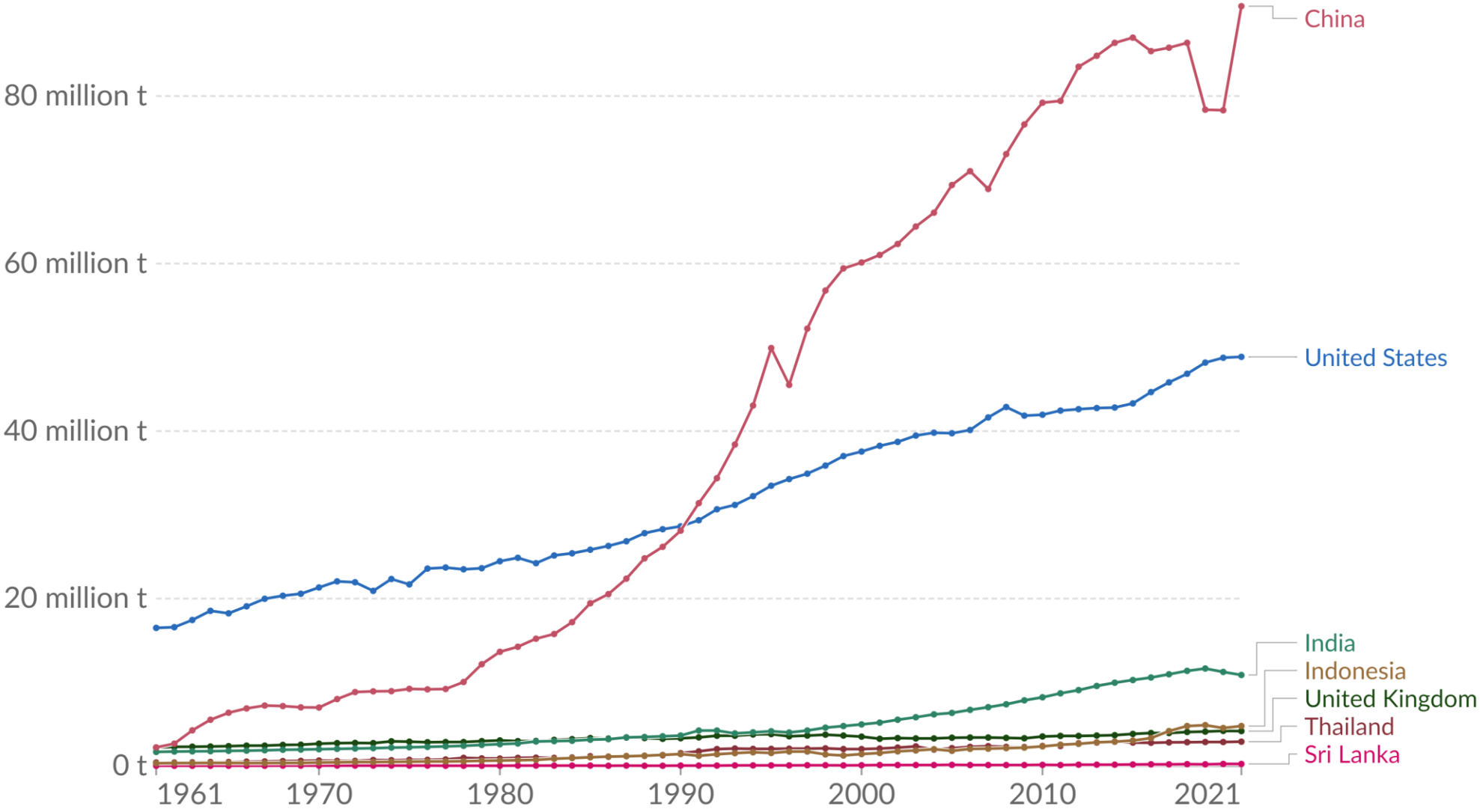
Data source: UN Food and Agriculture Organization (FAO)

Global meat production, 1961 - 2021



Meat production, 1961 to 2021

Meat includes cattle, poultry, sheep/mutton, goat, pigmeat, and wild game.

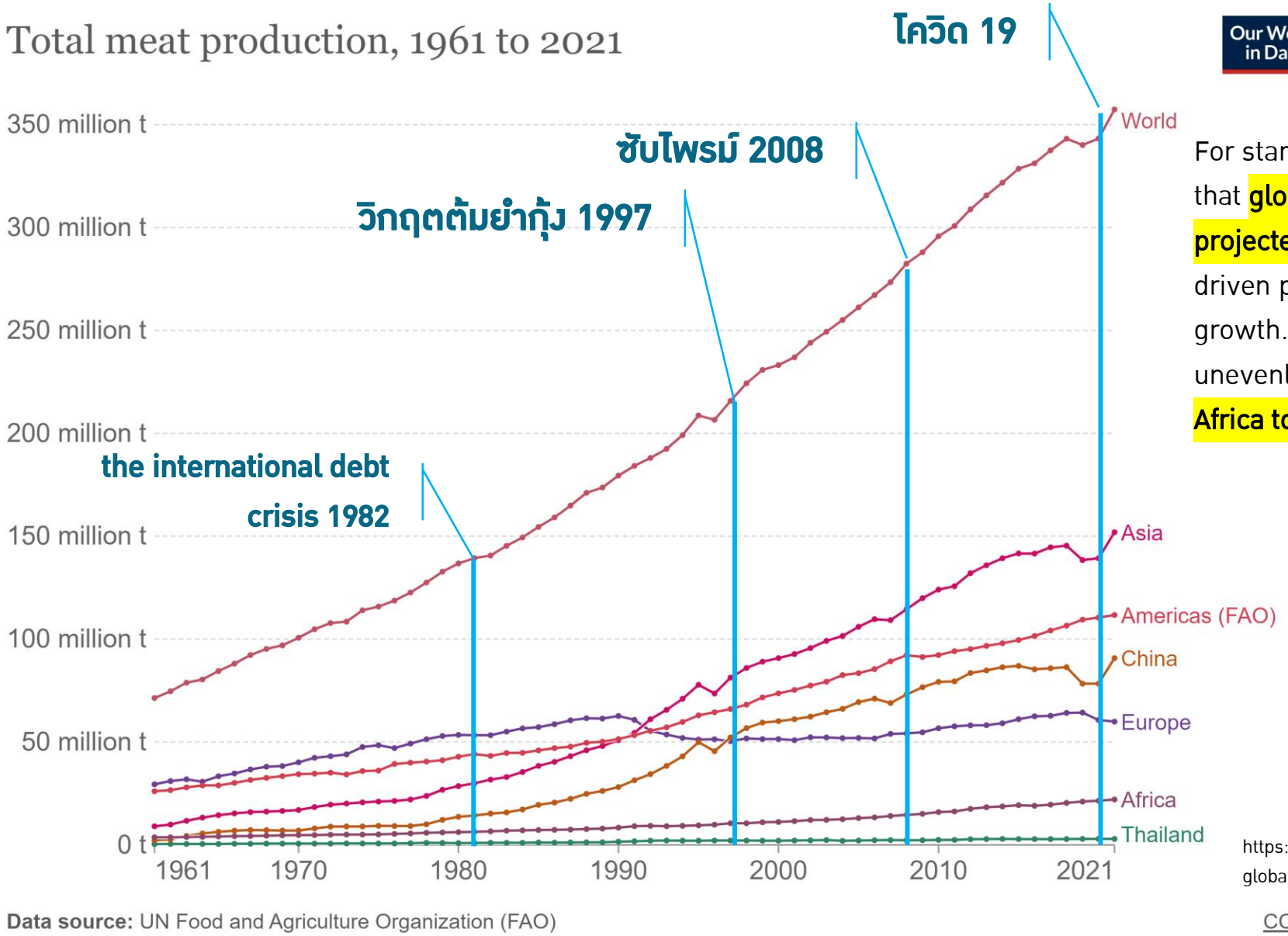


Data source: UN Food and Agricultural Organization (FAO)

Note: Figures are given in terms of dressed carcass weight, excluding offal and slaughter fats.

OurWorldInData.org/meat-production | CC BY

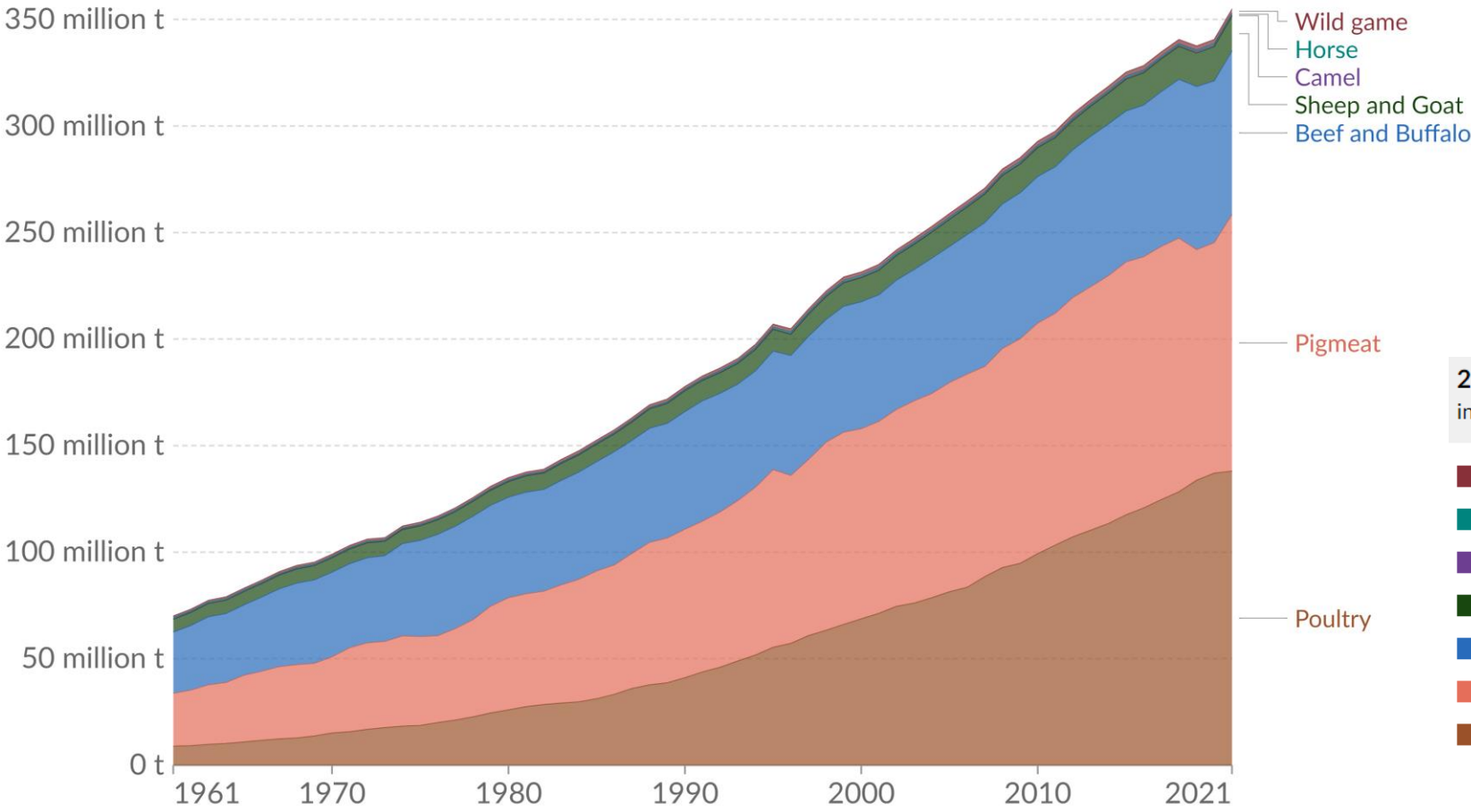
Global meat production, 1961 - 2021



For starters, the UN estimates that **global meat consumption is projected to rise 14% by 2030,** driven primarily by population growth. That growth will occur unevenly, from **a 30% jump in Africa to a 0.4% in Europe**.

https://www.visualcapitalist.com/cp/mapped-global-livestock-distribution-and-density/

Meat production by livestock type, World, 1961 to 2021



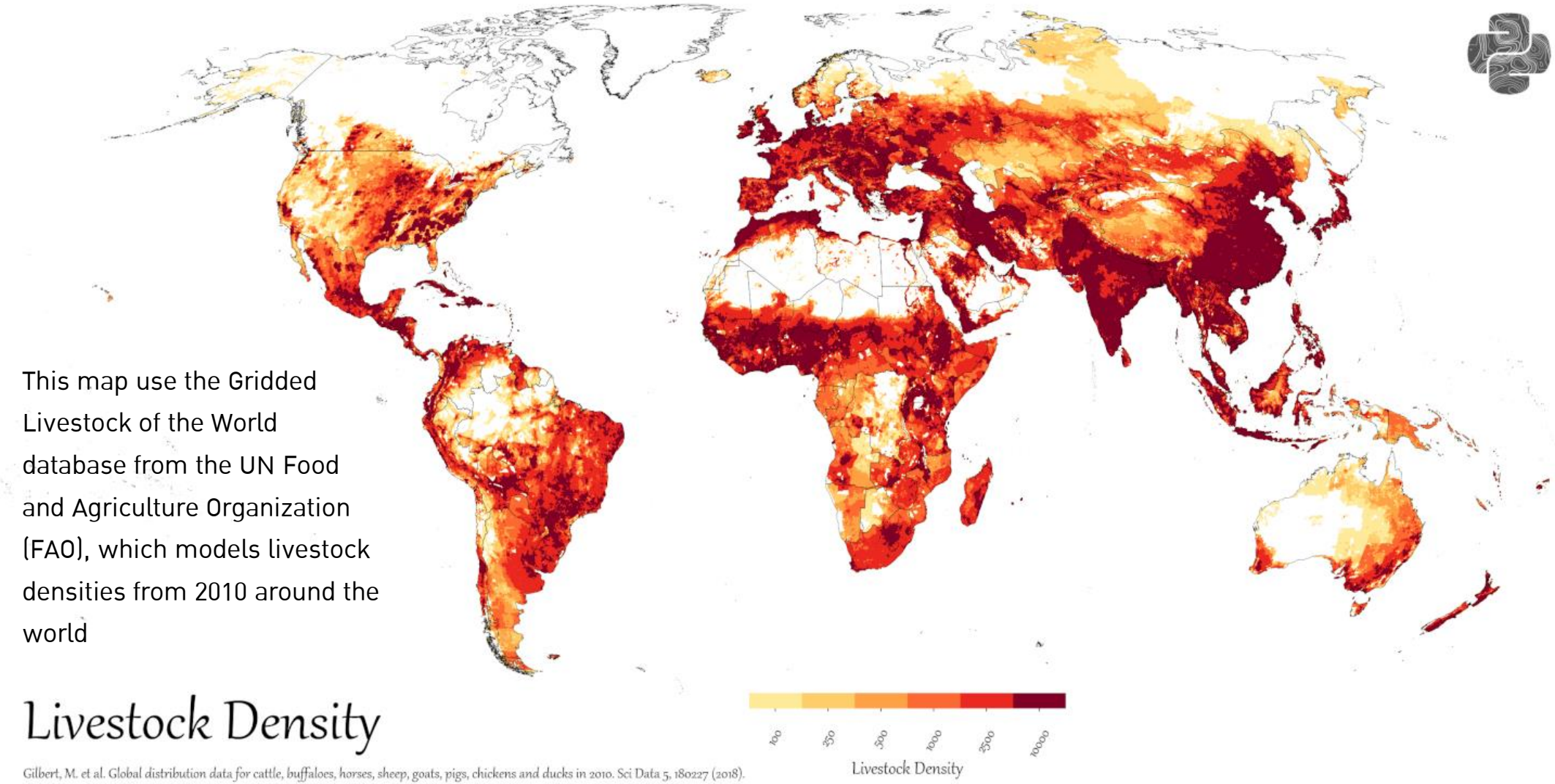
2021
in tonnes

Wild game	2.01 million t
Horse	730,887.75 t
Camel	602,644.75 t
Sheep and Goat	16.36 million t
Beef and Buffalo	76.77 million t
Pigmeat	120.37 million t
Poultry	137.98 million t
Total	354.82 million t

Data source: Food and Agriculture Organization of the United Nations OurWorldInData.org/meat-production | CC BY

Note: Total meat production includes both commercial and farm slaughter. Data are given in terms of dressed carcass weight, excluding offal and slaughter fats.

Mapped: Global Livestock Distribution and Density, 2010

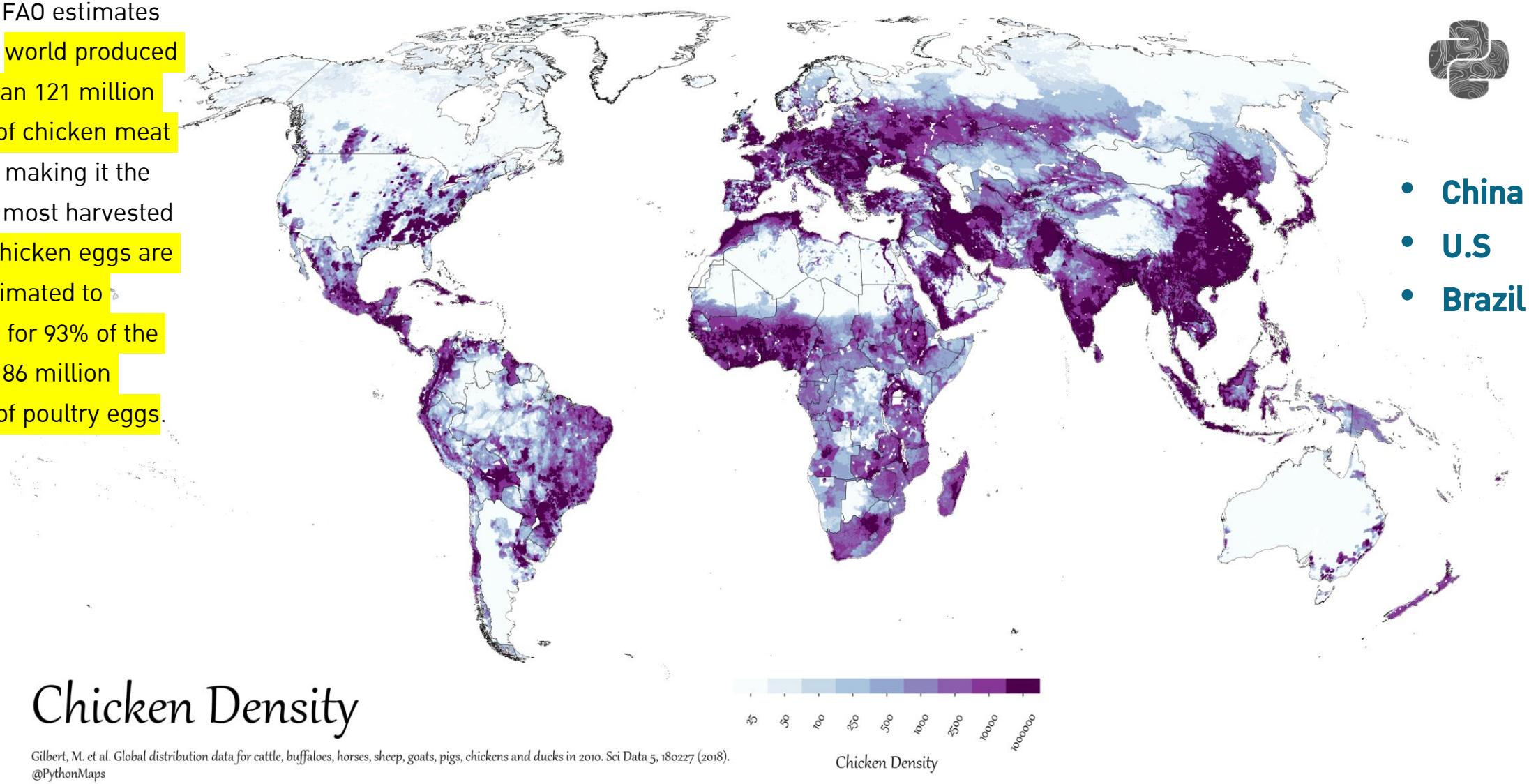


This map use the Gridded Livestock of the World database from the UN Food and Agriculture Organization (FAO), which models livestock densities from 2010 around the world

By Adam Symington

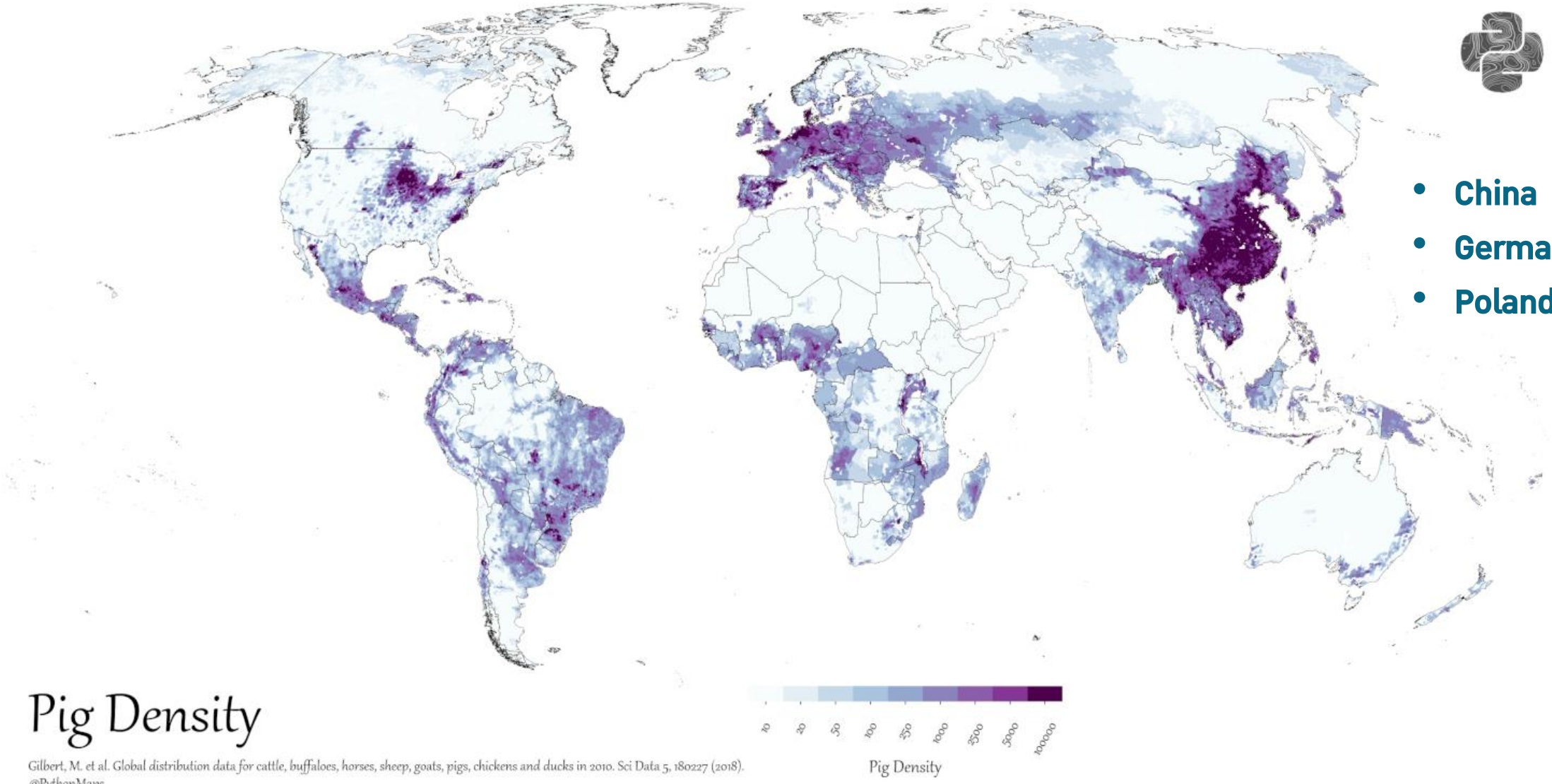
Chicken Livestock Density, 2010

The UN FAO estimates that the world produced more than 121 million tonnes of chicken meat in 2021, making it the world's most harvested meat. Chicken eggs are also estimated to account for 93% of the world's 86 million tonnes of poultry eggs.



- China
- U.S
- Brazil

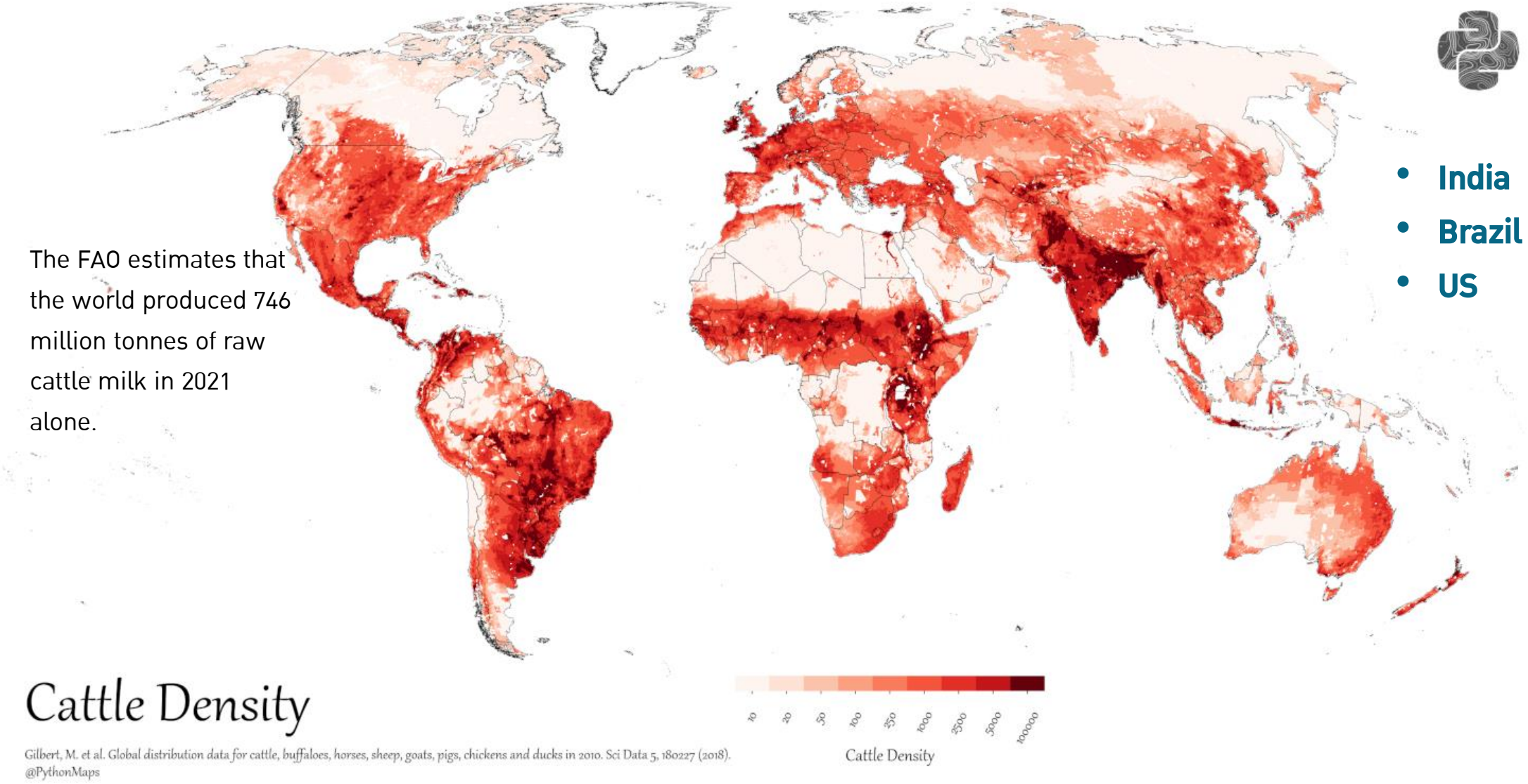
Pig Livestock Density, 2010



- China
- Germany
- Poland

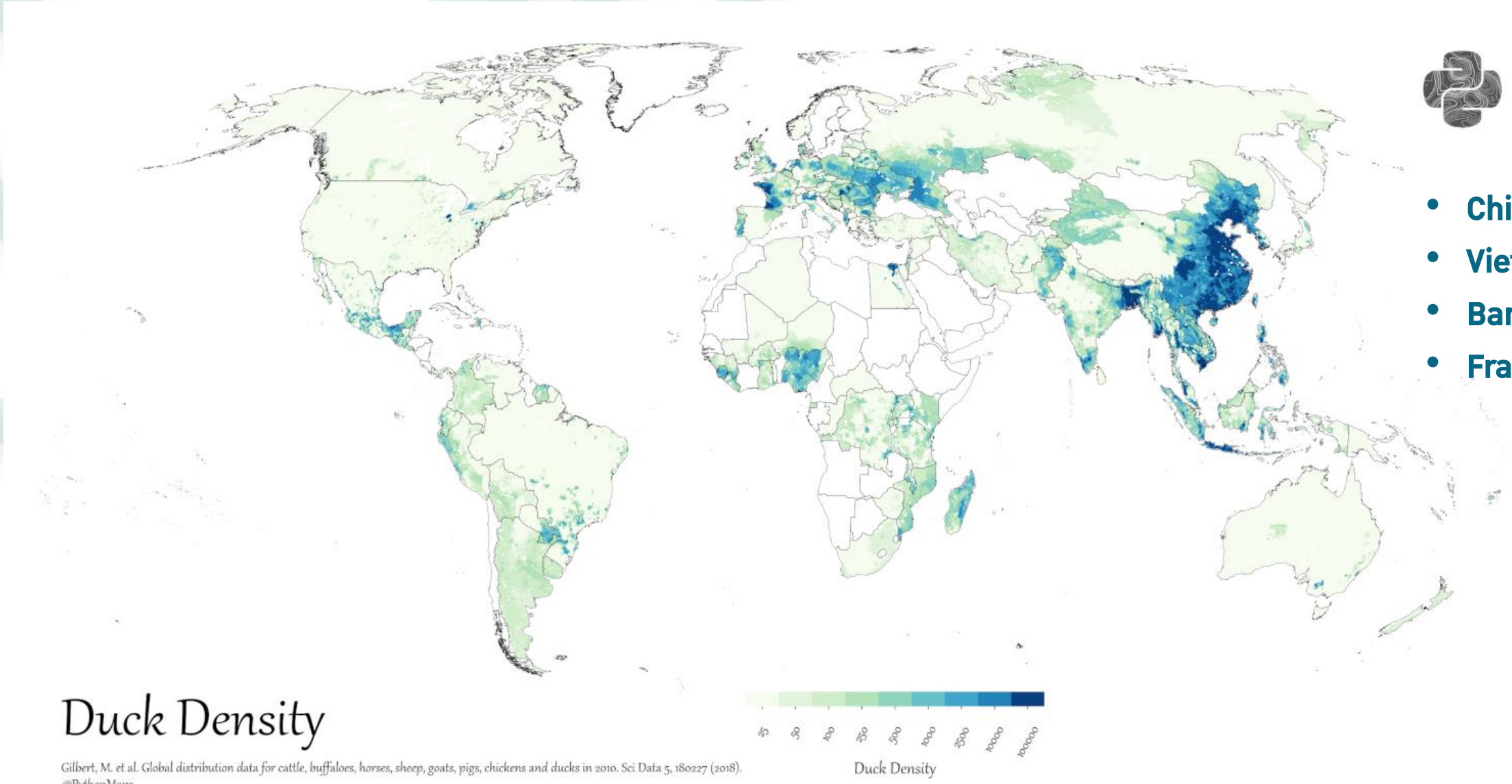
Cattle Livestock Density, 2010

- The FAO estimates that the world produced 746 million tonnes of raw cattle milk in 2021 alone.



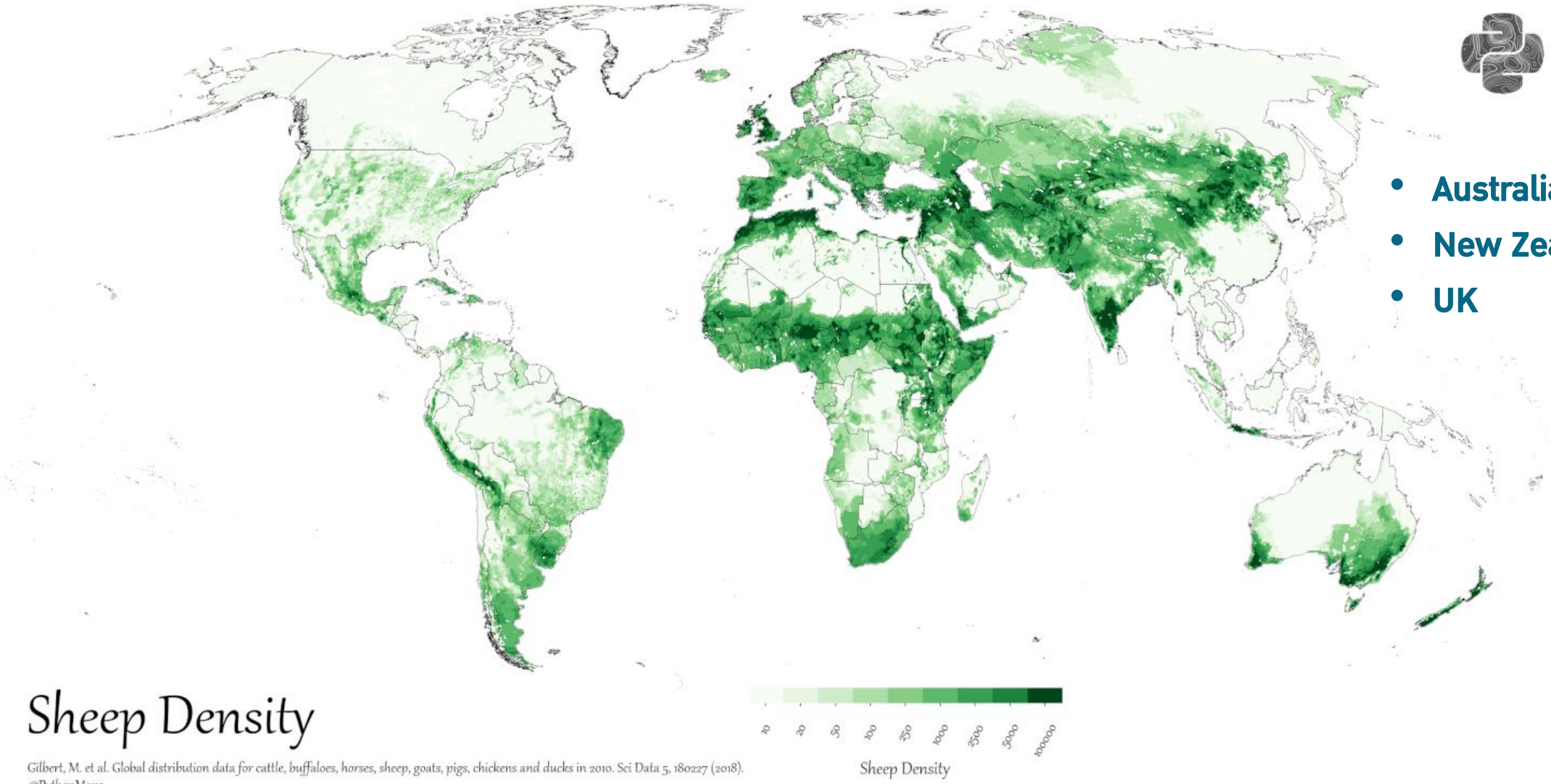
- **India**
- **Brazil**
- **US**

Duck Livestock Density, 2010



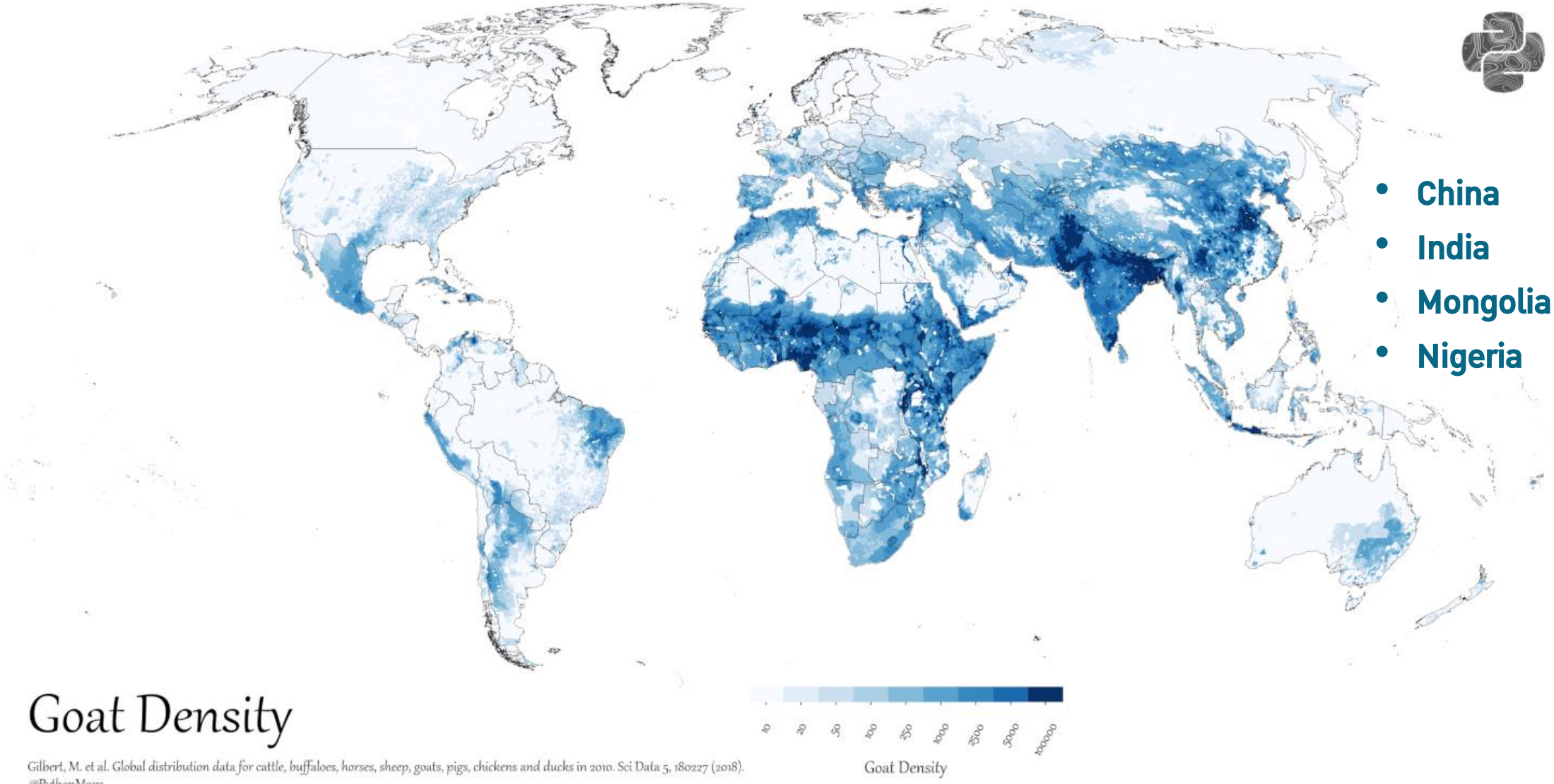
- China
- Vietnam
- Bangladesh
- France

Sheep Livestock Density, 2010



- Australia
- New Zealand
- UK

Goat Livestock Density, 2010



- China
- India
- Mongolia
- Nigeria

How many animals get slaughtered every day?


900,000 cows


1.4 million goats


1.7 million sheep


3.8 million pigs


11.8 million ducks

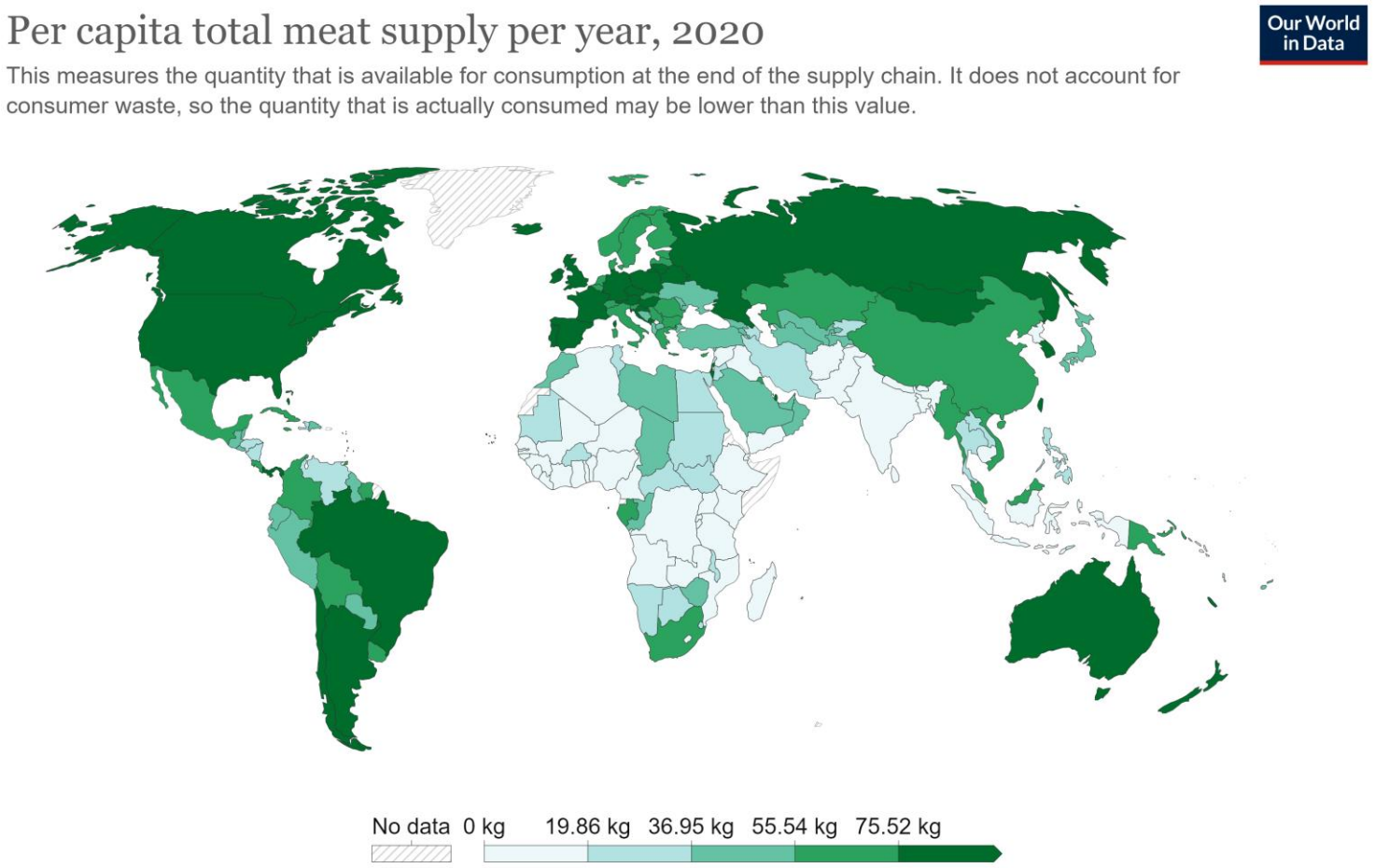

202 million chickens
This means that every average minute 140,000 chicken get slaughtered


Hundreds of millions of fish*

CC-BY by Max Roser

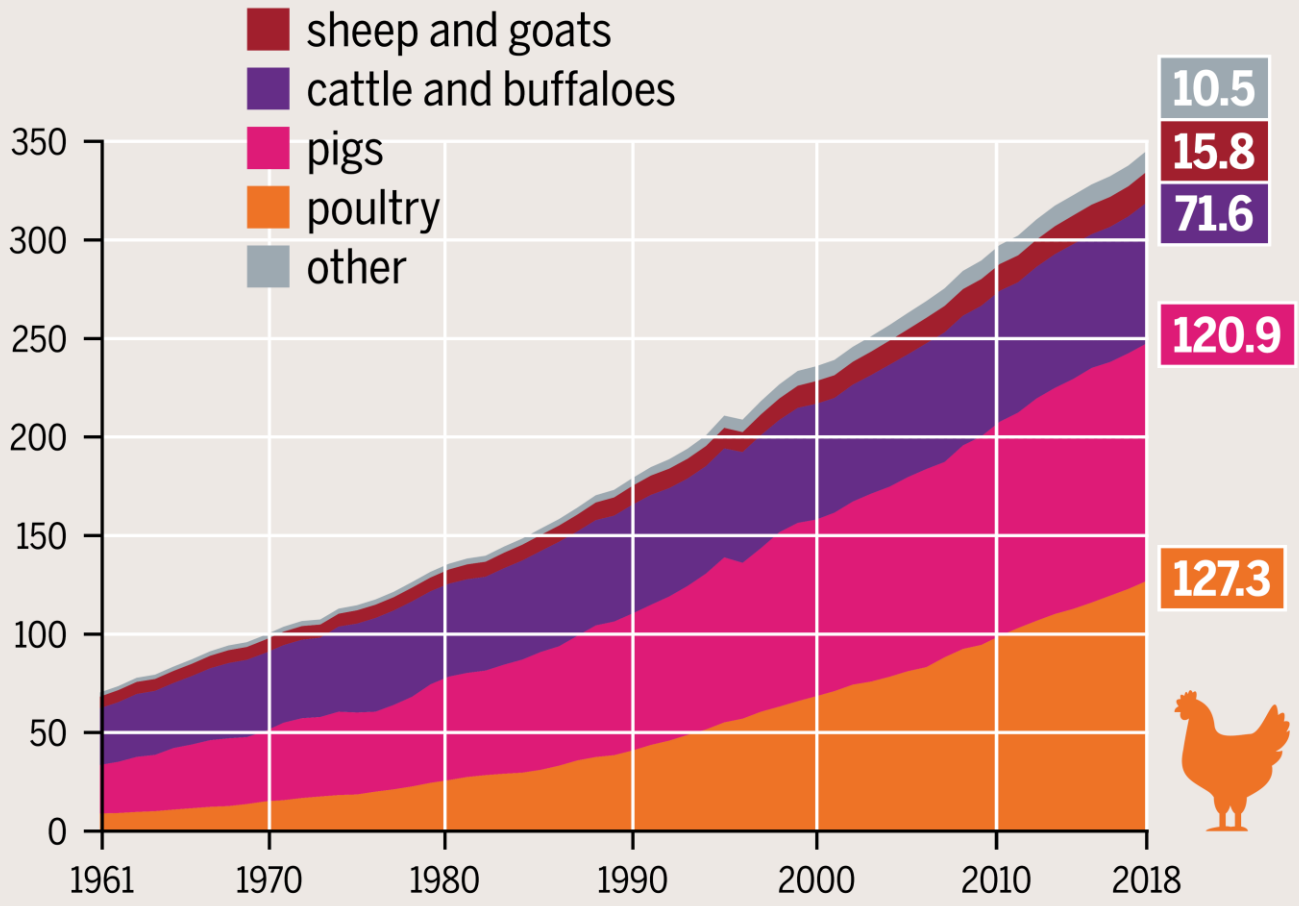
Max Roser (2023) - "How many animals get slaughtered every day?". Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/how-many-animals-get-slaughtered-every-day' [Online Resource]

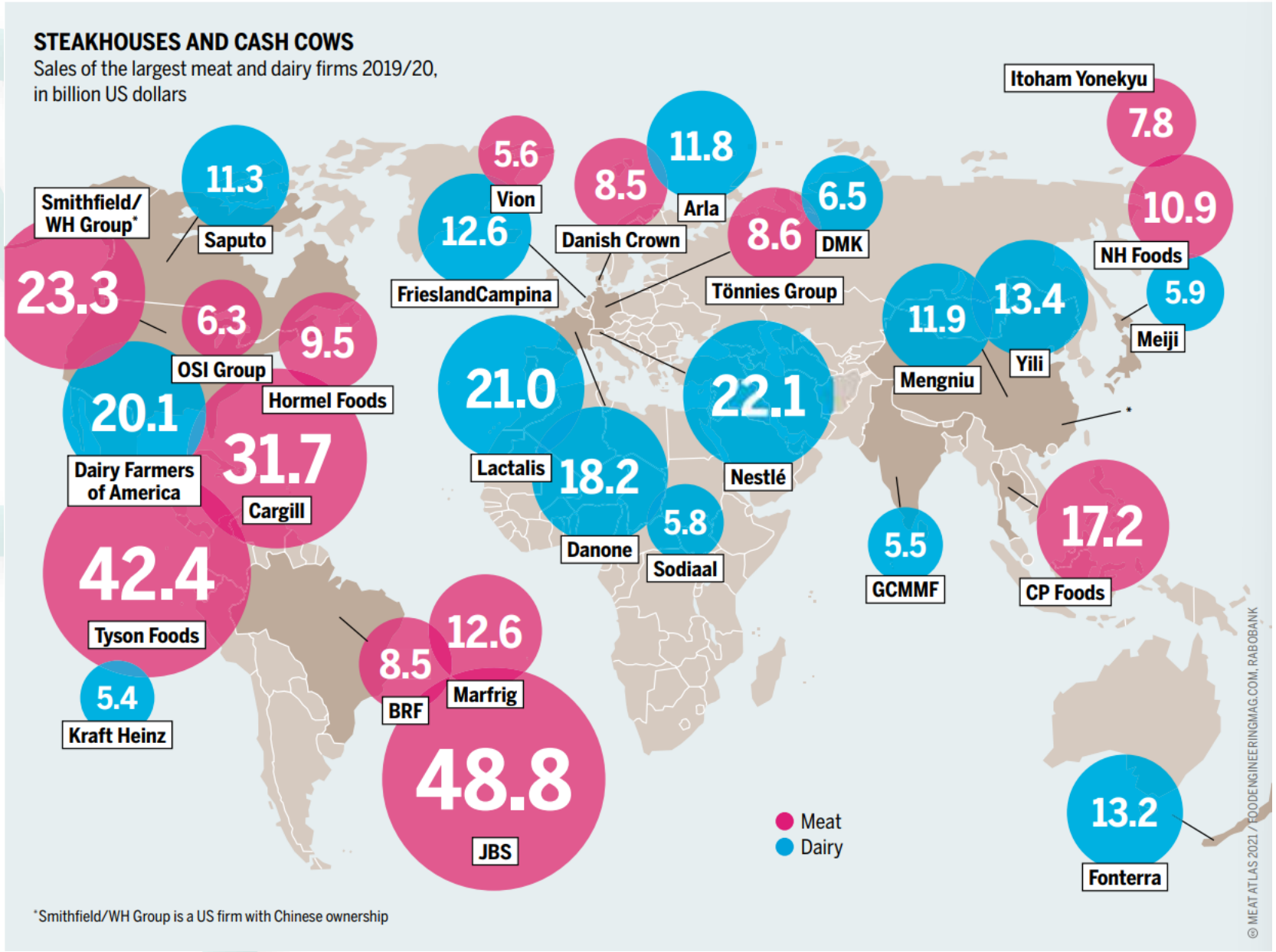
- The scale of humanity's meat consumption is enormous. 360 million tonnes of meat every year.

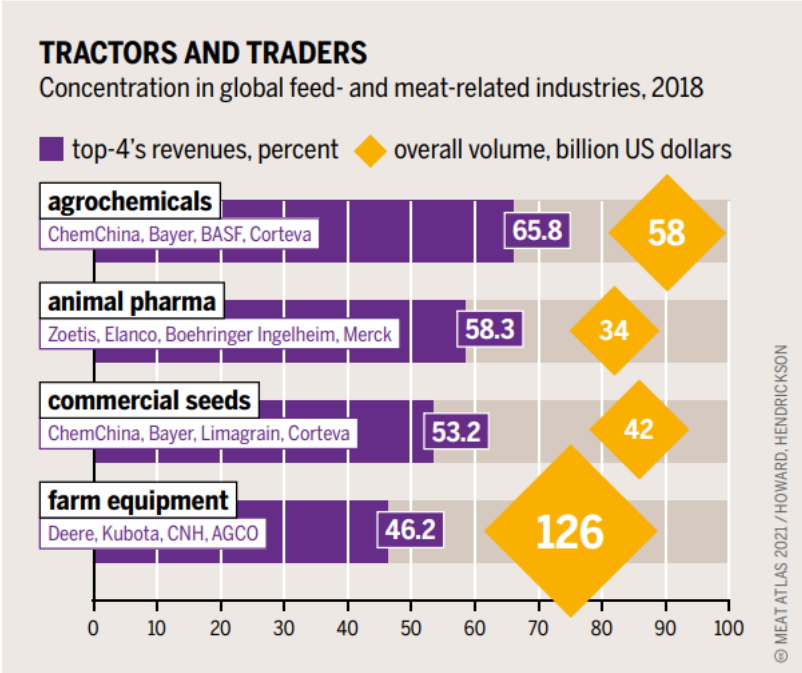


TOP OF THE PECKING ORDER

Increase in global consumption by type of meat, with bone, in million tonnes




STEAKHOUSES AND CASH COWS
Sales of the largest meat and dairy firms 2019/20, in billion US dollars
Smithfield/ WH Group*
23.3
11.3
Saputo
6.3
OSI Group
9.5
Hormel Foods
20.1
Dairy Farmers of America
31.7
Cargill
42.4
Tyson Foods
5.4
Kraft Heinz
5.6
Vion
12.6
FrieslandCampina
8.5
Danish Crown
11.8
Arla
8.6
6.5
DMK
Tönnies Group
21.0
Lactalis
18.2
Danone
22.1
Nestlé
5.8
Sodiaal
12.6
8.5
BRF
Marfrig
48.8
JBS
11.9
13.4
Yili
Mengniu
5.5
GCMMF
Itoham Yonekyu
7.8
10.9
NH Foods
5.9
Meiji
17.2
CP Foods
13.2
Fonterra
Meat
Dairy
*Smithfield/WH Group is a US firm with Chinese ownership
© MEAT ATLAS 2021 / FOODENGINEERINGMAG.COM, RABOBANK


TRACTORS AND TRADERS
Concentration in global feed- and meat-related industries, 2018
top-4's revenues, percent
overall volume, billion US dollars
agrochemicals
ChemChina, Bayer, BASF, Corteva
65.8
58
animal pharma
Zoetis, Elanco, Boehringer Ingelheim, Merck
58.3
34
commercial seeds
ChemChina, Bayer, Limagrain, Corteva
53.2
42
farm equipment
Deere, Kubota, CNH, AGCO
46.2
126
0
10
20
30
40
50
60
70
80
90
100
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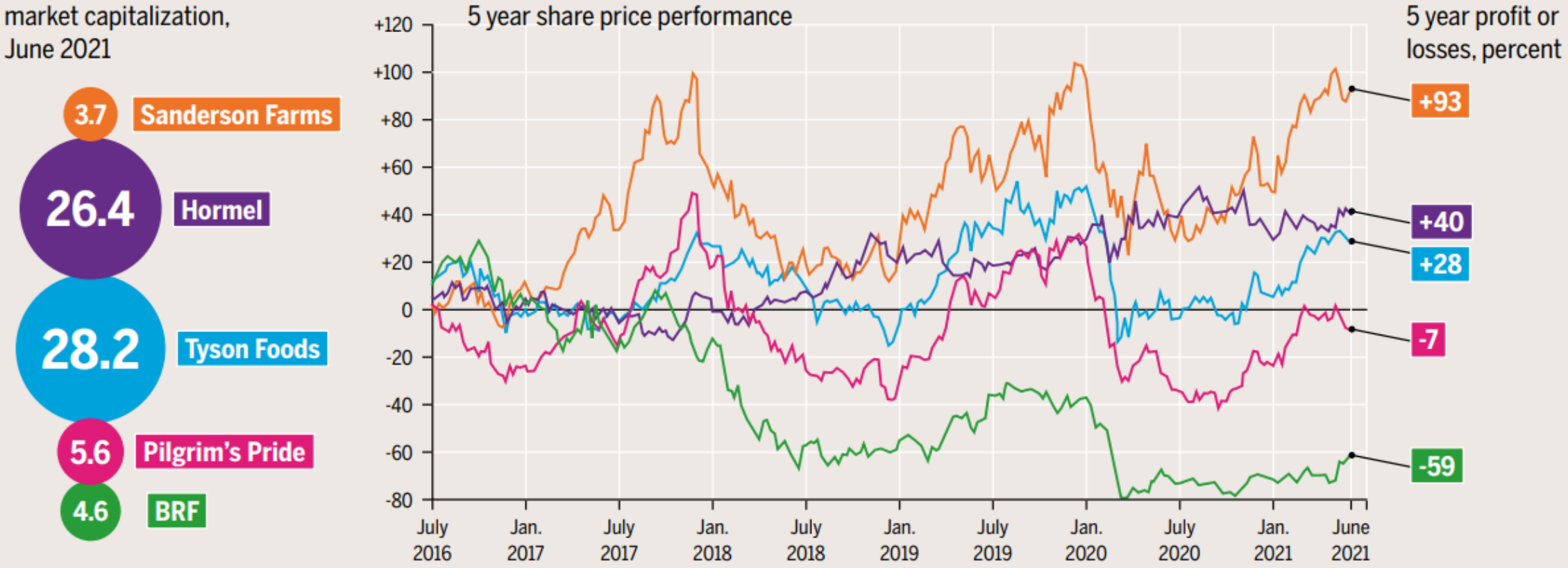
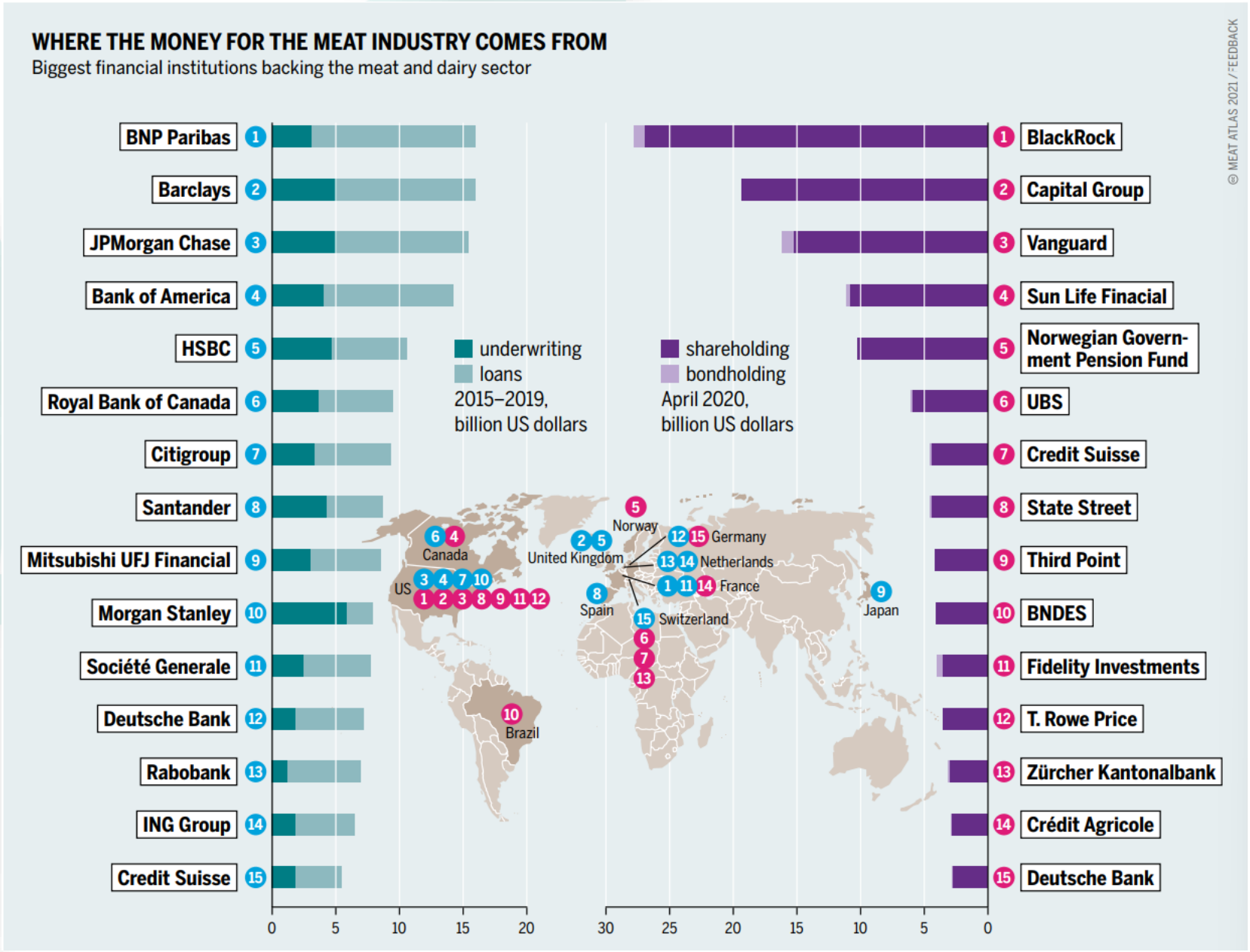
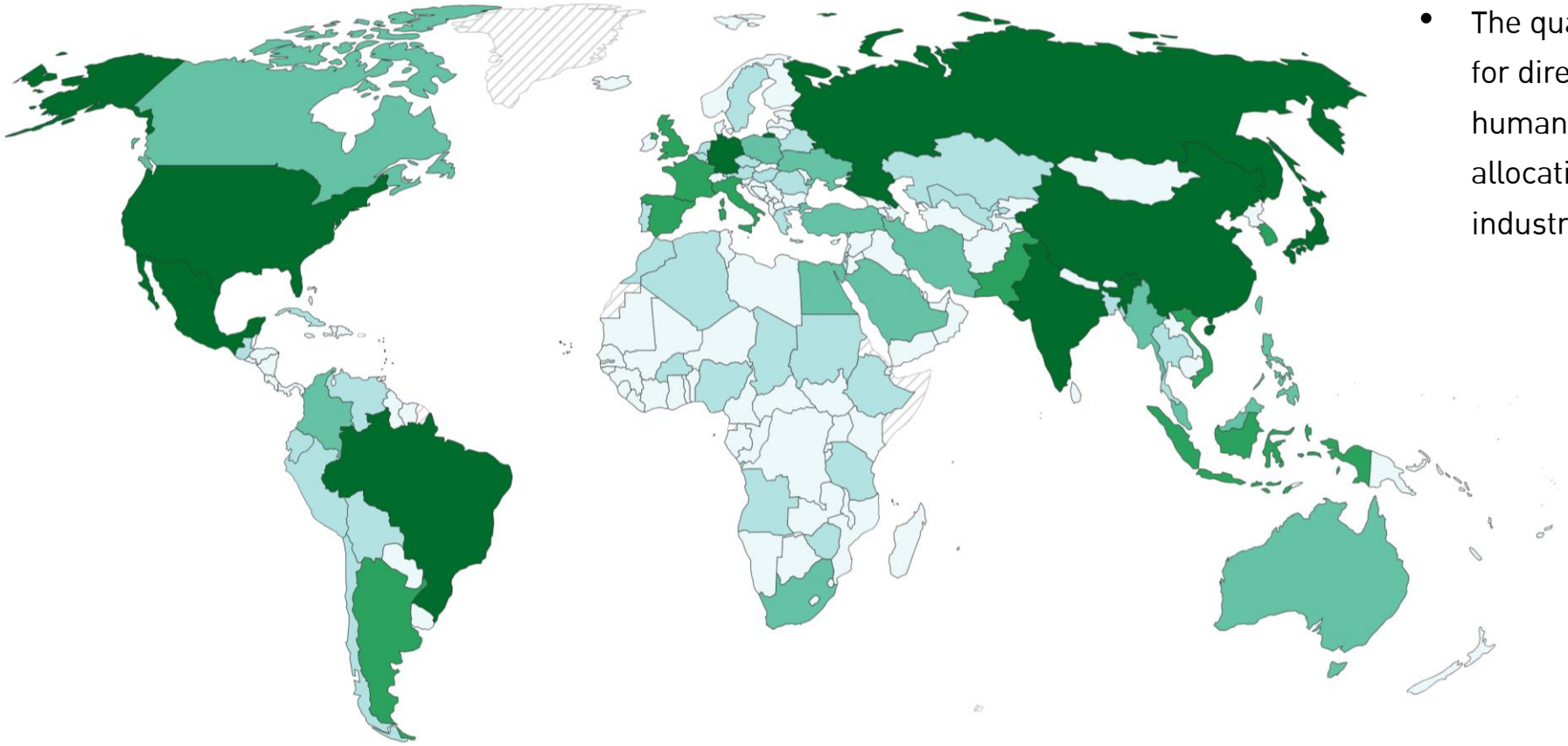
PRICES AND PROFITS – WHAT INVESTORS WANT ON THEIR PLATES

Basic stock exchange data for large meat product companies publicly traded in the USA




WHERE THE MONEY FOR THE MEAT INDUSTRY COMES FROM
Biggest financial institutions backing the meat and dairy sector
© MEAT ATLAS 2021 / FEEDBACK
BNP Paribas 1
Barclays 2
JPMorgan Chase 3
Bank of America 4
HSBC 5
Royal Bank of Canada 6
Citigroup 7
Santander 8
Mitsubishi UFJ Financial 9
Morgan Stanley 10
Société Generale 11
Deutsche Bank 12
Rabobank 13
ING Group 14
Credit Suisse 15
underwriting
loans
2015–2019,
billion US dollars
0 5 10 15 20
shareholding
bondholding
April 2020,
billion US dollars
30 25 20 15 10 5 0
1 BlackRock
2 Capital Group
3 Vanguard
4 Sun Life Finacial
5 Norwegian Govern-ment Pension Fund
6 UBS
7 Credit Suisse
8 State Street
9 Third Point
10 BNDES
11 Fidelity Investments
12 T. Rowe Price
13 Zürcher Kantonalbank
14 Crédit Agricole
15 Deutsche Bank
Canada
US
United Kingdom
Norway
Germany
Netherlands
France
Spain
Switzerland
Japan
Brazil

All meat used for direct human food, 2020



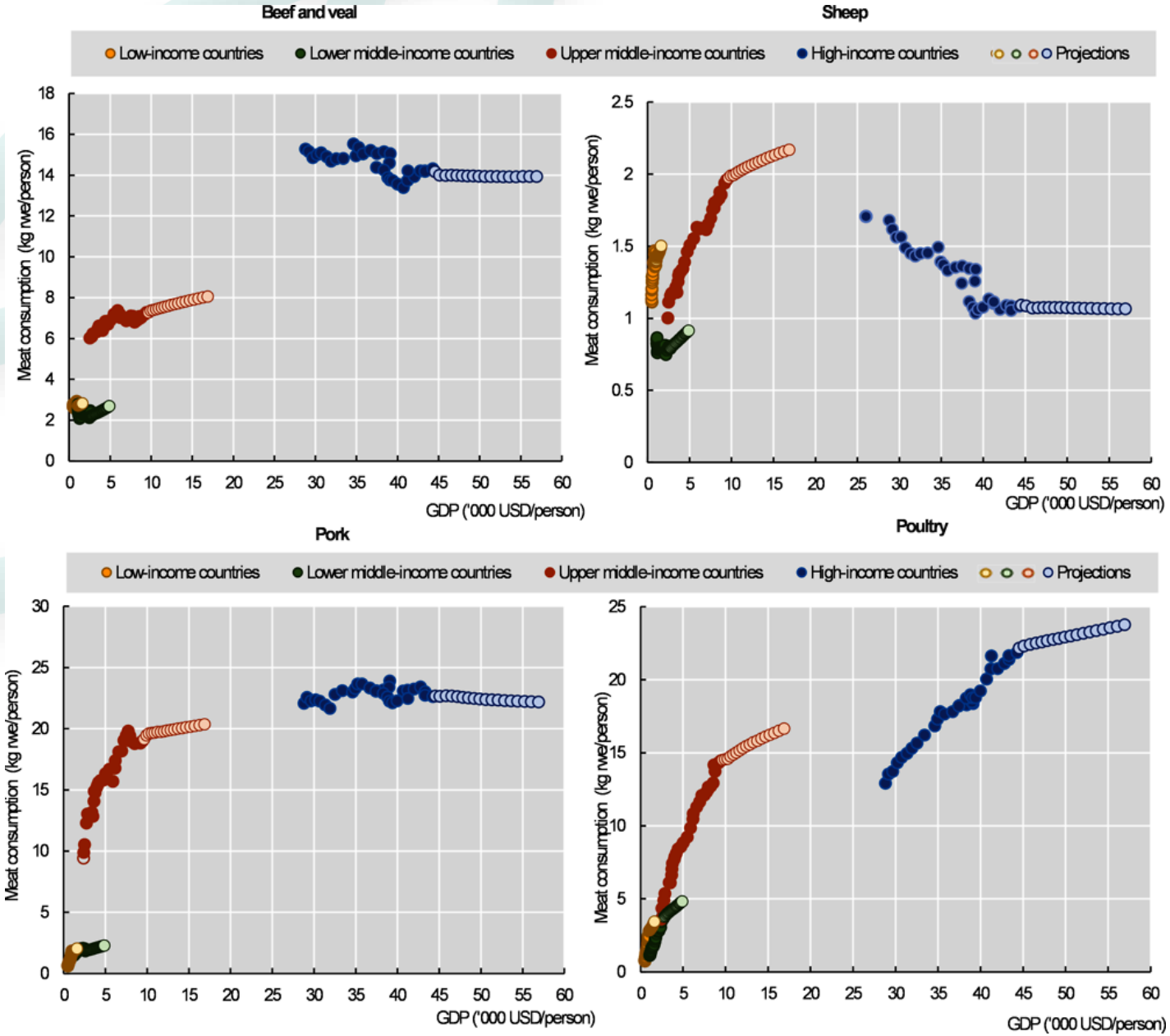
- The quantity that is allocated for direct consumption as human food, rather than allocation to animal feed or industrial uses.

Our World in Data

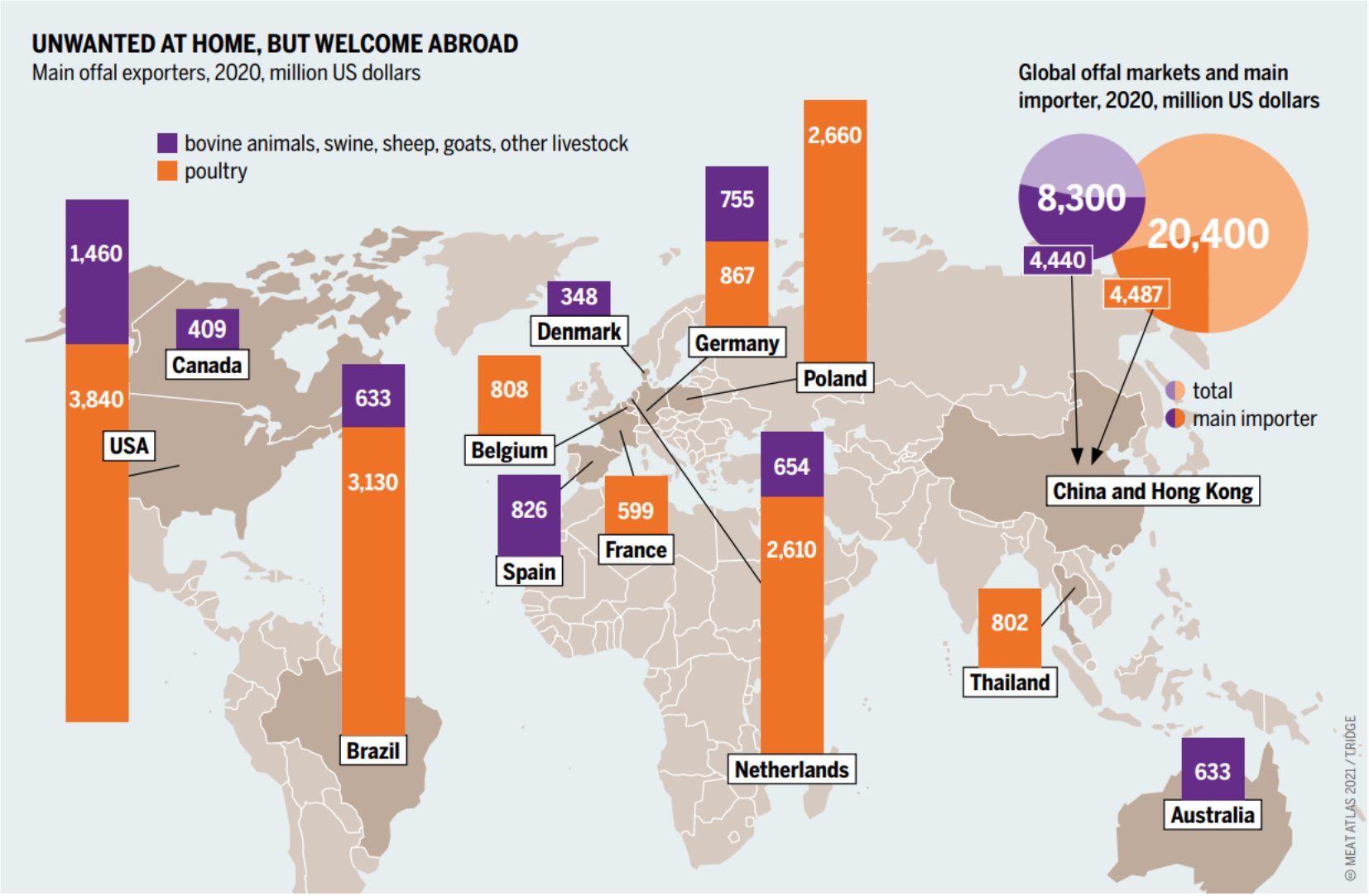
CC BY

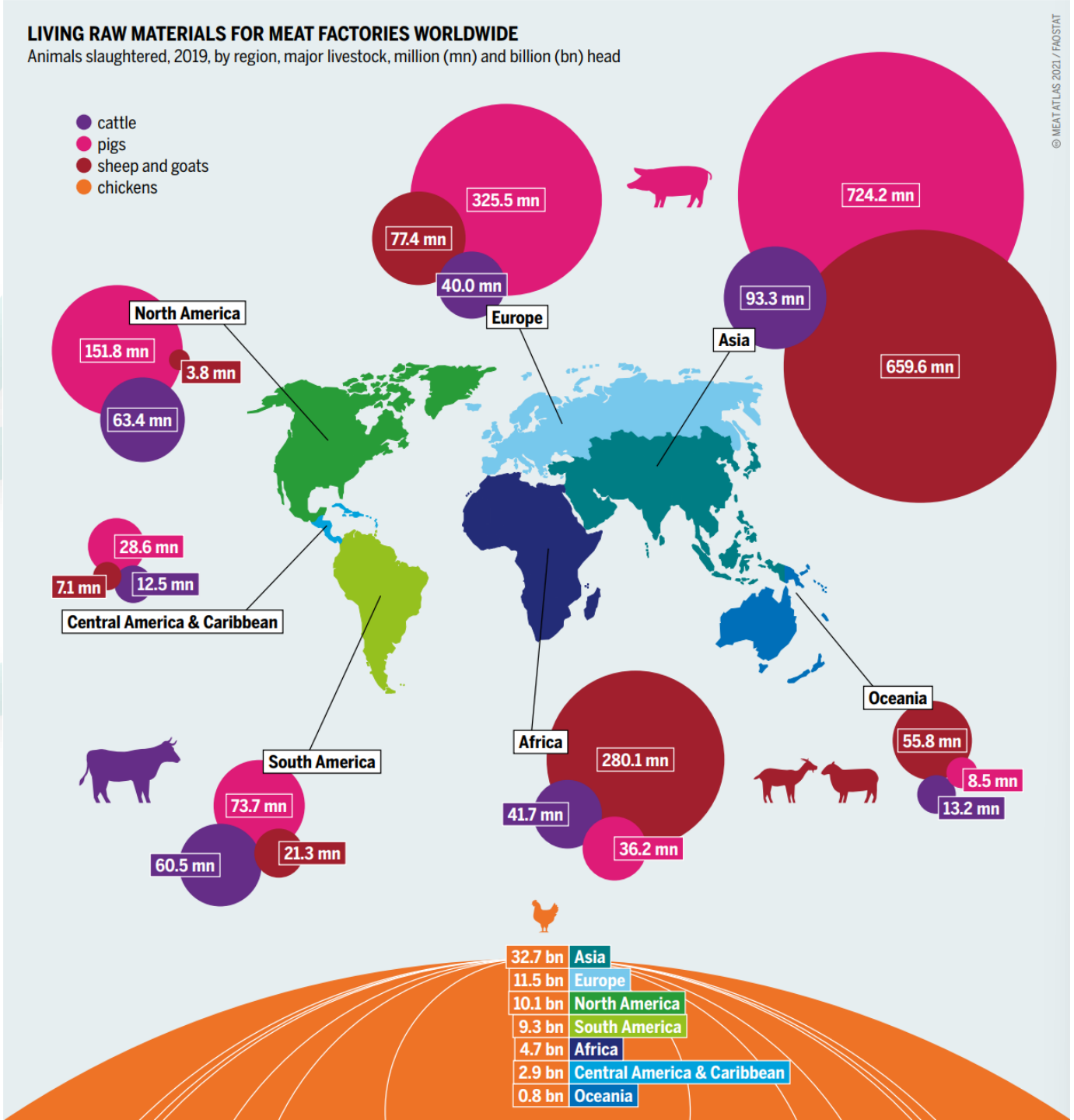
Data source: UN Food and Agriculture Organization (FAO)
Note: The FAO apply a methodological change from the year 2010 onwards.

Growth in Gross Domestic Product (GDP) and change in per capita consumption for meat, 1990 to 2040



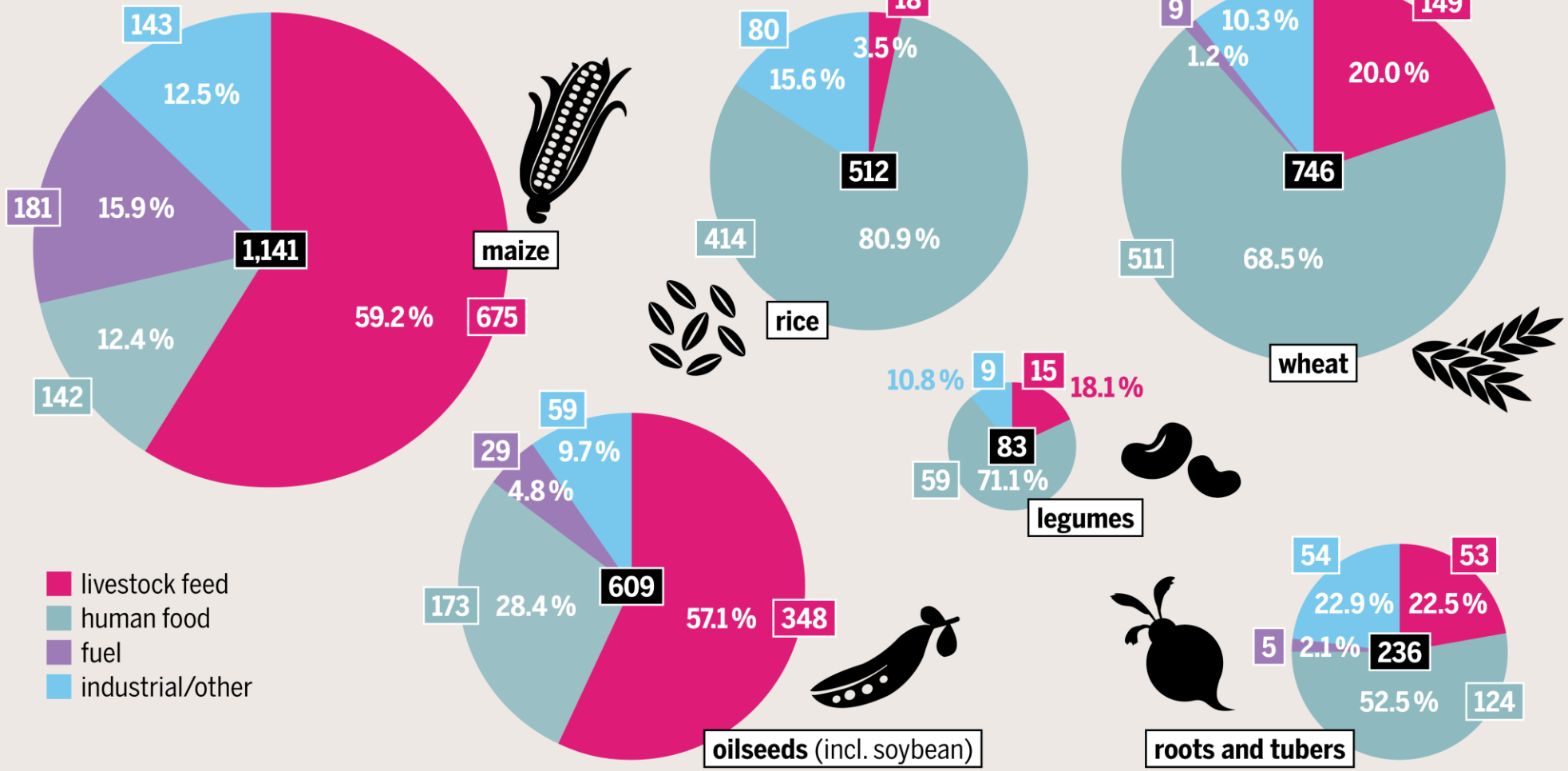
https://www.oecd-ilibrary.org/sites/f01f6101-en/index.html?itemId=/content/component/f01f6101-en


UNWANTED AT HOME, BUT WELCOME ABROAD
Main offal exporters, 2020, million US dollars
bovine animals, swine, sheep, goats, other livestock
poultry
1,460
3,840
USA
409
Canada
633
3,130
Brazil
348
Denmark
808
Belgium
826
Spain
599
France
755
867
Germany
2,660
Poland
654
2,610
Netherlands
Global offal markets and main importer, 2020, million US dollars
8,300
4,440
20,400
4,487
total
main importer
China and Hong Kong
802
Thailand
633
Australia
© MEAT ATLAS 2021 / TRIDGE

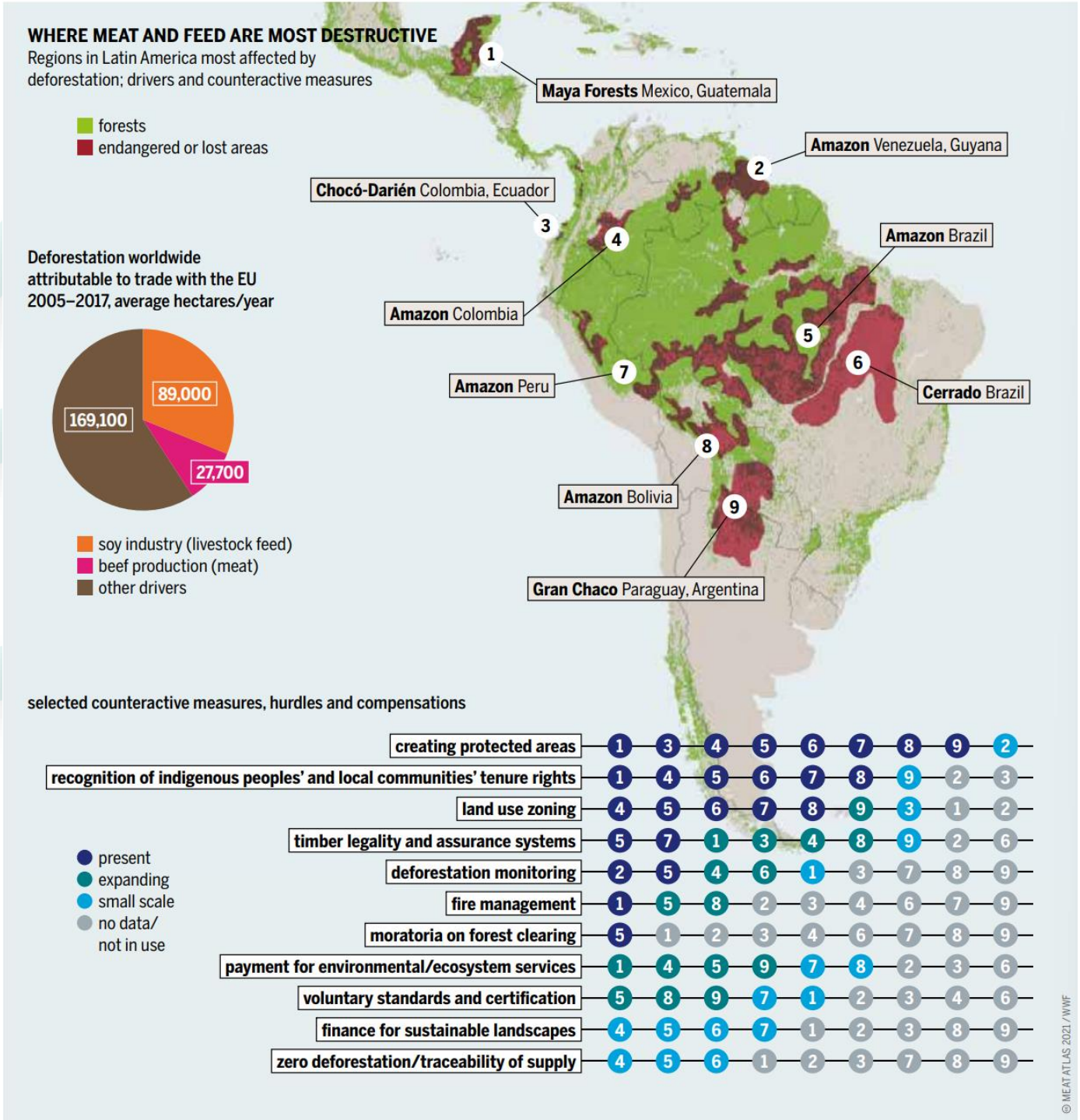

LIVING RAW MATERIALS FOR MEAT FACTORIES WORLDWIDE
Animals slaughtered, 2019, by region, major livestock, million (mn) and billion (bn) head
cattle
pigs
sheep and goats
chickens
© MEAT ATLAS 2021 / FAOSTAT
North America
151.8 mn
3.8 mn
63.4 mn
Europe
325.5 mn
77.4 mn
40.0 mn
Asia
724.2 mn
93.3 mn
659.6 mn
Central America & Caribbean
28.6 mn
7.1 mn
12.5 mn
South America
73.7 mn
60.5 mn
21.3 mn
Africa
280.1 mn
41.7 mn
36.2 mn
Oceania
55.8 mn
8.5 mn
13.2 mn
32.7 bn Asia
11.5 bn Europe
10.1 bn North America
9.3 bn South America
4.7 bn Africa
2.9 bn Central America & Caribbean
0.8 bn Oceania

MULTIPURPOSE COMMODITIES

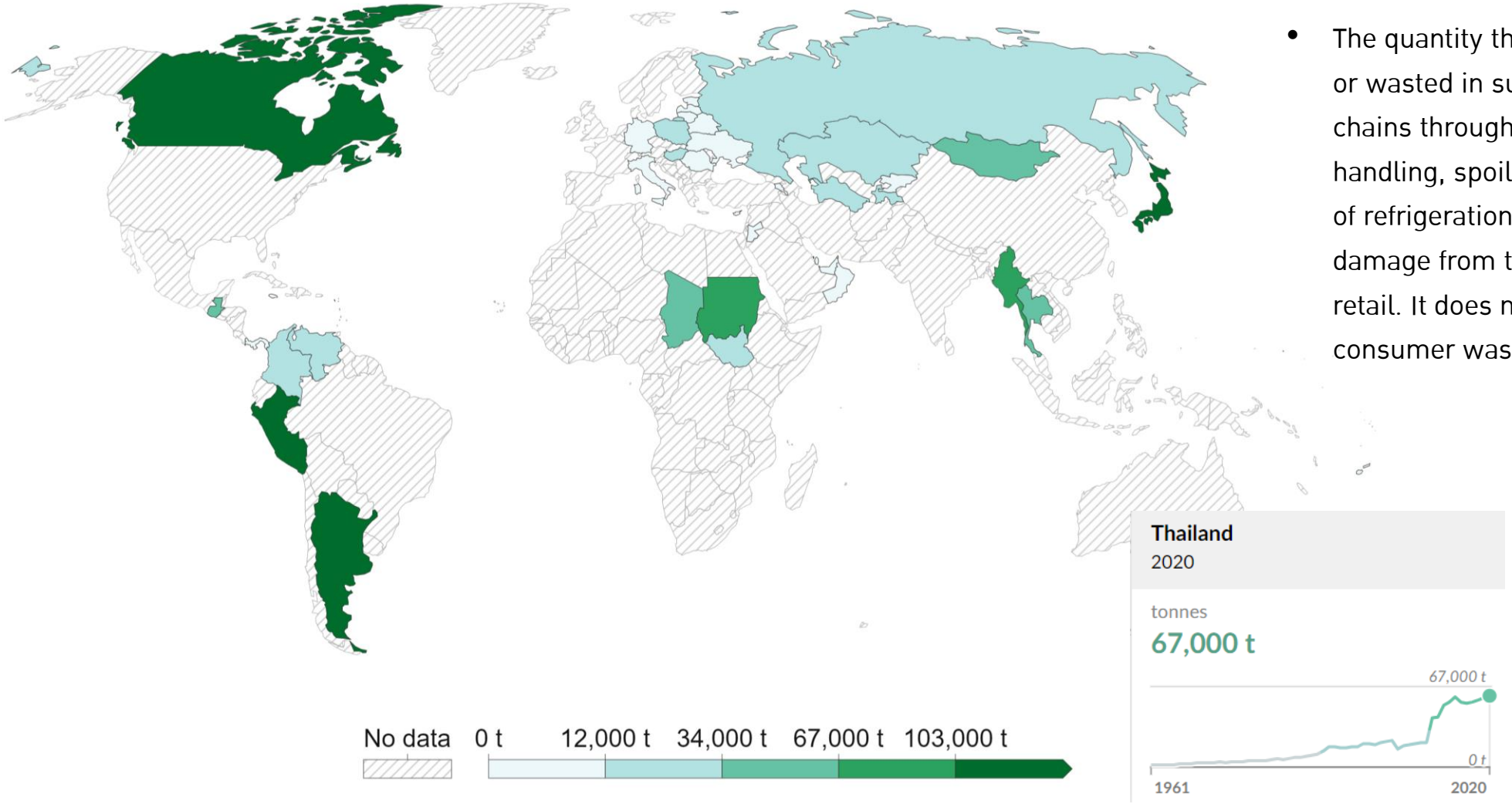
Major agricultural "flex crops" by production and use, selected, average 2017–19, in million tonnes und percentage share



industrial and decentralized production


WHERE MEAT AND FEED ARE MOST DESTRUCTIVE
Regions in Latin America most affected by deforestation; drivers and counteractive measures
forests
endangered or lost areas
1 Maya Forests Mexico, Guatemala
2 Amazon Venezuela, Guyana
3 Chocó-Darién Colombia, Ecuador
4 Amazon Colombia
5 Amazon Brazil
6 Cerrado Brazil
7 Amazon Peru
8 Amazon Bolivia
9 Gran Chaco Paraguay, Argentina
Deforestation worldwide attributable to trade with the EU 2005–2017, average hectares/year
89,000
169,100
27,700
soy industry (livestock feed)
beef production (meat)
other drivers
selected counteractive measures, hurdles and compensations
creating protected areas 1 3 4 5 6 7 8 9 2
recognition of indigenous peoples' and local communities' tenure rights 1 4 5 6 7 8 9 2 3
land use zoning 4 5 6 7 8 9 3 1 2
timber legality and assurance systems 5 7 1 3 4 8 9 2 6
deforestation monitoring 2 5 4 6 1 3 7 8 9
fire management 1 5 8 2 3 4 6 7 9
moratoria on forest clearing 5 1 2 3 4 6 7 8 9
payment for environmental/ecosystem services 1 4 5 9 7 8 2 3 6
voluntary standards and certification 5 8 9 7 1 2 3 4 6
finance for sustainable landscapes 4 5 6 7 1 2 3 8 9
zero deforestation/traceability of supply 4 5 6 1 2 3 7 8 9
present
expanding
small scale
no data/ not in use
© MEAT ATLAS 2021 / WWF

Total meat waste in supply chains, 2020

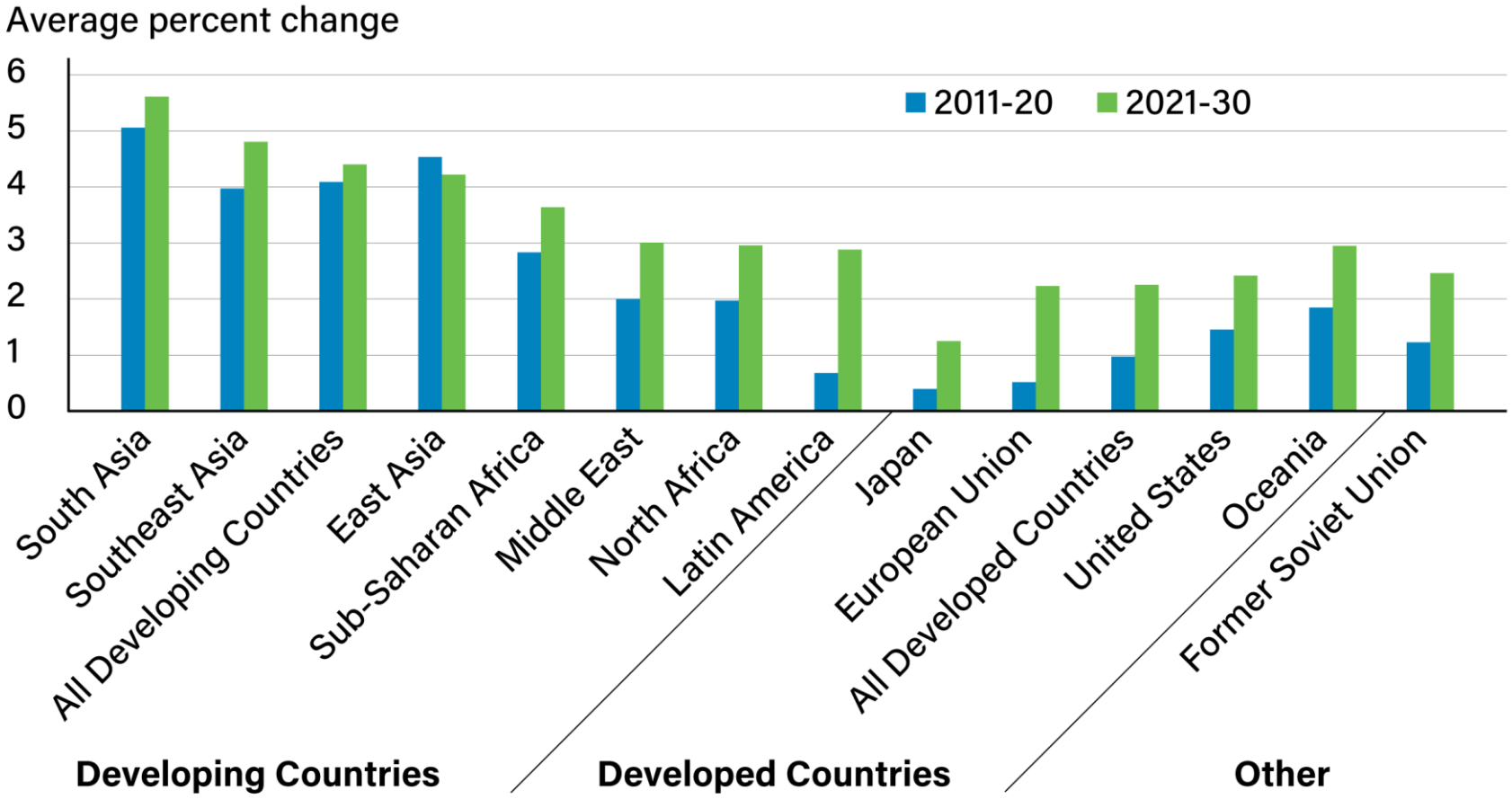


- The quantity that is lost or wasted in supply chains through poor handling, spoiling, lack of refrigeration and damage from the field to retail. It does not include consumer waste.

Data source: UN Food and Agriculture Organization (FAO)
Note: The FAO apply a methodological change from the year 2010 onwards.

Macroeconomic Drivers of Demand for U.S. Meats and Feeds

Historical and projected average percent change in real Gross Domestic Product by global region



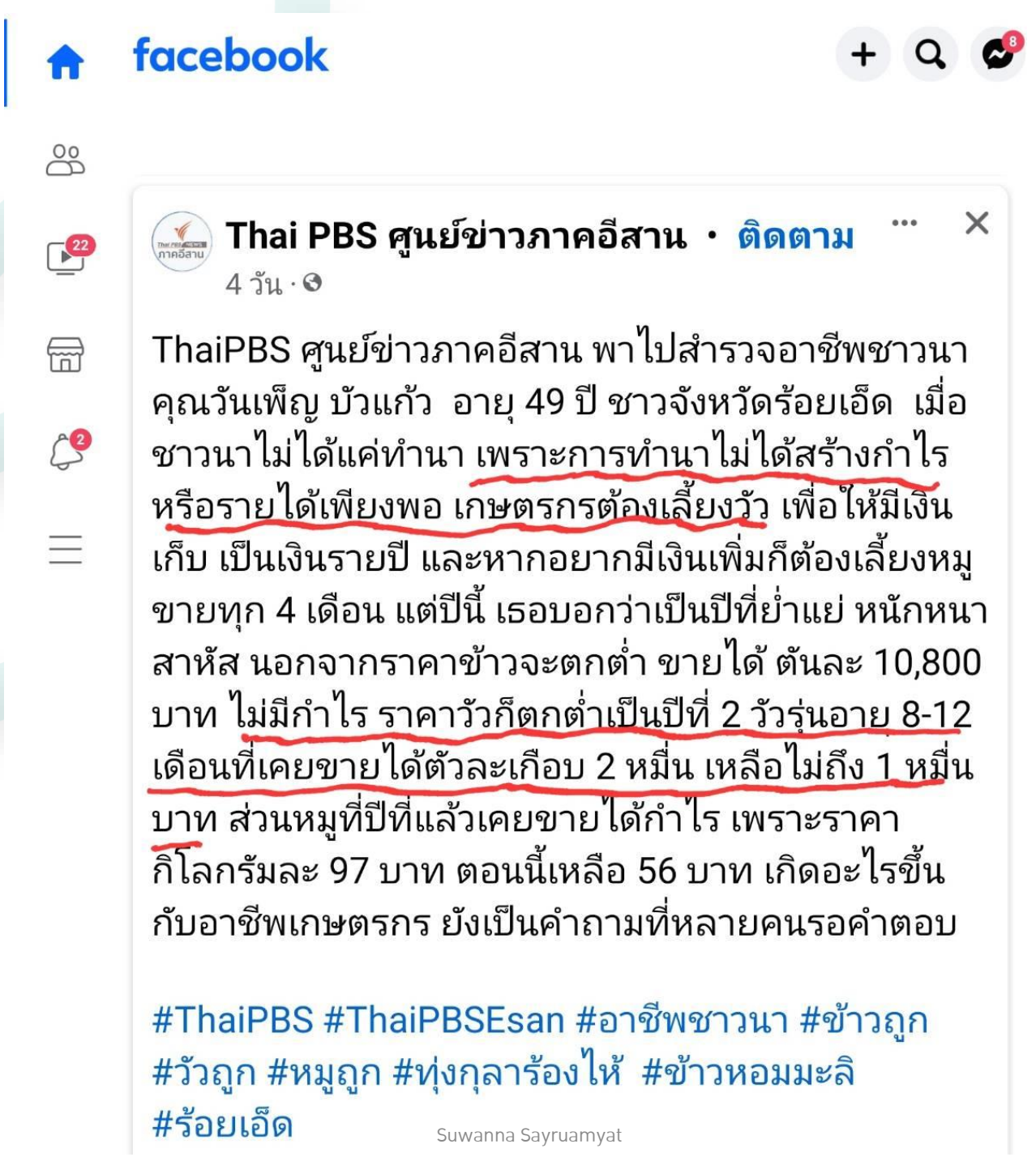
Note: Oceania includes Australia and New Zealand.

Source: USDA, Economic Research Service, based on data from *USDA Agricultural Projections to 2030*, February 2021.

https://www.ers.usda.gov/amber-waves/2021/may/feed-and-livestock-sectors-economic-growth-key-in-baseline-projections/

เศรษฐศาสตร์เกษตรและทรัพยากร
มหาวิทยาลัยเกษตรศาสตร์

2. Situation of production and consumption in Thailand



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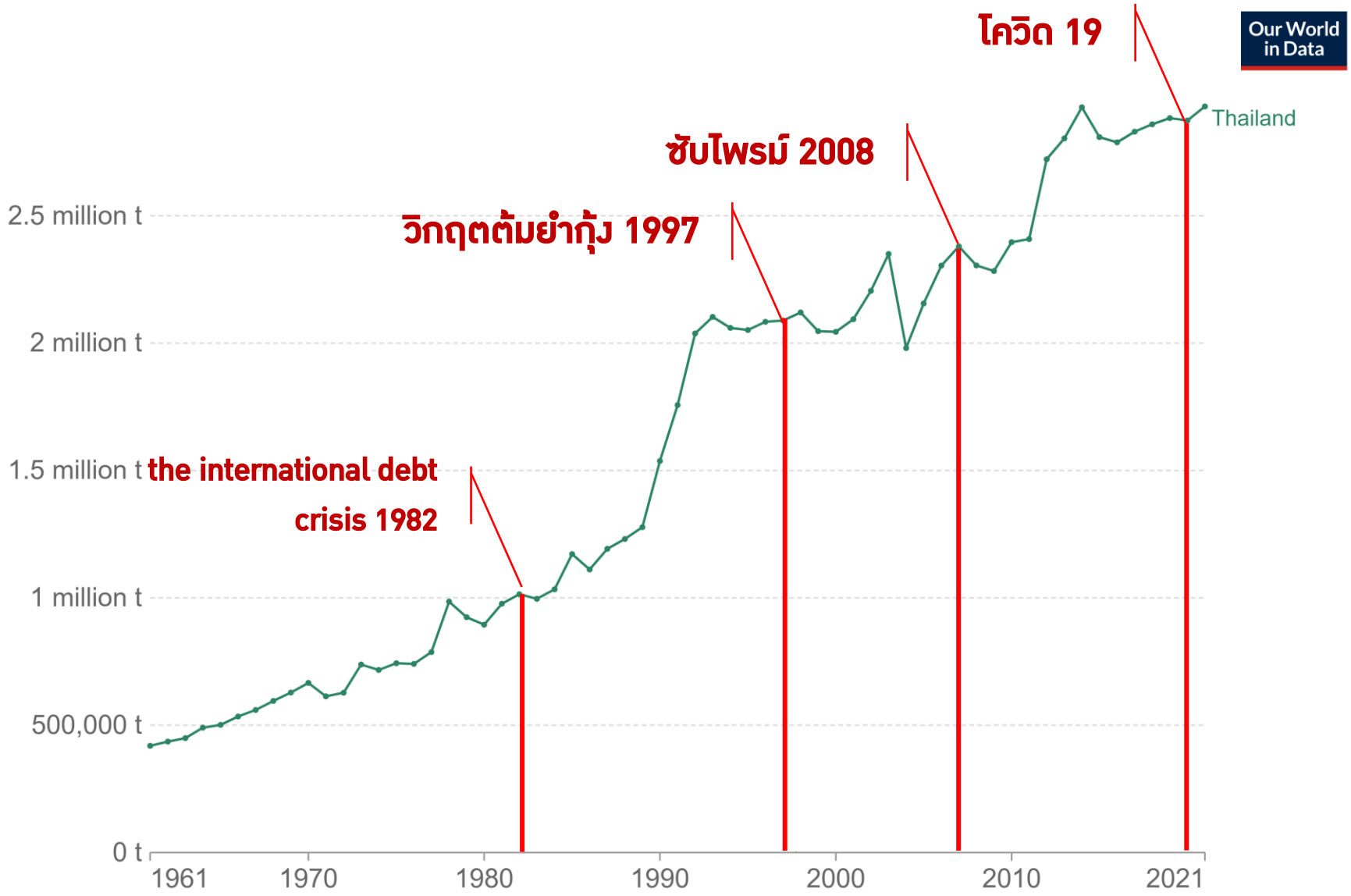
4 วัน ·

ThaiPBS ศูนย์ข่าวภาคอีสาน พาไปสำรวจอาชีพชาวนา คุณวันเพ็ญ บัวแก้ว อายุ 49 ปี ชาวจังหวัดร้อยเอ็ด เมื่อชาวนาไม่ได้แค่ทำนา เพราะการทำนาไม่ได้สร้างกำไรหรือรายได้เพียงพอ เกษตรกรต้องเลี้ยงวัว เพื่อให้มีเงินเก็บ เป็นเงินรายปี และหากอยากมีเงินเพิ่มก็ต้องเลี้ยงหมูขายทุก 4 เดือน แต่ปีนี้ เธอบอกว่าเป็นปีที่ย่ำแย่ หนักหนาสาหัส นอกจากราคาข้าวจะตกต่ำ ขายได้ ตันละ 10,800 บาท ไม่มีกำไร ราคาวัวก็ตกต่ำเป็นปีที่ 2 วัวรุ่นอายุ 8-12 เดือนที่เคยขายได้ตัวละเกือบ 2 หมื่น เหลือไม่ถึง 1 หมื่นบาท ส่วนหมูที่ปีที่แล้วเคยขายได้กำไร เพราะราคากิโลกรัมละ 97 บาท ตอนนี้เหลือ 56 บาท เกิดอะไรขึ้นกับอาชีพเกษตรกร ยังเป็นคำถามที่หลายคนรอคำตอบ

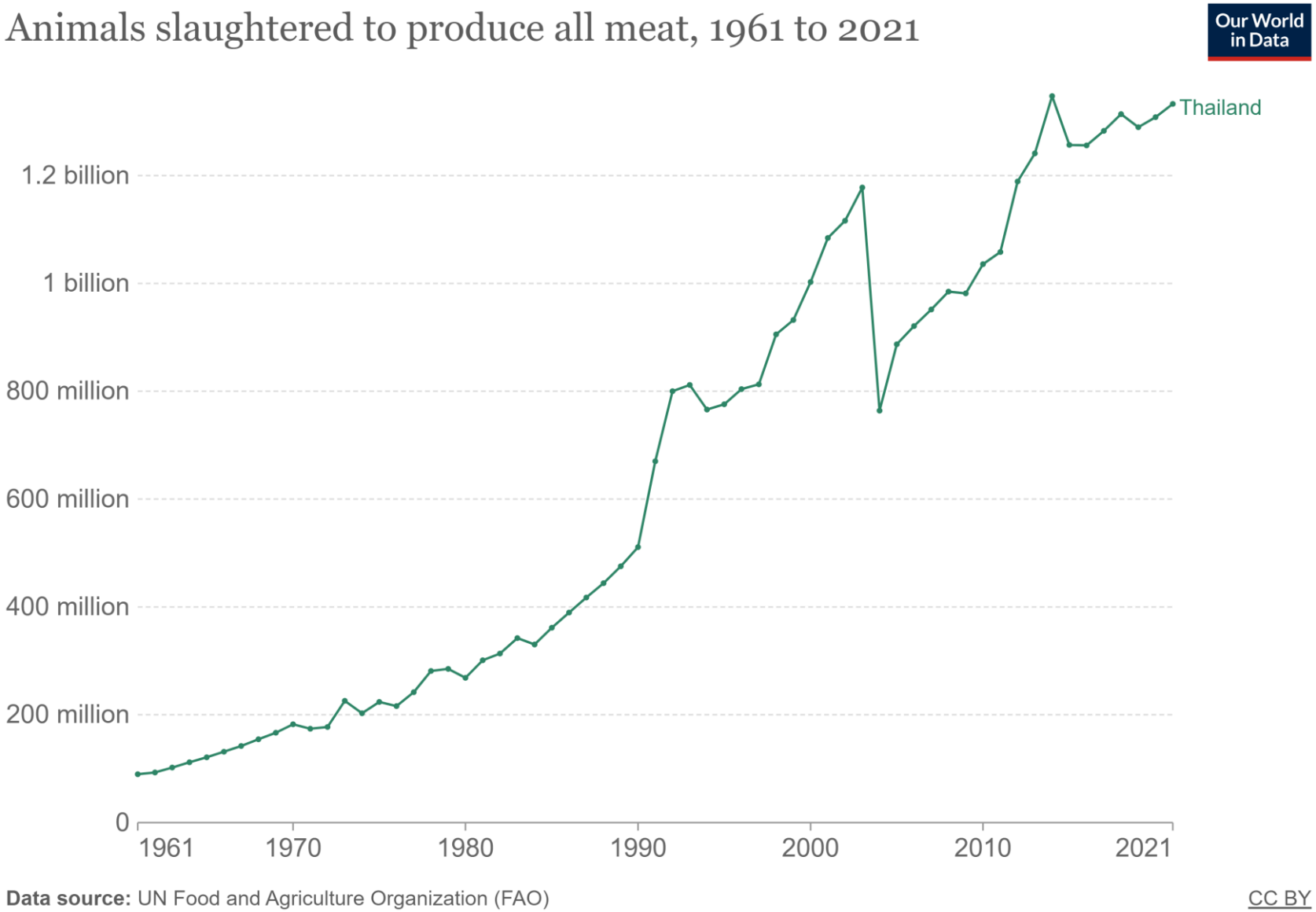
#ThaiPBS #ThaiPBSEsan #อาชีพชาวนา #ข้าวถูก #วัวถูก #หมูถูก #ทุ่งกุลาร้องไห้ #ข้าวหอมมะลิ #ร้อยเอ็ด

Total meat production, 1961-2020

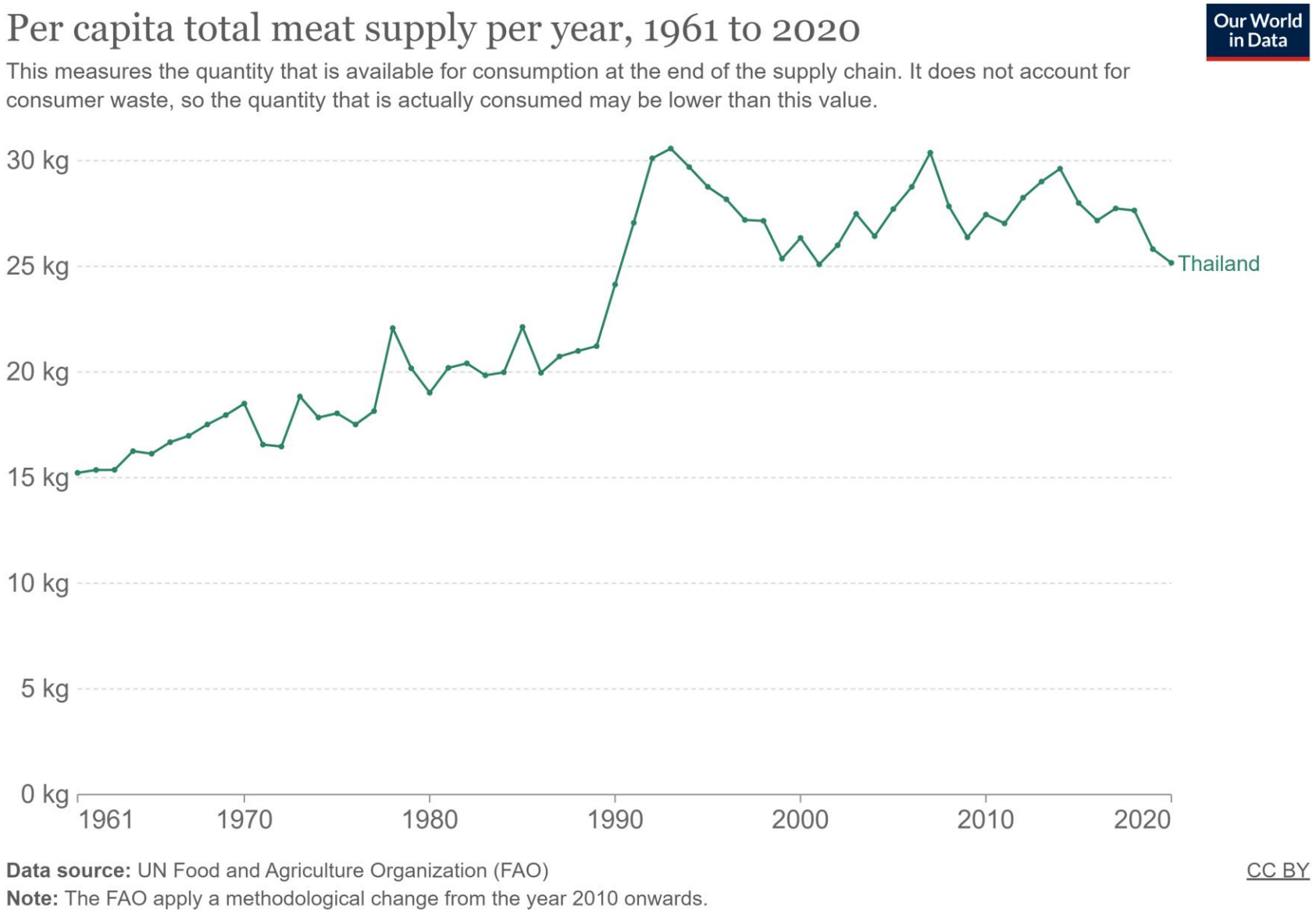


Data source: UN Food and Agriculture Organization (FAO)

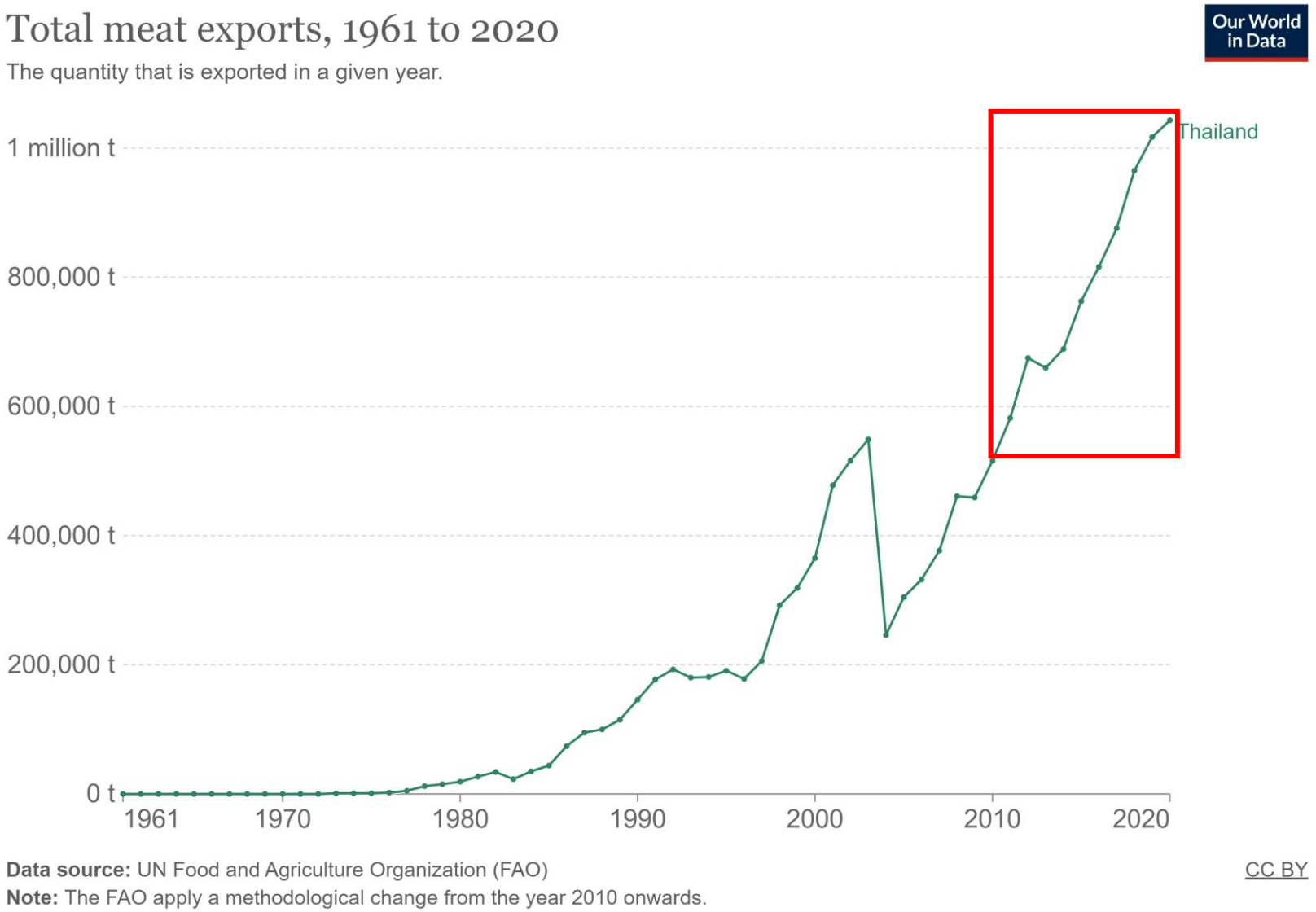
Animals slaughtered to produce all meat, 1961-2021



Total meat supply per capita per year, 1961-2020

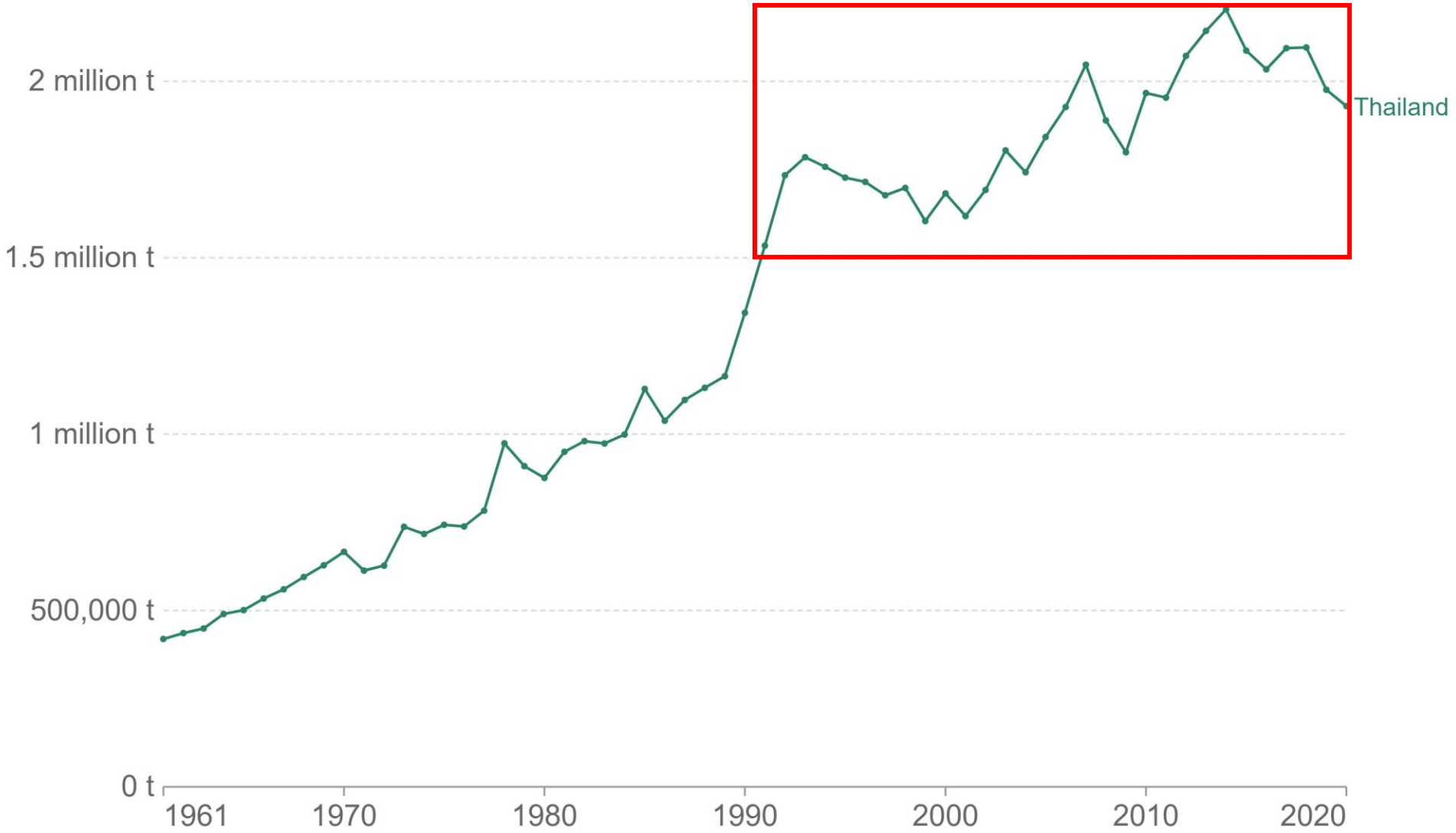


Meat exports from Thailand in 1961-2020



Domestic supply of all meat, 1961 to 2020

This measures the supply that is available after trade. It is calculated as production, plus imports, minus exports.

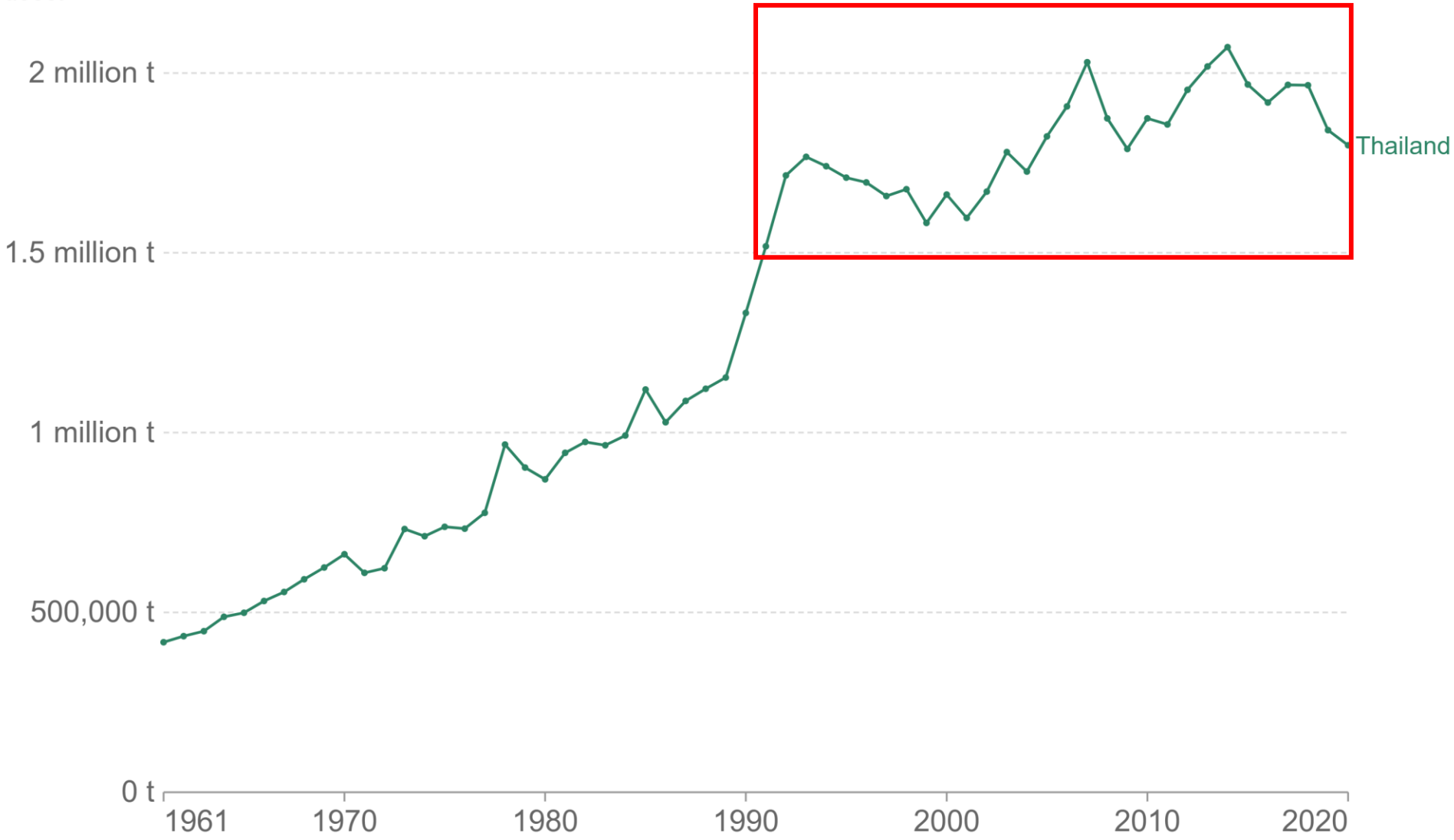


Data source: UN Food and Agriculture Organization (FAO)

Note: The FAO apply a methodological change from the year 2010 onwards.

All meat used for direct human food, 1961 to 2020

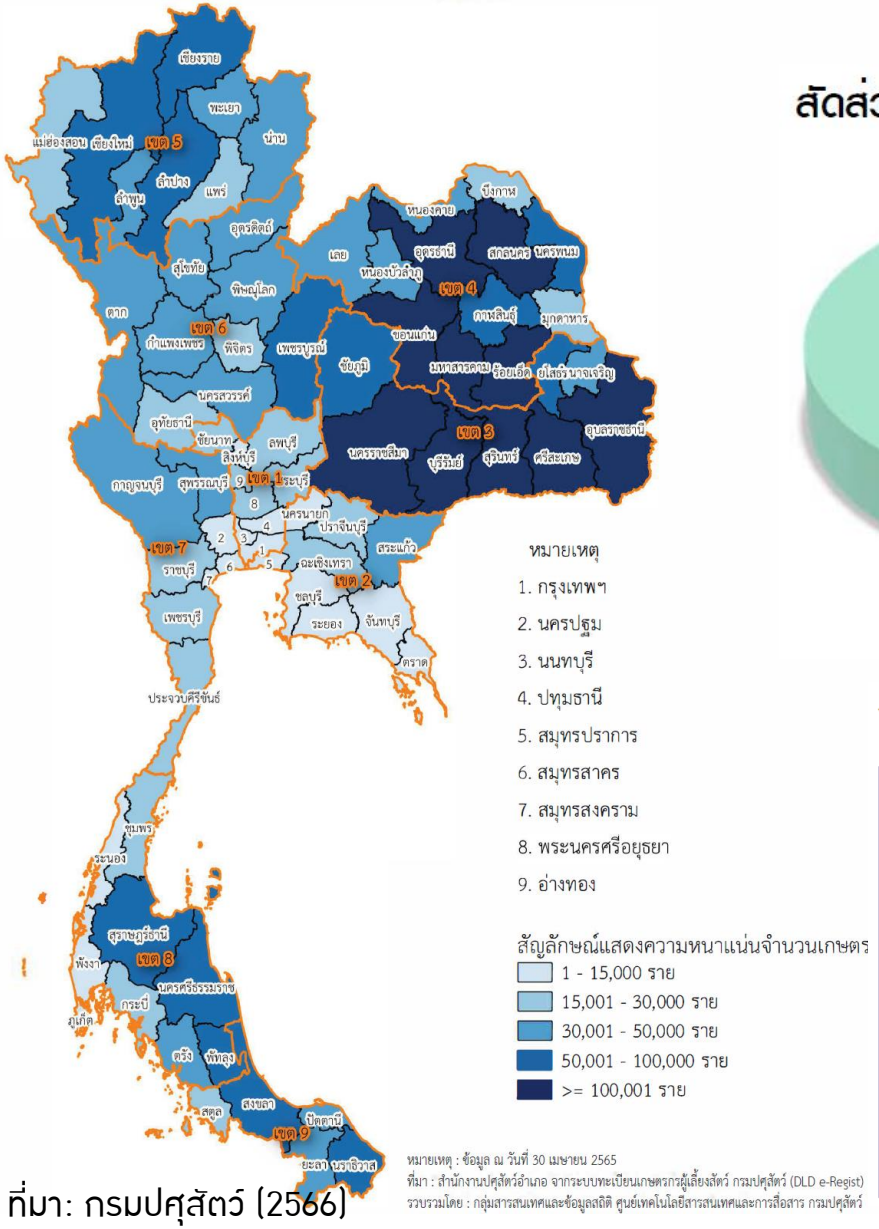
The quantity that is allocated for direct consumption as human food, rather than allocation to animal feed or industrial uses.



Data source: UN Food and Agriculture Organization (FAO)

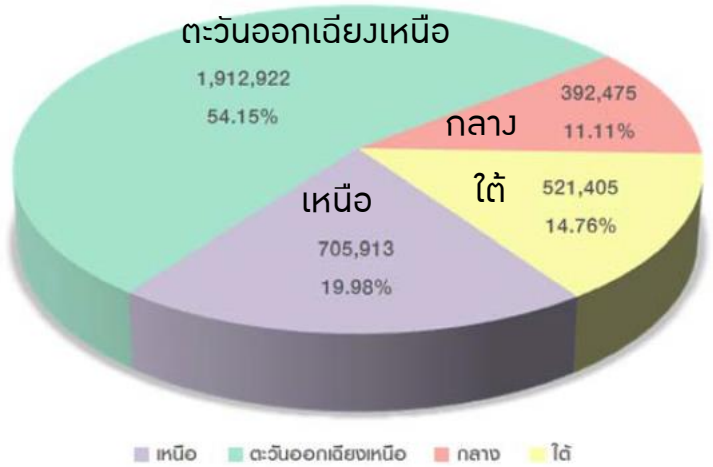
Note: The FAO apply a methodological change from the year 2010 onwards.

Farmers and livestock population in 2022

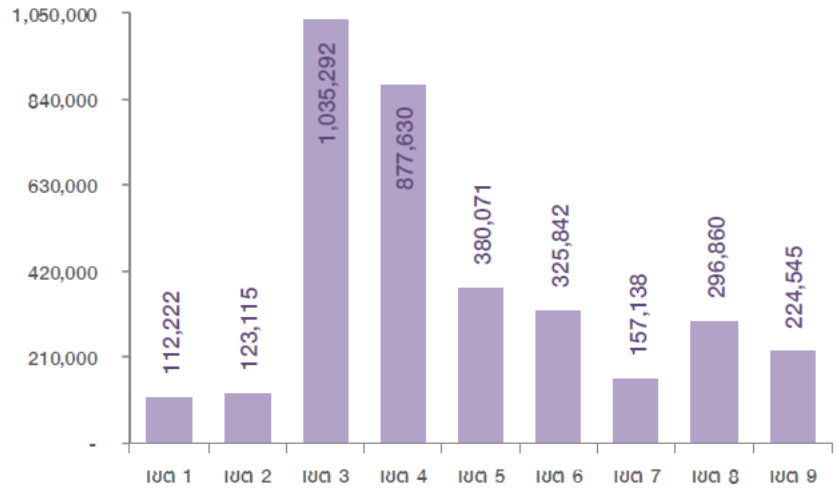


ที่มา: กรมปศุสัตว์ (2566)

สัดส่วนเกษตรกรผู้เลี้ยงสัตว์ รายภาค ปี 2567



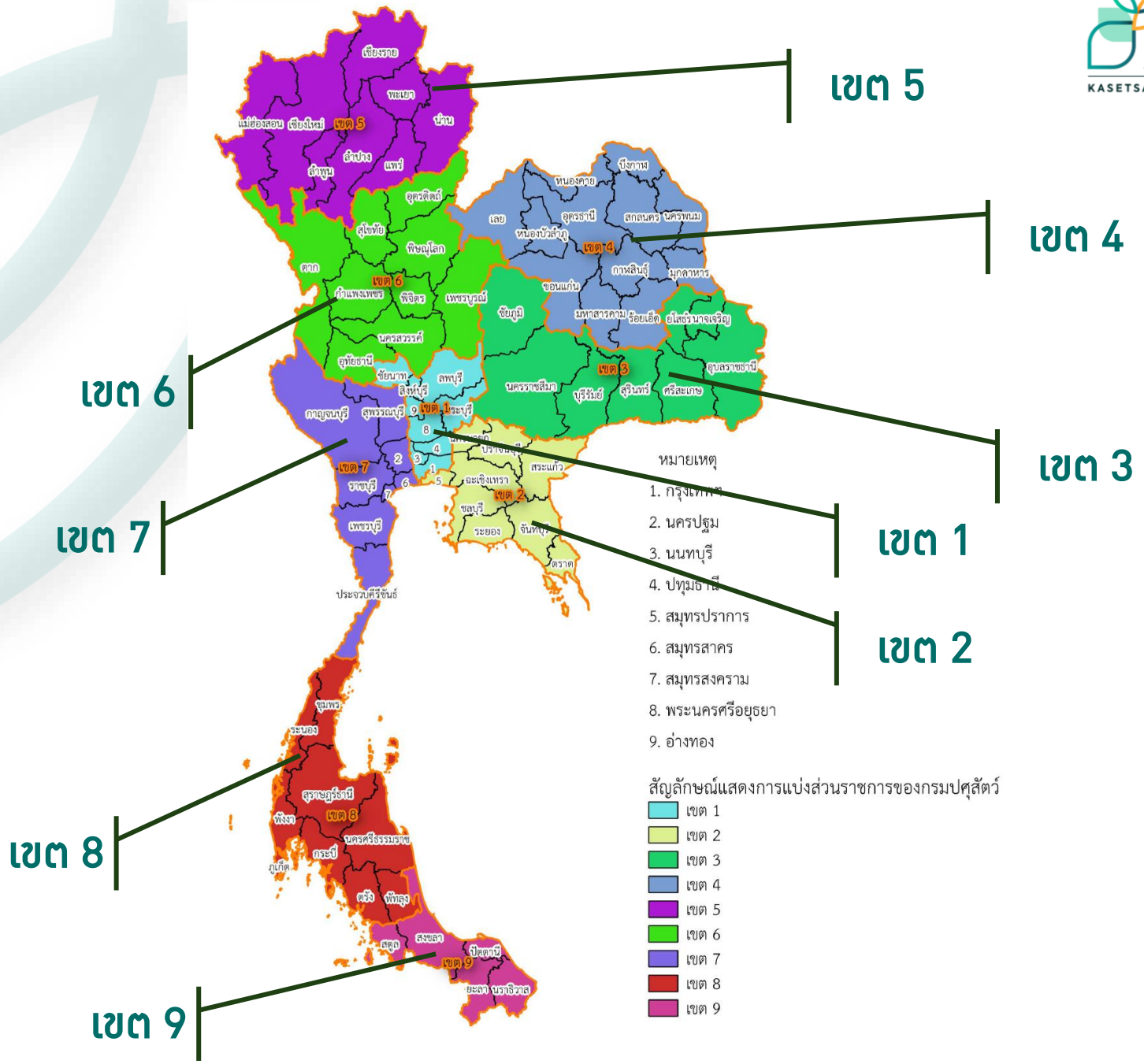
จำนวนเกษตรกรผู้เลี้ยงสัตว์ รายเขตปศุสัตว์ ปี 2567



จำนวนเกษตรกรผู้เลี้ยงสัตว์และปศุสัตว์ รายภาค ปี 2567

ภาค	เกษตรกร (ราย)	จำนวนปศุสัตว์ (ตัว)							
		โคเนื้อ	โคนม	กระบือ	สุกร	ไก่	เป็ด	แพะ	แกะ
ยอดรวม	3,532,715	9,904,037	568,111	1,815,901	12,329,680	527,574,598	32,955,543	1,523,148	144,446
เหนือ	705,913	1,520,165	76,673	372,513	2,336,889	71,916,972	4,874,136	219,105	30,206
ตะวันออกเฉียงเหนือ	1,912,922	5,523,037	157,012	1,294,195	2,706,802	109,081,560	7,352,186	307,639	11,516
กลาง	392,475	1,712,619	328,940	121,375	5,850,630	306,078,519	17,371,062	552,782	71,042
ใต้	521,405	1,148,216	5,486	27,818	1,435,359	40,497,547	3,358,159	443,622	31,682

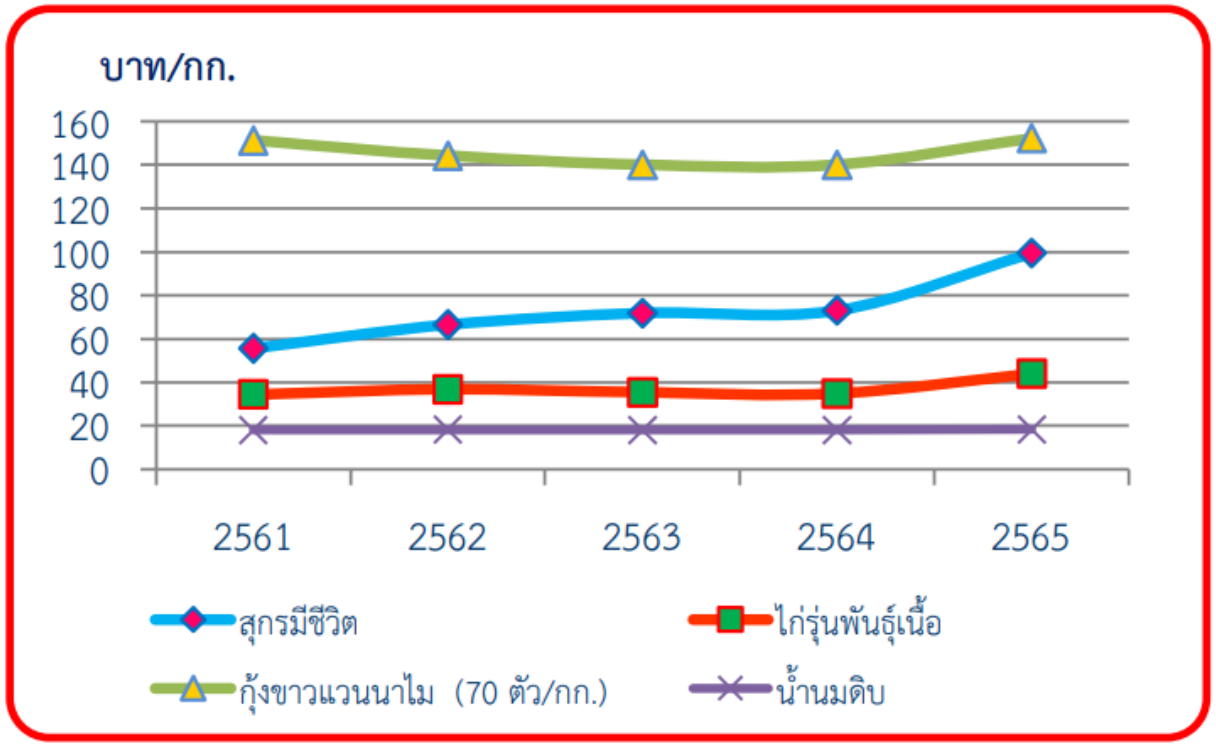
การแบ่งส่วนราชการของกรมปศุสัตว์



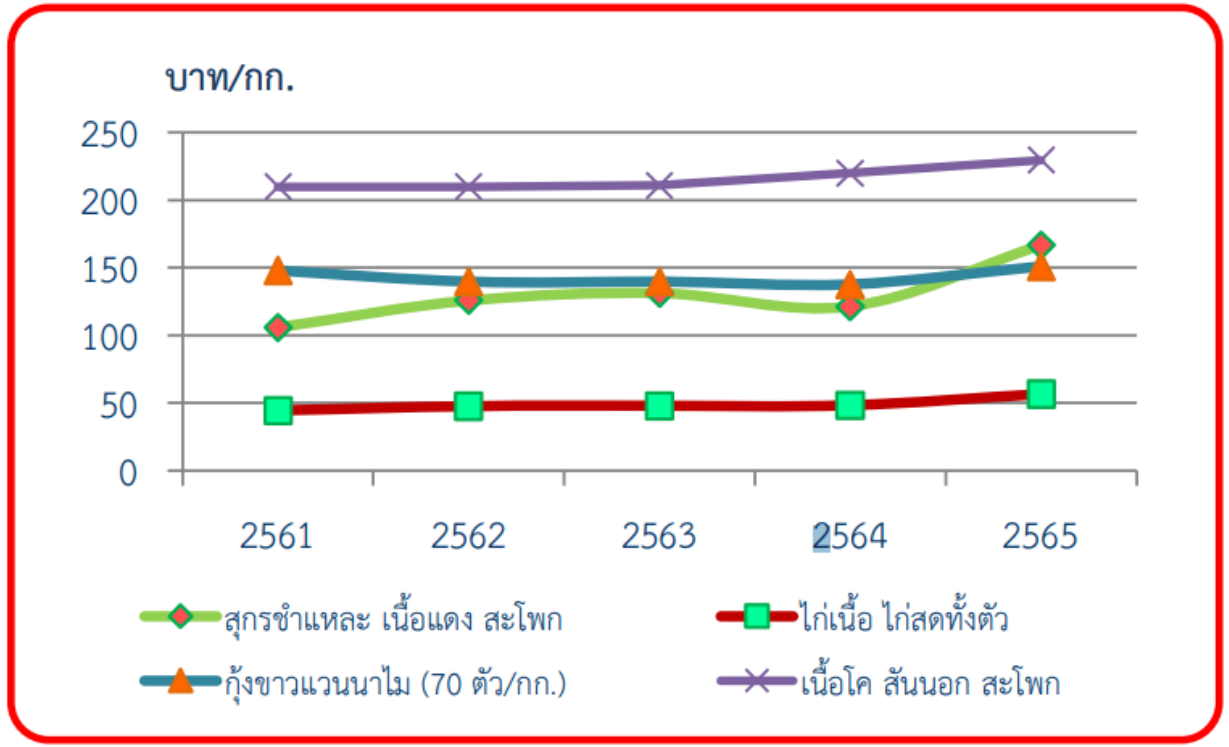
ที่มา: กรมปศุสัตว์ (2566)

ราคาปศุสัตวและประมงปี 2561-2565

ราคาที่เกษตรกรขายได้



ราคาขายในพื้นที่กรุงเทพ



https://lib.oae.go.th/elib/cgi-bin/opacexe.exe

Farm gate price of livestock and products, 2014-2023

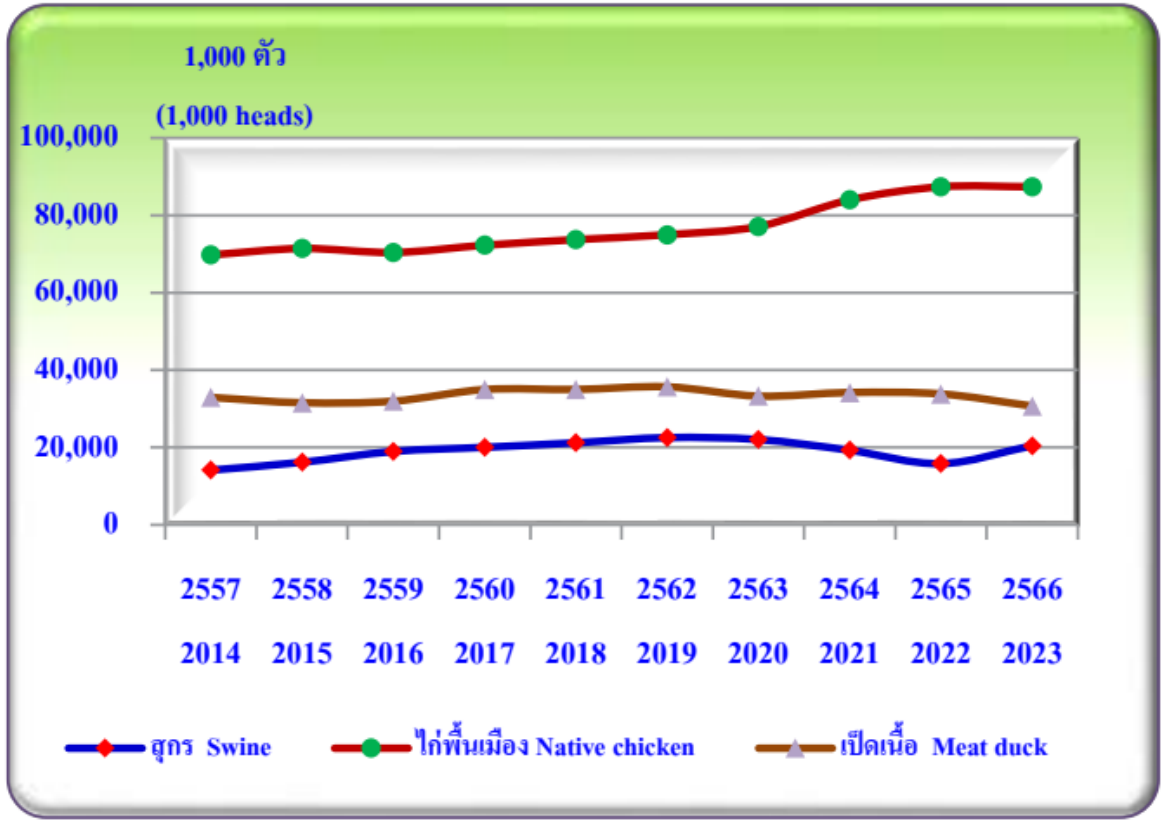
ตารางที่ 7.6 ราคาที่เกษตรกรขายได้ของปศุสัตว์และผลิตภัณฑ์ ปี 2557-2566

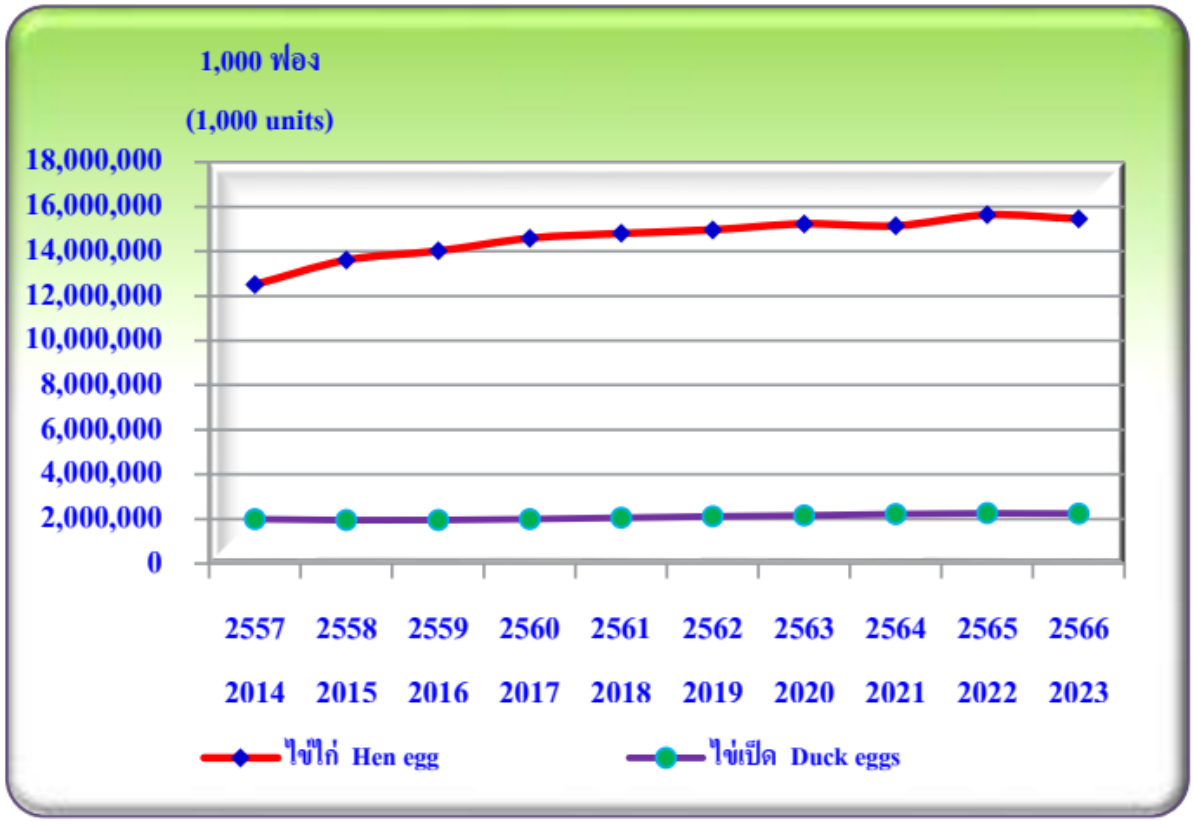
Table 7.6 Farm gate price of livestock and products, 2014-2023

ปี	โคเนื้อ บาท/ตัว Cattles Baht/head	กระบือ บาท/ตัว Buffalos Baht/head	สุกร บาท/กก. Swines Baht/kg	ไก่เนื้อ บาท/กก. Broilers Baht/kg	เป็ดเนื้อ บาท/กก. Meat ducks Baht/kg	ไข่ไก่ บาท/100 ฟอง Hen egg Baht/100 units	ไข่เป็ด บาท/100 ฟอง Duck egg Baht/100 units	น้ำนมดิบ บาท/กก. Raw milk Baht/kg	Year
2557	29,908	31,852	75.08	42.34	63.58	305	371	16.91	2014
2558	36,677	40,732	66.08	38.34	63.02	271	335	17.74	2015
2559	36,104	40,848	66.96	37.34	66.38	294	351	18.02	2016
2560	33,715	37,996	59.01	37.28	66.30	262	337	18.08	2017
2561	31,533	35,073	55.68	34.40	68.06	264	329	18.20	2018
2562	31,158	34,426	66.52	36.85	75.21	278	328	18.30	2019
2563	32,680	36,329	71.87	35.44	74.57	286	344	18.16	2020
2564	33,790	38,714	73.14	34.87	72.90	290	347	18.13	2021
2565	34,922	40,994	99.46	44.00	72.41	331	376	18.42	2022
2566	32,437	36,394	77.99	43.52	74.98	363	398	19.46	2023

https://www.agrithai.org/wp-content/uploads/2024/03/statistic2566.pdf

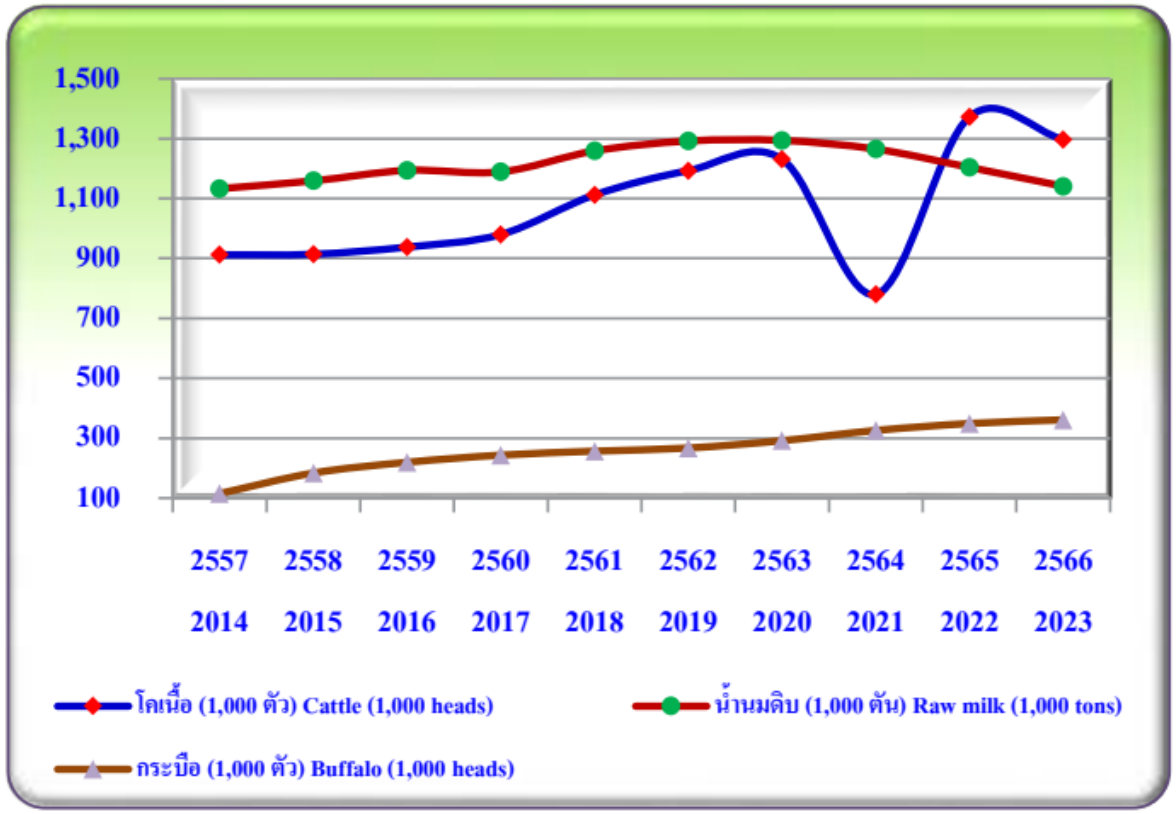
ปริมาณการผลิตปศุสัตว ป 2557-2566

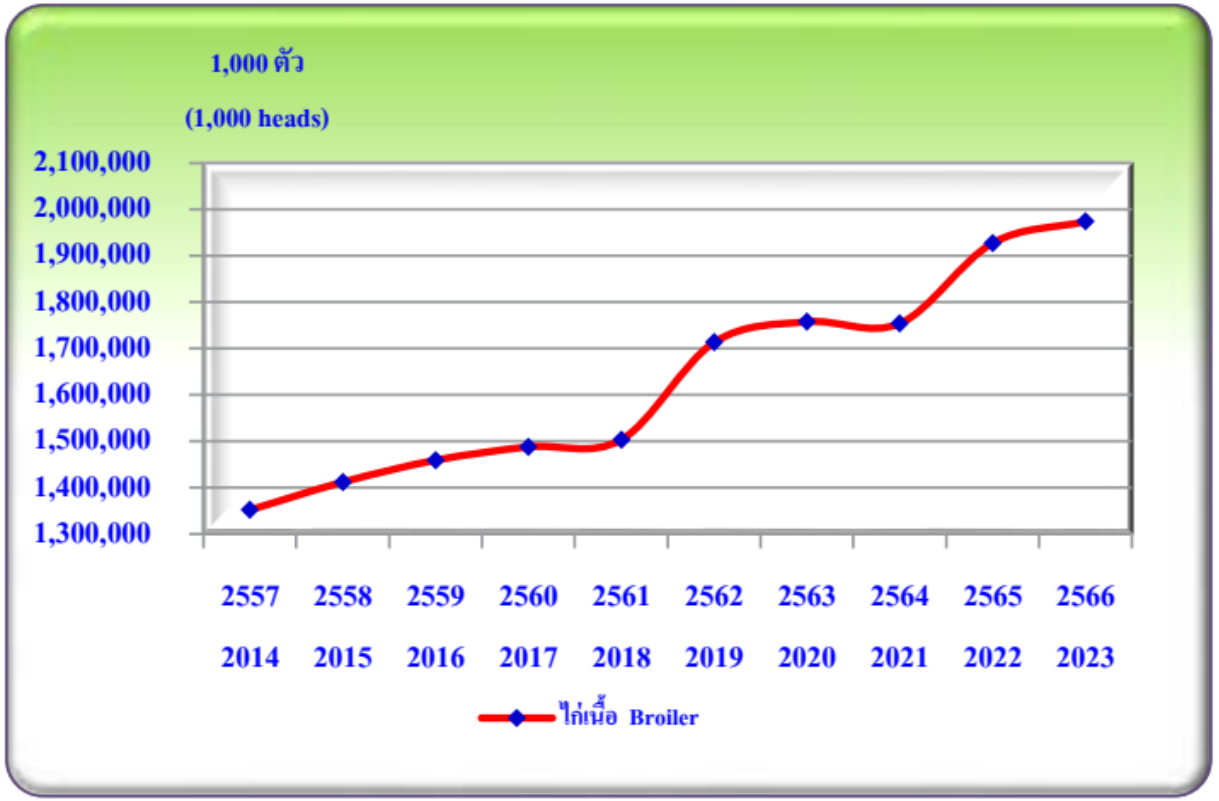




https://www.agrithai.org/wp-content/uploads/2024/03/statistic2566.pdf

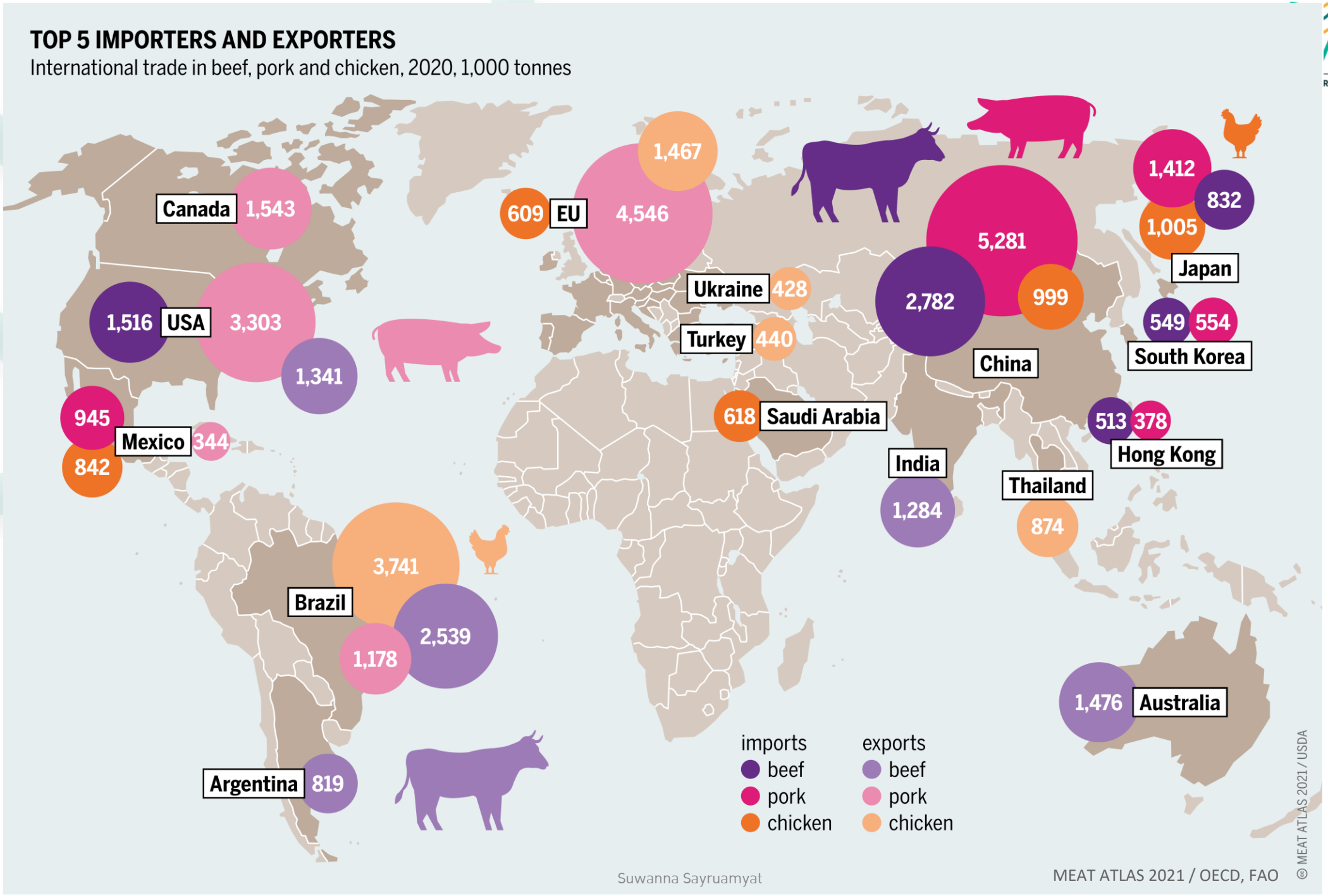
ปริมาณการผลิตปศุสัตว ป 2557-2566





https://www.agrithai.org/wp-content/uploads/2024/03/statistic2566.pdf

3. Trade of livestock and products


TOP 5 IMPORTERS AND EXPORTERS
International trade in beef, pork and chicken, 2020, 1,000 tonnes
Canada 1,543
1,516 USA 3,303
1,341
945
Mexico 344
842
609 EU 1,467
4,546
Ukraine 428
Turkey 440
618 Saudi Arabia
2,782
5,281
999
China
India
1,284
1,412
832
1,005
Japan
549 554
South Korea
513 378
Hong Kong
Thailand
874
3,741
Brazil
2,539
1,178
Argentina 819
1,476 Australia
imports
beef
pork
chicken
exports
beef
pork
chicken
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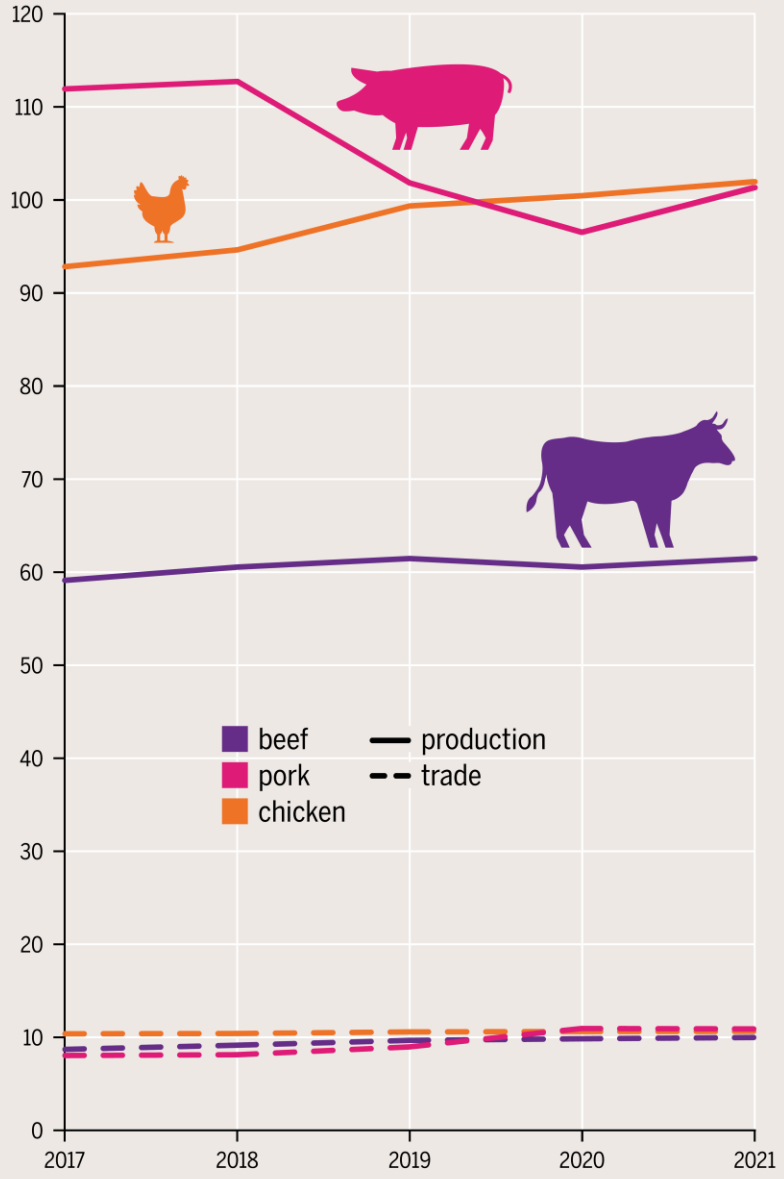
EAST, WEST, HOME'S BEST

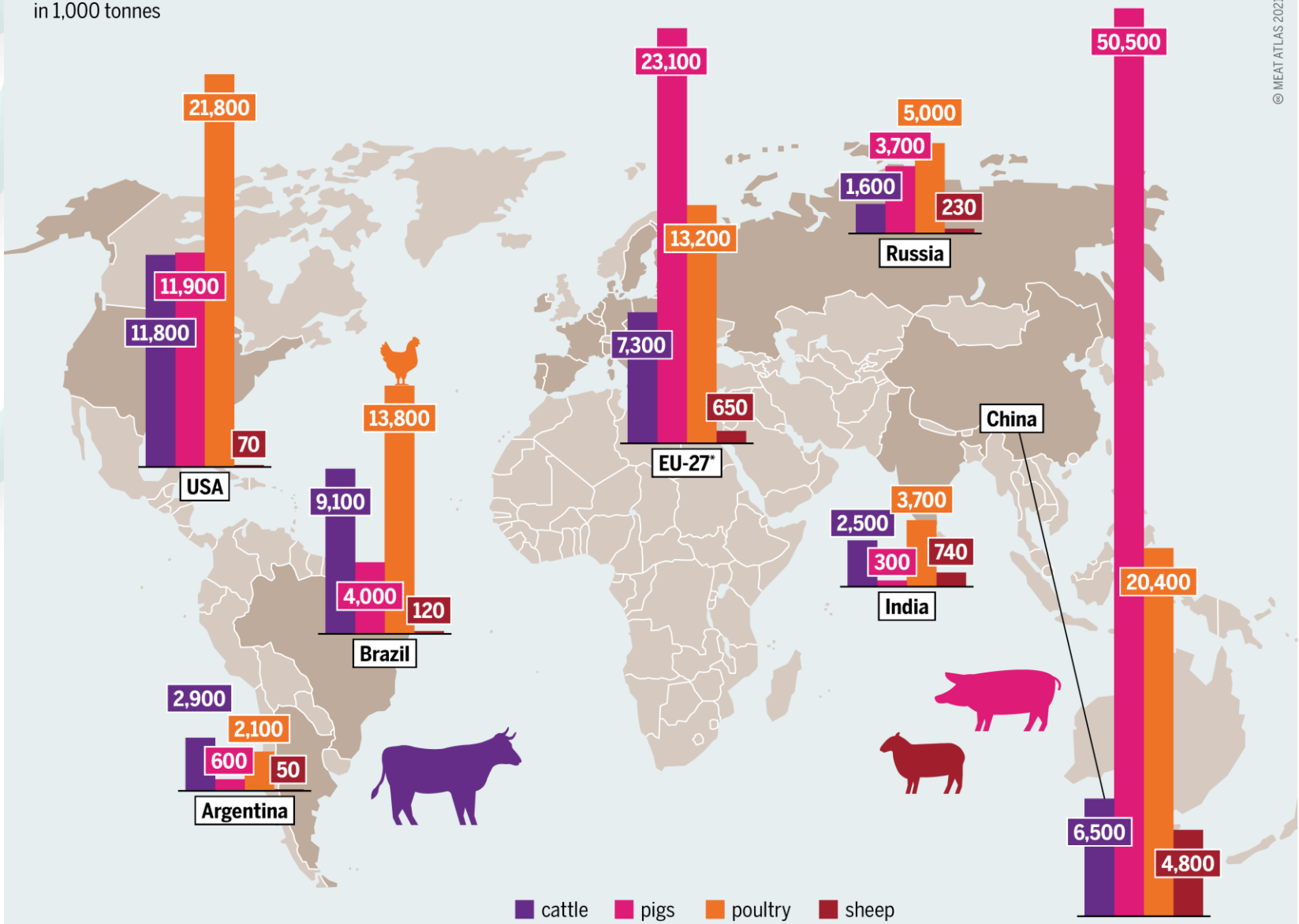
Production and trade of meat,
million tonnes



2021: April forecast. Without stock changes. Import/export: mean value

FOR ALL THE PORK IN CHINA

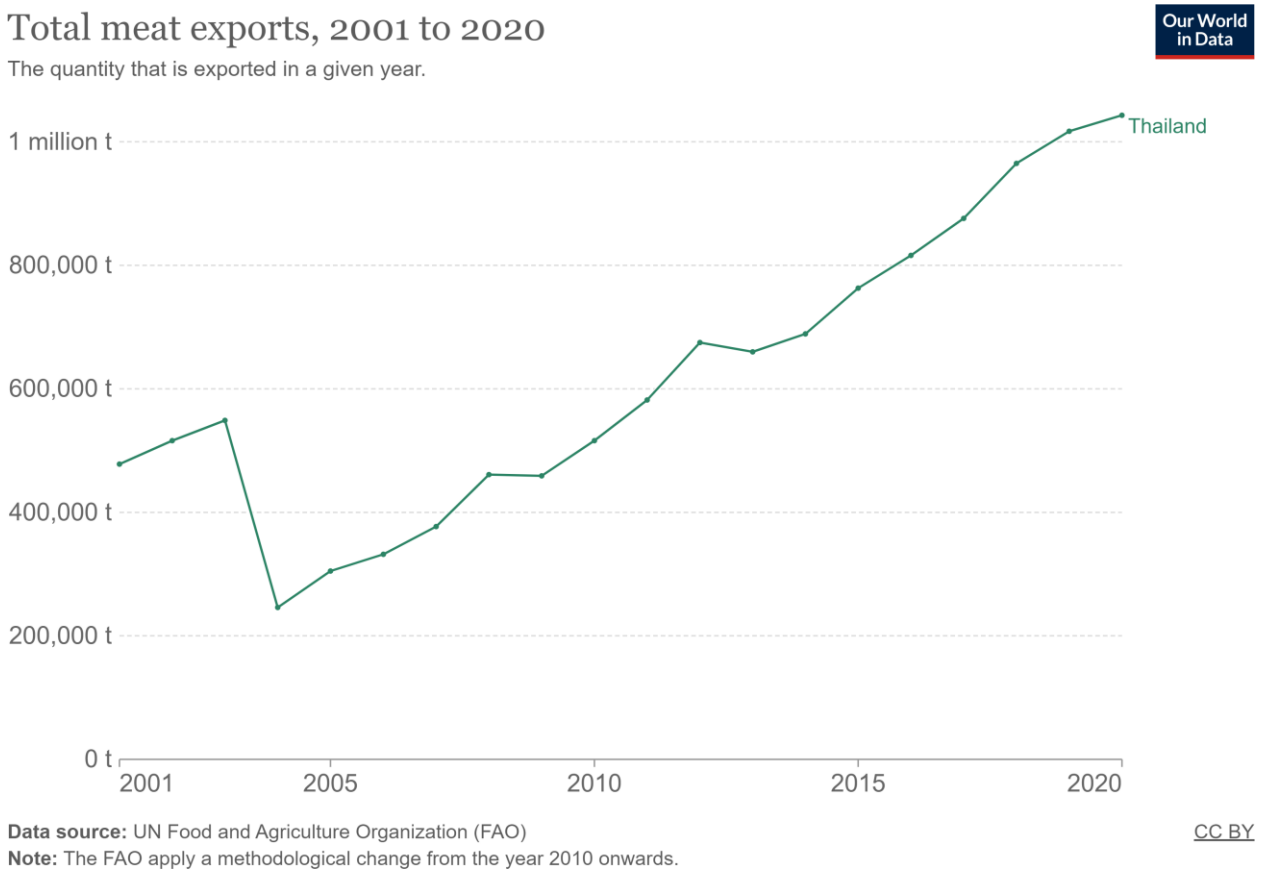
Largest producing countries of major animal products, annual average 2017–19,
in 1,000 tonnes



*EU 27 without United Kingdom

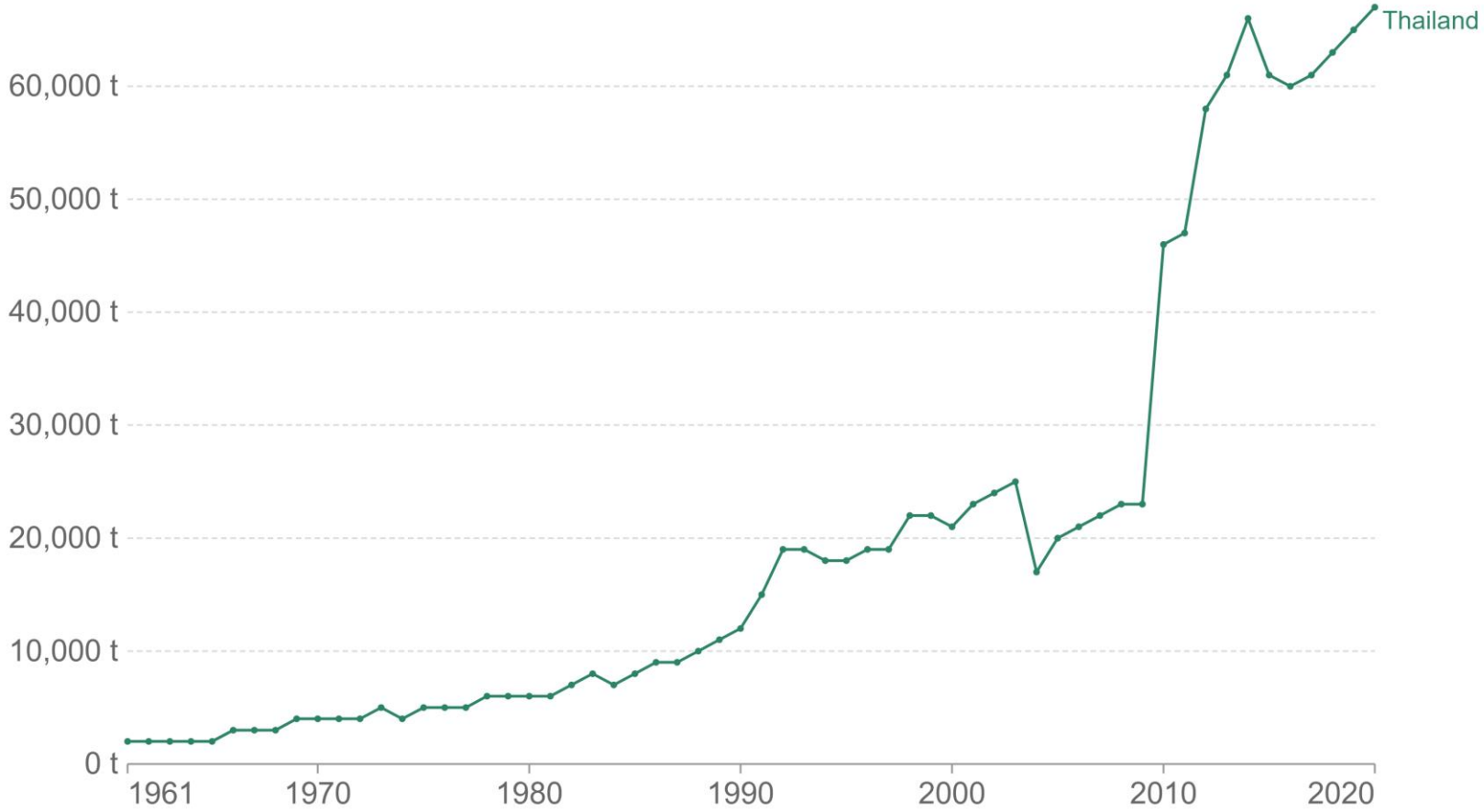
MEAT ATLAS 2021 / OECD, FAO

TH: Meat imports vs export



Total meat waste in supply chains, 1961 to 2020

The quantity that is lost or wasted in supply chains through poor handling, spoiling, lack of refrigeration and damage from the field to retail. It does not include consumer waste.



Data source: UN Food and Agriculture Organization (FAO)
Note: The FAO apply a methodological change from the year 2010 onwards.

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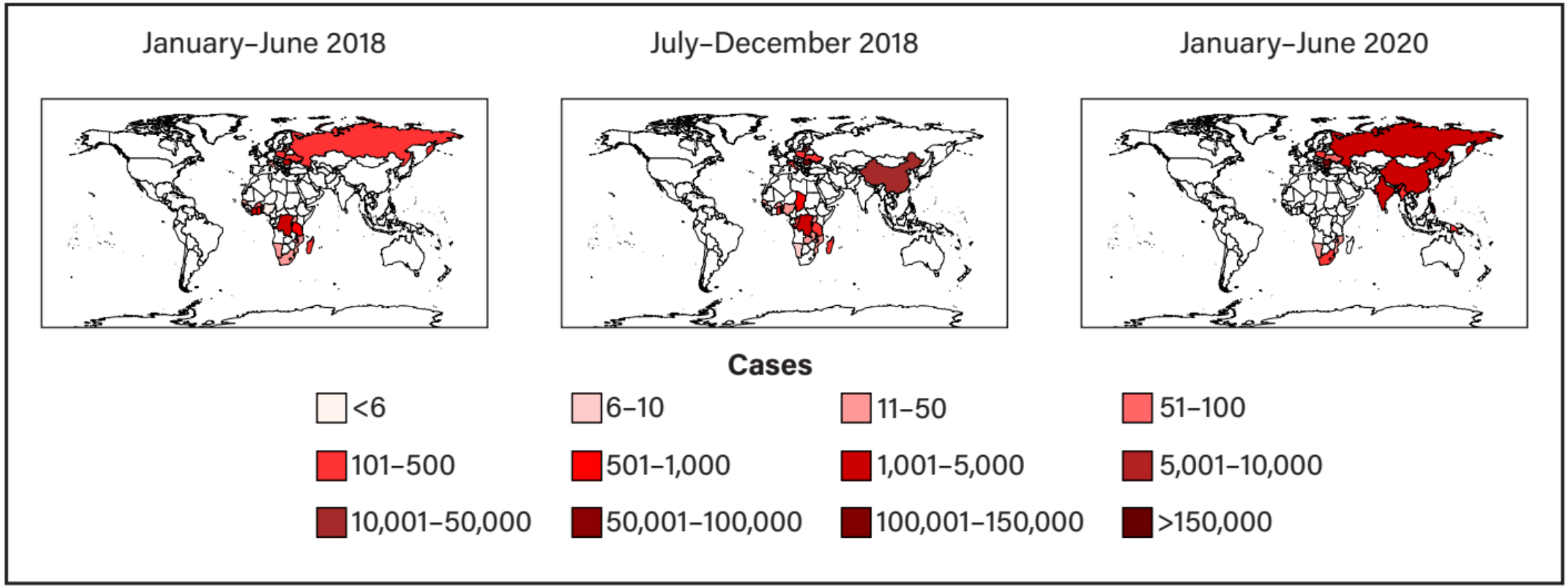
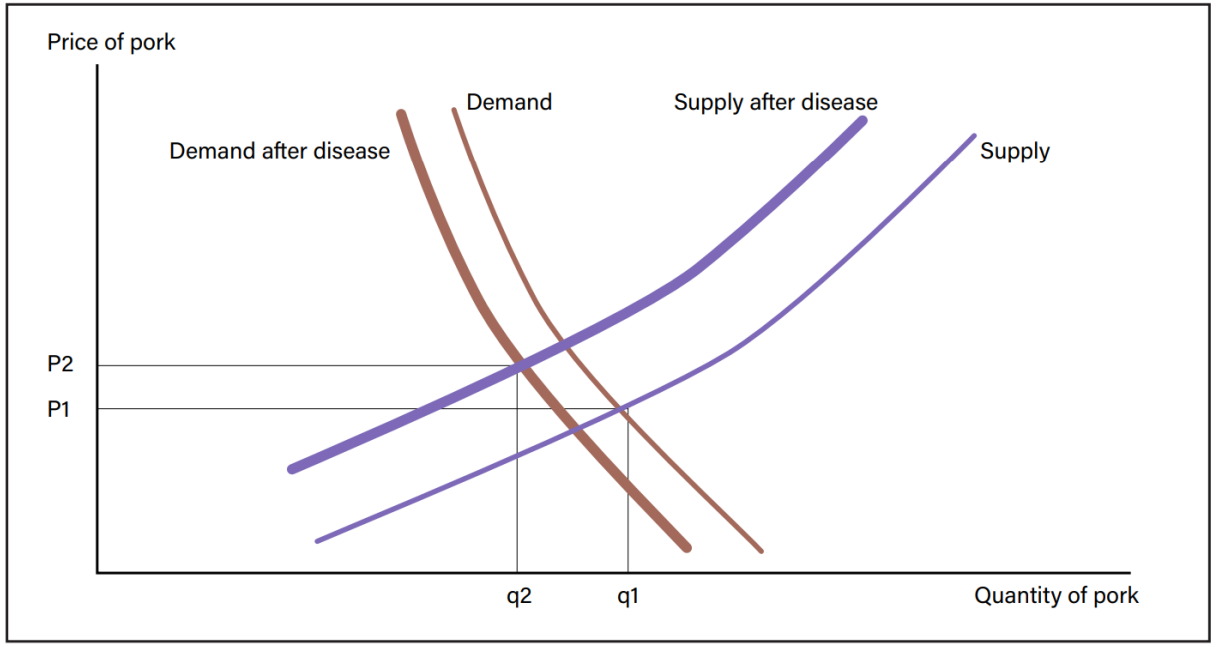
How China's African Swine Fever Outbreaks Affected Global Pork Markets (Gale, 2023)

Geographic distribution of African swine fever outbreaks, January 2018–June 2020



Source: USDA, Economic Research Service analysis of data from the World Organization for Animal Health (WOAH).

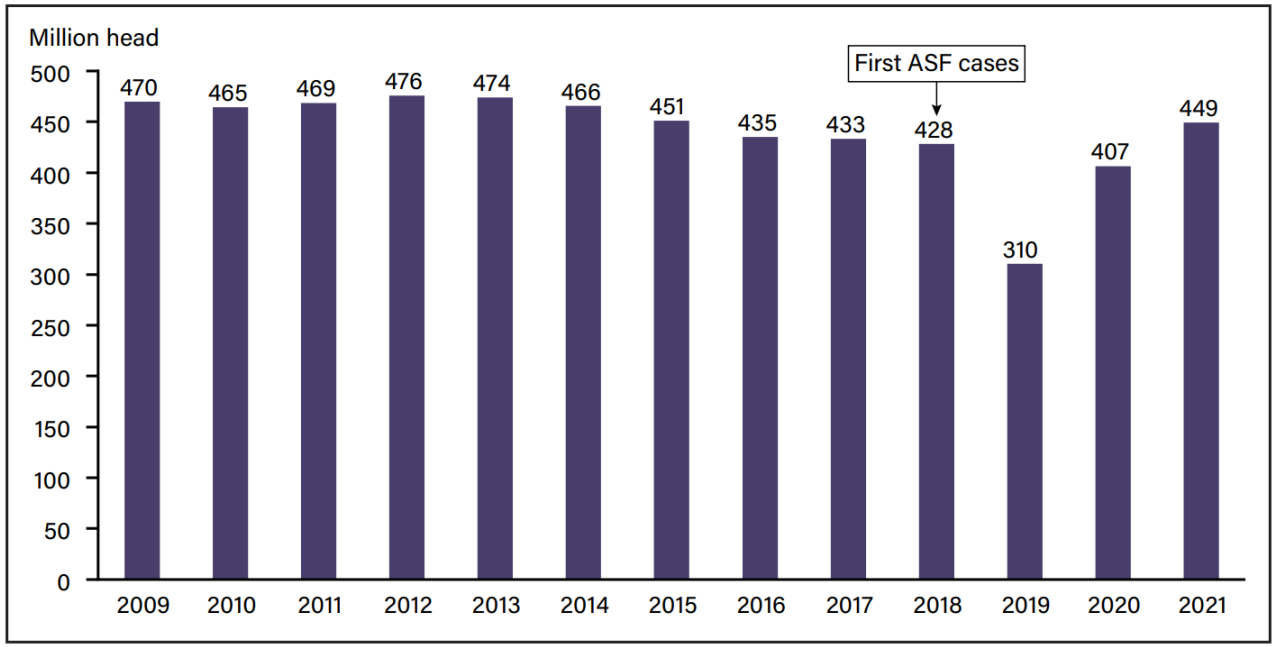
Supply and demand after China's African swine fever (ASF) event (Gale, 2023)



Note: This is a theoretical supply and demand diagram used for illustrating the impact of ASF on the pork market. P1 and q1 represent the price and quantity of pork produced and consumed before the disease outbreak. P2 and q2 represent the price and quantity of pork after the disease outbreak.

Source: USDA, Economic Research Service, plotted by authors.

China swine inventory declined sharply in 2019



ASF = African swine fever.

Source: USDA, Economic Research Service based on data from China's National Bureau of Statistics.

Change in number of Chinese swine farms, by size category, 2012–20 (Gale, 2023)

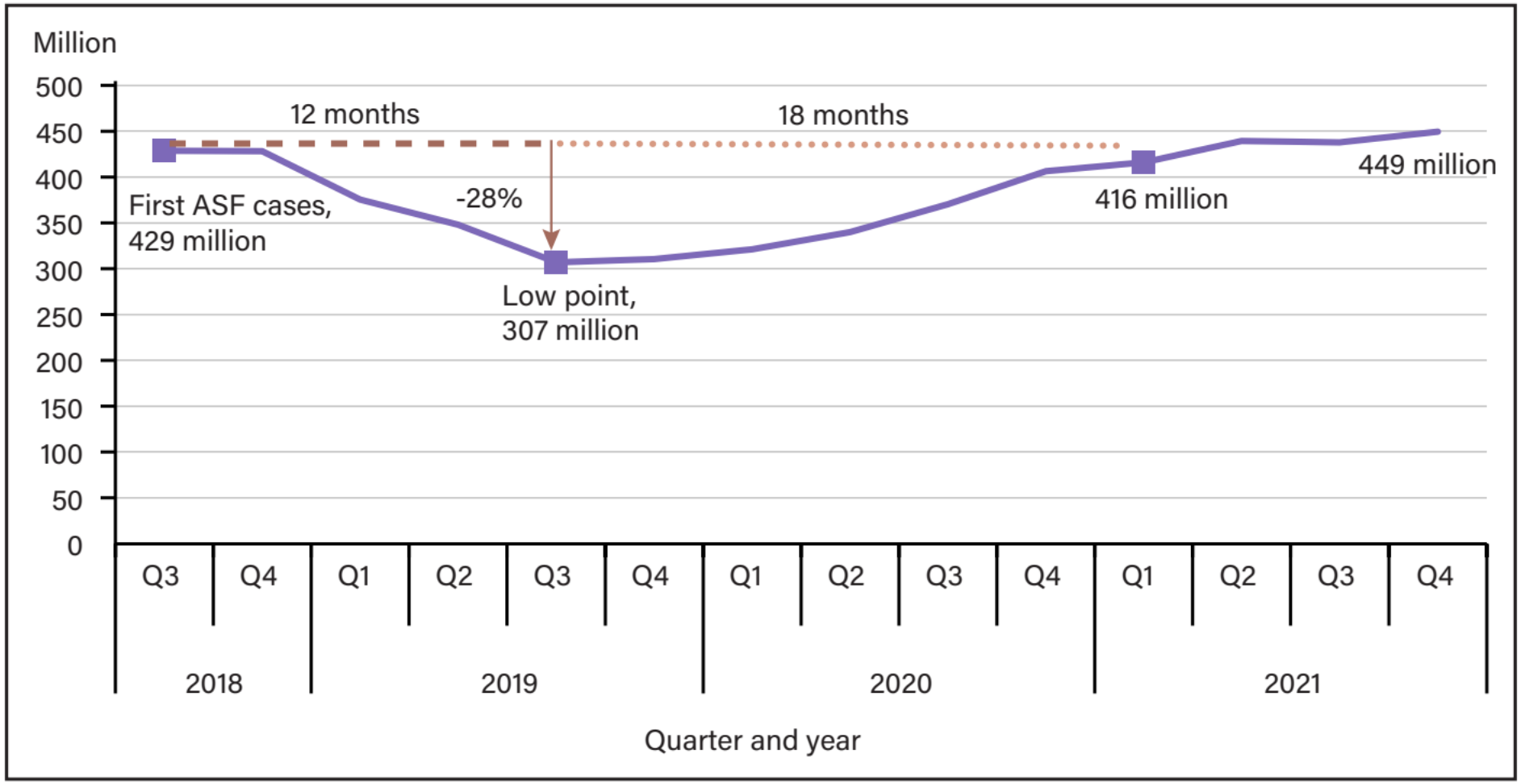
Change in number of Chinese swine farms, by size category, 2012–20

	Farm size: number of swine sold/slaughtered per year			
	<500	500–4,999	5,000–49,999	50,000 or more
Year	Change in number of farms			
2012–13	-2,593,194	10,225	282	15
2013–14	-2,578,453	975	167	24
2014–15	-2,976,843	-2,701	-23	35
2015–16	-3,941,565	-7,689	-202	50
2016–17	-4,821,698	-40,893	-186	96
2017–18*	-6,158,363	-27,680	-665	36
2018–19*	-8,788,601	-31,671	-855	-70
2019–20	-1,968,891	6,609	1,134	181

*Peak outbreaks of African swine fever were reported in China during 2018–19

Source: USDA, Economic Research Service calculations using data from China's Ministry of Agriculture and Rural Affairs, *China Animal Husbandry and Veterinary Yearbooks.*

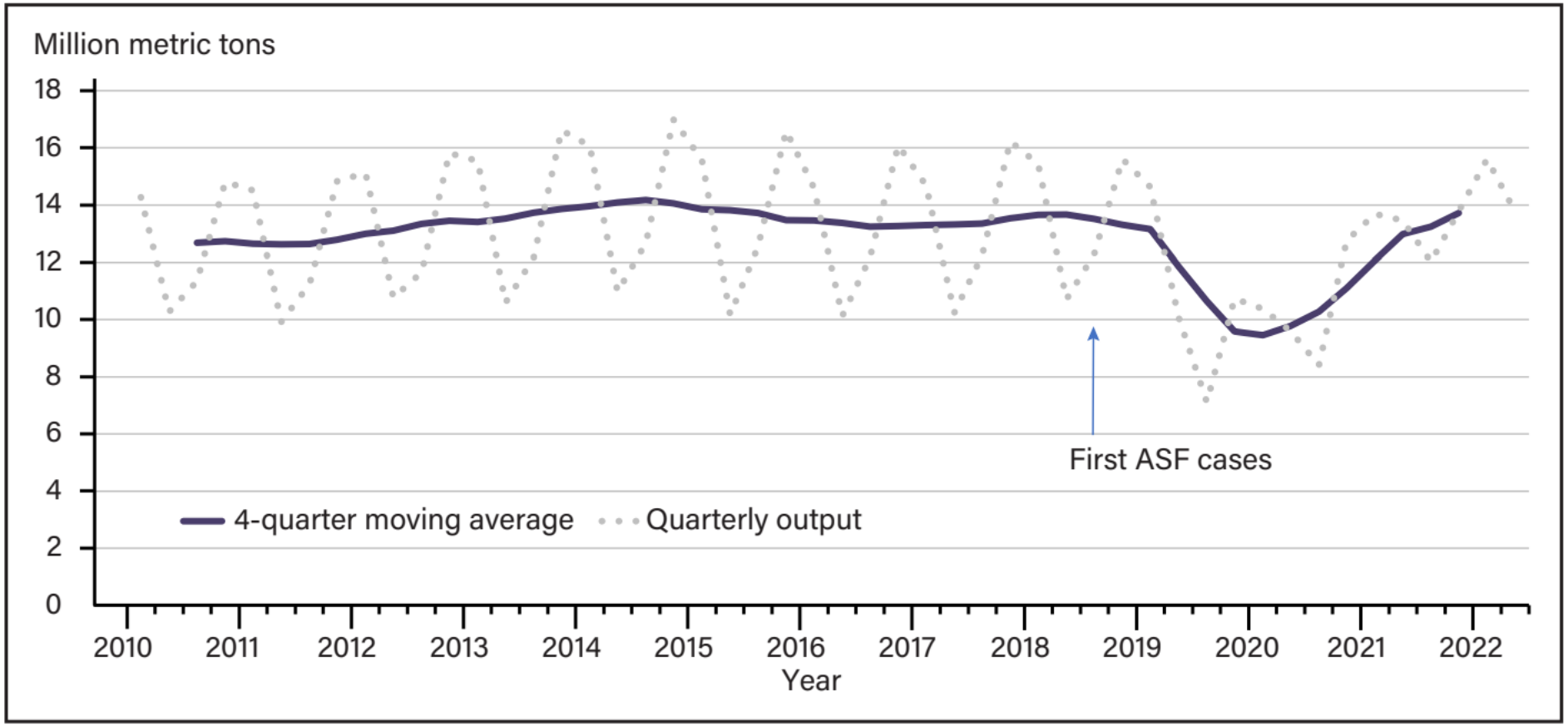
Decline and recovery of China's swine inventory, 2018–21



ASF = African Swine Fever. Q1, Q2, Q3, and Q4 = quarter 1, quarter 2, quarter 3, and quarter 4.

Source: Compiled by USDA, Economic Research Service from China's National Bureau of Statistics quarterly reports.

China's quarterly pork output, 2010–22

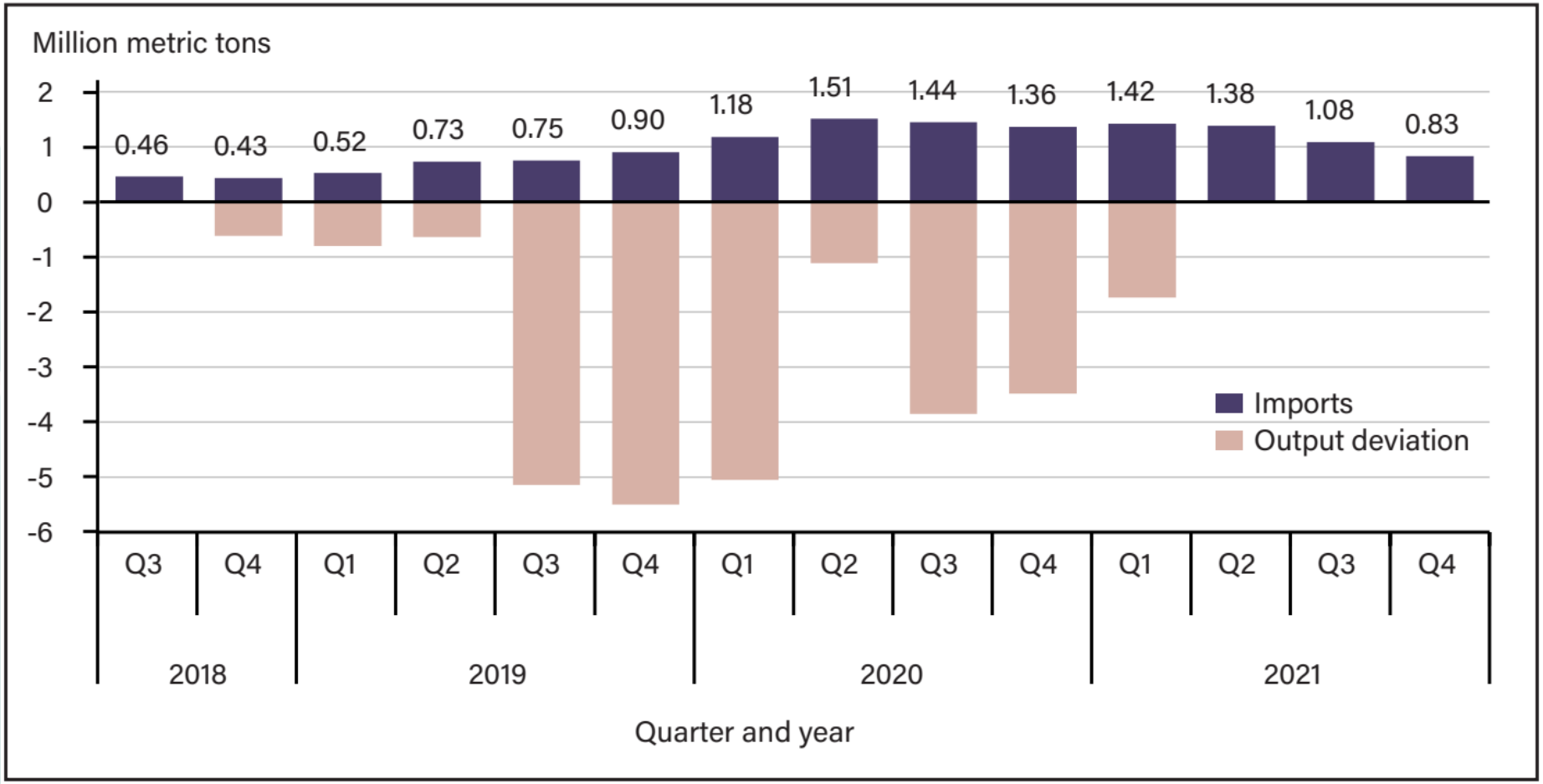


ASF = African swine fever.

Note: Moving average = .25 * (Qt-2 + Qt-1 + Qt + Qt+1).

Source: USDA, Economic Research Service compiled from China's National Bureau of Statistics quarterly macroeconomic data reports.

China's pork imports and pork production shortfall

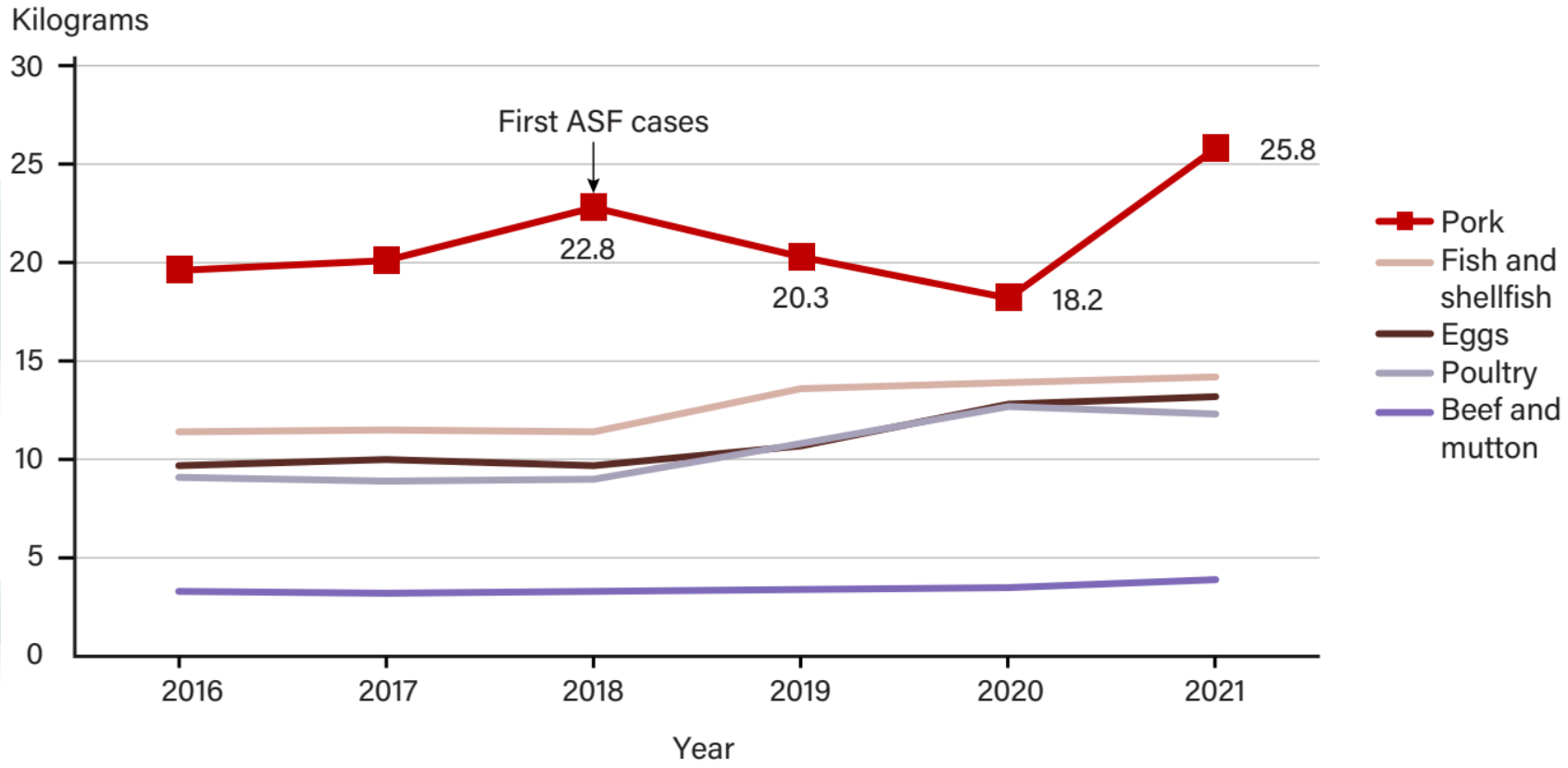


Q1, Q2, Q3, and Q4 = quarters 1, 2, 3, and 4.

Note: Pork imports include harmonized system categories defined by the World Trade Organization as constituting "pork and pork products:" 0203, 020641, 020649, 0210, 1602. The production shortfall was shown in figure 8.

Source: USDA, Economic Research Service analysis of China customs data accessed through the Trade Data Monitor.

Chinese household per-capita purchases of pork and other animal proteins, 2016–21

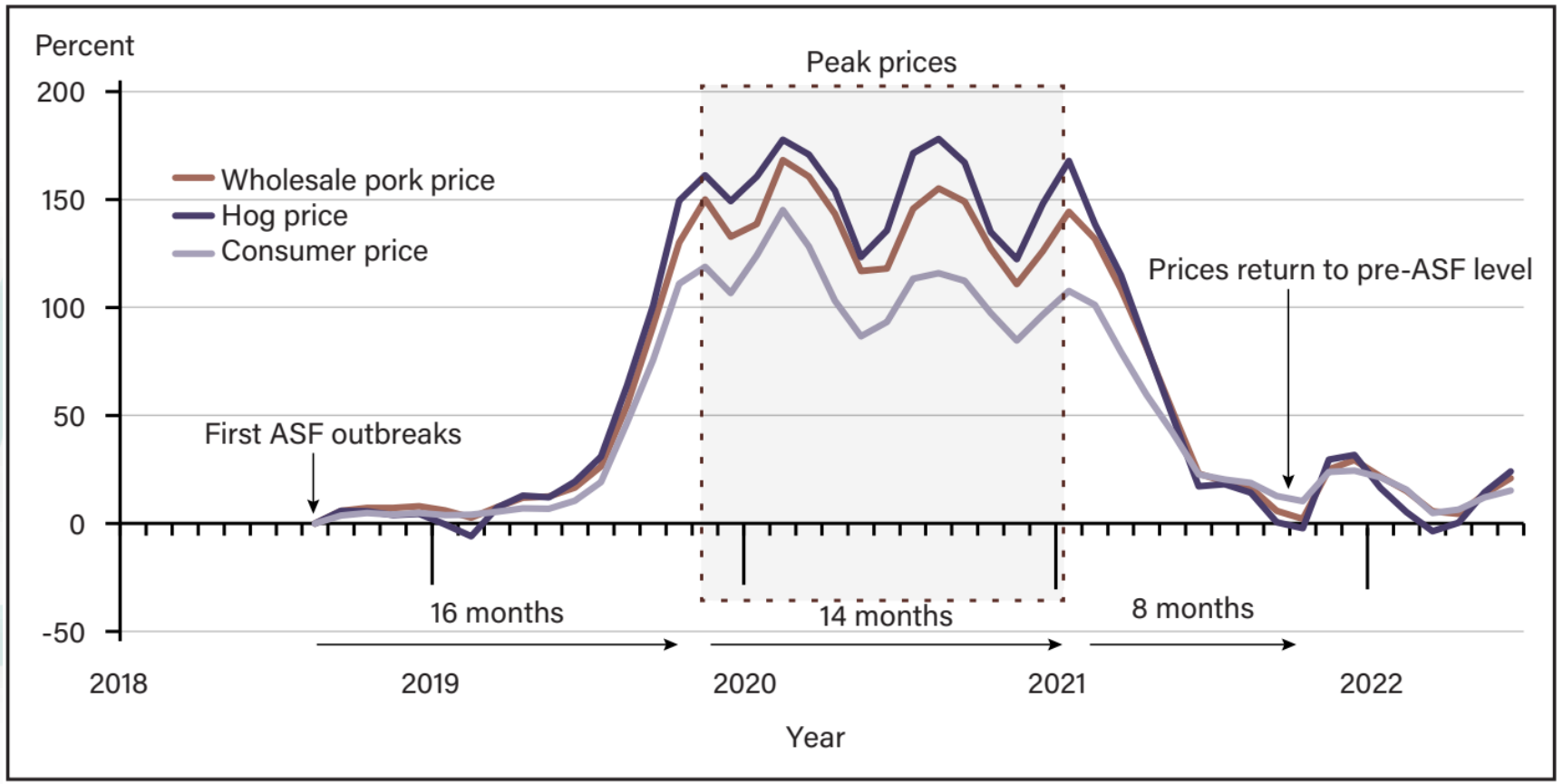


Change in per capita consumption of pork and other animal protein, 2018–21

Years	Pork	Poultry	Eggs	Beef and mutton	Fish and shellfish
			Kilograms		
2018–20	-4.6	3.7	3.1	0.2	2.5
2020–21	7.6	-0.4	0.4	0.4	0.3

Source: USDA, Economic Research Service calculations using data from figure 11.

Growth in China's hog and pork prices after the first ASF outbreaks (Gale, 2023)

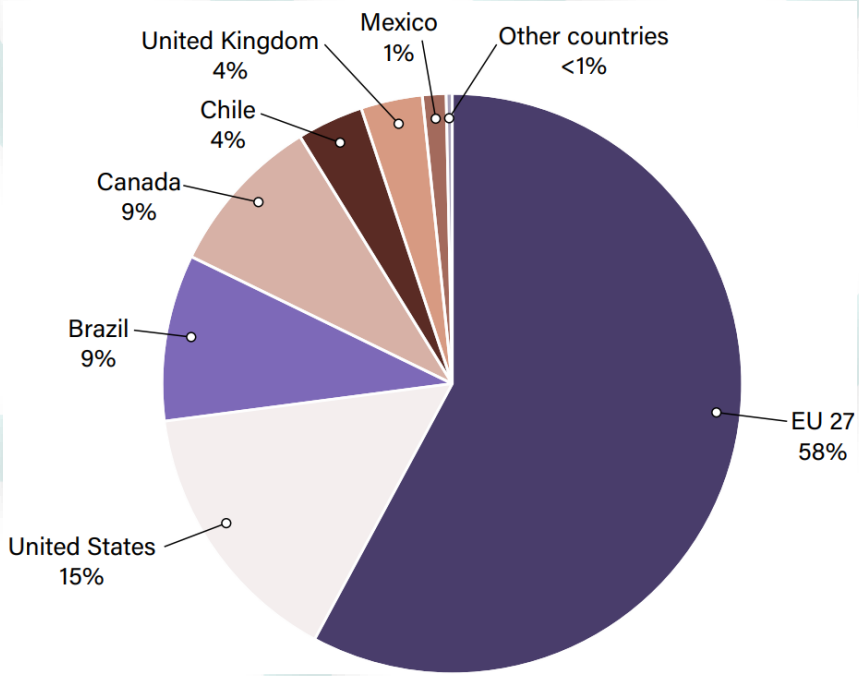


ASF = African swine fever.

Note: Each price is indexed to August 2018. The chart shows the cumulative change in price from August 2018 to the current month. The wholesale pork price is for a carcass with internal organs, feet, and head removed. Consumer price changes were calculated from monthly consumer pork price indexes.

Source: USDA, Economic Research Service based on monthly averages from weekly livestock and feed market price reports posted online by China's Ministry of Agriculture and Rural Affairs and consumer price index reports posted online by China's National Bureau of Statistics.

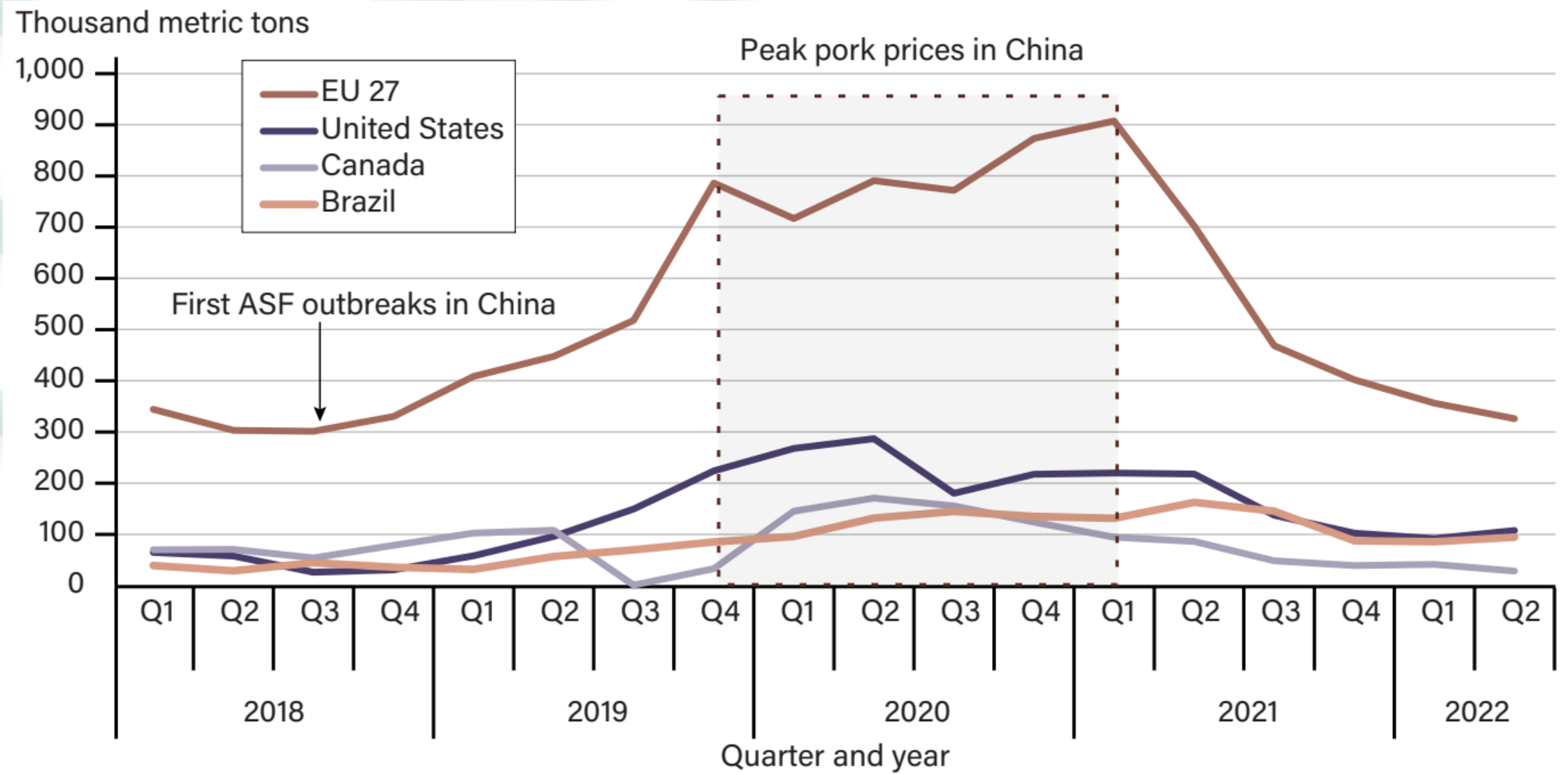
Share of world pork exports to China, by exporting country, 2018–21 (Gale, 2023)



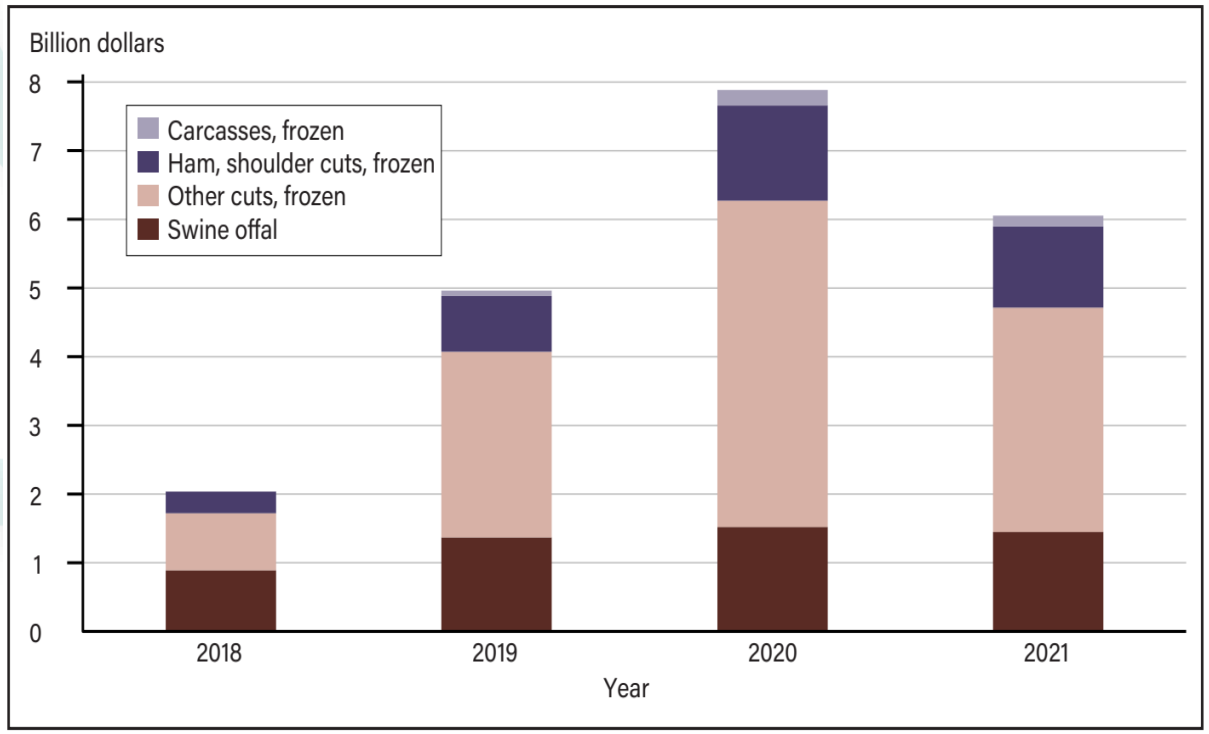
Pork exports to China by major exporting countries and regions, 2018–21

Exporters	2018	2019	2020	2021	2018–21 total
			1,000 metric tons		
European Union	1,280.2	2,156.0	3,142.8	2,474.1	**9,053.2**
United States	186.5	533.5	955.7	682.0	**2,357.6**
Brazil	156.2	250.7	513.2	532.0	**1,452.0**
Canada	280.6	251.6	601.0	275.5	**1,408.7**
Chile	72.4	117.9	211.7	177.4	**579.4**
United Kingdom	81.5	131.5	176.1	147.7	**536.7**
Mexico	2.8	30.4	109.0	63.9	**206.0**
Argentina	0.0	1.0	20.6	16.3	**37.9**
Switzerland	0.0	0.1	2.8	3.8	**6.8**
Costa Rica	0.0	0.0	2.1	0.2	**2.3**
Russia	0.1	0.2	0.6	0.5	**1.4**
Australia	0.6	0.3	0.1	0.3	**1.4**
Serbia	0.0	0.0	1.2	0.1	**1.3**

Pork exports to China by leading exporters, 2018–22



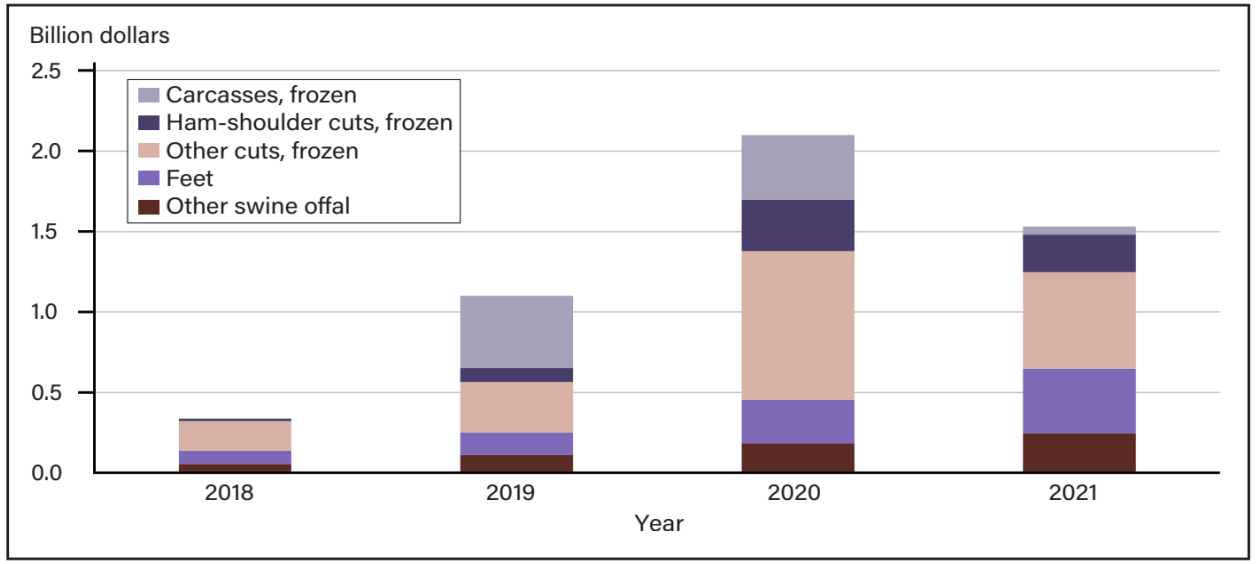
European Union pork exports to China by type, 2018–21 (Gale, 2023)



Note: Swine offal is harmonized system (HS) category 020649; other cuts, frozen is HS 020329; ham, shoulder cuts, frozen is HS 020322; and carcasses, frozen is HS 020321.

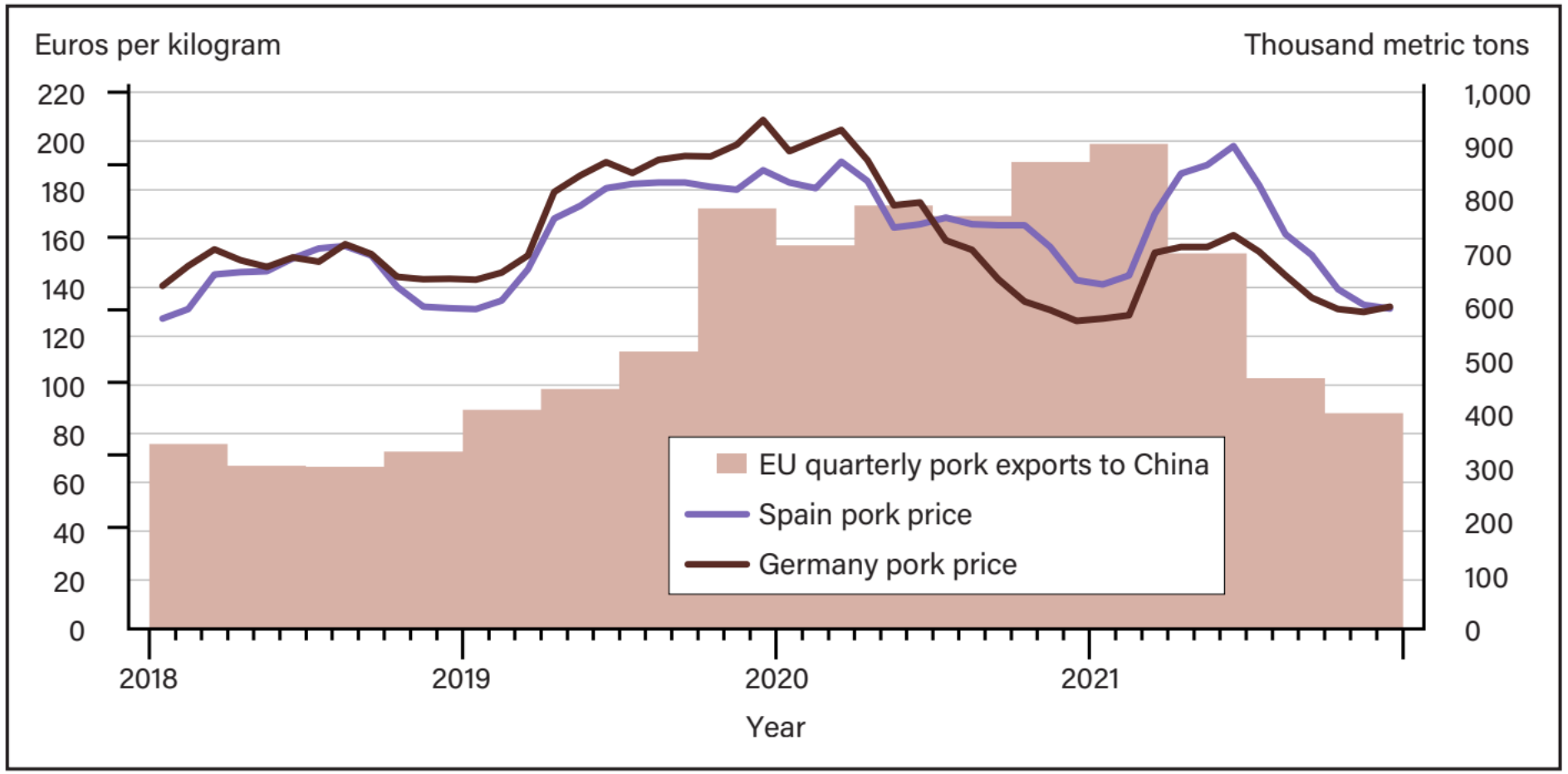
Source: USDA, Economic Research Service based on customs data accessed through the Trade Data Monitor.

U.S. pork exports to China by major type, 2018–21



Note: Categories are composed of the following harmonized system (HS) categories: carcasses, frozen is HS 020321; ham, shoulder cuts, frozen is HS 020322; other cuts, frozen is HS 020329; and feet is HS 0206490030. The category "other swine offal" includes tongues HS 0206490010, hearts HS 0206490020, head meat HS 0206490040, skins HS 0206490050, and other edible frozen offal of swine HS 0206490090.

Pork prices in Spain and Germany, and European Union (EU) pork exports to China, 2018–21 (Gale, 2023)



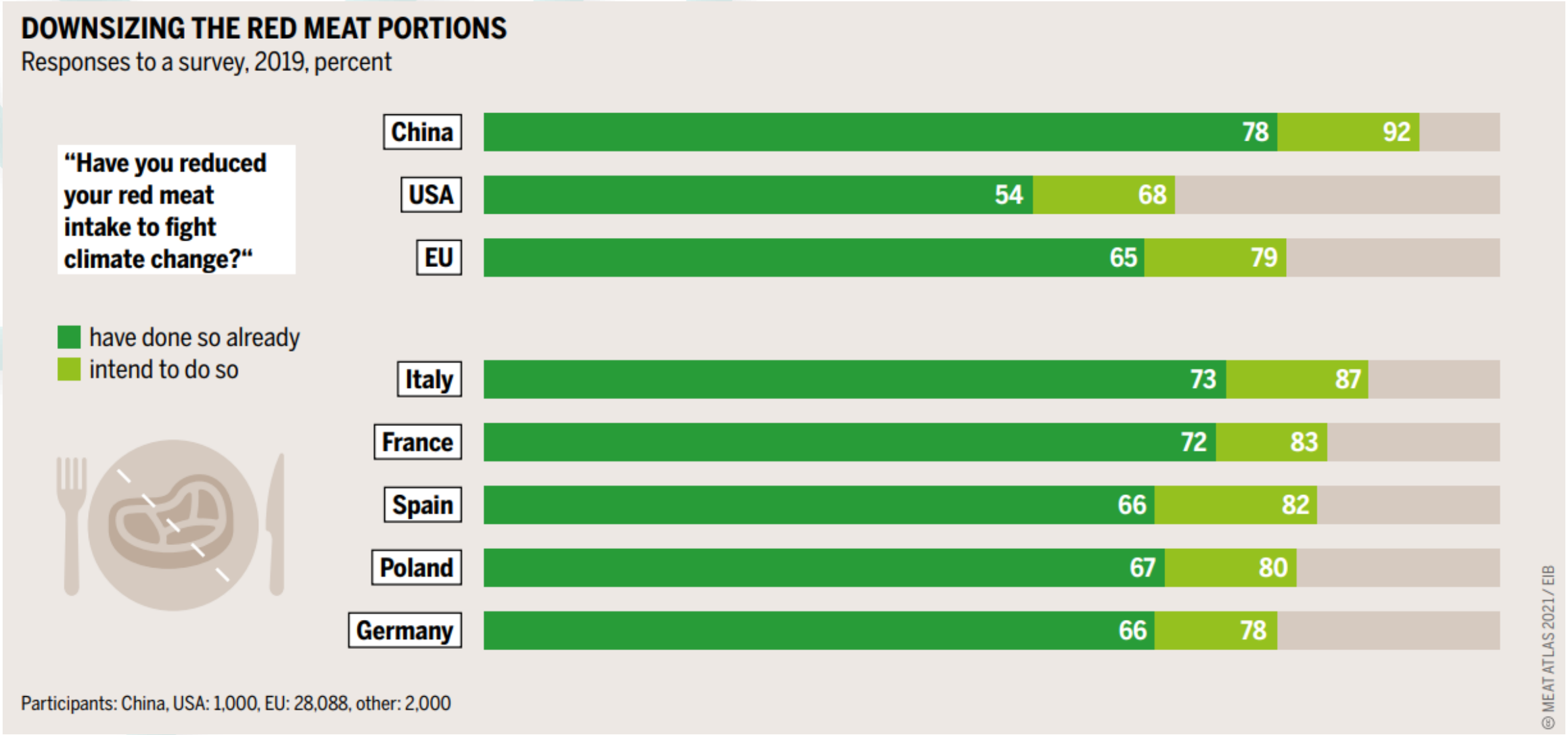
Note: Average carcass price, class "superior."

Source: USDA, Economic Research Service based on information from the European Commission, Agriculture and Rural Development website and the Trade Data Monitor.

THE FUTURE OF

LIVESTOCK SECTOR

Have you reduced your red meat intake to fight climate change?



Digital livestock farming

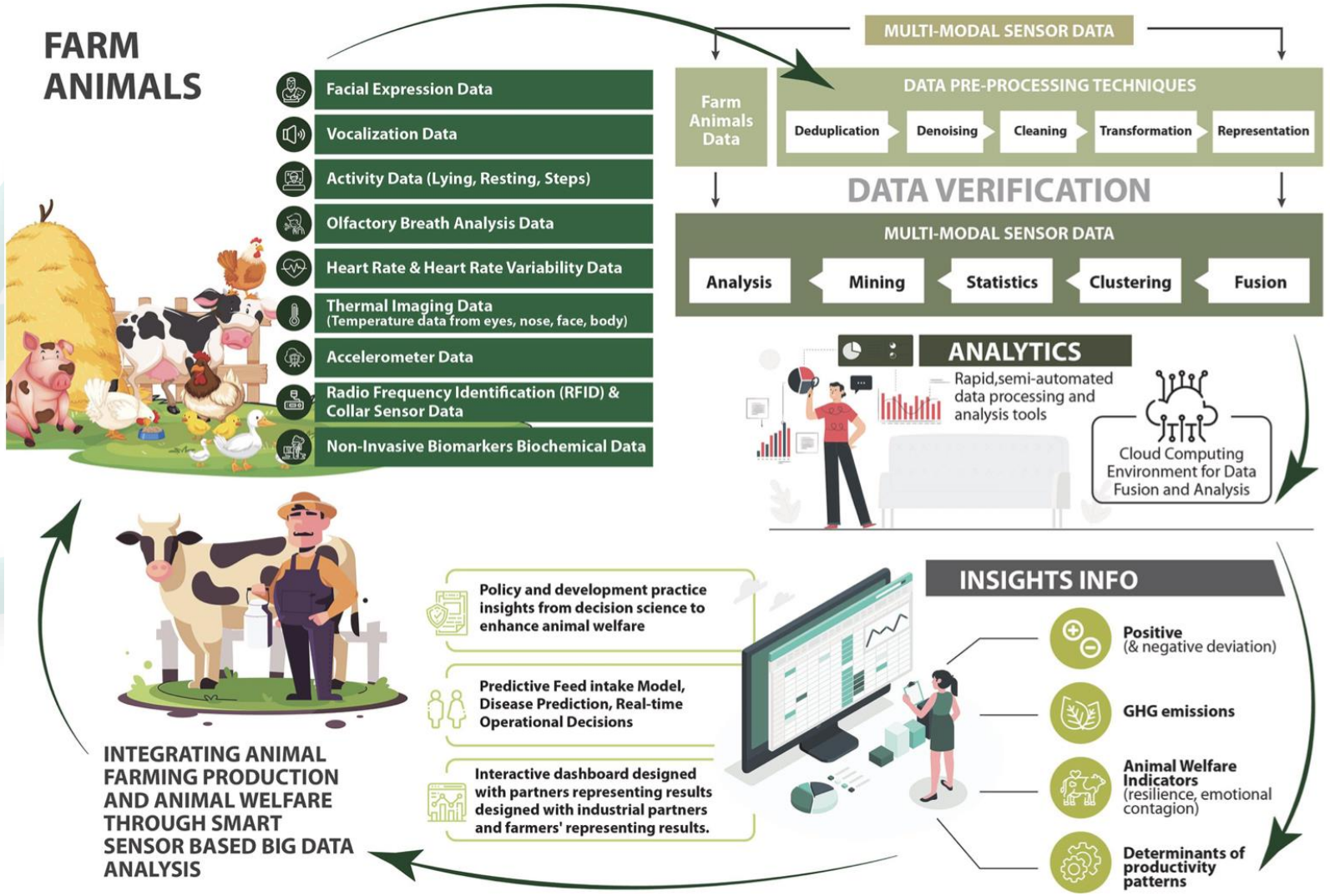


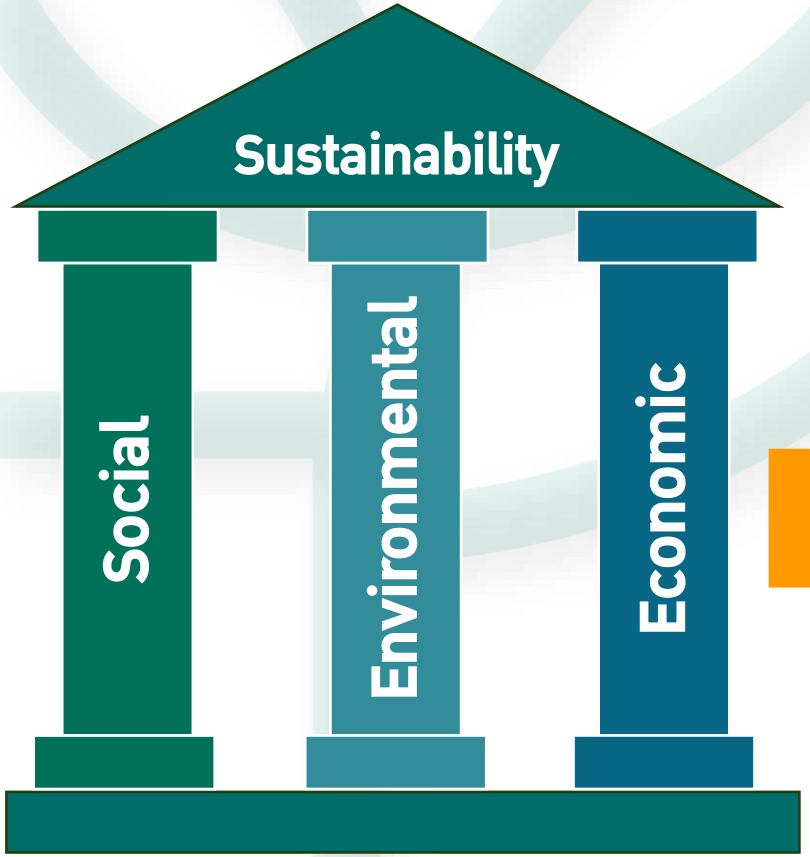
Figure 2. Big Data for Animal Farming: The chain of sensors-based big data applications in precision livestock farming.

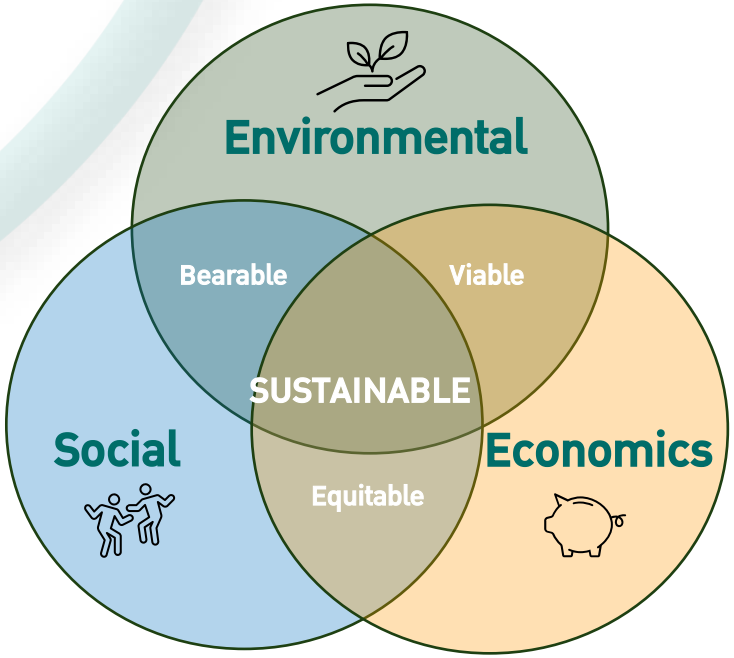
Neethirajan, S., & Kemp, B. (2021). Digital Livestock Farming. *Sensing and Bio-Sensing Research*, *32*, 100408. https://doi.org/https://doi.org/10.1016/j.sbsr.2021.100408

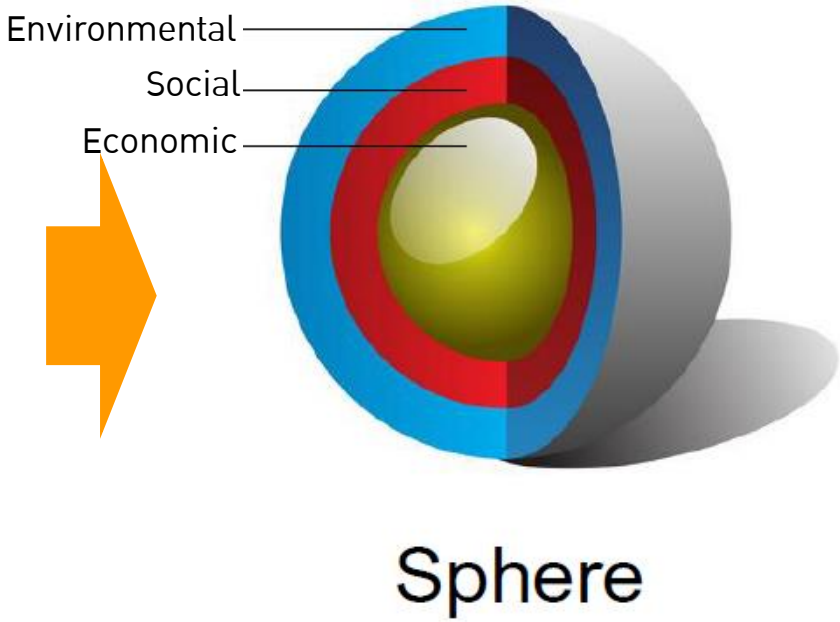
SUSTAINABLE DEVELOPMENT GOALS

พัฒนาการของแนวคิดความยั่งยืน

จากอดีต....สู่ปัจจุบัน

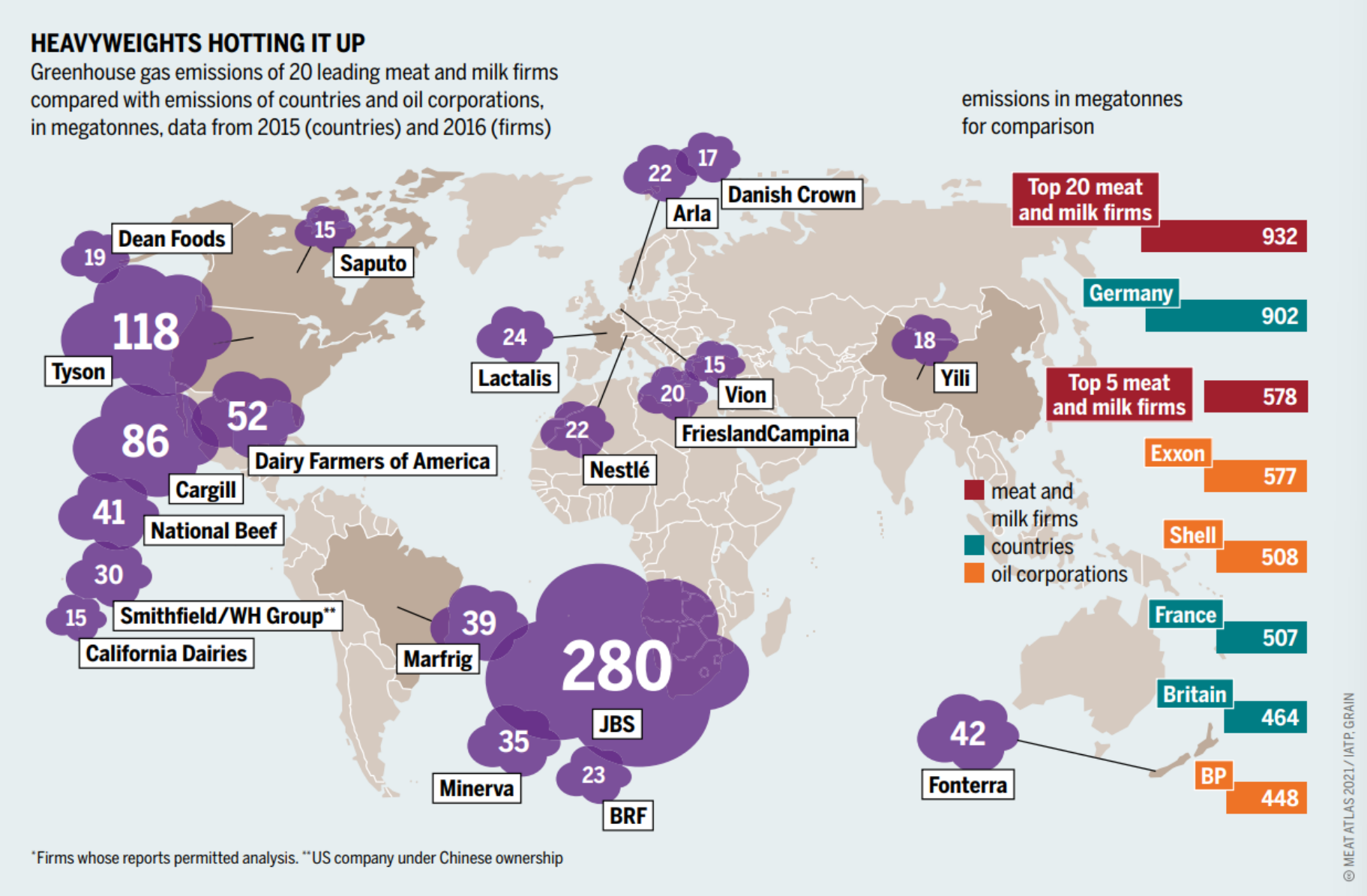




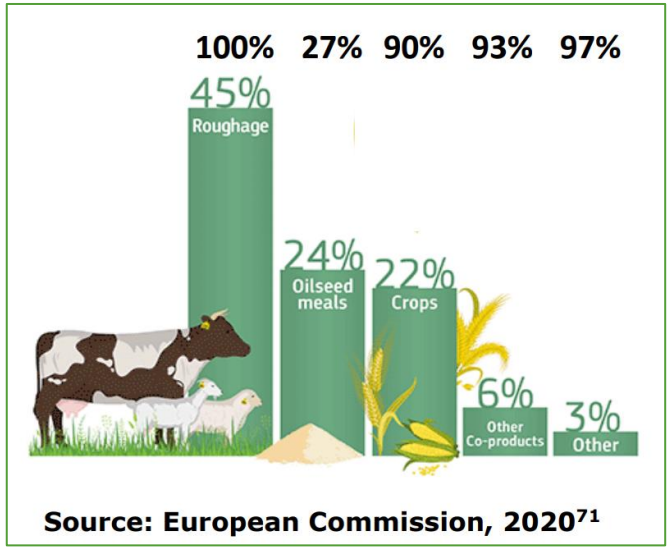


Sustainable Livestock

Greenhouse gas emissions



Share of protein sources in animal feed (green values) and proportion of feed use of EU origin (black values) in 2017-18



Source: European Commission, 2020[71]

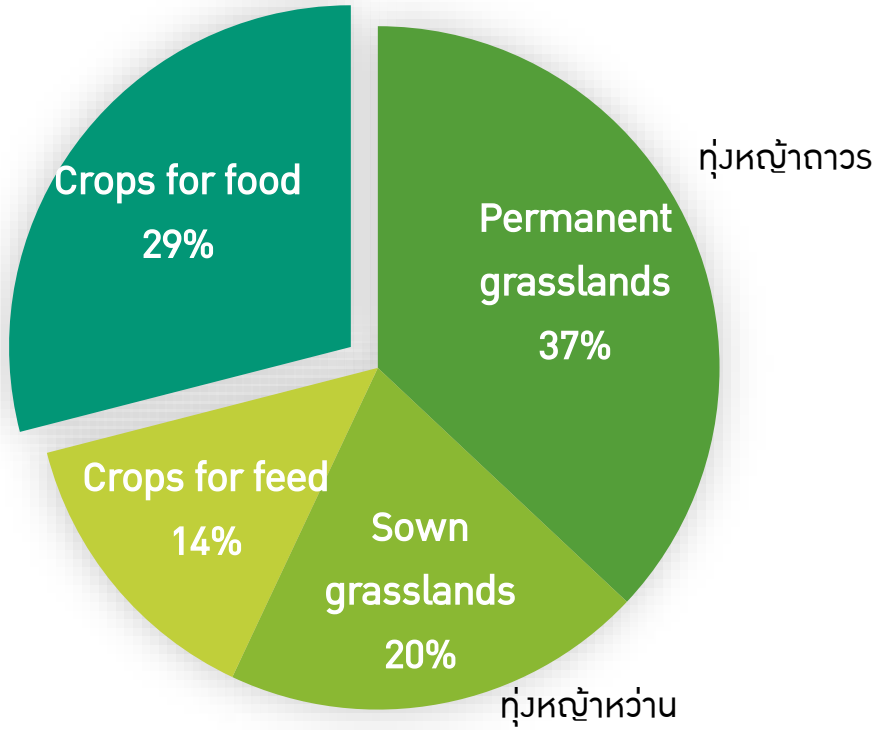
- Livestock recycle biomass/protein that is not directly usable for human food to produce food of high nutritional quality.

Table 1: Feed and protein of plant origin required to produce 1 kg of protein of animal food

	Ruminants	Non-ruminants
Total feed intake	133	30
Human edible food of plant origin required	5.9	15.8
Human edible protein of plant origin required	0.6	2.0

Source: Mottet et al 2017[69]

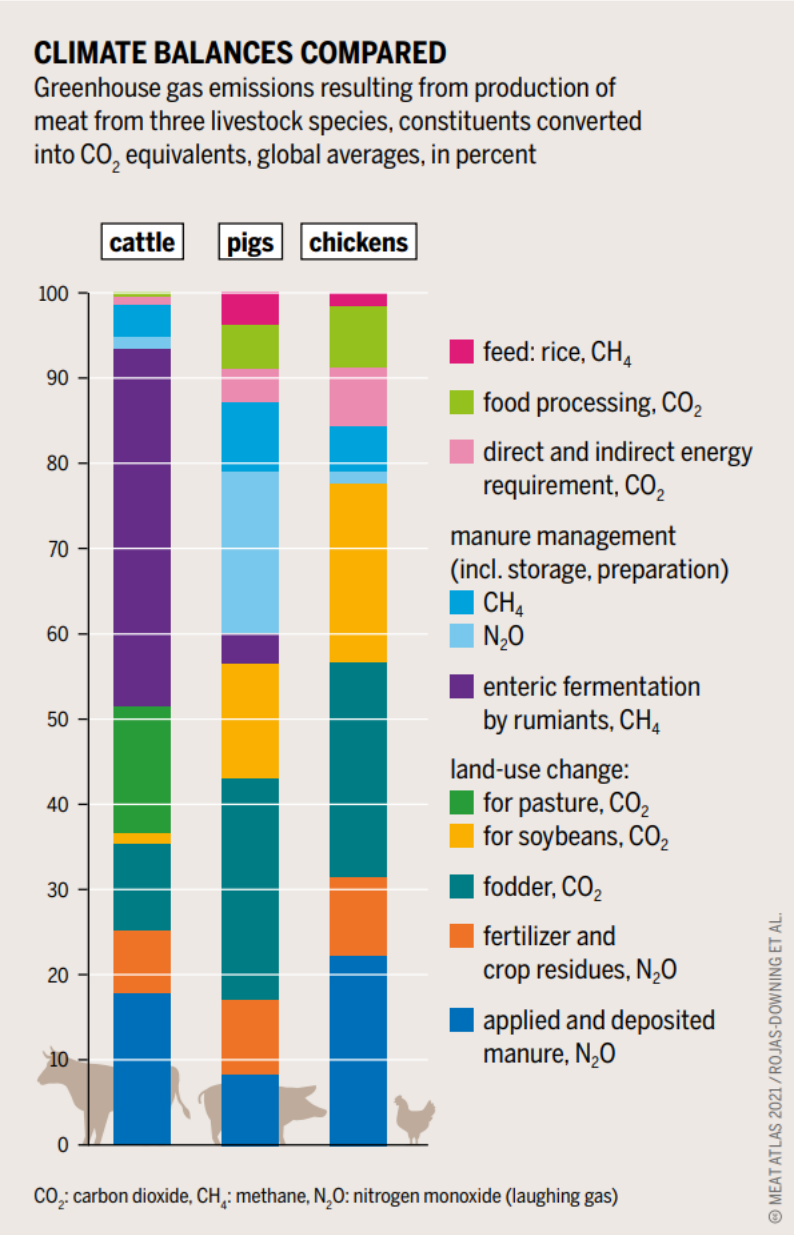
Land use by livestock farming (% of global agricultural area)



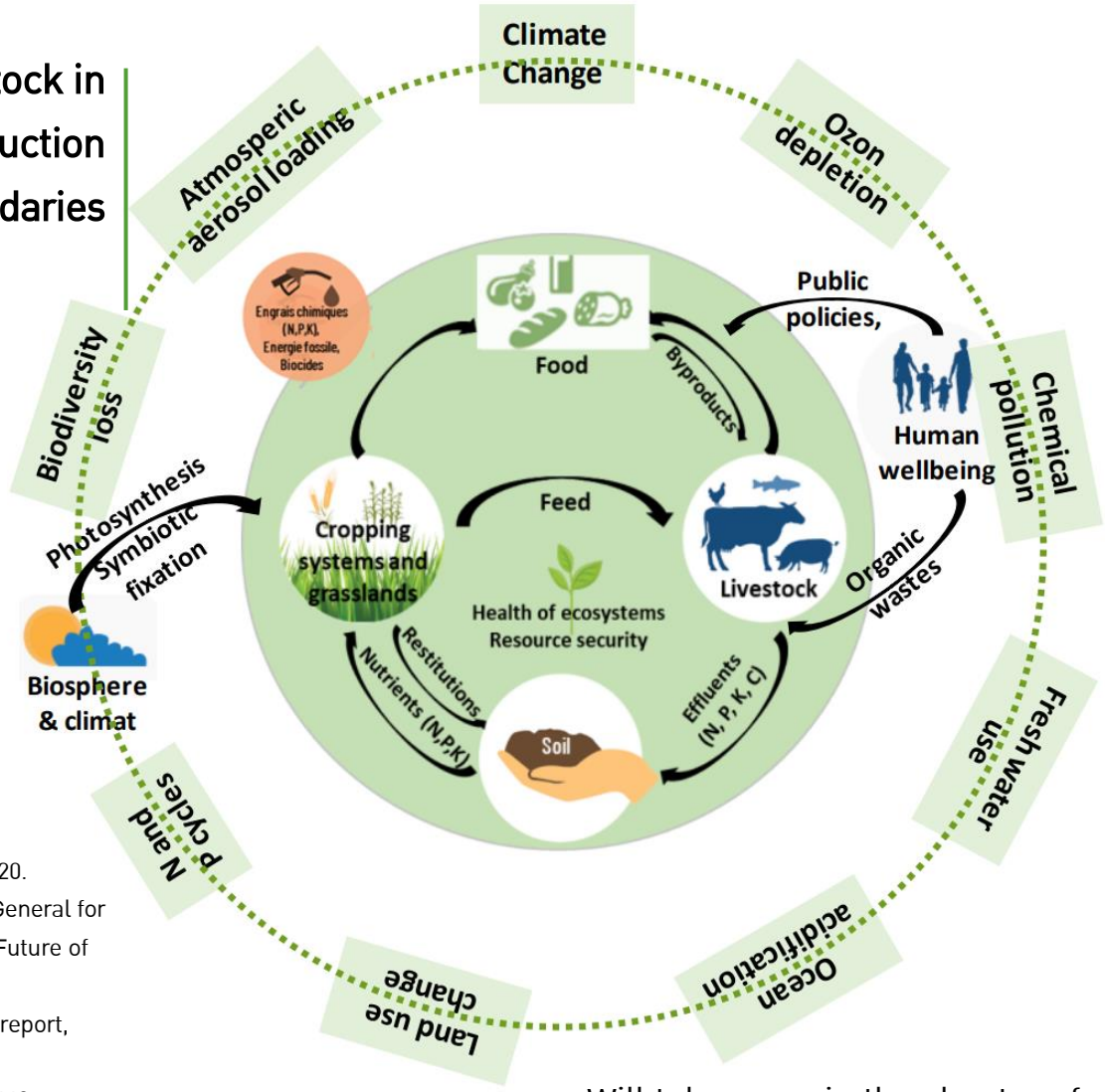
Source: Peyraud, J., MacLeod, M., 2020. European Commission, Directorate-General for Agriculture and Rural Development, Future of EU livestock : How to contribute to a sustainable agricultural sector? final report, Publications Office, https://data.europa.eu/doi/10.2762/3440

Source: Mottet et al 201769, based on FAO Stat 2016

Improving livestock sustainability



Role and place of livestock in balanced circular food production Within planetary boundaries



Source: Peyraud, J., MacLeod, M., 2020. European Commission, Directorate-General for Agriculture and Rural Development, Future of EU livestock : How to contribute to a sustainable agricultural sector? final report, Publications Office, https://data.europa.eu/doi/10.2762/3440

Will take more in the chapter of livestock sustainability.

Animal-to-Human

CHRONOLOGY OF ANIMAL-TO-HUMAN DISEASES

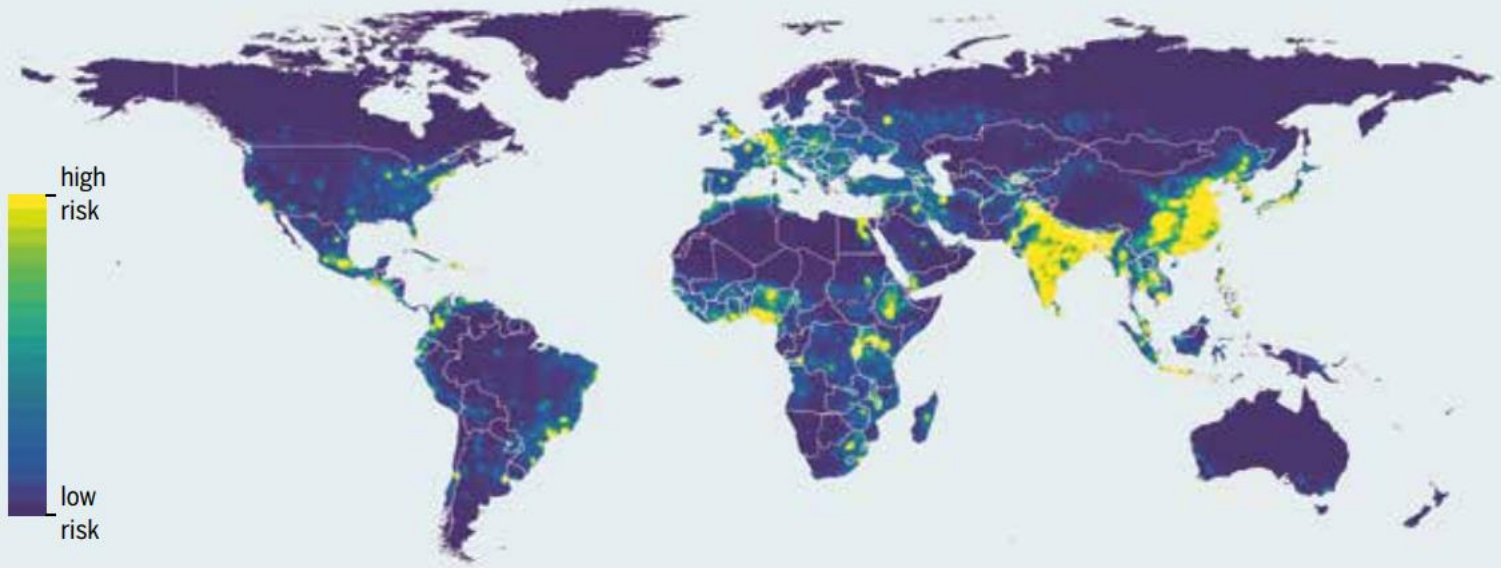
Discovery of first major outbreak of well-known zoonotic diseases, original species and intermediate host

1878	**avian influenza** (HPAI)	birds
1920s	**acquired immune deficiency syndrome** (AIDS)	primates
1931	**infectious bronchitis**	poultry
1937	**West Nile fever**	birds, horses
1947	**Zika fever**	monkeys, then mosquitoes
1976	**Ebola**	bats, monkeys
1986	**mad cow disease** (spongiform encephalopathy, BSE)	cattle, sheep
1994	**Hendra virus**	flying foxes, horses
1997	**bird flu** (H5N1), a form of avian influenza	flying foxes, pets
1998	**Nipah virus**	flying foxes, pets
2003	**Severe acute respiratory syndrome** (SARS)	bats, then civets
2012	**Middle East respiratory syndrome** (MERS)	presumably bats, then dromedaries
2016	**swine acute diarrhea syndrome** (SADS)	presumably bats, pigs
2019	**novel coronavirus** (Covid-19)	wildlife, still undetermined

It is not always clear which animal a virus comes from and whether there are intermediate hosts

WHERE THE NEXT PANDEMIC MAY START

Risk of the emergence of diseases that originate in animals and are dangerous for humans, geographical location of hotspots



Infections that are transmitted from wildlife to humans tend to fall into particular categories – though they are of varying severity