MINISTRY OF FOREIGN AFFAIRS
OF DENMARK

WORKSHOP FOR: JAPANESE AGRICULTURAL JOURNALISTS

Royal Danish Embassy Tokyo, March 17th

AGENDA

- Introduction by Jesper Vibe-Hansen, Agricultural Counsellor and Miho Matsumoto, Sen. Commercial Officer
- Welcome remarks by Ambassador Peter Taksøe-Jensen
- Overall introduction to Denmark, agriculture and food production.
- Current topics of interest to Danish farmers
  - Green transition, War in Ukraine, other threats
- Agricultural education
- Gender equality and the role of women in farming

WELCOME REMARKS

By Ambassador
Peter Taksøe-Jensen

OVERALL INTRODUCTION TO DENMARK, AGRICULTURE AND FOOD PRODUCTION

DENMARK – A VERY SMALL COUNTRY BUT A "SUPERPOWER" IN FOOD & AGRICULTURE

- Denmark land size: 42,933 km2
  Population: 5,7 million

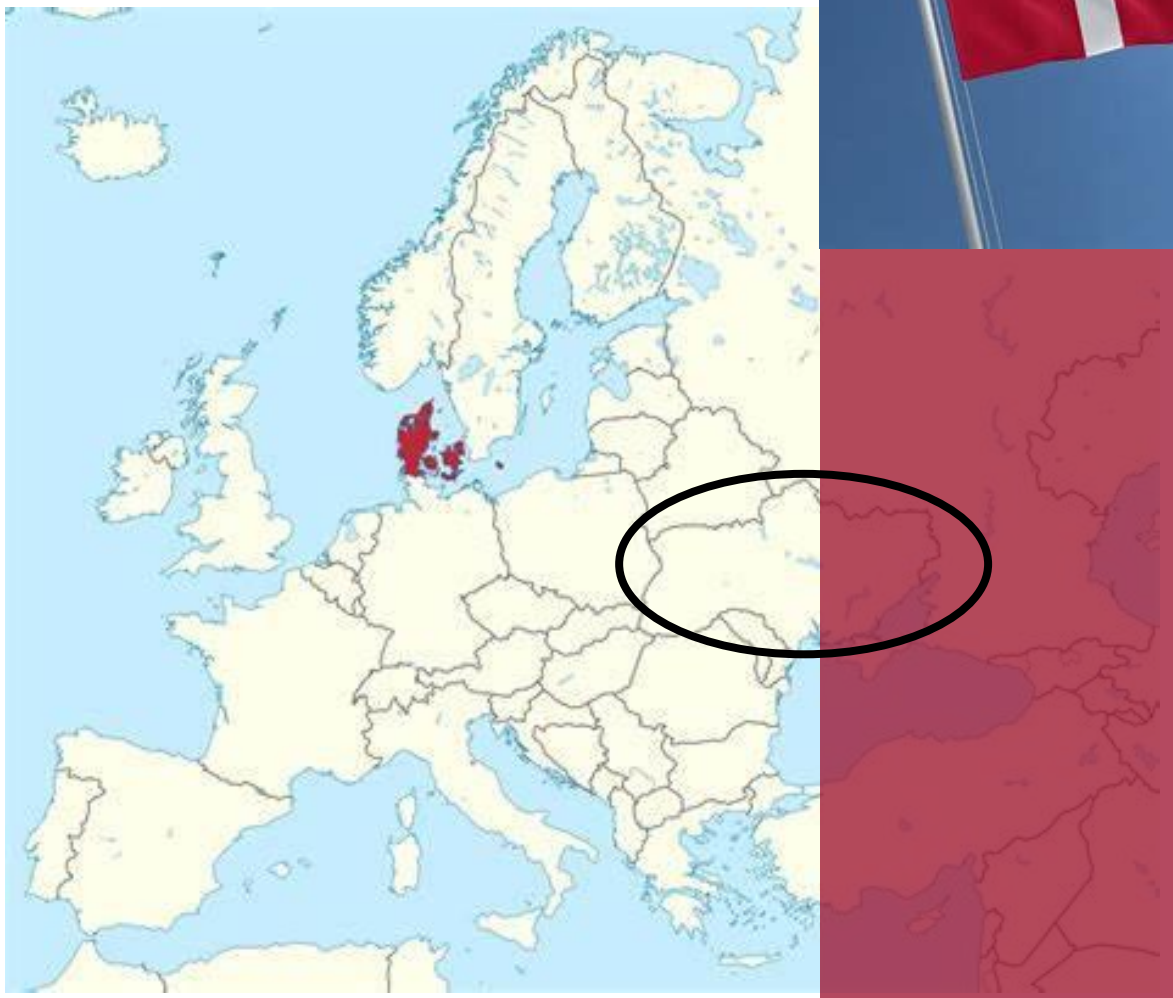
- Japan land size: 337,975 km2
  Population 126,3 million

- Temperate climate (average temperatures between 1,5-17,2 degrees celcius)

- Geography: No mountains

- Land which is very useful for agricultural production

- Member of the European Union (EU)



PRODUCTION BASE

- 2.64 million hectares = 61 % of the total land area of Denmark
- 33,148 farms
- 66,000 are employed in agriculture and horticulture
- The sector represents about 23% of total Danish exports
- Two thirds of our agricultural production is exported

HISTORY – HOW IT ALL BEGAN – THE BASIS OF OUR SUCCESS

- The emergence agricultural cooperatives

- The first coop dairy was established June of 1882

    - Equal payment to all members
    - One member, One vote (irrespective of size)
    - Musketeer oath/Solidarity – "*One for all and all for one*"

- Still today the agricultural cooperatives are dominating.

- Cooperative movement the not so secret reason for success

DANISH AGRICULTURE & FOOD COUNCIL

- Established 1919 as Danish Agriculture Council
- Represents the entire value chain (farmers, processors, ingredients, technology providers)
- Offices in Copenhagen, Brussels, Tokyo and Shanghai
- Tokyo office established in 1967

Noget at leve af. Noget at leve for.

MAJOR AGRICULTURAL COOPERATIVES IN DENMARK

KOPENHAGEN FUR

DENMARKS LARGEST AGRICULTURAL COOPERATIVES TODAY

Arla

Danish Crown

THE VALUE CHAIN IN THE AGRICULTURE AND FOOD CLUSTER

Primary


Animals for slaughter


Milk


Crops


Poultry


Eggs, horticulture & aquaculture etc.

Processing


Slaughterhouses


Dairies

Feed, seeds & fertilizers


Food Service


Processed products

Agro


Genetics


Machines & housing units


Bioenergy


Processing equipment


Ingredients & enzymes

THE DANISH FOOD CLUSTER 2020

- With 189,000 people employed in agriculture and related industries the Danish food cluster is the largest competency cluster in Denmark (2019). 50,000 are employed in affiliated industries.
- Annual exports total EUR 22 billion.
- Two-thirds of production is exported.
- The food cluster's exports account for 23% of the total export of goods from Denmark.
- Pork, fish and shellfish, dairy products and ~~mink~~ fur represent more than half the export value from the food cluster.

AGRICULTURAL PRODUCTION IN MILLION DKK

1000 JPY YEN = 60 DKK

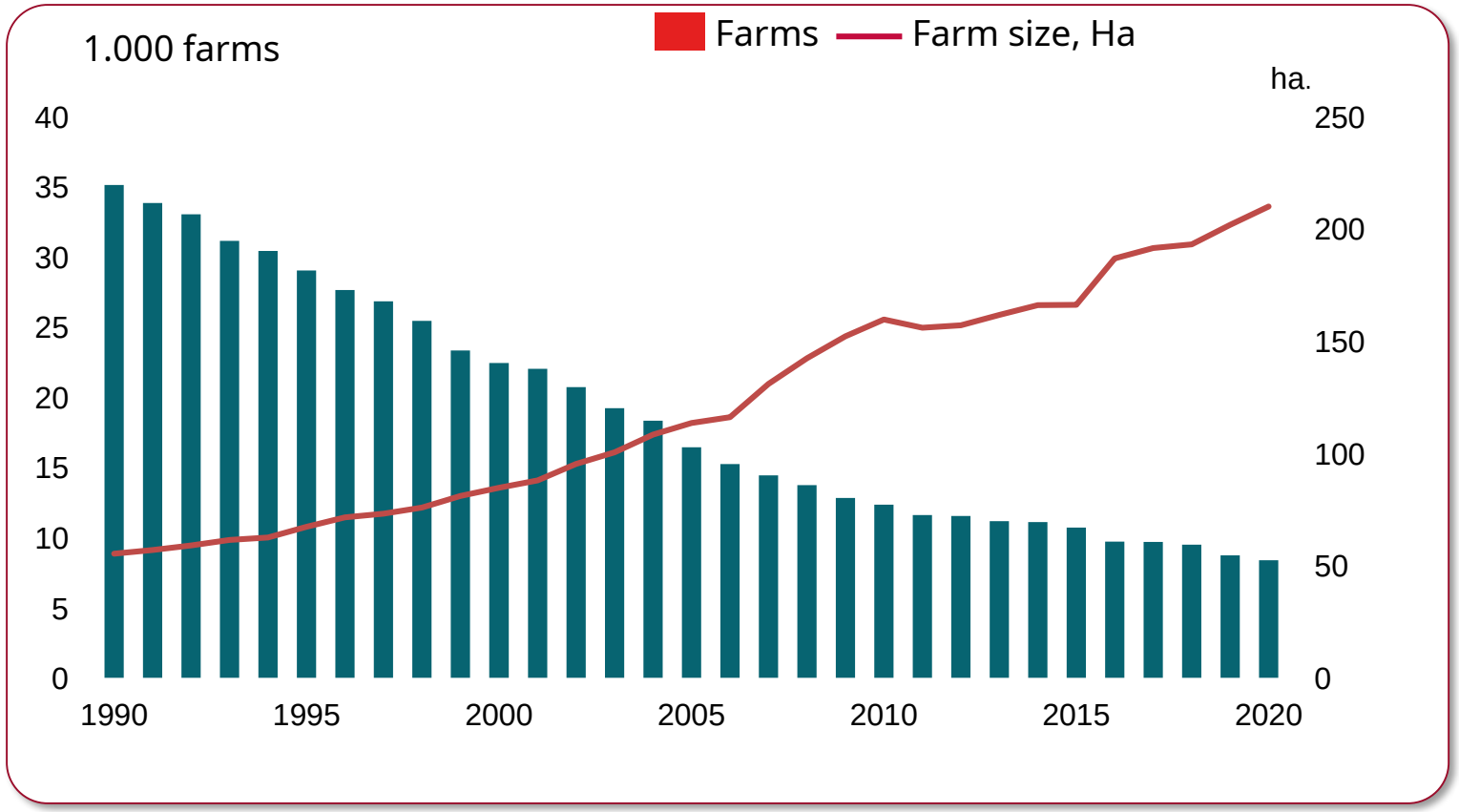
Production value of agriculture and gross domestic product at factor cost, mio. kr.	2014	2015	2016	2017	2018	2019	2020
Total grain	10.821	10.984	9.837	10.892	9.958	11.312	10.709
Legumes for maturity	47	71	72	116	139	129	169
Industry seeds	1.776	2.149	1.357	2.038	1.315	1.987	1.584
Seeds for sowing	930	846	823	1.135	1.325	1.479	1.238
Sugar beets	959	476	575	506	368	430	540
Potatos	1.340	1.362	1.432	1.524	1.657	1.760	2.023
Fodder turnips, weeds ect.	4.748	4.421	4.984	5.237	5.220	5.831	6.670
Fruit and vegetables	5.221	5.443	5.553	5.697	5.667	5.524	5.523
Straw for firing	620	572	612	713	658	803	590
Production value for plant production	**26.462**	**26.324**	**25.245**	**27.858**	**26.307**	**29.255**	**29.046**
Milk	15.435	12.747	12.633	16.180	16.041	15.628	16.071
Beef and veal	2.997	2.983	2.954	3.109	3.261	3.104	2.845
Pork	22.571	20.189	22.153	24.163	20.624	25.321	27.712
Poultry	1.785	1.721	1.848	1.729	1.822	00.00	1.968
Eggs	722	768	806	852	885	888	914
Furred animal	6.784	4.041	4.342	3.753	3.823	2.579	1.872
Other	345	357	307	377	379	346	387
Production value for livestock production	**50.639**	**41.806**	**45.043**	**50.163**	**46.835**	**49.892**	**51.769**
Service	4.780	5.741	5.600	5.321	5.188	4.977	4.977
Stock and livestock shifts	-7	-28	-837	397	386	-461	55
Total production value	**81.874**	**74.843**	**75.051**	**87.739**	**78.716**	**83.663**	**85.847**

FARMS AND COOPERATIVES – MASSIVE STRUCTURAL DEVELOPMENT

	1939	1964	1992	2009	2017	2018	2019	2020
Total no. of farms	210,000	175,000	75,000	47,384	34,731	34,114	33,607	33,148
Cooperative dairies	1.399	904	23	11	9	8	8	7
Cooperative Pig slaughterhouses	61	62	5	2	1	1	1	1

THERE WILL BE FEWER, BUT LARGER, FULL-TIME FARMS IN DENMARK

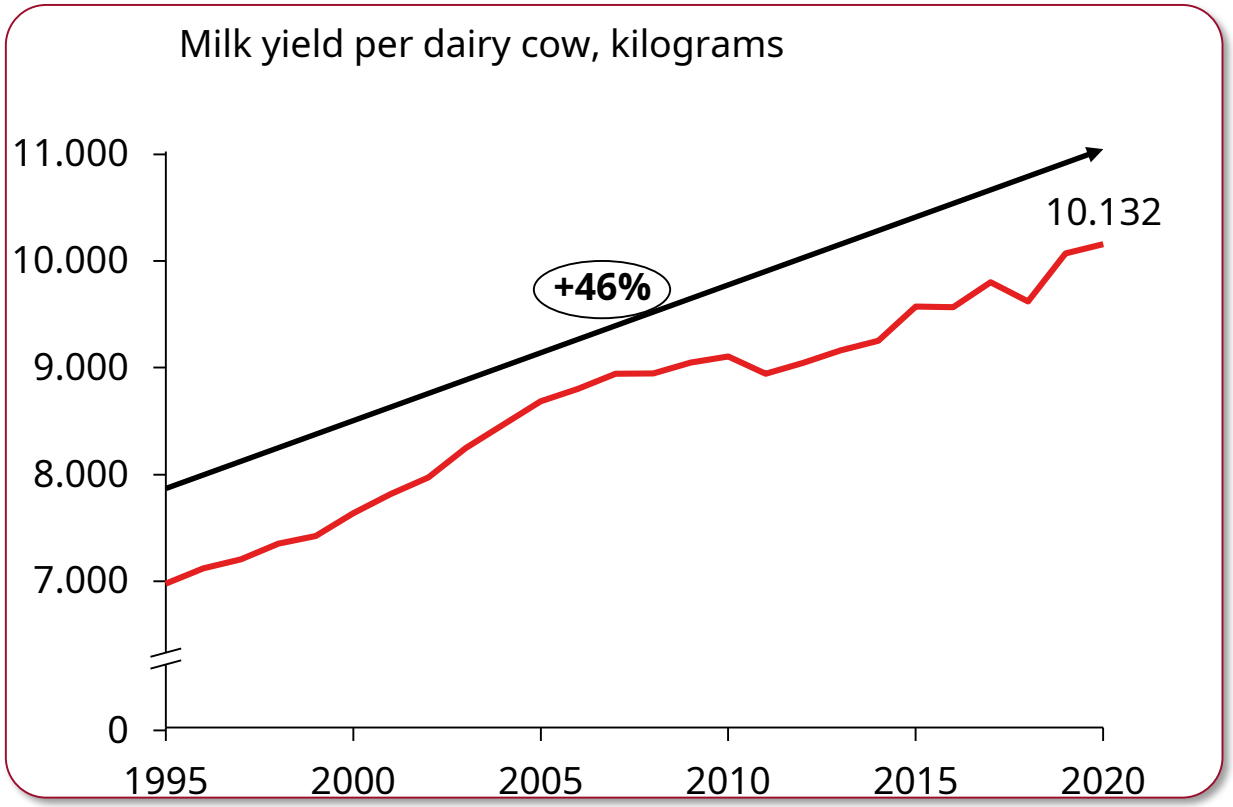
The structural development has since the 1970s resulted in a yearly average decrease of 4.7 per cent in the number of full-time farms.



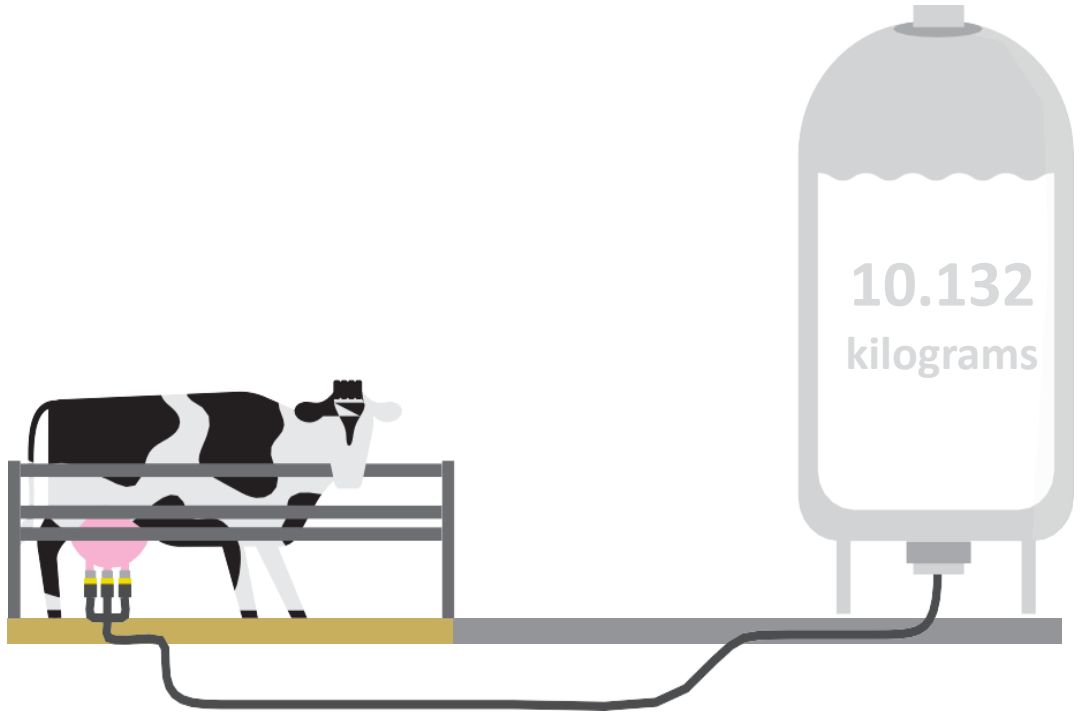
Source: DAFC based on Statistics Denmark

SINCE 1995, THE MILK YIELD HAS INCREASED BY 46 PERCENT

In Denmark, a milk cow produced an average of 10,132 kg of milk per year in 2020



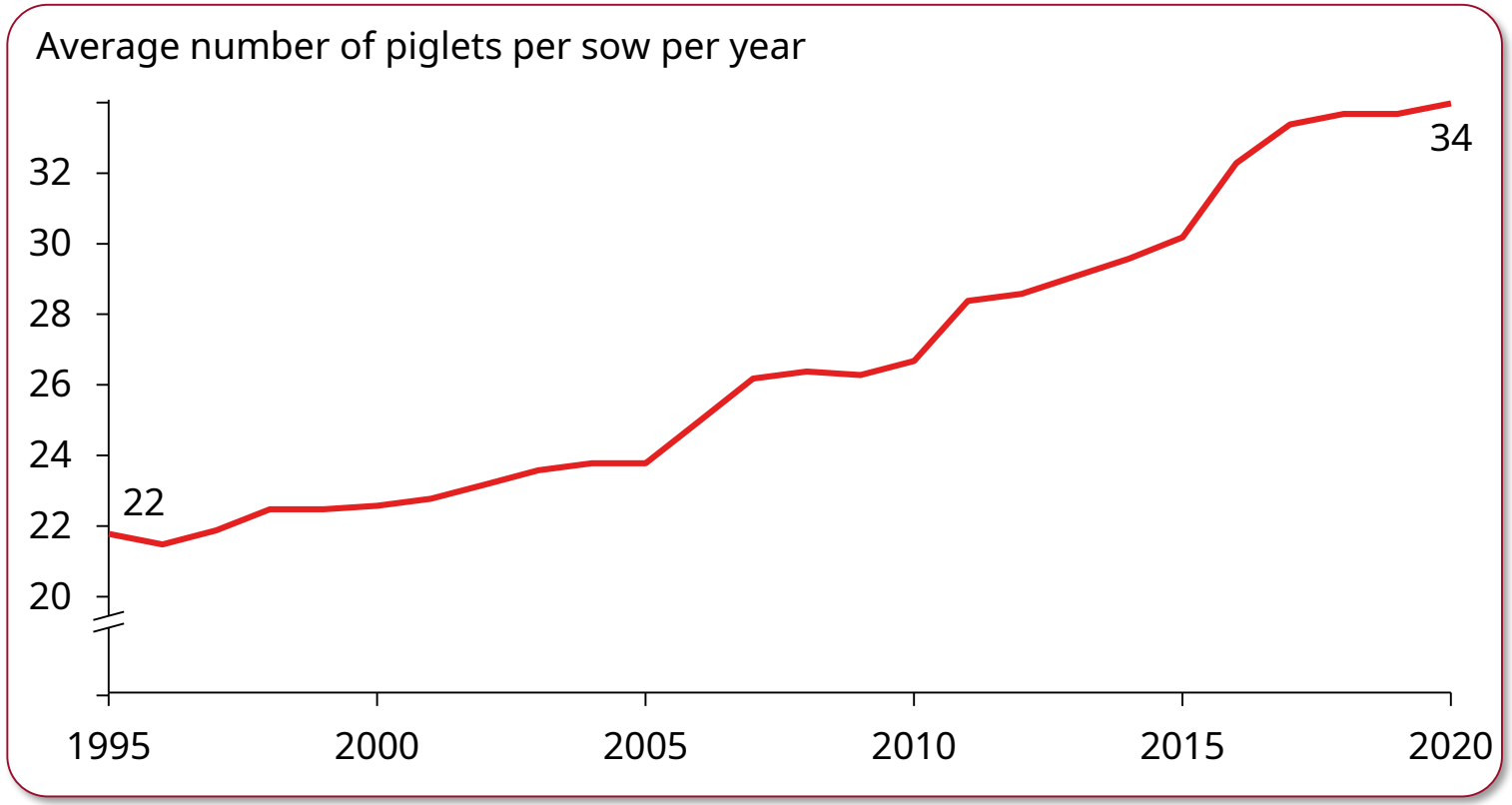
Kilde: DAFC

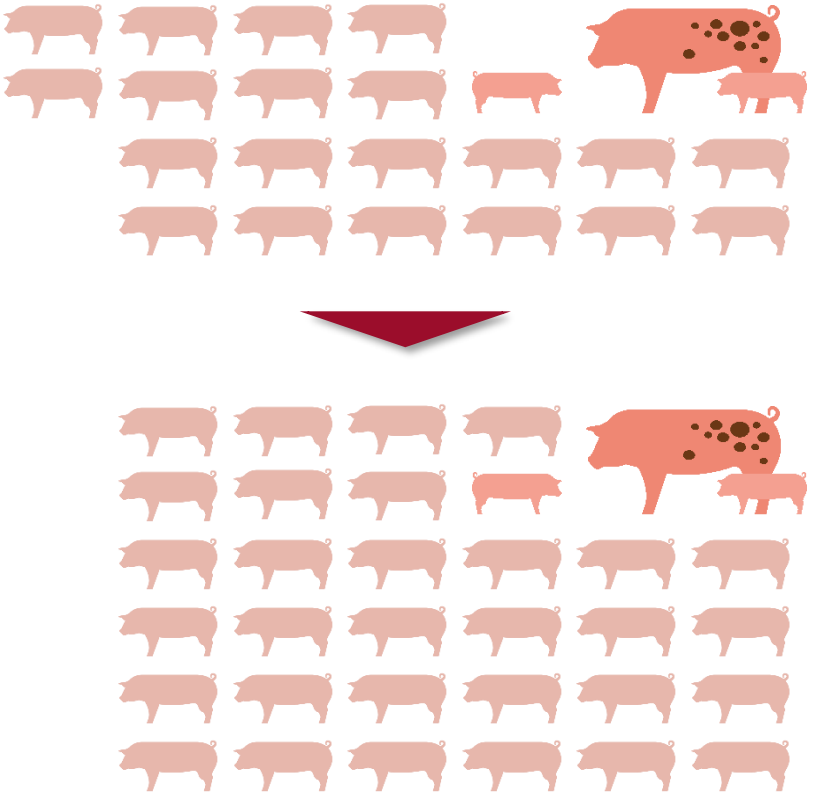


Danish Agriculture & Food Council

THE ANNUAL NUMBER OF PIGLETS PER SOW PER YEAR HAS RISEN BY 52 PERCENT SINCE 1995

On average a Danish pig produces 33 piglets per year





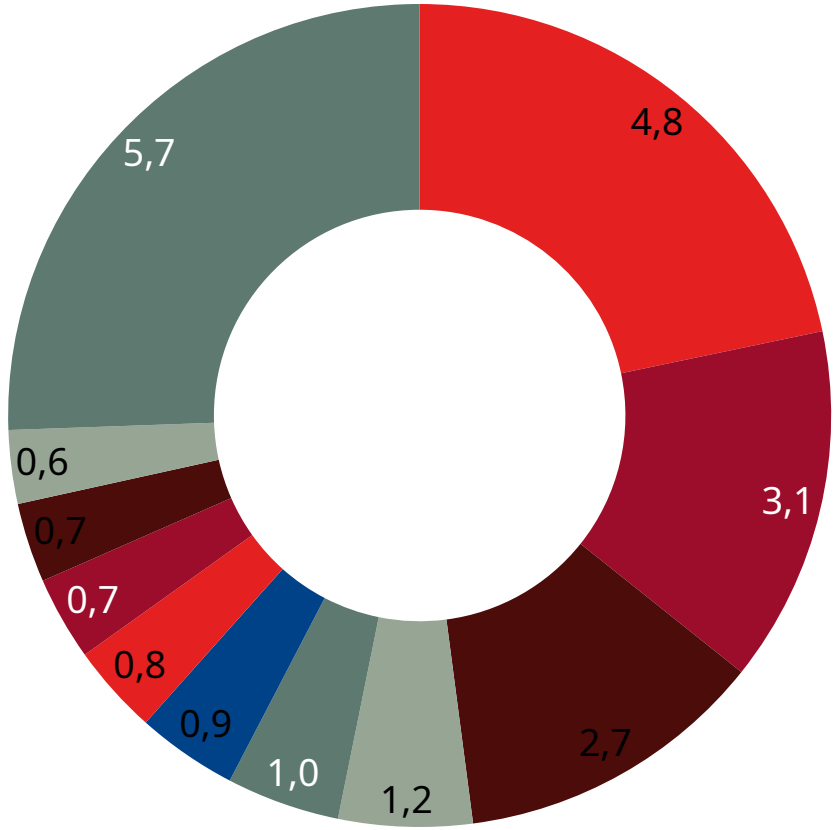
Danish Agriculture & Food Council

THE DANISH FOOD EXPORTS IN THE GLOBAL MARKET (2020 IN BILLION US$)

Source: Statistics Denmark

THE DANISH FOOD CLUSTER EXPORTS 2020

Products, € billion



- Pork
- Fish and shellfish
- Dairy products
- Enzymes
- Biscuits, bread and bakery products
- Feed
- Processed foods
- Agricultural machinery
- Machinery for the food sector
- Beverages
- Other goods

Source: Statistics Denmark.

EXPORT OF FOOD 2020

	€ million
Piglets and pork meat	4.517
Fish and shellfish	2.855
Dairy products	3.426
Biscuits, bread and bakery products	766
Processed foods	761
Beverages	988
Beef	356
Sugar and confectionary	363
Poultry	455
Vegetables	452
Oils and fats	445
Grain	212
Fruit and nuts	281
Coffee and spices	382
Eggs	75
Other foods	70
Total	**16.426**

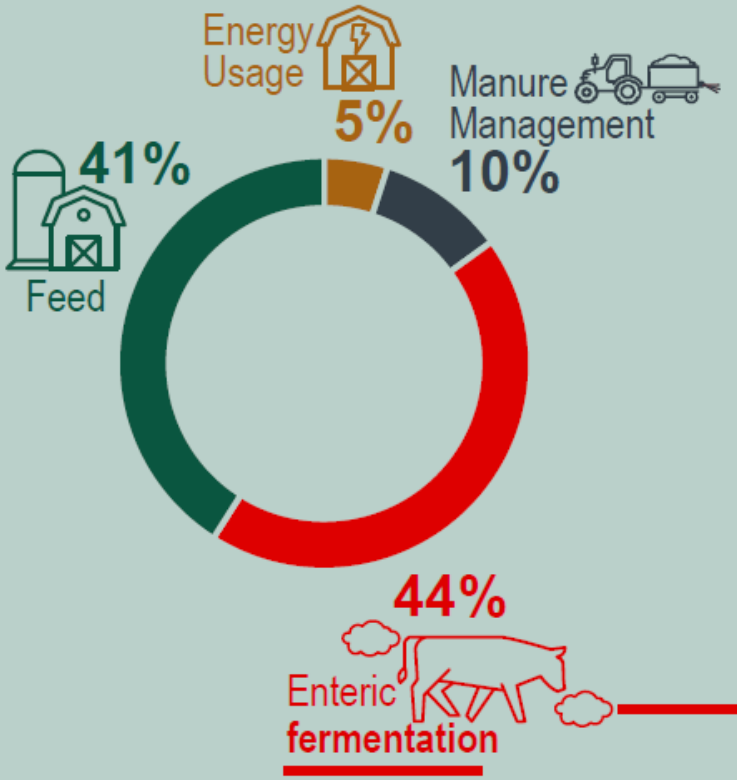
CURRENT TOPICS OF INTEREST TO DANISH FARMERS, SUSTAINABILITY, DISRUPTIONS ETC.

1. Green transition and sustainability
2. War in Ukraine
3. Labour shortages and ageing farmers
4. Threat of diseases
5. Government intervention

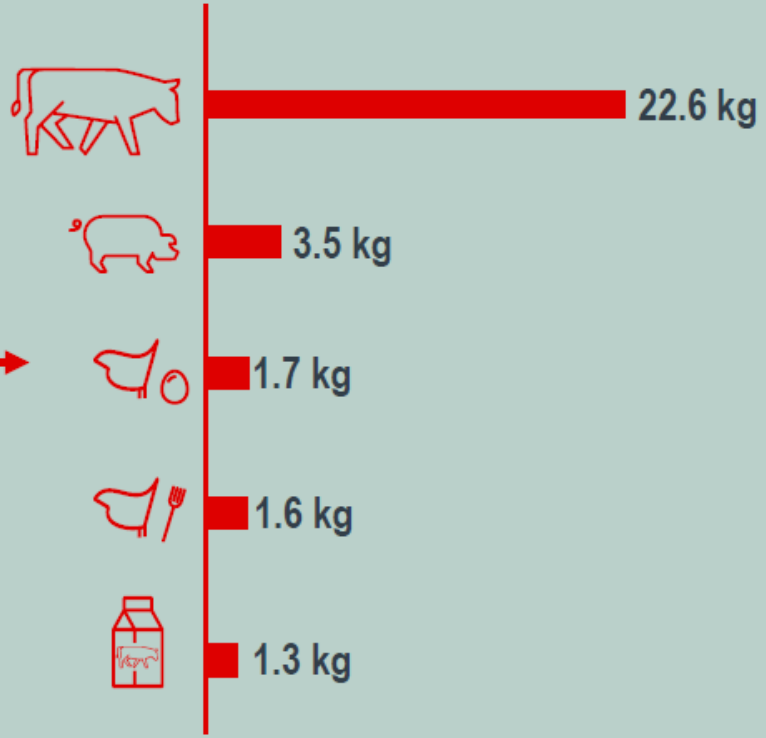
GREEN TRANSITION AND SUSTAINABILITY

12%

Agriculture's share of global green house emissions



Sources of emissions



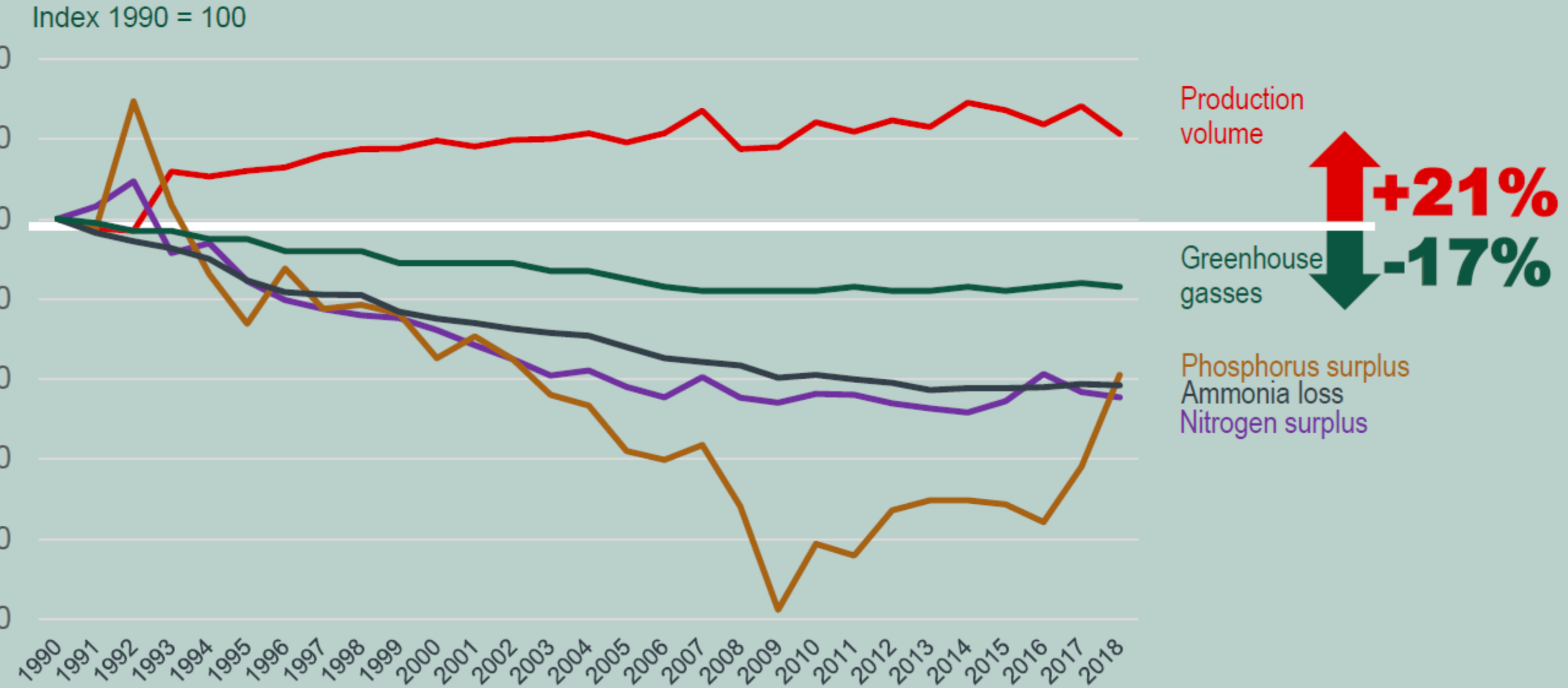
CO_2 kg emission per 100g of protein

Source: Climate Analysis Indicator Tool, World Resource Institute, 2021

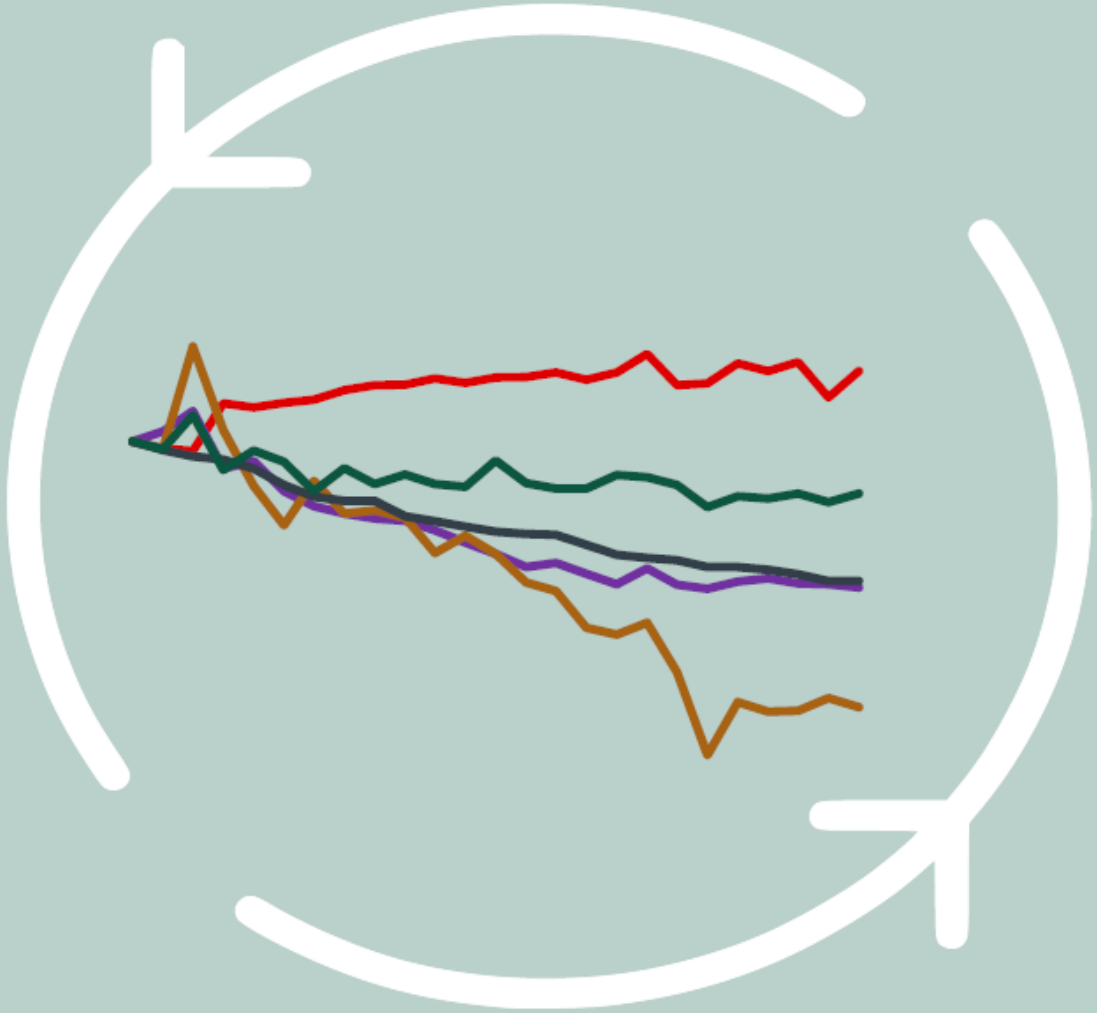
Source: UN's Food and Agriculture Organzation

Source: Lesschen, J.P., 2011

cross animal and crop production, Denmark has increased production while reducing environmental footprint



Source: Danish Agriculture & Food Council, 2020



A new Danish law has been adopted, committing to reach **70%** below its 1990 emissions before 2030

DANISH CLIMATE LAW AND GREEN AGREEMENT 2021

- Agriculture a considerable contributor of Co2 emissions
- Overall target is a reduction of Co2 emissions by 70% in 2030 (8 million tons of Co2e)
- Binding targets for the sector of 55-65% by 2030
- New reductions of 10,800 tons of Nitrogen
- Restoration of peatlands (total of 88,500 hectares – eventually 100,000 hectares)
- Investment in climate technology
- DK to be world leader in plant based foods.
- EU's CAP

Read more: www.fvm.dk/focus-on/the-agreement-on-a-green-transition-of-the-agricultural-sector/

SUSTAINABILITY

- The agri-food sector in Denmark aims to be climate neutral by 2050
- Our traditional stronghold is animal production, which is ressource intensive
- Framework conditions in Denmark has driven us to improve ressource efficiency
- Total production has increased approx. 30% since 1990
- Emissions of greenhouse gases have been reduced by approx. 18% since 1990
- The Danish model includes safe, sustainable recycling of animal waste as fertilizer
- The next drive is for development of climate neutral food products

Primary sector

Food processing

Respect Resources

Visionary tools

Precision farming

Fully automatic seeding and weeding robots, **GPS** and **tracking** systems as well as **drones** wins entry among the farmers

Artificial intelligence

Implementation of **artificial intelligence** technologies supports both integrated **pest management** systems on the field as well as **raw materials storage** in silos and through transports

Barn technologies

Optimised **farm management** system through modern barn technologies supports both the **animal welfare** level as well as **efficiency** and **energy** usage

Food safety and quality

Implementation of **robots** and **cobots** secures faster, more **accurate** food **production** and reduces the risk of contamination and **human errors**

Automated production

Fully automated, streamlined factories enable **reliable** and **rapid** handling of **large volumes** as well as increased **efficiency** and **capacity**

Predictive maintenance

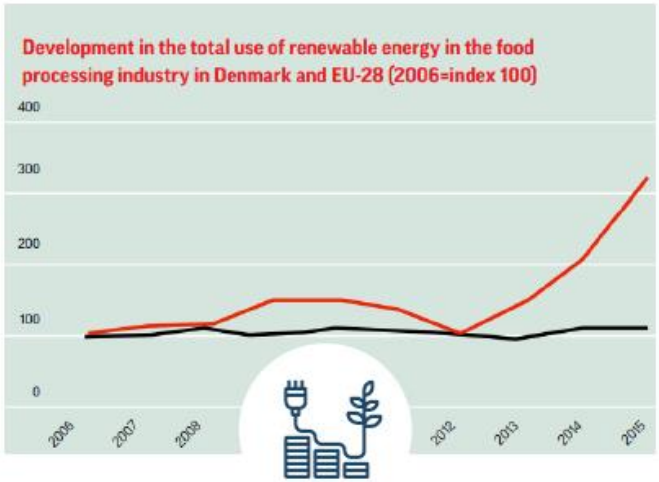
Increased used of cloud based **predictive tools** secure manufactures **better performance** and **longer lifespan** of equipment and secure sustainable operations

From waste to biogas

Food **waste** and livestock **manure** are valuable raw materials to biogas production while the degassed leftovers are use as **fertilisers** that **returns** nutrients to the soil

Sustainable cleaning

Fully integrated **cleanings** systems with **minimal** use of **water** supports both high level of **food safety** as well as a **resource efficient** food production line



Renewable energy

The **food industry** accounts for **30%** of the energy consumed by Danish industry. The last **10 years** the **food industry** has **tripled** the usage of **renewable energy**

Denmark has a promising pipeline of visions, ideas & innovation

Continuous innovation

A Danish consortium is trying to take **sustainability** to the **next level.** The ambition is to produce **micro-algae** with **CO_2** and nutrients from the side streams of biogas production. **Testing** is expected in **early 2022**

The future urban farming

Rising urbanisation and the need to **reduce CO_2** related to transport are driving a **trend** towards **local crop cultivation** within **urban** areas. **Denmark** continue to develop new, innovative **solutions** in this field.

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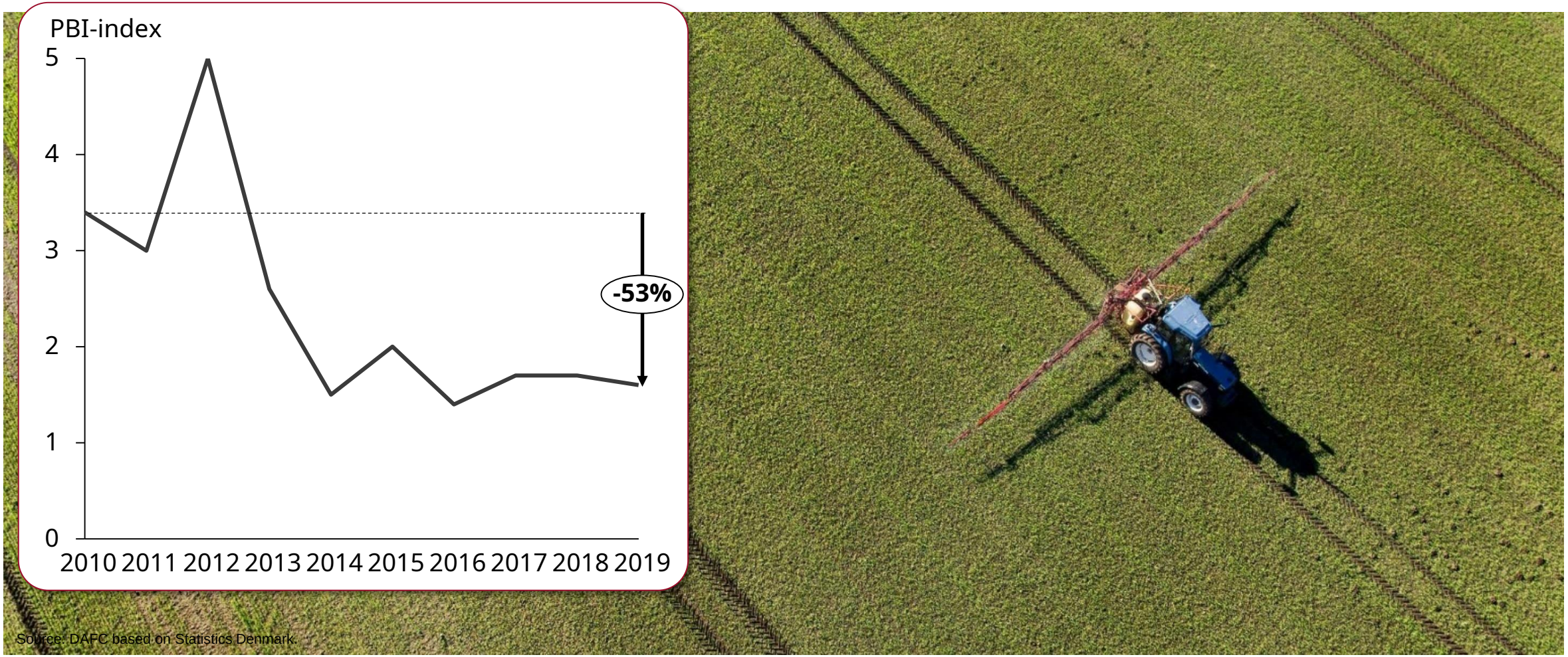
3D printing of food

Danish food specialists are also exploring the possibilities to **improve health** and **nutrition** through **3D printing.** Based on a cross-sector project the **first 3D printed foods** are approaching **market launch**

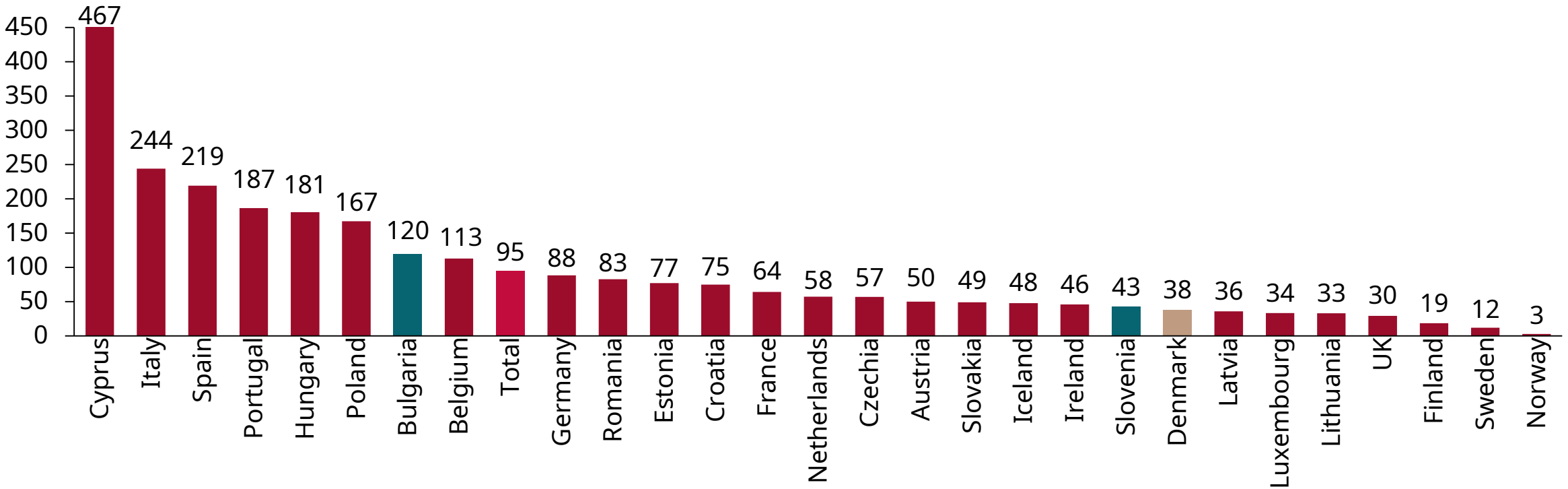
THE AMOUNT OF PESTICIDES WAS 53 PERCENT LOWER IN 2019 THAN IN 2010



Source: DAFC based on Statistics Denmark.

CONSUMPTION OF ANTIBIOTICS IN DANISH AGRICULTURE PRODUCTION IS AMONG THE LOWEST IN THE EU

Consumption of antibiotics, mg per produced kg. of bio-mass, 2018



Source: ECDC (European Centre for Disease Prevention and Control), EFSA (European Food Safety Authority) and EMA (European Medicines Agency). European Surveillance of Veterinary Antimicrobial Consumption 2018

Danish Agriculture & Food Council

DANISH CROWN SUSTAINABILITY

Targets and results at a glance

Climate neutral meat by 2050

Net zero in Scope 1, 2 & 3

30%

Today, we have reduced our carbon footprint by 30% per kilo Danish pork since 2005.

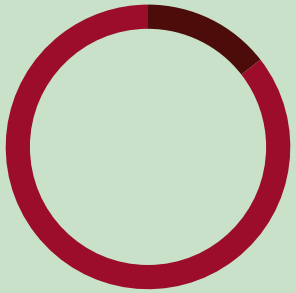
50%

We will reduce the carbon footprint by 50% in 2030 (relative to 2005).

Progress | **Target** | **Vision**

100%

Climate Track
100% of our Danish suppliers of pigs and producers of 'Dansk Kalv' have joined the Climate Track. By 2024, our suppliers from Poland, Germany and Sweden will be a part of the Climate Track.



40%

Water
40% reduction of water consumption at our production sites per kilo meat by 2030 (relatively to 2019/2020).

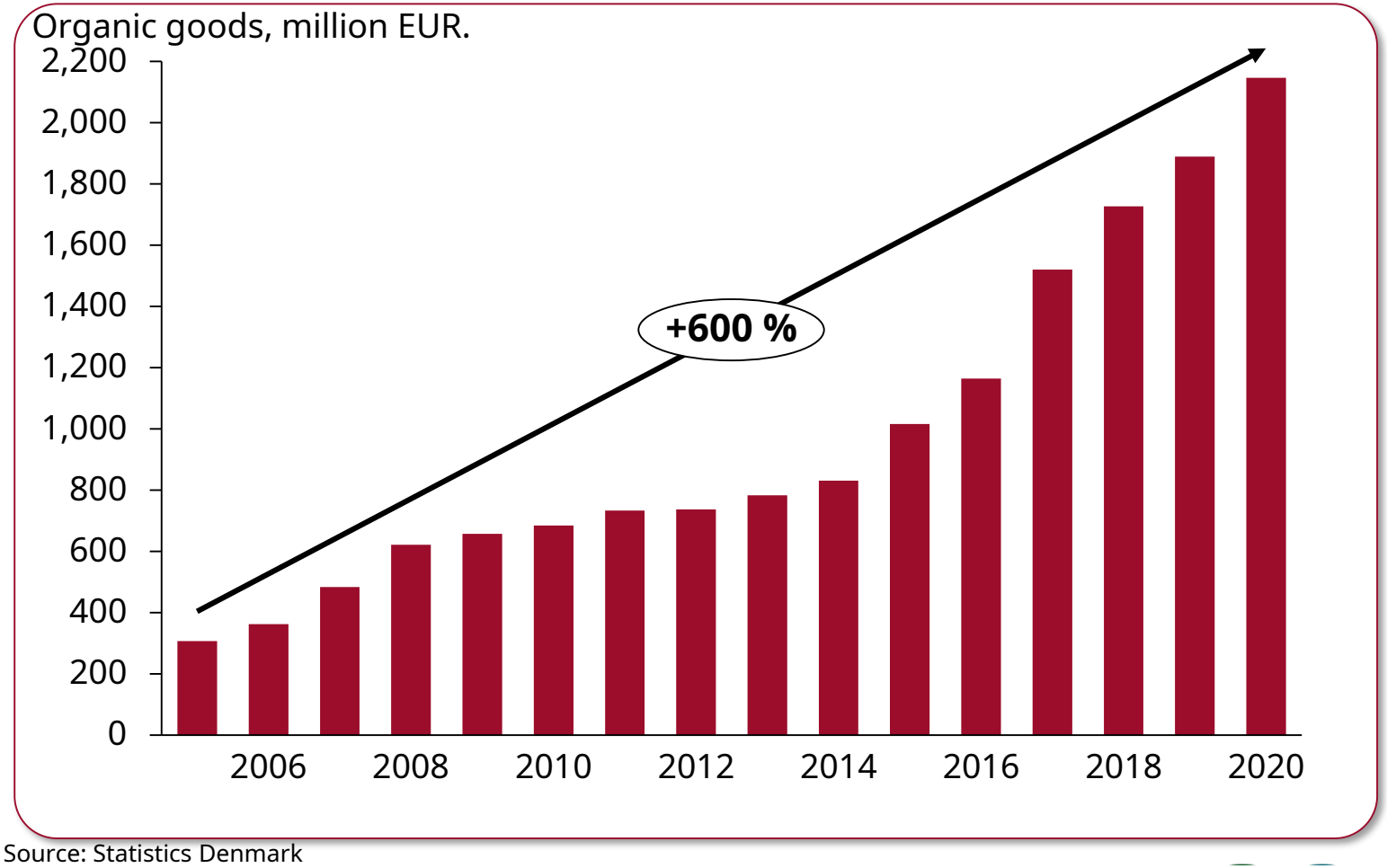
Animal welfare
By 2022, we aim to upgrade to Tier 1 from Tier 2 in the Business Benchmark for Farm Animal Welfare (BBFAW).

Carbon neutrality
Three carbon-neutral production sites in Haarlem, the Netherlands and in Holsted and Horsens, Denmark by 2022.

Food waste
50% reduction in food waste by 2030, commitment to Denmark against Food Waste.

Responsible soy
100% responsibly produced soy used for feed at Danish suppliers of slaughter animals by 2025. Meanwhile, we only buy RTRS certified soy.

TURNOVER OF ORGANIC GOODS IN THE RETAIL SECTOR



Source: Statistics Denmark

MAIN FOOD LABELS IN DENMARK

Stats-
kontrolleret
økologisk

90-100% økologi

60-90% økologi

30-60% økologi

Bedre Dyrevelfærd

Bedre Dyrevelfærd

Bedre Dyrevelfærd

Bedre Dyrevelfærd

NaturSkånsom

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DISRUPTIONS: WAR IN UKRAINE AND IMPLICATIONS FOR DENMARK AND THE EU

- More than 6,000 Ukrainian nationals are employed in the agri-food sector, mainly in primary production
- Food processing companies are preparing to reduce dependency on imported natural gas
- Danish farmers produce 79% of feed locally, and will be relatively less impacted by global price hikes or supply chain disruptions
- The imported feed is mainly protein (e.g. soy), which we are actively working to replace with domestic crops

IMPLICATIONS OF THE WAR IN UKRAINE

- Ukraine and Russia are major suppliers of barley, wheat, maize, rapeseed, som soy but especially sunfloweroil.
- Denmark is in a fairly OK position, other EU countries and especially Africa is not.
- Seek to import from North and South America (GMO issue)
- Fertilizer prices have tripled since the crisis startet

Figure 1: Share in global production of selected crops
(2016/17-2020/21 Avg.)

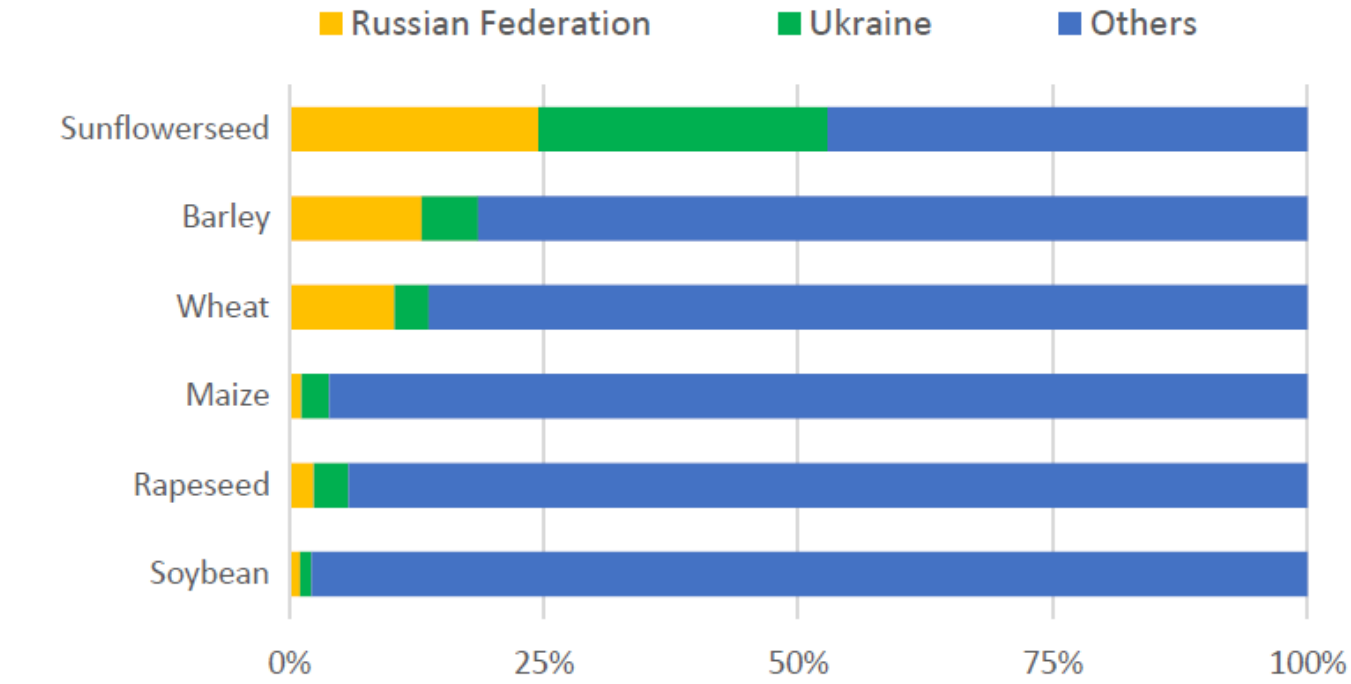


Figure 6: Top 10 exporters of Wheat

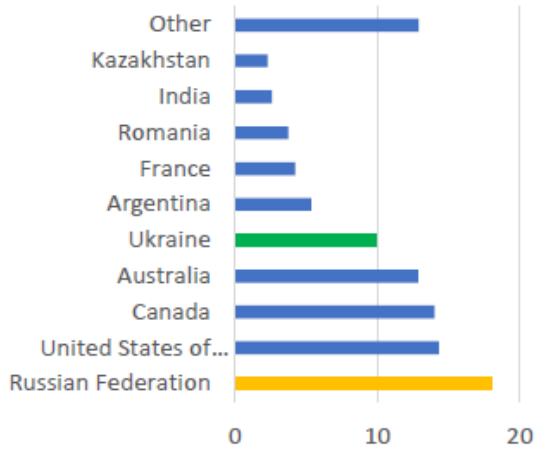


Figure 7: Top 10 exporters of Barley

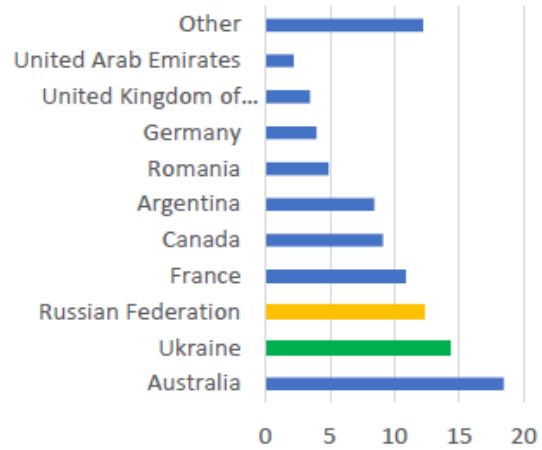


Figure 8: Top 10 exporters of Maize

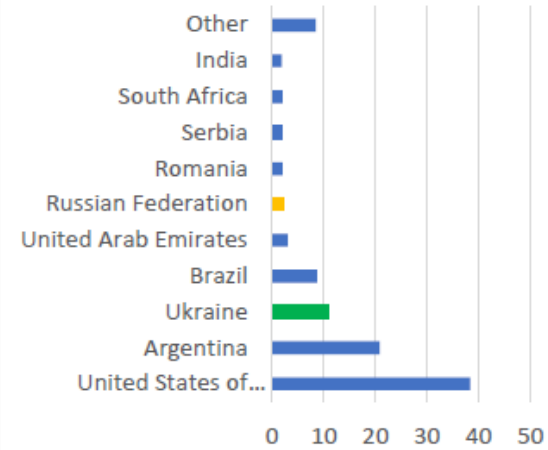


Figure 9: Top 10 exporters of Rape seeds

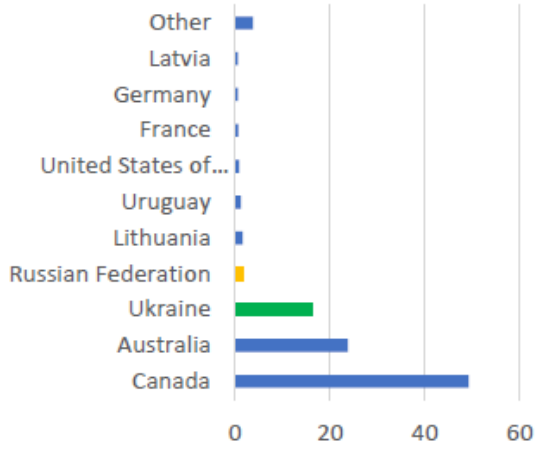


Figure 10: Top 10 exporters of Sunflower seeds oil

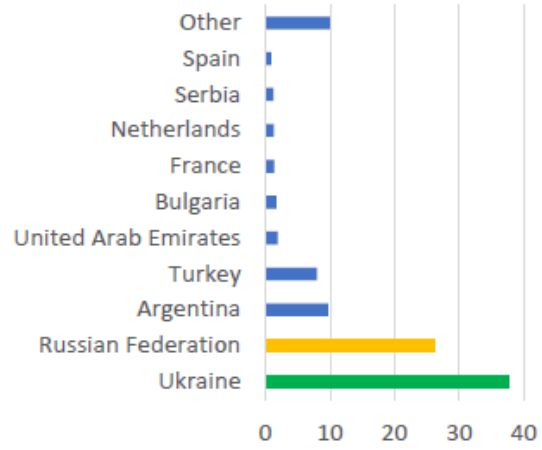
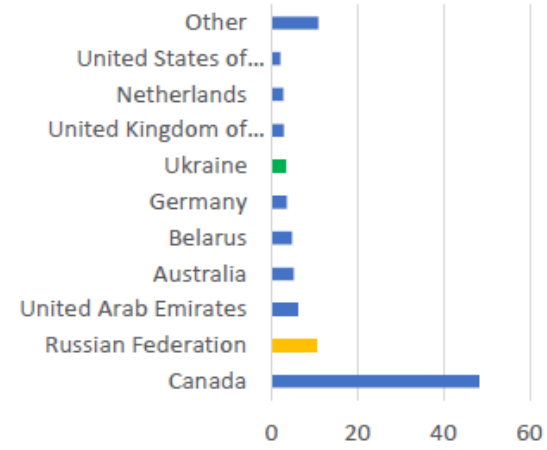


Figure 11: Top 10 exporters of Rape seeds oil



FERTILIZERS

Figure 12: Top 10 exporters of N-Fertilizer

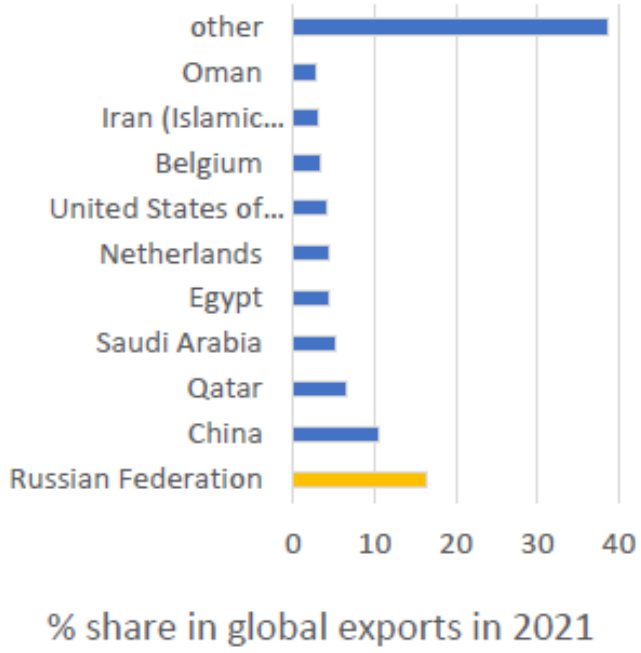


Figure 13: Top 10 exporters of P-Fertilizer

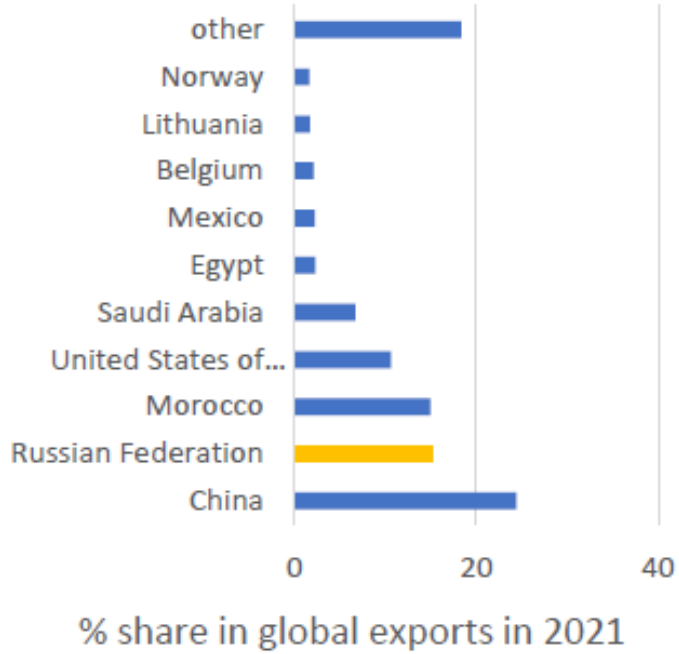
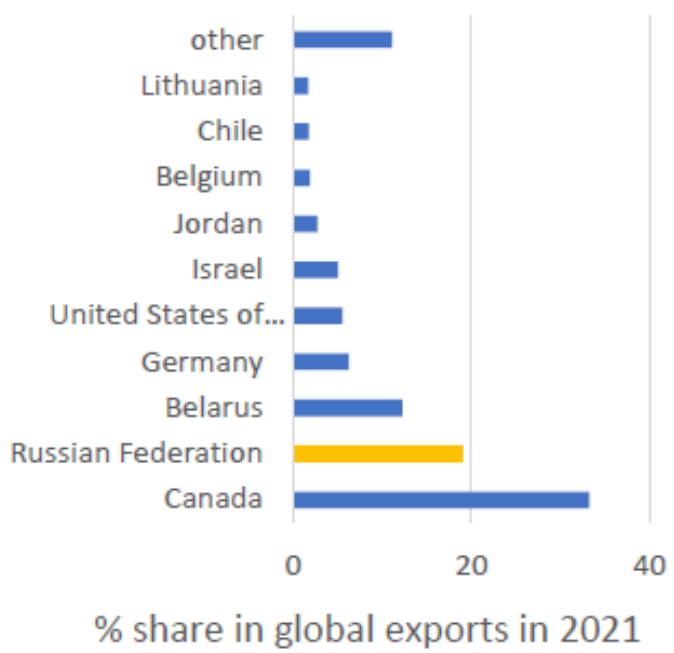


Figure 14: Top 10 exporters of K-Fertilizer



PRICES (FAO FOOD PRICE INDEX – FFPI)

Figure 17: International grain price indices
(2014-16=100)

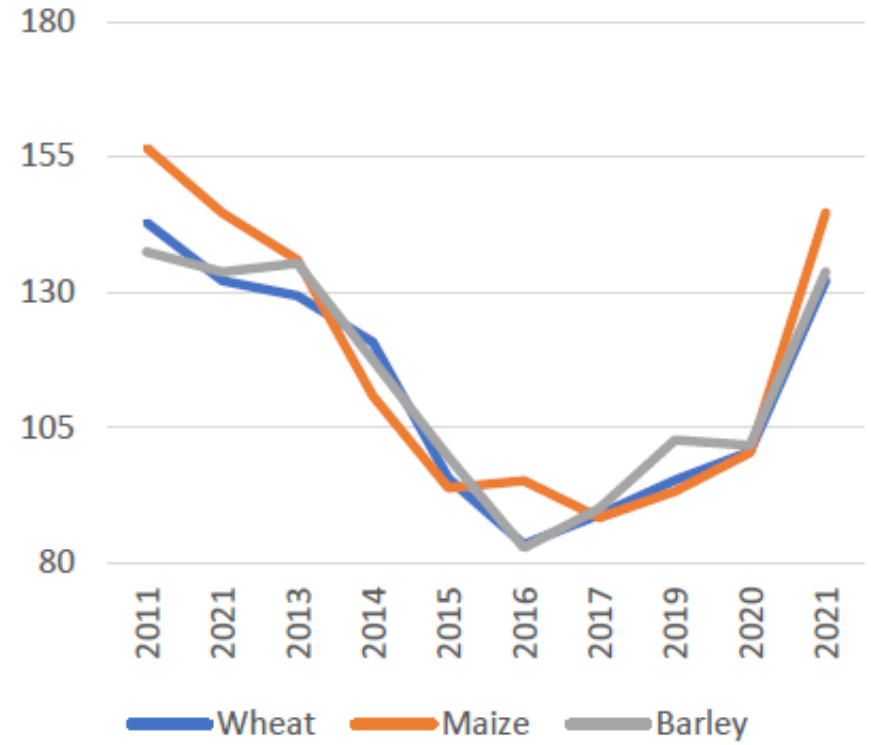
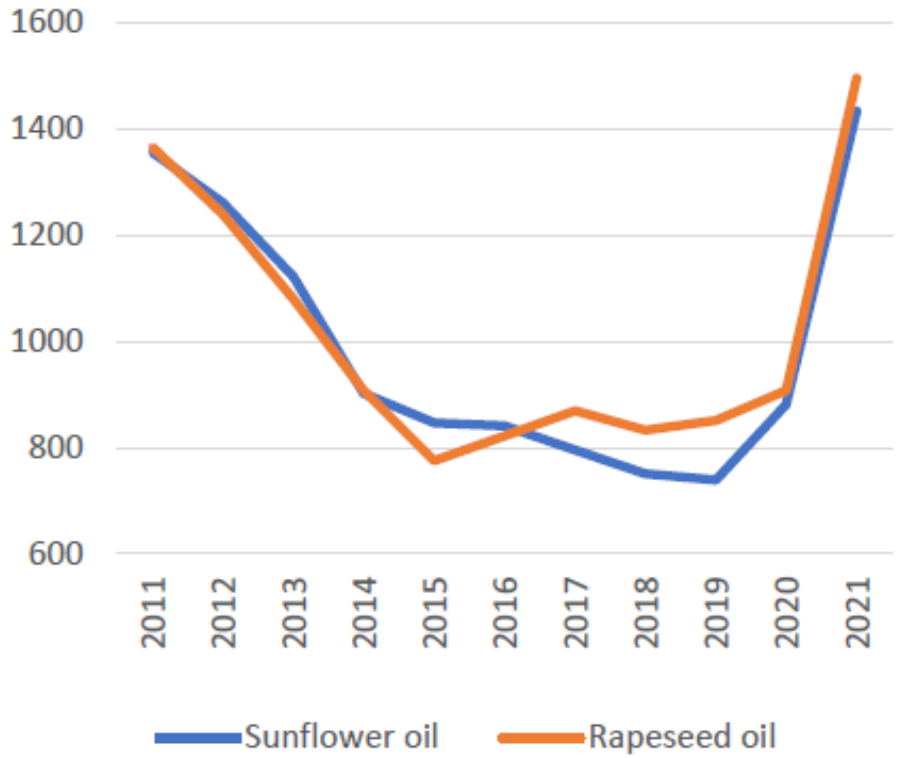
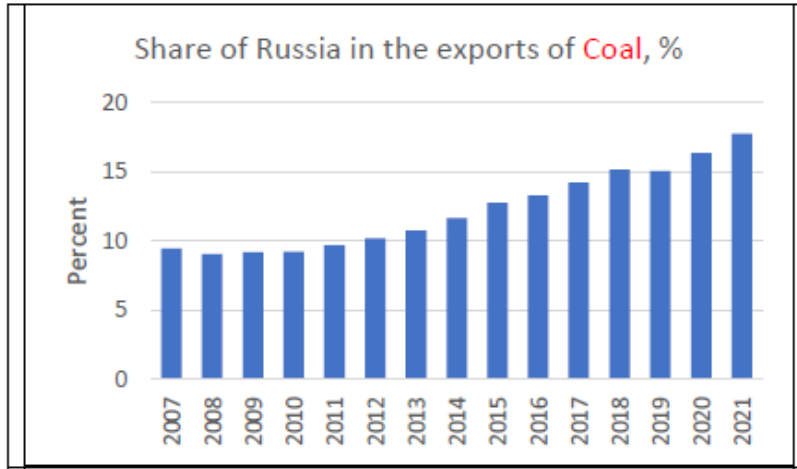
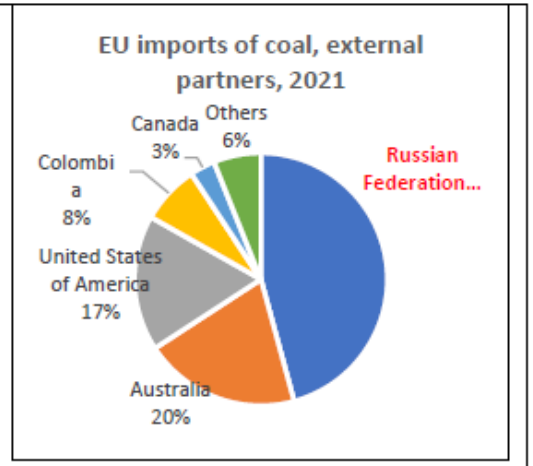


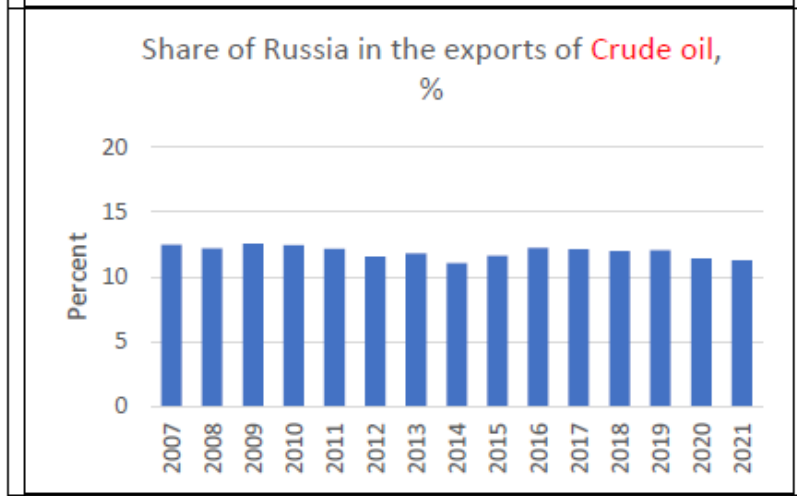
Figure 18 :International vegetable oil prices
(USD/tonne)

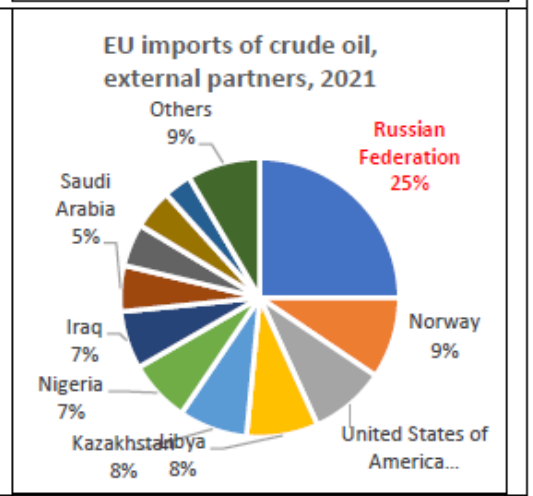


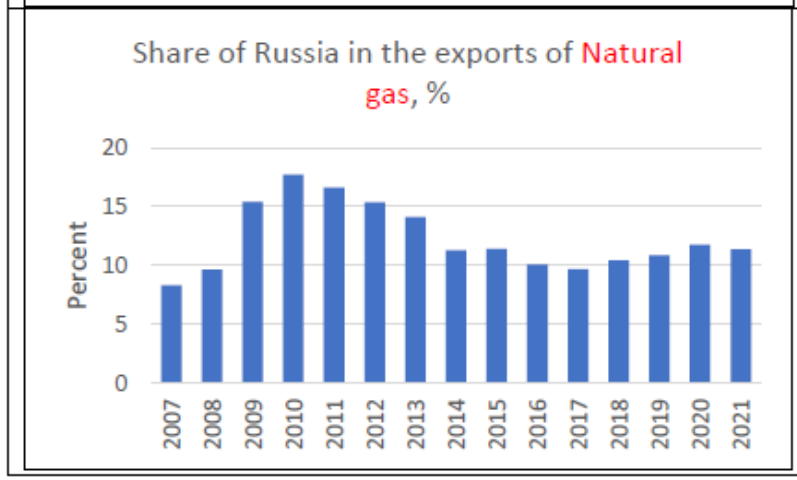
ENERGY

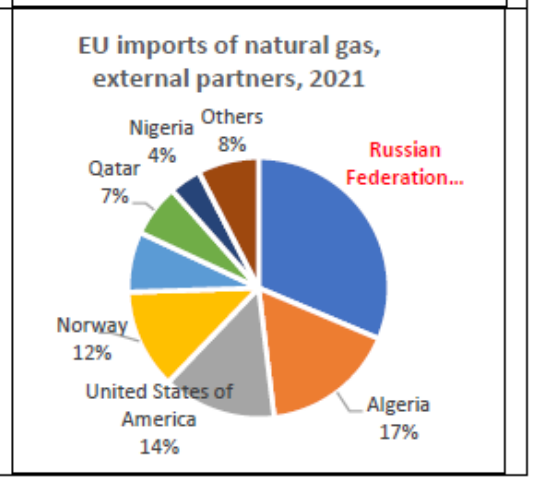

Share of Russia in the exports of Coal, %
Percent
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021


EU imports of coal, external partners, 2021
Canada 3%
Others 6%
Russian Federation...
Colombia 8%
United States of America 17%
Australia 20%


Share of Russia in the exports of Crude oil, %
Percent
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021


EU imports of crude oil, external partners, 2021
Others 9%
Russian Federation 25%
Saudi Arabia 5%
Norway 9%
Iraq 7%
Nigeria 7%
Kazakhstan 8%
Libya 8%
United States of America...


Share of Russia in the exports of Natural gas, %
Percent
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021

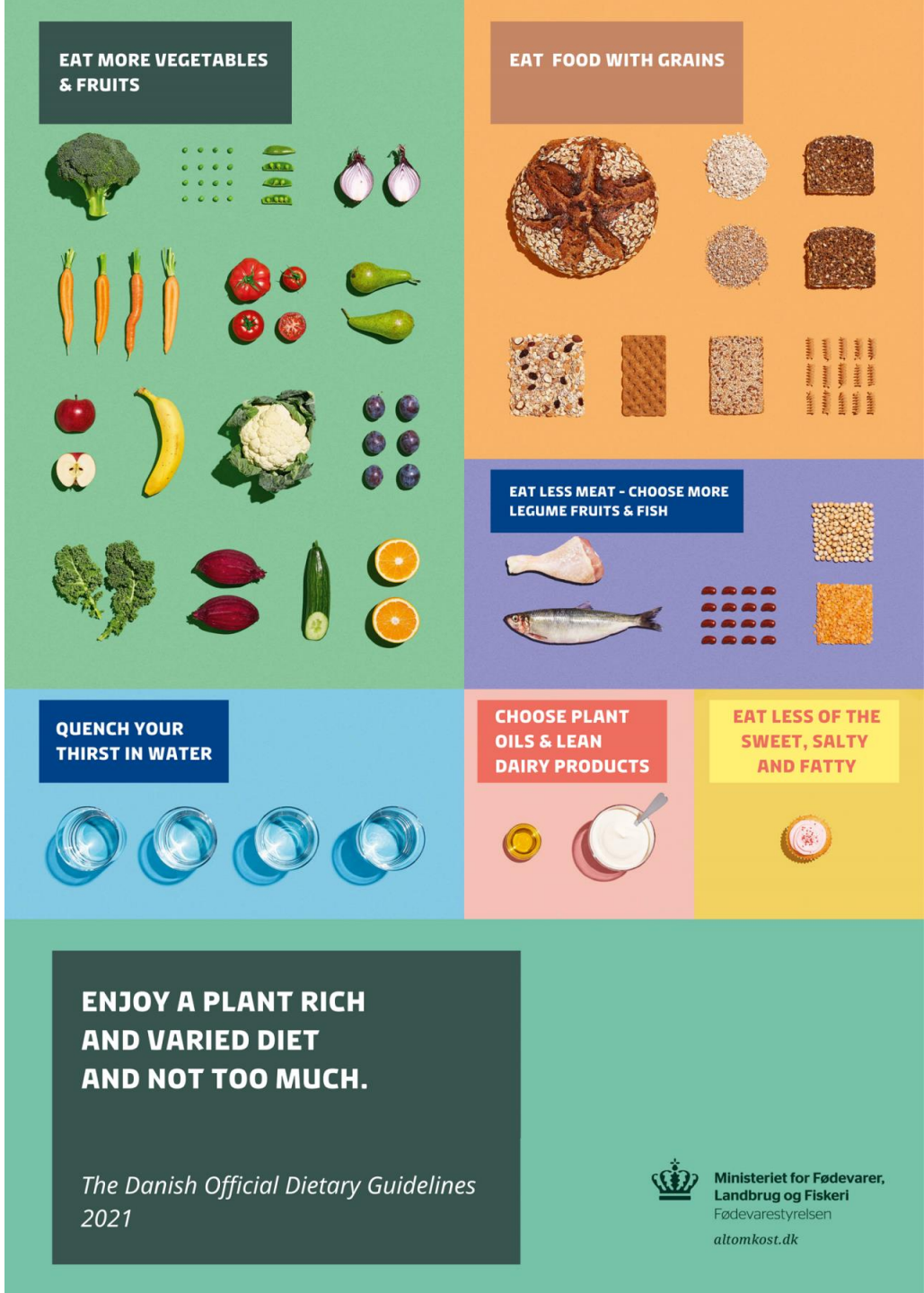

EU imports of natural gas, external partners, 2021
Nigeria 4%
Others 8%
Russian Federation...
Qatar 7%
Norway 12%
United States of America 14%
Algeria 17%

OTHER DISRUPTIONS AND THREATS

- Covid-19
- Diseases (especially AI and ASF)
- Labour shortages
- Tightening of rules and regulation

OFFICIAL DIETARY RECOMMENDATIONS

- Eat more vegetables and fruits
- Eat food with grains
- Eat less meat – choose more legumes, fruits and fish
- Quensh your thirst in water
- Choose plant oils and lean dairy products
- Eat less of the sweet, salty and fatty
- Enjoy a plant rich and varied diet and not too much



AGRICULTURAL EDUCATION IN DENMARK

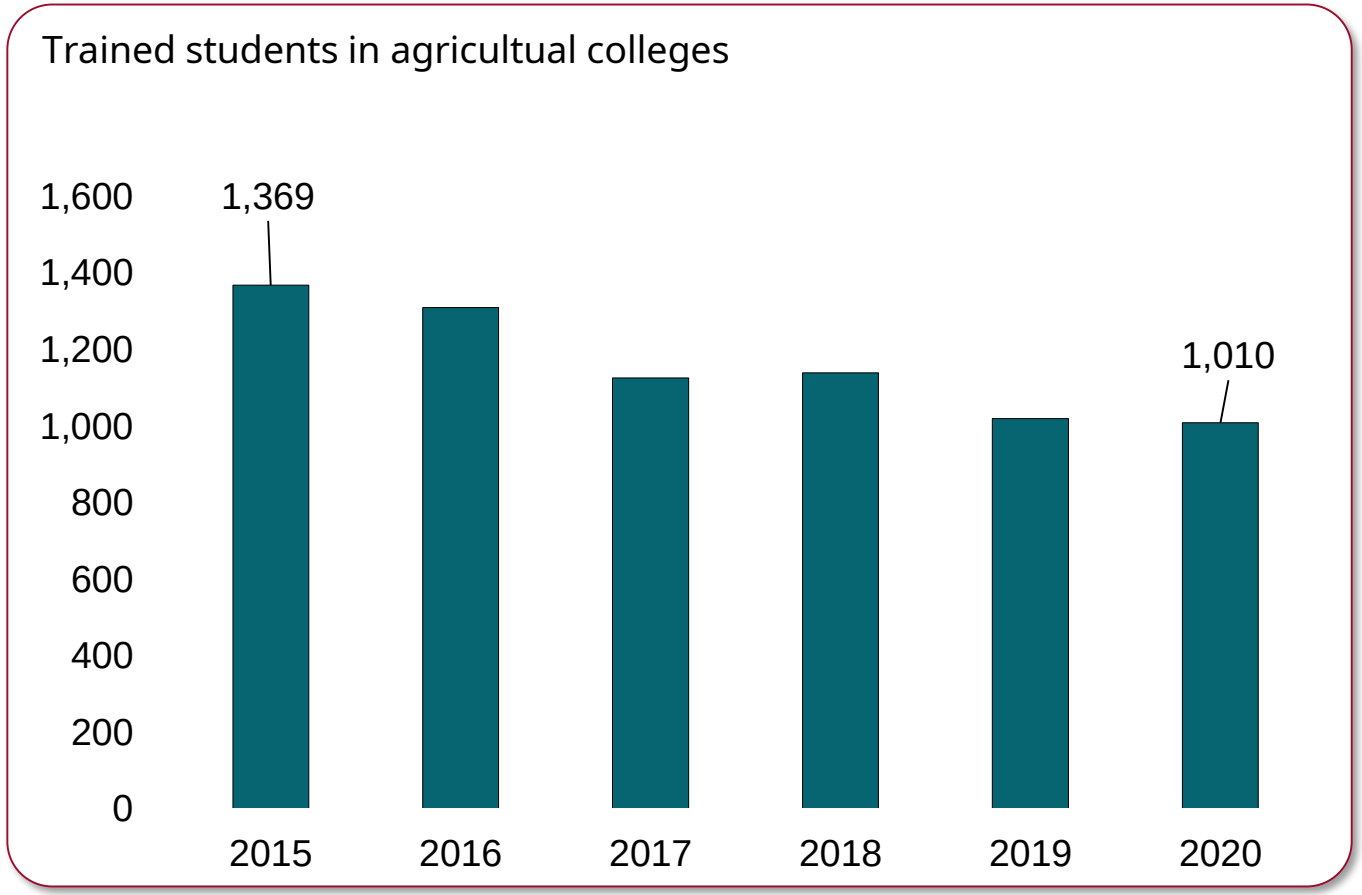
HOW TO BECOME A FARMER IN DENMARK?

- **Qualifications**: Completed primary school with a certail grade level
- **Schools**: Attend agricultural colleage (see map)
- **Duration** 2 Years and 4 months – 5 years and 11 months

  Level 1: Agricultural Assistant
  Level 2: Farmer specialized in animal husbandry or plant based farming
  Level 3: Farm production manager
  Level 4: Agronomist

- **Content**: A mix between being in the colleage and working at a farm
- **Grant during education**: State Educational Grant (About ¥105000 per month (pre-tax)
- **Economy if employed during education**: Year 1: ¥205000 month (pre-tax) – ¥325000 month (pre-tax)

THE NUMBER OF STUDENTS IN GENERAL AGRICULTURAL COLLEGES HAS DROPPED



Source: DAFC based on the Danish Ministry of Education

COOPERATION WITH JAPAN ON AGRICULTURAL EDUCATION

- Started in 1923 with two young farmers sent to Hokkaido to establish model farms
- Danish agricultural colleges cooperate with Japan Agriculture Exchange Council
- DAFC also organizes traineeships for Japanese students on Danish farms
- During the lockdown in 2021, Dalum Agriculture College organized an online training programme for female Japanese students of agriculture
- Japan-Denmark Strategic Partnership Agreements emphasises knowledge exchange in sustainable agriculture and food production

WOMEN IN AGRICULTURE AND GENDER EQUALITY

GENDER EQUALITY IN DANISH AGRICULTURE

- The majority of Danish farms are family owned
- 81% of agricultural land is owned by men, 5% by women, the rest by companies
- Most of the farms owned by women are relatively small
- One third of students enrolling in agricultural colleges are female
- Major food such as Danish Crown and Arla companies strive for gender equality on all levels
- The two most recent CEOs in DAFC are female
- 6 out of 14 Danish ministers for Food and Agriculture have been female
- Video clip: https://youtu.be/tdSRZlT8Dv8?t=67

THANK YOU FOR YOUR ATTENTION