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NORSK INSTITUTT FOR BIOØKONOMI

VOL. 6 - NO. 8 - 2020

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Norwegian Agriculture

Status and Trends 2019

«Norwegian Agriculture – Status and Trends 2019» provides a brief overview of major aspects of agriculture in Norway and summarises some of the information that is annually published within the sector.

Of Norway's total land area (excluding Svalbard and Jan Mayen), only 3 percent is farmland and 39 percent is covered by forests. In comparison, urban and industrial areas amount to 0.5 percent of Norway's land area (Kartverket, 2018).

The climate determines the types of crops that can be grown and their expected yields. Norway is a marginal growing area for many important crops, and is one of few European countries that cannot grow sugar crops. Due to Norway's climate, grain yields per hectare are lower than in most other countries in Europe. In many parts of Norway, growing fodder crops, mainly grass, is more or less the only alternative. Grass-based livestock production is therefore the backbone of Norwegian agriculture. The country's cool climate limits the spread of plant diseases and pests.

THE «NORWEGIAN MODEL»: THE BASIC AGRICULTURAL AGREEMENT AND ANNUAL AGRICULTURAL NEGOTIATIONS

- The Basic Agricultural Agreement provides the mandate for the annual negotiations and specifies the scope and the parties of the negotiations
- The Budget Committee for Agriculture prepares the parties' joint background material for the negotiations (ca. 10 April)
- Demands put forth by the farmers' associations (late April)
- Offer made by the Government (early May)
- Negotiations
- Agreement (or breach of negotiations) before ca. 15 May
- The Storting (Parliament) approves the agreement in June

AGRICULTURAL RESOURCES

Agricultural area

According to the Budget Committee for Agriculture (2019a), the total agricultural area in Norway in 2018 was 0.986 million ha, of which about 0.806 million ha were arable land. Between 2001 and 2016, the total agricultural area in Norway decreased by 6 percent. The acreage of land used to grow cereals decreased by 17 percent from the peak year of 2001 to 2018. The area of temporary grassland peaked in 2002, and was reduced by 3 percent until 2018. The area of surface-cultivated grassland has increased by 10 percent since 2002.

Cereals are mainly grown in the lowlands of eastern and central Norway, whereas grass and other roughage are the main crops throughout

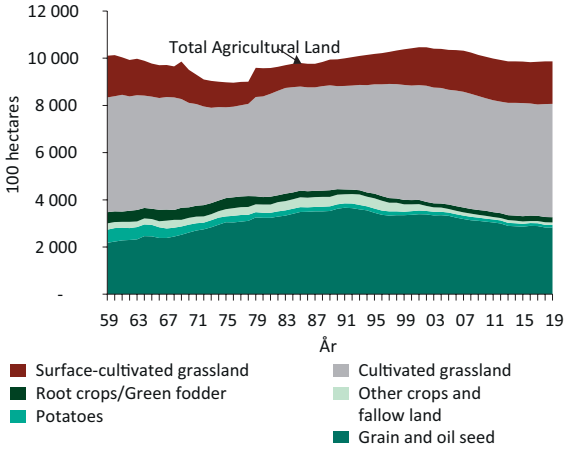

Figure 1 Agricultural area in Norway, total and by main crops, 1959-2019. Source: Budsjettnemnda for jordbruket (2019a)

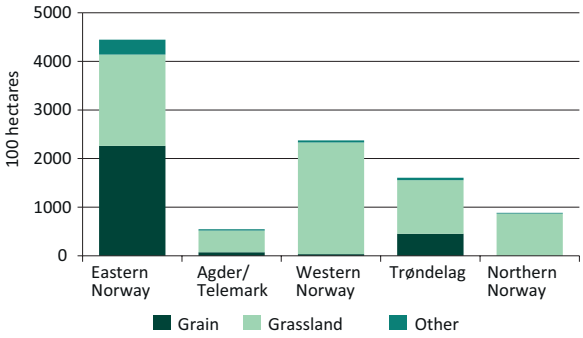

Figure 2 Distribution of main crops in various regions in Norway. Source: Statistisk sentralbyrå (2019a), preliminary figures

the remainder of the country. However, the geographical distribution of the various crops is not only the result of climate and topography. The prevailing agricultural policies since the early 1950s have helped to "channel" grain production to the mentioned lowland areas. These areas have the best cereal growing conditions, but also allow relatively easy access to non-farming employment (urban regions of Oslo and Trondheim). Accordingly, roughage-based livestock production, which is more labour-intensive and more profitable per area unit than grain production, was channelled to areas with poor growing conditions for grain, and where the chances for finding off-farm employment are much slimmer.

Livestock

Between 1980 and 2018, Norway's dairy cow population has declined from 391,000 to 217,500 (Budsjettnemnda for jordbruket 2019a). This development is linked to declining milk consumption and thus total production. Since 2000, milk yields per cow have been increasing, whereas the total milk production in the same period has been fairly stable, with an annual output of ca. 1,500 million litres.

The average dairy herd size increased from 11.7 cows in 1989 to 27.8 in 2018 (Budsjettnemnda for jordbruket 2019a). Norwegian dairy herds are small in a European context.

The pig population varies somewhat from year to year. In periods of market imbalance of pork, various measures are implemented in an attempt to stabilize the market. The forecasts for 2020 indicate an expected surplus of pork in the Norwegian market.

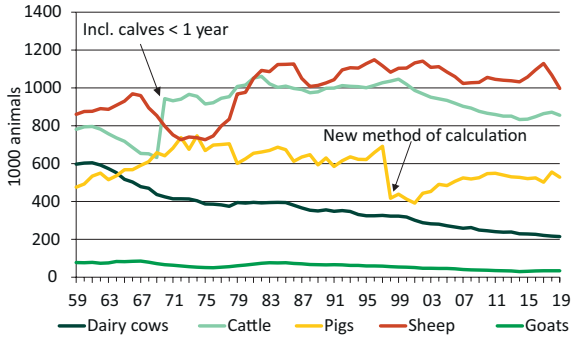

Figure 3 Livestock populations in Norway, 1959-2019
Source: Budsjettnemnda for jordbruket (2019a)

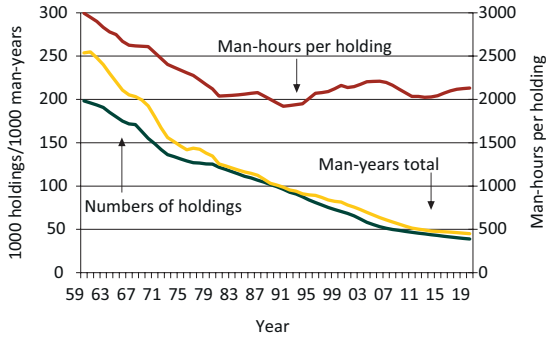

Figure 4 Number of holdings in operation, total labour input in agriculture and working hours per holding, 1959-2019
Source: Budsjettnemnda for jordbruket (2019a)

Norway's sheep population increased by 9 percent from 2014 to 2017, following measures to stimulate production. This resulted in overproduction, reduced profitability and a decline of the sheep population by 12 percent in the years after 2017. Many smaller sheep farms have gone out of business in connection with farm succession.

Farm size, structural development and labour expenditure

The number of agricultural holdings declined from 99,400 in 1989 to 39,600 in 2018. At the same time, the average farmland acreage on those farms still in operation is constantly increasing. The average farm size in 1999 was 14.7 ha, but has increased to 24.9 ha in 2018. Of the latter figure, approximately 45 percent was rented land. For the past 75 years or so, the share of rented land of the total farmland in operation has been steadily increasing.

Another important structural development in Norwegian agriculture is the substantial decline in the number of livestock farms. The trend is a concentration of livestock production on fewer holdings, without a decrease in the total production volume.

Technological developments as well as farm management considerations can help to explain the current concentration and specialization of crop and livestock farming. Since 1975, concession regulations have limited the number of animals that can be kept when establishing new or expanding existing poultry and pig operations. Due to these restrictions, the authorities can maintain a certain control of the structural development within concentrate-intensive livestock operations. In dairy farming, a milk quota system limits herd sizes. In the previous parliamentary term, the Solberg government has loosened up regulations intended to limit structural development. For example, the concession limit for broilers was doubled to 280,000 slaughtered animals per year and for roughage and cereals there is now only a single subsidy rate for all acreage on which these crops are grown.

The number of owners of agricultural real estate in Norway has declined much less than the number of agricultural holdings. In 2018, there were 182,328 agricultural properties in total, about 5,400 fewer properties than in 2008 (Statistisk sentralbyrå, 2019b). Approximately 61 percent of all agricultural properties are inhabited, whereas 77 percent of those with a residence are inhabited.

Most Norwegian farms are run by the family owning the enterprise, often with the help of some hired labour. A total of 45,650 man-years were carried out in Norwegian agriculture in 2018 (Budsjettnemnda for jordbruket, 2019a).

Agricultural economy

Measured as farm gate prices, the total value of agricultural primary production in Norway was NOK 45.3 billion in 2018, including all subsidies. Annual total income varies, depending on weather and market conditions, as well as changes in price and support policies. Grain yields in 2018 were significantly reduced (ca 40 percent below average) due to the severe drought throughout most of the growing season.

Figure 5 shows the distribution of agriculture's total gross output of NOK 34.4 billion, excluding direct subsidies, between various farm commodities as normalized earnings for 2019. Sales of

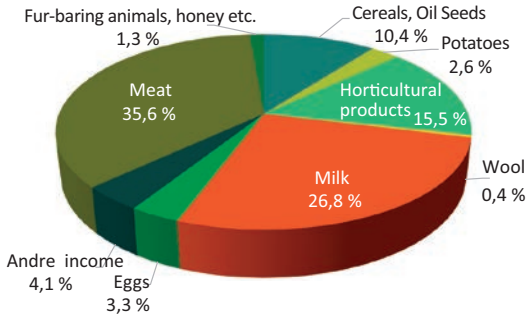

Figure 5 Gross output at basic prices by commodities 2019, expected value. Source: Budsjettnemnda for jordbruket (2019a)

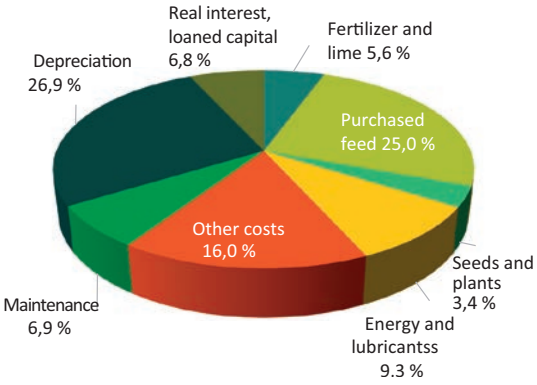

Figure 7 Costs in agriculture by categories 2019
Source: Budsjettnemnda for jordbruket (2019a)

milk and meat are the two largest sources of income.

Figure 6 shows the distribution of agriculture's total income between sales income and major subsidy categories. Price subsidies are shown separately.

Agriculture's total costs are presented by different cost categories in Figure 7. For 2019, total costs are calculated to amount to NOK 31.1 billion. The main cost categories include depreciation (of buildings, machinery, etc.), purchased feed and "other costs". The latter category includes a number of different costs, such as silage additives, packaging, freight costs, veterinary expenses and insurance.

The financial results at the national level are based on the Economic Accounts for Agriculture. In these, a registered and a normalized series of accounts are presented. The registered accounts show the actual results achieved in the respective years, whereas the normalized series level out some of the annual variations that occur as a result of weather conditions and other variable factors. The normalized accounts are most important for crop farms, since crop production is most subject to annual variations.

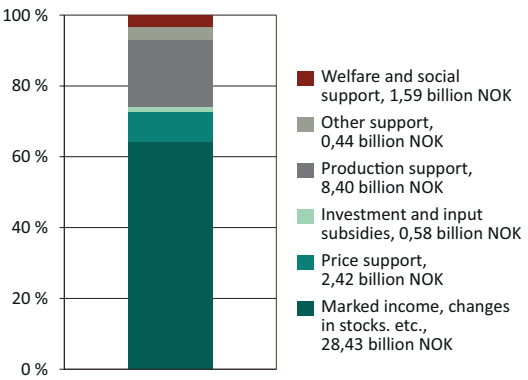

Figure 6 Agriculture's total income in 2018 was NOK 45,3 billion – shown divided between sales income and major subsidy categories. Source: Budsjettnemnda for jordbruket (2019a)

The financial results for 2012-2018 according to the two series in the Economic Accounts for Agriculture are presented in Table 1. The results are expressed as return to labour and own capital, in total (million NOK) and as NOK per man-year, i.e. payment for labour input and own capital after having covered all remaining costs, including interest paid on loaned capital.

When assessing income developments in agriculture, the annual farm negotiations focus on the trend in farmers' return to labour and own capital per man-year in the normalized accounts. Income trends in the agricultural sector are thus compared to those of other employment groups, such as industrial workers. From 2012 to 2018, agricultural income (per man-year) increased by 27.7 percent, whereas yearly wages for industrial workers paid by the hour increased by 17.6 percent in the same period. When taking into consideration the effect of the agricultural tax allowance, initially introduced in 2000 and gradually increased thereafter, agricultural income has increased by 22.8 percent throughout the period.

Farm income and industrial wages shown in Table 1 are not directly comparable, but the figures nevertheless indicate the differences in income level and income trends (per man-year) between the two groups.

There are substantial farm income fluctuations between years, even in the normalized series. These are due to market fluctuations for livestock

Table 1 Return to labour and own capital for Norwegian farmers, according to registered and normalized accounts 2012-2018. Million NOK and NOK per man-year. Yearly wages in industry

	2012	2013	2014	2015	2016	2017	2018
Registered accounts							
million NOK	11 790	12 256	13 360	14 874	16 492	14 697	14 276
change %	*4,9*	*4,0*	*9,0*	*11,3*	*10,9*	*–10,9*	*–2,9*
NOK per man-year	239 600	254 800	280 400	315 100	352 800	317 400	312 700
endr. %	*7,2*	*6,3*	*10,0*	*12,4*	*11,9*	*–10,0*	*–1,5*
Normalised accounts							
million NOK	12 648	12 247	12 922	14 509	15 251	15 000	14 993
change %	*5,4*	*–3,2*	*5,5*	*12,3*	*5,1*	*–1,6*	*0,0*
NOK per man-year	257 100	254 600	271 200	307 400	326 200	324 000	328 400
change %	*7,7*	*–1,0*	*6,5*	*13,4*	*6,1*	*–0,7*	*1,4*
NOK per man-year tax-adjusted	287 900	285 200	299 700	336 100	352 600	350 100	353 500
change %	*9,0*	*–0,9*	*5,1*	*12,1*	*4,9*	*–0,7*	*1,0*
Industrial workers[1]							
annual wage	406 300	419 800	431 100	442 400	452 500	464 100	478 000
change %	*4,1*	*3,5*	*3,0*	*2,5*	*2,0*	*2,6*	*2,8*

1) Industrial workers paid by the hour, in companies associated with the Confederation of Norwegian Business and Industry

products and annual cost variations. The effect of the income tax allowance is included in one of the series in Table 1. The results per man-year show lesser decreases and greater increases than the total figures. This is because the total returns are distributed among increasingly fewer man-hours. For the period as a whole, the income level per man-year in agriculture has improved, mainly due to increased production efficiency.

Agriculture and the food industry in a regional perspective

Gross product (GP) and employment are here used as indicators for the regional importance of agriculture and the food industry. The national gross product for agriculture and the food, beverage and tobacco industry in 2017[1] was NOK 16.1 billion and NOK 45.7 billion, respectively. Total agricultural employment in Norway in 2017 was 45,890 persons, compared to 52,900 persons in the food, beverage and tobacco industry. The gross product for agriculture accounted for 0.6 percent of Norway's total national gross product, whereas the agricultural sector employed 1.7 percent of employed persons in Norway.

Regional data for 2017 show that Rogaland (in southwestern Norway) was Norway's main farming county, both in terms of gross product (NOK 2.19 billion) and employment (6,270 employees). However, in terms of relative importance for a county's gross product and employment, agriculture is most significant in Nord-Trøndelag (region north of Trondheim). Here, agriculture accounted for 3.0 percent of the county's total gross product and 5.7 percent of its total employment.

Regarding the food, beverage and tobacco industry, Oslo had the highest gross product of all counties in 2017, with NOK 5.32 billion, whereas employment was highest in Rogaland, with 5,500 employees. In terms of relative importance of the food, beverage and tobacco industry, the county of Finnmark in the far north had the highest figures, with 5.1 percent of its total gross product derived from and 3.6 percent of its workforce employed in the industry.

Farm-level economics

The Economic Accounts for Agriculture show the total financial result for Norwegian agriculture, but do not distinguish between results on the varying types of holdings, in different regions, with varying sizes and productions. However, this is the case in the Account Statistics for Agriculture, which are prepared by NIBIO (formerly NILF). These statistics are based on the accounts of about 900 holdings from throughout Norway on which a significant share of the family's total income is generated on-farm. The data are classified according to region, farm size and production.

Return to labour and own capital is defined as farm income minus all costs except the cost of hired

1) 2017 is the last year for which data is available

labour. The costs also include agriculture's share of the farm family's interests on debts. The return to labour and own capital shall thus cover all labour input and the farm family's return on assets.

Figure 8 shows return to labour and own capital per holding for different farm types during the past 10-year period. In the first and in some of the final years of the 10-year period, returns are highest for combined grain/pork producers. However, there are significant fluctuations, due to yield variations and changing market conditions. Dairy and beef production are less affected by yield fluctuations, and price variations are rather small. The results on farms growing cereals in monoculture are extremely influenced by annual yield variations, although prices also play a role. The results in sheep farming depend on such factors as grazing conditions and the prices of mutton and lamb.

Average labour input varies considerably between the different farm types. Of the five farm types shown, combined dairy and beef farming has the highest labour input, with about 2.0 man-years (at 1,845 hours per man-year). Figures for labour input in other productions are 1.6 man-years for combined cereal and pig farming, 1.2 man-years for sheep farming, ca. 1.0 man-year for suckler beef production and 0.4 man-years for monoculture cereal farming. The production volume per holding for these farm types has increased in the period.

In 2017, the share of farm income of total net family income amounted to 40 percent. Forty-eight percent of total net family income was derived from the farm's overall resources. Thus, 8 percent of total net family income stems from farm resources such as forestry, additional farm enterprises and the value of family labour investments. Remaining income sources are off-farm employment and enterprises, pensions and capital income.

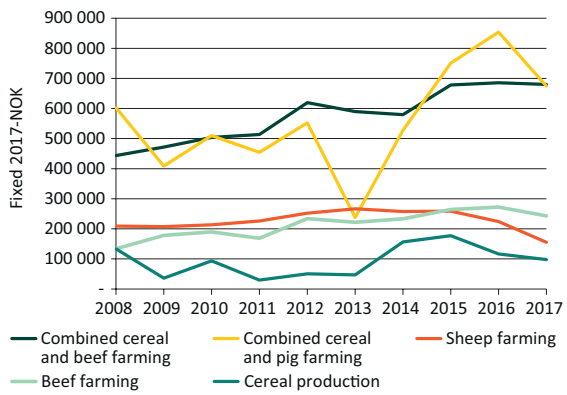

Figure 8 Return to labour and own capital per holding for different farm types 2009-2017. Fixed 2017-NOK
Source: Norsk institutt for bioøkonomi (2018a)

PRODUCTION, MARKETING AND CONSUMPTION OF AGRICULTURAL COMMODITIES

MARKET FOR AGRICULTURAL COMMODITIES
The market for agricultural commodities, and thus the production potential for Norwegian farming, depends on the overall demand for food. Factors that can have an effect on demand and thereby on agricultural production in Norway include: population trends, price trends for domestic and competing imported goods, trade policies and agreements, introduction of new product types, changing food trends as well as nutritional and health aspects.

Grain, cereal products and feed concentrates

Most grain grown in Norway is used in animal feed concentrates. Of an average annual production of slightly more than 1.0 million metric tons, approximately 80 percent is used in feed concentrates.

The share of domestically-grown bread grain of the total national consumption varies considerably from year to year, due to the effect of weather conditions on yields and grain quality, see figure 9. In 2017, the figure was 66 percent, whereas it fell to 36 percent in 2018.

Potatoes and horticultural products

Figure 9 shows a decline in potato consumption, especially ware potatoes for direct consumption. The consumption of vegetables, fruit and berries is generally increasing. Due to the climatic limitations for fruit production, most of the fruit and berries consumed in Norway are imported. The figure also shows a considerable import of potatoes.

Milk and dairy products

After declining rather significantly since the mid-1980s, the total consumption of milk has levelled off since about 2000. With few exceptions, annual consumption has been slightly above 1,500 million litres milk delivered to dairy. However, as Norway's population is increasing, milk consumption per capita is decreasing. Whereas liquid milk consumption has been

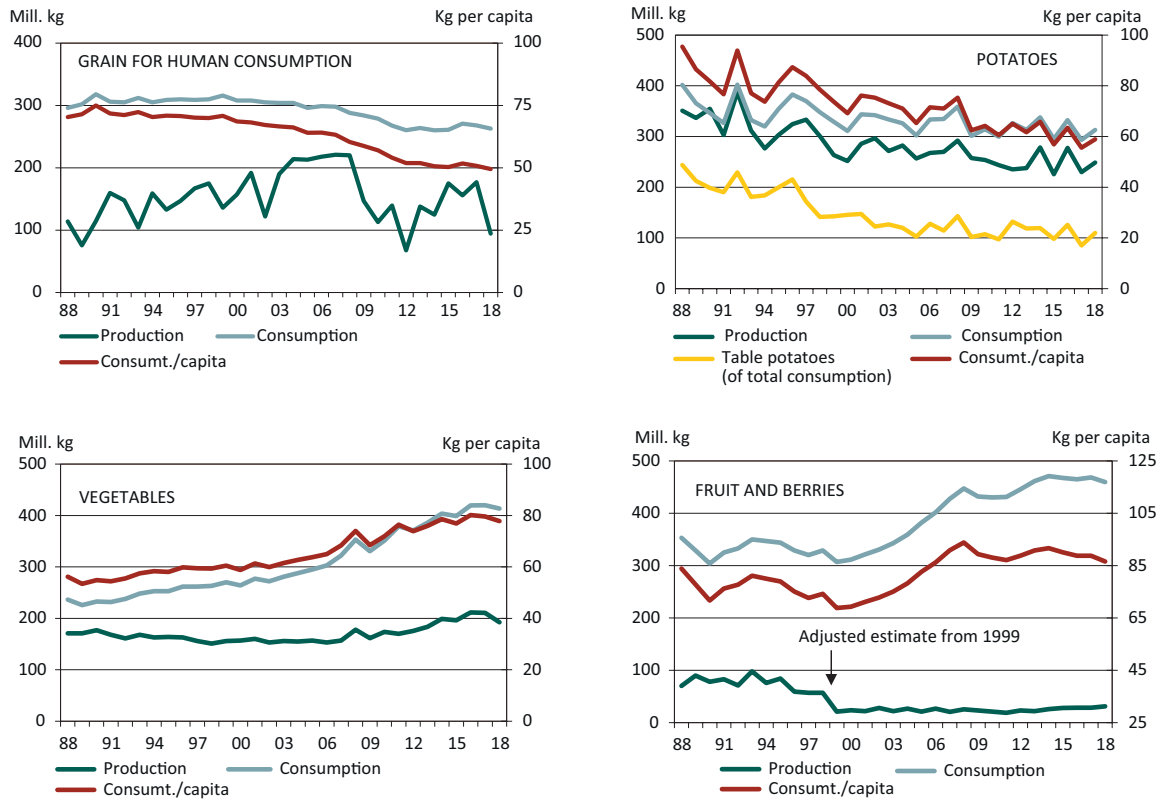

Figure 9 Production and consumption of bread grain, potatoes and horticultral products, 1988-2018
Source: Helsedirektoratet (2019) and Budjsettnemnda for jordbruket (2019a)

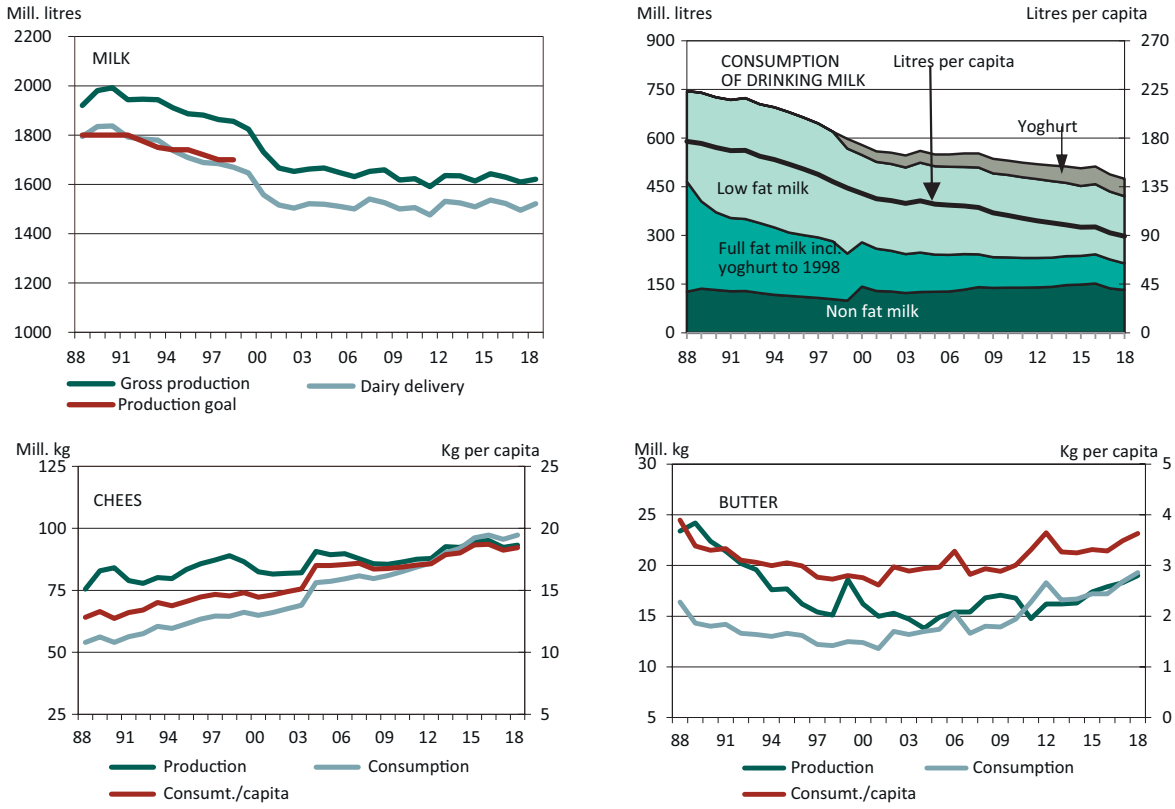

Figure 10 Production and consumption of milk and dairy products, 1988-2018
Source: Helsedirektoratet (2019) and Budjsettnemnda for jordbruket (2019a)

steadily declining, the consumption of cheese has increased. To a large extent, these long-term trends can be explained by competition from other products, prices, focus on food-related health issues and changing eating habits. Since liquid milk gives the highest profits, the negative consumption trend has adverse economic effects for Norwegian dairy farmers.

Meat and eggs

The production and consumption of meat in Norway has been steadily increasing for the past 30-40 years, especially due to an increase in poultry meat consumption. Consumption of poultry peaked in 2013, and has declined slightly since, reaching about the same level as beef consumption in 2018. Consumption is highest for pork, at 25.5 kg per capita. The focus on nutrition and food safety issues can potentially cause considerable variations in meat demand. For example, publicity about the use of antibiotics (Narasin) in poultry feed led to a sharp decline in chicken consumption in 2014 and 2015.

The annal consumption of beef, veal, lamb, mutton, pork and poultry was at an all-time high in 2017 at about 370,000 tons in total. This is about twice the amount consumed in the early 1980s, although the increase per capita is somewhat lower. There has been some import of meat, especially beef. This is due to the declining cattle population as a result of reduced milk consump-

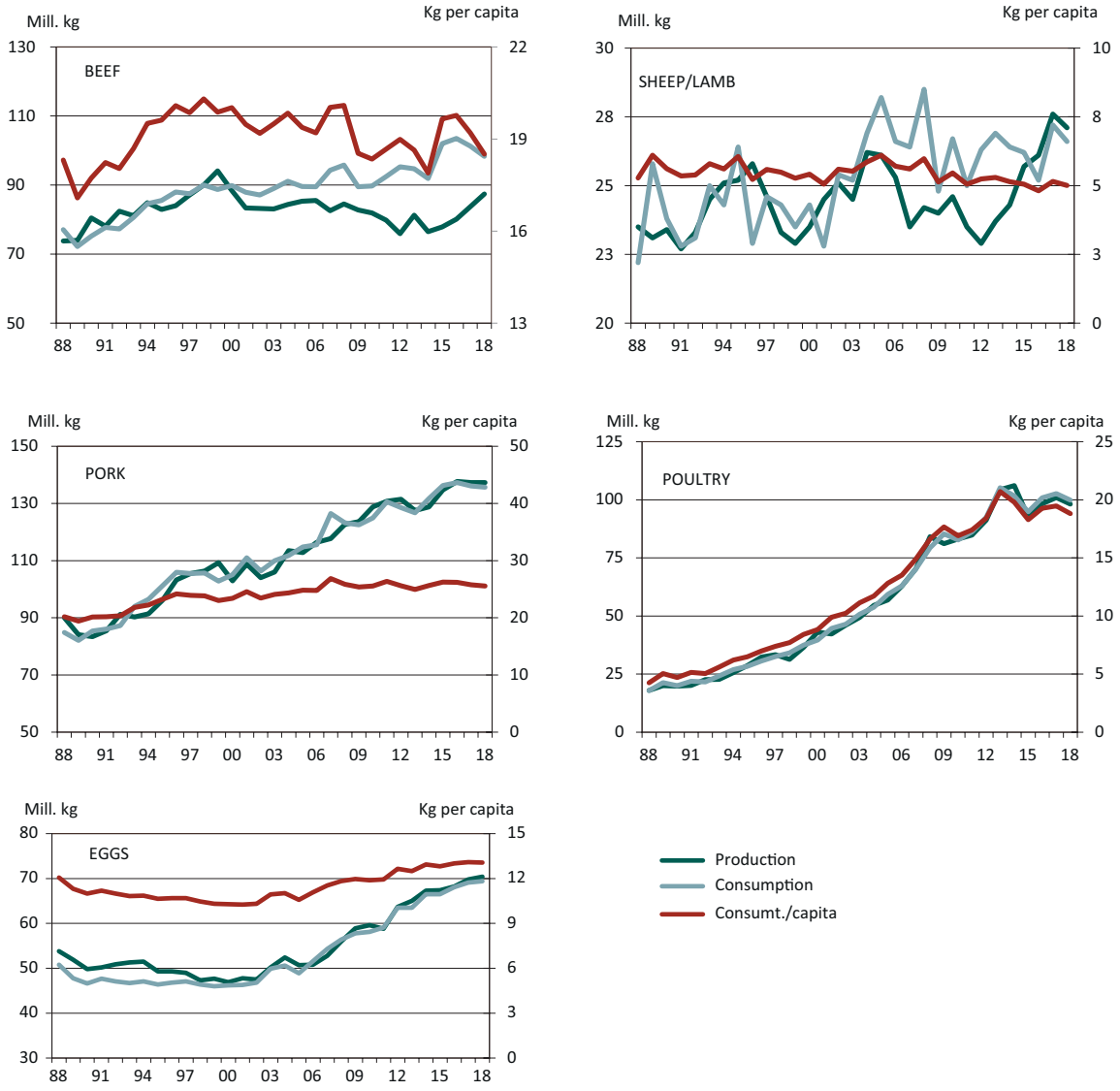

Figure 11 Production and consumption of meat and eggs, 1988-2018. Source: Helsedirektoratet (2019) and Budjsettnemnda for jordbruket (2019a)

tion and production. There has been an increase in egg production and consumption in recent years, after several years of relatively stable consumption.

Organic production

The number of organic farms in Norway has been declining for some years. In 2018, there were 2,057 certified organic farms, 533 fewer than in 2012. The Trøndelag region has most organic farms, but has also experienced the greatest decline. Of the major agricultural regions in Norway, Rogaland has the fewest organically run farms.

The total area under organic farming has decreased by 16.7 percent since 2012. The organic area increased somewhat from 2015 to 2016, but continued to decrease again after 2016. The annual decline in organically farmed area in 2016-17 and 2017-18 was about 1,000 ha and 1,900 ha, respectively. As of 2018, about 41,800 ha were farmed organically, equivalent to 4.2 percent of Norway's total farmland.

The sales value of organic foods in the food retail trade has increased steadily since 2010. From 2017 to 2018, sales of organic goods through food retailers increased by 8 percent, amounting to NOK 2.8 billion in 2018. Sales of organic dairy products, bread, baked goods and baby food increased significantly. Vegetables are the product group with the highest sales value at NOK 564.9 million.

Organic foods accounted for 2 percent of the total turnover of food through the food retail trade. Baby food is the product group with the clearly highest market share of organic products. In 2018, 37.4 percent of baby foods sold were organic. Eggs are another product with a relatively high organic market share, at 9.5 percent of all egg sales in 2018 (Landbruksdirektoratet 2019).

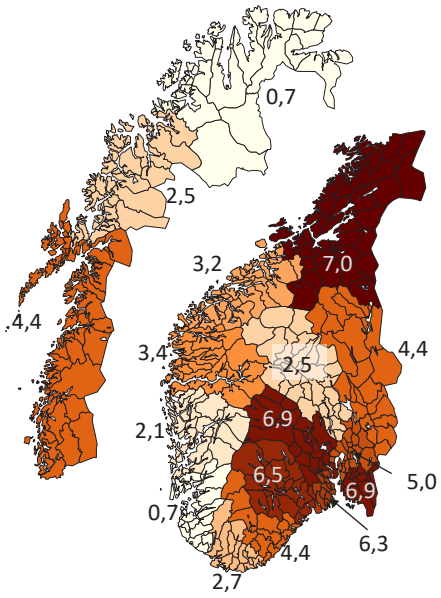

Figure 12 Organic agriculture in Norway, area in percentage of total agricultural area, 2018. Source: Landbruksdirektoratet (2019) and Landbruksdirektoratet PT-900

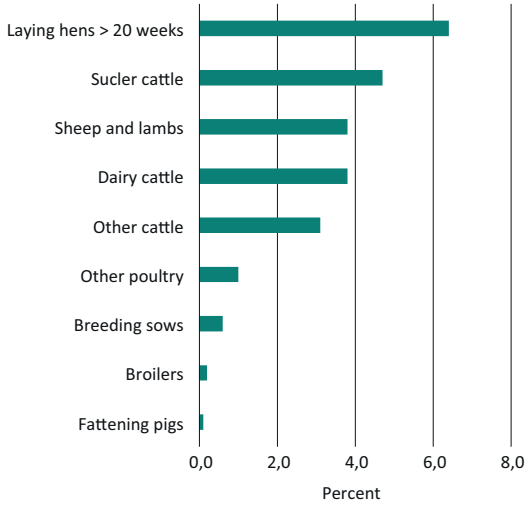

Figure 13 Organic livestock population in percentage of total livestock population
Soruce: Landbruksdirektoratet (2019)

FOOD PRICE TRENDS

Domestic production and food consumption

Domestic food consumption is expressed as the sum of domestic production and import, minus exports. The degree of self-sufficiency is often used to express the share of Norwegian production of domestic food consumption on a an energy basis. Self-sufficiency is defined as the percentage of domestically produced food of the total food consumption. However, the degree of self-sufficiency does not take the origin of agricultural inputs into account, e.g., if the concentrates used in meat production are domestically grown or imported. Furthermore, the degree of self-sufficiency does not include Norwegian food exports, such as the considerable export of fish. In a crisis, diets could be changed to including more fish, which thus would increase the degree of self-sufficiency. The degree of self-sufficiency is illustrated in figure 15. From 1970 to 2018, self-sufficiency varied between 45 and 55 percent. Due to low grain yields in 2012, self-sufficiency fell to 43

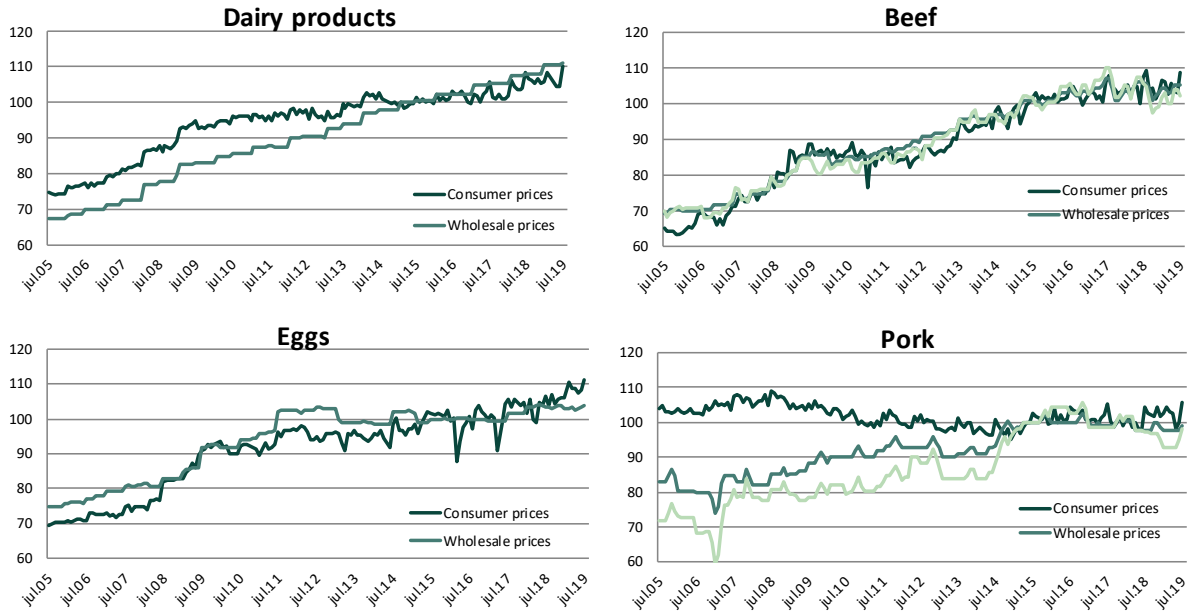

Figure 14 Price trends for dairy products, eggs, veef and pork at the farm gate, wholesale and retail level. Index 2015=100
Source: Norsk institutt for bioøkonomi (2019)

percent. As a result of the extensive drought and low yields in 2018, the degree of self-sufficiency fell from 50 percent in 2017 to 45 percent in 2018.

Import and export

Figure 16 shows tentative results for 2018 regarding the relationship between production, import and export of some typical farm commodities. Export is insignificant for all products. This illustrates that Norwegian food production is aimed at the domestic market. Imports are highest for commodities that cannot be produced in sufficient quantities due to the natural conditions (climate or farmland availability) in Norway. These are primarily fruits and berries.

FORESTRY IN NORWAY

Natural resources

Forests cover 12.6 million hectares, or about 39 percent of Norway's land area. The forest area includes forests both above and below the coniferous forest line. Approximately 8.3 million hectares, corresponding to about 25 percent of the country's land area, are covered by productive forest. Productive forest is defined as forest producing more than 1 m³ per hectare per year. The most recent figures from the national forest inventory show a growing stock of 974 million m³, of which 865 million m³ are on productive forest land. The total annual increment in 2018 was 24.9 million m³, of which 22.8 million m³ was on productive forest land (Statistisk sentralbyrå 2019c).

Of the growing stock in Norwegian forests in 2018, 44 percent consisted of spruce (*Picea* spp.), 31 percent of pine (*Pinus* spp.) and 25 percent of deciduous tree species, compared to 53, 28 and 19 per cent, respectively, in 1933.

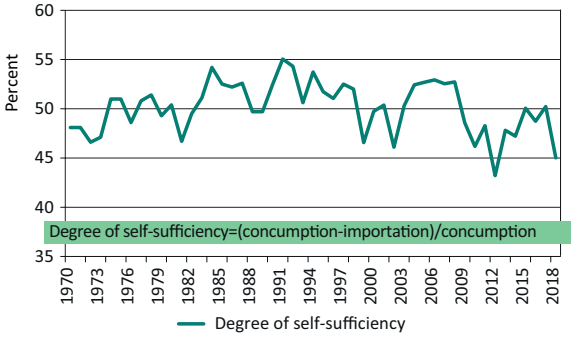

Figure 15 Degree of self-sufficiency measured on an energy basis, 1970-2018. Source: Helsedirektoratet (2019)

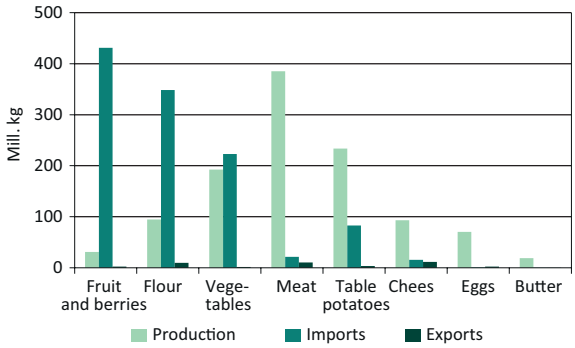

Figure 16 Production, import and export of major farm commodities in 2018, mill. kg. Source: Helsedirektoratet (2019)

Game

Game hunting is a good source of income for owners of forests and other non-cultivated areas. In the 2018/2019 hunting season, 30,666 elks, 43,820 red deer and 4,156 wild reindeer were felled (Statistisk sentralbyrå 2019d–f). Most elks were felled in Trøndelag, whereas most red deer were felled in Sogn og Fjordane. Most wild reindeer were felled in the Reinheimen/Breheimen mountain region, followed by Hardangervidda. The hunting quotas and numbers of actually felled animals are shown in Figure 17.

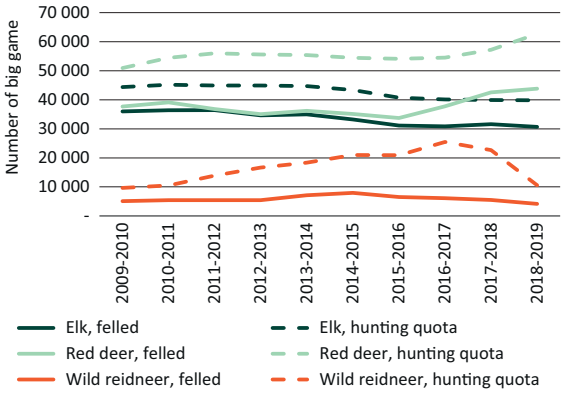

Figure 17 Hunting quota and felled big game
Source: Statistisk sentralbyrå (2019d–f)

The estimated total slaughter weights for big game animals felled in the 2018/2019 hunting season were 4,170 metric tons elk meat, 2,716 metric tons red deer meat and 170 metric tons reindeer meat. At an estimated first-hand price of NOK 75 per kg, this represents a total value of nearly NOK 529.3 million. In addition, one has to consider the recreational value, trophy value, income from guided tours and lodging, hunting license sales, added-value from processing, and the value of felled roe deer and other small game.

Climate regulation

Besides being a source of timber and other raw materials, forests also have a considerable value for climate regulation, since the forest biomass has a significant impact on the content of CO_2 in the atmosphere. In 2017, the net assimilation of CO_2 by Norway's forests was 29.1 million tons (Miljødirektoratet 2018). This represents more than half of the country's total greenhouse gas (GHG) emissions, which amounted to 52.9 million tons in 2018 (Statistisk sentralbyrå 2019g).

The standing stock in Norwegian forests has increased from 300 million m³ in 1919 to about 970 million m³ today. In 2015, the total amount of carbon sequestered by living biomass in Norway was 470 million tons of CO_2 (Norsk institutt for bioøkonomi 2018b). Through photosynthesis, CO_2 is stored as carbon in wood and wood products. In the common Norwegian tree species, carbon makes up about 50 percent of the dry weight. The increased use of wood materials and products thus contributes to carbon sequestration throughout the lifetime of the wood product. In addition, the production of wood materials requires less energy and gives lower process emissions than the production of alternative materials such as concrete and steel. Waste products can be used as a source of bioenergy and thus replace fossil fuels.

Timber harvesting is included in greenhouse gas inventories as an emission in the year of harvest and timber removal. It is not taken into consideration whether or not much of the harvested timber is used for producing construction materials or other products that continue to bind carbon. The calculation method also entails that, e.g., emissions from burning biofuels are included in the forest's GHG accounts before the timber is used as fuel.

Forest economy

In 2018, 10.8 million m³ of timber were sold to the forest industry. The harvested volume was 340,000 m³ more than in 2017. Thirty-two percent of the total harvested volume in 2018 was exported, mostly to Sweden (78 percent of all exports). Fifty-six percent of the exported timber was pulpwood. A total of 454,800 m³ of timber was imported to Norway in 2018.

Saw timber accounts for about 54 percent of industrial timber. Of the total timber harvest (excluding firewood), ca. 74 percent was spruce, ca. 23 percent pine and the remaining 3 percent various hardwoods. The three eastern (inland) counties Hedmark, Oppland and Buskerud accounted for about 50 percent of the commercial timber harvest in 2018. Hedmark alone supplies about 27 per cent of Norwegian timber (Statistisk sentralbyrå 2019h).

A number of paper mills have been closed down during the past ten years, among these was the Sødra Cells plant in Tofte. Due to this loss of several domestic pulpwood processors, more than

half of the pulpwood harvested in Norway in 2018 was exported. The largest pulpwood processors in Norway are Norske Skog's plants in Halden and Skogn and Borregaard in Sarpsborg. Saw timber is increasingly being processed by domestic producers, of which Moelven and Bergene Holm are the largest.

The gross value of the sold timber was NOK 4.4 billion in 2018, an increase of 18 percent from the previous year. On average for all commercial timber, the log price per m^3 rose from NOK 354 in 2017 to NOK 410 in 2018. In the past years, commercial timber harvesting was carried out on about 14,000 forest estates throughout Norway.

In addition to commercial timber harvesting, slightly more than 2 million m^3 of firewood have been harvested per year in recent years. Of this, about 65 percent (by volume) was hardwood. Another 140 000 m^3 of firewood has been imported to Norway, of which almost 80 percent comes from the Baltic states and Russia (Statistisk sentralbyrå 2019i).

Norwegian forestry is increasingly becoming a pure source of capital income for forest owners. About 90 percent of the sold timber volume was cut and delimbed by logging machines. There are 127,000 forest estates in Norway. The average size of productive forest land per estate is about 55 ha in 2017. Slightly more than 1,200 forest estates are larger than 500 ha, although these estates account for nearly one-third of Norway's total forest area. Another one-third of estates had between 2.5 and 10 ha of productive forest land. On 32 230 forest estates, forest operations were combined with farming activities in 2016. Eight-four percent of all forest estates are privately owned (Statistisk sentralbyrå 2019j).

In 2017, forestry and forest-based services had a gross product of slightly more than NOK 5.4 billion and employed about 6,700 persons. Hedmark is the leading forest county, both in terms of gross product and employment. The sawmill, wood-processing, paper and pulp industries together generated a gross product of NOK 12.1 billion and employed 15,700 persons in 2017. (Statistisk sentralbyrå 2019k).

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NIBIO **POP** 6(8)2020
ISBN 978-82-17-02507-8
ISSN 2464-1170

Editor: Hildegunn Nordheim, Director of the Survey and Statistics division
Chief Editor: Per Stålnacke, Director of Research

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