

AGRICULTURE ATLAS

Facts and figures on EU farming policy

2019



REFORMS
FOR A
SUSTAINABLE
FUTURE

■■■ HEINRICH BÖLL STIFTUNG


BirdLife
INTERNATIONAL
EUROPE AND CENTRAL ASIA

 **Friends of
the Earth
Europe**

IMPRINT

The **AGRICULTURE ATLAS** is jointly published by
Heinrich Böll Foundation, Berlin, Germany
Friends of the Earth Europe, Brussels, Belgium
BirdLife Europe & Central Asia, Brussels, Belgium

Chief executive editors:
Christine Chemnitz, Heinrich Böll Foundation
Editorial support: Stanka Becheva, Friends of the Earth Europe

Managing editor: Dietmar Bartz
Art director: Ellen Stockmar
Image editing: Roland Koletzki

Atlas  Manufaktur
52° 31' N, 13° 24' O

English Editor: Paul Mundy
Proofreader: Maria Lanman
Fact checking: Infotext, Berlin
Translations from Polish: Maciej Zgondek

Contributors: Dietmar Bartz, Stanka Becheva, Brîndușa Birhală, Harriet Bradley, Abad Chabbi, Christine Chemnitz, Franco Ferroni, Rebekka Frick, Harald Grethe, Astrid Häger, Zbigniew Karaczun, Christof Kuhn, Dominik Linhard, Hans Martin Lorenzen, Jacques Loyat, Alan Matthews, Friedhelm von Mering, Joyce Moewius, Oliver Moore, Lars Neumeister, Ruth Pammer, Xavier Poux, Nikolai Pushkarev, Christian Rehmer, Tobias Reichert, Véronique Rioufol, Cornelia Rumpel, Julia Christiane Schmid, Helene Schulze, Matthias Stolze, Berit Thomsen, Aurélie Trouvé, Katrin Wenz, Helga Willer, and two Por Otra PAC working groups, coordinated by Fundación Nueva Cultura del Agua and by Asociación Trashumancia y Naturaleza.

Cover image: Collage © Ellen Stockmar, with a photo by Alexandre Andreyko, istockphoto.com

The views expressed in this publication are those of the authors and do not necessarily reflect the views of the publishing partner organisations.

Editorial responsibility (V. i. S. d. P.): Annette Maennel, Heinrich Böll Foundation

First English edition, May 2019

Production manager: Elke Paul, Heinrich Böll Foundation
Production: Micheline Gutman, Muriel sprl, Brussels, Belgium

Produced by Drukkerij Van der Poorten, Leuven, Belgium



This material – except the cover image, publication covers and logos – is licensed under Creative Commons “Attribution-ShareAlike 4.0 Unported” (CC BY-SA 4.0). For the licence agreement, see <http://creativecommons.org/licenses/by-sa/4.0/legalcode>, and a summary (not a substitute) at <http://creativecommons.org/licenses/by-sa/4.0/deed.en>. Individual graphics from this atlas may be reproduced if the attribution “Bartz/Stockmar CC BY 4.0” is placed next to the graphic, in case of modification: “(M) Bartz/Stockmar CC BY 4.0”.



This publication has been produced with financial assistance from the European Commission's LIFE Programme. It reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

FOR ORDERS AND DOWNLOADS

Heinrich-Böll-Stiftung, Schumannstraße 8, 10117 Berlin, Germany, www.boell.de/agricultureatlas
Friends of the Earth Europe, Rue d'Edinbourg 26, 1050 Brussels, Belgium, www.foeeurope.org/agriculture-atlas



AGRICULTURE ATLAS

Facts and figures on EU farming policy

2019

TABLE OF CONTENTS

02 IMPRINT

08 INTRODUCTION

10 TWELVE BRIEF LESSONS ON AGRICULTURAL POLICY IN EUROPE

12 EU / INTRODUCTION

HITTING TARGETS, MISSING GOALS

Set in Brussels since the 1960s, the Common Agricultural Policy is one of the EU's oldest policies. Despite its extensive funds and regular reforms every seven years, it is poorly attuned to the needs of Europe's hugely diverse farm sector. Payments tied to area disproportionately benefit large, industrialized farms and promote productivity. Goals to minimize and adapt to climate change, protect the environment and promote rural development are poorly served.

14 EU / NET PAYERS

A DECADES-LONG DISCOUNT WORTH 130 BILLION EUROS

A mini-Brexit took place back in 1985 with the UK budget rebate, which violates the principle of solidarity in European integration. But the payments made to farmers under the Common Agricultural Policy are hindering further threats of withdrawal from the European Union.

16 EU / DIRECT PAYMENTS

TIED TO THE LAND

Three-quarters of the Common Agricultural Policy budget goes into direct payments for farmers – almost regardless of what they do. Most of the money benefits just a few large

producers and fails to deliver on the social and environmental challenges rural areas face.

18 EU / RURAL DEVELOPMENT

FOR SOME, THE SECOND PILLAR HAS THE SECOND PRIORITY

The Common Agricultural Policy has two “pillars”, or pots of money to draw from. Pillar I, which consists largely of direct payments to farmers according to the area they manage, has come in for a lot of criticism. Pillar II, which supports rural development policy, is seen as more useful. But as the agriculture budget shrinks, it is Pillar II that faces the bigger cuts.

20 FRANCE / BUDGET

THE BIGGEST BENEFICIARY

France is the largest recipient of Common Agricultural Policy funds. But there are significant disparities among the country's regions, between types of production, and among farms.

22 AUSTRIA / BUDGET

SOME PROGRESS, BUT COULD DO BETTER

EU funds flow into Austrian farming through various channels. The country makes better use of some sources of money than its neighbours. But it is still missing its targets.

24 ITALY / BUDGET

IGNORING THE BETTER OPTIONS

For 2014 to 2020, the Common Agricultural Policy has allocated a total of 52 billion euros for Italy – 41.5 billion come from EU funds and 10.5 billion from the Italian government. This sum has to be shared among more than a million

farms. Italy is a net contributor to the CAP, getting less back from the EU than it pays in. It uses its money unwisely, favouring privately owned large farms over the public interest.

26 POLAND / AGRICULTURAL STRUCTURES MISGUIDED TRANSFORMATION

The transition from communism to a free market has resulted in both pluses and minuses for Polish farms. Incomes have risen, especially for large farms. But young people are leaving, industrial farms have appeared, small farms are going under, and the income gap among farmers has widened.

28 EU / FARMS GROWING UP

Like all industries, agriculture is subject to economies of scale. But larger farms have a smaller workforce and can be a bigger burden on the environment if they employ industrial methods, compared to the low-input systems that have traditionally dominated rural landscapes. It is time to shift policies towards preserving jobs and communities, being kinder on the environment, and encouraging young people to take up the farming profession.

30 GERMANY / FARM STRUCTURES WHOSOEVER HATH, TO HIM SHALL BE GIVEN

One by one, Germany's farms are dying off. For many, that is a worrying trend. But to fight it, society must agree on what the future of agriculture should look like.

32 SPAIN / WATER

MAINLY IN THE PLAIN

Farming around the Mediterranean has become more and more dependent on irrigation, without any realistic consideration of the limited water available. Spain is no exception.

34 EU / WORK

LIP SERVICE ONLY

Farm work is changing as capital replaces labour, and as paid employees replace family members. Where agricultural productivity is low, many farmers must look for outside work to make ends meet. Although small farms employ more workers, the Common Agricultural Policy supports large farms and does little to ensure decent pay or working conditions.

36 EU / LAND OWNERSHIP

FROM FAMILY FARM TO FARMING FIRM

Europe's farms are getting bigger. Agriculture payments sparked a wave of land purchases in the new member states right after they joined the EU. Land prices have since increased steadily. Small and medium farms are being bought out by agribusiness and financial investors and are being replaced by large enterprises. The decline of family farming has major repercussions for rural society and the economy. Land ownership is now more highly concentrated than is overall wealth in the EU.

38 EU / BIODIVERSITY

INTENSIFICATION VS CONSERVATION

People often say that there are fewer

birds and insects now than there used to be. That is true, and intensive agriculture is largely to blame. Despite some lip service paid to the necessity of nature conservation, the overwhelming weight of European agricultural policy is to promote yet more intensification.

40 AUSTRIA / BIODIVERSITY

HOW HABITATS ARE LOST

Biodiversity continues to decline in Austria. The pressure from intensive agriculture is not letting up; it still overwhelms any successful measures to promote environmental conservation.

42 ITALY / NATURA 2000

FARMING AND ENVIRONMENT: A DELICATE BALANCE

Natura 2000 is the EU's most important nature-conservation initiative. In Italy, this programme protects 2,944 sites, covering over 214,000 farms and 1.5 million hectares of agricultural land. The protected area is mainly made up of woodland, rough grazing and arable land.

44 SPAIN / HIGH NATURE VALUE FARMING BIODIVERSITY UNDER THREAT

Shepherds and their flocks are disappearing; traditional crops are becoming scarcer. Such trends endanger the production of high-quality, healthy food, the maintenance of biodiversity, and the conservation of natural resources.

46 EU / PESTICIDES

SPRAY TODAY, GONE TOMORROW

It is a common sight: a tractor with a big tank on the back and long booms

stretching out on either side, moving methodically across the field. Farmers across Europe spray huge amounts of pesticides on their land in an attempt to control plant diseases, weeds and insect pests. This practice not only harms the environment; it is also unnecessary, wasteful and expensive.

48 EU / LIVESTOCK RAISING

FARMING AS IF ANIMALS MATTERED

Year by year, the EU makes large payments as direct per hectare premiums. But this money is required for the expensive, and badly-needed conversion of animal husbandry. The Common Agricultural Policy currently does little to improve conditions. This is true not only for small animal stocks, but also for larger ones. For many people in Europe it is important that the animals are kept well.

50 EU / FERTILIZER OVERUSE

TOO MUCH OF A GOOD THING

Applied in moderation, nitrates are good for agriculture. Nitrogen is a major plant nutrient and a key component of fertilizers. But an overabundance of nitrate is a menace. Plants cannot take up the huge amounts of N from fertilizer, manure or slurry spread on the land. The nitrates wash into rivers, lakes and the sea, where they cause algal blooms and fish die-offs. In drinking water, excess nitrates cause circulatory system problems. The EU recognizes the risks, but its institutions and member states' governments do far too little to prevent them.

52 EU / ORGANIC FARMING

WORKING WITH NATURE

Rising demand for organic products in Europe is a market opportunity for producers and the food industry. But farmers need help to switch from conventional to organic, and to stay organic in face of market pressures inducing them to switch back. The Common Agricultural Policy offers some support – but not enough.

54 GERMANY / ORGANIC FARMING

ORGANIC GROWTH

Eco boom notwithstanding: EU farm subsidies are constraining the transformation of German agriculture. Brussels pays flat-rate area premiums directly, but the organic premiums must be subsidized by the state governments.

56 FRANCE / AGROECOLOGY

THE KEY TO SUSTAINABILITY

French agricultural policy has been guided by an agroecological project since 2014. But these good intentions are not reflected in the implementation of the Common Agricultural Policy. It is high time to put the focus on agroecology.

58 POLAND / LAND USE CHANGE

LOOKING BEYOND PRODUCTION

Producing high-quality food is an essential role of rural areas. But the countryside also has other important functions. It is home to many people, and plays a major part in maintaining the natural environment. Unfortunately, these functions do not get enough support in Poland.

60 EU / HEALTH

NEW POTATO, FRIED POTATO, COUCH POTATO

There is widespread agreement that health should be a pillar of the EU's agricultural policy. But the transition towards a healthy and sustainable food system will not depend on the CAP alone. Sustainable production can be realized only in the framework of sustainable consumption.

62 EU / CLIMATE

PUTTING CARBON BACK IN THE SOIL

A changing climate has more impact on agriculture than any other human activity. But agriculture is also one of the main causes of climate change. Europe's agricultural policies currently only pay lip-service to adaptation and mitigation in dealing with climate change. They should do a lot more.

64 EU / WORLD TRADE

A GLOBAL PRICE TAG FOR EUROPE'S AGRI FOOD SECTOR

Europe's agriculture is part of many international value chains. It influences global commodity markets and thus the prices, products, income and diets in developing countries.

66 AUTHORS AND SOURCES FOR DATA AND GRAPHICS

70 ABOUT US

INTRODUCTION

Europe's culinary offerings are a joy to behold: mozzarella from Italy, mushrooms from Poland, olives from Greece, wine from France, bread from Germany, beer from the Czech Republic, ham from Austria. A huge range of specialties from a huge range of landscapes – each one shaped by its environment, climate, community and history. This is the taste of Europe.

No other economic activity is so closely interwoven with the human and natural environment as is agriculture. If farming changes, so too the ecological and social systems that it hosts must change. All over Europe, there is a shift in how the soil is managed and livestock are kept. In many places, farmers are throwing in the towel and giving up their farms. The remaining farms are getting bigger, and every patch of land is being used as intensively as possible.

The economy does not stand still, and economic sectors change as dynamically as does society itself. That is neither good nor bad. The question is, who guides the change, and how. For changes in agriculture affect not only farmers but all Europeans, precisely because they are so closely connected with our food, the climate, nature and rural areas. It is therefore important that as a society, we agree on the direction in which agriculture should develop.

We must decide what other services we expect from farmers (apart from growing our food), and how we want to pay for these services. Europe must have a set of common goals to help it

“ The EU's agricultural policy is a bureaucratic monster, scarcely comprehensible for normal mortals.

mould the future. The European Union's Common Agricultural Policy, generously furnished with an annual budget of almost 60 billion euros, is the most important means to achieve these goals. Despite this, policies are not geared to what many European citizens regard as important: conserving the environment, keeping animals in appropriate conditions, protecting water, birds and insects, and maintaining life and livelihoods in rural areas.

On the contrary, the EU's agricultural policy is a bureaucratic monster, scarcely comprehensible for normal mortals. Many people don't even know that it exists. It is revised every seven years, yet it still promotes an outdated, misguided system – one that is unjust, unecological, and not designed to strengthen society's goals. Funds are paid out to farmers for each hectare they manage. Big farms rake in a bounteous harvest, while programmes to support smaller farms are utterly underfunded.

Europe's farm policy has been criticised for years. Many of its problems could be resolved while the coming reform is in full swing. A decision will be made in the next couple of years on what exactly it will look like. But the draft for the coming budget period ignores the criticism and sticks to the same old

erroneous approaches. The proposal that is currently on the table goes in the exact opposite direction of what is needed for a courageous, forward-looking Europe.

That is why we have produced this atlas. It shows how closely Europe's agriculture is intertwined with our lives and our living space. It also reveals how little of the funding from the Common Agricultural Policy is fit for purpose: how little of the funding actually furthers the goals that Europeans wish for their farming.

But the atlas also illustrates that it is worthwhile pushing for a better, fundamentally different set of agricultural policies. In many countries in the European Union, movements are growing for a sustainable food system that is socially acceptable and globally just. Farmer and consumer associations are forming networks with groups that promote nature, the environment and animal welfare, as well as with international development organizations.

The European edition of this atlas takes up this banner. It combines elements from various already-published national editions, giving both an overview of Europe as a whole as well as insights into the agricultural structures in various EU member states. The product of a Europe-wide network, this atlas aims to strengthen civil society and social movements throughout the continent, thereby advancing the ecological and social transformation in our agricultural and food systems.

” It is high time for a lively social debate about the future shape of agriculture.

For many years, Europe's governments have ignored the demands of a large part of the population. Not only that, they have pandered to the interests of the industrial agricultural lobby at home and in Brussels. This is outrageous. They are doing a disservice to European farming – and they are jointly responsible for ensuring that the major goals set by the EU are not achieved; they neither protect the climate, soils, water and biodiversity, nor promote global justice through the sustainable use of resources and fair international trade.

There is enough money in EU coffers for a different type of farm policy. But it has to be used in a way that rewards agricultural services that serve the common good. It is high time for a lively social debate about the future shape of agriculture. People in the European Union must have the knowledge and certainty that agricultural policy is being used in a sensible way and for the common good. Only then will they give it their support.

Barbara Unmüßig
Heinrich Böll Foundation

Jagoda Munić
Friends of the Earth Europe

Ariel Brunner
BirdLife Europe & Central Asia

12 BRIEF LESSONS ON

AGRICULTURAL POLICY IN EUROPE

1 The European Union's **AGRICULTURAL POLICY** is important for everyone in Europe. It shapes our farming, which in turn moulds the **RURAL** environment and its **SOCIAL AND ECOLOGICAL** conditions.

2 The Common Agricultural Policy takes **THE BIGGEST SLICE** of the EU's budget pie. The next seven-year support period begins in 2021. Negotiations on reforms are **IN FULL SWING**.

3 Structurally weak **RURAL AREAS** – and the people who live there – should benefit from the funding. But few do so because of **MISGUIDED** goals and rules. The proposed reforms will do **LITTLE** to change this.

4 Sustainable farming is key to the protection of **INSECTS AND BIRDS, CLEAN WATER AND HEALTHY FOOD**. Few EU funds flow into these areas.

5 Farmers who manage a lot of land get **LARGE AMOUNTS OF MONEY**; small farms get **VERY LITTLE**. As a result, investments are **HARDLY STIMULATED** in countries with many small farms.

6 Rural areas also get further support, other than for agriculture. But **FAR LESS MONEY** is available for these purposes than for the direct payments.



7 The EU has committed itself to international goals for **CLIMATE PROTECTION AND BIODIVERSITY**, as well as for **GLOBAL JUSTICE**. Without far-reaching reforms to its farm policies, it will **MISS** these targets.

8 Agricultural production in the EU has **NEGATIVE** ecological and social effects in many countries **AROUND THE WORLD**. Imported commodities produced in many countries overexploit the soil and water there; exports of milk powder and meat outcompete local producers.

9 **ANIMAL WELFARE** is a big concern for many European citizens. But **FEW** EU agricultural policy funds are allotted to solving welfare problems in animal husbandry.



10 In the EU, just **3.1 PERCENT** of the farm enterprises manage **MORE THAN HALF** the agricultural land. Between 2003 and 2013, more than one-quarter of all farms **CLOSED DOWN**. Their land is now worked by others.



11 The EU's agricultural policy helps **COMBAT THE POLITICAL EROSION** of the European Union. It is especially important in rural areas, where dissatisfaction with the EU is high.

12 For the Common Agricultural Policy to be more widely accepted, it must **PROTECT** the environment and the climate, **IMPROVE** animal welfare and **PROMOTE** small and medium-sized sustainable farms.



HITTING TARGETS, MISSING GOALS

Set in Brussels since the 1960s, the Common Agricultural Policy is one of the EU's oldest policies. Despite its extensive funds and regular reforms every seven years, it is poorly attuned to the needs of Europe's hugely diverse farm sector. Payments tied to area disproportionately benefit large, industrialized farms and promote productivity. Goals to minimize and adapt to climate change, protect the environment and promote rural development are poorly served.

From Ireland's placidly grazing sheep to France's hill-side vineyards, from the huge wheat fields in eastern Germany to the patchwork of tiny farms in Romania: agriculture covers 175 million hectares of Europe and shapes the landscape like no other activity. Diverse in every aspect, it has been influenced by ecology, culture and history, politics and economics, and, in return, affected by them. Cultural landscapes have emerged over centuries, reflecting the continent's history.

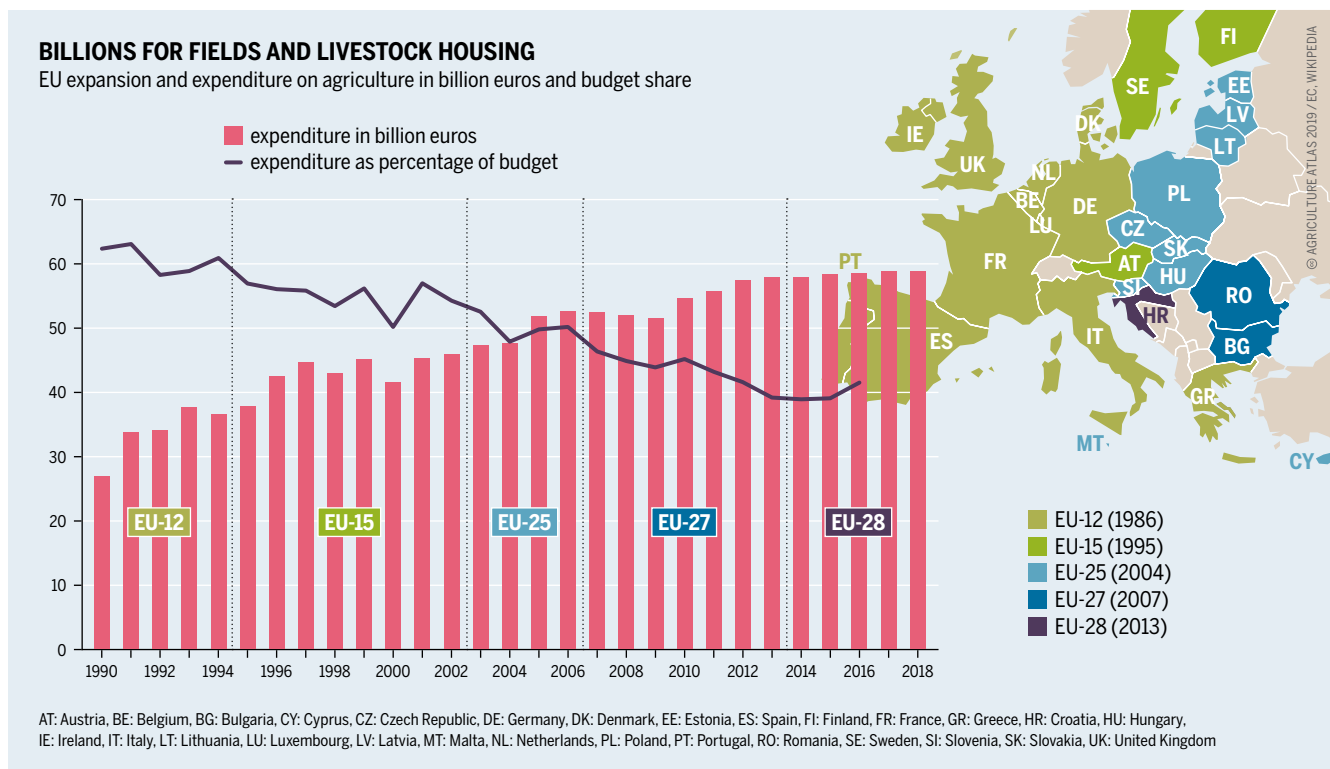
The land is divided into over ten million farms; one-third of them are located in Romania alone, and another 13 percent in Poland, followed by Italy and Spain. Farm sizes vary widely, from an average of a little over three hectares in Romania to 133 hectares in the Czech Republic. Farming's

contribution to the economy also varies from one country to another. In 2017, for the European Union as a whole, it accounted for 1.4 percent of the gross domestic product. It exceeded three percent in many of the new eastern member states of the EU, but reached between 0.5 and one percent in the older western member states.

No other part of the economy is so deeply influenced by European Union rules as farming, which is subject to the Common Agricultural Policy, or CAP. The objectives and tasks of this set of rules were first laid down over 60 years ago, in 1957.

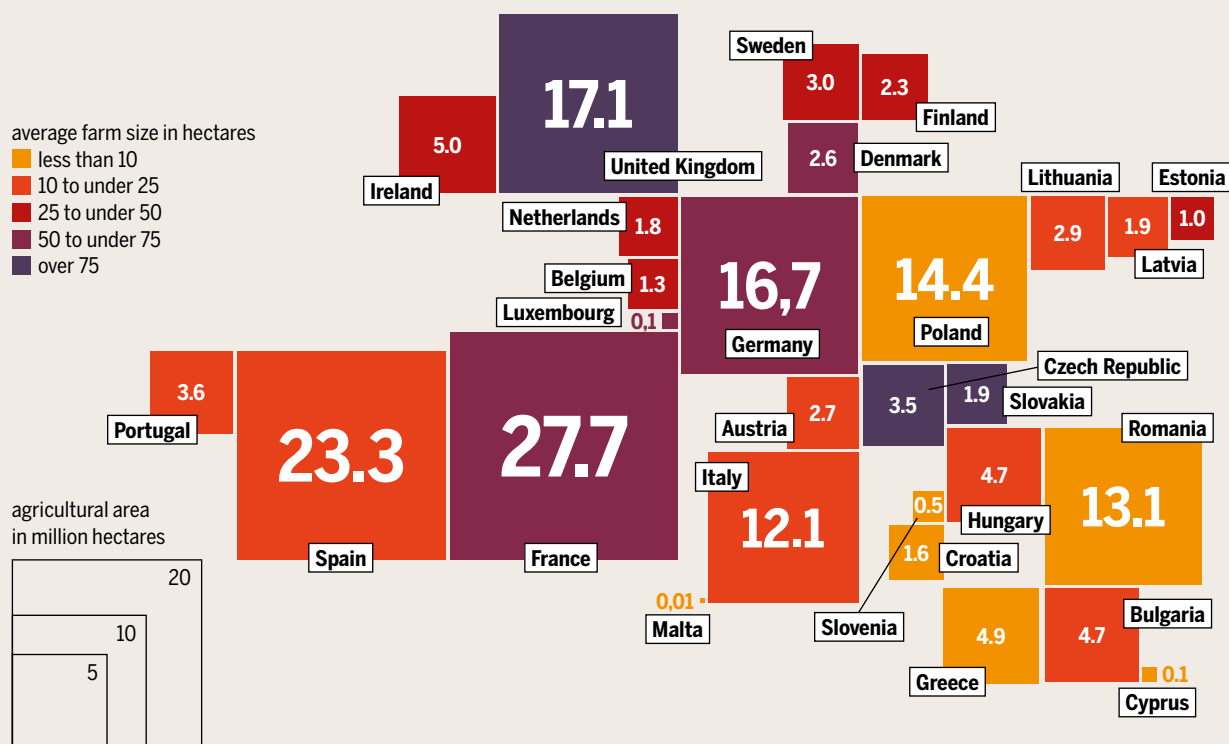
At that time, the European Economic Community (as the EU was called back then) had just six member countries. Its aim was to guarantee an adequate supply of food at reasonable prices for the population of post-war Europe. That meant promoting farm productivity, stabilizing markets by hindering big price fluctuations, and ensuring the farming population an acceptable standard of living. The Common Agricultural Policy quickly achieved these goals: by the 1970s, farmers were producing more food than Europe could consume. However, the attractiveness of guaranteed prices and incomes soon revealed their negative side: butter mountains towered up and milk lakes flooded over. Warehouses in which the EU stored the unsellable surpluses came

Agriculture is no longer the main theme for European integration, but it still takes the biggest slice of the budget



174 MILLION HECTARES OF FIELDS, MEADOWS AND PASTURE

Utilised agricultural area in the EU by country and size of operation,
Farm structure survey, 2013



© AGRICULTURE ATLAS 2019 / EC

to be a sure-fire source of income for their owners. Export subsidies artificially cut prices by dumping products on the world market, regardless of the ruinous effect on smallholder farmers in the importing countries.

Although the Common Agricultural Policy has been reworked many times and the export subsidies have disappeared, a new set of objectives that would address the challenges of the 21st century has never been agreed upon. First and foremost, the massive influence agriculture has over nature and the environment - the quality of soil and water, as well as habitats of insects and rare plants are inseparable from agricultural production. Protecting the environment, animals, the climate and human health and the development of rural areas, as well as the disappearance of small scale farms are major challenges that should be regulated at the European level. Despite this, the Common Agricultural Policy fails to deal with them systematically.

How does a reform of the Common Agricultural Policy come into being, complete with new priorities, payments or spending cuts? First the European Commission comes up with a proposal. This is discussed and amended by the European Parliament and the Agriculture and Fisheries Council (composed of ministers from all 28 EU member states). It is then decided on through laborious discussions, known as a "trilogue", between these three institutions. Once the law has been agreed, its provisions must be implemented through national laws and rules in each member country. This means all three institutions carry the responsibility for the future policy. Time and again, small-scale farmers' organizations as well as environment and development groups complain that the negotiation process waters down

Smallholdings dominate in several EU countries. For some families they are the main source of income; for others they are a sideline.

any attempts to make the Common Agricultural Policy more just or sustainable. For many years, the most important goal of the policy has been to stabilize farm incomes.

Agriculture currently accounts for 38 percent of the EU's budget, or around 58 billion euros a year. In other words, every citizen pays 114 euros into the EU's agriculture fund. Agriculture takes up the biggest chunk of the EU's budget, though its share is shrinking. In 1988 it was 55 percent; by 2027 it should be only 27 percent.

That budget is divided into two parts, or "pillars". Pillar I, the European Agricultural Guarantee Fund, accounts for 75 percent of the money. This pot of funding is used to make payments to farmers based on the area they farm: an average of 267 euros per hectare throughout the EU. Because farms vary in size, 82 percent of the total goes to only 20 percent of the recipients. Pillar II, the European Agricultural Fund for Rural Development, covers the remaining 25 percent of the funds. It pays for programmes to develop rural areas, organic farming, support for farming in disadvantaged areas, in addition to environmental and nature conservation and climate protection.

Although it is Pillar II that rewards environmental services, the Commission has proposed to cut this budget by 27 percent in the coming funding period. Pillar I would be trimmed by just 10 percent. This is just the latest in a rich history of misguided developments in the Common Agricultural Policy. ●

A DECADES-LONG DISCOUNT WORTH 130 BILLION EUROS

A mini-Brexit took place back in 1985 with the UK budget rebate, which violates the principle of solidarity in European integration. But the payments made to farmers under the Common Agricultural Policy are hindering further threats of withdrawal from the European Union.

"I want my money back!" exclaimed Margaret Thatcher, the Conservative British Prime Minister, at a summit of the then-European Community in 1984. Because the British farm sector was comparatively small, it could not benefit from subsidies from Brussels to the same extent as its counterparts in France and Germany. At the start of the 1980s, more than 70 percent of the Community's budget went to agriculture, leaving no room to compensate Britain for its disadvantage in other ways.

But it wasn't just agriculture. The United Kingdom was also disadvantaged by the relatively high customs and value-added tax revenues, on which each country's contributions to the European Community were based. On top of that, as a result of a severe economic crisis, the British per-capita income was well below that of Germany and France. Mrs Thatcher had complained about the level of

British contributions to the Community budget ever since she became prime minister, and stage-managed a political blockade in Brussels.

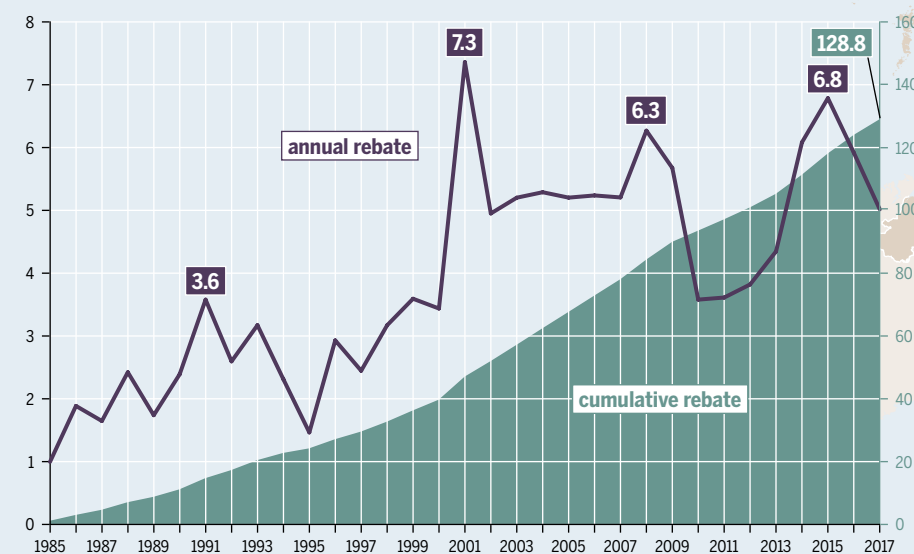
She won that battle - she got her "British rebate", as it quickly came to be known. Two-thirds of Britain's net contributions to the budget were nullified. For example, if the UK's annual contribution amounted to 10 billion euros, and 7 billion were returned to the UK in the form of subsidies and grants, that would leave 3 billion that the UK would have to pay to the common EU pot. The rebate meant that the UK instead needed to pay only 1 billion euros. The 2-billion-euro shortfall had to be (and still is) made up by the other member states. Agriculture was therefore the cause of the first major breach of the solidarity principle in Europe's integration.

Such politics of a "fair return" or of giving with one hand and taking back with the other, met with fundamental criticism in Brussels. For it violates the community ideal - and anyway, what would be the optimum: for each member state to get back exactly the same amount as it had paid in? There is no way to calculate the various economic advantages and disadvantages of each member state, from in-

The expensive British exception will end with Brexit. But that won't make it cheaper for everyone else, as London has been a net payer into the EU budget

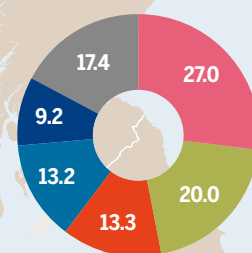
THE COSTS FOR THE REST

Annual and cumulative costs of the British rebate (66 percent of the net British contribution to the EU, taken over by other member states), in billion euros



1985 to 2015 unofficial calculations; 2016 and 2017 estimates by British statistics office ONS

Distribution of the costs of the rebate among other EU members, percent, 2017



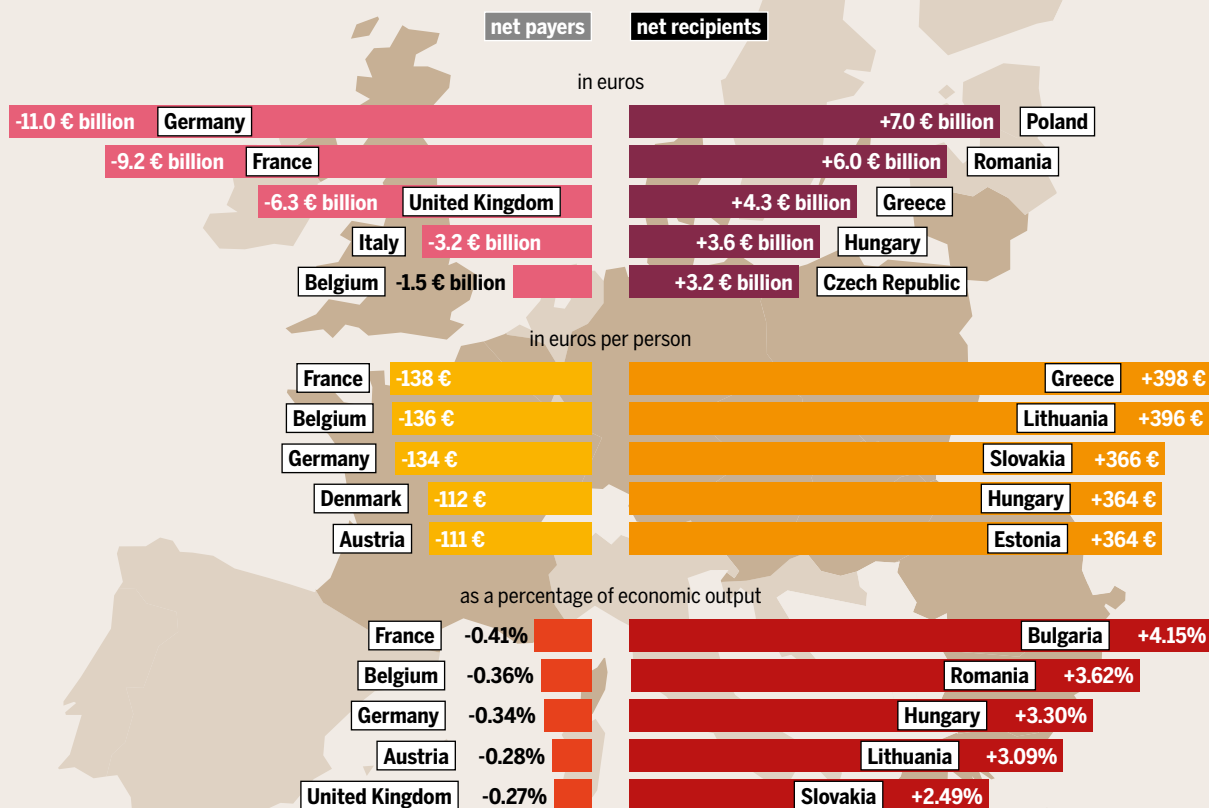
* Germany, Austria, Sweden and Netherlands with 75 percent reduction in contributions. This "rebate from the rebate" is paid by the remaining 23 members.

© AGRICULTURE ATLAS 2019 / MATTHEWS, ONS

AS YOU LIKE IT

Three calculation methods for net payments and receipts in the European Union and figures for the top five payers and recipients, 2016

© AGRICULTURE ATLAS 2019 / BPB



vestments to jobs to trade – especially if agriculture, with its variability in output and prices, is supposed to be the basis of such calculations.

Nevertheless, no one in the EU has been able to get rid of the British rebate, despite the fact that the British economy has caught up with other industrialized countries, and the government switched to Labour. For the rebate has always been around: Since 1985, the EU budget has not been adjusted to take into account the reduced payments from the UK; instead, the other member states have had to make up the shortfall – including the newer and poorer members. In 1985, the rebate amounted to one billion euros; by 2001, it peaked at 7.3 billion. By 2017, the cumulative rebate totalled 129 billion euros. With Brexit, the rebate will finally disappear.

If Germany, France or Italy, the other big net payers to the EU budget had acted in the same way as the UK and had insisted on pursuing its own interests, the European project would have died a quick death. Ironically, the fact that the dispute over net contributions did not spread further is also connected to agriculture. In the early 1980s, farming in Europe was a bottomless pit – misguided incentives in the form of price guarantees led to market distortions and overproduction. This longstanding crisis went far beyond Mrs Thatcher's rebate. New integration initiatives generated a positive dynamic: the internal market, the common currency, support for infrastructure development. Although the Common Agricultural Policy remained the biggest budget

The economic costs and benefits of an EU membership are hard to quantify, but the financial situation is clear

line, agriculture faded into the background. The arguments now focused on reforms of the whole, ever-expanding EU, not the British rebate.

Nevertheless, the Common Agricultural Policy is important for the thirteen new member states that have joined the EU since 2004, most of whom are net recipients of the EU's agricultural policy. Even governments that are critical of Brussels cannot afford to do without it – a fact both sides are very well aware of. For Poland, a European Commission draft has allocated a total of 30.6 billion euros for the budget period from 2021 to 2027. For Hungary, a smaller country, it still amounts to 11.7 billion euros.

On the other hand, the Commission wants to reduce its investment grants to Poland and Hungary – which are worth about as much as the agriculture payments – by about one-quarter. The payment of these funds will be coupled with the acceptance and integration of refugees. For agriculture, however, the governments in Warsaw and Budapest do not have to worry about such consequences: the Common Agricultural Policy is the same throughout the EU and remains a stable source of income. The most traditional sector in the EU – the funding of agriculture – is what helps to hold the Union together. Regardless of when Britain starts to look at this exercise in solidarity from the outside. ●

EU / DIRECT PAYMENTS

TIED TO THE LAND

Three-quarters of the Common Agricultural Policy budget goes into direct payments for farmers – almost regardless of what they do. Most of the money benefits just a few large producers and fails to deliver on the social and environmental challenges rural areas face.

Direct payments are the main instrument of support to farmers under the EU's Common Agricultural Policy (CAP). First introduced in the 1992 CAP reform, they are justified as a way to support farm income. In the budget period 2014–2020, direct payments account for 72 percent of the overall CAP budget.

Direct payments may be coupled to production, or decoupled from it. Coupled direct payments are granted to farmers based on the amount produced, e.g., per tonne of wheat produced or per litre of milk, or linked to production inputs, e.g., hectares of arable crops or number of livestock. A decoupled payment is linked to the area farmed, but there is no requirement for a farmer to produce. Around 90 percent of direct payments are decoupled. This allows farmers to make production decisions on the basis of market returns alone, knowing that their choice does not influence the size of the payment they receive.

Farmers who receive direct payments must observe some basic rules (called cross-compliance). These mostly refer to legislative standards related to protection of the environment, food safety, animal and plant health, and animal welfare. The rules also include requirements to conserve the soil and habitats, maintain soil organic matter and structure, and manage water. Farmers who do not respect these requirements could see their payments reduced.

The 2013 CAP reform restructured the direct payments. Thirty percent were allocated as a “greening payment”, for which farmers must fulfil a set of obligations designed to improve the environment and encourage climate action. Environmental groups say this payment has not delivered on these objectives, while farm unions complain that the rules often fail to appropriately address the farmers’ situations. The European Commission proposes to scrap the greening payment after 2020. Instead, EU member states will have more flexibility to design eco-schemes; if implemented in an ambitious way these might bring more environmental benefits.

Most newer EU members have lower average payments per hectare than the older members. In the 2013 CAP reform negotiations, the former demanded national allocations based on a uniform payment per hectare. The final compromise introduced a more uniform distribution: no member state would have a per-hectare payment of less than 90 percent of the EU average. In negotiations for CAP after 2020, the same countries are again pushing for uniform payments per hectare in all member states.

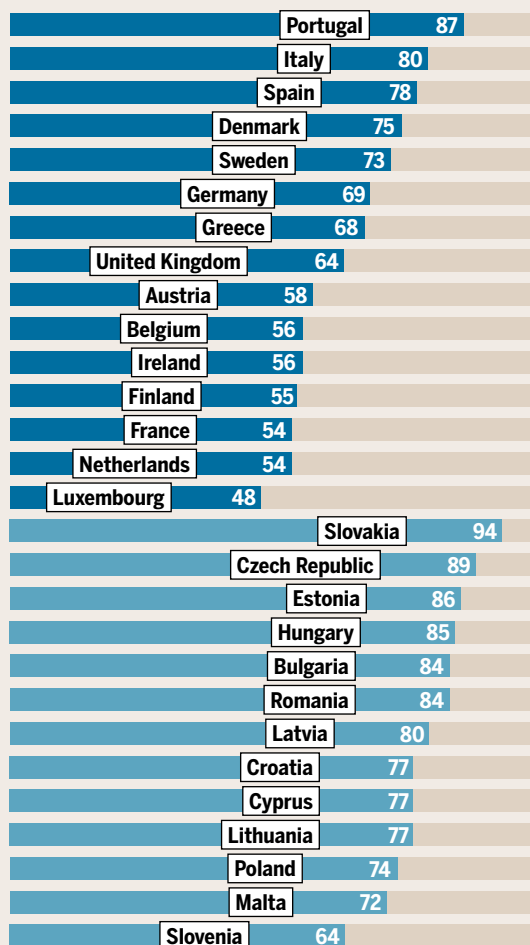
Because direct payments are linked to area, their impact on farm revenue and income depends on the farming system. Where land is not important (as in pig and poultry production) or where the value of output per hectare is very high (wine, horticulture), direct payments play a limited role. They are more important for arable farming and livestock grazing, where direct payments may exceed the income earned from farming activities.

As farm sizes differ greatly across the EU, the distribution of payments is very skewed. Across the EU as a whole, 80 per-

CONCENTRATED CASH

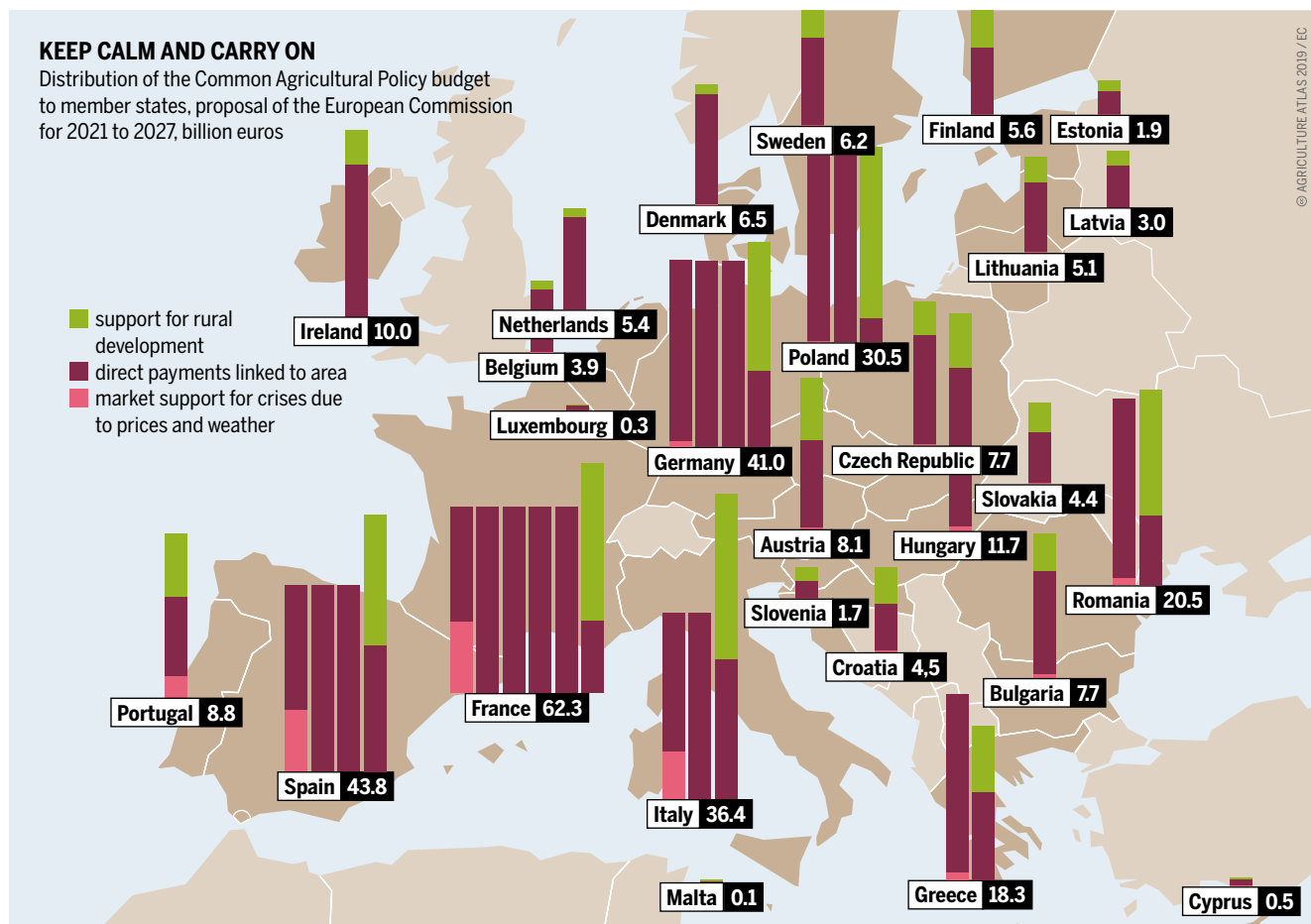
Share of EU direct payments that accrues to the top one-fifth of recipients, percent, 2015

■ EU members up to 1995 ■ EU members since 2004



© AGRICULTURE ATLAS 2019 / EC

In many countries, just one-fifth of the farm enterprises capture over four-fifths of the direct payments. The problem is bigger in the new member states than in the old



cent of such payments go to just 20 percent of farms. Over 30 percent of the total goes to just 131,000 of the EU's 6.7 million farm holdings which receive subsidies. The Commission has frequently proposed capping payments above a certain threshold, but such proposals have always been watered down.

Direct payments do not always benefit the farmer recipient. Around half of the farmland in the EU is rented, and landlords often capture much of the payment by charging higher rents. The original grounds for direct payments – as compensation to farmers for price drops that took place up to 25 years ago – are no longer convincing. Direct payments are now justified in three ways: to support low farm incomes (even if they mostly go to better-off farmers), to stabilize farmers' income in a risky environment (although payments are made regardless of whether incomes are high or low), and sometimes to compensate for the higher standards that EU farmers must meet compared to their competitors (even though the payments are not calibrated according to any additional costs).

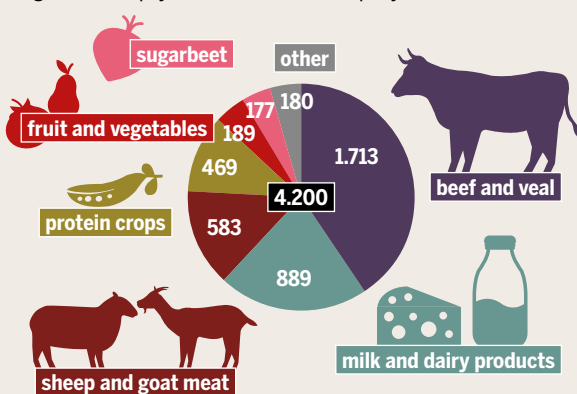
In June 2018, the Commission presented proposals for the CAP after 2020. They would maintain direct payments as the main element of support to farming. This is a missed opportunity as these payments are inefficient, ineffective, and inequitable. They are inefficient because they are paid to all

France's agriculture will continue to get the biggest transfers from Brussels within the coming budget period

farmers on the basis of hectares farmed, rather than linked to specific outcomes and objectives. They are ineffective because they do not tackle the root problem of low incomes on some farms, which is low productivity. They are inequitable because such a large share goes to farms where incomes are well above the average both for farming and for the economy as a whole. ●

DEPENDENT BY CHOICE

Coupled premiums for selected agricultural products, targeted direct payments in million euros per year, 2017



"Coupled premiums" are supposed to support agricultural sectors in need. They are often used in spite of the changing situation to carry on as usual

FOR SOME, THE SECOND PILLAR HAS THE SECOND PRIORITY

The Common Agricultural Policy has two “pillars”, or pots of money to draw from. Pillar I, which consists largely of direct payments to farmers according to the area they manage, has come in for a lot of criticism. Pillar II, which supports rural development policy, is seen as more useful. But as the agriculture budget shrinks, it is Pillar II that faces the bigger cuts.

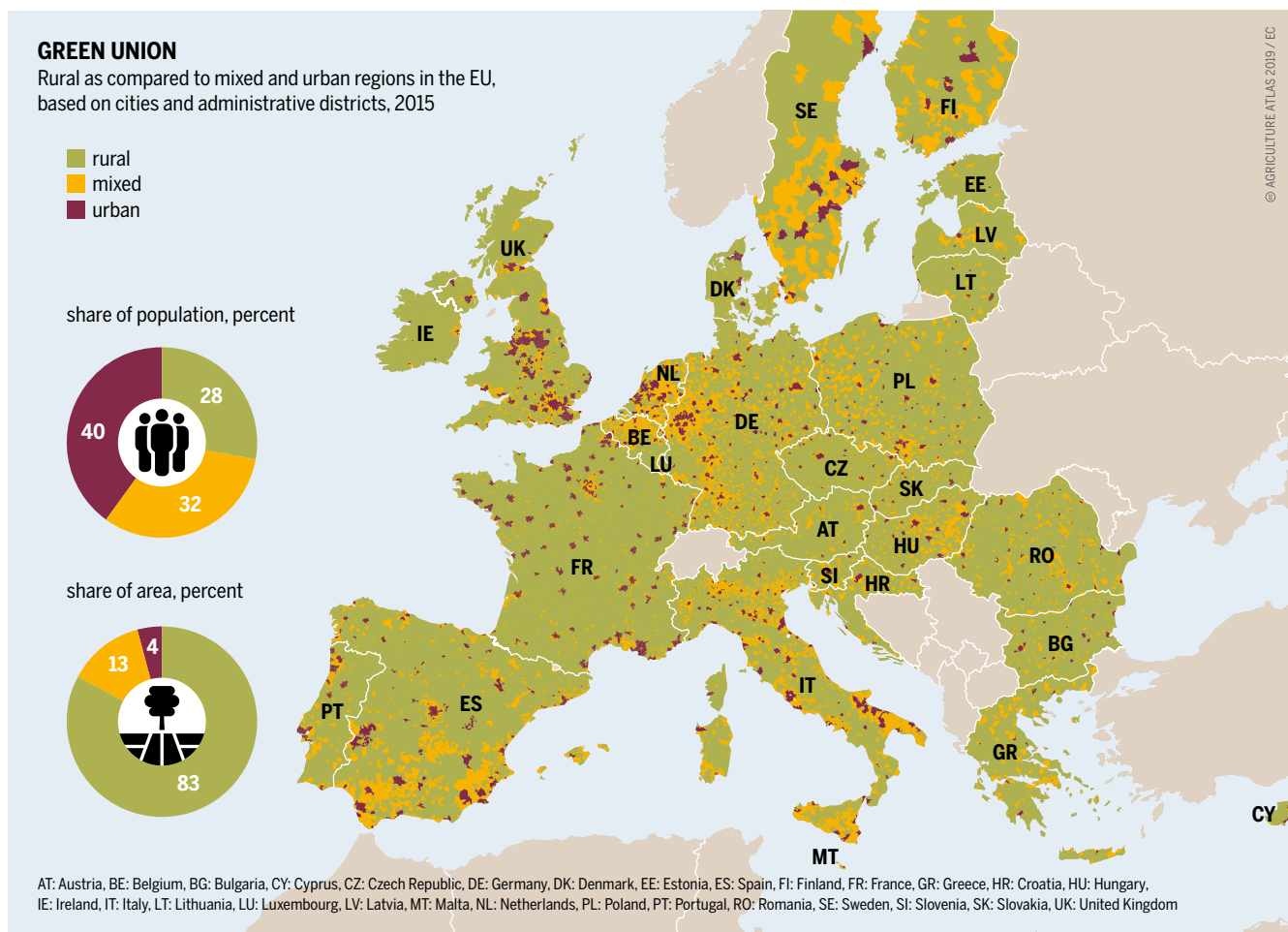
The Common Agricultural Policy is not just about farming. Its second Pillar aims to promote “good practice”, such as cooperation among producers and environment-friendly, climate-resilient farming methods. This “public money for public goods” approach is what distinguishes Pillar II from Pillar I.

It is why Pillar II is widely regarded as the socially and environmentally ambitious part of the EU’s farm policy. Of

the total agricultural budget of 409 billion euros in 2014–20, less than one-quarter, or 100 billion, was allocated to Pillar II. Co-financing by national governments pumped that up to 161 billion euros. How effective this money is at promoting sustainable rural development depends on the programmes that the national governments choose to support, and how much of their Common Agricultural Policy budget they allocate to it. Austria devotes 44 percent of its combined pot to Pillar II; France allocates a mere 17 percent. That means that Pillar II overall has had mixed results.

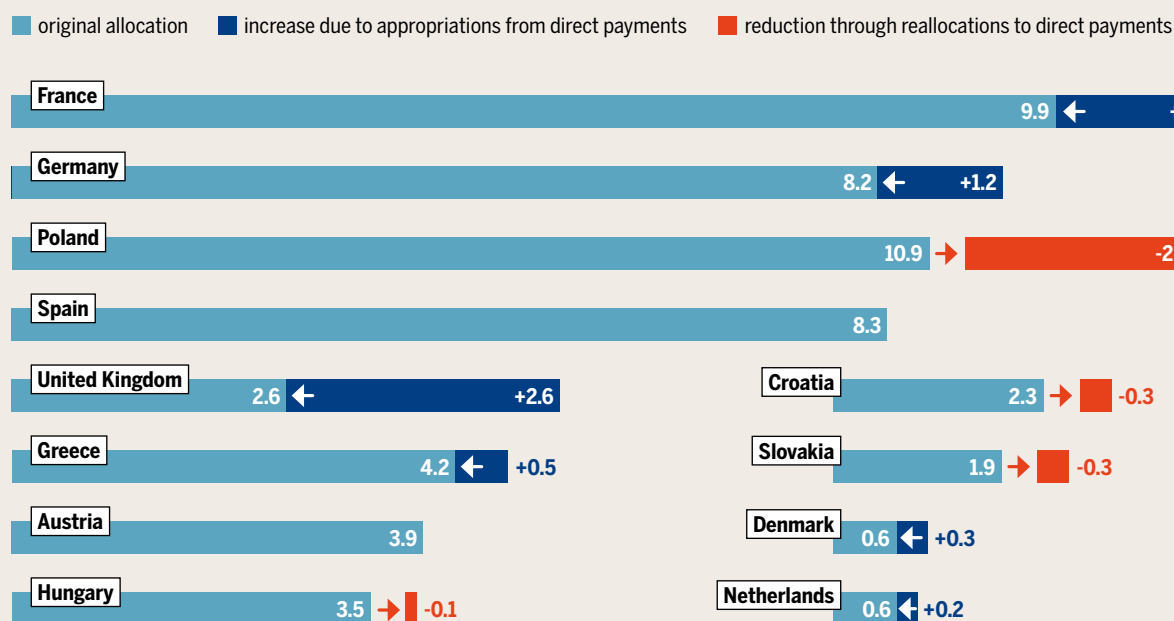
Pillar II is currently supposed to pursue three goals: competitiveness, sustainability and climate action, and regionally balanced development. These overarching priorities translate into six priority areas: knowledge transfer and innovation; farm viability and competitiveness; food

EU funds for rural development are supposed to support the sparsely populated parts of the Union



TOPPING UP OR SIPHONING OFF

Payments by the European Agricultural Fund for rural development (EAFRD, “second pillar”) in the 2014–2020 budget period and increase in appropriations for (+) or reallocated to (–) direct payments by national governments, in billion euros



© AGRICULTURE ATLAS 2019 / EC, EP

chain organization, animal welfare and risk management; ecosystem conservation; climate mitigation and resilient agriculture and forestry; and economic development of rural areas.

One-fifth of the EU’s population lives in rural areas. These are highly diverse, so Pillar II’s flexible approach makes sense when drawing up programmes to suit local needs. It allows national and regional governments to pick and choose among an extensive menu of options, including, for example, start-up aid for young farmers, support for tree-planting, and funds to deal with natural disasters. The most frequent measures are physical investment, agri-environment-climate measures, and support for areas facing natural constraints such as difficult climatic conditions, steep slopes, or soil quality. The measures chosen must relate to the three overarching goals. For example, organic farming ticks all three boxes: it contributes to competitiveness, supports environmental sustainability, and helps develop the countryside.

Each government chooses a different approach. Ireland, for example, supports organic farming because it contributes to biodiversity, water management (including fertilizer and pesticide management), soil, resource efficiency and carbon conservation and sequestration. All these relate to Pillar II’s environment and climate goals. Lithuania, with more than 40 percent of its population in the countryside but an ageing farm population, promotes modernization and economic support of small and medium-sized farms that struggle to compete in the European market. It also encourages job creation, rural area and business development, and environmental measures. In the Netherlands, just 0.6% of the total population is classified as rural. The government’s Pillar II funding focuses on

Some governments use EU funds dedicated to rural areas to compensate for cutbacks in direct payments

stimulating innovation and environmental sustainability of its intensive, specialized and export-oriented farming industry.

Despite differences among countries, Europe shares some major trends and challenges. Rural areas are emptying out, and the people remaining there tend to be older. Young farmers are uncommon; prospective farmers find it difficult to acquire their own land. Small and medium-sized farms are being lost as big farms get bigger. Digital services are poor. A key task of Pillar II is to address such problems.

At least 30% of EU funds under Pillar II have to be directed toward environment and climate goals. This Pillar is the only part of the Common Agricultural Policy that seriously deals with issues such as soil, water and air quality, animal welfare, biodiversity conservation, environmental protection and climate resilience.

Current proposals call for the Pillar II budget to be cut by as much as 26 percent. In part this is to maintain direct payments to farmers in face of an overall drop in funding for agriculture. This has caused an outcry: Pillar II is widely regarded as the part of the Common Agricultural Policy that does the most good because it can be tailored to local needs and supports the public interest rather than giving handouts to individual farms or businesses. If Europe intends to focus on the many social, economic and environmental issues facing rural communities and shift towards climate-resilient agriculture, the second pillar must be protected. ●

THE BIGGEST BENEFICIARY

France is the largest recipient of Common Agricultural Policy funds. But there are significant disparities among the country's regions, between types of production, and among farms.

France's budget allocation under the Common Agricultural Policy has evolved over the last 30 years. It rose from 5.6 billion euros in 1990, to 9.3 billion in 1995, and peaked at 10.4 billion in 2005. It has since dropped gradually: 9.7 billion euros in 2011, 9.3 billion in 2013, and 9.1 bil-

lion per year for the period 2014–2020. Inflation has amplified the decline in the budget since the early 2000s.

France has always been the main beneficiary of the EU's Common Agricultural Policy funds, which now pay out over 60 billion euros per year to farmers across Europe. The 9.1 billion euros currently allocated to France each year includes 7.7 billion in direct payments to farmers (known as Pillar I), and 1.4 billion for rural development programmes (Pillar II). After the post-2020 reform, France will still be the primary recipient of funds.

Roughly 44 percent of farm incomes in France in 2013 came from these funds – mainly in the form of direct payments from Pillar I. The average farmer received 266 euros a year for each hectare that was eligible for support. Marked differences exist between types of production, regions and farmers, because the system of aid allocation is based on a historical approach. In Picardy, farmers get 345 euros per hectare, compared to 120 euros in Languedoc-Roussillon; field crops are awarded 300 euros per hectare, while mixed farming gets 285 and cattle grazing just 200.

In 2015, the 7.44 billion euros allocated to France under Pillar I was appropriated as follows: 30 percent was devoted to “greening” (measures that benefit the environment), 5 percent as an extra premium to benefit small farms, 1 percent for young farmers, and 15 percent coupled to certain types of production. The remaining 49 percent were designated for basic payment entitlements.

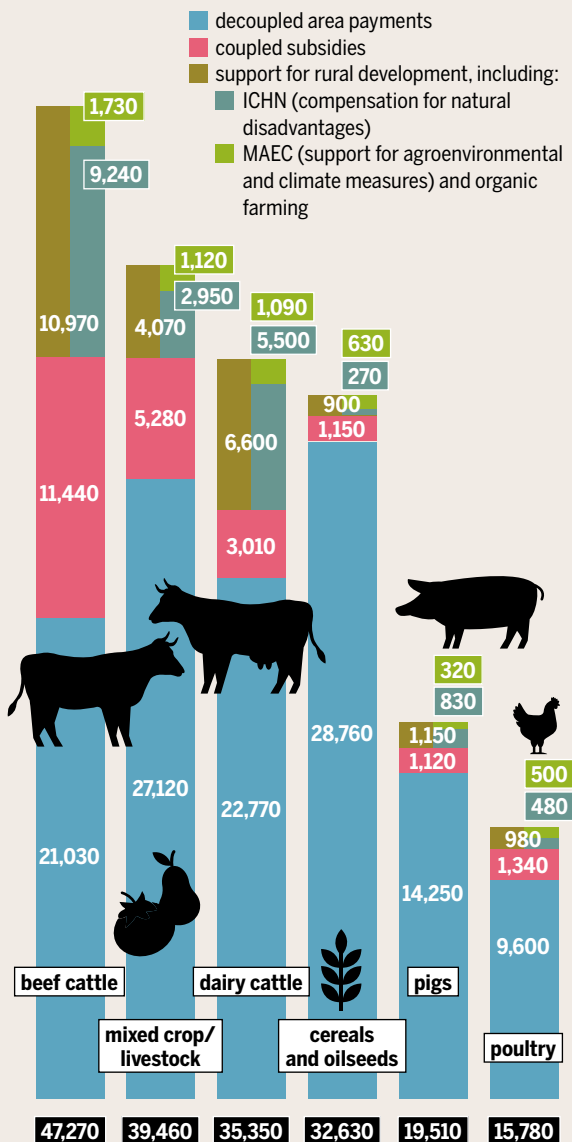
For medium and large farms, the total assistance in 2016 amounted to 47,270 euros for the average beef cattle enterprise, or 54.4 percent of the turnover of such farms. The average mixed farm received 39,460 euros, or 21.1 percent of its turnover. Dairy farms received 35,350 euros, or 20 percent of their turnover, while cereal and oilseed growers got 32,630 euros, or 25.7 percent. Smaller amounts were allocated to pig-raisers (19,510 euros, or 3.3 percent) and poultry-farmers (15,780 euros, or 4.2 percent).

These figures show that dairy and beef farmers are the most heavily subsidized types of enterprises. They benefit from substantial amounts of coupled support as well as compensation for natural disadvantages – a result of their location in more challenging regions. Mixed crop–livestock farms benefit from a combination of coupled and uncoupled support and from rural development assistance, resulting from the diversity of their production types and their location.

The regional distribution of funds depends on the major production types in each region and the size of rural development funds. The 25,000 farms in the Centre region each receive an average of 27,700 euros in subsidies. In Rhone-Alpes, the 39,000 farms get 11,700 euros each. That

DOMINANCE OF DECOUPLED AID

Distribution of subsidies by farm and by production type in France, euros, 2017

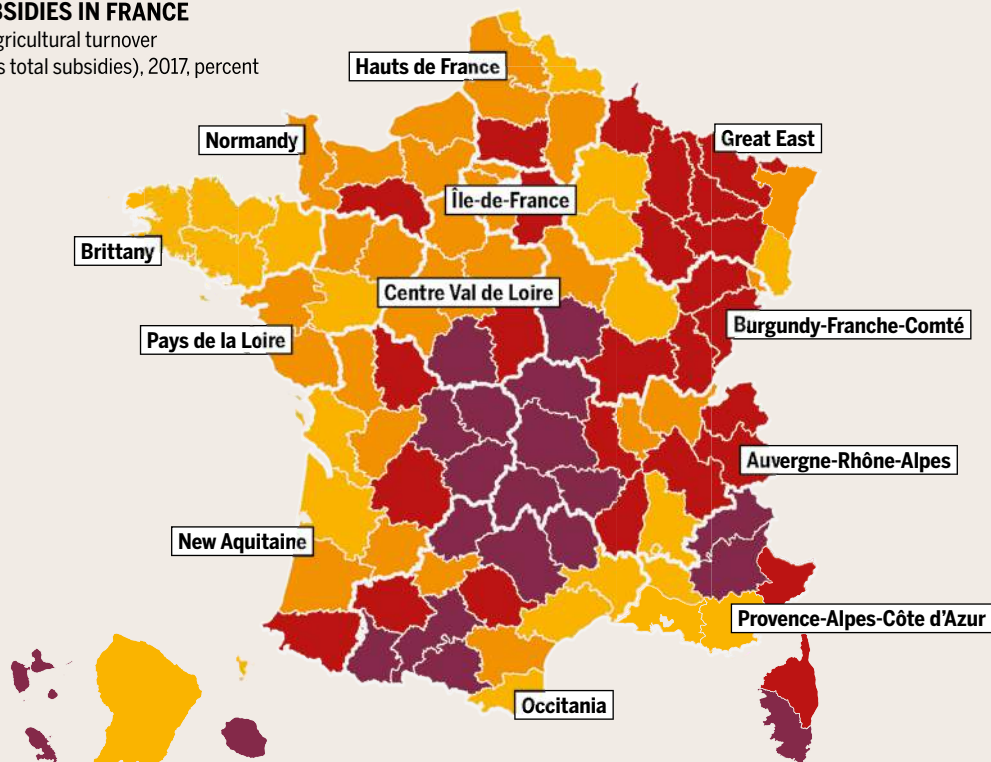


© AGRICULTURE ATLAS 2019 / AGRESTE

In France, two-thirds of the Common Agricultural Policy subsidies are “decoupled area payments”, granted to farms regardless of their production method

AGRICULTURAL SUBSIDIES IN FRANCE

Share of subsidies* in agricultural turnover
(value of production plus total subsidies), 2017, percent



* CAP payments, tax credits for competitiveness and employment, national crisis support

© AGRICULTURE ATLAS 2019 / AGRESTE

compares with an average of just 6,500 euros for each of the 30,800 farms in Languedoc-Roussillon.

The level of support from Pillar II as a percentage of total assistance varies strongly from one region to another. While this Pillar accounts for more than 30 percent of the support in the southern regions of Auvergne, Provence-Alpes-Côte d'Azur and Languedoc-Roussillon, it constitutes less than 11 percent in France as a whole. In Limousin, Franche-Comté and Rhône-Alpes, it accounts for between 20 and 30 percent of the support, while in Aquitaine, Burgundy and the

*Common Agricultural Policy
payments account for
95% of total farm subsidies*

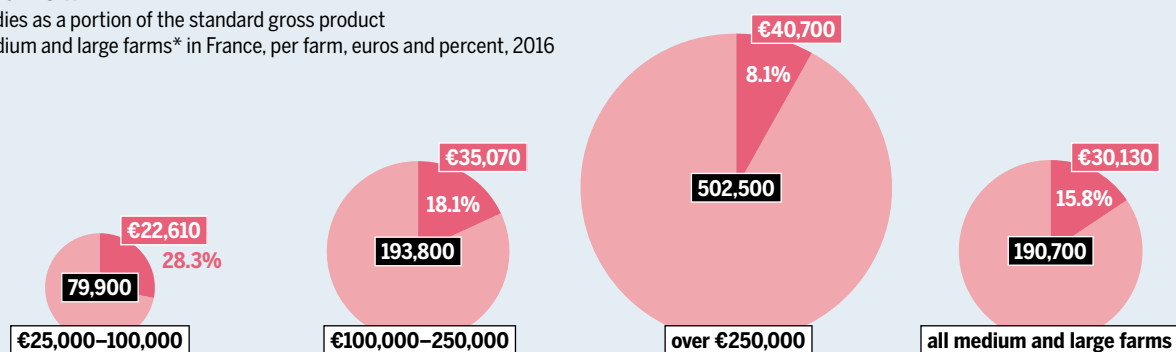
Midi-Pyrénées it contributes between 10 and 20 percent. All these regions are in the centre or south of France. In the rest of the country, Pillar II made up less than 10 percent of the total support.

Although the subsidies vary widely from one farm or region to another, they are overall very important for France's rural economy. As a result, defending the Common Agricultural Policy budget is the main battle that France fights every time EU funding comes up for discussion – either to maintain the budget total, or at least to defend its share of the total EU budget pie. ●

*The larger the farms, the more money
they get from EU subsidies, but the
smaller the share of their total turnover*

WHO GETS WHAT?

Subsidies as a portion of the standard gross product
of medium and large farms* in France, per farm, euros and percent, 2016



* holdings with a standard gross product over €25,000

© ATLAS DE LA PAC 2019 / AGRESTE

SOME PROGRESS, BUT COULD DO BETTER

EU funds flow into Austrian farming through various channels. The country makes better use of some sources of money than its neighbours. But it is still missing its targets.

Austria has received funding from the Common Agricultural Policy budget since it acceded to the European Union in 1995. The CAP sets the guidelines, and it is up to each EU member state to work out how to put these into effect. From the start, Austria's goals have been to support the income of farmers on one hand, and to compensate them for ecological services on the other. The country has attached a lot of weight to co-financing the CAP funds, ensuring that it uses the available EU budget to the full.

In the 2014–20 budget period, Austria will receive a total of 4.8 billion euros in the form of direct subsidies that can be regarded as income support. That includes the basic premium, which is paid per hectare of land and demands little more than the farmer's compliance with current laws and recording requirements. The second premium, known as "greening", is used to protect and improve biodiversity. But this measure, also paid per hectare of land, is regarded as a failure because the conditions imposed are far too lax. The third form of direct payments encourages young people to take over farms, and the fourth supports raising cattle, sheep and goats on mountain pastures.

The other big chunk of CAP cash is paid out under Austria's 2014–2020 Rural Development Programme. This has access to 3.9 billion euros of EU money, but only if national

co-financing is also disbursed. Together, the core funds and co-financing total 7.7 billion euros.

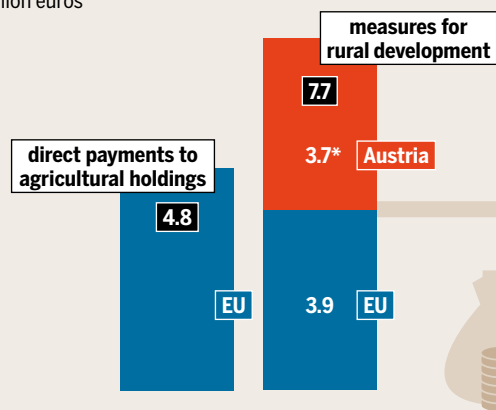
That sum is made up of three slices. Compensatory allowances totalling 1.8 billion euros are targeted at areas that are disadvantaged because of their poor accessibility, location on slopes, fragmentation into small parcels, altitude above sea level, or have a limited number of "growing degree days" (a measure of the amount of heat available for crops). The objective of these allowances is to ensure the economic survival of mountain farms. A second slice, 2.8 billion euros, goes to fund a range of measures, including the stabilization of landslides, model regions for climate and energy, the expansion of broadband internet, village renewal plans, quality rules for agricultural products and food, advisory services and forestry technology.

The third and biggest slice, 3.1 billion euros, flows into ÖPUL, the Austrian Programme for the Promotion of Environmentally Sound, Extensive and Habitat-Protecting Agriculture. This programme rewards farmers for avoiding the use of synthetic herbicides in vineyards, maintaining vegetation on arable land over the winter, using beneficial insects in greenhouses, or conserving endangered livestock breeds. These premiums compensate farmers for the extra cost and effort of these measures, and have little effect on their total income. One billion of the 3.1 billion euros is set aside for organic farming, for areas under the Natura 2000

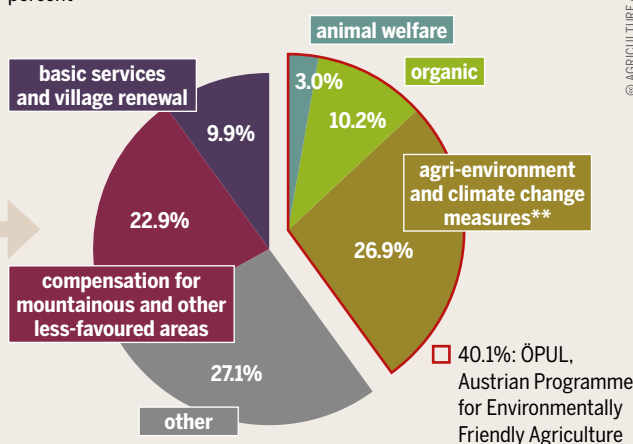
Austria digs deep into its own pockets to ensure it can keep EU rural development funds. Brussels uses co-financing as a way to mobilize national capital

FOR WHOM THE MONEY FLOWS

Payments to Austrian agriculture in the budget period 2014–2020, billion euros



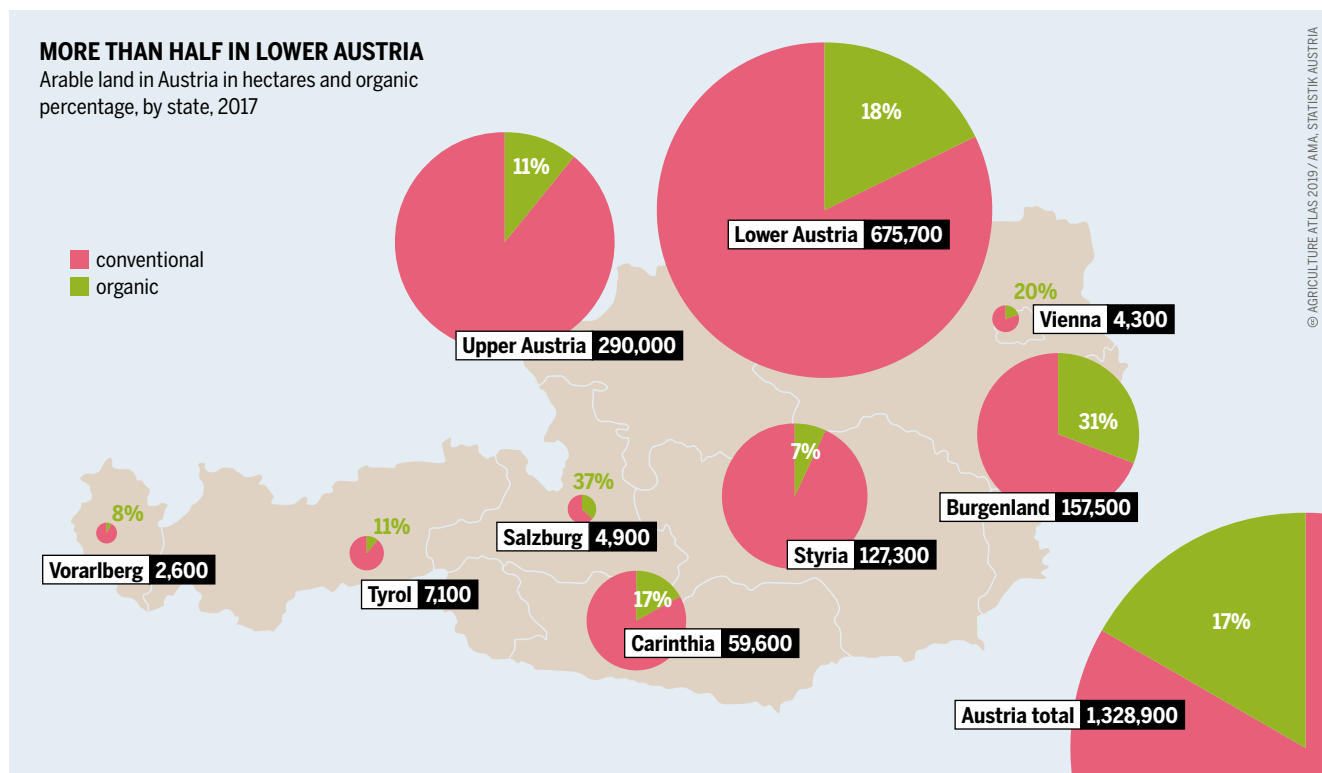
Distribution of funds for rural development, percent



* co-financing: mostly 60 percent from federal government, 40 percent from states, differences due to rounding. ** with expenditure for Natura 2000 and Water Framework Directive

MORE THAN HALF IN LOWER AUSTRIA

Arable land in Austria in hectares and organic percentage, by state, 2017



© AGRICULTURE ATLAS 2019 / AMA, STATISTIK AUSTRIA

nature-protection scheme, and for animal welfare services. Thanks in part to this support, Austria is now a leader in organic farming in Europe: 24 percent of its agricultural area is managed in compliance with EU organic guidelines, or exceeds those standards. The proportion of pastureland is higher than that of arable land.

But farm policy is more than the Common Agricultural Policy. The economic framework also includes taxation, social security contributions and emergency assistance in response to drought or hail damage. Austria's scorecard on these measures is mixed. Fewer farm enterprises are dying off nowadays. But in the last seven years, as many as 19,000 farms have closed down: that is seven every day. The income situation remains mixed. And in terms of biodiversity, the more-or-less constant decline in the numbers of farm birds since 1998 – used as an indicator of the health of the ecosystem – shows that even in relatively fragmented areas, changes in farming can have serious consequences for habitat. Most recently, populations have stopped declining – albeit after reaching a low level. They have still not recovered.

Austria's waters are also less than crystal-clear. Contamination with pesticides has increased in intensively farmed areas. A study in 2014 found that of the 60 pesticides detected in Austrian waters, only four active ingredients were covered by the regular sampling procedures used in the EU's Water Framework Directive. Water erosion, especially in arable areas, leads to huge soil losses in some locations. It has a major effect on soils, alongside the sealing of surfaces under concrete and asphalt in non-agricultural areas.

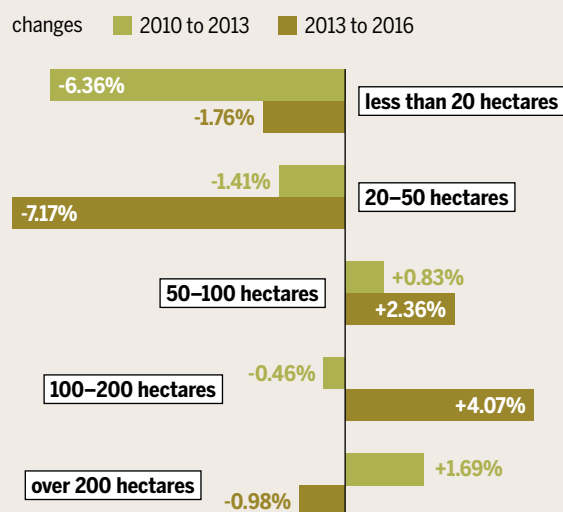
The number of agricultural holdings smaller than 50 hectares has sunk dramatically. Austria's farms are not immune to the "grow or die" rule either

In 2017, 24 percent of Austria's farmland was farmed organically. But for the important category of arable land, the figure was just 17 percent

Compared to other EU countries, the Common Agricultural Policy has often pushed Austria's rural areas in the right direction. However, the country has failed to hit many of its targets, and it still has a long way to go. The targets will recede even further into the distance if the budget for rural development programmes are cut back drastically. ●

BIGGER AND BIGGER

Agricultural holdings in Austria by size of holding, increase and decrease in percent of holdings



© AGRICULTURE ATLAS 2019 / STATISTIK AUSTRIA

IGNORING THE BETTER OPTIONS

For 2014 to 2020, the Common Agricultural Policy has allocated a total of 52 billion euros for Italy – 41.5 billion come from EU funds and 10.5 billion from the Italian government. This sum has to be shared among more than a million farms. Italy is a net contributor to the CAP, getting less back from the EU than it pays in. It uses its money unwisely, favouring privately owned large farms over the public interest.

According to the most recent census in 2010, Italy had 1,620,844 farms with an average area of 8 hectares. The minimum size to qualify for direct payments from the Common Agricultural Policy's Pillar I funds is half a hectare. The current CAP budget covers the period 2014–20; it assigns a total of 52 billion euros to Italy. This is made up of 41.5 billion in EU funds and 10.5 billion from the Italian government. The total of 52 billion euros is divided into 27 billion in EU funds for direct payments under Pillar I, 4 billion in EU funds for market stabilization for wine and fruit, and the remaining 21 billion for rural development (Pillar II). Of this last pot, half comes from the EU and half from the national budget. In 2016, 1,136,240 farms received a premium from the Pillar I funds.

Under Pillar I, 58 percent of the funds are used for a basic payment, 30 percent for ecologically oriented “greening” support, 1 percent for young farmers, and 11 percent in coupled payments (linked to a particular crop or livestock type). Some 492,000 Italian farmers receive less than 500 euros a year from these sources. Another 288,000 receive up to 1,250 euros a year, while a further 353,000 get direct payments of between 2,000 and 10,000 euros. A small minority of 3,240 farmers pocket between 100,000 and 500,000 euros a year. Italy has decided not to make use of an optional quota earmarked for small farms in disadvantaged areas. Instead it has allocated 11 percent of the funds, or just over 400 million euros a year, to coupled support for three strategic sectors: animal husbandry (both meat and dairy), arable crops (rice, and protein crops such as soy and sunflower) and olive-growing.

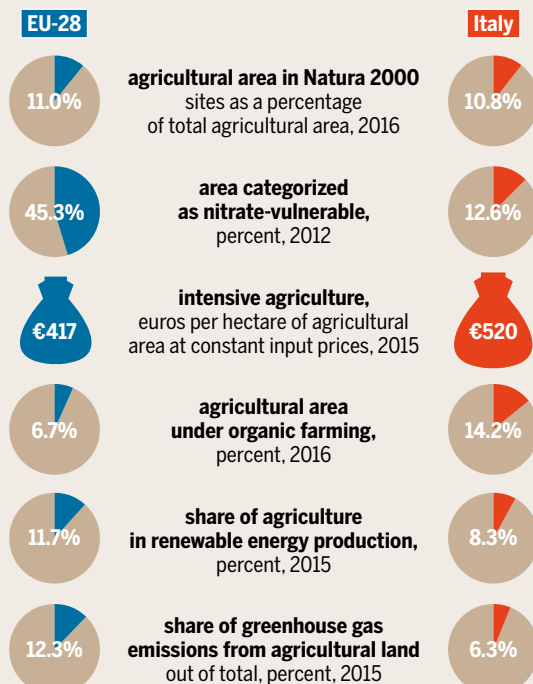
The main novelty of the current budget period in Pillar I is the “greening” fund. Italy has decided to adopt all the options listed in the EU regulation. It respects the ban on ploughing up permanent grassland, but only at the national level; farmers who want to do so must apply for permission. Of the country's agricultural area, 57 percent – or over 90 percent of the farm enterprises – do not have to comply with rules to protect biodiversity or to establish and maintain 5 percent of the land as ecological focus areas. More than half (51 percent) of the arable area, or 48 percent of farms, are not obliged to diversify the crops grown. More than 21 percent of the agricultural area is exempt from any greening rules. The 18.5 percent of land with permanent tree crops (orchards, vineyards, olive groves, etc.) is exempted from the greening rules; no distinction is made between those plantings that have high natural value and those that are intensively managed and have a big impact on the environment.

The implementation of Pillar II (rural development) is delegated to Italy's regions through 21 rural development programmes. At the national level, the National Rural Network reached an agreement with the regions on a national rural development programme consisting of three measures: water resource management, risk management in agriculture, and the conservation of rare livestock breeds.

In general, the main priority of the 21 rural development programmes is to support the competitiveness of farms in the global market by modernizing technology in various strategic areas. Environment and climate-change measures are dominated by investments in technology and infrastructure that aim to reduce the impacts of intensive farming practices. But a strategic vision for real sustainable agriculture is lacking. In Measure 10 of the environmental and climate-change programme, a greater part of the money goes to support voluntary integrated farming techniques

AGRI-ENVIRONMENTAL INDICATORS

Selected data for Italian agriculture compared to the EU as a whole



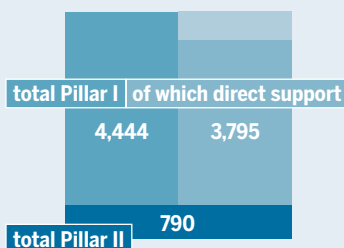
© AGRICULTURE ATLAS 2019 / PE

Less nitrate pollution, lower greenhouse gas emissions and more organic farming than the EU average are plus points for Italian agriculture

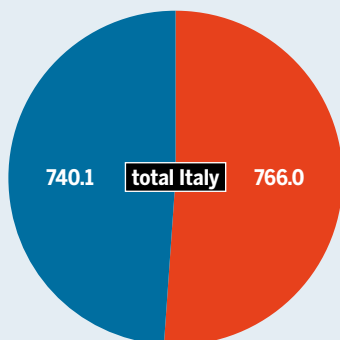
ANNUAL RESOURCES FOR RURAL DEVELOPMENT IN ITALY

Breakdown of EU funds and national co-financing between rural development measures 2014–2020, million euros per year, data analysed according to uniform EU criteria, 2017

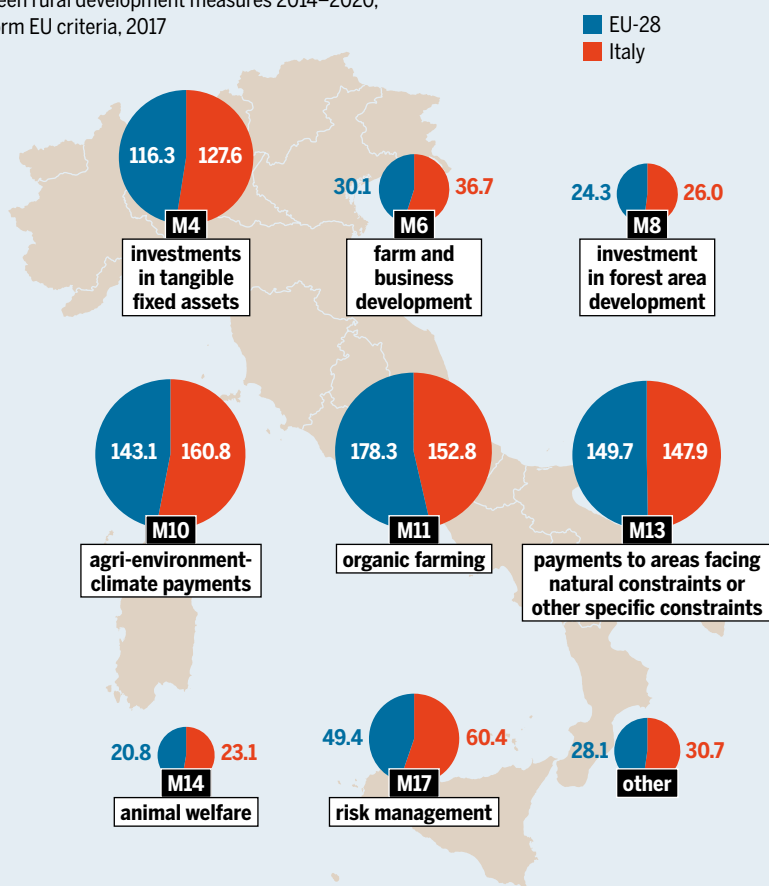
Composition of Common Agricultural Policy funds for Italy, 2017



EU resources and national funds for investment in Pillar II measures, 2017



* Only those measures costing more than 25 million euro



© AGRICULTURE ATLAS 2019 / PE. CREA

that in effect channel CAP contributions to farms that use pesticides. These payments are also made for conservation agriculture techniques that limit ploughing but require large amounts of herbicides, including the controversial product glyphosate. Summing over all the regions, Measure 10 secures 2.4 billion euros, or 12.7 percent of the rural development programme funding. Measure 11 (organic agriculture) which undoubtedly has a greater benefit to the

In Italy, more than half of those surveyed in 2015 were unaware of the Common Agricultural Policy. More effort is needed to raise public awareness

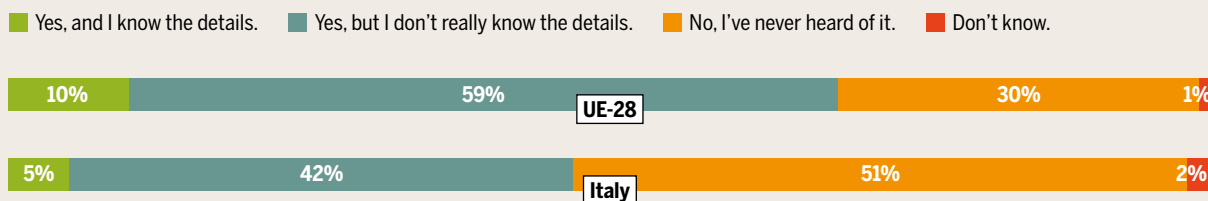
Italy is a net contributor to the Common Agricultural Policy. It receives less money than it pays into the EU budget, and invests significant national funds in rural development each year

environment because it completely avoids synthetic chemicals, gets only 1.7 billion euros, or 9.1 percent of the rural development funds.

Only 10 regions have chosen to activate Measure 12, the Natura 2000 initiative, in their rural development programmes. This mechanism enables farms located within Natura 2000 sites to receive compensation for the obligations and restrictions that are part of the environmental conservation measures. ●

THE COMMON AGRICULTURAL POLICY: UNFAMILIAR TERRAIN FOR MOST ITALIANS

Question: "Have you heard of EU support for farmers through the Common Agricultural Policy (CAP)?"
Responses in percent, 2015



EU28: 27,822 interviews, Italy: 1,015 interviews, methodology: personal interviews

© AGRICULTURE ATLAS 2019 / EUROBAROMETER

MISGUIDED TRANSFORMATION

The transition from communism to a free market has resulted in both pluses and minuses for Polish farms. Incomes have risen, especially for large farms. But young people are leaving, industrial farms have appeared, small farms are going under, and the income gap among farmers has widened.

Until the mid-twentieth century, Poland was an agricultural country. In the 1950s, over half its working population were engaged in farming, and agriculture contributed almost 40 percent of the GDP. The government's attempts to force industrialization changed the situation only slowly. At the fall of Communism in 1989, agriculture still accounted for 26.4 percent of jobs and 12.8

percent of GDP: three times the rates in developed countries. Unlike farmers in some other Soviet-bloc countries, Poland's farmers had not been expropriated. But their farms were ill-equipped and inefficient, and had seldom adopted modern production methods.

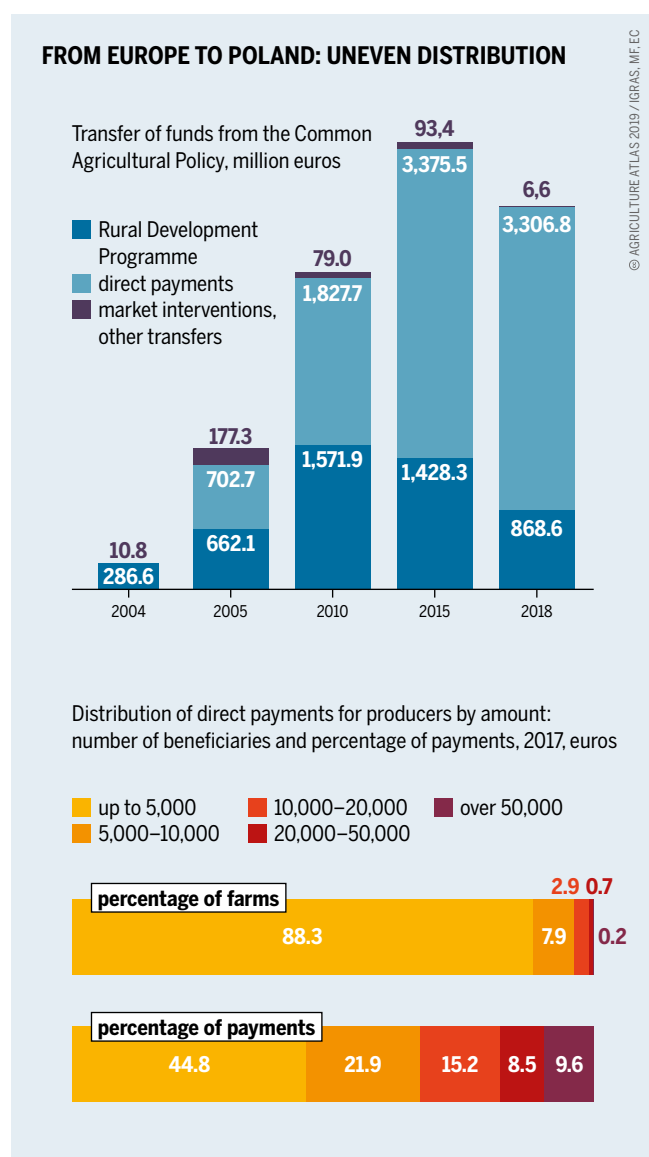
The opening of the Polish market to foreign products after 1989, along with rampant inflation, created a severe crisis. The country's farmers could not compete with producers from the West, and no effective institutions existed to boost the export of their crops. Consumers found attractively packaged and marketed food from abroad more appealing. Agricultural production fell and became even less efficient.

A crisis was prevented following Poland's accession to the EU in 2004, when it gained access to European funds. Just one year later, the amount of money spent on supporting agriculture had more than quadrupled. Five years later, it was almost 15 times more. The improvement in the economic situation in the countryside is one of the most important success stories of the transformation. The percentage of people living in extreme poverty fell from over 18 to 7.3 percent in 2017, while per-capita income in rural areas rose by 118 percent, more than in urban areas (94 percent).

But success has taken its toll. Twenty-five years later, one farm in three has ceased to exist, and rural areas face depopulation: young people are abandoning the countryside in droves. Poland was the only EU country to reallocate the maximum amount (25 percent) of funds within the second pillar of the Common Agricultural Policy (dedicated to the modernization and development of rural areas) to direct payments. As a result, the biggest farms received most of the funds, and were able to invest in modernizing their production. Smaller farms did not get enough money to make these improvements; for them, the payments served more as social support.

In 2017, the biggest 20 percent of farms received the lion's share – 74 percent – of the direct (area) payments. The remaining four-fifths of farms had to be content with a little more than one-quarter of the funds. The focus on area payments meant less money was available for agri-environmental programmes or to support sustainable rural development. As a result, the EU funds had only a modest effect on reducing inequalities between farms in different regions. The income disparities between farmers increased significantly.

Poland's farms now fall into three categories. About 20 percent of farms are big producers that sell all their output. Within this category, some farms use highly intensive production methods. They sow large-scale crop monocultures, use huge amounts of mineral fertilizers and pesticides, and

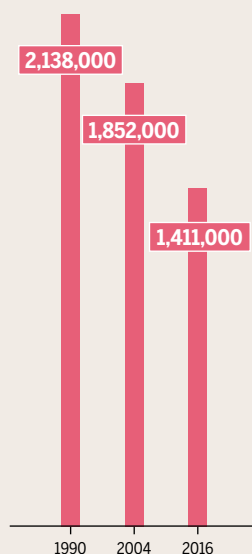


The bigger the farm, the bigger the direct payments. Small producers receive less and lose competitiveness

THE CRISIS OF THE SMALLEST

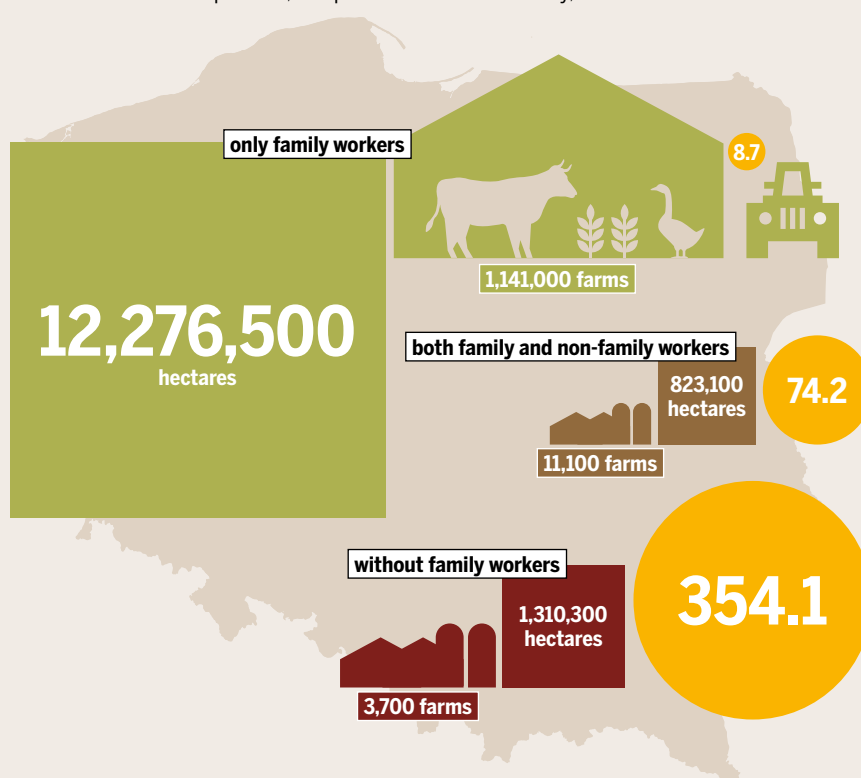
Different aspects of the structural development of Polish agriculture

Number of farms

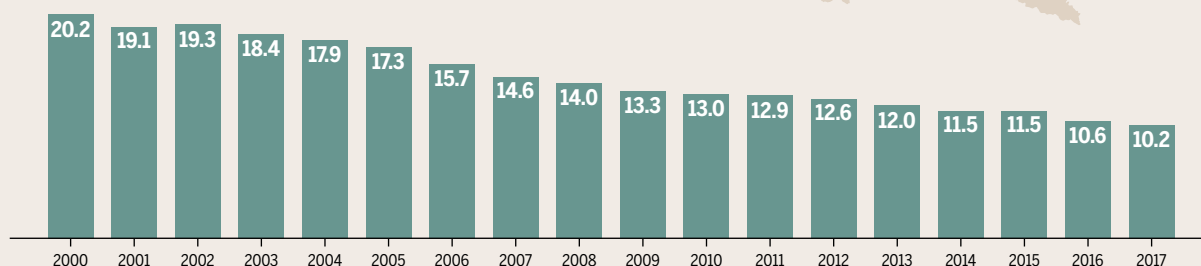


Family labour: number of farms, area of agricultural land in hectares, and number of hectares per farm, European Farm Structure Survey, 2013

● hectares per farm



Percentage of agriculture in total employment



© AGRICULTURE ATLAS 2019 / GUS/EUROSTAT

simplify the rotation of crops. This has an enormous impact on the environment: it degrades the soil and landscape, reduces biodiversity, as well as polluting groundwater and surface water. Industrial animal-raising methods such as caged production or year-round confinement cause suffering to animals. These methods also produce huge amounts of slurry, contaminating water and soil.

Industrial agriculture also inhibits the development of rural areas, leading to depopulation. Because farmers who have for years applied traditional crop and animal production methods are no longer able to compete with big farms, they give up farming altogether.

At the other end of the scale, the smallest farms maintain the land in good condition but produce either nothing (about 15 percent of farms) or as much they need for their personal consumption (about 10 percent). Many have been forced out of the market by the growing competitiveness of large farms.

The third category is also the largest; it includes over half

Polish agricultural policy supports intensive agriculture and does not appreciate the environmental and social benefits offered by smaller farms

of all Polish farms. These farms are trying to survive through commercial production but are too small to benefit from economies of scale. As a result, they seek a competitive edge by specializing or by cutting costs – for example, by simplifying crop rotations or reducing liming and the use of organic fertilizers. Such practices are important to maintain the environment. A major challenge for agricultural policy is to preserve these farms and ensure that they can produce food in accordance with good agricultural practices. The farmers who manage these enterprises are crucial for the sustainable development of rural areas. By maintaining land in good condition and by producing food less intensively than big farms, they have a positive impact on the environment, preserve biological and landscape diversity and counteract the depopulation of rural areas. ●

GROWING UP

Like all industries, agriculture is subject to economies of scale. But larger farms have a smaller workforce and can be a bigger burden on the environment if they employ industrial methods, compared to the low-input systems that have traditionally dominated rural landscapes. It is time to shift policies towards preserving jobs and communities, being kinder on the environment, and encouraging young people to take up the farming profession.

The face of Europe's farming and its countryside has changed a lot since the Common Agricultural Policy was created. Today, fewer, bigger farms feed the continent's citizens. Between 2003 and 2013, one-third of all farms in the European Union closed down. This trend affected Europe as a whole: half of the EU's member countries lost between one-third (Belgium, Czech Republic, Germany, Italy, Poland, the UK, etc.) and two-thirds (Bulgaria, Slovakia) of their farms.

All over Europe, farms are increasing in size, particularly in the East. On average, the largest farms are in the Czech Republic (130 ha, up from 80 ha ten years earlier) and northern Europe, while the smaller ones are in southern and eastern Europe. Livestock raising has seen a similar trend. In 2013, three-quarters of the animals in the EU-28 were reared on very large farms, while the total number of animals reared on small farms has more than halved since 2005. More than three-quarters of all "livestock units" (counting five pigs or ten sheep as the equivalent of one cow) were reared on very large farms in half of the EU member states, with this share peaking at over ninety percent in Benelux and Denmark. In Romania, on the contrary, more than one-third of all animals were reared on small farms.

Overall, farms have become more specialized in growing one crop or rearing one type of animal. European agriculture is increasingly polarized: small, family enterprises represent the majority in terms of numbers and workforce, but they are declining fast. Meanwhile, large and very large farms are increasing in number and economic importance. Farms over 100 hectares account for only three percent of the EU's farms, but their numbers have risen by sixteen percent from 2005 to 2013 and they now use fifty-two percent of all agricultural land. Large farms often go hand-in-hand with the loss of jobs, a decline in diversity of farming systems, a rise in intensive practices – and environmental depletion.

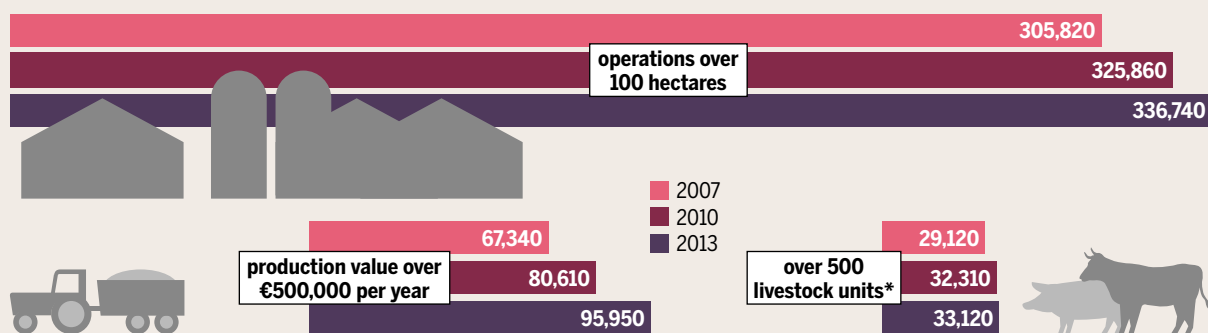
At the other end, small enterprises with less than 10 ha represent eighty percent of Europe's farms. They are more diverse than bigger holdings, yet they occupy only ten percent of the available land. Their numbers are falling fast: ninety-six percent of the farms lost between 2003 and 2013 had less than 10 hectares. Economic difficulties are common: low food prices do not adequately cover production costs, and most of the profit is captured by the processing and marketing industries rather than by producers. Small and medium farms, as well as certain sectors such as dairy-farming, are particularly exposed; they are at risk of bankruptcy and closure.

The subsidies and market rules of the Common Agricultural Policy, as well as the liberalization of agricultural markets are among the factors causing these trends. In the past, product and sector-specific payments have encouraged farms to specialize. The per-hectare payment which went into effect in 2003, means that the more land a farmer has, the larger the payment the farmer receives. If payments

Farm operations that are awash in EU payments can grow more easily than capital-starved small farms

ON THE RISE

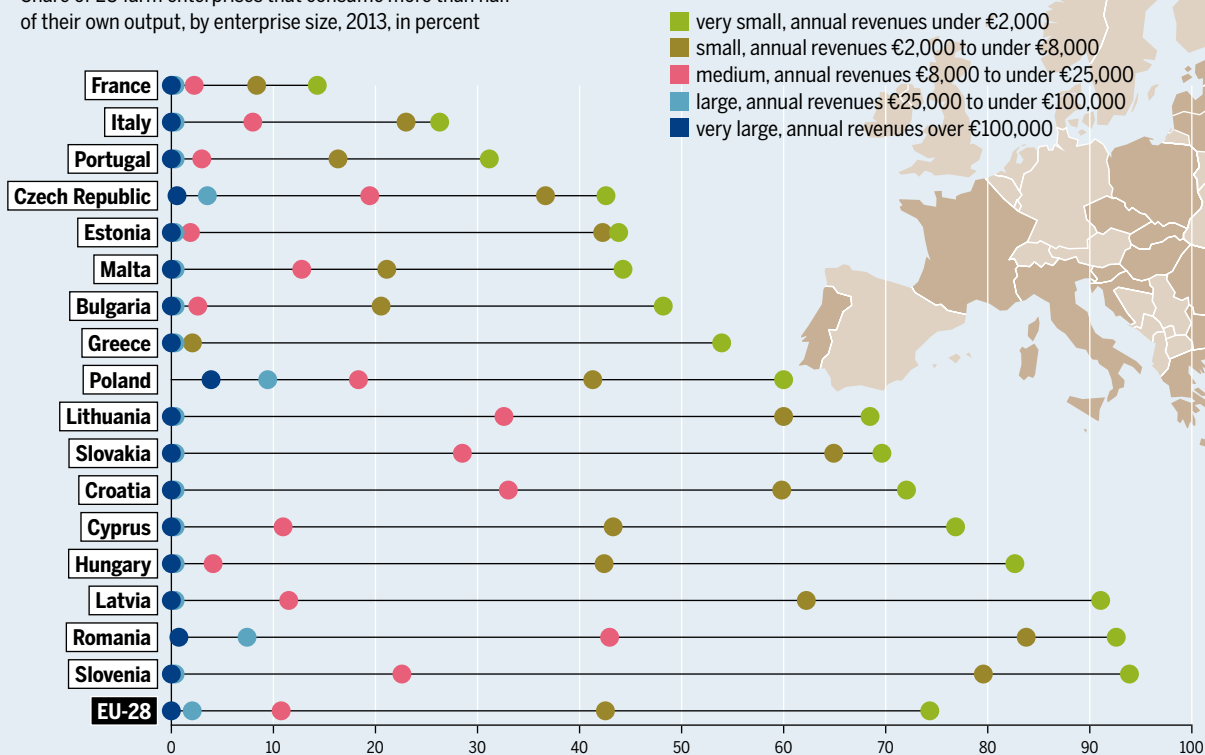
Growing numbers of large farm operations in the European Union



* Livestock unit: 1 cow, 5 pigs or 10 sheep

HAND TO MOUTH

Share of EU farm enterprises that consume more than half of their own output, by enterprise size, 2013, in percent



© AGRICULTURE ATLAS 2019 / EUROSTAT

make up a significant part of a farmer's income, this creates an incentive to acquire more land and a bigger payment. Established farmers who already have land and receive payments have more capital and can go into debt. New farmers looking for land to get started lack these advantages. Direct payments enable many people to continue farming despite worsening economic conditions. But all too often, untargeted per-hectare payments have fuelled an increase in farm sizes and land concentration, while hindering the entry of a new generation of farmers. Although there has been an attempt since the 2013 reform of the Common Agricultural Policy to redistribute payments towards smaller enterprises, this has not stopped the trend of farms disappearing.

This also concerns support for young farmers. Some 190,000 young farmers received support between 2007 and 2013 – compared to an estimated 3.5 million farmers aged sixty-five or above who will retire within 5–10 years. Most of these prospective pensioners manage small or medium-sized family farms, and most lack a successor. The current Common Agricultural Policy dedicates about two percent of its budget to supporting young farmers, but this money is insufficiently targeted at the needs of young and new farmers and is poorly articulated with national policies.

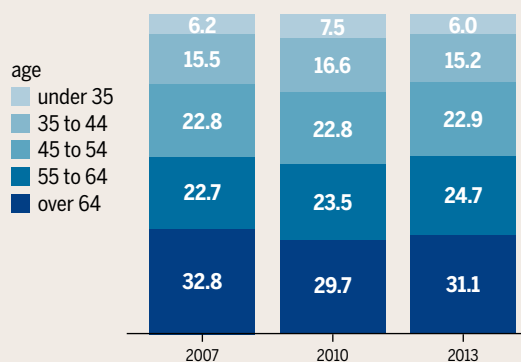
Despite this, an increasing number of people want to enter farming, with or without policy support. Some benefit from innovative schemes: farm incubators, land acquisition through community land trusts, farmer cooperatives,

While medium and large farms throughout the EU produce only for the market, there are still many smallholdings in eastern member states that consume almost everything they grow

etc. Many new farmers turn to innovations such as organic farming, short food supply chains, community-supported agriculture and on-farm food processing, which increase the added value on farm, and contribute to locally grown food, jobs and environment protection. Well-targeted mechanisms at the EU, national and regional levels in favour of this new generation of farmers and ecological production would promote generational renewal, maintain a dense network of farms throughout Europe, create jobs, and foster the agro-ecological transition of farming systems. ●

NO GENERATION CHANGE IN SIGHT

Age structure of leaders of EU farm enterprises, in percent



© AGRICULTURE ATLAS 2019 / EC

Almost one-third of farmers in the EU are of pensionable age. But new entrants face problems

WHOSOEVER HATH, TO HIM SHALL BE GIVEN

One by one, Germany's farms are dying off. For many, that is a worrying trend. But to fight it, society must agree on what the future of agriculture should look like.

In 2017, Germany had an estimated 270,000 farm enterprises, averaging around 60 hectares each, and employing a total of 940,000 people. One in every two farms was run as a sideline: the majority of the household's income came from activities other than agriculture. But these averages conceal huge differences from one region to another, determined by the local landscape and environment, as well as by history, economics and legal conditions.

Take eastern Germany as an example. This region covers 30 percent of Germany's total area but has just one-tenth of its farms. Eastern farms are far larger on average than their western counterparts – 224 hectares in the east as compared to 47 hectares in the west. They are also much more likely to be registered as limited companies, cooperatives or publicly traded firms: 15 percent have such a status, compared to just 0.7 percent in the west. Big arable farms are especially common in the eastern states of Mecklenburg-Western Pomerania and Saxony-Anhalt. They employ relatively few workers, typically 1.2 and 1.4 workers per 100 hectares.

Farms in southern Germany are much smaller, keep fewer animals and grow specialist crops such as grapes or fruit.

They also need a larger workforce. The Rhineland-Palatinate employs 4.7 workers for every 100 hectares land in its wine and vegetable industries. The northern states of Lower Saxony and North Rhine-Westphalia have strong concentrations of labour-intensive pig and poultry production.

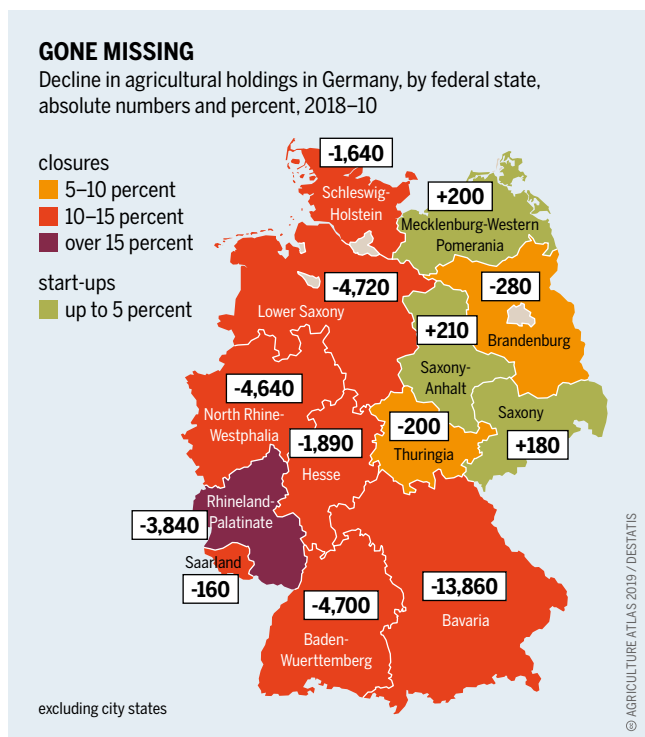
Agriculture in Germany is undergoing a radical change. Ever fewer farms are managing ever larger areas and ever more livestock. The capital requirements are increasing, there are fewer permanent employees, and more workers are paid by the hour. Since the mid-1990s the number of farm enterprises has fallen by 50 percent, and the number of workers has declined by one-third. With a capital investment of 536,000 euros per worker, as compared to 408,000, which is the average for the German economy, farming is clearly more capital-intensive. That shows a willingness to invest money in order to cut labour costs. While in eastern Germany big farms are the rule, in the west there are already 47 farms covering more than 1,000 hectares. Most of those are in Schleswig-Holstein and Lower Saxony.

The trend towards bigger farm sizes, greater specialization and intensification has many drivers. Often, no suitable successor can be found to take over the farm when the current incumbent retires. Advances in technology make consolidation both possible and necessary. Tough price competition rules markets, forcing losers to give up. Many Germans recognize these trends as a problem, but there is a shortage of policies that stop or at least limit them. One reason is the Common Agricultural Policy, which adheres to a support model that gives priority to area premiums while imposing very few conditions on recipients.

In the current budget period (2014–20), Germany was allocated around 6.1 billion euros out of the Common Agricultural Policy pot. A small part of this, 1.3 billion, goes to agricultural and other actors to support the economy and environment in rural areas. The biggest part, around 4.8 billion euros, is paid directly to farm enterprises, mostly in proportion to the area each farm manages. That works out at around 280 euros per hectare per year.

Two states have the biggest agricultural areas, giving them the biggest slices of this pie: 976 million euros for Bavaria and 775 million for Lower Saxony. The five eastern states (outside the city-state of Berlin) together get around 1.5 billion euros. Payments to individual farms depend mainly on the size of those enterprises. In 2016, around 20 percent of the direct payments went to the largest 1 percent.

Scientists and civil society in Germany strongly criticize the fact that these payments are made without checking

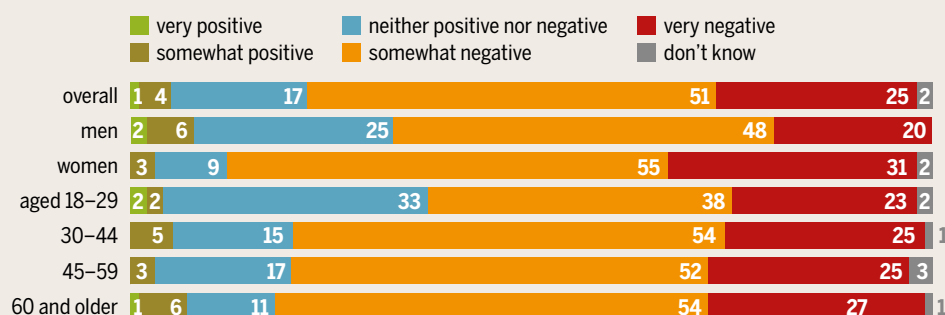


The number of farms in West Germany is still falling. In the East, large farms are being subdivided into smaller enterprises

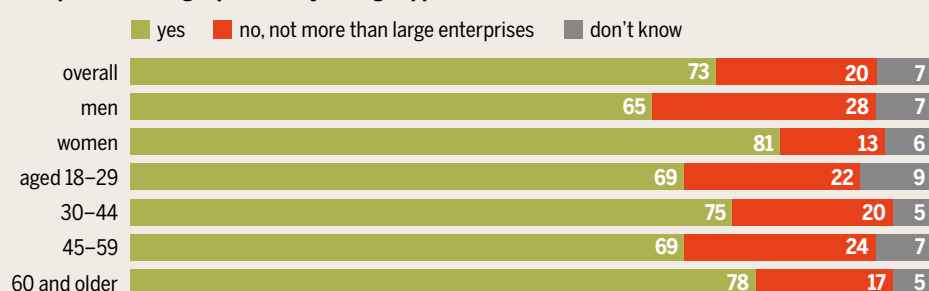
A LARGE MAJORITY OPPOSES THE TREND TOWARDS LARGE FARMS

Opinion poll on the situation and development of agricultural holdings in Germany, all respondents, by gender and age, percent

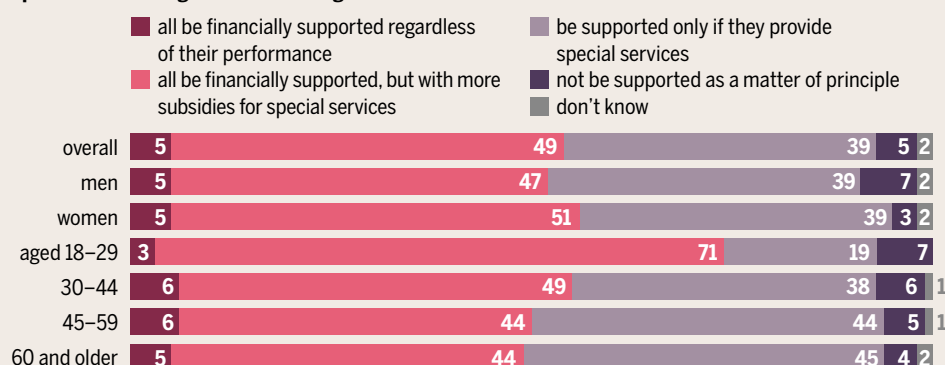
Structural change: That the number of farm holdings in Germany as a whole is declining and that the remaining holdings are becoming larger is regarded as...



Government money: The remaining small and medium-sized agricultural enterprises should get particularly strong support from the state



Special services: Agricultural holdings should...



- 76 percent of German citizens regard the structural change in agriculture towards larger farms as negative or very negative. It is positive for only 5 percent.
- Almost three-quarters of respondents believe that the remaining small and medium-sized farms should receive particularly strong state support.
- Half of the respondents agree that farms should be additionally rewarded if they provide special environmental services for conserving water or nature.
- 39 percent even approve that farms be paid only for such services.
- The majority of those surveyed are open to providing financial support for farms. This shows that the population has a favourable opinion of agriculture – and it is even more positive if farming actively protects nature and the environment.

Survey by the opinion research institute Forsa for the Heinrich Böll Foundation, survey in November 2018, 1,010 respondents, confidence plus/minus 3 percentage points; differences due to rounding

© AGRICULTURE ATLAS 2019 / HBS

which enterprises really need them, and that they are not tied to any benefit to society. Despite this, the German government still refuses to make use of its room for manoeuvre within the constraints of EU policy. It could reallocate up to 15 percent of the direct payments to give farmers incentives to work towards environmental and climate goals. It in fact uses just 4.5 percent of the funds in this way. It could also allocate up to 30 percent of national direct payments to smaller enterprises. The current figure is 7 percent.

Germany could, if it wants to, start to realign its agricultural sector. But such a change of course is impossible, not because the Common Agricultural Policy restricts the possibilities, but because of a lack of political will, defective ob-

A survey shows that maintaining a diversity of farm enterprises is particularly important to women. Young people are less likely to be concerned

jective-setting, and successful lobbying by those who profit from the status quo.

The current proposals of the European Commission for the post-2020 Common Agricultural Policy would make it possible to set a maximum amount of area payments for a particular holding – but would also continue to legitimize and fix the direct payments. To achieve a sustainable structure for farming in Germany, society must first decide on what it wants from its agricultural sector. ●

MAINLY IN THE PLAIN

Farming around the Mediterranean has become more and more dependent on irrigation, without any realistic consideration of the limited water available. Spain is no exception.

Crop growing in southern Europe long relied on a combination of rainfed agriculture and traditional irrigation methods. But since Spain joined the European Union, its rainfed farmland area has shrunk by 23 percent because of the low productivity in the dry Mediterranean areas and the limited support from the Common Agricultural Policy. At the same time, the disappearance of many traditional irrigation systems has led to the loss of their valuable agroecosystems. About 4 million hectares of unirrigated farmland, some of great environmental value, have been abandoned, while land irrigated with modern methods has grown by 700,000 hectares. Irrigation systems now water 22 percent of Spain's agricultural area, supporting one-third of both the farm jobs and the agricultural value added.

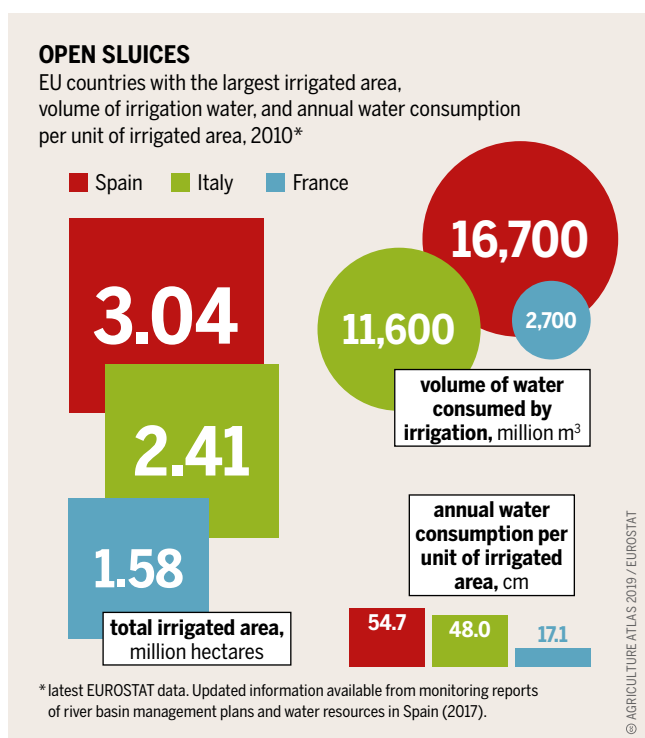
Traditional irrigation systems, some dating back millennia, make up 25 percent of Spain's irrigated area. They are found in river valleys and mountain areas, on soils that are naturally high in fertility. They have been used mainly for orchards and fruit-growing, and form agroecosystems of high environmental value. The ancient water channels represent important ethnographic and cultural heritage. But they are in decline because of their low profitability in current market conditions. Many are being swallowed up by growing towns.

Between 1940 and 1980, extensive irrigation schemes were established in inland areas as a result of government planning. Big water infrastructure projects using large underground aquifers were used as an economic development strategy for rural areas. They account for 55 percent of the total irrigated area and are used mainly for annual crops, and more recently for olive plantings and vineyards. Profits from such areas are generally low, and they rely heavily on Common Agricultural Policy support. Although they create few jobs, they are socially and economically important in many inland areas. The irrigation schemes put a lot of pressure on rivers, wetlands and groundwater because of their size, the structures used to harvest water, the volumes of water abstracted, and as sources of pollution.

Intensive irrigation schemes occupy 20 percent of the irrigated area. They are concentrated mainly in the coastal regions of the basins of the rivers Ebro, Júcar and Segura (which flow into the Mediterranean), and the Guadiana and Guadalquivir (which flow south into the Atlantic), and along the coast of Andalusia. Recent decades have seen a major expansion of fruit trees, subtropical crops, berries, flowers and vegetables. While these crops are both productive and profitable, they have a significant ecological impact because they rely heavily on technical inputs and consume large amounts of resources. Many crops are raised in greenhouses, which use inputs such as fertilizers, plastics and artificial growth substrates, consume a lot of energy, and have a major environmental footprint. Although the farms are often run by families, the production processes, technological inputs and marketing to European consumers are all controlled by big business, which also run their own farms using poorly paid workers. The uncontrolled expansion of such farms has led to the ploughing up of natural areas (the Doñana National Park in Andalusia) and the degradation of wetlands (the Mar Menor saltwater lagoon in Murcia).

Irrigation accounts for 80 percent of Spain's water consumption and is one of the main factors threatening aquatic ecosystems through the overuse and contamination of aquifers, the degradation of wetlands, and the reduction and alteration of river flows. Agriculture causes widespread pollution: it stimulates the eutrophication of water bodies and contaminates drinking water with nitrates and pesticides. Irrigation infrastructure such as dams, reservoirs and canals and the concentration of landholdings cause additional environmental problems, which in turn are aggravated by further planned increases in irrigation.

Climate change is expected to cause a decline in water inputs and more irregular and torrential rain. This is likely to have serious impacts on water resources and soil erosion, while increasing the demand for water needed to grow



In Spain, which is a very dry country, irrigation uses the equivalent of over 50 cm of rainfall. Intensive farming continues to spread

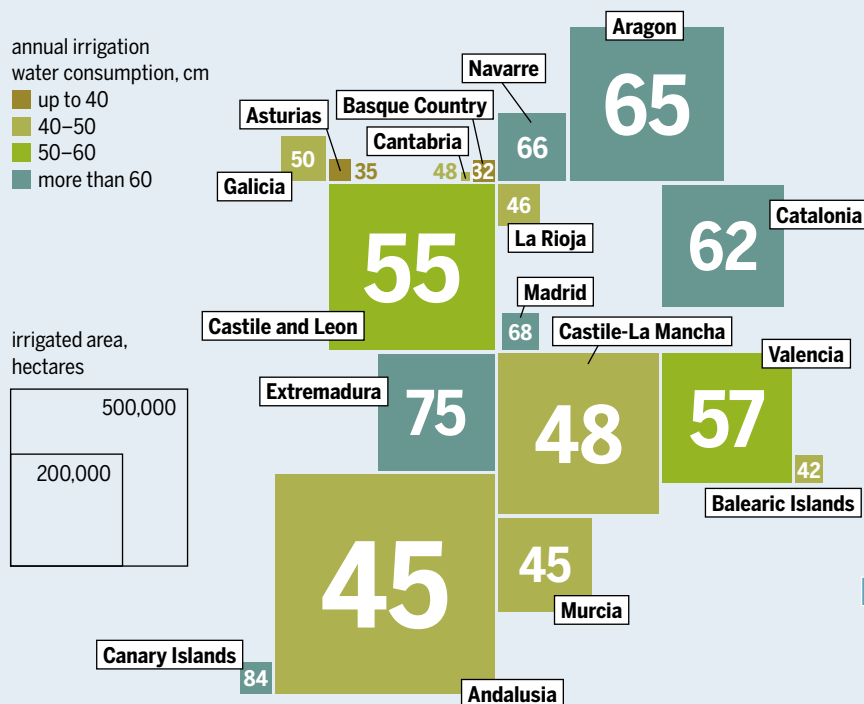
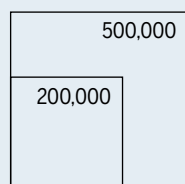
THE THIRSTIEST

Irrigated area in Spain, by autonomous community and annual irrigation volume, 2010*

annual irrigation water consumption, cm

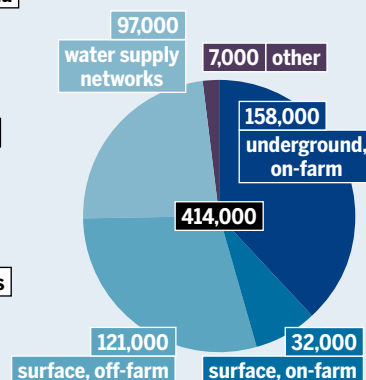
- up to 40
- 40–50
- 50–60
- more than 60

irrigated area, hectares



* latest EUROSTAT data. Updated information available from monitoring reports of river basin management plans

number of irrigated farms and origin of their water resources



© AGRICULTURE ATLAS 2019 / EUROSTAT

crops. Spain's irrigated area is already larger than the area current water supplies can sustain. The Common Agricultural Policy does not contribute to improving the environment, as its support programmes favouring intensive farming methods to the detriment of rainfed cropping and more sustainable traditional systems.

In order to reduce the pressure on water, Spain's agricultural policy has emphasized the modernization of irrigation systems, switching from gravity schemes to using piped water under pressure. In the last 30 years, about half of the irrigation schemes in Spain have been modernized, about 60 percent with public funds. But, in general, this has not

Overexploitation of water resources is a major problem in much of the country

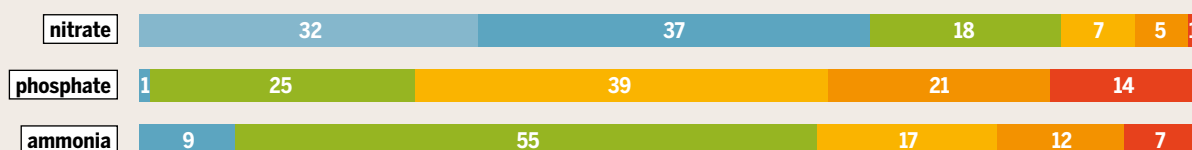
resulted in saving water. Since water rights are not subjected to a downwards adjustment after a project is completed, less water is returned to rivers, cropping is frequently intensified, and the irrigated area is expanded. Total water consumption may even rise after a system is modernized. By reducing return flows and the local humidity, these projects degrade the existing natural vegetation. They also greatly increase the demand for energy to get water to the plants.

A new Common Agricultural Policy is needed. It must take the peculiarities of Mediterranean farming into account, support high-value natural systems, and promote the sustainable use of irrigation water to restore rivers, aquifers and wetlands. ●

Agriculture is the main cause of river pollution in Spain, especially through excessive manure and fertilizer use. This harms ecosystems and water supplies

INTENSIVE FARMING, INTENSIVE POLLUTION

Nitrate, phosphate and ammonia in Spanish rivers, average annual concentrations 2013–15 by concentration category, percent



European Environment Agency concentration categories for nitrate: (light blue) up to 0.8, (dark blue) 0.8–2.0, (green) 2.0–3.6, (yellow) 3.6–5.6, (orange) 5.6–11.3, (red) more than 11.3 mg NO₃-N/litre. For phosphate: (dark blue) 0.02–0.05, (green) 0.05–0.1, (yellow) 0.1–0.2, (orange) 0.2–0.4, (red) more than 0.5 mg PO₄-P/litre. For ammonia: (dark blue) up to 40, (green) 40–100, (yellow) 100–200, (orange) 200–400, (red) more than 400 µg N/litre. Number of monitoring stations: 1707–1883.

© AGRICULTURE ATLAS 2019 / EEA

LIP SERVICE ONLY

Farm work is changing as capital replaces labour, and as paid employees replace family members. Where agricultural productivity is low, many farmers must look for outside work to make ends meet. Although small farms employ more workers, the Common Agricultural Policy supports large farms and does little to ensure decent pay or working conditions.

Simply because more than 22 million people in the EU work in agriculture, it does not mean that 22 million people are employed in full-time positions. Many agricultural workers only have part-time or seasonal jobs, for example to harvest crops. Countries with lots of small farms have an especially high percentage of part-time and seasonal workers. In Romania, for example, only 1.5 percent of the

agricultural population has full-time employment.

Taking part-time and seasonal work into account, agriculture had the equivalent of about 9.5 million full-time positions in 2016, or 4.4 percent of total employment. The importance of agricultural employment varies widely from one country to another: from under 2 percent in the United Kingdom and Germany, to more than 10 percent in Romania, Bulgaria, Greece and Poland. Its share is declining: in the 28 current member states of the EU, it fell by more than one-quarter between 2005 and 2016. This is part of a long-term trend. In France, for example, agriculture accounted for 27 percent of employment in 1955; this has fallen to a mere 3 percent now.

Most of the work on farms is done by the holders and their family members: such labour accounts for about three-quarters of the total. Fewer women are engaged in farming (35.1 percent of the agricultural labour force) than in the economy as a whole, where they make up 45.9 percent of the working population. The two countries with the fewest women involved in farming are Denmark (19.9 percent) and Ireland (11.6 percent).

Capital has already supplanted much of the labour in farming, and will continue to do so in the near future as chemicals, machinery and digitalization replace workers, pushing up productivity per person. The loss of jobs in farming is a problem for countries in eastern and southern Europe, where unemployment is high and there are few job opportunities.

The type of jobs is changing rapidly. Self-employment and family work are declining, and the proportion of salaried positions is rising. But these jobs are precarious - short-term contracts and migrant labour are common. Illegal work is also widespread: according to a 2010 study by the European Federation of Food, Agriculture and Tourism Trade Unions it accounts for about 25 percent of agricultural activities throughout Europe.

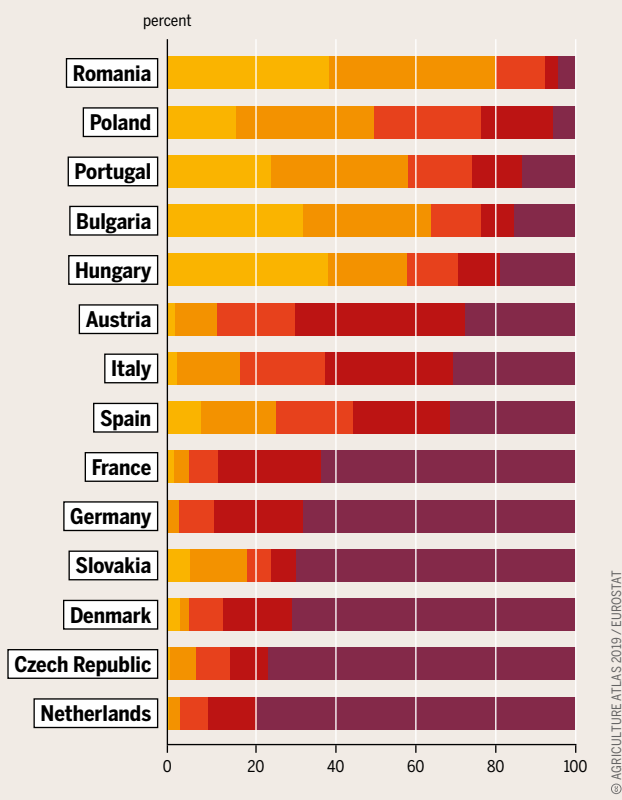
One of the original objectives of the Common Agricultural Policy was to stabilize the incomes of farmers and farm workers. The objectives said nothing about preserving jobs or ensuring good working conditions.

Compared to the economy as a whole, productivity in agriculture is low: the value added per hour worked is well below average. That is a major argument used in favour of continuing direct payments to farmers under the Common Agricultural Policy. But earnings from agriculture say little about how much farmers actually earn because for many, farming is not their only source of income.

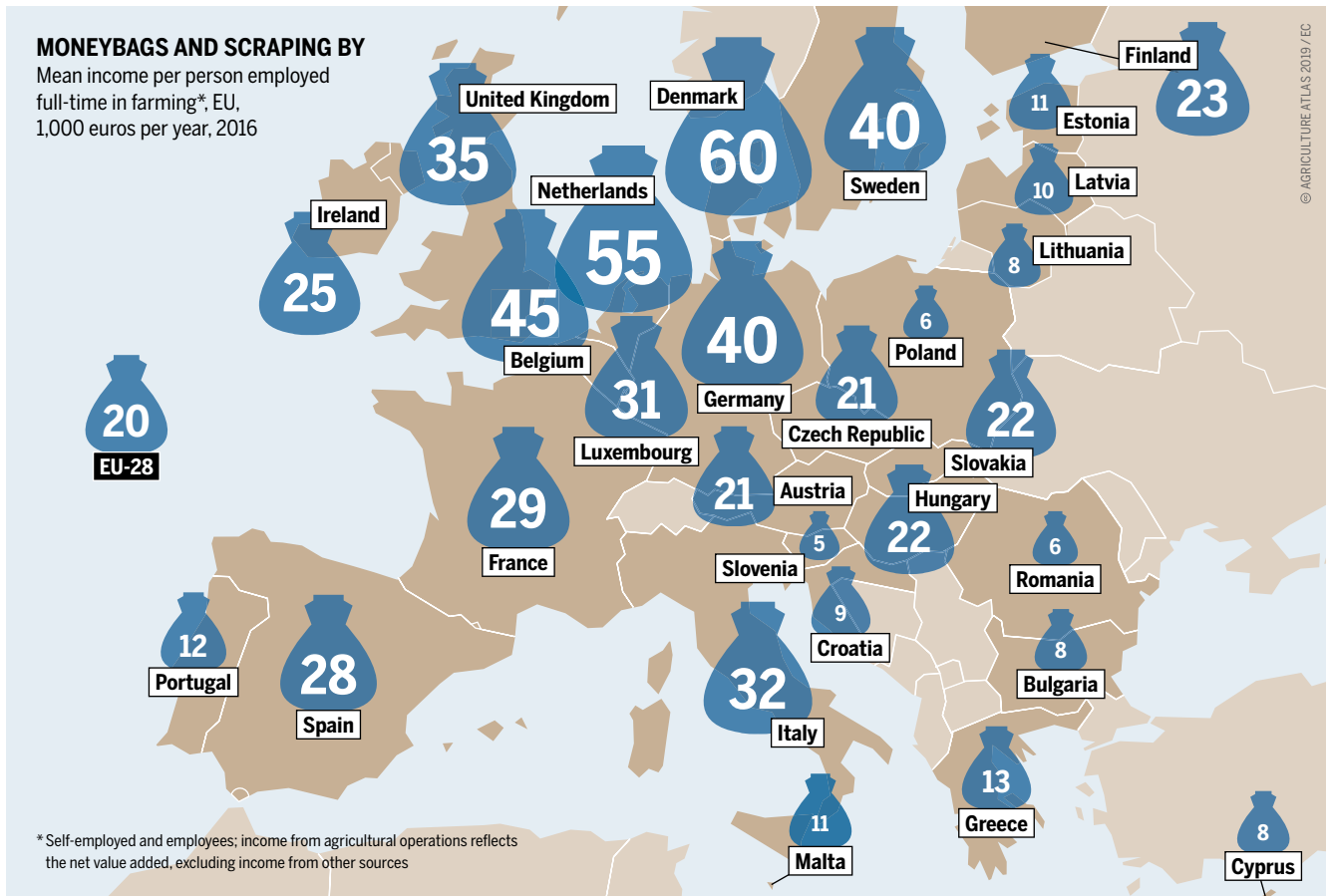
Originally, the Common Agricultural Policy regulated markets to stabilize prices, especially for cereals, beef and sugar. But average farm incomes increased very little. In

BIG FARMS AS EMPLOYERS

Distribution of employment (full-time equivalents) in agriculture by economic strength of the enterprise in selected EU countries, annual revenues in euros, 2013



In countries such as Romania, Poland and Portugal, revenue-rich farming operations employ very few people. In the Czech Republic and the Netherlands, they are dominant



1992, market regulations were dismantled and subsidies were paid to farmers directly, based on the size of their holdings. European prices aligned to the world market and became much more volatile, often falling below the cost of production. As a result, direct payments now account for a large proportion of average farm income. Because the payments are made per hectare or per animal, regardless of the price level, they do not compensate for price volatility. That makes farm incomes very variable. When prices fall, as was the case for milk between 2014 and 2016, producers face extreme financial difficulties. When prices are high, the payments go to farmers who have little need for the extra money.

Allocating the payments per hectare and not per worker encourages the expansion of farms and pushes land prices up, rather than supporting employment. On average, the larger the landholding, the fewer workers are employed per hectare and the greater the share of subsidies as a proportion of agricultural income.

The 2013 reform of the Common Agricultural Policy tried to favour small farms, which employ more people per hectare. It included additional payments for small farms, but these were optional. Many member states did not put them into effect at all; others chose to water down the commitments. The member states have also refused a proposal to cap aid at a maximum of 300,000 euros per holding. As a result, the CAP continues to favour larger farms.

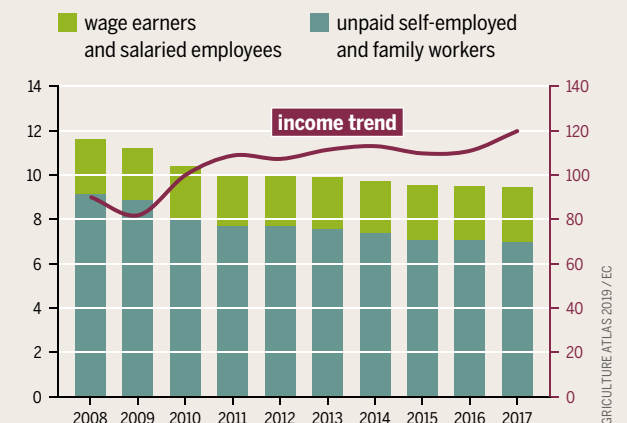
Overall, incomes are rising in the farm sector. Reasons include the higher revenues of larger operations and the loss of many low-income earners

Income levels from farming in the EU are higher in the northwest and lower in the southeast

To qualify for support under the CAP, farmers have to comply with certain environmental practices. But an equivalent requirement to follow specific labour standards does not exist. Such social cross-compliance should be built into the CAP - it should include training for employees, payment of adequate wages, and observance of health and safety standards. ●

MORE MONEY FOR LESS WORK

EU agricultural employment, full-time equivalents in million people, and income trends, 2010 = 100



FROM FAMILY FARM TO FARMING FIRM

Europe's farms are getting bigger. Agriculture payments sparked a wave of land purchases in the new member states right after they joined the EU. Land prices have since increased steadily. Small and medium farms are being bought out by agribusiness and financial investors and are being replaced by large enterprises. The decline of family farming has major repercussions for rural society and the economy. Land ownership is now more highly concentrated than is overall wealth in the EU.

The increasing concentration of land ownership has major consequences for Europe's agriculture because it concerns its most vital resource: fertile soil. The land is being worked by a declining number of farmers. Industrial farming is taking over land from medium and small farms: in 2013, over half of Europe's agricultural land was used by just 3.1 percent of its farms, while three-quarters

of the farms covered only 11 percent of the area. Between 1990 and 2013, the number of large farms (over 100 hectares) doubled in some countries in western Europe; in others it increased by as much as a factor of five. So did the area of land these farms covered.

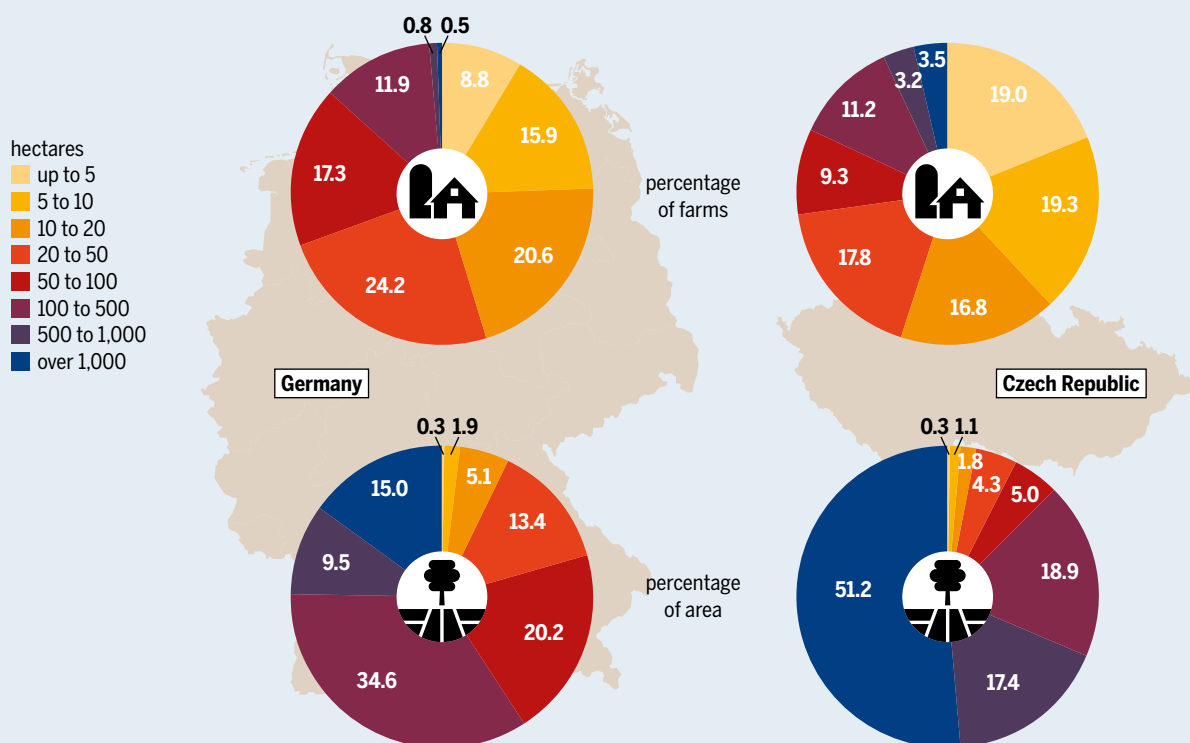
Land is now more unequally distributed than wealth in the EU – a trend that the European Parliament sees as a threat to small-scale and family farms, which are regarded as desirable components of a multifunctional rural sector. But more than 80 percent of the direct payments under the Common Agricultural Policy go to the largest 20 percent of farms.

Extensive landholdings are especially common in the eastern countries of the EU: Slovakia, the Czech Republic, Hungary, Bulgaria and Romania. These new member states, which joined the EU in 2004 or 2007, initially had a big farming population and cheap land markets. When direct pay-

The Czech Republic is the EU member with the most pronounced agro-industrial sector. In terms of farm sizes, Germany is in the middle of the pack

COMPARING GERMAN AND CZECH FARMS

Share of agricultural enterprises and the area managed by size categories, 2016, in percent



ments under the Common Agricultural Policy started, land prices and rents shot up. In Bulgaria, the price of land rose by 175 percent between 2006 and 2012. The average size of large farms has far surpassed the EU average of around 300 hectares, with biggest increases observable in Slovakia (781 hectares), the Czech Republic (698 hectares), and Bulgaria (671 hectares).

Small farms are disappearing fastest in countries where they were once the dominant model of production. In Romania, for example, 1.7 million smallholders manage tiny farms of one hectare or less. They grow food for themselves and their families, and sell any surplus. But in many EU states, direct payments are made only to farms that cultivate at least one hectare. That makes the millions of farms that are smaller than this invisible to the formal agricultural registries.

Such small enterprises are not eligible for funding or support, so they are more or less doomed to be bought up by larger farms or taken out of production. In Bulgaria, the rising concentration of land means the production of vegetables and livestock, which can be cultivated successfully on a small area, has declined in favour of large-scale cereal monocultures.

The price of land has been pushed up by the large number of land transfers in the last ten to fifteen years in eastern and central Europe. Rental prices have also risen, making it harder for newcomers without any farming background to enter the profession. Many land deals are made in dubious, corrupt or illegal circumstances; this is known as “land grabbing”. In Hungary, deals that circumvent national regulations have enabled non-Hungarian nationals or companies to buy around one million hectares in the last twenty years.

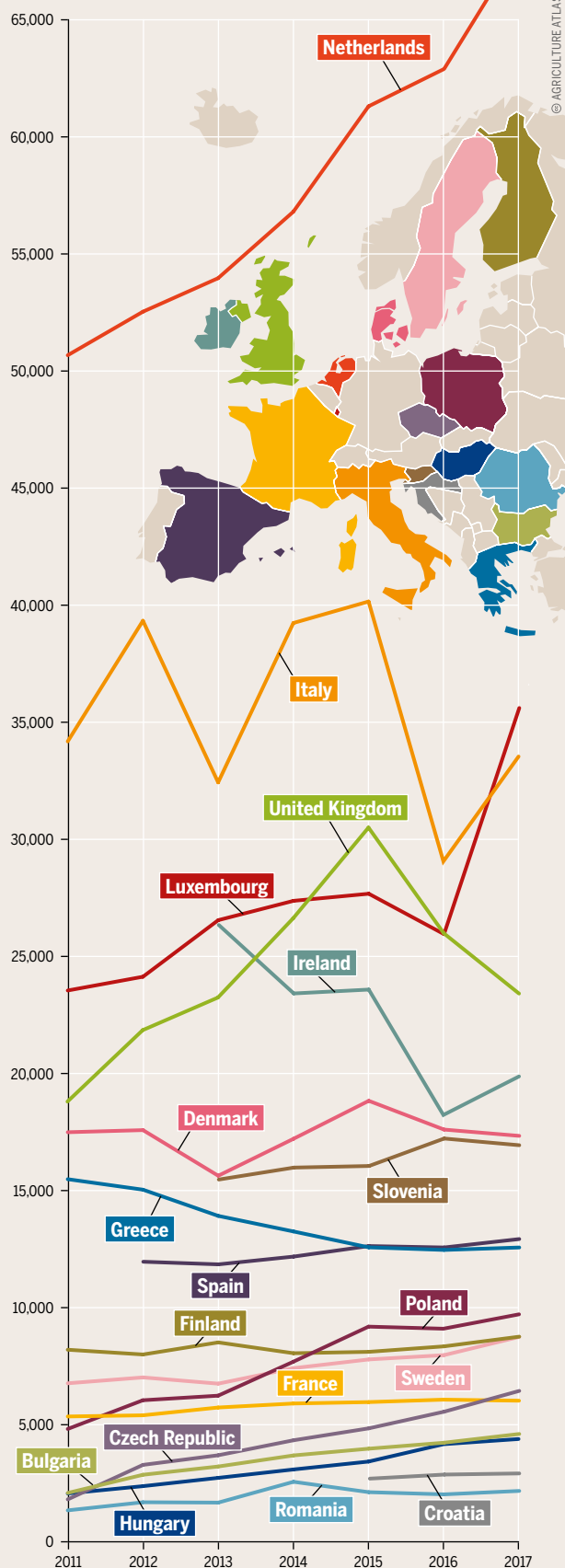
The buyers include both industrial farmers and investors such as banks, funds and insurance companies from the EU and outside. Small-scale farmers and new entrants cannot compete with them, given that this is the economy sector with the lowest income and highest risk. The prices of land are rising throughout Europe. In some countries (the Netherlands, Belgium, Denmark) they have reached unrealistic levels in relation to revenues from farming. Other countries (Germany, France) are finding ways to contain this trend.

Public consultations show that Europeans want the Common Agricultural Policy to ensure a fair standard of living for farmers, especially for those with small and medium-sized holdings, for family farms, and for people entering the farming profession. Future European policy should develop an approach that pays farmers to provide public goods. That would benefit small farmers because they generally produce more public goods than large, industrialized enterprises. Farmers want the EU to address the low availability and high prices of farmland, and the low profitability of farming. Our continent has a living cultural heritage embodied by its farmers and their communities. We must ensure that their knowhow of low-impact, ecologically friendly methods is passed on to new generations of farmers. ●

For the same price, an agricultural enterprise from western Europe could buy five or ten times more land in certain EU member states than they could closer to home

ON THE GROUND

Changes in purchase prices of arable land in selected EU countries, in euros per hectare



Several EU member states, including Germany and Belgium, do not report land prices to Eurostat, the responsible body. Some have not reported continuously. The purchase prices are national averages and may vary considerably from place to place.

INTENSIFICATION VS CONSERVATION

People often say that there are fewer birds and insects now than there used to be. That is true, and intensive agriculture is largely to blame. Despite some lip service paid to the necessity of nature conservation, the overwhelming weight of European agricultural policy is to promote yet more intensification.

Wildlife is under severe pressure in the EU, with 60 percent of species and 77 percent of habitats classified as having “unfavourable” status. The number of farmland birds has declined by 57 percent since 1980, and there are almost 35 percent fewer grassland butterflies than in 1990. Even once-common farmland birds are disappearing. For example the European Turtle Dove is facing extinction: its numbers declined by 77 percent in Europe between 1980 and 2012.

In Germany, insect numbers have fallen by over 75 percent since 1990. In France, a third of farmland birds species have vanished in the last 15 years. “Generalist” species that can live in different types of habitat have done worse in farmland than in urban areas. In central and eastern Europe,

the numbers of farmland birds fell by 41 percent from 1982 to 2015, compared to a 6 percent drop in forest bird populations.

According to the European Environmental Agency, agriculture is the biggest threat to biodiversity. That is mainly due to intensive farming, which has an impact independent of other factors such as climate change.

Practices that maximize short-term yields mean less food for wildlife. Monocultures, a loss of natural vegetation, along with pesticides, herbicides and fertilizers, reduce the food supply for species that eat weeds, seeds and insects. In the UK, bat populations bounced back quickly when farms converted to organic production because insects became more abundant.

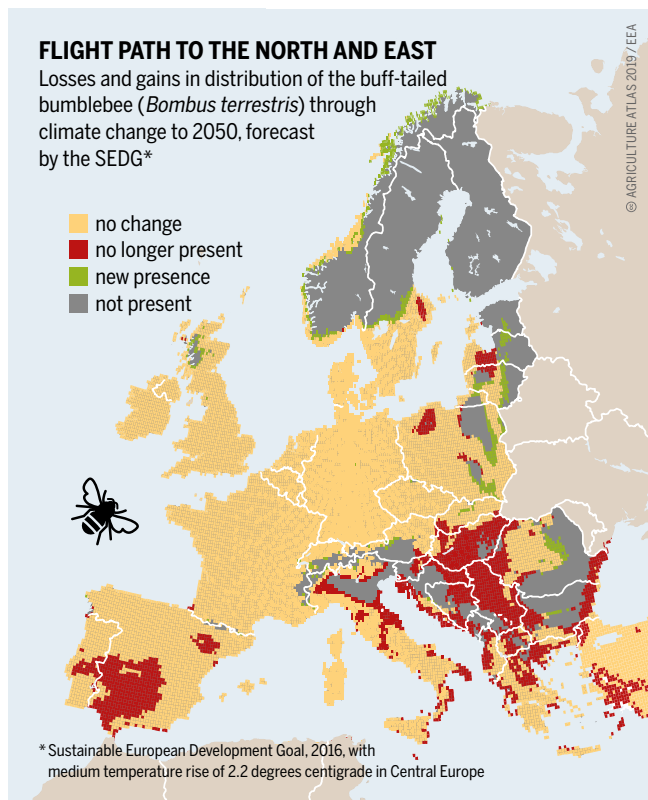
Using farmland intensively means less breeding habitat for wildlife. It involves removing landscape features such as small wetlands, and ploughing up or intensifying the use of grasslands. In France, there was a 95 percent decline in the numbers of Little Bustard between 1978 and 2008 because grasslands were converted to cropping.

Intensive farming also has an indirect impact on wildlife. Agriculture is the biggest threat to Europe’s wetlands. It diverts or pumps water for irrigation, and pollutes it with fertilizers and pesticides. Excess nitrogen in soils from fertilizers and manure reduces plant diversity in fields, which in turn cuts the number of species they can support. Nitrogen runoff causes algal blooms that kill aquatic species.

The EU spends 39 percent of its total budget under the heading “Sustainable growth: natural resources”. This covers the Common Agricultural Policy, fisheries and marine funds, and an environment fund named LIFE. The CAP receives 97 percent of the funding within this budget; LIFE gets just 0.8 percent.

The EU is obliged by law to fund its nature protection laws, and EU leaders have promised to do so. But the current budget has no guaranteed spending on biodiversity. Nor does the next budget. Rather than designating a stand-alone pot of money, leaders chose to integrate nature funding into the Common Agricultural Policy. But this fails to deliver significant support for biodiversity conservation, while subsidies instead go towards further intensification.

Reforms to the Common Agricultural Policy in the 1990s and early 2000s tried to break the link between payments and production levels that led to wine lakes and butter mountains. They introduced agri-environmental schemes and basic environmental conditions for payments. Despite these, the CAP remains heavily biased in favour of intensive



The buff-tailed bumblebee is one of Europe’s most important pollinators. As the climate gets warmer, its habitat will expand into a few new areas, but will shrink in many more

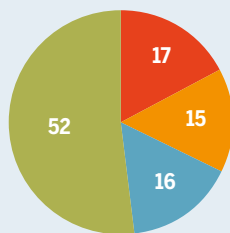
FEWER TWEETS

Decline in bird numbers of 39 species of field birds in ten EU countries reporting data, in percent, 1990 = 100, most recent years 2013 to 2015

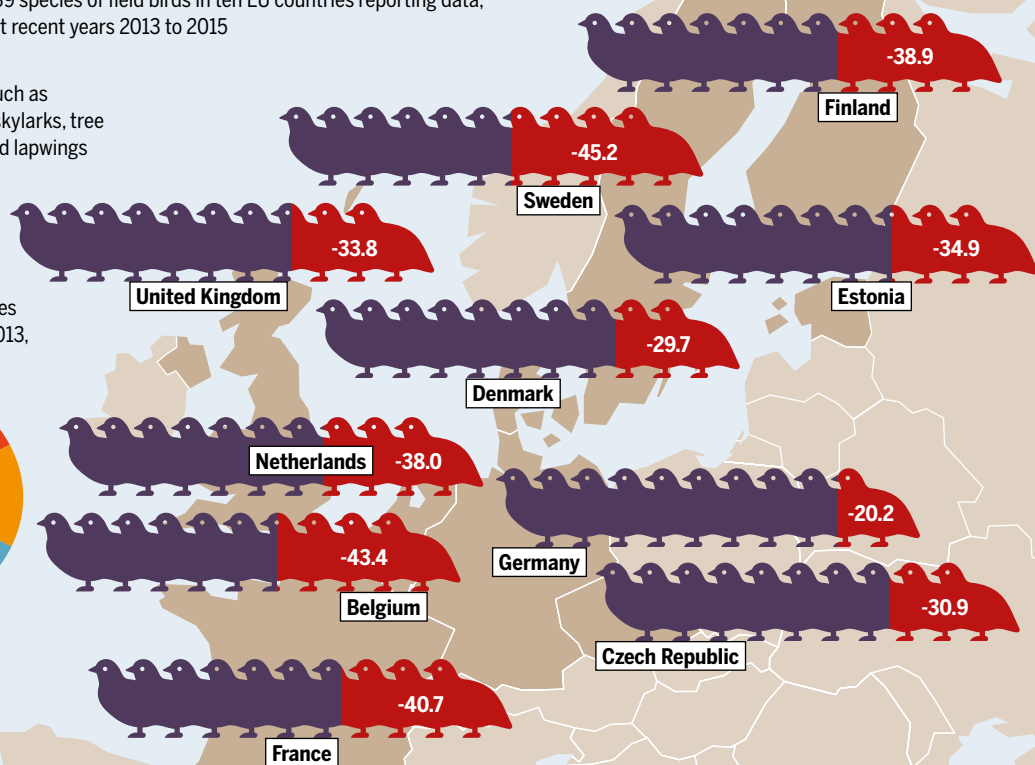


field birds such as partridges, skylarks, tree sparrows and lapwings

Status of 447 bird species in the EU, all habitats, 2013, in percent



■ threatened
■ declining
■ unknown
■ secure



© AGRICULTURE ATLAS 2019 / EUROSTAT, EEA

Birds are a common indicator of ecosystems because they are easy to count. When intensive agriculture expands, bird numbers drop

farming. That can be seen in the Czech Republic: a 2018 study shows that farming intensified and farmland bird populations declined steeply after the country joined the EU.

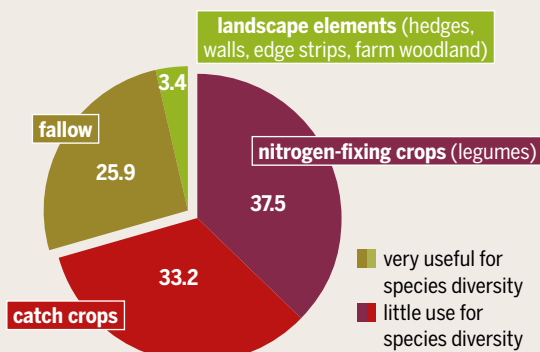
The CAP measures that get the most money are the most “perverse” – a term used by the Convention on Biological Diversity to describe subsidies that harm the environment. Nearly three-quarters of the funding (around 293 billion euros for 2014–2020) goes to direct payments that favour the most intensive and damaging forms of farming: cereal and livestock production. These payments are made for the area farmed, rather than being linked to practices or meaningful rules on sustainability. Another 15 percent of the funds go to production support (e.g. paid per animal or unit yield of grain); this goes mainly to the meat and dairy sectors, contributing to overproduction. The vast majority of “investment aid” (one-off grants for farm investments) also supports intensification, for example to purchase heavy machinery, build processing plants or set up intensive livestock pens.

Of course there are many good local examples of schemes that work and farmers who support biodiversity. But their impact is undermined by a lack of funding and the considerably larger spending on perverse subsidies, or they are “out-competed” by less demanding or bogus schemes. For example, Cyprus has a generous (800 euros per hectare)

scheme for the “environmentally friendly” management of banana plantations, which even allows herbicide use. This is justified by claims that it avoids construction development and is somehow good for wildlife. To halt and reverse biodiversity loss due to intensification, adequate funding is needed for specific biodiversity measures on farms, along with the right rules and incentives to spur a transition to less intensive farming. ●

TARGET MISSED

Ecological focus areas for which the EU makes “green” direct payments, distribution by use, 2015, in percent



■ very useful for species diversity
■ little use for species diversity

© AGRICULTURE ATLAS 2019 / EC

The “ecological focus areas” which farm enterprises have registered with the EU have had little effect on species diversity

HOW HABITATS ARE LOST

Biodiversity continues to decline in Austria. The pressure from intensive agriculture is not letting up; it still overwhelms any successful measures to promote environmental conservation.

Biological diversity is a prerequisite for maintaining ecosystems in Austria – along with the livelihoods of many Austrians. As a tourist destination, the country profits economically from the attractiveness of its traditional rural way of life. But the intensification of farming has led to monocultures and the heavy use of fertilizers and pesticides, and the disappearance of attractive elements in the landscape. Extensively used meadows, grasslands used only as pastures, orchard meadows traditionally grazed by livestock, field borders full of wildflowers, hedges and copses – all these have declined by more than half since 1990. The Common Agricultural Policy's agri-environment measures aim to counter such trends, but they lack the impact to combat the root causes of the problem.

In arable farming, financial support for fallows has been reduced since 2007, which means that less land is being left untilled. Intensive mechanical cultivation methods on both conventional and organic farms, and the irrigation of drier locations, have also led to a decline in biodiversity. While the drainage of marshy areas to permit better agricultural use eliminates valuable and irreplaceable habitat for rare animal and plant species, the carbon stored in such wetlands escapes into the atmosphere and exacerbates climate change.

In grasslands, the biggest threats are intensive fertilization and early, repeated mowing to make silage. Innumerable insects are killed and a few vigorous grasses, dandelions and a handful of other species suppress all other vegetation. This practice harms insects that rely on less-common plants for their food source, along with birds and other animals that in turn feed on the insects. The result is a dramatic decline in the numbers of typical Austrian meadow species such as whinchats and woodlarks.

Even alpine pastures are threatened by the increase in fertilization. As the number of livestock in the valleys rises, farmers dispose of their manure on the high meadows. Another problem is the concentration on small alpine meadows of heavy cattle breeds that are poorly adapted to the steep mountain terrain.

In fruit-growing, short, espalier trees that can be harvested by machine are replacing the traditional, taller tree forms that are scattered across meadows and along roadsides. The older, traditional trees are harder to harvest, but they offer insects and birds such as redstarts, hoopoes and long-eared owls ample niches where they can hide, feed, breed and nest. In addition, orchards with dwarf trees use more pesticides, harming pollinators such as honeybees and wild bees.

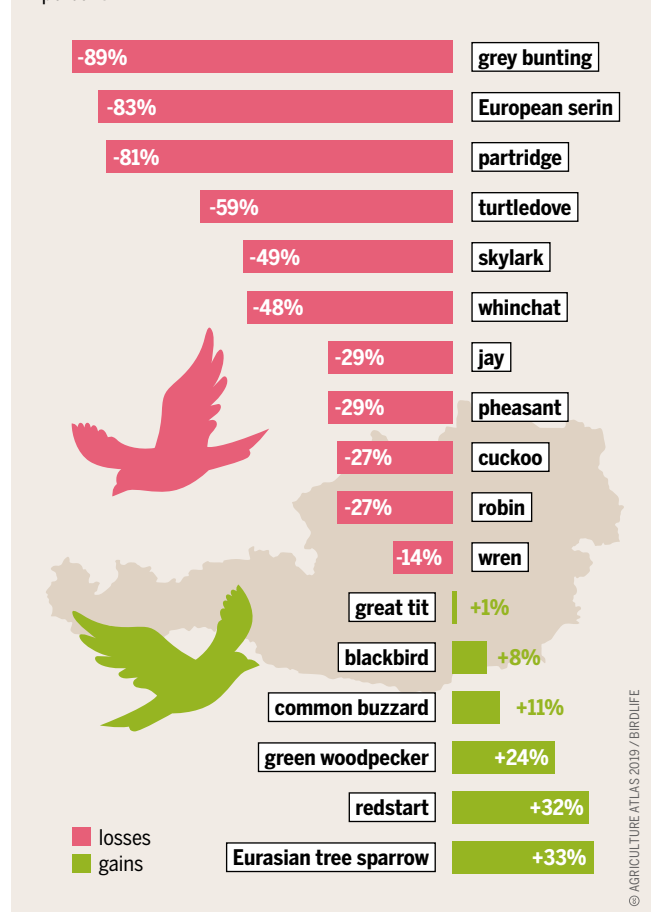
In 2017, more than 4,600 tonnes of pesticides were sold in Austria. Sprayed on fields and orchards, they drift over into natural ecosystems, where they contribute to a decline in wild flowers, bees, butterflies, amphibians, birds and many other organisms. Fertilizer that washes into water bodies causes eutrophication and creates oxygen-starved zones where few aquatic creatures can survive.

Compared to other countries, Austrian agriculture is still fairly small-scale. But the situation for several groups of organisms is now better in built-up areas than in the countryside. As elsewhere in the European Union, the populations of certain species of farmland birds – skylarks, partridges and grey buntings – have declined dramatically. Around half the native species of butterflies are classified as endangered.

In 2014, Austria set itself national targets for biodiversi-

MANY LOSERS, JUST A FEW WINNERS

Change in breeding bird populations in Austria, 1998 to 2017, percent



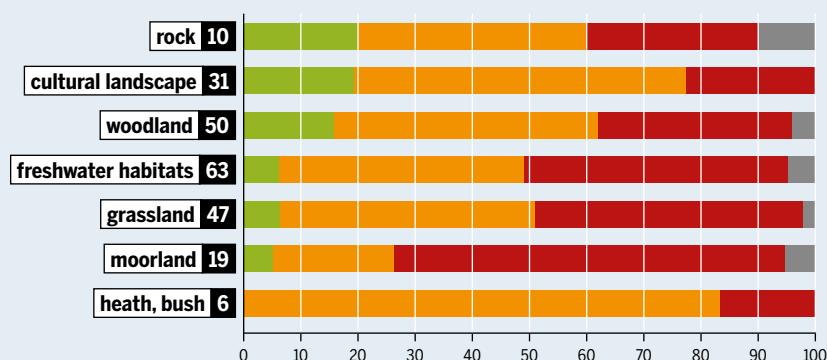
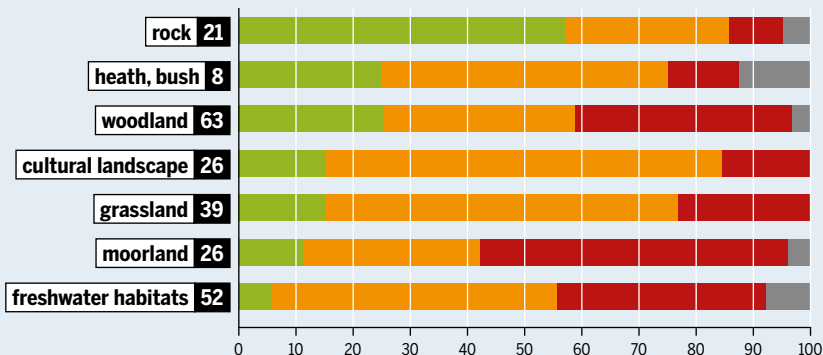
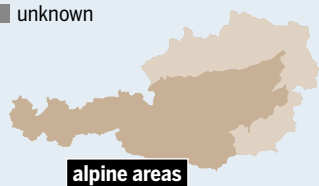
Many bird species typical of cultural landscapes have become rare. Overall, populations have shrunk by about one-third

ENDANGERED LANDSCAPES

Conservation status of habitat types in Austria, number of ecosystems, most recent reporting period (2007–2012)

status, in percent

■ favourable
■ unfavourable-inadequate
■ unfavourable-poor
■ unknown



© AGRICULTURE ATLAS 2019 / UMWELTBUNDESAMT

ty for 2020. Agriculture's role will be decisive in achieving these targets. The Austrian Programme for the Promotion of Environmentally Friendly, Extensive and Habitat-Protecting Agriculture, known by its German acronym ÖPUL, has existed since 1995. This is jointly funded by the second pillar of the European Union's Common Agricultural Policy (50 percent), the federal government (30 percent) and the nine federal states (20 percent). The ÖPUL nature-conservation measure for extensive areas of ecological value is especially effective, but unfortunately its acceptance levels are particularly low in two states, Styria and Upper Austria.

Another ÖPUL measure, Environmentally Sound and Biodiversity-Enhancing Management, or UBB, has made significant contributions. Furthermore, measures to promote organic farming, catch crops and winter vegetation (known as "Immergrün" or "Evergreen"), or to prevent soil erosion and protect water bodies, as well as avoid the production and use of silage, delay the mowing of meadows, improve the management of mountain meadows, and conserve endangered livestock breeds have been introduced. Since 2014, support to maintain landscape elements has been stepped up, effectively putting a halt to the further loss of such elements. Despite this, ÖPUL measures that might be useful have not been implemented widely

In Austria, more than 4,000 tonnes of pesticide active ingredients are sold each year. Efforts to cut consumption have not sustainably reduced sales

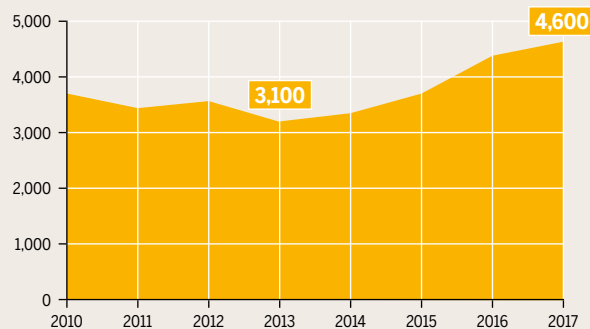
Most Austrian habitats are in an unfavourable condition; in the "continental" region, almost half are classified as "poor"

enough to reverse the loss of biodiversity.

What is true in Austria, also applies to the European Union as a whole. By far the biggest chunk of financial support goes to pay for area premiums. However, these premiums do not require farmers to take steps to promote ecology and biodiversity. Faced with mutually contradictory objectives, the Common Agricultural Policy is not able to maintain biodiversity in the agricultural landscape. ●

THE PESTICIDE BOOM

Volume of active ingredients of plant-protection products placed on the market in Austria, tonnes



Data differ slightly from Eurostat data

© AGRICULTURE ATLAS 2019 / STATISTA

FARMING AND ENVIRONMENT: A DELICATE BALANCE

Natura 2000 is the EU's most important nature-conservation initiative. In Italy, this programme protects 2,944 sites, covering over 214,000 farms and 1.5 million hectares of agricultural land. The protected area is mainly made up of woodland, rough grazing and arable land.

Natura 2000 is the system of protected areas set up by the EU in response to two European Commission Directives for nature conservation: the Habitats Directive of 1992, and the Birds Directive amended in 2009. The Natura 2000 Network in Italy consists of 612 spaces designated as Special Protection Areas for birds, and 2,332 Sites of Community Importance of which 1,733 are Special Areas of Conservation to protect habitats and non-bird species. In an estimated 335 sites these areas overlap and are classified as both. Taken as a whole, the Network covers 6,414,548 hectares – 5,826,777 hectares of land and 587,771 of sea. That accounts for 19.29 percent of Italy's land surface and 3.81 percent of its marine area.

Historically, agriculture has played a fundamental role in determining the structure and composition of the ecosystems covered by the Natura 2000 sites. At the same time, agriculture is today one of the main threats to the conservation of biodiversity and a major cause of the destruction and simplification of habitats, as well as the contamination of water, soil and air resulting from the intensive use of pesticides and chemical fertilizers.

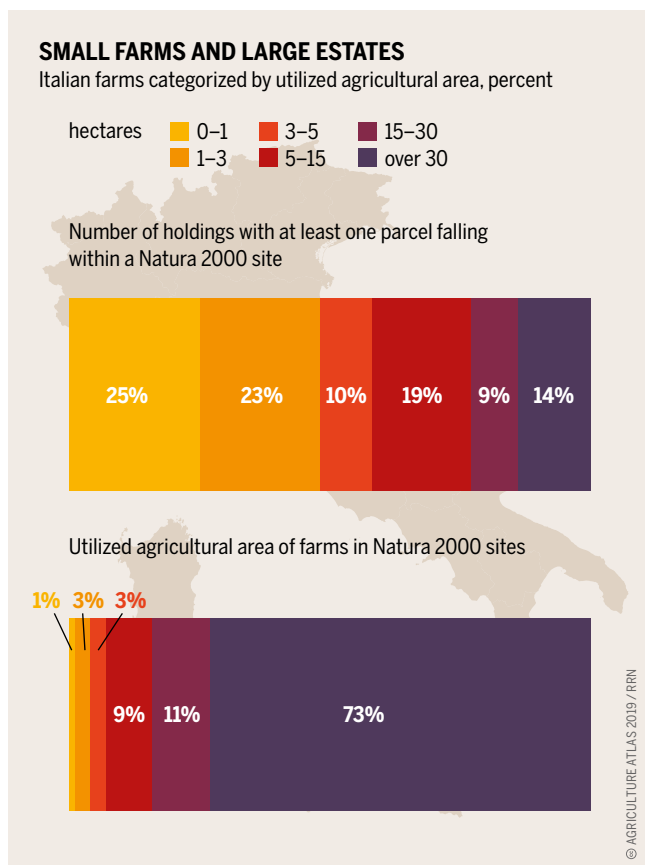
Recent research by the World Wide Fund for Nature and CREA (an Italian research agency) on behalf of the National Rural Network has revealed the number of farms covered by the Natura 2000 sites. This included farms that had at least one parcel of agricultural land within the Natura 2000 boundaries. That amounts to a total of 214,535 farms that are associated with the Natura 2000 network.

These farms encompass over 2.7 million hectares of agricultural land within the Natura 2000 sites, equal to 16 percent of Italy's agricultural area. Of those, 1.5 million hectares were actually used for agriculture, or 13 percent of the country's utilized agricultural area. About one-quarter (24.7 percent) of these farms were small, using less than one hectare for farming. Another 23 percent were between 1 and 3 hectares, 10 percent were between 3 and 5 hectares, and almost 19 percent were between 5 and 15 hectares. A mere 14.2 percent were larger holdings over 30 hectares.

Some 37.6 percent of all farms associated with Natura 2000 had less than 30 percent of their utilized area within a protected area. At the other end of the scale, 23 percent of these farms had 80 percent of their land under protection, and 15.2 percent were entirely within a protected area.

For the farmland covered by Natura 2000 sites, the main land uses were woodland (32 percent), followed by rough grazing (24 percent) and arable (20 percent). Minor uses included permanent grassland i.e., fodder areas that cannot be cultivated (9 percent), followed by non-cultivated areas (7 percent), and tree crops including olives, vines and orchards (5 percent). Water bodies took up the remaining 2 percent. Woodland was the main land use in all three of Italy's biogeographical regions: alpine, continental and Mediterranean. This was followed by rough grazing in the alpine and Mediterranean regions, and arable land in the continental areas. The Mediterranean region has the largest absolute extent of permanent grassland.

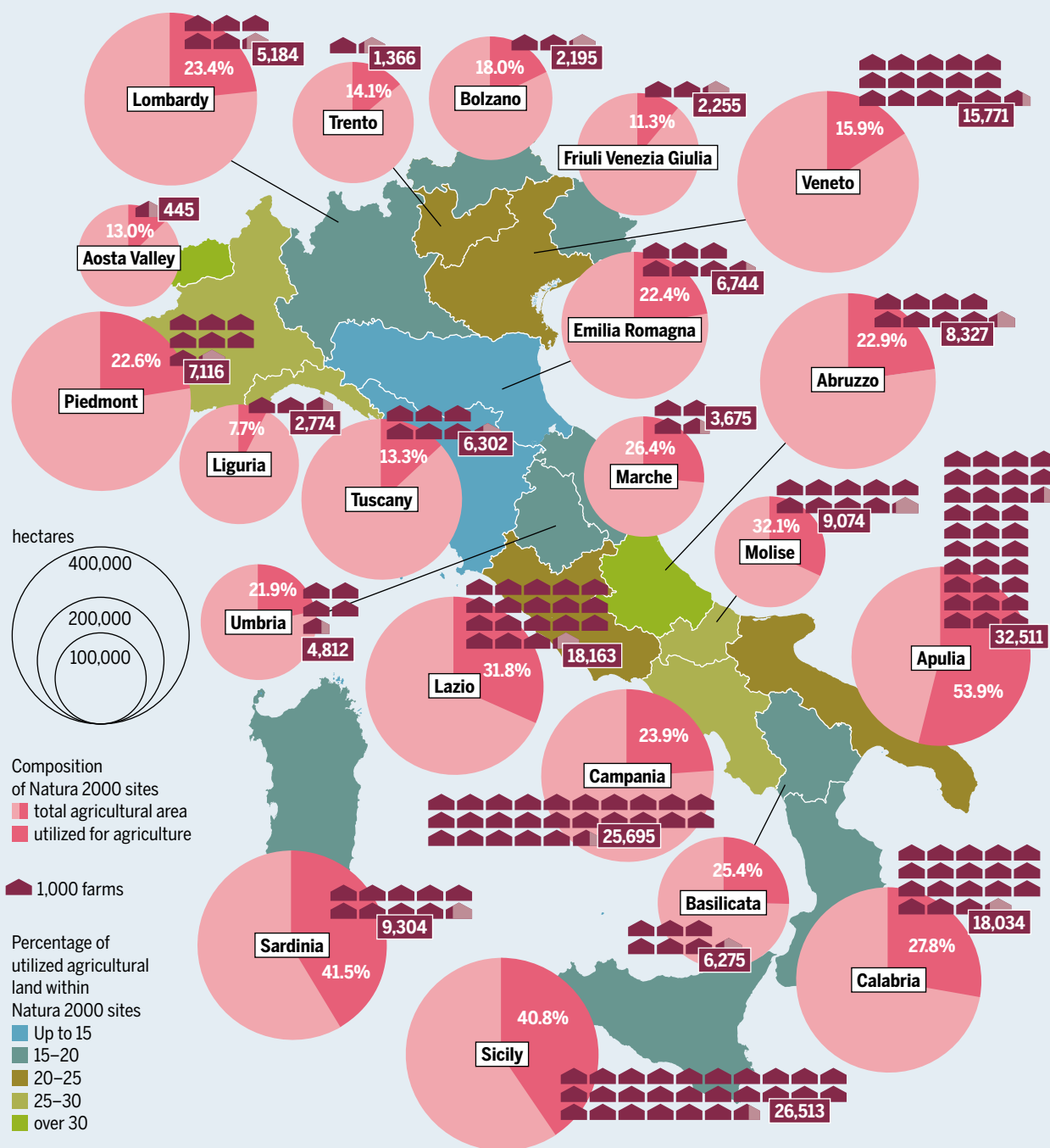
The agricultural area within the Natura 2000 sites that has not been included in any register to benefit from Common Agricultural Policy support is also of interest. This "ghost" agricultural land covers those areas where requests



Natura 2000 sites have many very small farms, but the few big ones cover most of the agricultural area

AGRICULTURE AND NATURA 2000 IN ITALY'S REGIONS

Agricultural area and farms in Natura 2000 sites



Farms with registered offices in a municipality and at least one parcel in Natura 2000 site

© AGRICULTURE ATLAS 2019 / RRM

for support under either Pillar I or II, have not been made but which might be eligible for funding. It covers 18.1 percent of the Natura 2000 area. In some regions, the undeclared agricultural area falling into a Natura site is larger than the area that does qualify for CAP payments. This is the case in Campania, Liguria, Sardinia and Tuscany.

The 21 rural development programmes managed by the regions and the autonomous provinces of Trento and Bolzano include 11 “Measures” and 228 “sub-Measures” or “Operations”, each focussing on a specific aspect. These are linked directly to the protection and enhancement of bio-

In Italy, more than 50 percent of the agricultural area in Natura 2000 sites is used for other purposes. Often they are left for nature

diversity and to the management of Natura 2000 sites and other protected natural areas. Direct Operations enable interventions that contribute to the conservation of habitats and species, and to the management of areas of high natural value. These benefit farms as well as public or private entities that manage Natura 2000 sites and other protected areas – 144 Operations or sub-Measures in all. ●

BIODIVERSITY UNDER THREAT

Shepherds and their flocks are disappearing; traditional crops are becoming scarcer. Such trends endanger the production of high-quality, healthy food, the maintenance of biodiversity, and the conservation of natural resources.

During the 1990s, Europeans started to realize that a large part of their biodiversity is linked to certain types of low-intensity farming and forestry - the concept of "high nature value farming systems" emerged. These systems are reservoirs of biodiversity resulting from diversified farming methods that preserve landscape elements and practices, slowing the decline of variability in habitats and species in Europe.

These farming systems are highly adapted to the local agroclimatic conditions. They make sustainable and efficient use of natural resources such as soil and water, provide society with ecosystem services, foster the biological cycling of nutrients, and are resilient against pests, diseases and a changing climate. In rural development terms, high nature value farming creates jobs and helps maintain the social and economic fabric. It embodies invaluable cultural heritage and contributes to preserving regional identities.

There are three types of high nature value farming. Type I has a high proportion of semi-natural vegetation. Type II consists of highly heterogeneous areas, with a mosaic of semi-natural vegetation, low-intensity agriculture and a fine structure of landscape elements such as hedgerows, copses and trees. Type III provides habitat for endangered species or has a large share of the European or world popu-

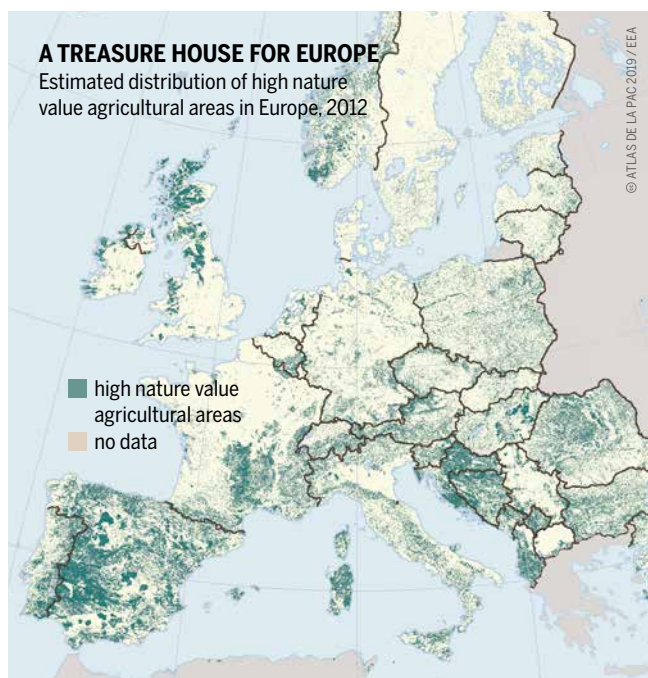
lation of a particular species; it may also contain land that is intensively used.

Spain has the largest area of high nature value farming in the whole European Union. It has Type-I areas with a transition to Type II, such as the *dehesa* (pastureland with scattered oak trees), where a patchwork of rainfed arable farming, livestock raising and forestry combine tradition and innovation by including pasture, woody plants such as olives, vines, almonds, chestnuts and other trees. Extensive livestock-raising is a key component: the animals are part of a sustainable model to produce food with little dependence on external inputs while maintaining the traditional landscape. The pastures sequester carbon, creating "sinks" that help combat climate change. In addition, transhumance is the most efficient livestock-raising system in terms of the use of natural resources and the maintenance of livestock trails as biodiversity corridors. The ecological livestock model promotes the conservation of rural areas of high biological value, and helps preserve native and local livestock breeds that are in danger of dying out.

Types II and III include cultivated areas with a lot of fallow land and crop rotations. Dryland cereal steppes are especially important as a habitat for birdlife. Rice paddies in low-lying areas are also home to aquatic birds, as well as invertebrates and endemic fish species. They substitute in part the wetlands that have disappeared.

The high nature value areas partially overlap with the lands protected by the Natura 2000 programme (a network of areas for biodiversity protection within the European Union). But many are located outside such protected sites, so function as connecting links in ecological corridors.

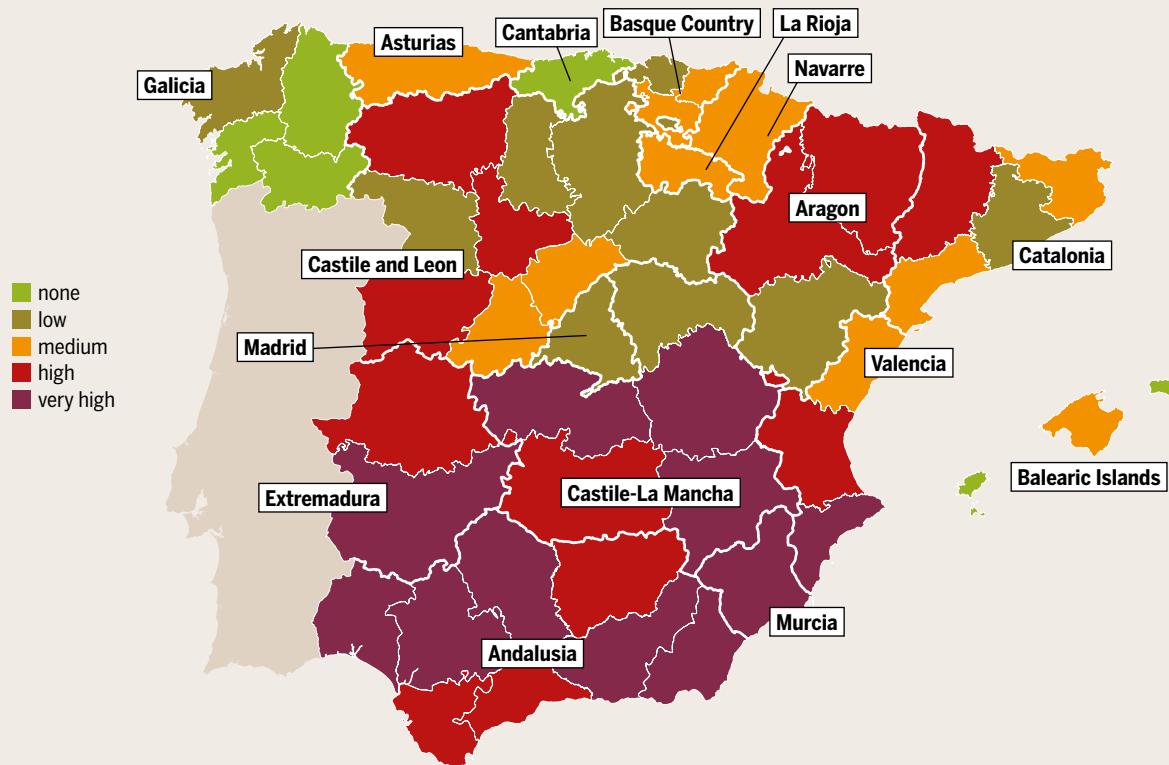
Because of the importance of high nature value areas and their alignment with various EU policies, their inclusion in rural development programming has been obligatory since 2005. In the 2014–20 Common Agricultural Policy budget period, high nature value areas have been counted among the investment priorities of the European Agricultural Fund for Rural Development. But they are not mentioned in the draft regulations for the Common Agricultural Policy's next period, for 2021–27. That is why many are pushing to identify and characterize the farming and forestry practices that are associated with the high nature value areas, and to establish a system to support the economic, social and environmental viability of such areas. This would require including high nature value farming in the proposed CAP regulations. Likewise, at least half of the Common Agricultural Policy funds should be redirected towards activities that support the environment. The regulations should also include a diagnosis of the status of high nature value areas, with suitable indicators and a monitoring and evaluation system.



Much of Europe lacks high nature value agricultural areas; Spain is one country with many of them

SOUTHERN ALARM BELLS

Loss of high nature value agricultural areas in Spain due to agricultural intensification, 2017



© ATLAS DE LA PAC 2019 / EEA

The work and effort put into the high nature value areas since 2005 have been effective. The most efficient approach would be to build on these successes and replicate them on a larger scale in future programmes of the Common Agricultural Policy. For this purpose, numerous organizations must ensure that future strategic plans in each EU member state will implement effective measures to support high

Without public policy support, the irreversible loss of key habitats and species can only increase

High nature value agricultural areas are at risk. Agricultural intensification threatens key biodiversity hotspots and extensive farming practices

nature value farming, including “eco-schemes” which offer support for measures to protect the environment and climate.

The aim should be to move towards a payment-for-services model: one based on objectives or farming practices that support forms of agriculture that generate public goods, and not those based on “historical rights” or sectoral interests that produce little or no public benefit. ●

ABANDON, INTENSIFY... OR SUPPORT

Consequences of not maintaining high nature value systems

- loss of biodiversity
- loss of landscape
- simplification
- less sustainable system
- regeneration problems

- growth of scrub
- risk of fire
- rural depopulation
- weakened economic fabric
- less viable productive capacity



© ATLAS DE LA PAC 2019 / WWF

SPRAY TODAY, GONE TOMORROW

It is a common sight: a tractor with a big tank on the back and long booms stretching out on either side, moving methodically across the field. Farmers across Europe spray huge amounts of pesticides on their land in an attempt to control plant diseases, weeds and insect pests. This practice not only harms the environment; it is also unnecessary, wasteful and expensive.

Exactly how much pesticide ends up on Europe's fields is uncertain: the EU does not collect exact statistics. The latest figures, from 2015, show that 391,000 tons of active ingredients were applied, but that includes the carbon dioxide used to protect pesticide stocks as well as non-farm uses, such as in forestry.

Pesticides can be divided into three main categories: fungicides, herbicides and insecticides. Fungicides, which are used to protect plants against fungal diseases, account for the largest share. Herbicides are used to control weeds. Insecticides are used to kill insects at various stages of their life-cycle. Fungicides and herbicides together make up over 80 percent of the pesticides sold in the EU.

In many European countries, pesticide sales have remained fairly constant over the last 15 years. Poland, Denmark and Greece are exceptions: in Poland, sales have tripled since the country joined the EU, while in Denmark sales halved between 2013 and 2015 after a tax on pesticides was raised. But these figures must be taken with a pinch of salt. In the United Kingdom, for example, pesticide use has almost halved in the last few decades. But the area treated has doubled in the same period, although the total agricultural area has remained the same, and the use of highly toxic pesticides has risen dramatically.

Herbicides are the most widely sprayed products. Almost all conventional farms apply herbicides at least once a year. The largest cost per unit area is incurred by farmers applying fungicides in fruit and ornamental plants. They may treat the same area more than 30 times a year.

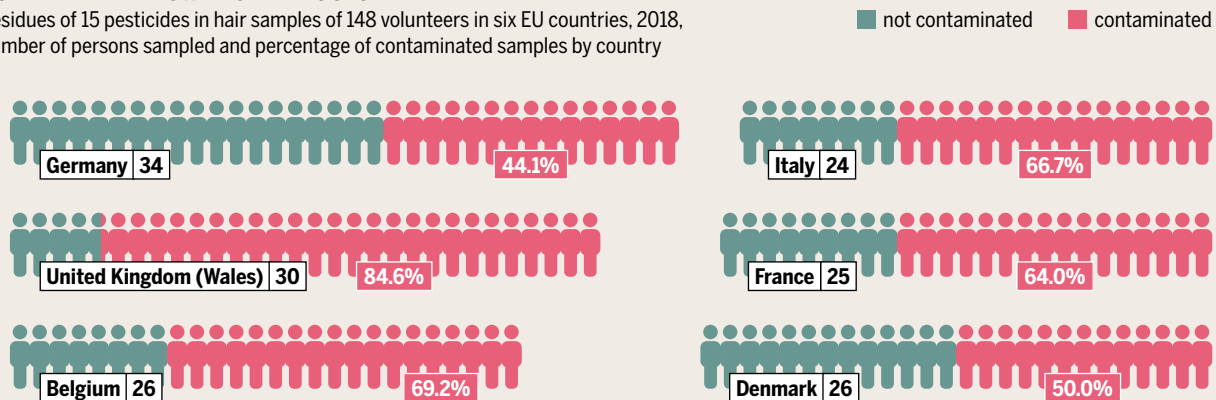
Intensive pesticide use has many effects. High pesticide concentrations have been found in many water bodies, and sensitive species are disappearing. Indiscriminate spraying of herbicides decimates wild plants, otherwise known as "weeds", destroying habitat and food sources for insects and birds. Sprays interfere with the biological control of pests by spiders and beneficial insects. The EU recently severely restricted the use of three types of insecticides that were suspected of being especially harmful to bees and responsible for the collapse of many insect populations. Finally, monitoring residues in food and purifying groundwater for domestic use are expensive. The public ends up footing the bill.

Pesticides make a form of farming possible that is itself ecologically harmful: the cultivation of large-scale monocultures and the rejection of crop rotations in favour of continuous cropping of the same species. The EU actually intended to counter this when it included a new provision into the latest agricultural policy reform. Since 2015, arable land larger than 10 hectares must be planted with at least two crop types; areas larger than 30 hectares must have at least three types. But the German Federal Environmental Agency regards these measures as ineffective. This is because the EU also built in a big loophole: 75 percent of the area can still be planted with a single crop type. A better initial option would be to set this threshold at 50 percent.

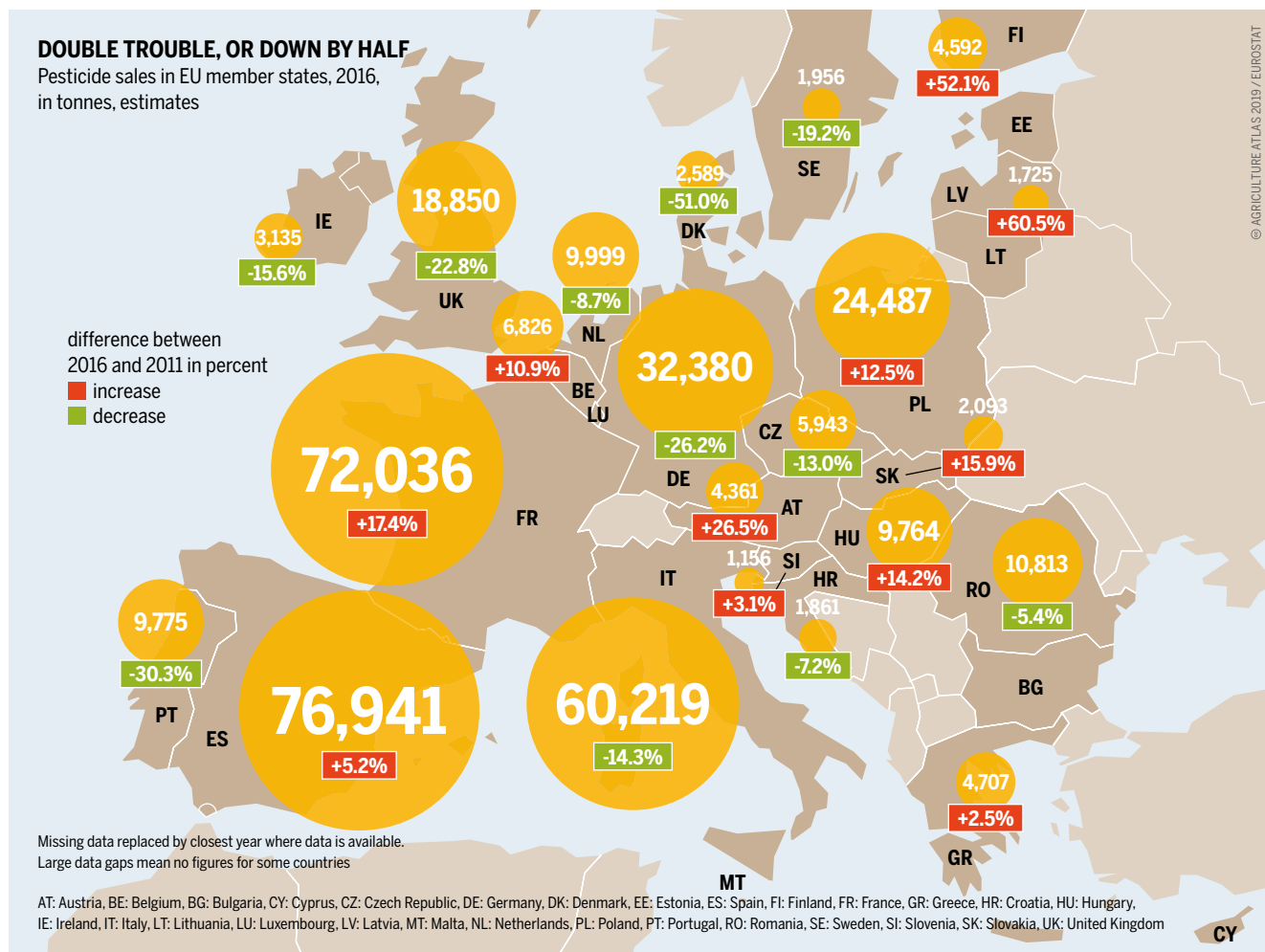
Human hair grows quickly – and is often used to check for the presence of chemicals. High hit rates show how omnipresent pesticides are in the environment

CONTAMINATED DOWN TO THE ROOTS

Residues of 15 pesticides in hair samples of 148 volunteers in six EU countries, 2018, number of persons sampled and percentage of contaminated samples by country



The presence of pesticides in the hair does not allow conclusions to be drawn about contamination that may be harmful to health



The current formulation of the Common Agricultural Policy has no provisions to significantly reduce pesticide applications, and the scant, new requirements are merely touch-ups. Since 2015, holdings covering an area of more than 15 hectares must manage at least 5 percent of their land as “priority ecological areas”. Most farms comply with this requirement by growing nitrogen-fixing crops, sowing catch crops (crops grown as green manure or fodder), or leaving the land fallow. Landscape elements such as hedgerows also fall into this category. Around 8 million hectares are currently registered as such ecological areas, more than 5 percent of the EU’s arable land. A hard-won victory for the environment is a ban on the use of pesticides in such areas, which came into force in January 2018.

To decrease the use of pesticides, farms must switch to a more sustainable production system. The EU’s agricultural policy would be more successful if it were to tie its support to strict requirements, such as the partial or total renunciation of pesticides. Sensible incentives need to have clear goals. Changes in the management of maize cultivation would help stop herbicides from polluting rivers and groundwater. To promote biological pest management, measures will have to target beneficial organisms. Farm-

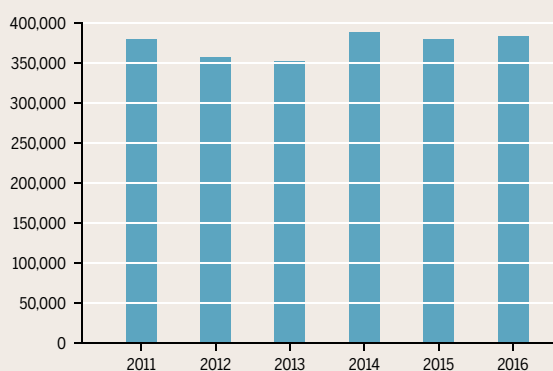
Variable weather causes fluctuations in the demand for pesticides. But the long-term issue in agriculture is pest control in monocultures

A lot of farming means high sales of pesticides. Most are products to protect crops against fungi and weeds

ers who plant monocultures in fields exceeding a certain size could be required to leave strips of land free of pesticides and fertilizers – perhaps a 5-metre-wide strip every 50 metres. To renature big fields, cereal production should be free of pesticides. That would represent major progress even if it were to cover just 50 percent of the area. ●

STEADY AS SHE GOES

Pesticide sales in the EU, tonnes of active ingredient, estimated



FARMING AS IF ANIMALS MATTERED

Year by year, the EU makes large payments as direct per hectare premiums. But this money is required for the expensive, and badly-needed conversion of animal husbandry. The Common Agricultural Policy currently does little to improve conditions. This is true not only for small animal stocks, but also for larger ones. For many people in Europe it is important that the animals are kept well.

At 40 percent, livestock accounts for a big chunk of the value of the EU's agricultural output. The importance of livestock varies from one member state to another: from 21 percent in predominantly arable Romania, to 75 percent in Ireland, with its many herds of sheep and cattle. The number of animals per unit area also differs, along with the problems associated with stocking rates. The Netherlands has a high concentration of livestock, along with northwestern parts of Germany and France, as well as northern Italy. Such concentrations lead to problems both in the environment and in animal welfare. In the absence of systematic, EU-wide surveys, it is necessary to draw on individual studies that demonstrate the common occurrence of health problems such as joint diseases and tail biting in pig-fattening operations, lameness in cattle, and foot problems in poultry.

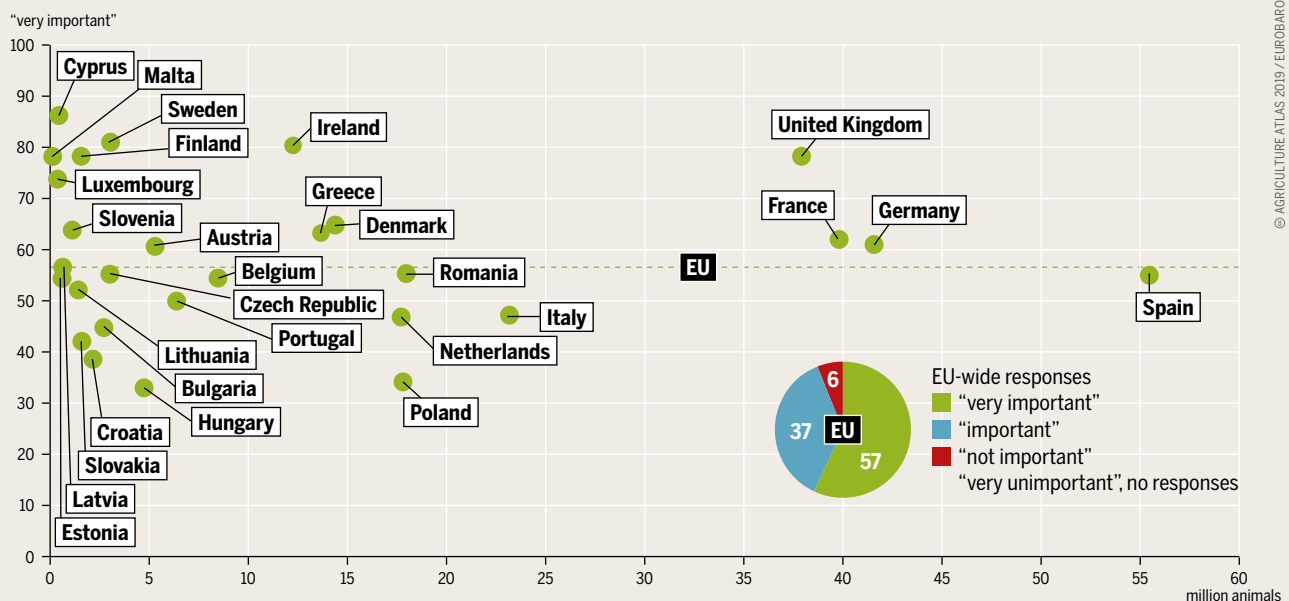
Surveys show that 82 percent of EU citizens think that more should be done to protect animal welfare in livestock production. This sentiment is widely shared across Europe – from a sizeable majority of 58 percent of respondents in Luxembourg, to a near-unanimous 94 percent in Portugal. But doing more to protect animals would not be cheap: the Scientific Advisory Council for Agricultural Policy, a body attached to the German Ministry of Food and Agriculture, estimates that the cost of a significant improvement in animal welfare would average between 3 and 5 billion euros a year in Germany alone. That amounts to between 13 and 23 percent of current production costs. A political and economic strategy that recognizes the scale of this challenge does not yet exist either at the EU level or in any of the member states. The strong regional differences in livestock production mean that planning and implementation would have to be done by governments in each country. The Common Agricultural Policy would have to provide an appropriate framework for such an effort.

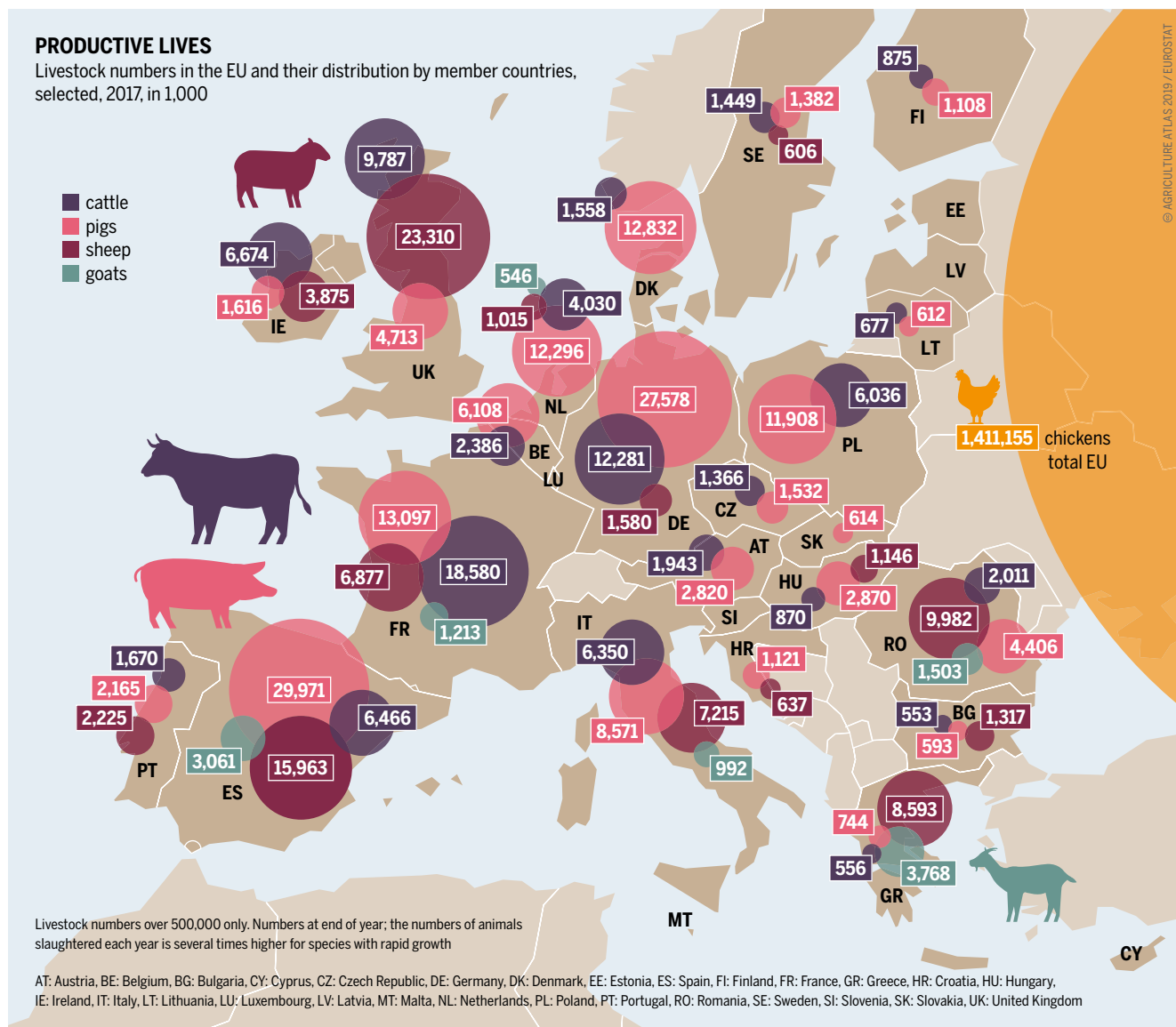
In reality, the Common Agricultural Policy and its direct payments are tied to the area farmed, not to the services that farming provides. Pillar II, which covers rural development, offers the possibility of granting annual premiums to farmers for animal-friendly management. This can include providing grazing areas, allowing animals more space for

A majority of people are concerned about animal welfare – also in those countries that produce a lot of meat

ANIMAL WELFARE AND ANIMAL NUMBERS

Respondents saying "very important" in a Eurobarometer survey on the importance of animal welfare, in percent of respondents, and numbers of livestock (cattle, pigs, sheep, goats) in EU countries, reports between 2015 and 2017, in millions





movement, and enriching their environment (for example by providing pigs with deep straw bedding or straw bales to keep them occupied). But this flexibility in Pillar II is in fact rarely used. Between 2014 and 2020, only 1.5 percent of the funds in Pillar II were spent on animal welfare premiums. Even in welfare-conscious Germany, the figure was below 2 percent. The EU paid out 205 million euros a year for this purpose. That contrasts with area subsidies of 40 billion euros for the EU as a whole.

This comparison shows how poorly the EU's farm budget is geared to the services that agriculture provides and the problems that it faces. Livestock farming faces particularly large challenges: requirements to protect groundwater and surface water, the climate, biodiversity and animal welfare are on the rise. These requirements cannot be met merely by imposing yet more rules and regulations. Doing so would lead to significantly higher production costs and the increased import of cheap products from countries that do not have such stringent controls. That would miss the intended environmental and animal welfare goals by shifting the problems abroad. On the other hand, the Common Agricultural Policy budget could be used to reward compliance with the requirements and to cover part of the cost of doing so.

A significant improvement in the management of billions of livestock would raise producer prices by between a tenth and a fifth

Unfortunately, the European Commission's current proposals to reform the Common Agricultural Policy after 2020 do not reflect a fundamental shift away from flat-rate subsidies tied to land area. But even if the proposed direct payments do remain in place, several concrete steps in favour of animal welfare are possible. First, to ensure that more money is available to pay for services, a limit or cap should be introduced to the largest of the EU payments, the so-called basic income support. Second, support for compliance with climate and environment regulations should be allocated at least a minimum level of funding, and these should explicitly include animal welfare. Third, there remains the possibility to link part of the direct payments to production, but this should be strictly dependent on measures to guarantee animal welfare, such as the provision of grazing areas. Above all, it is necessary to ensure that any budget reduction does not come mainly from programmes in Pillar II, but from savings in the direct payments. ●

TOO MUCH OF A GOOD THING

Applied in moderation, nitrates are good for agriculture. Nitrogen is a major plant nutrient and a key component of fertilizers. But an overabundance of nitrate is a menace. Plants cannot take up the huge amounts of N from fertilizer, manure or slurry spread on the land. The nitrates wash into rivers, lakes and the sea, where they cause algal blooms and fish die-offs. In drinking water, excess nitrates cause circulatory system problems. The EU recognizes the risks, but its institutions and member states' governments do far too little to prevent them.

Since 1991, the EU's Nitrates Directive has tried to protect surface and groundwater from pollution by nitrates used on farms. At first, the Directive was very effective. Between 2004 and 2007, nitrate concentrations declined or remained stable in 70 percent of the surface-water monitoring stations. Two-thirds of the groundwater stations detected improvements or no change. Despite this progress, the groundwater in many parts of Europe is still heavily contaminated with nitrates. Between 2012 and 2015, 13.2 percent of the monitoring stations reported concentrations above the acceptable threshold for drinking water by as much as 50 milligrams per litre. Nitrate levels are especially high in populous countries, for example, Germany and Spain, as well as on the small island of Malta. Exceeding acceptable thresholds leads to ecological, economic and health problems.

High concentrations of nitrates have several causes.

Intensive arable farming is one major source. Fertilizer is sometimes applied to certain crops shortly before they are harvested, when they cannot possibly make use of all the nitrogen. In its first ten years of EU membership, Bulgaria's nitrogen applications have doubled. In Malta, too, intensive cropping is responsible for high nitrate levels.

Another source is the large number of livestock kept on industrial farms. They produce so much manure that it can't even be spread on the fields as liquid slurry, since it's too much and plants and the soil cannot absorb it all. In Germany, the surplus of nutrients comes ultimately from imported animal feed. Throughout the EU, most animals are fattened on soybeans. In 2017 alone, feed companies imported nearly 33 million tonnes of soybeans and soy meal into the EU. That represents a huge amount of nutrients, a good portion of which ends up on the soil.

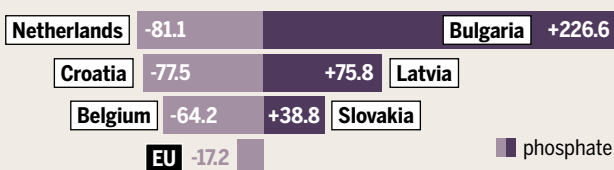
The excess nitrates percolate down into the groundwater or are washed into streams and lakes, and from there into the sea. Uneaten feed and excreta from fish farms add to marine pollution. Overfertilization is one of the biggest problems marine conservation is facing. It is especially serious in the Baltic and in the coastal mudflats of the North Sea. Many locations in the Mediterranean, which is naturally low in nutrients, are also contaminated by nutrient inflows. Coastal areas of the northern Mediterranean and the Adriatic are especially hard hit. Overfertilization feeds algae, triggers algal blooms and oxygen deficiency. This, in turn, changes the habitat for many species, and means that they can no longer survive. A few favoured species can

*The use of phosphate fertilizer is going down.
But nitrogen applications are rising: some countries
are spreading more than others are saving*

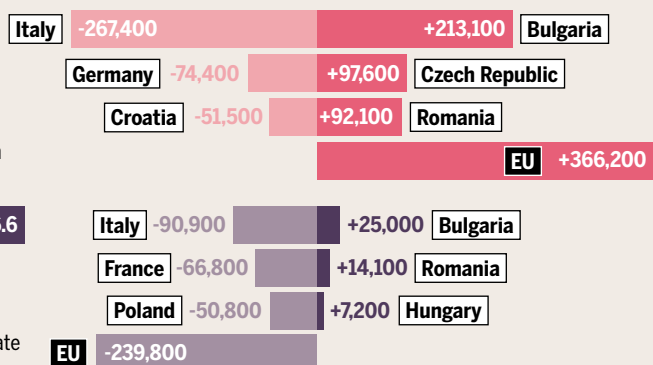
INDUSTRIAL NUTRIENTS

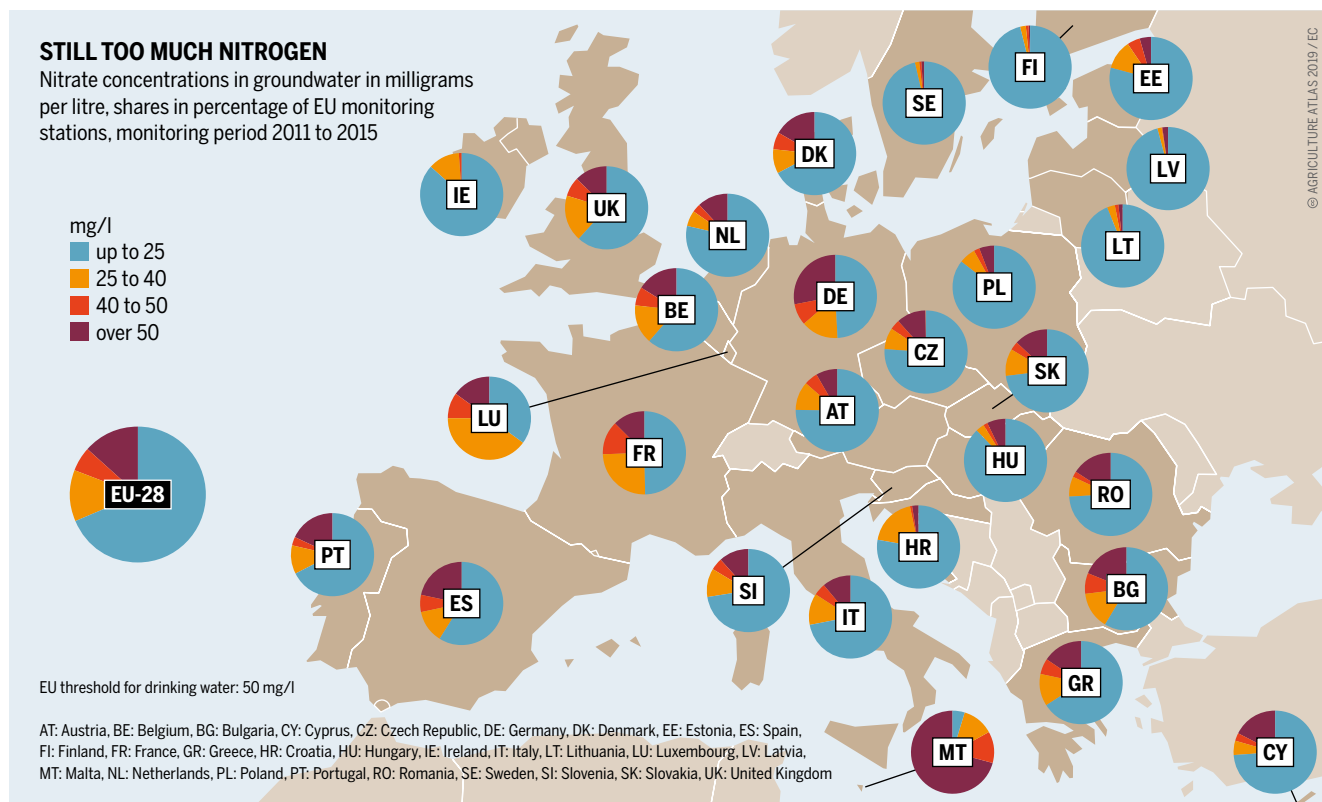
Applications of mineral fertilizers in agriculture, change from 2006 to 2016 in percent and by volume, EU and top three member countries

biggest declines and increases, in percent



biggest declines and increases, in tonnes





thrive; their populations explode.

The EU has two main weapons in its armoury to fight excessive nitrates: the Water Framework Directive and the Marine Strategy Framework Directive. But the potential of these weapons is not being fully exploited. And they are not interlinked with the well-funded and influential Common Agricultural Policy.

While some EU member states are doing little to get to grips with the nitrate problem, others are setting a better example. In Denmark, a stricter law on fertilizer applications included detailed documentation obligations and application requirements. In Belgium, Denmark and the Netherlands, laws require environmentally friendly application methods. In the Netherlands, because only a predetermined quantity of fertilizer may be applied in certain regions, some farms are reducing their livestock numbers.

Such national rules can work only if water protection is coordinated with the Common Agricultural Policy to ensure that incentives are mutually reinforcing rather than cancelling each other out. Furthermore, more controls are needed. By law, only one percent of farms that receive subsidies must be checked on site. If the authorities detect an infringement, the recipient stands to lose only five percent of the subsidies received. That is hardly a big risk or a daunting punishment. In any case, the EU payments are not tied to environmental friendliness or the need to avoid nitrogen inputs.

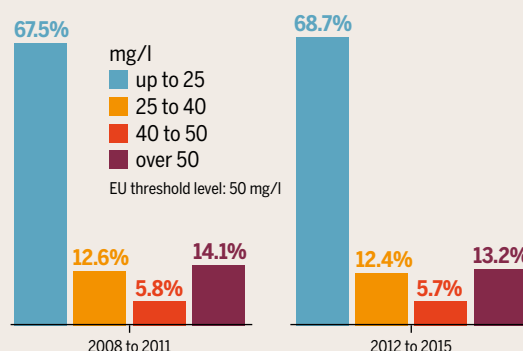
In the future, the Common Agricultural Policy must promote forms of livestock raising that are both environmentally friendly and humane. Reducing the numbers of animals

Manure slurry is the main threat to groundwater. Big livestock raisers must have good manure management

would significantly improve water protection. One criterion for support must be to limit the number of animals to the area managed, allowing farms to keep only as many animals as its land can feed and its soil can safely recycle the manure from. Livestock raising should be based on the use of meadows and pastures, and not on feeding with grain. More cattle should graze on pasture, and raising sheep and goats should be promoted. Subsidy cuts to farmers who do not comply with the rules for the conservation of soil and water, as well as air quality, should be much more drastic than hitherto. And, last but not least, controllers need more staff and more funding to detect violations. ●

PERSISTENT PROBLEMS

Nitrate concentrations in EU groundwater according to water-quality monitoring stations, in milligrams per litre and percent of stations



Groundwater is getting cleaner, but at a snail's pace. The European Commission thinks that contamination levels are declining too slowly

WORKING WITH NATURE

Rising demand for organic products in Europe is a market opportunity for producers and the food industry. But farmers need help to switch from conventional to organic, and to stay organic in face of market pressures inducing them to switch back. The Common Agricultural Policy offers some support – but not enough.

In marked contrast to conventional agriculture, organic farming avoids using synthetic chemical pesticides, easily soluble mineral fertilizers and genetically modified organisms. Livestock raisers must comply with strict rules as to the types of feed they use, and their animals must have access to paddocks and grazing areas. In organic production, the farm is regarded as an integrated ecosystem in which the various elements are maintained in balance with each other. Within the European Union, organic products are produced in accordance with EU legislation. But within each country, organic farming associations may in addition set their own private standards. These are often stricter than the EU rules. Because it uses limited resources judiciously and strives to reduce its impact on the environment, organic farming provides significant benefits for the environment and society.

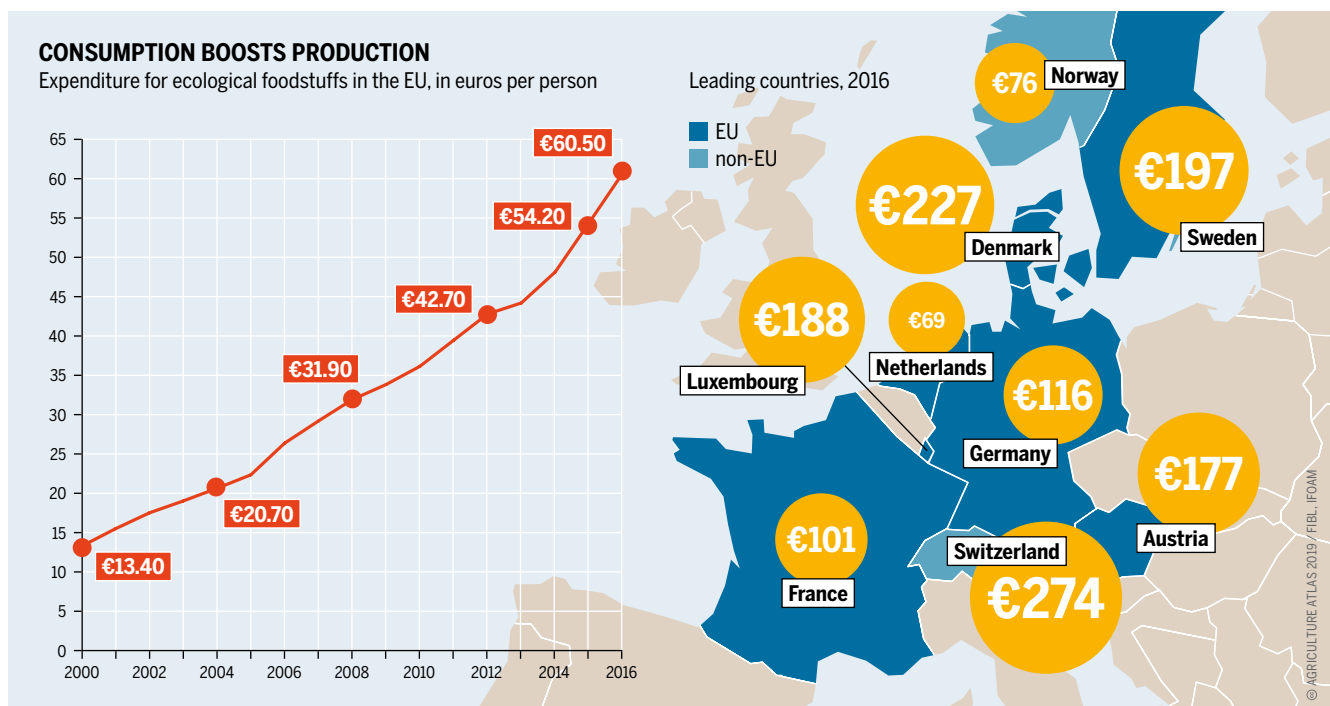
In Europe as a whole, organic agriculture accounts for 2.7 percent of the farmed area; within the EU, the figure is 6.7 percent. The highest shares within the EU are in Austria (21.9 percent), Estonia (18.9 percent) and Sweden (18.0 percent). The countries with the largest absolute areas of

organic production are Spain (2 million hectares), Italy (1.8 million) and France (1.5 million). Italy, France and Germany are the countries where the organic area increased most between 2015 and 2016: in Italy it rose by 300,000 hectares, in France by 215,000 hectares, and in Germany by 160,000 hectares.

The expansion of organic farming in the EU can be attributed to two factors: strong demand from consumers, and government support. Between 2000 to 2016, the per capita consumption of organic food in the EU almost quadrupled, reaching an average of 60.5 euros per person in 2016. During this period, for the EU as a whole, the market for organic food grew by between 5 and 19 percent a year. In Germany, the world's second largest market for organic groceries, 10 billion euros worth of organic products were sold in 2017: that represented a market share of over 5 percent. At over 10 percent, Denmark had the highest market share for organics in the whole world.

The EU and its member states support organic farming through targeted subsidies drawn from Pillar II of the Common Agricultural Policy, which deals with rural development. Organic farms automatically fulfil the environmental requirements for direct payments. For the EU as a whole, an average of 6.4 percent of the budget for agri-environmental and climate measures goes to organic farming. But this figure masks a wide range, with expenditure varying from

In ten years, spending by nutrition- and environment-conscious consumers has doubled

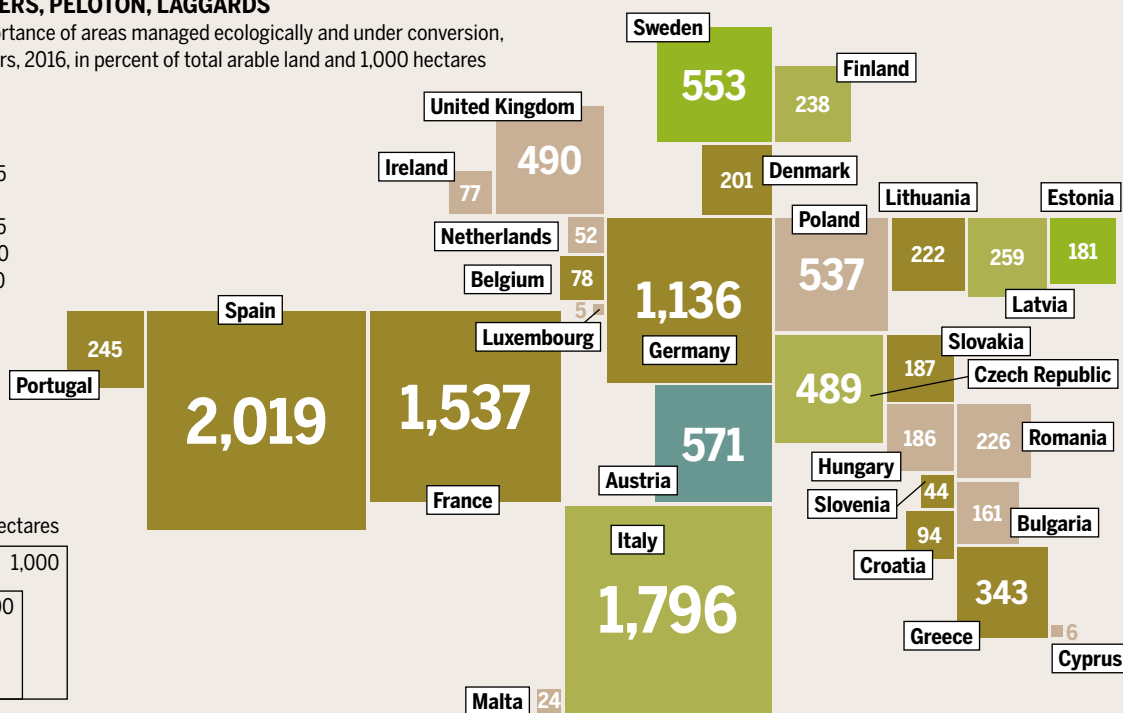
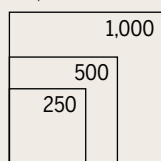


RACE LEADERS, PELOTON, LAGGARDS

Size and importance of areas managed ecologically and under conversion, by EU members, 2016, in percent of total arable land and 1,000 hectares

in percent
 under 5
 5 to 10
 10 to 15
 15 to 20
 over 20

in 1,000 hectares



© AGRICULTURE ATLAS 2019 / EUROSTAT

Countries as different as Austria, Italy and the Czech Republic are among Europe's eco-leaders

one country to another: from just 0.2 percent in Malta to as much as 13.2 percent in Denmark. The Netherlands is the only country that does not make any specific area-based allocations for organic farms from the agri-environmental and climate budget; it instead focuses on policies that aim to strengthen the competitiveness of the organic sector.

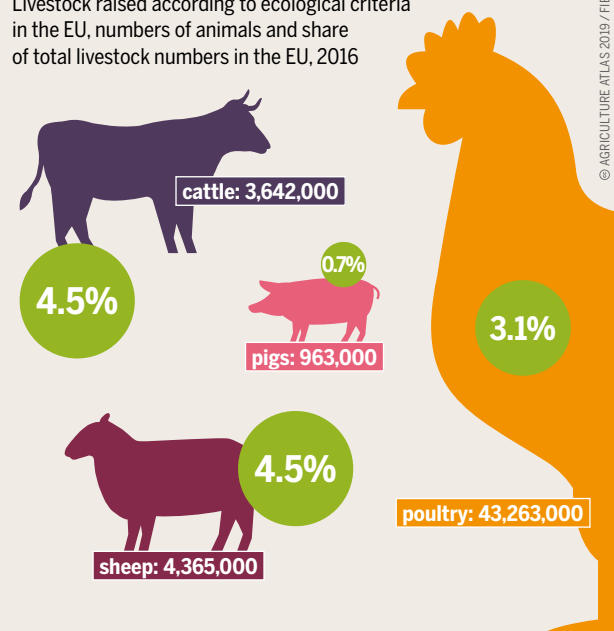
The support for organic farming distinguishes between premiums for farmers who convert to organic farming, and subsidies to encourage them to maintain organic production. Support also varies according to the land use, stocking density and crop types. The levels also differ from country to country. Denmark promotes lower applications of nitrogen fertilizer (up to a maximum of 60 kg per hectare), while Hungary offers more support for land used for grazing than for meadows that are mowed. In 2015, the subsidy for maintaining organic grassland ranged from 43 euros per hectare (Sweden) to 545 euros (Estonia). For arable land, rates ranged from 90 euros (United Kingdom) to 600 euros (Slovenia). For vegetable production, the range was 184 euros (Denmark) to 900 euros (Belgium and Cyprus).

Although organic farming has increased in importance over the last three decades, it is unable to satisfy consumer demand. The Common Agricultural Policy should be reoriented to promote organic farming through national strategies that cover the entire value chain, and via targeted use of subsidies for agri-environmental and climate measures. In June 2018, the European Commission proposed to continue supporting organic farming in the coming budget period through area-dependent payments to meet the EU's envi-

ronmental, climate and other management commitments. It remains up to the member states to decide whether and how they promote organic farming. The level of future support will depend on the extent to which the new-look Common Agricultural Policy will reward the concrete environmental services of agriculture. ●

CHEAP MEAT STIFLES ORGANIC LIVESTOCK

Livestock raised according to ecological criteria in the EU, numbers of animals and share of total livestock numbers in the EU, 2016



© AGRICULTURE ATLAS 2019 / FiBL, IFAM

Ecological livestock raising and meat production have a smaller market share in the EU than ecologically grown crops

ORGANIC GROWTH

Eco boom notwithstanding: EU farm subsidies are constraining the transformation of German agriculture. Brussels pays flat-rate area premiums directly, but the organic premiums must be subsidized by the state governments.

Germany has over 29,000 organic farms. As the number of such enterprises grows, so too does the area managed. Of the 17 million hectares of agricultural land in Germany, just under 1.4 million, or 8 percent, were farmed organically in 2017 – double the amount of 15 years ago. Very few farms revert to being non-organic: if a farmer decides to go organic, it is almost always a decision for the future. Investments in suitable livestock housing, in devoting more land to fodder production, and in creating more diversity in fields are profitable only in the long run.

The switch to organic is easier for some types of production than for others. That is why almost 20 percent of German orchards and nearly 15 percent of the pastures are managed organically. However, organic pig farms, oilseed crops, broiler units and cereal production are few and far between.

The proportion of organically managed land varies from one region to another. Bringing up the rear is Lower Saxony, with less than 4 percent farmed organically. Saarland, with over 15 percent, is out in the lead. There differences can be

attributed to many causes. In areas with intensive livestock production, it is more difficult to convert to organic farming than in the uplands of central Germany, where extensive farming is already the norm. More has been achieved in locations where state government policies have over the years consistently fostered organic farming through clear guidelines and planning.

Germany has a wide range of agricultural landscapes: flat or gently rolling lowlands suited to crops, uplands that are better for mixed farming, and mountainous areas dominated by pastureland. The opportunities for organic agriculture in such diverse regions will depend on the course set by the Common Agricultural Policy in Brussels, which is where the framework within which Germany's 16 state governments can choose to promote organic farming is determined. But many states have a problem, one the one hand they must find the money to co-finance any organic subsidies that come from the EU. On the other hand, the flat-rate premiums for which all farms qualify, are paid by Brussels in full.

Despite the increase in organic farmland, it cannot keep up with the German consumer's taste for organic food. For many years, demand has risen faster than domestic supply. While Germany's organic area has grown by an average of

Where arable farming is traditionally dominant, eco is still weak. In areas with pastureland, meadows, fruit and vegetables, the organic share is higher

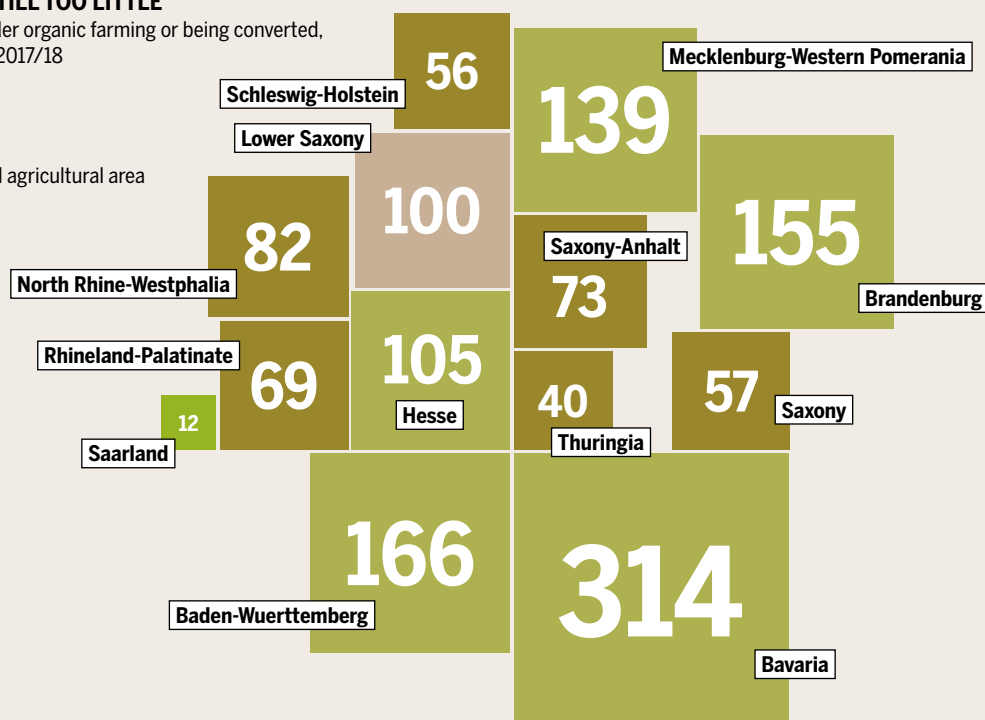
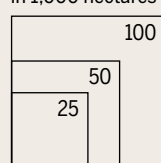
MORE OR LESS BUT STILL TOO LITTLE

Total and share of area under organic farming or being converted, Germany by federal state, 2017/18

as a percentage of total agricultural area

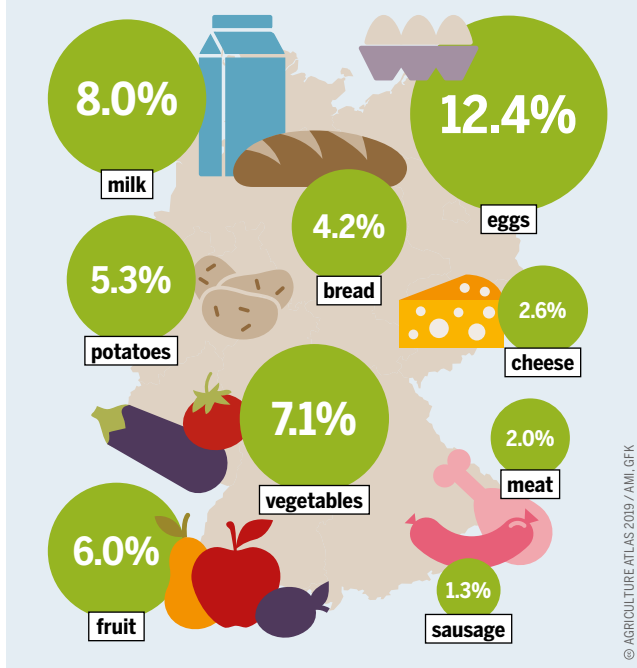
- up to 5
- 5–10
- 10–15
- 15–20

in 1,000 hectares



THE FUTURE IN YOUR SHOPPING BASKET

Share of selected organic foods in the purchasing volume of private households in Germany, fresh produce, 2017, percent



More than 10 percent of the eggs sold are organic. Years of awareness-raising about chicken farming are beginning to have an effect

2014 and 2017, while the cost of conventional milk fluctuated between 27 and 38 cents a litre.

Both the federal and state governments recognize that they can deliver on their climate and sustainability commitments only through organic farming. Politicians have built organic farming into key projects such as the Climate Protection Plan and the German Sustainability Strategy. The coalition agreement between the parties in the federal government targets an increase in the share of organic farming to 20 percent of Germany's agricultural area by 2030.

The transformation in agriculture and food will succeed only if those responsible for the Common Agricultural Policy initiate a paradigm shift. That is because the billions of euros disbursed through the Common Agricultural Policy determine what types of farming are profitable. At present, farmers are not rewarded for conserving resources. On the contrary, enterprises that follow the letter of the law but are permitted by lax standards to pollute the groundwater, warm up the climate and push species into extinction still receive flat-rate payments. The EU's agricultural policies are supporting farming methods that exploit rather than preserve the environment.

For more farmers to take the plunge into organic, tax funds must be used to steer them towards methods that are environmentally friendly and that protect animal welfare and the climate. Brussels has a direct influence on the future of our ecology. The European Commission and Parliament, along with national governments must support those players that protect the environment; only then will organic farming have a fair chance. That in turn will permit organic to become what many farmers and their customers have long been - the future of farming. ●

4 percent per year, turnover of organic foods has raced ahead at nearly 9 percent.

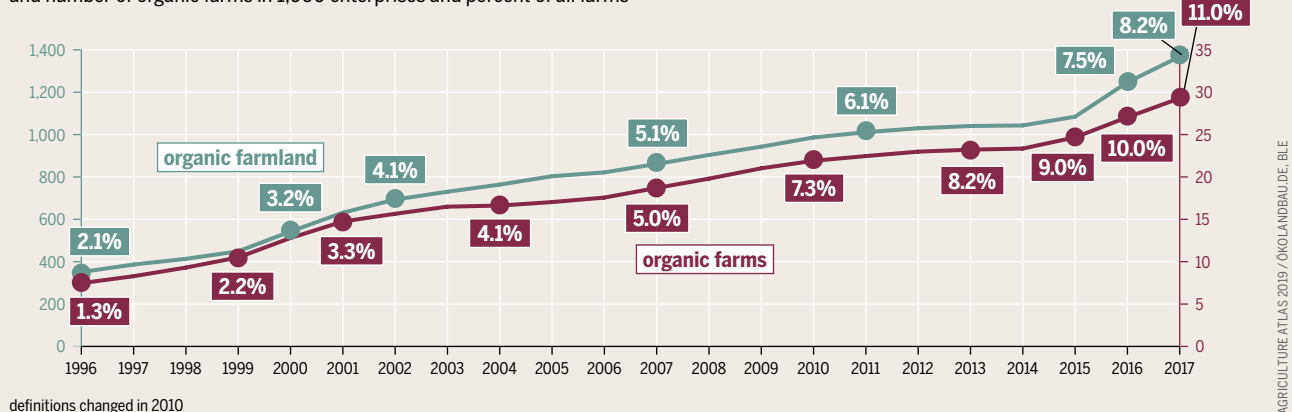
Over the past 3 years, significantly more farmers have made the decision to go organic. That means that locally produced organic items are now easier to find in shops. Consumers also do their bit for agricultural restructuring through their willingness to pay a fair price for organic produce. One survey found that consumers are willing to dig deeper into their pockets and pay an extra 56 percent for organically produced milk. That is significantly more than the actual mark-up over the regular product.

Higher milk prices benefit organic producers. In October 2018, they earned around 47 cents per litre of organic milk; their conventional colleagues got just 35 cents. The price of organic milk is stable: it varied less than 2 cents between

More farms have taken on the challenge of converting to organic farming in recent years – even though agricultural policy still does not favour it

FROM SMALL BEGINNINGS

Increase in organically farmed area in 1,000 hectares and percent of total agricultural area in Germany, and number of organic farms in 1,000 enterprises and percent of all farms



THE KEY TO SUSTAINABILITY

French agricultural policy has been guided by an agroecological project since 2014. But these good intentions are not reflected in the implementation of the Common Agricultural Policy. It is high time to put the focus on agroecology.

The concept of agroecology is to make use of local natural processes, enabling farm management with minimal external inputs and with less capital than conventional agriculture. A transition to this approach is necessary because of the current pressures in Europe on natural resources, biodiversity and the climate. This pressure creates a goal: the transition must ultimately encompass all farms. That is not an option, but a necessity. The principles of agroecology should be used to redirect the specifications for the Common Agricultural Policy.

First of all, agroecology should become the central element in the Common Agricultural Policy. Achieving this will be a challenge because it will require a major reorientation of farming. As such, it will require targeted financial and policy interventions. However, since everyone will profit from it, agroecology should be fully funded by Europe – and not have to rely on co-financing by each national government – allowing all regions to benefit. In other words, the Common Agricultural Policy should evolve towards a general payment for environmental services, focusing on agroecology.

Second of all, Common Agricultural Policy support should be based on the principles of progressiveness and

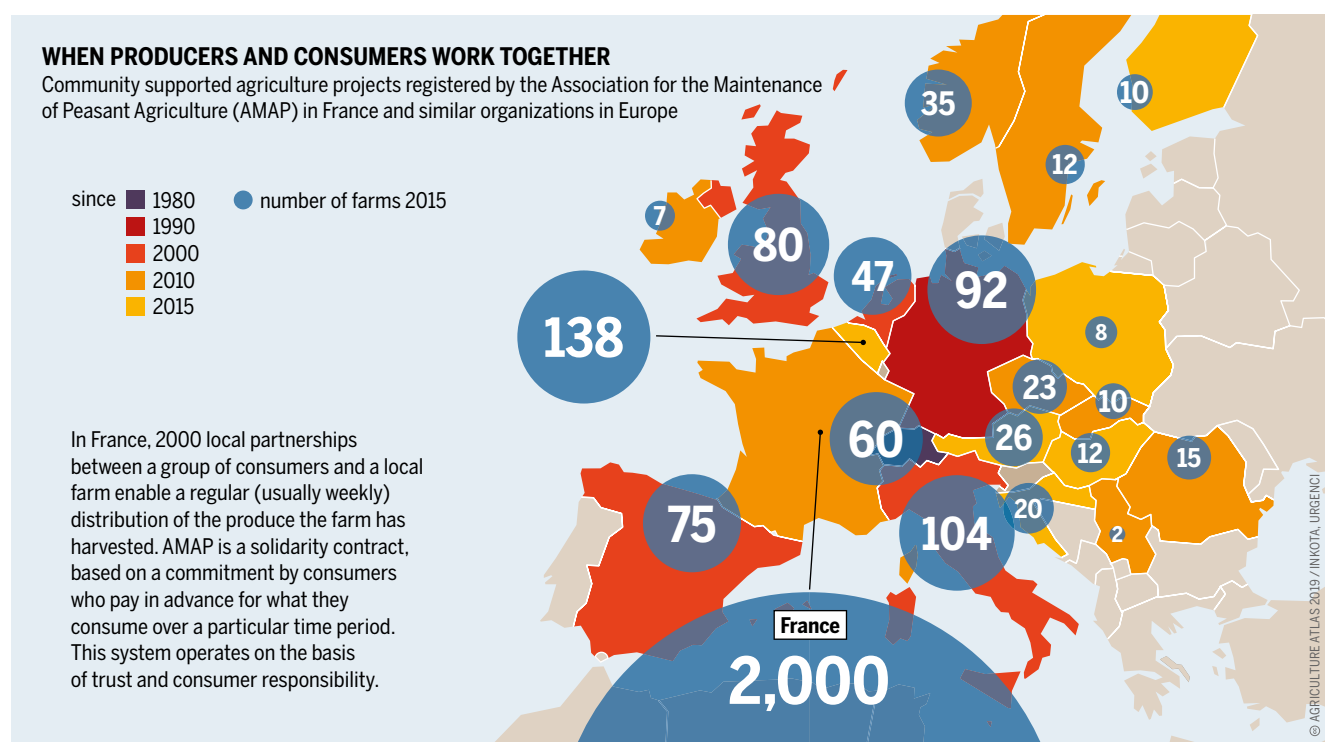
incentives. Payments for environmental services are not free goodies, they are the way society compensates farmers for services that are not included in the market price for their products. This compensation must ensure that farmers who practise agroecology can make a living from doing so.

Support must also be progressive in order to avoid a black-or-white scenario in which farmers are either eligible for all the payments if they surpass a particular threshold, or get nothing if they fall below the threshold. Such a rule would avoid further progress once the threshold is passed (or if it appears unattainable). If the payments for environmental services are sufficiently well funded, they could become a beacon for farming as a whole and act as a driving force behind the transition.

We might envisage a payment system for environmental services at various levels of complexity, depending on the issues and regions targeted.

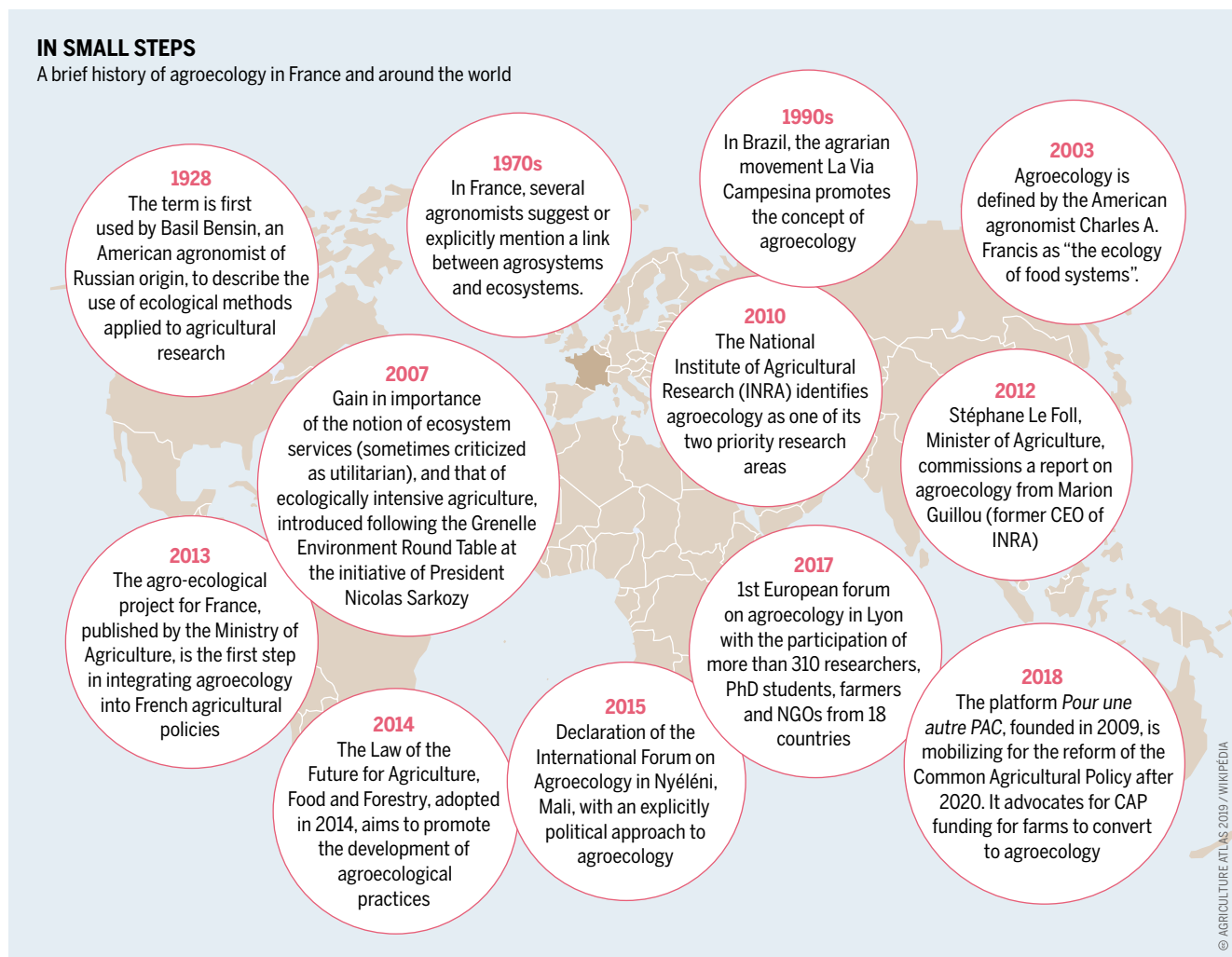
A first level would target the fundamentals in the functioning of production systems. It would use simple, generalizable criteria that can be applied on a wide scale, for instance, the percentage of permanent grassland (with a weighting for ecological value), the number of rotations, the share of legumes, the percentage of “ecological infrastructure” (elements such as hedges, trees and ponds), the percentage of dryland crops in water-deficit areas, etc. This level would be

Like organic farming, solidarity farming is a step forward towards agroecology



IN SMALL STEPS

A brief history of agroecology in France and around the world



offered to all European farms, adapted to each region according to its specific ecological and geographical criteria. Using this approach, organic agriculture would justify a system of its own. A second level could target practices specific to the needs of each region or environment: late mowing dates, management and maintenance of agroecological heritage, etc. The different types of schemes could be combined and implemented collectively at the district level, and also be permitted to mobilize additional funding for advice, experimental initiatives or investments needed for agroecological practices.

This approach would compensate existing systems as well as individuals who wish to adopt such methods. It would not reward those farms that start out with a problematic situation and merely become more "virtuous" but remain well below the level of others. It is the end result that should be attractive and socially equitable.

In compensating a farmer for providing a service, it is perfectly legitimate to vary the amount of assistance on the basis of labour inputs, not on the surface area. This compensation could be based on a combination of agroecological criteria (with a points system associated with the performance) and social criteria with successively declining amounts and a ceiling on the total amount that can be paid out.

The break an orientation of this kind would imply lies more in the radical nature of the approach and in understanding its principles, rather than in the design of the

In France, agroecology has been established as a government principle. But the country's agricultural policies still have to change

schemes themselves. In fact, several of its key features already exist: this proposal is based on the best aspects of current arrangements.

On the other hand, such an approach would open up two avenues. First, on a technical level: it would require redefining the criteria by which budgets are allocated, in terms of the financial equilibrium of the various schemes, and the impact of the points system and the social criteria on expenditure. Second, at the political level: other policy areas, such as trade rules and negotiations or research, would have to be brought into line with an agroecological Common Agricultural Policy.

Such an orientation of the Common Agricultural Policy would have to be managed based on an evaluation of its results. It would be necessary to promote the system through advisory services and public awareness campaigns, which are an integral part of the policy process – and which could also be funded through the CAP. The Common Agricultural Policy would be transformed into a mechanism by which payments for environmental services could become an economic stimulus for agroecological systems and would give rise to a transition that meets the expectations of Europe's citizens. ●

LOOKING BEYOND PRODUCTION

Producing high-quality food is an essential role of rural areas. But the countryside also has other important functions. It is home to many people, and plays a major part in maintaining the natural environment. Unfortunately, these functions do not get enough support in Poland.

Food production is a major function of Poland's agricultural sector. It ensures Poland's food self-sufficiency and generates an international trade surplus. Since 2004, the value of food exports from Poland has increased over four-fold. But the growing pressure of urbanization on rural areas threatens this. Despite a law to protect farmland and forest soils, every year significant amounts of farming areas are converted to non-agricultural use. In 2015–16 alone, over 5,200 hectares of farmland, including over 3,200 hectares of the richest soil, were lost this way. This is the equivalent of shutting down 570 medium-sized farms of which more than 350 managed best soils.

This is the result of inefficient spatial planning – which leads to cities sprawling into rural areas – and to roadbuilding and the excavation of opencast mines for lignite and minerals. Because a mere 3.7 percent of Poland's agricultural land is classified as having “good” or “very good” soil, protecting this precious resource must be a priority.

The high quality of Polish food is one of its attractions, but this can be maintained only if the country's agriculture is sustainable. Unfortunately, pressures to make a profit are replacing traditional crop and animal production methods

with industrial techniques. This also threatens the natural environment and makes it difficult for rural areas to fulfil their environmental functions, or to ensure the continuity of agricultural production.

Agriculture should support the stability of the natural environment. Maintaining permanent plant cover reduces soil erosion, and growing legumes increases the nitrogen content of the soil. Using organic fertilizers properly and keeping crop residues on the soil both improve the condition of soils and allow them to store organic carbon, which in turn protects the climate. Buffer strips, the extensive use of meadows, and leaving unploughed ridges between furrows all support biodiversity. Agricultural land makes up nearly half of Poland's surface area, so the scale of such practices is crucial to environmental quality.

In the European Union, farmers are encouraged to introduce environmental friendly methods through the so-called agri-environmental payments. They receive a payment that compensates them for the lost income they would gain by conducting intensive production. Unfortunately, successive Polish governments have decided not to introduce such programmes on a large scale. Poland has one of the EU's lowest levels of environmental payments as a percentage of agricultural support: just 8.6 percent in 2014–20. That is nearly ten times lower than in Austria. After it joined the EU, Poland indeed eliminated many harmful practices, such as burning stubble, storing manure directly on the ground, and applying fertilizers to frozen land. But it has too few farms implementing agri-environmental programmes. Overall, Polish agriculture does not adequately fulfil its environmental function.

The number of organic farms is very small; they account for just 2 percent of all farms. That is unfortunate: organic farming is not only the most environmentally friendly production method, it also produces the highest-quality and healthiest crops. Organic farming avoids using inorganic fertilizers or pesticides, uses intercrops and crop rotation, combines crops with animal production, and recycles resources on the farm. After 2013, when subsidies for organic farms in Poland were cut, their number started to fall. Nothing was done to reverse this decline.

The social and cultural functions of rural areas are also important. These areas uphold traditions, maintain social cohesion, keep social ties strong, and prevent poverty and exclusion. Polish culture has primarily rural roots, and it is in rural areas that regional and local traditions related to diversity in cuisine, ceremonies and customs are preserved. The countryside is also kept alive by the 45,000 or so non-governmental organizations active in rural areas. The declining population of rural Poland threatens these traditions.

One-third of Poland is formally protected. However, these data are not reliable. Strong economic interests create conflicts with nature protection



DECREASING SHARE OF AGRICULTURE

Loss of agricultural land in 2009–15 in Poland, percent and hectares

reduction in percentage

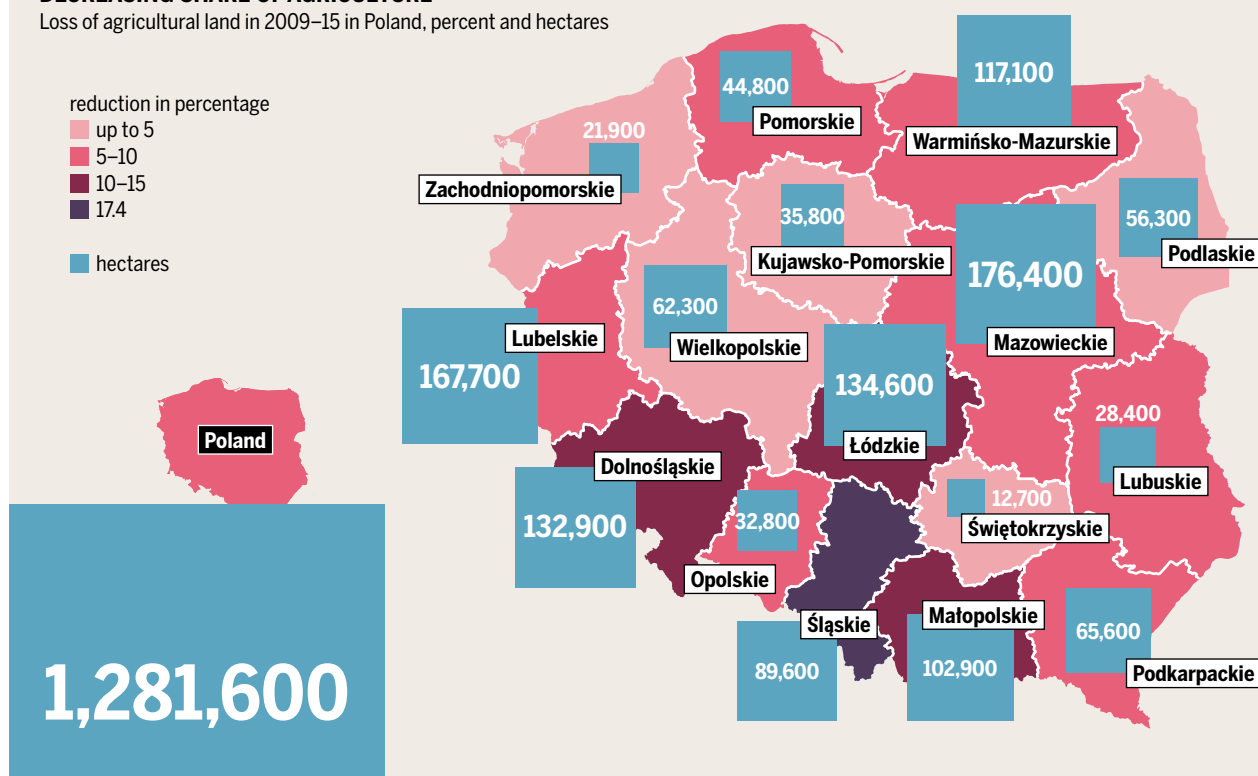
up to 5

5–10

10–15

17.4

hectares



© AGRICULTURE ATLAS 2019 / EUROSTAT

The problem is complicated further as the urban population, who neither know nor care about the local traditions, are increasingly moving into rural areas. This can lead to conflicts, for instance, when these new residents complain about a farm's noise when their neighbours use machinery on the weekends or on public holidays. This is a well-known problem, but successive governments have done nothing about it.

Settlements, transport routes and businesses develop at the expense of nature. In some regions, the change is significant

Since organic farming is neither promoted nor supported in Poland, the number of organic farms and their production have decreased in recent years

Rural areas are changing fast, both in Poland and world-wide, as they adjust to globalization. Some of these processes – industrial farming, rural depopulation, the conversion of farmland into residential suburbs, the loss of local culture – are negative, and pose a threat to the multifunctionality of rural areas. In Poland, no measures have been implemented to counteract such changes. Agricultural policy needs to give more support to the many functions that the countryside performs in addition to its food-producing role. ●

AGAINST THE EUROPEAN TREND

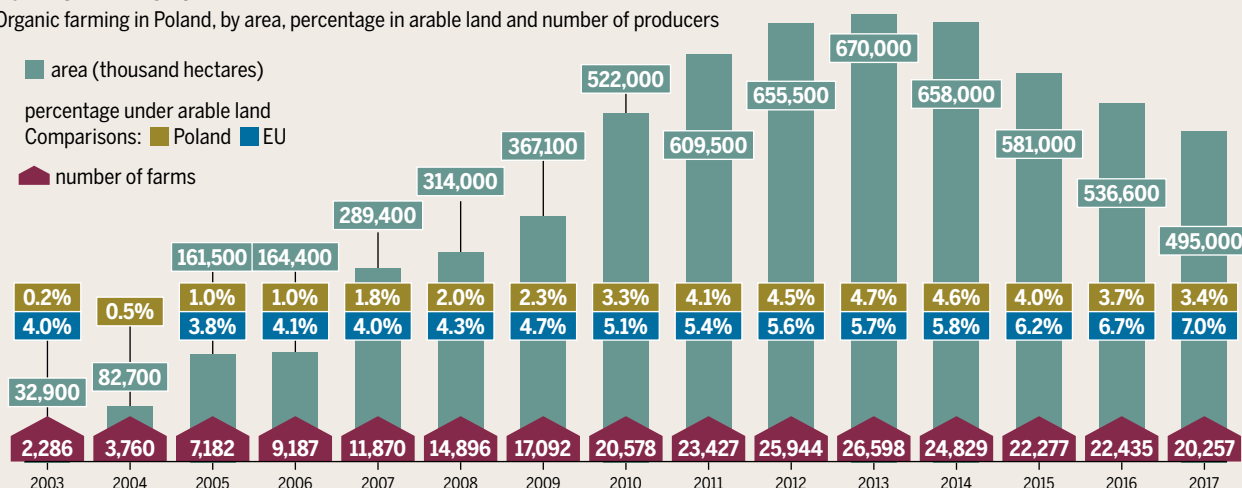
Organic farming in Poland, by area, percentage in arable land and number of producers

area (thousand hectares)

percentage under arable land

Comparisons: Poland EU

number of farms



© AGRICULTURE ATLAS 2019 / EUROSTAT

NEW POTATO, FRIED POTATO, COUCH POTATO

There is widespread agreement that health should be a pillar of the EU's agricultural policy. But the transition towards a healthy and sustainable food system will not depend on the CAP alone. Sustainable production can be realized only in the framework of sustainable consumption.

Europeans deeply care about health. According to a 2018 Eurobarometer survey, health and social security are, after unemployment, the second most important national concern. And in a separate survey, respondents said that providing safe, healthy and good quality food should be the main priority for the Common Agricultural Policy.

Agriculture and health are intimately linked. Agriculture produces food, a basic human need, but the current food system also creates many health risks. One of them is linked to the overuse of antibiotics. High and persistent levels of antibiotics use in animal farming, in conjunction with inappropriate use in human medicine, contributes to antimicrobial resistance (AMR). AMR implies that common infections and routine surgeries could become life-threatening, putting in peril the last century's advances in health-care. By 2050, 390,000 people could die annually in Europe due to the spread of drug resistant bacteria.

Agriculture is also a major contributor to air pollution.

According to the European Environment Agency, over 90 percent of Europe's ammonia emissions derive from agriculture, damaging the environment and helping the formation of airborne particles (Particulate Matter – PM) that severely harm human health. Most of the ammonia comes from animal manure and inorganic nitrogen fertilizers. Although ammonia emissions in the EU decreased by 24 percent between 1990 and 2015, ammonia continues to play a leading role in PM formation in Europe.

The link between agriculture and food safety is hotly debated. Food safety standards regulate the levels of pesticide residues, bacteria or fungi in food. Regular testing by the European Food Safety Authority suggests that pesticide residues pose little immediate threat to consumers' health. At the same time, there are increasing concerns about the effects of persistent low-dose exposures, especially on hormones. Health considerations – in particular concerns over pesticides – are among the main reasons why consumers choose to buy organic food.

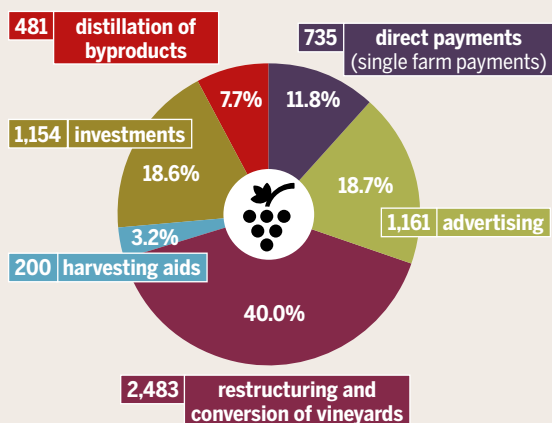
The elephant in the room however is the relationship between agriculture and food consumption. Unhealthy diet is a main risk factor for the entire burden of death and diseases in Europe. According to the World Health Organization, over half of all Europeans are overweight, and nearly one-quarter are obese. The World Obesity Federation predicts that without effective policies, child overweight and obesity will increase further in many EU countries. The financial burden is considerable. A 2018 OECD study shows that about 10 percent of the EU's GDP is spent on healthcare. Up to 80 percent of this spending goes towards treating non-communicable diseases, many related to unhealthy diets and harmful alcohol use. Despite agriculture producing nearly all our food, the question how agricultural policy shapes consumption patterns has been insufficiently studied.

What we do know is that dietary patterns are influenced by 'food and drink environments' – the collective physical, economic, and socio-cultural surroundings that affect what we eat and drink. A 2018 study of 19 European countries found a positive association between the household availability of "ultra-processed" foods with rates of obesity. Such foods are typically energy-dense, high in sugars and fats, and low in fibre. Except in very short supply chains, food and drink environments are heavily shaped by agri-food industries and globalised value chains.

Public health is intimately linked with other societal values, including the environment, animal welfare and so-

PROMOTING ALCOHOL

EU payments for viticulture, 2014 to 2018, million euros



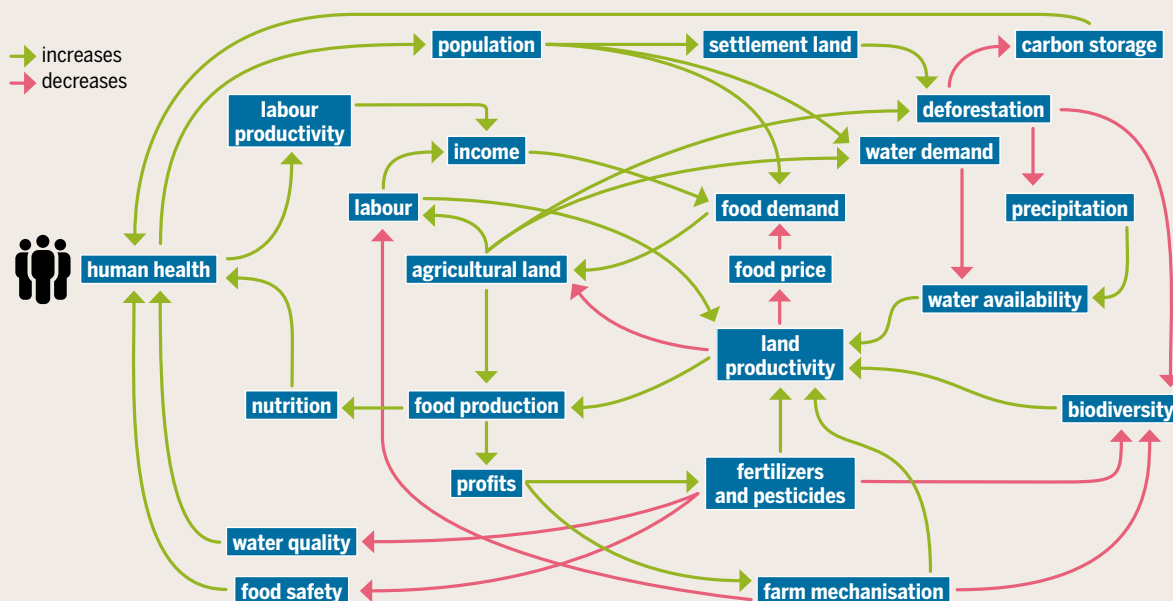
EU funding of advertisements for wine is a bad idea. Lower wine consumption in France and Italy means similar declines in the incidence of liver cirrhosis.

© AGRICULTURE ATLAS 2019 / EPHA

Advertising for wine, tobacco cultivation, more meat, cheaper sugar, hops for brewing beer: the EU supports a long list of unhealthy habits

HEALTHY FARMS, HEALTHY FOOD

Selected factors and relationships in a system linking ecology, agriculture and nutrition



Model of the initiative "The Economics of Ecosystems and Biodiversity" (TEEB), hosted by the United Nations Environment Programme, and which as "TEEB for Agriculture & Food" investigates agriculture and nutrition systems worldwide. In 2018, TEEBAgriFood presented this flowchart showing the relationships between health, agriculture and other policy areas; simplified presentation adapted for the EU

© AGRICULTURE ATLAS 2019 / TEEB

cial justice, opening important avenues for co-benefits. For instance, improved animal welfare can reduce the need for antibiotics. Higher incomes for small-scale farmers reduce the risk of social exclusion and enhance the socio-economic fabric of rural areas. Higher fruit and vegetables production and consumption, and lower livestock numbers reduce greenhouse gas emissions, can cut air and water pollution, and support healthy and sustainable nutrition. Higher-quality food tastes better and allows producers to earn more. Reduced pesticides use cuts associated health risks and saves the pollinators that are vital for food and nutrition security.

The new Common Agricultural Policy, which should come into force in 2021 and distribute 365 billion euros in its next seven-year period, will for the first time include health as an objective. This comes 25 years after EU Member States introduced the obligation to pursue a high level of health protection in all EU policies. In order to ensure a meaningful implementation of such health objective, public health stakeholders need to be involved in the design and implementation of the CAP.

A future-looking CAP should focus more on financially stimulating both the demand and supply of foods for healthy and sustainable diets, such as fruit and vegetables, pulses and nuts, on creating markets for these products, and by fostering social innovation in food supply chains. But the transition towards a healthy and sustainable food system will not depend on agricultural policy alone. Sus-

Ideally, EU would link its agricultural policies with other aspects of policymaking – that would a step in the direction of healthy living and sustainability

tainable production can be realized only in the framework of sustainable consumption, which must – in order to be sustainable – simultaneously promote health. This requires coherence across those policy areas that shape the food and agricultural system, guided by a comprehensive food policy for Europe. ●

FROM TOP TO BOTTOM

Survey*: Response "health and social security" to the question what the most important question facing the nation is



* Eurobarometer poll of 28,000 respondents, spring 2018. Other choices included "unemployment", "immigration", "cost of living", "pensions" and "housing".

© AGRICULTURE ATLAS 2019 / EUROBAROMETER

Especially in Mediterranean countries, the desire for health is way behind the fear of unemployment

PUTTING CARBON BACK IN THE SOIL

A changing climate has more impact on agriculture than any other human activity. But agriculture is also one of the main causes of climate change. Europe's agricultural policies currently only pay lip-service to adaptation and mitigation in dealing with climate change. They should do a lot more.

Climate change affects agriculture in many ways. While warmer temperatures in northern Europe help agricultural production, the negative effects of climate change in central and southern Europe outweigh these benefits. Droughts, floods and more favourable conditions for pests and diseases can cut yields and cause crop failures.

But agriculture helps cause climate change by emitting large amounts of N_2O (from fertilizers) and CH_4 (from livestock). Worldwide, agriculture is responsible for nearly a quarter of all greenhouse gas emissions. These come mostly from soil emissions following fertilizer use (38%), as well as livestock emissions produced during the digestive process of ruminants and the management of manure (41%).

In Europe, the agricultural sector is the fourth most important source of greenhouse gases, contributing about 10% of direct emissions. To stabilize the global climate and minimize the effects of change, such emissions must be reduced dramatically. At the 2015 Paris Climate Conference, 196 countries agreed to limit their greenhouse gas emissions and set national targets for doing so. The EU undertook to cut its emissions by 40% by 2030, and to adapt to climate change without compromising food production.

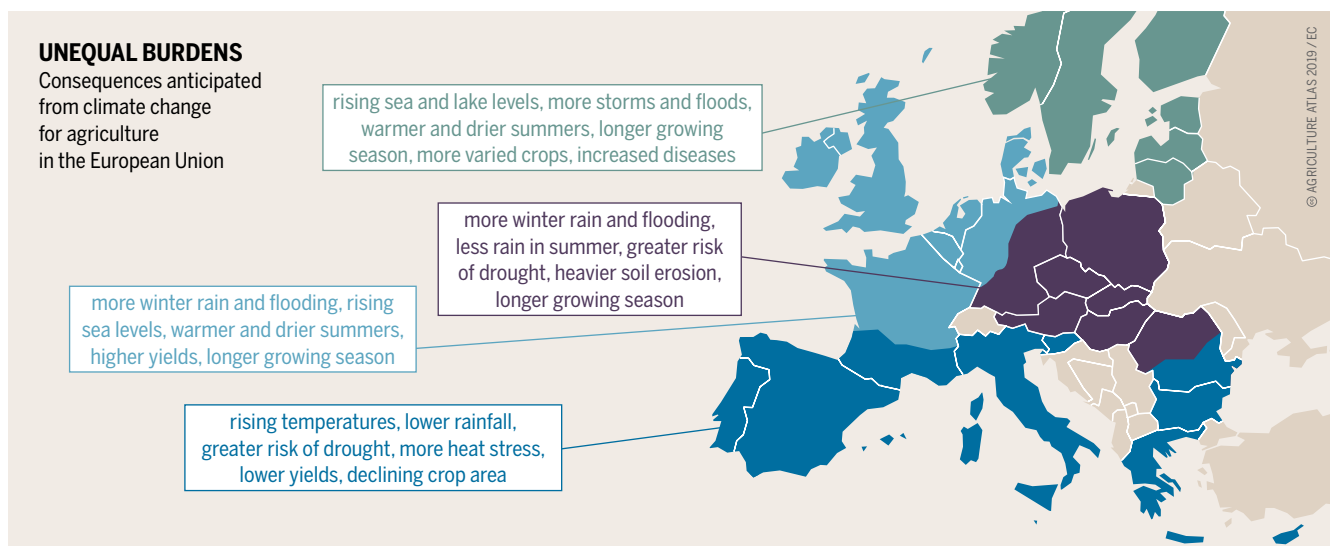
In successive reforms of the CAP, actions to mitigate and adapt to climate change have gained importance, and in 2007 they became a formal priority. In the 2013 reform, climate actions were integrated as one of the core objectives and became a key priority of rural development policy. But support for climate actions varies widely throughout the EU; in many countries it is minimal. The only measure that is mandatory in all member states is the agri-environment-climate measure, which is used to support integrated fertilizer management, the diversification of crop rotations and other climate-related measures.

The CAP still does not include rigorous measures to reduce emissions. These were not required in the agricultural sector because of the fundamental priority of safeguarding food production.

One way of reconciling food security and climate goals is to focus on increasing organic carbon sequestration in soils. This is the aim of the "4 parts per 1000" initiative, launched in 2015 to increase the level of carbon in the soil by 0.4 percent per year. Storing plant-derived organic matter in the soil over decades or centuries could partly counterbalance rising CO_2 levels in the atmosphere. This can be done for example through permanent soil cover, growing deep-rooting plants, and applying manure, mulch and compost.

The CAP requires farmers to maintain and increase the level of organic carbon in the soil. But it does not impose any accounting or reporting measures, and takes no specific action to reduce losses from carbon-rich soils.

Southern Europe's agriculture will be seriously affected by climate change, while other regions may benefit. Solidarity will be needed



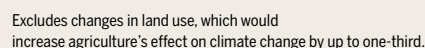
Emissions from agriculture in EU member states, million tonnes of CO₂ equivalent, 2016



Livestock production is increasingly separated from crop growing, with animals kept indoors and stall-fed on

forage and concentrates. Farms that raise both crops and livestock feed part of the crops to the livestock, and return the manure to the land to fertilize the soil. The CAP should aim to re-associate animal and cereal production by supporting these farms. ●

Share of economic sectors in total emissions of greenhouse gases in the EU, 2016, in millions of tonnes of CO₂-equivalent and percent



© AGRICULTURE 2019/FC

AGRICULTURE ATLAS 2019 **63**

A GLOBAL PRICE TAG FOR EUROPE'S AGRI FOOD SECTOR

Europe's agriculture is part of many international value chains. It influences global commodity markets and thus the prices, products, income and diets in developing countries.

Since the 1980s, the Common Agricultural Policy has frequently been the subject of criticism for subsidizing the export of farm products to other parts of the world. This use of taxpayers' money led to a decline in world market prices and forced farmers in the developing world out of their local markets. Area payments – subsidies per hectare farmed – have been the Common Agricultural Policy's principal instrument since the 1990s. Export subsidies shrank, and were banned in 2015 worldwide after a ruling by the World Trade Organization.

Disagreement exists as to whether the area payments have a negative effect on developing countries. The payments are made regardless of what is grown or how it is grown. A large majority of agricultural economists assume that the payments barely affect production and have little international impact. But economic modelling shows that both production and exports would change significantly if no area payments were made. A 2012 study by the Norwegian Agricultural Economics Research Institute concluded that net exports of wheat from the EU would decline by 20 percent, pork by 15 percent, and poultry by 75 percent because eliminating area payments would push up cereal prices, increasing the cost of feed. According to the authors of this study, these effects are minor. However, NGOs have a different opinion. They say that the effects would be significant if the EU, a major exporter, were to reduce its commodity volumes to such an extent.

Current trade figures show that the EU now has a trade surplus in agriculture: it earns more from commodity exports than it spends on equivalent imports. Things were the other way round in the era of export subsidies. In particular, the export volumes for wheat, pork and milk have risen, with exports now taking up a bigger share of the EU's total output.

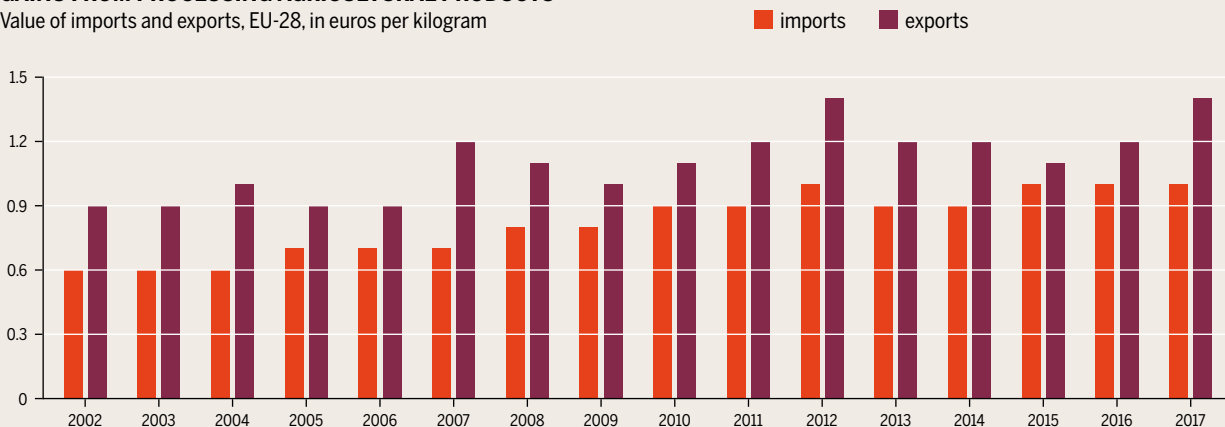
Africa is an important market for many commodities. In 2017, North Africa, with its limited potential to grow its own food, took 35 percent of the EU's wheat exports. Sub-Saharan Africa took more than a quarter – and two-thirds of the EU's flour exports. Admittedly, wheat can be grown in only a few places south of the Sahara, but imports compete with locally adapted crops such as millet, cassava and yams. Around 43 percent of the EU's poultry meat exports went to sub-Saharan Africa in 2017, mainly to West Africa. Abolishing the area payments would, according to the model, reduce exports and raise meat prices in the importing countries. That would stimulate investment in local production and improve the current low productivity in this industry.

Most scientists and NGOs agree that the EU's export successes depend on more than subsidies alone. The EU has long pursued the explicit goal of boosting its farm productivity. Because sales in the EU have stagnated, production can only be increased by boosting exports. The construction of ever-bigger livestock houses, plus lax environmental and animal-welfare controls, have led to higher production and lower prices for producers.

Cheap raw materials in, expensive food out – most of the value in the production process is created within the EU

GAINS FROM PROCESSING AGRICULTURAL PRODUCTS

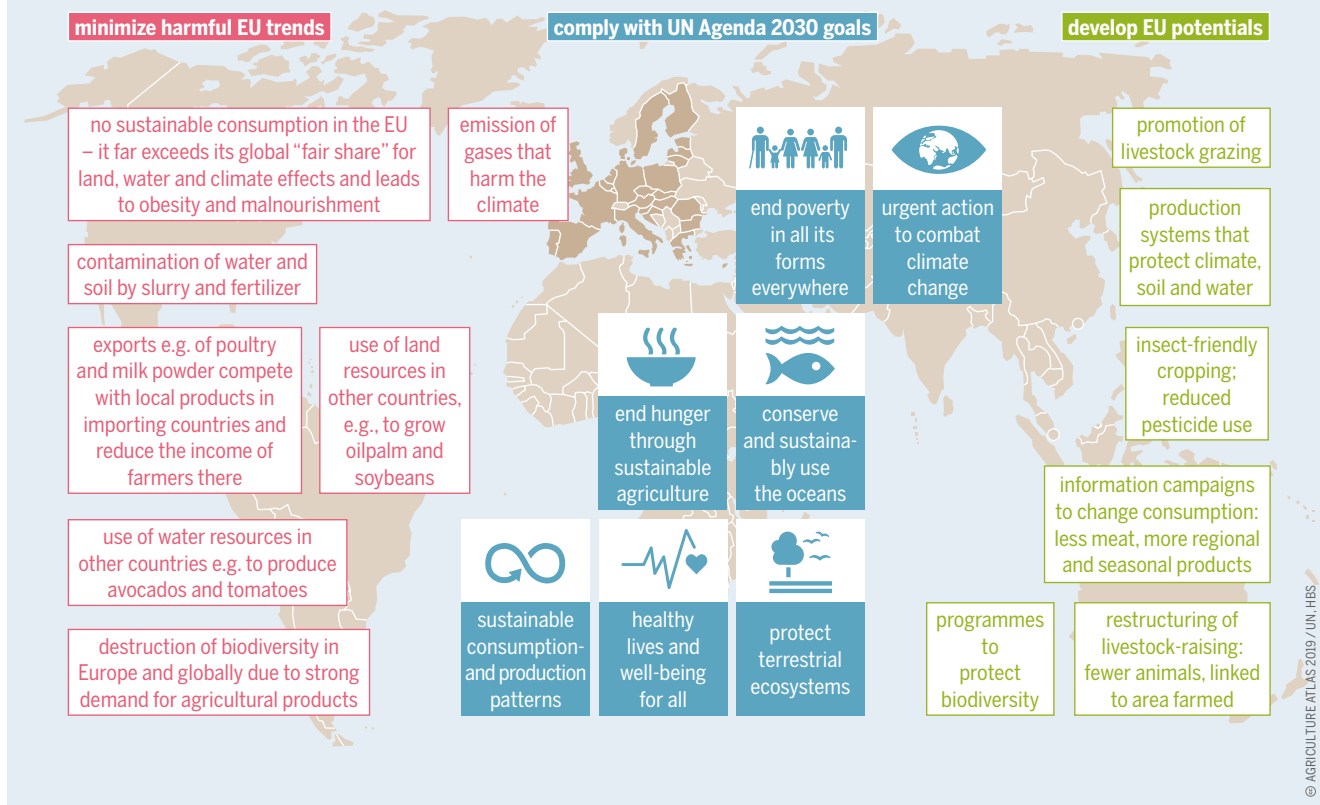
Value of imports and exports, EU-28, in euros per kilogram



© AGRICULTURE ATLAS 2019 / EUROSTAT

CHALLENGES, TASKS, POTENTIALS

UN Sustainable Development Goals, EU agricultural policies with negative effects and ideas on how to reconcile them



The milk market shows how things can go wrong. The EU milk policy was liberalized in 2015, and the production limits introduced in the 1980s were abolished. That allowed European dairies to export more. But the higher exports led to a collapse in world market prices. The big European dairies simply passed on the lower prices to the farmers, forcing many out of business, or necessitating state support in the form of emergency loans.

By getting rid of export subsidies, the EU has eliminated an element of its agricultural policy that was particularly damaging to developing countries. But that does not make the Common Agricultural Policy blameless. Agricultural imports into Europe are of particular concern. Most of these still consist of traditional raw commodities and former colonial products: palm oil, soybeans, cacao, coffee, bananas and cotton. Conflicts over the use and distribution of productive land, along with deforestation, water use and pesticide applications have negative effects on food, health, human rights and global sustainability. Soybeans, used in the EU for animal feed, are an example. The Common Agricultural Policy promotes the production of pork and chicken, driving the demand for soya, which is grown on huge estates in Latin America on land once covered by forest and savanna.

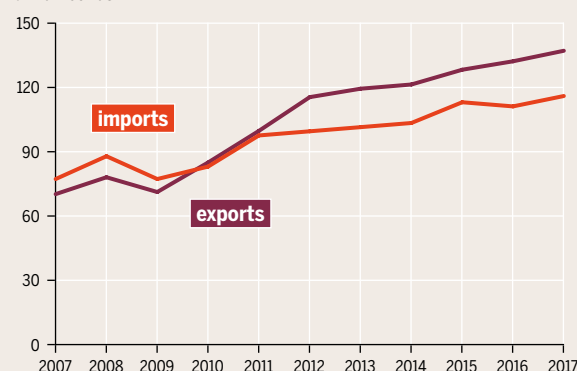
Exports from intensive agriculture in the EU have doubled since 2009. Imports have risen rapidly too

The EU's Common Agricultural Policy can help achieve the United Nations' Sustainable Development Goals for 2030. Or it could hinder them

The task is enormous, but the goal is clear: the EU must fundamentally restructure its agricultural and food systems, on which it currently spends 41 billion euros for direct payments. It must make them both ecological and globally equitable. Only then will it make a tangible contribution to the global goals of sustainable development and the UN Agenda 2030. ●

EVER MORE INTERDEPENDENT

Foreign trade of the EU-28 in agricultural products, billion euros



AUTHORS AND SOURCES FOR DATA AND GRAPHICS

All online links were checked in May 2019.
See page 2 for the websites where you can
download a clickable PDF of this atlas.

12–13

EU / INTRODUCTION

HITTING TARGETS, MISSING GOALS by Christine Chemnitz and Christian Rehmer

p.12: European Commission, Overview of CAP Reform 2014–2020, p.4, <https://bit.ly/2BJztPs>.
Wikipedia: Map, EU Enlargements, <https://bit.ly/2UAxbMe>. – p.13: European Commission, CAP context indicators 2014–2020, 17. Agricultural holdings, <https://bit.ly/2COP0wB>, 18. Agricultural area, <https://bit.ly/2rs8jsx>.

14–15

EU / NET PAYERS

A DECADES-LONG DISCOUNT WORTH 130 BILLION EUROS by Dietmar Bartz

p.14: European Parliament, The UK ‘rebate’ on the EU budget. Briefing, February 2016, <https://bit.ly/2PteWVg>. Alan Matthews, Impact of Brexit on the EU budget, <https://bit.ly/2EmSQ5r>. HM Treasury, European Finances 2017, March 2018, <https://bit.ly/2rsq7Uk>. – p.15: Bundeszentrale für politische Bildung, Zahlen und Fakten Europa, Nettozahler und Nettoempfänger in der EU, <https://bit.ly/2Uoyz4i>.

16–17

EU / DIRECT PAYMENTS

TIED TO THE LAND by Alan Matthews

p.16: European Commission, Direct payments, 28 February 2018, p.9, <https://bit.ly/2PuRZ3U>. – p.17: European Commission, EU Budget: the Common Agricultural Policy beyond 2020, 1 June 2018, <https://bit.ly/2PweCEY>. – European Commission, Voluntary coupled support, review, as of 2017, <https://bit.ly/2ndG9Qy>. PBL, Cities in Europe, 2016, p.12, <https://bit.ly/2PtRebp>.

18–19

EU / RURAL DEVELOPMENT

FOR SOME, THE SECOND PILLAR HAS THE SECOND PRIORITY by Helene Schulze, Oliver Moore and Hans Martin Lorenzen

p.18: European Commission, Degree of urbanisation for local administrative units level 2, 2016, <https://bit.ly/2Elc7UZ>. Eurostat, Statistics on rural areas in the EU, February 2017, <https://bit.ly/2PvwIqZ>. – p.19: European Commission, The CAP towards 2020, 2018, <https://bit.ly/2BZtc4D>. IEG Policy, Reform of the Common Agricultural Policy, 2018, <https://bit.ly/2SANmXR>. European Parliamentary Research Service Blog, Breakdown By Member State of EU Support For Rural Development 2014–2020 (...) 2016, <https://bit.ly/2E9490k>.

20–21

FRANCE / BUDGET

THE BIGGEST BENEFICIARY by Jacques Loyat

p.20, p.21, below: Agreste, Chiffres et Données Agriculture, no. 240, octobre 2017, <https://bit.ly/2SpNJIE>. – p.21 above: Agreste, GraphAgri 2018, p.60, <https://bit.ly/2MIym8E>.

22–23

AUSTRIA / BUDGET

SOME PROGRESS, BUT COULD DO BETTER by Ruth Pammer

p.22: Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Maßnahmen für die Land- und Forstwirtschaft im Jahre 2018 (Grüner Bericht), p.9, <https://bit.ly/2V0fINq>. – p.23: Statistik Austria, Betriebsstruktur, <https://bit.ly/2EARinV>, see <https://bit.ly/2rLXDVI>. – Statistik Austria, Bodennutzung, <https://bit.ly/2ExJpj8>, see <https://bit.ly/2ExArSK>, quoted from Marktmeinungsmensch, <https://bit.ly/2EIrjvH>.

24–25

ITALY / BUDGET

IGNORING THE BETTER OPTIONS by Franco Ferroni

p.24: Parlamento Europeo, La politica agricola comune in cifre, Tabella III, <https://bit.ly/2SfHXoK>.

– p.25: Parlamento Europeo, La politica agricola comune in cifre, Tabella V, <https://bit.ly/2SfHXoK>. CREA, L'agricoltura italiana conta 2018, p.149, <https://bit.ly/2TXxpfC>. – Commissione europea, Eurobarometro speciale 440, La Politica Agricola Commune, Ottobre 2015, <https://bit.ly/2EkyvFO>

26–27 **POLAND / AGRICULTURAL STRUCTURES** **MISGUIDED TRANSFORMATION** **by Zbigniew Karaczun**

p.26: Janusz Igras (ed.), 25 lat Polskiego rolnictwa. Bezpieczeństwo żywnościowe w Europie. Wyd. Centrum Kompetencji Puławy, 2014. MF, Transfery finansowe Polska – budżet UE, <https://bit.ly/2ZcM1uC>. EC, Statistical Factsheet Poland, May 2018, p.5, <https://bit.ly/2Xc8NRn>. – p.27: GUS, Charakterystyka gospodarstw rolnych. Roczniki statystyczne z różnych lat. Eurostat, Agriculture statistics – family farming in the EU, table 2, <https://bit.ly/2UIVTym>. Eurostat, National accounts employment data by industry, code nama_10_a64_e, <https://bit.ly/2qmlRow>.

28–29 **EU / FARMS** **GROWING UP** **by Stanka Becheva and Véronique Rioufol**

p.28: European Commission, Statistical Factsheet European Union, May 2018, p.21, <https://bit.ly/2ioSLRL>. – p.29: Eurostat, Small and large farms in the EU – statistics from the farm structure survey, 2017, figure 4, <https://bit.ly/2C0hzKM> (archived). – European Commission, Statistical Factsheet European Union, May 2018, p.21, <https://bit.ly/2ioSLRL>.

30–31 **GERMANY / FARM STRUCTURES** **WHOSOEVER HATH,** **TO HIM SHALL BE GIVEN** **by Julia Christiane Schmid** **and Astrid Häger**

p.30: Destatis, Betriebsgrößenstruktur landwirtschaftlicher Betriebe nach Bundesländern, <https://bit.ly/2V7cNGL>. – p.31: Heinrich-Böll-Stiftung, Berlin.

32–33 **SPAIN / WATER** **MAINLY IN THE PLAIN** **by a Por Otra PAC working group,** **coordinated by Fundación Nueva** **Cultura del Agua**

p.32: Eurostat, Agri-environmental indicator – irrigation, 2016, Table 3, <https://bit.ly/2Twv9uV>. – p.33: Eurostat, Irrigation, update 2018, code [ef_poirrig], <https://bit.ly/2KHuvvw>. – EEA, Data and maps, <https://bit.ly/2zvFlx>, <https://bit.ly/2HP2sa5> (amonio), <https://bit.ly/2FwwMV5> (nitrato), <https://bit.ly/2HEg60m> (fosfato).

34–35 **EU / WORK** **LIP SERVICE ONLY** **by Aurélie Trouvé**

p.34: Eurostat, Small and large farms in the EU – statistics from the farm structure survey, 2017, figure 5, <https://bit.ly/2C0hzKM> (archived). – p.35: European Commission, Farm Economy Focus, 2018, <https://bit.ly/2PrAGkb>. – European Commission, Statistical Factsheet European Union, May 2018, p.13, p.15, <https://bit.ly/2ioSLRL>.

36–37 **EU / LAND OWNERSHIP** **FROM FAMILY FARM TO FARMING FIRM** **by Brîndușa Bîrhală**

p.36: Destatis, Betriebsgrößenstruktur landwirtschaftlicher Betriebe nach Bundesländern, <https://bit.ly/2V7cNGL>. ČSÚ, Statistická ročenka České republiky 2017, Zemědělství, Nr. 13–32, <https://bit.ly/2SCC7y5>. – p.37: Eurostat, Agricultural land prices by region, Code: apri_lprc, <https://bit.ly/2B5hSSD>.

38–39 **EU / BIODIVERSITY** **INTENSIFICATION VS CONSERVATION** **by Harriet Bradley**

p.38: European Environment Agency (EEA), Projected change in Bumblebee climatically suitable areas, 2016, <https://bit.ly/2EdTUaS>. – p.39: Eurostat, Common bird index, Code: t2020_re130, <https://bit.ly/2SATGi3>. European Environment Agency, Technical

report No 2/2015, p.23, <https://bit.ly/2BP3j9g>.
– European Commission, Report on the implementation of the ecological focus area obligation under the green direct payment scheme, COM(2017) 152 final, 29.3.2017, <https://bit.ly/2zP7HSx>.

40–41 **AUSTRIA / BIODIVERSITY** **HOW HABITATS ARE LOST** **by Christof Kuhn** **and Dominik Linhard**

p.40: BirdLife Österreich, Monitoring der Brutvögel Österreichs, Bericht über die Saison 2017, p.10–11., <https://bit.ly/2LxItg8>. –
p.41: Umweltbundesamt, Nationale Berichte, <https://bit.ly/2LswX5E>, see <https://bit.ly/2PSZXEO>. – Grüner Bericht 2018, p.16, <https://bit.ly/2R9uUbH>. Statista, Wirkstoffmengen in Verkehr gebrachter Pflanzenschutzmittel in Österreich von 2010 bis 2017, <https://bit.ly/2V1x8Jj>.

42–43 **ITALY / NATURA 2000** **FARMING AND ENVIRONMENT:** **A DELICATE BALANCE** **by Franco Ferroni**

p.42: Rete rurale nazionale 2014–2020, Volume 1, La politica di sviluppo rurale per la biodiversità, Natura 2000 e le aree protette, Maggio 2018, p.164, <https://bit.ly/2TXxpfC>. – **p.43:** *ibid.*, pp.156–160.

44–45 **SPAIN / HIGH NATURE VALUE FARMING** **BIODIVERSITY UNDER THREAT** **by a Por Otra PAC working group,** **coordinated by Asociación** **Trashumancia y Naturaleza**

p.44: EEA, Estimated High Nature (HNV) presence in Europe, 2012/2017 update, <https://bit.ly/2CATs55>. –
p.45: EEA, Loss of HNV farmland due to agricultural intensification per NUTS3, 2017, <https://bit.ly/2Ov6q9r>. – Pablo Urivelarrea Garc.a, La dehesa como Sistema de Alto Valor Natural, 2018, p.12 (modified), <https://bit.ly/2jxy5az>.

46–47 **EU / PESTICIDES** **SPRAY TODAY, GONE TOMORROW** **by Lars Neumeister**

p.46: IRES, Pesticides found in Hair samples. Analysis report 180907-02, 2018, <https://bit.ly/2PtpT9k>. – **p.47:** Eurostat, Agri-environmental indicator – consumption of pesticides, Code: *aei_fm_salpest09*, <https://bit.ly/2EbtgPX>. – European Environmental Agency, Pesticide sales, 2018, <https://bit.ly/2PqUggs>. PAN Europe, Pesticide Use in Europe, <https://bit.ly/2Ec2DKH>.

48–49 **EU / LIVESTOCK RAISING** **FARMING AS IF ANIMALS MATTERED** **by Harald Grethe**

p.48: Special Eurobarometer 442, Report. Attitudes of Europeans towards Animal Welfare, 2016, p.10, <https://bit.ly/2Qo3L5e>. Eurostat, Agricultural production – animals, Code: *apro_mt_ls*, <https://bit.ly/2zT3jSi>. – **p.49:** Eurostat, *ibid.*

50–51 **EU / FERTILIZER OVERUSE** **TOO MUCH OF A GOOD THING** **by Christian Rehmer** **and Katrin Wenz**

p.50: Eurostat, Consumption of inorganic fertilizers, code: *aei_fm_usefert*, <https://bit.ly/2L8nZdx>. – **p.51:** European Commission (EC), Report [concerning the protection of waters], SWD(2018) 246 final, Part 4/9, p.42, <https://bit.ly/2Be6ZhF>. – EC, Water quality in the EU, <https://bit.ly/2EbwqmN>.

52–53 **EU / ORGANIC FARMING** **WORKING WITH NATURE** **by Rebekka Frick,** **Matthias Stolze** **and Helga Willer**

p.52: FiBL and IFOAM, The world of organic agriculture, 2018, p.243, <https://bit.ly/2NDcvj4>. –
p.53: Eurostat, Organic crop area, code *org_cropar*, <https://bit.ly/2zQpIzD>. – FiBL and IFOAM, *ibid.* p.233, <https://bit.ly/2NDcvj4>.

54–55

GERMANY / ORGANIC FARMING

ORGANIC GROWTH

**by Joyce Moewius
and Friedhelm von Mering**

p.54: Ökolandbau.de, Zahlen zum Ökolandbau in Deutschland, <https://bit.ly/2QltrD>. BLE-Strukturdaten Ökologischer Landbau in Deutschland, 31.12.2017, <https://bit.ly/2EnOQBE>. Destatis, Betriebsgrößenstruktur landwirtschaftlicher Betriebe nach Bundesländern, <https://bit.ly/2V7cNGL>. – **p.55:** AMI/Gesellschaft für Konsumforschung, Zahlen und Fakten zum Ökolandbau, 21. März 2018, <https://bit.ly/2GPzAfO>. – Ökolandbau.de, Zahlen zum Ökolandbau in Deutschland, <https://bit.ly/2QltrD>.

56–57

FRANCE / AGROECOLOGY

THE KEY TO SUSTAINABILITY

par Xavier Poux

p.56: Urgenci, Overview of community supported agriculture in Europe, 2016, <http://bit.ly/2hsK9be>. – **p.57:** Wikipédie, article Agroécologie, <https://bit.ly/2TrWbUH>. Jos. Maria Tardin, Isabella Kenfield, The MST and Agroecology, in: Eric Holt-Giménez, Raj Patel, Food Rebellions!, Cape Town 2009, p.104–105, <https://bit.ly/2Bg7fPd>.

58–59

POLAND / LAND USE CHANGE

LOOKING BEYOND PRODUCTION

by Zbigniew Karaczun

p.58: GUS, Ochrona środowiska 2018, p.105, <https://bit.ly/2JcFUko>. – **p.59:** Eurostat, Land use overview by NUTS 2 regions, code lan_use_ovw, <https://bit.ly/2UDWqRm>. – Eurostat, Organic crop area by agricultural production methods and crops, codes org_cropar, <https://bit.ly/2zQpIzD>, org_cropar_h1, <https://bit.ly/2InLBMP>, org_cropar_h2, <https://bit.ly/2UkgUJT>. Organic operators by status of the registration process, code rg_coptyp, <https://bit.ly/2UCrsch>, org_coptyp_h, <https://bit.ly/2Umc0Mu>.

60–61

EU / HEALTH

**NEW POTATO, FRIED POTATO,
COUCH POTATO**

by Nikolai Pushkarev

p.60: European Public Health Alliance, A CAP for Healthy living, 2016, p.18, <https://bit.ly/2UtmXgm>. – **p.61:** TEEB for Agriculture & Food, 2018, p.43, <https://bit.ly/2RL8kDy>. – Eurobarometer 89, 2018, p.12, <https://bit.ly/2sRPb8z>.

62–63

EU / CLIMATE

PUTTING CARBON BACK IN THE SOIL

**by Cornelia Rumpel
and Abad Chabbi**

p.62: Expected impacts of climate change in the European Union, White Paper, COM (2009) 147, <https://bit.ly/2GXXJSP>. – **p.63:** Eurostat, European Environment Agency, Greenhouse gas emission by source sector, code: env_air_gge, <https://bit.ly/2GkAJPJ>, <https://bit.ly/2Eklaob>.

64–65

EU / WORLD TRADE

**A GLOBAL PRICE TAG
FOR EUROPE'S AGRI FOOD SECTOR**

**by Tobias Reichert
and Berit Thomsen**

p.64: Eurostat, Value, weight and average price (...) in agricultural products, 2002–2017, code: DS-018995, <https://bit.ly/2B7LBu3>. – **p.65:** United Nations, Sustainable Development Goals, <https://bit.ly/2MiKTxL>, own representation. – **p.65:** European Commission, Agri-food trade statistical factsheet, 2018, p.3, <https://bit.ly/2pGgfDJ>.

HEINRICH BÖLL FOUNDATION

Fostering democracy and upholding human rights, taking action to prevent the destruction of the global ecosystem, advancing equality between women and men, securing peace through conflict prevention in crisis zones, and defending the freedom of individuals against excessive state and economic power – these are the objectives that drive the ideas and actions of the Heinrich Böll Foundation. We maintain close ties to the German Green Party (Alliance 90/The Greens) and as a think tank for green visions and projects, we are part of an international network encompassing well over 160 partnerprojects in approximately 60 countries.

The Heinrich Böll Foundation works independently and nurtures a spirit of intellectual openness. We maintain a worldwide network with currently 32 international offices. The Heinrich Böll Foundation's Study Program considers itself a workshop for the future; its activities include providing support to especially talented students and academicians, promoting theoretical work of sociopolitical relevance.

We gladly follow Heinrich Böll's exhortation for citizens to get involved in politics, and we want to inspire others to do the same.

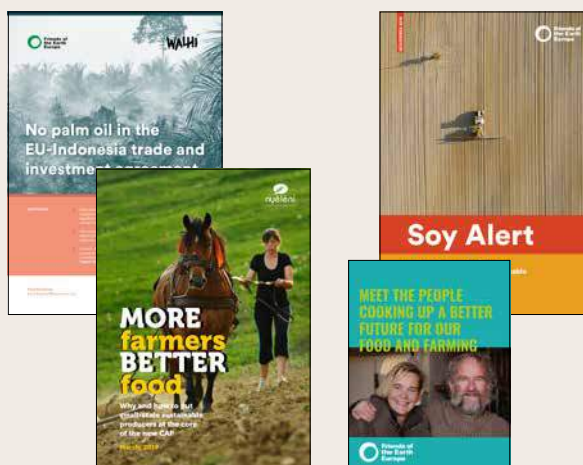


Heinrich-Böll-Stiftung
Schumannstr. 8, 10117 Berlin, Germany, www.boell.de

FRIENDS OF THE EARTH EUROPE

Friends of the Earth Europe is the largest grassroots environmental network in Europe, uniting more than 30 national organisations with thousands of local groups. We are the European arm of Friends of the Earth International which unites 74 national member organisations, some 5,000 local activist groups, and over two million supporters around the world.

We campaign on today's most urgent environmental and social issues. We challenge the current model of economic and corporate globalization, and promote solutions that will help to create environmentally sustainable and socially just societies. We advocate for an ecological and fair agriculture that protects wildlife and natural resources, supports small scale family farms, and reduces our impact on developing countries. We are engaged to protect biodiversity, re-form the European Union's agriculture policy, halt the growing of genetically modified crops and prevent the expansion of agrocommodities. We work towards environmental, social, economic and political justice and equal access to resources and opportunities on the local, national, and international levels.



Friends of the Earth Europe
Rue d'Edimbourg 26, 1050 Brussels, Belgium, www.foeeurope.org

BIRDLIFE EUROPE & CENTRAL ASIA

BirdLife Europe & Central Asia is a partnership of 48 national conservation organisations that strives to conserve birds, their habitats and biodiversity, working with people towards sustainability in the use of natural resources. We are one of the six regional secretariats that compose BirdLife International, a global partnership of 121 NGOs worldwide – and growing.

BirdLife is widely recognised as the world leader in bird conservation. Rigorous science informed by practical feedback from projects on the ground in important sites and habitats enables us to implement successful conservation programmes for birds and all nature. Our actions are providing both practical and sustainable solutions significantly benefiting nature and people.

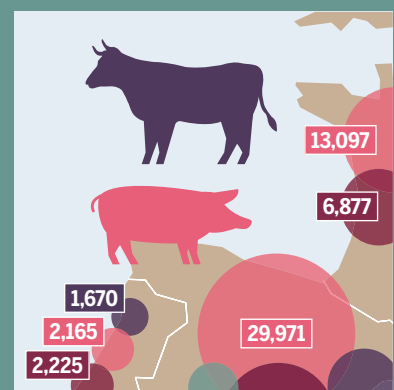
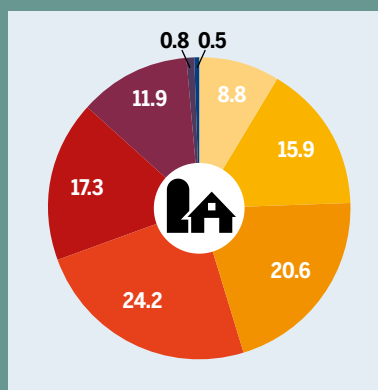
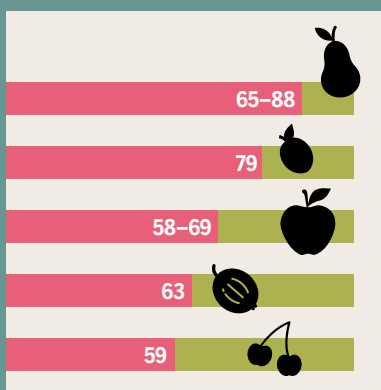
We are driven by our belief that local people, working for nature in their own places but connected nationally and internationally through our global Partnership, are the key to sustaining all life on this planet. This unique local-to-global approach delivers high impact and long-term conservation for the benefit of nature and people.



BirdLife Europe & Central Asia
Avenue de la Toison d'Or 67, B-1060 Brussels, Belgium, www.birdlife.org/europe-and-central-asia

PUBLISHED IN THE SAME SERIES





The quality of soil and water, as well as habitats of insects and rare plants are inseparable from agricultural production.

from: HITTING TARGETS, MISSING GOALS, page 13

Direct payments are inequitable because such a large share goes to farms where incomes are well above the average both for farming and for the economy.

from: TIED TO THE LAND, page 17

Farm work is often precarious. Shortterm contracts and migrant labour are common. Illegal work is also widespread.

from: LIP SERVICE ONLY, page 34

Agriculture helps cause climate change by emitting large amounts of greenhouse gases from fertilizers and livestock.

from: PUTTING CARBON BACK IN THE SOIL, page 62