

AGRICULTURE AND WATER POLICIES: MAIN CHARACTERISTICS AND EVOLUTION FROM 2009 TO 2019¹

GERMANY

This country profile reviews recent changes in agriculture and water policies. The content of the profile is based on a survey conducted in 2019 by the OECD Secretariat² and additional official sources.

A. Agriculture and Water Characteristics

- Germany's agriculture mainly produces pigs, milk, cereals and root crops (Eurostat, 2019).
- Agriculture accounted for less than 3% of total water abstractions in 2016 (OECD, 2020b). Agricultural irrigation in Germany accounted for 1.3% of total water abstractions in 2016 (Federal Statistical Office, 2020). The water used in Germany for irrigation is predominantly (around 87%) taken from groundwater (BMU/UBA, 2018).
- Nitrate pollution of surface water and groundwater remains a serious concern. The most significant pressures on rivers and groundwater bodies in Germany are diffuse agriculture pollution, with 65% of river water bodies being affected and 41% of groundwater bodies (European Commission, 2019). The nitrogen balance nonetheless decreased between 2000 and 2017 from 110 to 62 kg/ha, as did the phosphorus balance which went down from 4 kg/ha to -5 kg/ha during the same period (OECD, 2020a).

Table 1. Main challenges related to water in agriculture

Water use +	Water pollution ++/+++	Water-related risks ++
Agricultural water abstractions represent less than 3% of total water abstractions	Key pollutants from the agricultural sector are nitrates in groundwater, phosphorus in surface water and pesticides in both	A drought in 2018 affected the production of most non-perennial crops

Note: +: Minor issue; ++: Problematic issue; +++: Major issue. Sources: BMU/UBA (2018), Eurostat (2019), OECD (2019).

¹ This document, as well as any data included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

² For more details, Gruère, G., M. Shigemitsu and S. Crawford (2020), "Agriculture and water policy changes: Stocktaking and alignment with OECD and G20 recommendations", *OECD Food, Agriculture and Fisheries Papers*, No. 144, OECD Publishing, Paris, <http://dx.doi.org/10.1787/f35e64af-en>.

B. Key Agriculture and Water Policies & Main Evolution from 2009 to 2019³

B.1 Cross-cutting agriculture and water policies and governance

Table 2. Key agriculture and water policies and policy changes

<p>Key Policies</p>	<p>The existing EU legislation imposes a protective framework with standards for all water bodies in EU countries and addresses specific pollution sources, including agricultural pollution. The three main directives involved are the Water Framework Directive (WFD) (2000/60/EC) (on water resources management), the Nitrates Directive (91/676/EEC) and the Floods Directive (2007/60/EC).</p> <p>The Federal Water Act was adopted in 2010 and provides overall policy framework. It organises the regulated management of surface and groundwater bodies in terms of their quality and properties, and the control of human interventions into waterbodies. Ten River Basin Management Plans (RBMPs) have been developed with targets and institutional arrangements, including stakeholder involvement. A Federal State (Länder) has executive responsibility for water management.</p>
<p>Main Evolution from 2009 to 2019</p>	<ul style="list-style-type: none"> ▶ The 2017 Fertilisation Ordinance aims, besides nitrate, at ammonia and phosphate losses. It includes a reduction of legal nutrient balance surpluses, stricter blocking periods for fertilizer application, a compulsory and specified fertiliser planning, an inclusion of biogas digestate from plant origin in the organic nitrogen application threshold, a new methodology to calculate an obligatory nitrogen and phosphate balance, and the possibility to introduce additional measures in pollution hot spots. ▶ The 2016 National Sustainable Development Strategy is aligned with the UN's 17 Sustainable Development Goals (SDGs). A 2018 addition to the Strategy contains new objectives for the protection of water against the input of nitrate and phosphorus. ▶ National Action Plan on the Sustainable Use of Plant Protection Products focus on promoting innovation in plant protection and the development of methods for integrated crop protection. They will be complemented by appropriate measures implemented and borne by the Federal Government and the Länder⁴.
<p>Consistency between Agriculture and Water Policies</p>	<p>Federal States have implemented a variety of agri-environmental schemes to support farmers in applying agricultural practices consistent with water and agricultural objectives.</p>

³ Agriculture and water policies are defined here as all policies that affect the interaction between agriculture production and water.

⁴ <https://www.bmel.de/EN/Agriculture/Plants/Texte/AktionsplanPflanzenschutzmittel.html>

B.2. Policies to Manage Agricultural Water Use (Quantity)

Table 3. Key instruments for the management of water use

<p>Quantified national future targets for the use of water resources in the agriculture sector</p> <p>No: There are no quantified targets as water withdrawals by agriculture represent less than 1.3% of total withdrawals for irrigation, but the irrigated area is likely to increase</p> <ul style="list-style-type: none"> ▶ The objectives of WFD concerning groundwater quantity are implemented in national legislation and observed in licensing procedures for water abstractions 	<p>Metering, monitoring and reporting</p> <ul style="list-style-type: none"> ▶ Metering: Yes ▶ Monitoring: Yes ▶ Reporting: Yes, to the federal statistical office
<p>Quantity targets accounting for climate change</p> <p>The objectives of the WFD are climate robust and management decisions have to consider climate change</p>	<p>Scarcity pricing</p> <p>Water abstraction fees in 13 of 16 federal states are established. They differ from state to state⁵</p>
<p>Water entitlements</p> <ul style="list-style-type: none"> ▶ As water is a public good, users require a time limited licence ▶ Abstraction licenses can be granted to farmers and to water suppliers 	<p>Enforcement measures</p> <p><i>Unspecified</i></p>
<p>Proportion of cost recovery for surface water</p> <ul style="list-style-type: none"> ▶ Operation and Maintenance: 100% (costs for abstraction have to be fully borne by operators) ▶ Capital Costs: 100% ▶ There are different water abstraction fees in the federal states (Bundesländer). They are designed to internalise parts of the environment and resource costs ▶ Farmers using water from a network pay a full cost charge to the operator of the network based on metering. Farmers who abstract directly pay a water abstraction fee to the Federal States which is only dependent on the volume of direct water abstraction. 	<p>Other policy instruments used to encourage water use efficiency</p> <ul style="list-style-type: none"> ▶ Subsidies, Taxes, Farm advice and research ▶ Abstraction charges over minimum threshold

B.3. Policies to Control Agricultural Water Quality

Table 4. Key instruments to improve water quality

<p>National water quality data collection tools</p> <ul style="list-style-type: none"> ▶ RBMP according WFD which contains monitoring obligations for chemical and ecological status of surface water bodies and for chemical and quantitative status of groundwater bodies. ▶ Improvement of the Water Quality Monitoring Systems (i.e. concerning Nitrates) ▶ Data are collected by the competent authorities of the federal states and reported to European Commission and European Environment Agency via authorities (e.g. German Environment Agency) 	<p>Main policy instruments</p> <ul style="list-style-type: none"> ▶ <i>Regulatory</i>: RBMPs ▶ <i>Economic</i>: The Wastewater Charges Act contains charges for the direct discharge of waste water ▶ <i>Information</i>: Counselling programmes in the Federal States for farmers to reduce nitrate and pesticide inputs in groundwater
<p>Spatial tools (e.g. topological, geometric, or geographic data analysis) to target policies in specific areas</p> <p><i>Unspecified</i></p>	<p>Enforcement measures</p> <p><i>Unspecified</i></p>

⁵ Water Abstraction Legislation : Baden-Württemberg, in place since 1988, changed 2011; Bavaria: -; Berlin in place since 1989, changed 2006; Brandenburg in place since 1994, changed 2011; Bremen in place since 1992, changed 2012; Hamburg in place since 1989, changed 2010; Hessen -; Mecklenburg-West Pomerania, in place since 1993, changed 2010; Lower Saxony, in place since 1992, changed 2015; North-Rhine-Westfalia, in place since 2004, changed 2016; Rhineland-Palatinate. In place since 2013; Saarland in place since 2008, changed 2014; Saxony in place since 1992, changed 2016; Saxony-Anhalt in place since 2011, changed 2017; Schleswig-Holstein in place since 1994, changed 2013; Thuringia: -

B.4. Policies to Manage Climate-Induced Water Risks

Table 5. Water risks and responses

	Droughts	Floods
Reported Trends	No evidence of a trend in incidence or severity	No evidence of a trend in incidence or severity
Key Policies	<i>Unspecified</i>	There are no direct measures but many farmers benefit from increased investment in flood risk reduction. Changes in farm practices affect flood management, but these practices are not solely adopted to reduce flood risks and damage. Advisory services seek to improve farm management of flood risks.
Main Changes from 2009 to 2019	-	-
Factoring of Climate Change in Policies	1/5: Climate change could overall be favourable for crop yields, but the need for irrigation could increase. This is why there has so far been no special policy focus.	

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