Point of View

Europe and the Common Agricultural Policy on the Search for Water Savings: the Point of View of the European Commission

In a context of global changes that affect territories' resources and first and foremost water resources (through climate change, but also population growth and the demand for agricultural products), water management for irrigation has become a major concern for the European Union.
In this interview, Philippe Lammens, Rural Development programmes manager at the European Commission's Directorate-General for Agriculture, takes stock of the mechanisms implemented under the current and future Common Agricultural Policy to achieve more sustainable water use in agriculture.

What do you see as the role of agriculture in (potential) water scarcity?

The role of agriculture in water scarcity is a complex issue and must be seen in the context of sustainable development.

Agriculture is a water-intensive sector and is responsible for around 25% of total abstraction in the European Union (EU). But the scale of the potential shortage is strongly linked to climate change: according to a study by the Commission's Joint Research Centre, it is clear that the number of people affected by water scarcity will increase significantly if the Paris Agreement is not respected.

The issue of water saving in agriculture is becoming increasingly pressing. More needs to be done to reduce the pressure on water resources. Fortunately, we can already see positive trends: since the 1990s [1], abstractions for irrigation have decreased by 22% in the EU, but the trends vary between countries.

Is irrigation the only tool a farmer can count on to meet the water needs of his crops?

Since the drought of the last few years, we are more aware that irrigation plays a fundamental role in ensuring food production. However, we also need to focus on other aspects, such as the types of crops best suited to local conditions, good agricultural practices that optimise good soil structure, thus improving water retention and infiltration, water storage and better water management. Overall, greater efficiency of water use is essential.

What is the European Commission doing on the issue of water for agriculture?

Given the worrying situation, the European Commissioners responsible for the environment and agriculture have set up a task force on this issue within the Commission. It is looking at ways to improve the quality and quantity of water in a cross-sectoral way. A flagship action of this task force was the creation in early 2019 of a "Knowledge hub" [2] in the form of a website on water and agriculture, where available knowledge is shared between EU stakeholders. The website facilitates access to data, analyses, assessment tools, as well as examples of good practices and proven solutions for sustainable water management in agriculture.

As you know, the Commission has a key role in initiating European legislation. In the wake of some well-known directives, such as the Nitrates Directive and the Water Framework Directive, the Commission has recently published a proposal for a regulation on the reuse of water for irrigation. Water reuse is becoming an increasingly interesting and necessary tool to overcome environmental challenges.

As is well known in the research community, the Commission supports many research and innovation programmes, including programmes on the water in agriculture. In addition, for the post-2020 period, the Commission proposes to significantly increase support for agricultural research.

Finally, under the Common Agricultural Policy (CAP), the proposals of the Commission have for years been aimed

1. http://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-2/assessment-1
2. https://water.jrc.ec.europa.eu/

at helping farmers to maximise both their economic production and their environmental performance. Insufficient funding is one of the most common obstacles to making the investments needed for water-saving.

In the new Commission, one of the main objectives of the Vice-President, Mr Timmermans, is to develop the "Green Deal" and the "Farm to Fork" strategy, with a view to sustainable food, taking into account the three pillars of sustainability: the economic, social and environmental pillars. The proposals on the future CAP go in this direction.

Which instruments and priorities are beneficial for water-saving under the current Common Agricultural Policy (CAP)?

Under the current CAP, several instruments are available to help farmers maximise both the economic output and the environmental performance of their farms.

Firstly, direct payments support farmers' incomes and therefore help them to invest while ensuring that a number of standards are met, such as food safety, environmental protection and maintaining the land in good environmental and agricultural condition. These standards include those specific to water management.

Under the 2nd pillar of the CAP, the European Agricultural Fund for Rural Development (EAFRD) is a major and more focused source of funding for investments, for example in the water and agriculture sectors. For the period 2014-2020, total support from the EAFRD amounts to just over 100 billion, spread across 118 rural development programmes, covering all 28 EU Member States (MSs). At least 30% of each programme's funding must be devoted to measures relevant to the environment and climate change, and € 4 billion of investment (public and private) is earmarked for more efficient irrigation systems.

Rural development policy in the period 2014-2020 is characterised by six main priorities, and each priority consists of several "sub-priorities" or priority areas. The main priorities (P) and priority areas (PA) which are closely linked to the "water and agriculture" theme are as follows:

- P4 "restoring, preserving and improving ecosystems", within which we have PA 4B "improving water management, including fertiliser and pesticide management".

These are mainly measures to improve water quality, e.g. measures to limit the leaching of inputs, fertilisers and plant protection products.

In all of the 108 Rural Development Programmes (RDPs) that have subscribed to PA 4B, the objective is that 26.5 million hectares of agricultural land (representing 15.1% of total agricultural land) and 1.4 million hectares of forest land (or 4.2% of forest land) should be placed under management contracts to improve water management.

- P5 "promote resource efficiency and support the transition to a low-carbon, climate-resilient economy" within which we have PA 5A "increase water use efficiency in agriculture".

PA 5A is included in 54 of the 198 RDPs, representing 2.1% of total public spending.

❶ Philippe Lammens, Rural Development programmes manager at the European Commission's Directorate-General for Agriculture and Rural Development, presents the Common Agricultural Policy's mechanisms for a more sustainable use of water in agriculture ("Water Savings in Irrigation" conference, Montpellier, November 2019).

In all of these 54 RDPs, the objective is notably to switch to a more efficient irrigation system for 13% of the irrigated land, thanks to € 4 billion of investments (public and private).

- The measures of cross-cutting priority P1 "Fostering knowledge transfer and innovation" also contribute to achieving the objectives of the other priorities and RFPs, thus also to RFP 5A "Water efficiency".
- Finally, P2 "improving viability and competitiveness and promoting innovative agricultural technologies" should be mentioned, since some investments, for example, those that contribute to better water management, also contribute to better competitiveness. Hence, investments in a more efficient irrigation system can be attributed to either P2 or PA 5A.

More specifically, what type of measures result from these priorities and priority areas within the rural development programs?

If we focus on PA 5A "increasing water use efficiency in agriculture", measure 4 (M4) "physical investments" is by far the most important budgetary measure! Of the € 3.2 billion allocated to PA 5A in total, just over € 3 billion is allocated within M4.

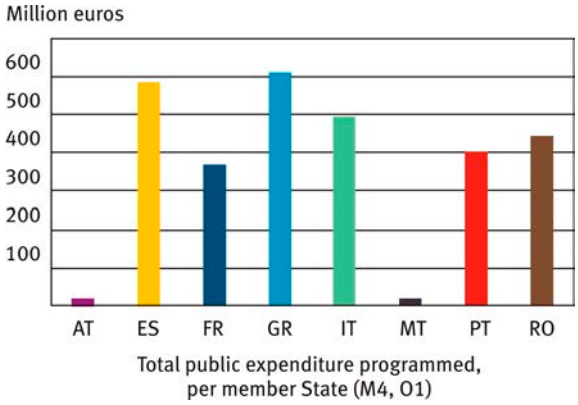
Measure M4 "physical investments" can in particular:

- support the modernisation of existing irrigation systems, both at plot level and at the level of the infrastructure through which water reaches the plot, to reduce water consumption while improving the economic viability of farms;
- setting up or improving sustainable water storage.

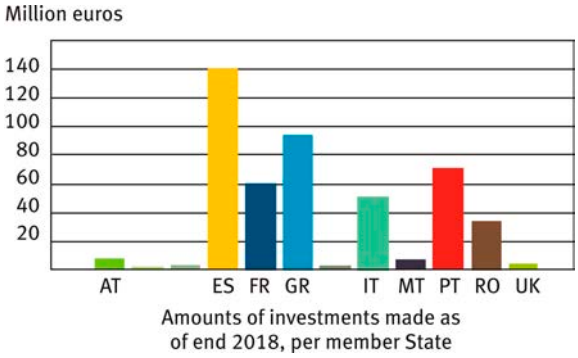
Investment aid for water efficiency in agriculture (within PA 5A) is programmed in 12 member States (MSs).

Figure ❶ shows the amounts of public support programmed in those MSs that programme the most support for this purpose within PA 5A. It is clearly the southern MSs as well as Romania that have programmed the most aid to increase water efficiency.

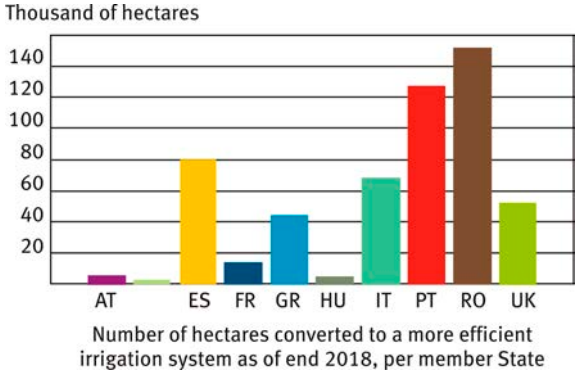
❶ Programmed investment aid for water efficiency (PA 5A). AT: Austria, ES: Spain, FR: France, GR: Greece, IT: Italy, MT: Malta, PT: Portugal, RO: Romania (source: EU).



❷ M4: Amounts of investment supported in favour of water efficiency (PA 5A). AT: Austria, ES: Spain, FR: France, GR: Greece, IT: Italy, MT: Malta, PT: Portugal, RO: Romania, UK: United Kingdom (source: EU).



❸ M4: Number of hectares moving to a more efficient irrigation system (PA 5A). AT: Austria, ES: Spain, FR: France, Gr: Greece, HU: Hungary, IT: Italy, PT: Portugal, RO: Romania, UK: United Kingdom (source: EU).



These are the minimum amounts aimed at beneficial investments to achieve water savings since it is certain that some managing authorities have allocated this aid for this type of investment to P2 (improving competitiveness). The amounts of this aid are not included in Figure ❶, which only includes investments in favour of PA 5A.

Figure ❷ shows the amounts of investment supported by MSs, already by the end of 2018, in favour of water efficiency under PA 5A.

The same MSs from the South reappear, but not necessarily in the same order, due to a different aid rate. For the countries with the highest amounts of supported investments, at the end of 2018, the amounts of investments ranged from € 34 million for Romania to € 142.5 million for Spain.

Much of this investment translates into irrigated hectares being converted to a more efficient irrigation system as shown in Figure ❸.

At the end of 2018, for example, this was already the case for almost 150,000 hectares in Romania, more than 126,000 hectares in Portugal, more than 80,000 hectares in Spain and almost 68,000 hectares in Italy.

By way of reminder, the objective of PA 5A is for 13% of irrigated land to switch to a more efficient irrigation system; by the end of 2018, 40% of this objective has already been achieved.

Besides physical investments, are there other types of rural development measures that promote water-saving?

Several other rural development measures also contribute to a more sustainable use of water in agriculture. Among these, the most directly relevant are the agri-environmental and climate measures (M10); of secondary relevance is support to organic farming (M11) and transversally relevant are the measures M1 (Knowledge and Information Transfer Actions), M2 (Advisory Services) and M16 (Cooperation).

Agri-environmental and climate measures (M10) can also help farmers to adopt rational and sustainable farming practices, reducing the need for resources, including water.

For example, agri-environmental measures can be implemented using new technologies:

- robots measuring water consumption of crops, 3D sensors measuring plant growth or drones monitoring water stress. Water use efficiency can thus be improved;
- precision farming can also help to detect nutrient deficiencies and crop diseases, allowing for more efficient use of available water, as well as minimising the leakage of inputs into the environment.

Support for organic farming (M11) also contributes, accessorily, to better water management, particularly with a view to better water retention in the soil (thanks to a higher level of organic matter).

Cross-cutting measures 1 and 2 can also contribute to better quantitative water management:

- M1, through aid for actions aimed at transferring knowledge and information in this regard. For example,

in Greece, high public investment aid goes hand in hand with aid for such training and information actions (already to the tune of almost € 4 million at the end of 2018);

• M2, by providing advisory services to farmers on water management. For example, in Italy, and to some extent also in Bulgaria, Estonia and Spain, investment aid (preferably) goes hand in hand with support for advisory services on water efficiency.

It should be stressed that investing in actions such as training, information or demonstration actions and advisory services, is also effective in improving water status. In fact, we believe that these facilitation activities are essential to guide farmers towards more efficient production and rational use of water.

Finally, M16 (Cooperation) supports cooperation projects. It aims, among other things, to develop new practices, processes and technologies to reduce water consumption, for example within the Operational Groups (OGs) of the EIP (European Innovation Partnership). Within an OG, different actors (farmers, researchers, advisors, small and medium-sized enterprises, etc.) come together to solve a concrete problem, which can lead to an innovative project, the results of which are then disseminated.

Since the start of the current programming period, within the EU, at least twenty-five OGs have been created which focus on the theme of irrigation and water saving. In addition, a "focus group" on water has been created, i.e. a group of European experts, also multi-stakeholders, who discuss research and innovation needs on very concrete themes relating to water in agriculture.

Rural development measures are one of the main sources of funding for the implementation of the programmes of measures under the Water Framework Directive (WFD). Indeed, there are important synergies between CAP measures and the measures identified in the River Basin Management Plans in order to avoid water scarcity in particular and to contribute to the achievement of the WFD objectives.

The CAP is today one of the main sources of funding for investments in the field of water and agriculture. However, in addition to the financing of measures within the CAP, many measures are also financed by funds outside European programmes, notably by national or regional budgets or private funds.

The future CAP is in the pipeline. Will we be able to continue efforts towards better water management in the future?

We have already widely communicated that the future CAP will intensify its efforts to achieve its environmental and climatic goals. As far as water is concerned, the Commission's proposal on the post-2020 CAP includes several relevant points. For example, for the first time, relevant elements of the WFD will be part of cross-compliance, i.e. the standards to be metto be eligible for direct payments (under the 1st pillar).

Knowledge, innovation and digitisation

Also in the future CAP, knowledge sharing, innovation and digitisation in the fields of agriculture and water will be a cross-cutting objective.

To that end, research, agricultural advisory services and Agricultural Knowledge and Innovation Systems (AKIS) will play a crucial role.

New implementation model

In line with the objectives set at EU level, MSs will have to identify and determine their own intervention needs and select, justify and develop measures from the given set of instruments.

Therefore, if, for example, water scarcity or excessive water abstraction and/or water pollution from agriculture have been identified as issues of concern, MSs and/or Regions will need to act accordingly when designing their future interventions.

The proposed new CAP implementation model therefore, confers greater subsidiarity on MSs for the designing of their interventions, but it also entails increased responsibility for the achievement of specific objectives. This will therefore provide an opportunity to design interventions that are more targeted to local situations and needs. In other words, according to the Commission's proposal, the use of EAFRD support for water supply and irrigation projects could be simpler and more flexible, while ensuring that sustainability requirements are met.

References to water management in the "post-2020" proposals

In the European Commission's post-2020 proposals, there are several references to water management, particularly concerning the fruit and vegetable, wine and olive sectors.

In the proposals relating to the strategic plans, references such as the following can be found:

• among the objectives: "to develop, implement and promote environmentally friendly production methods (...) and in particular water protection (...) and also to contribute to climate change mitigation and adaptation";

• among the types of intervention, MSs may choose one or more of the following: "investments in tangible and intangible assets, focusing in particular on water-saving...", "research and experimental production, focusing in particular on water saving...", actions to improve water use and management, including water-saving and drainage...".

Much importance has therefore been given to water management and more particularly to water-savings in the new post-2020 proposals!

Rural Development (RD): investment aid

For RD, the Commission's proposal provides for continuity, in the sense that MSs can continue to provide support for investments that contribute to the achievement of common EU objectives and as specified in each MS's strategic plan, according to the new CAP implementation model.

References to irrigation in particular

In the context of investment aid, there are even references to irrigation in particular: it is stated that MSs must draw up a list of ineligible investments (a "negative list"). Furthermore, this list must at least contain a series of items, including: "investments in irrigation not compatible with achieving good status of water bodies as referred to in the Water Framework Directive (2000/60/EC), including the expansion of irrigation affecting water

bodies whose status has been qualified as less than good in the river basin management plan" – "less than good" being understood here in the quantitative sense.

We therefore, want to strengthen synergies with the WFD. Negotiations with the European Parliament and the Council are still ongoing. "Water savings" could play a very important role in this.

Did the "Water Savings in Irrigation" conference, held in November 2019 in Montpellier, meet your expectations?

I am very happy to have been able to open that conference.

As manager of the Languedoc-Roussillon RDP at the European Commission's Directorate-General for Agriculture and Rural Development, I am aware of the challenges that water management poses in this region. Thus, when I was in Montpellier in June 2018 for a monitoring committee, I took the opportunity to visit the former Irstea[3], to learn what research can bring us in terms of water management solutions. It was during this visit that the idea was born to organise a moment of exchange at the European level on water savings in irrigation. In November 2018, a first meeting of the steering committee for this conference took place, followed by several others.

The Commission's expectations of the conference were twofold:

- firstly, to have exchanges on possible water savings in irrigation for the development of sustainable agriculture;
- secondly, to further stimulate the dissemination of results at European level in terms of:
  - research,
  - technical innovations to save water in irrigation.

I was delighted by the participation of so many representatives of operational, institutional, technical and scientific actors and many other speakers, from eleven MSs and even from outside the EU (such as Turkey and Ukraine), who generated many fruitful exchanges and discussions. The dissemination of the results, which started at the conference itself, will be fully ensured thanks to this special issue of the INRAE journal *Sciences, Eaux & Territoires*. ■

3. Now INRAE, l'Institut national de recherche pour l'agriculture, l'alimentation et l'environnement (National Research Institute for Agriculture, Food and the Environment), which, since 1 January 2020, has brought together the former organisations INRA and Irstea.

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In 2010, the European Commission estimated that Europe could reduce its water resource consumption by 40% by optimising irrigation systems.