

Abril de 2022

www.seha.info

**THE FORMATION OF AGRICULTURAL GOVERNANCE:
THE INTERPLAY BETWEEN STATE AND CIVIL SOCIETY
IN EUROPEAN AGRICULTURE, 1870-1940**

Jordi Planas*, Anton Schuurman** and Yves Segers***

S E H A

* Research Center in Economics and Economic History “Antoni de Capmany” and Department of Economic History, Institutions, Politics and World Economy at the University of Barcelona

** Rural and Environmental History Group at Wageningen University

*** Interfaculty Center for Agrarian History at KU Leuven

E-mails: j.planas@ub.edu; anton.schuurman@wur.nl; yves.segers@kuleuven.be

© Abril de 2022, Jordi Planas, Anton Schuurman, Yves Segers

ISSN: 2386-7825

The formation of agricultural governance: the interplay between state and civil society in European agriculture, 1870-1940

Abstract: In this paper, we focus on the relationship between state and agriculture in Europe in the period roughly from 1870 to 1940. Since the crisis of the late nineteenth-century, state intervention had increased into many areas of agricultural markets, and a growing social mobilization within the countryside had also made its mark, with the diffusion of agricultural associations (landowners associations, farmers unions, specialized crop producers' associations, co-operatives, ...) that led to a much more organized rural society. Already prior to the 1930s, the state had become involved, one way or another, with the development of agriculture, such as the promotion of technical advancement, in the regulation of agricultural markets, and in the development of farm supportive policies. Throughout this period, agricultural associations played a growing role as intermediary institutions, and it is this period that we consider to be the formative period of this interplay between the state and agricultural civil society. The result was a metamorphosis from the mobilization of the peasantry and the representation of agrarian interests to a form of self-government or co-government of the agricultural sector at the national level, which reached its highest point only after the Second World War.

Keywords: agricultural governance, state intervention, agricultural organizations, agricultural modernization, European agriculture, early twentieth century.

JEL codes: N43, N44, N53, N54.

S E H A

La formación de la gobernanza agraria: la interacción entre el Estado y la sociedad civil en la agricultura europea, 1870-1940

Resumen: En este artículo, centramos nuestra atención en la relación entre el Estado y la agricultura en Europa en el período aproximadamente de 1870 a 1940. Desde la crisis de fines del siglo XIX, el intervencionismo estatal aumentó en muchas áreas de los mercados agrícolas, al mismo tiempo que se producía una creciente movilización social en el mundo rural, con el desarrollo de asociaciones agrarias de muy diversos tipos (asociaciones de propietarios, sindicatos de agricultores, asociaciones de productores de cultivos especializados, cooperativas,...) que dieron lugar a una sociedad rural mucho más organizada. Ya antes de la década de 1930, el Estado se había involucrado, de una forma u otra, con el desarrollo de la agricultura, como por ejemplo en la promoción del cambio técnico, en la regulación de los mercados agrícolas y con políticas de apoyo a la agricultura. A lo largo de este período, las asociaciones agrarias desempeñaron un papel creciente como instituciones intermediarias, y es este período el que consideramos como el período formativo de esta interacción entre el Estado y la sociedad civil en el mundo rural europeo. El resultado fue una metamorfosis desde la movilización del campesinado y la representación de los intereses agrarios hacia una forma de autogobierno o cogobierno del sector agrario a nivel nacional, que alcanzaría su punto más alto después de la Segunda Guerra Mundial.

Palabras clave: gobernanza agraria, intervencionismo estatal, organizaciones agrarias, modernización agraria, agricultura europea, inicios del siglo XX.

Códigos JEL: N43, N44, N53, N54.

1. Introduction

The role of the state in agricultural governance and policy has attracted much attention from historians and other researchers². In their relationship, the state and agriculture are mostly seen as two separate, autonomous actors; the former being the active partner, the latter the demanding partner. In our opinion, this relationship is, on the contrary, a dynamic and multi-layered interplay between state and agricultural civil society that evolved over time. In this paper we focus on the relationship between state and agriculture in Europe in the period roughly from 1870 to 1940, which we consider to be the formative period of this interplay. Throughout these years, the result was a metamorphosis from the mobilization of the peasantry and the growing influence of agrarian organizations to a form of self-government or co-government of the agricultural sector at the national level, which reached its highest point only after the Second World War, when the involvement of the state in agriculture remained more interwoven than the role of the state in other economic sectors.

During this period, farmers were on their way to becoming organized, educated entrepreneurs operating in a market economy. However, our focus is not on the myriads of individual farmer action that would eventually shape the development of agriculture, but on the collective efforts undertaken through the interplay between state and agricultural civil society to raise agricultural productivity and to address social problems within the countryside. The huge societal changes which occurred throughout the nineteenth century, such as industrialization, urbanization, commercialization, globalization, state-formation, nation-building and democratization, all had an important impact on European agriculture and rural society itself. The agricultural depression from 1870 to 1890 stimulated a process of social and political mobilization in the countryside, fueled by social unrest and the foundation and diffusion of a large variety of agrarian organizations, together with the emergence of mass political parties. The role of the state in agriculture became much more interventionist. The agricultural policies consisted of new commercial measures, initiated agricultural market regulations and interventions, and provided scientific research and technical education, in collaboration and interaction with experts and professional organizations. These collective efforts firstly aimed at bringing about food security by modernizing the agricultural sector with the help of scientific knowledge and new technologies, whilst also improving the income and living standards of farmers. Secondly, they were designed to educate, civilize, and discipline the rural population, and lastly, to ensure political support for state policy and the regimes.

Agricultural organizations played a key role in this development in three ways. Firstly, in demanding state intervention to adapt agriculture to the new market conditions, and in the implementation of new agricultural policies. Secondly, in the politicization of the countryside and the transition to mass politics. In the interwar period all European states developed some form of agricultural corporatism: the state and the agricultural sector became increasingly interwoven with each other in comparison with other branches of the economy, such as industry, and the financial and service sector. The Great Depression and the political developments of the 1930s can be seen as a critical juncture in this process towards a more organized primary sector. What became pivotal because of the interplay between state and agriculture – and that is our third point - was the process of agricultural modernization by implementing new knowledge and new technology to create economic growth, to raise rural living standards, and to ease social tension and societal upheavals. In general, despite differential consequences for groups within agriculture, this route seemingly proved

² See for instance: Tracy, M., *Government and Agriculture in Western Europe, 1880-1988*, New York, Harvester Wheatsheaf, 1989; Koning, N., *The Failure of Agrarian Capitalism. Agrarian Politics in the United Kingdom, Germany, the Netherlands, and the United States, 1846-1919*, London, Routledge, 1994; Vivier, N. (ed.), *The State and Rural Societies: Policy and Education in Europe, 1750-2000*, Turnhout, Brepols, 2008; Moser, P. and Varley, T. (eds.), *Integration through Subordination. The Politics of Agricultural Modernisation in Industrial Europe*, Turnhout, Brepols, 2013; Sheingate, A. D., *The Rise of the Agricultural Welfare State: Institutions and Interest Group Power in the United States, France, and Japan*, Princeton, N.J, Princeton University Press, 2001.

successful, and therefore reinforced itself. Its drawbacks – especially the negative impact on the environment and the loss of farmers’ entrepreneurial freedom – mostly became apparent decades later.³

It is vital to stress the importance of how agriculture was organized, and particularly the impact of agricultural organizations on the decision-making, the implementation, and the achievements of agricultural policy in these three areas. We purposely use the term *organizations* to refer to this broad and varied group, which consists of landowners’ associations, farmers’ unions, specialized crop producers’ associations, and cooperatives. We also use the term *agricultural civil society* when including collective groups of professionals, researchers, scientists, agrarian parties, and even cooperatives. All these collective actors played a critical role in the process of drafting an agricultural policy agenda and were instrumental in implementing them in close relationship with the state, that is members of government and civil servants. This does not imply that the actual policies had no winners and losers within the agricultural sector, and thus that some social groups gained more than others. We are aware of the fact that the agricultural sector is not a monolith, but in this paper we are more interested in focusing on the formation of the link between state and agricultural civil society than on the actual policies. We want to underline the deviant way of agricultural governance from other sectors, its formation over time and its different trajectories in the nineteenth and twentieth century nation-states, and we do not concentrate so much on its differential effects on the social structure of the rural world.

In this paper we will pay little attention to the role of private companies – although they obviously played a huge role in changing and developing agriculture by making new technology and creating new knowledge. Although they are certainly part of the institutional matrix which shaped agriculture in the period 1870-1940, we primarily concentrate on the relationship between the state and agricultural organizations. The role of private companies and its entanglements with the state and agricultural organizations remains a desideratum for yet another publication.

The influence of the market and the market as an organization principle that drives specialization, left a strong mark on the farm as a business-unit itself. From the mid-nineteenth century onwards, the farm became embedded in a new organizational context, and it operated less autonomously.⁴ In the past, the farm had never been a completely separate production unit; but from the mid-nineteenth century, farmers began to purchase more and more products, such as guano and, later, artificial fertilizers, seeds, animal feed and farm equipment. With the establishment of dairy factories and fruit- and meat-processing industries around 1900, the farmer mainly became a producer of raw materials, whilst milling, madder-, flax-, hemp- and tobacco-processing, as well as sugar refining had by then already become established. Farmers themselves were able to remain financially involved in the processing of raw materials and sale of foodstuffs via cooperatives, which in some sectors such as dairy, held a dominant position in the early twentieth century, or by obtaining shares in these businesses. New machinery – also no longer made by regional or even national producers – were introduced, such as modernized ploughs, and harvesting and threshing machines. The demands from the sugar refinery and dairy factories (whether they were privately owned or cooperatives) influenced the operational management of the farms, encouraging the modernization process with the implementation of new scientific knowledge and new technology. To protect (domestic) markets, to monitor quality and to combat fraud, national governments introduced regulations. In short: farmers became a link in the food supply chain instead of relatively independent producers merely surrounded by other farmers and villagers. Step by step, in some places earlier than others, farmers gradually became embedded in new commercial and institutional

³ Federico, G., *Feeding the World. An Economic History of World Agriculture, 1800-2000*, Princeton, Princeton University Press, 2005; Brassley, P., Segers, Y. and Van Molle, L. (eds.), *War, Agriculture and Food: Rural Europe from the 1930s to the 1950s*, London and New York, Routledge, 2012; van Bavel, B.J.P. and Hoyle, R. (eds.), *Social Relations, Property and Power. Rural Economy and Society in North-Western Europe, 500-2000*, Turnhout, Brepols.

⁴ Van Molle, L. and Segers, Y. (eds.), *The Agro-Food Market. Production, Distribution and Consumption. Rural Economy and Society in North-Western Europe, 500-2000*, Turnhout, Brepols, 2013.

contexts and organizations. Markets became ever more important to farmers as a structuring principle.⁵

In this paper, we unravel and discuss how the agricultural sector and the rural world became more and more “organized”, aiming to tackle the important challenges of the time. We will do this mostly on the national level. This is not to ignore the fact that in the same period the agricultural sector also began to be internationally organized and that international arrangements were established to regulate international markets⁶; but the cornerstone of the international order were the nation-states, where the key interaction took place and the key policies were formulated, shaped, and implemented.⁷

After this introduction, the paper is arranged into four further sections. In the first one we answer the question of why and how the European nation-states became engaged in agricultural policies and how these changed. In the following one, we pay attention to the development of agricultural organizations and their collaboration with the state in organizing the farmers and rural society. Thirdly, we focus on the specific role of knowledge development in the modernization of agriculture. Modernization, in the sense of applying new, scientific knowledge, techniques and methods, became the spearhead of agricultural policy, as it served economic, social, and political goals at the same time. With these policies, the collaboration and interconnection between agricultural organizations and the state were indispensable, and to a large extent led to its success. The paper ends with a brief conclusion.

2. Nation-states and agricultural policies

During the nineteenth century, European states gradually expanded their role within society, the economy and, particularly, in agriculture. In the first half of the 19th century, conservative and liberal ideas about a minimalist national state had still been dominant everywhere in Europe, but after the revolutions of 1848 the national process of democratization would gain pace, as did industrialization and urbanization. The central power of the state increased and expanded its scope, which led to opposition from local, regional and religious authorities.⁸ As Tilly argues, the European national states remained war-making organizations, but adjudication, extraction and distribution became much more important.⁹ In the words of North, Wallis and Weinstein, these states were on the brink of the transition from mature natural states to open access societies characterized by free and open economic and political competition, where innovation was a source of rent, and where organizations existed independently from the lives of their members.¹⁰ The state provided rule by law, as well as public services such as education and infrastructure. It also tried to remove obstacles caused by local and traditional customs, as well as taxation, with the aim of stimulating commercialization and economic development. The European powers, with the United Kingdom

⁵ Pinilla, V. (ed.), *Markets and Agricultural Change in Europe from the Thirteenth to the Twentieth Century*, Turnhout, Brepols, 2009; Lains, P. and Pinilla, V. (eds.), *Agriculture and Economic Development in Europe since 1870*, London and New York, Routledge, 2009.

⁶ Ribi Forclaz, A. and Knab, C., "Transnational Co-Operation in Food, Agriculture, Environment and Health in Historical Perspective: Introduction", *Contemporary European History* 20, no. 3 (2011): 247 – 55; Graevenitz, F. G., *Argument Europa. Internationalismus in der Globalen Agrarkrise der Zwischenkriegszeit (1927-1937)*, Frankfurt am Main: Campus Verlag, 2017; Pan-Montojo, J. and Mignemi, N., "International Organizations and Agriculture, 1905 to 1945: Introduction", *Agricultural History Review*, 65, no. 2 (2017): 237-53.

⁷ Held, D., McGrew, A., Goldblatt, D. and Perraton, J., *Global Transformations: Politics, Economics and Culture*, Cambridge, Polity Press, 1999.

⁸ De Swaan, A., *In Care of the State. Health Care, Education and Welfare in Europe and the USA in the Modern Era. Europe and the International Order*, Cambridge, Polity Press, 1988.

⁹ Tilly, Ch., *Coercion, Capital, and European States, Ad 990 – 1990*, Cambridge, Basil Blackwell, 1990.

¹⁰ North, D. C., Wallis, J.J. and B. R. Weingast, B.R., *Violence and Social Orders. A Conceptual Framework for Interpreting Recorded Human History*, Cambridge, Cambridge University Press, 2009.

leading the way, began shaping and organizing their colonial empires thanks to their recently acquired technological superiority and the new methods of communication, thus increasing their power and capacity to rule.¹¹ Under the influence of social and political tension, as well as economic crisis and war, national governments learned – and became willing – to broaden their scope and use this increased capacity.

Agriculture profited from the newly found strength of national, centrally organized states. Firstly, as all economic sectors did, it took advantage of public goods, such as improved education, infrastructure and law and order – all fruits of the liberal state. These improvements were considerable and often remain overlooked or taken for granted by scholars when the role of the state in agriculture is discussed. In our view, they were crucial. Furthermore, the two most important elements of agricultural policy in the first half of the nineteenth century (with an impact upon the wider society) were without doubt the emancipation of the peasantry in many European countries¹² and the repeal of the Corn Laws in the United Kingdom in 1846. The first of these concerned the rights of land users, as well as property rights and land reform. The second stimulated a process of commercialization and specialization within agriculture. Both had a strong influence on the character and direction that agriculture and agricultural policy took in the second half of the nineteenth century.

For agricultural policies themselves, the challenge over property rights (whether in the form of the abolition of the commons, clear-cut land reform, the abolition of the tithe or the level of the rent) was an important dynamic, as were the challenges over the legal and political position of the different strata of the rural population. However, these issues were mostly discussed and addressed in terms of general politics, not necessarily as agricultural policies. Agricultural politics, as such, focused on market regulation and intervention, and on the improvement of the agricultural sector, what Sheingate called promotional policies¹³. State intervention and regulation of agricultural markets have received most of the scholarly attention because they are more visible, as they often were the result of difficult and long-term campaigning. However, in our view, the promotional policies for the improvement and enhancement of farming practices through the implementation of scientific knowledge (from the natural sciences, as well as from social and technical sciences), were more important for the development of the primary sector and the countryside.

During the last quarter of the nineteenth century, most European states founded an agricultural department. Some countries had already done this at the beginning of the crisis (such as France in 1881 and Belgium in 1884), while others reacted later (for instance the Netherlands in 1897). Other economic sectors did not always have a separate ministry, a fact which highlights the importance of the agricultural sector and its specific features. This institutionalization not only strengthened the grip of the state on the agricultural sector, but also gave farmers, their organizations, and experts a direct partner within national bureaucracy and government, as we will see in the next section of the paper. By focusing on the characteristics and the impact of the interaction between government and agricultural organizations, these promotional strategies (based on scientific knowledge) became more visible, as we will see in the fourth section of the paper.

There is general agreement on the main characteristics and the direction of agricultural policy by the European states in the years 1870-1940. The available literature points to three important pivotal moments, each associated with an economic and social crisis. First, the agricultural crisis of the 1880s stimulated national intervention, which was further enhanced by problems and challenges caused by demographic growth, urbanization and industrialization. Although not all governments turned to protectionist measures to the same extent, nearly all of them (with the exception of Great Britain and exporting countries like the Netherlands and Denmark) launched trade

¹¹ Hugill, P. J., *Global Communications since 1844. Geopolitics and Technology*, Baltimore, Johns Hopkins UP, 1999.

¹² Blum, J., *The End of the Old Order in Rural Europe*, Princeton, Princeton UP, 1978.

¹³ Sheingate, A. D., *The Rise of the Agricultural Welfare State: Institutions and Interest Group Power in the United States, France, and Japan*, Princeton, N.J., Princeton University Press, 2001.

regulations, mostly import tariffs, to protect national agricultural and food markets, and they all stimulated, in one way or another, innovation, research and education in order to improve the agricultural sector and make it more competitive in the global market.¹⁴

A second general stimulus was the First World War. During the Great War, the state apparatus, capacity, and scope increased strongly, both within the warring countries and those which remained neutral. This was done for the sake of securing food provision and for controlling prices. Governments intervened in the entire food chain (agricultural production, distribution, and consumption), through the introduction of cultivation plans, distribution centers and food rationing¹⁵.

When the war was over, governments tried to move away from this strong intervention, at the request of farmers and their unions, but the dye had been cast. The diminishing agricultural prices of the late 1920s, caused by worldwide overproduction, and the Great Depression of the 1930s resulted in a renewed and even stronger involvement by governments in agriculture. Each country developed its own strategy, partly because attempts to reach international agreements to stabilize agricultural markets were unsuccessful, as was the case with the International Wheat Conference, organized in August 1933 by the League of Nations. The characteristics of this agricultural protectionism varied from country to country, depending largely on how lucrative the agricultural sector was to the total economy, the influence of agricultural organizations and the social and economic characteristics of the agricultural sector, as well as on the political composition of the government.¹⁶

Apart from the liberal policy applied to law-making and for the provision of public goods (since the first half of the nineteenth century), as well as excluding the previously mentioned market regulation and intervention policies as answers to direct economic and political challenges, the legal and political position of the rural population at large had been improved over the whole period. This improvement was seen not so much as a result of agricultural policy, but more as part of the general struggle for democratization and attempts to develop the national economy. However, it was strongly embedded in contemporary challenges to agriculture and the countryside and had strong consequences for both. In cooperation with the agricultural sector, many initiatives and regulations led to a further development of agriculture, characterized by an improved productivity and to a process of democratization and organization of the countryside. In the next section we will focus on the growth of agricultural and rural organizations and on the strength of its collective action.

3. The development of agricultural organizations and agricultural governance

State intervention in agriculture since the late nineteenth century was partly a consequence of a growing social mobilization within the countryside, with protests and the creation of rural organizations to defend the often-divergent interests of landowners, farmers, and agricultural workers. Many agricultural organizations were founded in Europe from the 1870s onwards (such as landowners associations, farmers' unions, agricultural chambers, specialized crop producers' associations, and agricultural cooperatives), together with the emergence of agrarian parties. The initiatives, mobilization force and pressure of these organizations stimulated governments to introduce legislative measures designed to appease social conflict, avoid the impoverishment of the peasantry, and adapt the farming processes to new market conditions, characterized by globalization and changing consumer demand. From the interwar years onwards, the interplay between the state

¹⁴ Tracy, M., *Government and Agriculture in Western Europe, 1880-1988*, New York, Harvester Wheatsheaf, 1989; Federico, G., *Feeding the World. An Economic History of World Agriculture, 1800-2000*, Princeton, Princeton University Press, 2005; Sheingate, A. D., *The Rise of the Agricultural Welfare State: Institutions and Interest Group Power in the United States, France, and Japan*, Princeton, N.J., Princeton University Press, 2001.

¹⁵ Van de Grift, L. and Ribí Forclaz, A. (eds.), *Governing the Rural in Interwar Europe*, London, Routledge, 2017.

¹⁶ Tracy, M., *Government and Agriculture in Western Europe, 1880-1988*, New York, Harvester Wheatsheaf, 1989.

and these organizations progressively developed into an institutional matrix, creating a form of agricultural corporatism in which the farmers remained responsible for investment and were the beneficiaries of both gains and losses. While capitalism as such became more and more organized, in agriculture it adopted the shape of corporatism. Only in Scandinavia and in Central Europe did larger agrarian parties develop, but in other parts of the European continent, different systems of self-government emerged. Consequently, the agricultural sector and rural society became much more organized and a valuable partner for central government and its administration in developing a policy-vision, an agenda, and its implementation.

Agricultural organizations were very diverse in terms of their composition, membership, scope, function, and their connection with the state, although all of them, in one way or another, played a dual role. Firstly, they contributed to the dissemination of technical innovations, and new insights and practices in agriculture (which will be discussed in the next section), and secondly, they were also instruments for the representation and articulation of the rural society's interests – sometimes convergent, sometimes divergent.

Some of these agricultural organizations were new, but others had a long tradition. In the eighteenth-century, economic societies had been created by enlightened landowners, intellectuals, and professionals to promote agriculture. As happened with some landowner associations which were founded after the liberal revolutions to stimulate the diffusion of innovation and technical progress, as well as for the defence of the interests of their class, these elitist associations operated usually in the cities and had little or no direct influence on the actual farming practices of the rural population.

In the nineteenth century, the state also promoted the establishment of agricultural associations and administrative bodies, together with the participation of civil society (mainly landowners, agronomists, and agricultural professionals), with the aim of proposing legislative measures and setting up initiatives to foster agricultural development. In France, in the early nineteenth century, Napoleon founded agricultural societies in each province that contributed, under the control of the state, to the modernization of farming by the introduction of best practices and scientific (methodological, systematic, and universal) knowledge. Later, the so-called *comices* were established: these were local associations joined by landowners and professionals interested in agricultural progress, remaining active until the twentieth century.

The French *comices* inspired the creation in Italy of the *comizi agrari*, already before the unification in 1861. The final step in their institutionalization followed in 1866, with a decree that aimed at establishing a network of agricultural associations linked to the Italian state with the main objective to promote both technical change and the representation of agricultural interests. State created agricultural chambers (regulated in Spain in 1890 and in Germany in 1894) and other advisory boards included in their ranks experts, scientists, and agricultural professionals, all of whom were able to propose legislative measures and to organize activities for agricultural development, but these organizations had little or no participation from the farmers themselves.

Since the late nineteenth century crisis, however, the number of agricultural organizations had grown and some of them had the aim of bringing the rural population together – including farmers and peasants – and representing the “agrarian interests” in front of the state. The fall of agricultural prices meant a set-back for large, commercial farms and the decline of the economic and social position of the large landowner.¹⁷ In an effort to offset their social and economic decline, some would offer their leadership in agrarian interclass mobilization and protest campaigns to defend the “agrarian interests”. At the same time, the countryside saw the peasantry mobilizing themselves both socially and politically, creating unions to defend their own class interests against landowners who threatened their own social position. In some cases, the landowners responded to these peasant unions with the creation of class defense associations; but more often they tried to counterbalance them with the leadership of interclass organizations.

¹⁷ Koning, N., *The Failure of Agrarian Capitalism. Agrarian politics in the United Kingdom, Germany, the Netherlands, and the USA, 1846-1919*, London and New York, Routledge, 1994.

When they were successful in this endeavour, social mobilization within the countryside was channeled through large and influential associations led by landlords, sometimes formed with federations of local associations and cooperatives. Cooperatives were not so much needed by the large landowners, but by the small farmers who had to face the new challenges of agricultural markets. Many farmers joined them in order to defend their economic and social interests, even when the leadership of these large organizations was in the hands of the landowners or the Church.

In Germany the key actor in the organization of agrarian interest was the powerful *Bund der Landwirte*, created in 1893 by the large Prussian landowners who, thanks to a network of cooperatives, saving banks and newspaper publications, became an influential pressure group in German politics up until the First World War, when it counted more than 300,000 members and controlled a great number of seats in the parliament.¹⁸ Similarly, in Belgium, the catholic *Boerenbond*, which was founded in 1890, had more than 250,000 members in the 1930s, mainly small farmers. This organization was important for its cooperative services, but it also created a publication which spread antisocialist propaganda, becoming a very influential pressure group in Belgian politics.¹⁹

In France, the *Société des Agriculteurs*, founded in 1867 by large landowners and members of the rural aristocracy, took advantage of the 1884 Syndicates Act to promote the creation of agricultural cooperatives (*syndicats*) and built a federation (*Union des Agriculteurs de France*), which in the early twentieth century had more than 300,000 members. As cooperative services were desperately needed for farmers, this first initiative gave an important advantage to the Conservatives in the organization of agrarian interests. However, the Republicans, who then controlled the French government, counteracted the growing political influence of the *Union des Agriculteurs* by promoting another agricultural associations' network in 1880, namely the *Société nationale d'encouragement à l'agriculture*, which in 1910 created the *Fédération nationale de la mutualité et de la coopération*.²⁰ Following the example of the *Société des Agriculteurs de France*, the *Società degli Agricoltori Italiani* was created in Italy in 1895; but it was not as successful as its counterpart in France, as by then the *Federconsorzi* was already in operation and the new agricultural association did not succeed in building a federation of agricultural cooperatives. Consequently, its membership and political influence was weak.²¹

In Spain, there were remarkable regional differences in both agricultural systems and politics and it was therefore difficult to organize agrarian interests in a centralized, national association. This is why the *Asociación de Agricultores de España*, established in 1881, had a very limited membership.²² Noteworthy, a regional landowners' association (*Institut Agrícola Català de Sant Isidre*), created in 1851 in order to improve agricultural practices and to defend the landowners interests in Catalonia, changed its strategy during the late nineteenth century crisis: it tried to approach farmers with a less restrictive membership policy and promoted the creation of agricultural associations and cooperatives.²³ A similar strategy was followed in Portugal by the *Real Associação*

¹⁸ Puhle, H.-J., "Agrarian movements in German politics (19th and 20th c.)", P. Villani (ed.), *Transformazioni delle società rurali nei paesi dell'Europa occidentale e mediterranea (secolo XIX-XX)*, Napoli, Guida, 1986, p. 159-188.

¹⁹ Van Molle, L., *Chacun pour tous. Le Boerenbond belge, 1890-1990*, Leuven, Presses Universitaires de Lovaine, 1990.

²⁰ Barral, P., *Les Agrariens français de Méline à Pisani*, Paris, Armand Colin, 1968; Tracy, M., *Farmers and politics in France*, Enston, The Arkleton Trust, 1991.

²¹ Rogari, R., *Proprietà fondiaria e modernizzazione. La Società degli agricoltori italiani, 1895-1920*, Milano, Franco Angeli, 1994.

²² Pan-Montojo, J., "La Asociación de Agricultores de España y la clase política, 1881-1942", *Ayer*, 66 (2007), p. 85-115.

²³ Planas, J., "El Instituto Agrícola Catalán de San Isidro y la organización de los intereses agrarios (1880-1936)", *Revista española de estudios agrosociales y pesqueros*, 217 (2008), p. 13-48.

Central da Agricultura Portuguesa.²⁴ The intention of these initiatives was to keep the leadership in the hands of the landowners, thus avoiding the social struggle that affected some European regions (such as Andalucía in Spain or Valle Padana in Italy)²⁵ or the creation of strong farmers' organizations such as those in the United Kingdom.²⁶

The coming into existence of large agricultural organizations – and their transformation from elitist societies with the intention of modernizing agriculture by the dissemination of scientific knowledge into large associations for the representation of agrarian interests vis-à-vis the government – was certainly intertwined with the growing political voice of the countryside. When in the late nineteenth-century the right to vote was increased, allowing the political voice of peasants to be heard unrestricted, agricultural organizations became important actors that the state had to take into consideration, especially when they were as large and as influential as the examples mentioned above. From the mid-nineteenth century to the First World War, the majority of European countries introduced full male suffrage: France (1848), Switzerland (1848), Germany (1871), Spain (1890), Belgium (1893), Austria (1896), Sweden (1909), Italy (1912), The Netherlands (1917) and the United Kingdom (1918).²⁷ The extension of the franchise occurred simultaneously with the late nineteenth-century agricultural crisis, which was a wake-up call for the peasants' politicization. They demanded state protection of their markets and wanted agricultural policies to improve their living standards. At the same time social stability was threatened by a growing wave of protests and social mobilization. Political parties had to look for voters in the countryside to win the elections, and the peasants' voice in public affairs would eventually determine the rise (and fall) of democracy in several European countries after the First World War.²⁸

With the transition to mass politics, agricultural organizations became instruments for the politicization of the countryside that political parties could use for their own benefit, but also as tools used by landowners and peasants to defend their interests. In the Nordic countries, agrarian parties developed from already established organizations in the early modern period; in central Europe, agrarian parties appear to have come about in the interwar period due to the inefficiency of agrarian associations as intermediaries between rural interest and government.²⁹ In other European countries, the foundation of agrarian parties was not so successful. The whole gamut of agricultural organizations appeared to be more efficient and successful in representing the interests of the sector and in influencing agricultural policy.

After the First World War, there was a growing need for organizations which could act as an intermediary between the state and rural society. Firstly, the state's provision of technical education and agricultural research was not sufficient for the diffusion of technical change, but the assistance of agricultural organizations (especially cooperatives) was also needed to encourage the farmers to

²⁴ Rodrigues Bernardo, M^a A., "Les élites agraires portugaises au XIXe siècle: entre groupes de pression et associations", *Histoire, Économie et Société*, 16 année, 2 (1997), p. 189-202.

²⁵ Díaz del Moral, J., *Historia de las agitaciones campesinas andaluzas*, Madrid, Alianza Editorial, 1979; López Estudillo, A., *Republicanism and anarquismo en Andalucía. Conflictividad social agraria y crisis finisecular (1868-1900)*, Córdoba, Ayuntamiento de Córdoba, 2001; Cazzola, F. and Martini, M., "Il movimento bracciantile nell'area padana", in P. Bevilacqua (ed.), *Storia dell'agricoltura italiana in età contemporanea*, Venezia, Marsilio Editori, 1991, vol. III, p. 733-798

²⁶ Mutch, A., "Farmer's Organizations and Agricultural Depression in Lancashire, 1890-1900", *Agricultural History Review*, 31 (1983), p. 26-36; Brown, J., "Agricultural Policy and the National Farmer's Union, 1908-1939", in J. R. Wordie (ed.), *Agriculture and Politics in England, 1815-1939*, London, MacMillan Press Ltd, 2000, p. 178-198; Goddard, N., "Agricultural Institutions: Societies, Associations and the Press", in E. J. T. Collins (ed.), *The Agrarian History of England and Wales, 1850-1914*, Cambridge and New York, Cambridge University Press, 2000, p. 650-690.

²⁷ Tilly, Ch., *Contention and Democracy in Europe, 1650-2000*, Cambridge: Cambridge University Press, 2004.

²⁸ Luebbert, G. M., *Liberalism, Fascism, or Social Democracy. Social Classes and the Political Origins of Regimes in Interwar Europe*, New York, 1991; Cobo Romero, F., *¿Fascismo o democracia? Campesinado y política en la crisis del liberalismo europeo, 1870-1939*, Granada, 2012; Simpson, J. and Carmona, J., *Why Democracy Failed. The Agrarian Origins of the Spanish Civil War*, Cambridge, Cambridge University Press, 2020.

²⁹ Gollwitzer, H. (ed.), *Europäischen Bauernparteien im 20. Jahrhundert*, Stuttgart, Gustav Fischer Verlag, 1977.

be really involved in this endeavour. A close collaboration between agricultural organizations and the state was also necessary for the implementation of agricultural policy and the regulation of agricultural markets. Furthermore, this collaboration was also critical for removing class conflict and for appeasing the growing social unrest. In a period characterized by economic crisis and increasing reservation about the capitalist system, the interplay between the state and agricultural organizations became a prerequisite for the smooth running of agricultural markets and rural society.

In many European countries in the 1920s – and even more so during the crisis of the 1930s – the growing collaboration between these two actors led to a form of corporatism, aimed at coordinating and governance of the agricultural development with, for example, the creation of administrative boards for the regulation of agricultural markets in which different crop specialized associations participated in the design and implementation of agricultural policies. These associations operated as agrarian pressure groups, with agricultural policy resulting from the institutionalized negotiation with other actors within the food chain, under the supervision of the state.

To sum up, throughout the period analyzed, the agricultural organizations played a key role, not only in demanding state intervention in agricultural and rural matters (to face the crisis and post-crisis situations head-on and to stimulate the necessary changes to adapt the farming processes to the new conditions of the agricultural markets), but also in the design and implementation of agricultural policies. Furthermore, agricultural organizations participated in the politicization of the countryside and the transition to mass politics.

These processes of democratization and modernization cross-fertilized each other. The dual role agricultural organizations had to play may explain why governments sometimes encouraged the creation of cooperatives and other agricultural associations, introducing legislative measures to promote (and control) their diffusion, or even providing technical and financial aid for their consolidation. This was, among others, the case in Denmark, The Netherlands and Belgium. In other countries, however, the state was more restrictive in its support, in order to avoid a powerful peasants' mobilization which could threaten the social *status quo*, especially in undemocratic electoral systems dominated by the local power bosses, as was the case in Spain.³⁰ Consequently, the diffusion of agricultural organizations was more or less rapid or slow (and stronger or weaker) depending on whether their existence and activities threatened or reinforced the elites that embodied the state.

The interplay between state and civil society had different results in the countries of Europe, according to the different contexts in which this interaction took place. The collaboration of the agricultural organizations could increase the state's capacity to intervene in agriculture and to contribute to the modernization of agriculture with new knowledge and technologies. However, at the same time, it could also contribute to the strengthening of the role of agricultural organizations as decisive actors in the organization of the primary sector and the rural world. The reciprocal influences could, then, favour the development of a more vigorous civil society, ready to collaborate with the state in building an "agricultural institutional matrix",³¹ or, contrarily, hinder its development and limit its support for the diffusion of agricultural innovations and the implementation of agricultural policies. This is something that the next section on the role of science and knowledge networks will make much clearer.

4. The modernization of agriculture: the role of new knowledge and technologies

³⁰ Garrido, S., "Why did most cooperatives fail? Spanish agricultural cooperation in the early twentieth century", *Rural History*, 18/2, p. 183-200; Simpson, J. and Carmona, J., *Why Democracy Failed? The Agrarian origins of the Spanish Civil War*, Cambridge, Cambridge University Press, 2020.

³¹ Schuurman, A., "Agricultural Policy and the Dutch Agricultural Institutional Matrix during the Transition from Organised to Disorganised Capitalism", in Moser, P. and Varley, T. (ed.), *Integration Through Subordination: The Politics of Agricultural Modernisation in Industrial Europe*, Turnhout, Brepols, 2013, p. 65-84.

The process of agricultural modernization by implementing new knowledge and new technologies was truly diverse: it consisted of organizational changes from land reform to land consolidation; soil improvement thanks to fertilizers and better drainage; biological innovation, protection against plant and animal disease; new tools and machines; new housing for equipment and animals; better transport and new means of communication. Underneath all of these innovations and changes, lies the importance of scientific and universal knowledge that had to be connected to local knowledge and practices to become successful. Knowledge, whether old or new, and the receptiveness to knowledge, became key to the development of agriculture. The state and civil society – including the individual farmers themselves – became convinced that the application of scientific knowledge and new technology was necessary to enlarge agricultural production, to increase farmers' incomes, and to avoid social unrest within the countryside. From the late nineteenth century onwards, farming became not only more capital-intensive, but also more knowledge dependent.

Knowledge production and circulation in agriculture differs fundamentally from that in other sectors of the economy. Firstly, because the primary sector works with living materials and is highly dependent on factors that are difficult to control, such as climate, weather, and soil condition. Secondly, because European agriculture relies to a great extent on small and medium-sized family farms which, in contrast to large industrial factories and service companies, can invest little or no financial and human capital for collecting information, setting up experiments on the field and in laboratories, searching for innovation and diffusing new insights. That is why the state was, and still is today, a key player in stimulating agricultural research and fostering knowledge networks in all European countries and has been from the last quarter of the nineteenth century onwards. From then on, the relative importance of large farms and estates decreased, and the primary sector became characterized by a predominance of small to medium-sized farms that relied to a large extent on family labour. Large landowners took less and less of a pioneering role in agricultural innovation and gradually the state increased its efforts³². However, the role and impact of the state in fostering agricultural modernization was insufficient to bring about change and to convince farmers to implement new techniques and practices. In the application of new knowledge and practices, farmers remained the central figure with agricultural organizations playing a crucial mediating role.

As mentioned above, in the eighteenth-century economic societies had been founded by enlightened landowners and scientists in many European countries, with the aim, among other things, of modernizing agriculture through research and the dissemination of new scientific and experiment-based insights. Their impact was all in all minor: they were elite clubs with a limited reach, small farmers were rarely involved, and these societies enjoyed little political support.

Since the late nineteenth-century, the state took on a more central and active role in the production and diffusion of agricultural knowledge. This was done not only indirectly, in a facilitating way through granting subsidies and the drafting of a legislative framework, but also in a direct way by setting up public institutions, for instance national testing stations and agricultural universities or colleges, and the introduction of administrative services with consultants, engineers and other experts. By focusing on the further development of agricultural science and an efficient dissemination of knowledge, the state wanted to develop the agricultural sector and make it more productive, although other objectives played a role too. Economic, social, and political motives formed the basis for a stronger government intervention. That commitment also led to new (and in many cases intense) forms of collaboration with and between agricultural organizations and, to a lesser extent, private companies.

We distinguish three aspects to these goals of disseminating scientific ideas among the farmers: the intended productivity raise, the availability of new knowledge for all, and the legitimisation and acceptance of this new knowledge.

³² Koning, N., *The Failure of Agrarian Capitalism. Agrarian Politics in the United Kingdom, Germany, the Netherlands, and the United States, 1846-1919*, London, Routledge, 1994.

Firstly, government efforts aimed at meeting the increasing demand for food and agricultural products and, at the same time, making the primary sector more competitive to withstand the increased international competition in domestic and export markets. Ensuring a decent income for the still large agricultural population was of great importance, if only to maintain social peace in the countryside and limit rural exodus. National governments reacted in their own way, but always with the effects of globalization and the agricultural depression of the years 1880-1895 as the main catalysts.

For example, from the 1870s onwards, Denmark saw its position as a grain supplier to the British market threatened by imports from the New World. It was pointless for an export-oriented agricultural economy to resort to protectionist measures. Innovations in the dairy sector (particularly the introduction of a milk skimmer) enabled a rapid and powerful cooperative response. Between 1882 and 1890, Danish farmers and their organizations founded some seven hundred cooperatives, and at the end of the nineteenth century more than 80 per cent of dairies were already cooperatives.³³ The government supported this process in several ways, including activities which provided crucial information for producers. Livestock farming and the production of animal products (dairy and bacon) became the hub of the Danish primary sector and more than made up for the loss in grain exports. The high level of education of Danish farmers, where education had been compulsory since 1813, undoubtedly contributed to this success, together with the development of agricultural research and extension initiatives.³⁴ A similar evolution occurred in other European countries such as the Netherlands, Belgium and Switzerland.

In this way, according to Federico, a 'three-tier public system' developed steadily in the Western world from the first half of the nineteenth century, consisting of 1) fundamental research by universities and related scientific institutions, 2) experiment stations that focused on practice-oriented research, and 3) consultants working for the government, farmers' unions or cooperatives who spread the results of research amongst farmers, whilst also highlighting the questions and needs of farmers to the research world.³⁵ However, the development of such a public knowledge system did not proceed with the same speed and strength in all countries. This happened very slowly in Great Britain, for example, compared to other European countries.³⁶ In Britain, universities did not begin courses in agricultural technology until the 1890s, and significant public funding for research and education did not follow until 1910. Moreover, most research institutions were associated with universities and not with the Department of Agriculture, as was the case in many other countries.³⁷

A second important aim of the government was to organize access to (old and new) knowledge as openly and equally as possible. This had been a problem for centuries. Although access to knowledge became increasingly open and free in Europe from the late eighteenth century onwards, "knowing" was (and still is) to a large extent socially shaped and situated. The eighteenth and nineteenth century universities and agricultural societies had an undeniably elitist character. This meant that their knowledge and expertise was restricted to a relatively closed circuit of equals. Facilitating access to relevant information and (practical) knowledge was one of the main objectives of public initiatives and was supported in a political and/or financial way by regional and national governments. This was done by establishing formal education through agricultural universities and schools, by organizing lectures, training, demonstrations, competitions and publishing professional literature and magazines. In many cases, this was done in close collaboration with private agricultural

³³ Henriksen, I., "The transformation of Danish agriculture 1870-1914", in Karl G. Persson (ed.), *The Economic Development of Denmark and Norway since 1870*, Aldershot, Edward Elgar, 1993, pp. 153-78.

³⁴ Jones, G.E. and Garforth, C., "The history, development, and future of agricultural extension", in B.E. Swanson, R.P. Bentz and A.J. Sofranko, eds. *Improving Agricultural Extension: A Reference Manual*. Rome, 1997, p. 2-12.

³⁵ Federico, G., *Feeding the World. An Economic History of World Agriculture, 1800-2000*, Princeton, Princeton University Press, 2005.

³⁶ Brassley, P., "Agricultural Research in Britain, 1850-1914: failure, success, and development", *Annals of Science*, 52 (1995), p. 465-480.

organizations such as the farmers' unions. The close collaboration between the Belgian Ministry of Agriculture (established in 1884) and the Belgian Farmers' Union (founded in 1890) is a good example.

In 1879, France launched an agricultural education and extension programme that was fully funded by the government. The 'enseignement supérieur' at the *Institut Nationale d'Agriculture* (INA) was the peak of a knowledge pyramid: three 'écoles nationales d'agriculture' were at the secondary level; whilst the 'écoles pratiques d'agriculture' formed the practical theoretical basis, while the previously established private farm schools remained in operation. Complementary to this, the flow of knowledge and information was actively promoted through a system of 'walking teachers'. Within five years, thirty-three departmental *professeurs d'agriculture* were officially appointed. As civil servants, they were affiliated to the Ministry of Agriculture. Their mission was to be 'nomadic' within their department and to "promote the Enlightenment to the heart of the countryside".³⁸ In 1881 the French government launched the magazine *Annales Agronomiques*, which was one of the leading agricultural publications in Europe until the First World War.³⁹

This was another characteristic of late nineteenth century agricultural knowledge networks: they had an increasingly international and transnational dimension. International agricultural conferences (such as that of Paris in 1878) had paved the way for specialized cross-border (scientific) contact, networks, and organizations. In 1905, the American David Lubin and King Victor-Emmanuel III of Italy founded the International Institute of Agriculture (IIA), which aimed to make agricultural information more readily available internationally, later becoming the FAO (Food and Agriculture Organization of the United Nations). From then on, knowledge spread faster and over a larger area.⁴⁰ This internationalization was not limited to the European continent, but there was also an intense interaction and exchange between the European metropolises and their (former) colonies.

Closing the gap between science and small farmers was not an easy task and did not really take shape until the late nineteenth century, when skilled agronomists (employed by the state and agricultural organizations) assumed the role of translators who devoted themselves to providing hands-on practical advice to farmers and engaging in dialogue with them. They became so-called 'cultural amphibians' who, with one foot in the scientific world and the other in the field, sought to connect these two separate worlds. Initially their impact was limited. Although initially numbering very few, they increased after the First World War, although the real breakthrough took place only after the Second World War. Ideally, these intermediary actors would provide scientists with feedback regarding the attitude of farmers, the feasibility of innovations, and the specific needs and problems at farm level. This may also have encompassed suggestions and ideas from the farmers themselves, or via their organizations.

However, this did not always run smoothly, and it is important not to underestimate the tension and shortcomings in the collaboration between the state, the scientific world, and farmers. This is one of the reasons why some agricultural organizations took it upon themselves to begin with practice-oriented research, for instance through their own cooperatives, at the beginning of the twentieth century. The Belgian Farmers' Union, for example, founded a grain testing station after the First World War, established several model farms, and developed intense partnerships with researchers. The collaboration of agricultural cooperatives in the implementation of new techniques

³⁸ Castonguay, S. "The transformation of agricultural research in France: the introduction of the American system", *Minerva*, 43 (2005), p. 269. See also G.E. Jones and Garforth, C., "The history, development, and future of agricultural extension", p. 6.

³⁹ Boulaine, J., *Histoire de l'agronomie en France*, Paris, 1992, p. 330.

⁴⁰ Dop, L., *Le présent et l'avenir de l'Institut International d'Agriculture*, Rome, 1912. See also Pan-Montojo, J. and Mignemi, N., "International organizations and agriculture, 1905 to 1945. Introduction", *Agricultural History Review*, 65, n° 2, 2017, p. 237-253, and Mignemi, N., "Italian agricultural experts as transnational mediators. The creation of the International Institute of Agriculture, 1905 to 1908", *Agricultural History Review*, 65, n° 2, 2017, p. 254-276.

and practices was also badly needed when government had very little funding for the agricultural extension services.⁴¹

It was especially moments of crisis that increased the call for innovation and the free dissemination of knowledge. Crises were of course a threat, but at the same time they formed an opportunity to break new ground. They exposed structural problems that called for decisive action, increased readiness for change and innovation, and accelerated decision-making. This is precisely what occurred during the agricultural depression of 1880-1895, the difficult reconstruction after the First World War, and the crisis of the 1930s. The state usually took the lead in this, focusing greatly on research and innovation and launching a knowledge offensive. Crisis and urgency were the springboard for new approaches and strategy, to bring about change.

Thirdly, science and experts were also deployed by the state to legitimize specific initiatives and policies. Moreover, the growing nationalism and the political (and military) strife between the European powers increasingly revolved around science. At the same time, researchers and experts entered into alliances and partnerships with the government in order to realize their own research ambitions and to 'officialize' their insights. Juan Pan-Montojo convincingly demonstrated how Spanish agricultural engineers in the second half of the nineteenth century used various network strategies to promote their discipline.⁴² First and foremost, agronomists actively developed their 'networks of patronage', as they soon discovered that the political class was the most important employer of their services. For years, agricultural engineers (already an officially recognized professional category in Spain since 1855) lobbied the elites for active technical-scientific government intervention. These experts maintained close networks of co-responsibility on a national scale, but also paid attention to contacts with international colleagues. By providing research resources, grants and infrastructure available for specific research themes, governments determined the direction of agricultural science and what kind of research was prioritized. Scientists and agronomists who cooperated with the state, or nationalist regimes, were thus able to strengthen their social position and status. For example, Italian agricultural engineers gained prestige for their contribution to agricultural modernization, but they also formed the pivotal figures in the 'battaglia del grano', which Mussolini unleashed in 1925 with the establishment of a standing committee to lead an intensive grain campaign to increase the productivity of Italian agriculture and the self-reliance of the peasantry.⁴³

It was not only the state, scientists, and agricultural organizations who contributed to the development of the primary sector through new research and initiatives in the field of education and extension. From the third quarter of the nineteenth century, agribusiness companies also invested in research & development. Not infrequently, they also received financial aid and other support from the state. On the eve of the First World War, for instance, the German Empire was a global player in the agricultural and food industry. That leadership position was partly the result of government intervention and a successful collaboration between the state and private companies, which quickly mastered the art of lobbying. Between 1860 and 1890, the German experimental stations accomplished studies in agricultural chemistry, plant physiology, animal nutrition, and related subjects.⁴⁴ The stations not only contributed to the growth of agricultural productivity, but also

⁴¹ Planas, J., "Cooperation, technical education and politics in early agricultural policy in Catalonia (1914-24)", *Rural History*, 31/2, 2020, p. 211-222.

⁴² Pan-Montojo, J., *Apostolado, profesión y tecnología. Una historia de los ingenieros agrónomos en España, 1855-2005*, Madrid, 2005.

⁴³ Segre, L., *La "battaglia" del grano. Depressione economica e politica*, Milan, 1982; Felice, E., *La Società Produttori Sementi (1911-2002). Ricerca scientifica e organizzazione d'impresa*, Bologna, 2004 and Felice, E., *La Società Produttori Sementi (1911-2011). Alle origini del made in Italy*, Bologna, 2011.

⁴⁴ Schling-Brodersen, U., *Entwicklung und Institutionalisierung der Agrikulturchemie im 19. Jahrhundert: Liebig und die landwirtschaftlichen Versuchsstationen*, Braunschweig, 1989; George Vascik, "Agrarian Conservatism in Wilhelmine Germany: Diedrich Hahn and the Agrarian League" in L. E. Jones and J. N. Rettalack (eds.), *Between Reform, Reaction, and Resistance: Studies in the History of German Conservatism, 1789 to 1945*, Berg, 1993;

helped to shape the agricultural and food industries through fertilizer research, sugar distillation trials and thinking on commercial food regulation, or to quote Mark Finlay: “all symbolic of the nation's transition to the industrial capitalist market of the nineteenth century”.⁴⁵

The confrontation with hunger and food scarcity during the First World War prompted European governments to underline the strategic importance of food stocks and to drastically increase agricultural production. In addition to the agricultural chemical and technical modernization that had been promoted since the nineteenth century, a 'genetic modernization' took place. Large-scale government support hoisted those changes into the stirrups. During the interwar period, public subsidy funds stimulated the forces of science and technology through financial injections. In many countries, policy makers and agronomists reflected on the best way to organize agriculture after the war. A significant group believed that nineteenth-century structures for agricultural modernization were no longer suitable for the efficient dissemination of modern, industrial agricultural knowledge. Education, research, and information were still too closely intertwined: experts such as researchers and state agronomists were saddled with a range of duties that was untenable in a world in which scientific and practical innovations were difficult to keep up with. The boundaries between fundamental research versus applied/practice-oriented research had also to be reconsidered, as did the organization of agricultural education.

During the interwar period, due partly to the experiences of the First World War, an increasing entanglement between agricultural science and politics occurred. This certainly also happened when the call for a “new order” drowned out democratic ideas and a strong political radicalization manifested itself. The authoritarian regimes in Italy, Portugal and Spain used agriculture to increase national security (meaning self-sufficiency in food) and to restore the internal order between urban and rural areas, although in the latter there was certainly continuity: as Juan Pan-Montojo pointed out, “Franco put into practice many of the elements of the technocratic model that agricultural engineers had tried to develop in the previous 60 years”.⁴⁶

The impact of the agricultural crisis, which peaked in the 1930s but also made itself felt in the late 1920s through falling prices, prompted additional government investment in agricultural research in some countries. However, in other countries, the government decided to cut costs. In the Netherlands and Great Britain, agricultural research was able to further develop and institutionalize. In France, high unemployment and rising government debt made agricultural research no longer a priority and austerity considerations took precedence. Planned regional centers failed to materialize due to a lack of funding at the local level. In 1934 the *Institut de recherche agronomique* was formally disbanded and several stations and laboratories came under the responsibility of the Ministry of Agriculture. The fear that technical improvements in agriculture would lead to overproduction and a further fall in the price of agricultural products seems to have been the main brake on the modernization of French agriculture in the 1930s.⁴⁷

These critical comments on the availability of knowledge, its production and neutrality, do not dispel its effectiveness in raising productivity and efficiency, and, by doing so, raising rural standards of living and appeasing social conflict without overthrowing the existing social order. However, this only came to fruition thanks to an intense cooperation between the state and agricultural organizations. This collaboration provided its legitimacy and the opportunity to deeply penetrate into the farmers' world. Lastly, it was the farmer who brought together detailed and finely tuned practical, local knowledge with the general scientific and newly developed knowledge. Scientific knowledge and new technologies became transferable in the period between 1870 and

Vascik, G. S., “Sugar Barons and Bureaucrats: Unraveling the Relationship between Economic Interest and Government in Modern Germany, 1799-1945”, *Business and Economic History*, 21 (1992), p. 336-72.

⁴⁵ Finlay, M., “New Sources, New Theses, and New Organisations in the New Germany: Recent Research on the History of German Agriculture”, *Agricultural History*, 75, 3 (2001) 279-307; 287.

⁴⁶ Pan-Montojo, J., “Landowners, technicians and associations”, p. 131.

⁴⁷ See Klatzmann, J., “La modernisation de l'agriculture?”. *Revue économique* 4, 5 (1953) 643-658 ; Silz, E. “R. Dumont. Le problème agricole français”, *Politique étrangère* 12, 3 (1947), p. 367-372.

1940, but they always had to be adapted to local circumstances and contexts. Every diffusion process is also an innovation and an appropriation process.

5. Conclusion

In the 1930s, the relationship between the state and agriculture was completely different from the 1870s – both had evolved strongly. The nation-states had become more centralized and legitimized, thanks to the process of state formation and nation building. Universal suffrage had become the rule, although democracy was under threat and on retreat in many European countries at this time. The late 19th century wave of globalization enforced nation states to become active in several spheres of societal organization, from social to economic politics and, of course, also agricultural politics. During the period 1870-1940, the main challenges faced by the state was threefold: first, to ensure food security and to modernize the agricultural sector with the aim of improving the farmers' income and living standards; second, to educate, civilize, and to discipline the rural population; and third, to ensure political support for state policies and the regime.

State intervention became (more) desirable because of economic crisis: firstly, the late nineteenth century agricultural crisis, then the First World War, and later the Great Depression. In different ways throughout Europe, with different speeds and intensity, the role of the state in agriculture and within rural society increased. To prepare and implement agricultural policies, more and more knowledge was needed concerning the agricultural sector, food production, and the rural population. That is why all countries developed an agricultural administration from the last quarter of the nineteenth century, and civil servants became more numerous and better educated, had a more specialized background, penetrated deeper into rural society, and increased their influence on daily life. In other words, the need for government to intervene increased profoundly.

However, it was not only the state which became more formalized and institutionalized. The same is true for agricultural civil society. What were first elite associations involved in agricultural debating and the fostering of a scientific approach towards agriculture, later became lobby groups (still in the form of associations and farmers' unions) and in some cases agrarian parties. These organizations had their own preferences, plans and interests, which often resulted in conflicting strategies and tension within civil society: large landowners versus small farmers; arable farmers versus livestock farmers; agricultural sector versus food industry. They could cooperate, or they could oppose state intervention.

The influence and authority of governments, officials and experts were not always readily accepted, and although the state's capacity increased throughout the period, it remained limited. This led Federico to the conclusion that the role of the state in agriculture was also limited from the beginning of the twentieth century. But this is precisely the point we want to make with this paper: the success and efficiency of governmental policies depended to a large extent on the collaboration between the state and civil society – not solely on the number of civil servants. The state often used organized agriculture and their networks to penetrate deeper into rural society and agriculture. In return, the state gave political rights and social/public services to the (rural) population. By not just looking at interventionist measures, but also at promotional activities like the modernization of agriculture through the dissemination and the use of scientific knowledge, as we do in this paper, this becomes much more noticeable. This does not imply that these policies were neutral or uncontested. On the contrary, as mentioned before, we are aware that their implementation had divisive effects, and that the period analyzed was especially contentious. But we claim that modernizing policies became a common strategy. Resulting from this, an additional research project could analyze which groups within the agricultural sector became dominant in the relation with the state and how this connection in its turn influenced their constituent parts.

In the formation of this agrarian governance process, there were many differences between the various countries of Europe, and in the balance of power between state and civil society, but all nation states had one important thing in common: they shared a great belief in modernization

through the use of scientific knowledge, in technical progress, in the “manufacturability” of society – in the possibilities offered by science and technology in improving the administration/management of regions, communities, societies and economic sectors such as agriculture. The goal of their agricultural policies was to stimulate innovation through scientific research, education, and extension. Promotional activities were, at least until the 1930s, more important than market intervention.

Agricultural science became increasingly institutionalized, and the dissemination of agricultural knowledge was the result of a close collaboration between the state, agricultural organizations, experts, and private companies. All of them were strong believers in the development of agriculture by using science and knowledge, as a way of achieving the overall goals for economic prosperity and social peace. By the 1920s, all European countries had, to a different degree, an extensive agricultural knowledge network, with public research institutes taking over R&D from the big farmers – extension services set a good example and provided new knowledge to smaller farmers, something which, in the period before 1870, was previously done by the larger, more ‘modern’ farmers. As well as this, governments did a great deal more to stimulate agriculture: building roads, public infrastructure, drainage works, colonization projects, land reform, etcetera. In some countries, the role of the state was more interventionist than in others, its administrative capacity was larger or smaller, but the role of agricultural civil society was always crucial for the outcome of agricultural policy.

Over time, the interplay between state and agriculture had changed and transformed into a form of agricultural governance. At the beginning of the nineteenth-century, the agricultural organizations were a combination of lobbying groups and learned societies. In most countries, the challenges of the last quarter of the nineteenth-century led to many new agricultural organizations, from cooperatives to syndicates and farmers’ unions. During the Interwar period, and certainly in the 1930s, when the capitalist system came under increasing pressure, state and civil society searched for new economic and social models. The state took the lead in this, setting the standards (especially in authoritarian states), and again legitimizing its policy through the collaboration with scientists and agricultural experts. State and agricultural civil society telescoped together. A system of agricultural corporatism and co-governance came into place, in which the states had mostly the upper hand. At a more practical level it became less visible whether a person was working as a civil servant in service of the state, or in service of an agricultural organization. The view on who was in charge – the state or civil society organizations - became blurred. The state encouraged self-governance and even opted to outsource tasks to stakeholders such as agricultural organizations. New constellations, forms of cooperation and initiatives for organizing agriculture emerged and would become dominant after the Second World War. The formative years of these forms of agricultural governance were the end of the nineteenth, and the beginning of the twentieth century.

Acknowledgements: An earlier version of this paper was presented at the workshop ‘State, Civil Society and the Farm. Organizing Agriculture in Europe, 1870-1940’ (Leuven, 26th November 2021). The authors are grateful for all the comments that they received from the participants in the workshop as well as the referee of the SEHA working papers. Jordi Planas wants to acknowledge also funding from the research projects RTI2018-093970-B-C33: MCIU/AEI/FEDER, EU and 217SGR1466. Anton Schuurman wants to acknowledge funding from the NWO-research project 360-53-060.