Call for papers

Politics of Agricultural Machinery.

Sociological and historical approaches to the mechanization of agriculture (1945-2021)

Dauphine - PSL University – International conference
June 16 & 17th 2022

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As in the past with the Marshall Plan, technological innovation is now presented as the main solution to the agricultural and food problems of our time. Connected agriculture, the use of drones and biotechnologies are seen as the way to confront global challenges such as climate change, food security, the prevention of sanitary risks, etc., without affecting the competitiveness of agriculture. Although its promoters willingly assign such a political role to the agricultural machine, the latter still largely escapes social science research.

French rural studies have seldom dealt with "upstream" industries - seeds, fertilizers, pesticides, animal feed, and machinery -, with the exception of the work of several economists at INRA in the 1970s and 1980s (Bourdon, 1975; Byé, 1979; Bonnaud et al., 2020). This seems all the more problematic given that other sociological and historical approaches, focused on health and environmental issues, and the protests, mobilizations and regulations to which they give rise, clearly show that industrial logics have a strong hold on agricultural practices and their management (Bonneuil and Thomas, 2009; Jackson, 2016; Jas, 2001). This hold is all the stronger because the "upstream" industries are increasingly concentrated on a global scale (Mooney et al., 2017). For example, in France, the sale of agricultural equipment (tractors, harvesting machines, milking robots, etc.) is dominated by a few large multinational firms, which alone hold most of the market share. A first question, apparently trivial but still poorly documented, is therefore to ask how the transformations of this industrial sector have historically affected and are affecting today's various production models and agricultural professions? Conversely, in a political context where injunctions to agricultural greening - with all the ambiguities that this term can cover - are becoming more and more pressing, how are environmental concerns and standards integrated into the promises of agricultural machinery?

This question is at the heart of the collective research project Polma (Politiques de la machine agricole), which has received funding from IFRIS and the Fondation de France since 2018, and which brings together researchers at the intersection of history and sociology. The ambition of this project is to use the tools and methods of social sciences, to shift the gaze from the existing literature on agricultural technologies. The latter often focuses on the question of the determinants of technical change and the implementation of digital technologies (Bellon-Maurel and Huyghe, 2016; Daniel and Courtade, 2019; Laborde, 2012). However, it pays little attention to the socio-political genesis of machinic trajectories of French agriculture, or even to the construction of public policies or industrial policies that nevertheless shape its technological future.

The conference will be an opportunity to bring together studies that take agricultural machineries as their object or that examine it from related issues (land tenure, agricultural work, consulting, environment, etc.), rooted as much in economic sociology, STS and history of science, rural sociology, environmental sociology and history. This plurality of approaches will allow for a general reflection on the role given to machines in agro-ecological transition policies, whether they are carried out by productive organizations (cooperatives, agri-food industries, traders) or by public policies (agricultural, but also industrial and environmental).

The conference will be organized around three main areas of reflection:

The first, historical, axis invites contributions to denaturalize the formidable motorization of agriculture after 1945, and to go beyond its character of obvious technical and economic necessity, of "inescapable modernization" (Lyautey, Humbert, Bonneuil, 2021), by showing the societal choices made, the rarely explained power relations (Jarrige, 2009), the neglected alternatives and the forgotten controversies that marked its development (Pessis, 2021). Case studies on a territorial or sectoral scale are particularly welcomed.

We will first try to explain the choices made since the 1940s in favor of increasingly powerful agricultural machines (Reboul, 1978), to analyze the interplay between manufacturers, public research, the agricultural profession, socio-professional associations, etc., and to account for competing worldviews and professional identities that are being reconfigured. For example, how is agricultural advising organized with regard to investments in machinery? How is the use of machines "operationalized" (analysis of the social world of agricultural machinery: manufacturers, dealers, research, technical trials, definition of itineraries for using machines, etc.)? Particular attention could be paid to the initiatives of agricultural firms and oil industries, as well as to the experts (specialists in rural engineering and agricultural machinery, rural economists, management consultants, etc.) who have become essential actors in the prescription of agricultural machinery and the construction of its profitability. It could also be a question of revisiting the "Fin des paysans" (Mendras, 1967) from perspectives that put machinery and its effects (indebtedness, heteronomy, competition between "big" and "small", etc.) in the foreground.

Another set of questions will focus on the new socio-metabolic and socio-energetic regime on which motorization is based (Harchaoui and Chatzimpiros, 2019; Daviron, 2020): how is the availability and low cost of fossil energy constructed? What are the effects of the deployment of motorized power in rural spaces in terms of landscapes, agricultural practices, and material flows? We may also ask whether alternative forms of territorial development have been associated with different uses of machines, or whether, on the contrary, the forms of agricultural greening of agriculture have fueled a growing use of machinery?

We will also be interested in the forgotten controversies that marked the development of mechanization, and in the study, in a "symmetrical" way (without prejudging the superior rationality of maximum mechanization or motorization), of the alternatives and other possible paths of agricultural development that were promoted (persistence of innovations in the field of animal traction, promotion of lighter or multipurpose equipment, valorizing other chains of innovation, production or distribution, etc.). While agri-equipment policies have been the object of strong criticism (economic, social and environmental) since the end of the 1940s, what arguments and what socio-political arenas, what actors and what types of expertise, what social experiences, etc., have contributed to reassuring agricultural machinery and setting it up, beyond the oil crisis and successive CAP reforms, as a privileged vector of rural transformation?

The second axis focuses on contemporary agricultural innovation policies and their implementation. In France, public support in agriculture had been reoriented since the 2000s towards the greening of agricultural practices. Yet, public support for increasing the power of agricultural machinery continues through fiscal and accounting measures that are less publicized, such as the tax deduction for investment or the exemption from fuel tax (Delaire et al., 2011). In this axis, we call for contributions which aim to understand the political economy of support instruments for agricultural equipment, by analyzing their relative weight and their effects on farms over the last few decades. We will be particularly interested in public policy instruments, such as lists of subsidized equipment, in their genesis as well as in their uses: what are the logics, what expertise is called upon? What changes over time? What are the links between public policies and agri-supply companies? How does all this fit into national and European guidelines (changes in the second pillar of the CAP, definition of eligibility criteria, etc.)?

This second axis also aims to question the specific economy of "datafication" (Sadowski, 2019) or turning agriculture into data. Today, digitalization is at the heart of numerous and sometimes divergent promises by public authorities and industrials. From sensors to robots to data analysis software, it is promoted as the means to simultaneously foster high productivity, secure human health and preserve the environment (Bronson and Knezevic, 2016). As such, it receives significant financial support at the intersection of the public and private sectors. We therefore welcome papers proposing to investigate these initiatives and the concrete devices they produce, in order to deconstruct the general evidence that makes digital technologies the solution to so many challenges of contemporary agriculture. In particular, we are interested in the strategies of public-private agencies, which are the real gatekeepers of public spending in this area, as well as in the networks that are emerging between technological startups, agricultural organizations and farmers, in order to understand the new relationships of dependence, cooperation and competition that result from them.

The third axis is dedicated to the economics of agricultural machinery and the changes in agricultural work brought about by the increasing mechanization of farms. Work directly on the agricultural machinery industry will be particularly welcome, especially since this dimension has been little documented since the 1980s. Above all, it is a question of combining the analysis of market relations within the agricultural machinery industry (the economics of concessions, industrial strategies, role of the main prescribers), with a questioning of the uses of machines, the resulting transformations of work and the possible appropriations they give rise to. The aim here is not so much to list the determinants of technical change as to place these uses within a set of organizational, professional and economic constraints.

Do machines give rise to specific professional sociabilities (mutual aid networks, attendance at fairs and exhibitions, etc.) and, more generally, what role do they play in the construction of farmers' professional identity (Saugeres, 2002)? Is the choice of equipment the product of the sociability of the family, the school, the neighbors and the professional network (Champagne, 2002)? We will also ask whether the lengthening of vocational training, new practices resulting from the growing number of neo-ruralists, and the new "business model" of farms (Purseigle et

al., 2017) have modified the relationship with the machines inherited from the post war economic growth.

The development of connected technologies on farms and embedded technologies in tractors (crop management software, drones and sensors to measure plant growth, etc.) are transforming traditional farm machinery into increasingly automated control centers and the farmer into a "shepherd of machines" (Mumford, [1950] 2016). In the perspective initiated by other works on the dynamics of the evolution of agricultural practices (Aulagnier and Goulet, 2017; Goulet and Vinck, 2012; Lamine, 2012), such technological transformations call for an in-depth study of their effects on the profession: are professionals increasingly dispossessed of the technological choices they make? What is the role of contractors and CUMAs in these processes, and more generally, how can mechanization and the delegation of certain tasks within or outside farms be articulated? Approaches that emphasize the challenges of equipment maintenance and forms of DIY are also welcome.

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Scientific Committee

Stéphanie Barral (LISIS, INRAE), Christophe Bonneuil (CRH, CNRS) ; Jean-Paul Bourdon (retired from INRA, Dep. ESR) ; Marc-Olivier Déplaude (IRISSO, INRAE) ; Corinne Marache (CEMMC, Univ. Bordeaux Montaigne) ; Marie-Océane Fekairi (Atelier paysan) ; Frédéric Goulet (Innovation, CIRAD) ; Jeanne Oui (CAK, EHESS)

Submission procedures and timetable

Proponents are invited to register their proposal in one or more of the three axes. Proposals - including an abstract (one page maximum), bibliographic references (5 to 10) and a

presentation of the author (a few lines) - should be sent by January 7, 2022 at the latest to the members of the organizing committee (addresses below). The conference will be held in French and no translation is planed. Yet, we welcome contributions in English if being in a French-speaking environment is acceptable for you. We hope to have an English-speaking panel if we have enough of such contributions.

The scientific committee will give its feedback before the end of January. Papers from young researchers are particularly welcome. Unfortunately, the funds at our disposal do not allow us, except in exceptional cases, to cover the travel and accommodation expenses of the participants. If your financial situation makes it difficult for you to participate to the conference, whatever your academic status, please email the organizing committee and we will do our best to find resources to make your participation possible.

The speakers selected by the scientific committee will be asked to send a complete text before **May 15, 2022** (between 25 and 50,000 characters), in order to circulate it to the colleagues speaking in the same session, and for possible publications to follow quickly.

The conference will take place on **June 16 and 17, 2022**, at Dauphine - PSL University.

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