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Uberisation of agriculture: the case of the SeedLinked app
Elements for a critique of digital platforms applied to seeds

Digitalisation is advancing everywhere, including in agriculture. The integration of "connected objects" into farming practices is a new Eldorado for the industry. When crossed and analysed, the data generated by users of these new tools represents an emerging market to be exploited. In these times of economic and ecological crisis, digitising whole areas of our lives is one of industry's solutions for creating new profits and perpetuating growth that is otherwise running out of steam. Farming, one of the sectors lagging behind in terms of digitalisation, is no exception. This is why public and private authorities are dedicating big budgets to promote "Agriculture 4.0".[1]

European projects devoted to organic seeds are a good illustration of this trend. This is the case of the European "Liveseeding" project, in which the European Coordination Let's Liberate Diversity (EC-LLD) network, of which Réseau Semences Paysannes (RSP) is a member, is taking part, along with a number of close partners.[2] The Mètis collective is involved in this project, together with ITAB, through a contract to work on simpler and more user-friendly forms of on-farm breeding.[3] One of the many actions this project is undertaking is devoted to the development of a digital platform in Europe called OHMTrack.[4] Its aim is to ensure the traceability of new 'heterogeneous biological material' and to facilitate notifications – in other words, the registration of "materials" by seed companies, including a description of their agronomic and phenotypic characteristics, as well as the selection methods and parents used.[5] The software is being developed in partnership with SeedLinked, an American start-up developing a digital "variety evaluation platform".

For some time now, we have been witnessing the growing influence of SeedLinked among those involved in the project, but also certain criticisms and reservations voiced against it. We therefore felt it appropriate to offer a quick analysis of the implications of this type of new technology. The aim of this note is to provide information on the specific case of the SeedLinked application, as this model, in one form or another, is likely to emerge in Europe in the near future. We also want to stimulate a wider reflection within the RSP and EC-LLD on issues linked to research projects and new digital technologies.

SeedLinked: a digital platform for seeds.

What does it do? The application is designed to help you choose a variety by combining a decentralised and "participatory" trial service with an online shop where you can buy the seeds of varieties previously evaluated in other trials. The seeds come from companies selling all types of material (F1 hybrids, lines, populations), both organic and conventional. The app provides a trial protocol that can be used to mobilise a large decentralised network of experimenters. SeedLinked arbitrarily allocates three varieties ("triadic" method). Once the seed has been sown, the experimenters can start grading via the smartphone app. Criteria such as yield, flavour, appearance, earliness and disease resistance, as well as an overall evaluation score, are assessed using a ranking system (from 1 to 5). The data is then analysed using the "Tricot" statistical method, and the results

1   Global investment in foodtech and agtech startups totalled $29.6 billion in 2022, AgFunder, "AgFunder AgriFood Tech - Investing report", 2023
2   It also includes organisations that are far removed from the values defended by the RSP, such as GEVES and KWS. https://liveseeding.eu/project-partners/
3   On this "simple, user-friendly search": https://collectif-metis.org/index.php/2023/06/16/quelles-manieres-prometteuses-de-faire-de-la-recherche/
4   See the page in English: https://liveseeding.eu/digital-tool-ohmtrack/
5   See the fact sheet on Biological Heterogeneous Material published by the RSP: https://www.semencespaysannes.org/semons-nos-droits/fiches-pratiques.html

are displayed for each variety on the online shop. The aim is to identify varieties best suited to different bioregions, with the model enabling SeedLinked to differentiate performance depending on trial location. On this basis, SeedLinked is also developing services for organisations developing variety trials (seed companies, research laboratories, technical institutes, etc.).

At first glance, the software seems to respond to many difficulties encountered in decentralised participatory breeding or evaluation: simple scoring criteria per row, low cost for setting up trials, easy data transmission via smartphone, time saving for farmers and facilitators thanks to the centralised organisation and methodology imposed by the tool (no tedious meetings marked by absenteeism or conflicts to agree on common objectives and protocol) and finally great statistical robustness.

Crédit : *SeedLinked*

Building an alternative using the tools of the dominant system?

We certainly share SeedLinked's assessment of the limitations of conventional centralised breeding systems and the advantages of a participatory and decentralised approach.[6] However, the response provided, based on "big data" and "crowdsourcing" (which in our case means "production of data by a group of users"), seems to us to be a totally contradictory means of pursuing objectives such as food sovereignty, an objective which SeedLinked boasts it works for. One needs to look past the progressive veneer of the start-up, to understand the economic model of internet platforms. Their main source of revenue is data collection and analysis, maximising digital interactions. This is reflected in the site's terms of use (ruled by US data protection legislation): SeedLinked is the owner of all content, data and information accessible through the platform, as well as the underlying computer code, which is not open source.[7] Only users' personal data is not the property of SeedLinked, but SeedLinked reserves the right to use it. Finally, the conditions of use stipulate that Seedlinked may unilaterally block access to certain users, "with or without cause".[8]

If they prosper, these companies create their own market and end up controlling entire sectors of the economy, as is currently the case with Google, Apple, Facebook, Amazon, Microsoft, Uber and Airbnb. "Crowdsourcing", it turns out, is both free and compulsory labour for the benefit of the

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6   https://seedlinked.com/why-seedlinked/
7   In English, read article 2.8. https://seedlinked.com/terms-of-use/
8   https://seedlinked.com/terms-of-use/

company. Free, because the production of raw data is not remunerated; hence they maximise profits from data analysis. Mandatory, because the service offered tends to evolve into a monopoly. SeedLinked's main aim is to establish itself as a key intermediary for players in the industry and the consumer: "The end user (buyer, baker, chef, etc.), the farmer and the breeder will be directly connected as never before, creating a more democratic seed economy". In short, they change everything so that nothing changes.

This type of initiative is perfectly compatible with today's seed industry. Given the current high profitability of this type of business model, it is no coincidence that SeedLinked is financed as a start-up by a venture capital company, SVG Ventures Thrive, which is one of the most active in the "agriculture 4.0" market.[9] The company's partners include multinational seed and agrochemical companies such as Bayer, Corteva and BASF.[10] Bayer is now one of the leaders in digital tools and systems for agriculture. This is the result of its takeover of Monsanto, which had itself invested in and bought out digital farming start-ups.[11] Seedlinked has also received $500,000 in funding from TitleownTech (formed in 2019 following a partnership between the Green Bay Packers and Microsoft).[12] This raises a legitimate question: where and how will the data that is produced in a participatory and decentralised way by SeedLinked's kind users end up? And what will it be used for? What autonomy will be left for these same users, who are now totally dependent on a technological crutch and the market for their seed choices?

The SeedLinked app illustrates the growing importance of agriculture 4.0 or "agrotechnology" (robotics, artificial intelligence, GMOs, digital technology applied to agriculture). We are also wondering about its penetration into European research and development projects on organic varieties, in which the RSP and its members could still have a place. For some years now, the vast majority of new participatory research projects that have been accepted have been "pre-breeding" projects[13] (see, for example, the "Increase" project[14]) involving research institutes, industry, gene banks and civil society (farmers' networks and citizens). The stated aim is to capture as much data as possible to describe a large number of genetic resources in a wide range of environments in order to better characterise their behaviour and thus find new alleles of interest to be inserted into new varieties. The role of farmer networks and participating citizens can therefore be summed up as: supplying the industry with digitised data. With SeedLinked, a new stage seems to have been reached in the capture of data and in the political and economic diversion of alternatives such as participatory breeding.

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9   https://pitchbook.com/profiles/company/433852-66#signals. The start-up even appears as one of the flagships highlighted by SVG Ventures Thrive: https://thriveagrifood.com/demo-day-2022/. The sources of SeedLinked's funding were found via a web survey conducted by Cyrille Pacteau (RSP administrator and member of Graines des Montagnes). We would like to thank him for providing us with this information.

10 https://thriveagrifood.com/about-overview/partners/

11 European Commission, "Merger Procedure Case Bayer/Monsanto", 2018

12 https://wisconsinctc.org/2020/06/05/seedlinked-obtains-critical-funding/ and https://www.crunchbase.com/organization/seedlinked/company_overview/overview_timeline

13 Pre-breeding involves observing a wide range of genetic resources in order to select plants that are interesting for a given trait. This trait is then inserted into elite varieties using conventional or biotechnological methods.

14 https://www.terresinovia.fr/-/lancement-du-projet-increase and https://collectif-metis.org/index.php/2022/01/31/note-de-positionnement-sur-le-projet-increase/

Autonomy and the commons as a compass for participatory research on farmers' seeds

From the perspective of peasant agroecology's cardinal value - autonomy - the SeedLinked tool is "heteronomising". This means that, far from making us more autonomous, it creates a new need and new dependencies. It uses a technology that we do not control: smartphones, algorithms, proprietary software, data ownership.... It is also important to stress that the "decentralisation" promoted by SeedLinked is an abuse of language. Once it is produced by users, the data becomes totally centralised in one or more servers. And the algorithm is in the hands of a caste of experts who develop it. To paraphrase one of SeedLinked's slogans, how can you "compare seeds with confidence"?

For us, this type of tool perpetuates and accentuates the process of dispossession of the means and know-how that would enable us to ensure forms of material autonomy. The greater our dependence on the market and the weaker people's means of autonomy, the more the conditions of capitalist accumulation and the desire of the ruling and possessing classes for control are satisfied.

In the name of this autonomy, if we refuse to allow industry to monopolise our seeds and our observations of living things, we also refuse to allow the market to extend our relationships with plants and our peers via an app. As a reminder, capitalism cannot produce all these digital innovations without producing, at the same time, modern slavery and the devastation of the living world (among other problems, such exploitation of workers, massive extraction of rare metals, the proliferation of data centres and 5G antennae, etc.).

From the point of view of participatory research, the scientific approach is reversed with SeedLinked. It is no longer an objective that will determine the choice of a method from which the choice of tools will derive, but rather the tool which, by virtue of its primacy, constrains the method and the objective. It imposes its logic of reducing and standardising experimentation on certain varietal evaluation methods. One of the most remarkable points is that the people who take part in the "triadic" system cannot choose the varieties they want to test, but rely on an algorithm - with the promise of then being able to buy the seeds best suited to their context and practice.

So, how can such a tool find its place in a participatory approach where the objectives are co-constructed and lead to the mobilisation of a very wide range of methods and tools?[15] The strength of participatory breeding lies in its democratic process and the originality of the methods used, which are specific to each context. It is not possible to achieve "mass participation" through digital platforms without losing the very essence of participatory research. After all, in-depth discussions and debates cannot be conducted through an app. Take, for example, the RSP's participatory wheat breeding project, where researchers, farmers and facilitators spend many hours discussing the status of the data and issues around its management.

We believe that participatory breeding must be part of a democratic and transparent process in terms of the choice of objectives, methods and tools. This research process is in itself a very important outcome, in the same way as the development of new plant varieties. What's more, over and above the epistemological frameworks specific to plant breeding, we take a sensitive approach. We accept the subjective nature of our observations, whether they are made as part of a scientific approach, in a more empirical context or even in another type of relationship with plants (spiritual, analogical....). We believe they are just as important as scientific objectification. Twenty years of the RSP's existence have proved the importance of peasant farmers' observations and intuitions which, when the subject of research, are often scientifically validated.

How do you find locally adapted varieties? By selecting them locally and collectively with a local group, quite simply. Sure, this work is normally led by associations, involving a small number of people and with far fewer resources than a start-up that has corporate financing. We defend this limited scale of action, as well as the horizontal nature of our meetings, our decision-making and our rules of use, which make our seeds a common resource. It is on this scale that we believe it is possible to bring democratic processes to life and to work on the autonomy of our collectives. We see these commons as a bulwark against the fragmentation of individuals in a cyberspace that is now ubiquitous. They are also the seeds of a political scenario other than that of high-tech capitalism.

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15 The Liveseed project, which predates Liveseeding, illustrated this perfectly: https://www.liveseed.eu/wp-content/uploads/2021/06/LIVESEED-BOOKLET-5_FNL_web.pdf (not to mention the many examples where, in the end, variety evaluation is not the best lever to use to resolve a problem encountered by a group).

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Finally, the development of such platforms generally has the effect of either marginalising or integrating existing alternatives. Let's not forget the first car-sharing or home-lending alternatives, which have now been wiped out by big players in the sector. It seems to us that small-scale seed growers could be in the front line, given that SeedLinked is mostly focused on vegetables, where there is a lot of seed diversity, particularly farmers' varieties. In the medium term, the question of marginalisation also arises for farmers' seed initiatives that are focused on other species. It is striking to note that this type of tool is emerging at the same time as the new category, in European law, of "heterogeneous organic material".[16] In order for the tool to develop, it must overcome methodological challenges, particularly those arising from data management in decentralised networks (notably the cost and monitoring of such an evaluation network). A report by the Scientific Committee of the CTPS in 2021 sets out ideas for the registration of "population varieties" whose selection or evaluation could be optimised by crowdsourcing, aiming to gather data from peasants and gardeners who will use mobilie phone apps to record data.[17] *"The digital approaches implemented by start-ups [...] could inspire a "data" framework for collecting and analysing data from participatory approaches. The SeedLinked application (...) can be cited as a reference for a participatory platform for sharing variety evaluation data."[18]*

In the end, SeedLinked is simply accelerating a trend that has been at work for several years now in research around farmers' seeds, namely the growing importance of digital data and its analysis via bioinformatics. This trend is undoubtedly paving the way for the commodification of farmers' seeds and sidetracking our approach, which is building a political project based on the commons.

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16 https://www.semencespaysannes.org/les-semences-paysannes/vie-du-reseau/179-materiel-heterogene-biologique-le-reglement-delegue-enfin-publie-mais-des-questions-toujours-en-suspens.html

17 The report is available on the GEVES website: https://www.geves.fr/wp-content/uploads/Rapport-Saisine-Agroecologie_VF.pdf

18 Ibid p.38