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STUDY OF THE POTENTIAL OF COMMUNITY-SUPPORTED AGRICULTURE (CSA) FOR THE DYNAMIC ON-FARM MANAGEMENT OF AGROBIODIVERSITY

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As part of the European project H2020 DYNAVERSITY (1) (Dynamic seed networks for managing European Diversity), a study on the potential of Community Supported Agriculture (CSA) for on farm management of cultivated biodiversity was conducted by INRAE and URGENCI. CSA can be defined as a direct partnership based on the human relationship between people and one or more producers who share risks, responsibilities and benefits of agriculture through a binding long term agreement. This study led to the publication of a report about the issue of raising consumer awareness about agrobiodiversity challenges in the context of the CSA partnerships (2), which draws recommendations to foster more involvement from the CSA movement into the issue of on farm management of cultivated biodiversity. We will be presenting our results, thoughts and recommendations in the framework of the theme 4 "Innovation Organic Farming", in order to promote CSAs as a social innovation for on farm management of cultivated biodiversity.

Introduction

The starting point for our research has been the "principles of CSA" (3), as established in several documents, such as the French Charter of the *Associations for the Maintenance of Peasant Agriculture* (AMAP) (4), or in the Belgian charter of Purchase Solidarity Groups for Peasant Agriculture (GASAP) (5), which both state that CSAs have a role to play in "*promoting plant and animal biodiversity …*", "*by contributing to the* maintenance *and development of peasant seeds*". Similarly, the 2016 European CSA Declaration emphasizes key principles of the European CSA movement, including "a r*esponsible management of soil, water, seeds and other commons by the agroecological principles and practices …* "(6).
Our leading research question was whether these principles are effectively fulfilled on the field by the CSA farms and groups, and to understand how close partnerships between farmers and consumers can be a source of social innovation for on-farm and *in situ* management of agrobiodiversity.

Material and Methods

Thanks to URGENCI member organizations, a survey questionnaire was disseminated widely and completed online by 75 different groups or individuals coming from 13 different countries. Additional semi-structured interviews were performed, either face-to-face or via distant communication (phone, Skype...). The number of answers per country for the online questionnaire are the following, Greece (7); Hungary (9); France (23); Italy (6); Germany (11); Romania (4); Ireland (4); Wales (2); Netherlands (4); Turkey (2); Sweden (1); Portugal (1); Spain (1). The answers to the questionnaire originated from CSA groups, CSA farmers, and CSA networks. The questionnaire was structured the following way: respondents

were asked about the types of production in their CSA farms (vegetables, fruit trees, wild plants, legumes…) For each type of production, respondents were asked about the varieties cultivated and produced. There was also a series of questions related to consumers' participation to on-farm agrobiodiversity management. Most questions were closed-ended, (yes or no questions). Moreover, few questions were open-ended, allowing respondents to describe more precisely their cases. This survey was exploratory. It was operated with Dynaversity partners, with whom we defined the key words (heirloom, peasant and modern varieties). Thereafter, the answers were analyzed in an Excel table, with quantitative results from closed-ended questions answer analysis for open-ended questions in a qualitative way. Even if this data set cannot be considered proportional to the overall number of partnerships in the different countries, and cannot thus be representative of the whole CSA movement, we nevertheless could generate sufficient data to highlight some noticeable trends on the topic. Indeed, the data obtained gives us general information on the CSA initiatives, on the species cultivated, on their way of managing diversity and also on the roles played by the different stakeholders in the process of enhancing cultivated biodiversity (consumers, farmers, core group members, networks...).
The interview grid was elaborated in collaboration with Dynaversity partners, according to the Transformative Social Innovation (TSI) theory (7). The questionnaire was structured in five categories, "*According to TSI theory, social innovation is a process made up of these four dimensions: it includes new ways of* ***knowing, doing, framing, and organizing*** *that challenge established, dominant institutions (see, e.g. Chilvers and Longhurst 2015) (7)*". Apart from knowing, doing, framing and organizing, another category was added, which is networking. These five categories were addressed though the following key questions: what are the activities of the CSA group and the CSA network in terms of on-farm management of agrobiodiversity? How is the group or the network structured and governed? How is knowledge created? Which are the bridges allowing actors to network? Thereafter, all the interviews were recorded and then transcribed for analysis purpose.

Results

Thanks to the data collected, we could identify some trends concerning the types of production in CSAs that completed the survey. The CSA farms represented in the sample are diversified in terms of species and in terms of varieties per species produced. 82% (62/75 cases) of the answering CSA farms combine at least two types of production among the following: Vegetables, Fruits trees/berries, Cereals, Legumes, Oleaginous, Herbs/Wild plants, Flowers. Whatever the range of types of production on the farm, more than 75% of the answering CSAs were cultivating heirloom and/or peasant varieties. Close to 80% of the responding CSA farms produce heirloom seeds and 60% (46/75) produce seeds of peasant varieties (2). We could also see, from our results, that CSA farmers committed only to the production and cultivation of heirloom and peasant seeds are quite marginal. Most of the answering farmers cultivate a mix of modern and heirloom/peasant varieties. Besides, the percentage of respondents (the vast majority being CSA farmers) cultivating peasant plants and seeds is lower than the share of farmers cultivating heirloom ones for every category but still significant (26%-55.5%) (figure 1). The figure 1 can be understood the following way, for instance, on the total number of respondents cultivating vegetables, 64.5%, answered yes to the question do you cultivate modern varieties, and 88.7% answered yes to the question do you cultivate heirloom varieties.

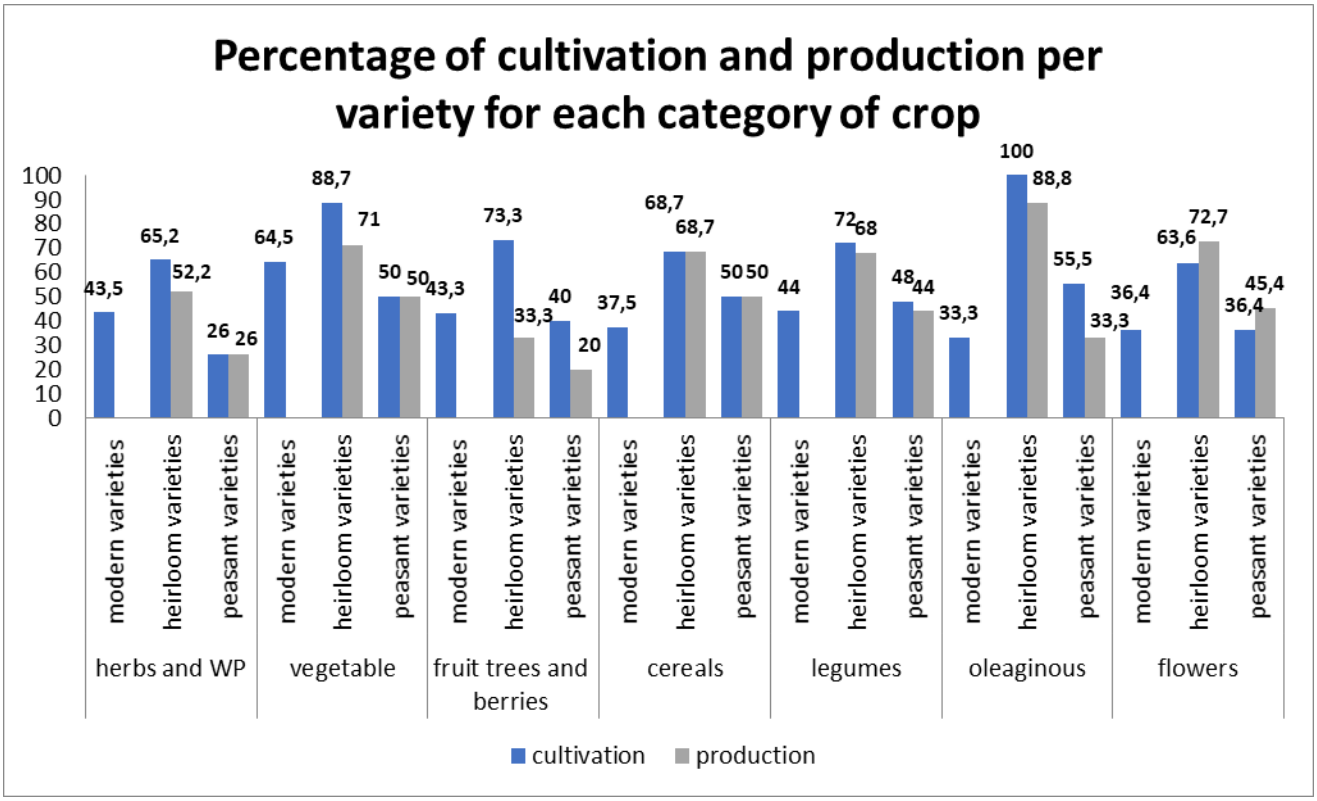

Figure 1: Percentage of positive answers to the question *"Do you cultivate…?"* and to the question *"Do you produce…?"*, for modern varieties, heirloom varieties and peasant varieties, for each category of production.

One major question during this study was to explore the level of involvement into agrobiodiversity activities of different categories of CSA actors (2). In particular, we wanted to understand the level of involvement of consumers into on-farm management of agrobiodiversity. Thanks to the online survey, we could understand that the direct participation of consumers into on farm biodiversity management (through seeds harvesting for instance) is quite marginal and is usually done through indirect actions, such as financial support and consumers' demand for traditional varieties. Moreover, the on farm agrobiodiversity management initiatives are launched mostly by the farmers, and some other marginal times, by a facilitator in the CSA or a small group (figure 2).

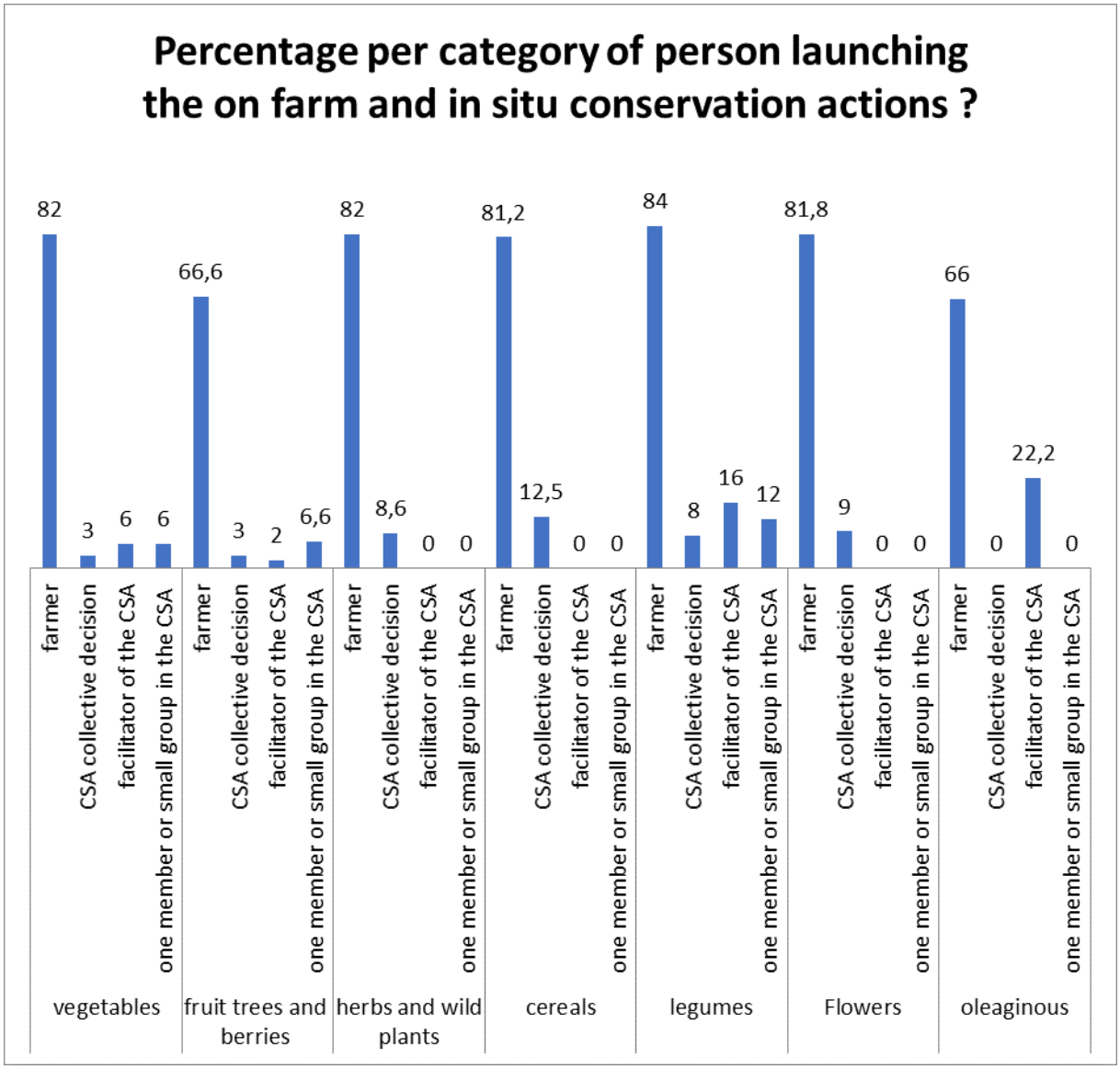

Figure 2: Percentage per category of person launching the on farm and *in situ* conservation actions.

Besides, thanks to the in-depth interviews with some identified actors (8), we could explore in more details two initiatives where consumers are more involved in the on farm management of biodiversity, and one initiative where a CSA network plays a real role of promoting agrobiodiversity through its membership. The first case is a Romanian association for supporting peasant agriculture (ASAT) which was created by committed citizens concerned with agrobiodiversity issues and which introduced an obligation for member farmers to cultivate at least 30% of traditional seeds. The second case is a Spanish CSA, called Brotes Compartidos, which was created to support the work of a vegetable grower, who also has a background as a seed multiplier. Indeed, this CSA is a good example of how consumers can be involved in on farm agobiodiversity management. They actively participate in the governance of the CSA group through several “workshops” where they decide together about the collective organization (for example, which variety they cultivate, what are the prices of the vegetables.) Moreover, sometimes they also come to the farm to offer direct help. The third case is the Auvergne Rhone Alpes CSA network in France (AURA network) where a specific group of vegetable grower started to work on peasant seeds issue, with a 2 years program where 5 peasant varieties of 5 different species were cultivated, where videos and flyers were produced to explain how to cultivate and cook these “ancient vegetables”. Moreover, the AURA network also created a small leaflet about the peasant seed issue to be disseminated to a wide audience as part of a larger campaign on agrobiodiversity.

We couldn’t compare our results with other studies because to our knowledge, no study has yet characterized the possible role of CSAs in on-farm management of agrobiodiversity. The various analyses of the motivations of consumers have so far clearly underlined the domination of environmental issues over social issues, but failed to give any specific mention of agrobiodiversity as a core motivation for consumers (Brown et al., 2009; Ripoll, 2009; Reisman, 2018).

Discussion

This study allowed us to draw some recommendations to foster CSA consumers' involvement in agrobiodiversity issues (2) at two different levels: the level of the CSA and the level of the CSA network. Indeed, concerning the first level, we

could note that the CSA model helps farmers to have more time and more financial security to work on biodiversity management. Moreover, this close partnership between consumers and farmers allows mutual education on the topic. At the level of the CSA networks, these can play a role in providing communication tools and material on agrobiodiversity for farmers and consumers, as it was done by the Auvergne Rhone Alpes French regional CSA network. This work also sheds a light the need for more awareness raising and training for farmers to learn how to produce their seeds and for consumers to know how to enjoy and cook heirloom and peasant varieties.

To conclude, we identify CSAs as a potential source of social innovation for on farm agrobiodiversity management: the strong commitment by consumers gives farmers a sufficient economical security to experiment further cultivated biodiversity on their fields. Moreover, CSA networks play a crucial role in creating specific communication campaigns, with tailored tools, in order to ensure a larger and broader participation of CSA consumers and farmers regarding on-farm biodiversity management.

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Keywords: agrobiodiversity, Community Supported Agriculture, DYNAVERSITY