

SEEDS OF AUTONOMY:  
AGRO-ECOLOGY AND PEASANT POLITICS  
IN SOUTHERN EUROPE

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Seeds of Autonomy: Agro-ecology and Peasant Politics in Southern Europe  
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ABSTRACT

This dissertation focuses on the politics and practice of seed saving and exchange within contemporary processes of re-peasantization in Southern Europe. The first chapter examines the relationship between the mobilization of farmer-based seed systems and the pursuit of peasant autonomy as a relational praxis, rooted in the promotion of an ontology of interdependence through which both living nature and social labor are transformed, sustained, and reproduced. Drawing from case studies in Italy and Spain, I specifically analyze how the adoption of agro-ecological methods aimed at enhancing producers' autonomy from both input and output markets is contingent upon the creation of coordinated initiatives of farmer-to-farmer exchange, training and innovation within the relational context of peasant cooperatives, groups, schools, and networks. The second chapter examines the epistemic challenge posed by locally adaptive and collaborative methods of seed selection and reproduction developed within the context of peasant struggles for autonomy. Focusing on the mobilization of participatory and decentralized initiatives of wheat selection and diversification in Italy and France, I analyze how the promotion of seed diversity and genetic variability on-farm calls into question the assumptions, organization and goals of conventional plant breeding research, as well as the criteria codified in the structure of European seed regulations. In the third chapter I examine the relationship between the adoption of agro-ecological practices that decrease reliance on inputs and external capital and the creation of markets without merchants aimed at establishing unmediated connections between producers and consumers. I particularly focus on the mobilization of mechanisms of direct sale and solidarity purchasing groups in Italy,

where the emergence of alternative infrastructures of food exchange constitutes a site of collective experimentation with politicized practices of mutuality and social reproduction that are redefining the ways in which laboring bodies and non-human nature are transformed, sustained, and valued beyond the monolithism of the capitalist value form.

## BIOGRAPHICAL SKETCH

Elisa Da Vià grew up in Treviso, Italy. In 2005, she obtained a Laurea Degree in International and Diplomatic Sciences from the University of Trieste, Italy. Prior to coming to Cornell University, she worked as an International Civil Service volunteer in Kenya and Mexico, and conducted research in Nicaragua and Costa Rica on the relationship between biodiversity and peasant farming. In 2009, she earned a Master of Science in Development Sociology, with her Thesis titled: “Multifunctional Fetishism: Neoliberal Restructuring and the Valorization of European Agriculture.” Between 2012 and 2015 she worked at Bucknell University as lecturer and Visiting Assistant Professor of Environmental Studies. Upon completion of her PhD in August 2016, she will be a Visiting Research Fellow at the University of Helsinki, Finland.

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## INTRODUCTION

Over the last decade, the practice of using and exchanging locally adapted seeds has become a focal site of grass-roots organizing in the rural areas of Europe, spearheaded by the mobilization of seed networks in different countries and regions. The first network, Red de Semillas, was established in Spain in 1999, followed shortly thereafter by the creation of Rete Semi Rurali in Italy in 2001, and Réseau Semences Paysannes in France in 2003. Similar initiatives have also emerged in Austria (Arche Noah), Portugal (Colher Para Semear), Switzerland (Pro Specie Rara), Hungary (Védegylet/Protect the Future), Germany (IG Saatgut), Bulgaria (Agrolink), Romania (EcoRuralis) and Scotland (Scottish Crofting Federation) among others. Bringing together family farmers, collectives, cooperatives, researchers, agronomists, and non-governmental organizations, these networks are actively engaged in the development of on-farm seed management systems that allow producers to diversify their farming practices, reduce costs, and strengthen control over their resource base.

As an alternative to the multiple crises of the agro-industrial model, the reproduction of farm-saved seeds is closely associated with the promotion of agro-ecological practices aimed at recycling nutrients and energy on-farm, enhancing soil organic matter and biological activity, and optimizing interactions, integration and stability (Gliessman 1998, Altieri and Toledo, 2011). Under highly variable climatic and market conditions, the use of different crops on the same farm, different cultivars

of the same crop, and heterogeneous cultivars, reduces the risk of crop failure, generates sustained yields with lower costs and intake requirements, while also providing for more varied dietary and livelihood opportunities (Ceccarelli 2009, Lockie and Carpenter 2010, Altieri and Toledo 2011). Correspondingly, the genetic heterogeneity of local landraces allows farmers to cope with fluctuating pest and disease pressures, and work in complex agro-ecosystems characterized by variation in soil qualities, topography, and water availability. As the product of diverse populations reproduced over several cultivation cycles, farm-saved seeds are the vehicle of recombined genotypes and newly formed diversity that co-evolve with changing socio-cultural practices and needs (Visser 2002, Chable et al. 2009).

Under the same rationale, the transition to agro-ecology puts renewed emphasis on the role of peasant innovation in processes of agrarian change (Altieri 1995). More specifically, as a counterpoint to the privatization and specialization of agricultural research, the mobilization of seed networks provides an arena for farmers to work collectively at the dynamic management of agricultural biodiversity by means of shared experiences of participatory plant breeding, collaborative research, and farmer-to-farmer exchange. Reflecting the attempt to overcome the “epistemic rift” (Schneider and McMichael 2011) brought about by the commodification of agricultural nature and the displacement of food and seed production off-farm (Kloppenburg, 1988), these initiatives foster the development of a decentralized and

participatory model of agricultural innovation based on co-produced forms of knowledge that are reciprocally accessed and exchanged.

In a parallel development, the reproduction of locally adapted seeds and crop varieties enhances the ability of producers to mobilize unmediated circuits of food distribution and consumption that distantiate the farm from mainstream markets and standard-setting mechanisms. Ranging from solidarity purchasing groups, community-supported agricultures and box schemes, to systems of direct sale and local market-places, these mechanisms of exchange “unveil rather than obscure the economic, social, and environmental conditions of production” (Fonte 2010:9) by promoting shared values, direct social contacts, and short links and distances between producers and consumers. Premised on the articulation of shared notions of just price, quality, and trust that replace the need for external certification, the “value” of local varieties becomes part of a political project centered on collectively mobilized practices of social reproduction beyond the reductionism of market-based approaches to economic development and rural change.

Within the context of newly emerging grass-roots initiatives that seek to reassert control over the organization of food production, distribution, and consumption, the mobilization of seed networks can be characterized as a concrete expression of the *practice* and *politics* of re-peasantization in the rural areas of Europe. On the one hand, the use of locally adapted seeds enhances the ability of producers to engage with farming practices that are “distinctively different” from

entrepreneurial and capitalist agriculture (Van der Ploeg 2010: 22). On the other hand, by providing farmers with de-commodified forms of access to their means of reproduction, the mobilization of networks of seed and knowledge exchange underpins the pursuit of peasant autonomy as a collective political effort sustained by relations of reciprocity and co-operation. In this context, the relationship between peasant autonomy and agro-ecology is politicized beyond the level of the individual farm unit, and redefined as a form of relational praxis and collaborative co-production.

### **The Politics of Re-peasantization**

According to Jan Douwe van der Ploeg (2008:155), the emergence of processes of re-peasantization constitutes a “far reaching shift” that is currently reshaping the European countryside. As an alternative to the concentration of corporate power in the food system, and the consequent asphyxiating effects of direct dependency on industrial and financial capital, the reconstitution of the peasantry reflects a widespread struggle for autonomy and survival in a context of increasing rural marginalization and generalized economic depression. Specifically, Van der Ploeg defines the “peasant condition,” or “principle,” as the product of a set of strategies aimed at distancing the unit of production from up-stream markets while linking it to diverse circuits of exchange and output markets. These include the creation and development of a “self-controlled resource base,” the “re-grounding” of farming in

nature, and the promotion of labour intensification, craftsmanship, and multifunctionality.

The current transition to peasant-like ways of farming is thus closely associated with the mobilization of new forms of self-provisioning, knowledge, and labour that allow for increased self-organization and control over the production process. Within this framework, and in stark contrast with the dominant model of agro-industrialization, peasant farming is understood and practiced as a form of “co-production”—premised upon “the interaction, and mutual transformation of social and material resources which constantly differentiates and transforms agriculture” (Van der Ploeg 2010:13). Correspondingly, the promotion of “self-provisioning” and lower-input techniques reasserts the centrality of local cultural repertoires, craftsmanship, and skill-oriented technologies in peasant-led patterns of innovation. Reconstituting the “organic unity of mental and manual labor” in the process of production (Van der Ploeg 2008:154), this reskilling of farming practices is aimed at enhancing the “reproductive value” of agriculture’s resource base (McMichael 2012:115) such that autonomy is further enlarged.

By focusing on the process of re-peasantization as an expression of “rebellion” and “multi-level resistance” (2010:7), Van der Ploeg’s interpretive approach moves beyond capital-centric theorizations of the agrarian question that frame the “persistence of the peasantry” within the terms of reference of the wage relation

(McMichael 2008:216, see also Amin and Vergopoulos 1974, Lewontin 1982)<sup>1</sup>. From this perspective, peasants are understood as “disguised wage labour,” indelibly tied to capitalist relations of production (Banaji 1977, de Janvri and Garramon 1977), or as “wage labour equivalents,” whose exploitation (by means of rent, debt, taxation, etc.) and reproduction (mediated by forms of household labour) perpetuate capital accumulation (Bernstein 1994, Goodman and Redclift 1982). Conversely, rather than focusing on the peasant condition as a symptom of failed modernization, or a problem for capital to resolve (McMichael 2006), Van der Ploeg conceptualizes the active reconstitution of peasant-like ways of farming as a widespread, articulated response to the crisis of social reproduction brought about by capitalist processes of agrarian restructuring.

By the same token, Van der Ploeg’s concept of “peasant principle,” or condition, retains a Chayanovian approach to identify the intrinsic attributes of peasant farms that guarantee their resilience and viability as distinct from capitalist farms.

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<sup>1</sup> The concern with the prospects of small producers under capitalist development was first raised in the writings of Marx, Lenin, and Kautsky. On the one hand, analyzing the emergence of capitalist farming in England through the concept of “primitive accumulation,” Marx predicted that the peasantry would eventually be completely divorced from the means of production and transformed into a class of wage-laborers (1979, orig.1867). Similarly, Lenin focused on processes of rural differentiation associated with capitalist development in Russia, arguing that the increasing dependence on the market for access to consumption goods would lead to the demise of independent peasant farming (1964, orig.1899). On the other hand, while underscoring the steady transformation of agrarian production into industrial production, Kautsky theorized obstacles to capital’s subordination of agriculture and saw the disappearance of peasants as a tendency open to countertrends (1988, orig. 1899, see also McMichael and Buttel 1990, Araghi 1995). In particular, Kautsky argued that the specific biological character and rhythms of agriculture coupled with the capacity of family farms to depress real wages by working longer and harder might hinder the development of classic agrarian capitalism (Watts 1996, Akram-Lodhi and Kay 2009). In such circumstances, the penetration of agro-industrial capital into food processing, farm inputs and rural financial systems might be consistent with the reproduction of a non-capitalist farm sector as a source of labor and commodifiable products. Kautsky’s analysis of the ways in which family farms could survive through “self-exploitation” informs contemporary theorizations of petty commodity production not as a transitional form but as a potentially permanent element of advanced capitalism (Amin and Vergopoulos 1974, Lowontin 1982).

Specifically, following Friedmann (1978, 1980), Van der Ploeg argues that what distinguishes peasant farming from entrepreneurial and capitalist farming is “the partial integration into markets” (2010:12), or “the capacity to operate on the boundary that separates commodity from non-commodity circuits” (2008:270)<sup>2</sup>. In other words, rather than developing their farming activities by engaging in market dependency and extended commodity flows (2010:5), peasants are seen as capable of mobilizing resources that enter the process of production as use values, and are reproduced through labor intensification and multifunctional value-adding strategies. More to the point, this framework draws upon the Chayanovian model to conceptualize peasant farms as “self-regulating units” (2013:72), centered on the creation of added value and productive employment in relation to specific “balances” between internal and external resources. The peasant unit of production is in this respect posited as a “coherent whole” (ibid:69) built upon processes of co-produced reciprocity between people and living nature.

In the chapters that follow, I propose a revised approach to examine newly emerging processes of re-peasantization that moves beyond the peasant farm as unit of analysis and expands the meaning of co-production as a constitutive source of peasant autonomy. While Van der Ploeg conceptualizes the peasant principle as embodying an “organizational plan” or set of “strategic deliberations” that are mostly endogenous to

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<sup>2</sup> Specifically, the persistence of peasant economies in otherwise mature capitalist societies is posited by Friedmann (1978) as resting upon an “internal logic” that lacks the structural requirement to generate surplus and allows for more flexible levels of personal consumption. By the same token, while drawing on Chayanov’s argument that family farms can in fact resist and even out-compete capital (Chayanov, A.V. 1986, orig. 1924), Friedmann critiques the idea that peasants’ decision making is guided by net utility, rather than profit, calculations and focuses on the social relations characterizing peasant household production instead.

the family farm, I argue that the notion of peasantness is mobilized in the current context of European socio-economic restructuring to signify an approach to farming that is built on webs of relations (to land, people, and living matter) and is transformative of socio-ecological relations. As an expression of self-identification and collective praxis, the reconstitution of peasant ways of growing, distributing, and valuing food is in other words rooted in a *relational* process of social and environmental co-production where the farm unit is linked to (and reproduced through) broader networks of sharing and exchange. By weaving decentralized sites of cooperative experimentation that nurture the co-production of living labor and knowledge, the “new peasants” engage in the pursuit of autonomy through an ethics of alterity and interdependence. In this respect, the search for autonomy embodies an ontological and epistemic challenge to the agro-industrial model that is interwoven with the reproduction of heterogeneity, the creation of variability, and an active engagement with permanently changing socio-natural interactions. Correspondingly, the transformative potential of peasant practices lies in the promotion of new commons, modes of socio-natural belonging, and forms of value that politicize the meaning of social reproduction as an arena of social struggle.

### **Description of chapters**

Through the lens of seed activism, this dissertation examines the interrelated ontological, epistemic, and political implications of newly emerging peasant practices in different regions of Southern Europe. In chapter 1, I focus on the relationship between the transition to agroecology and the pursuit of peasant autonomy in the

regions of Andalusia (Spain), and Veneto (Italy), where the mobilization of collective processes of labor and knowledge intensification confronts the combined impacts of rural displacement and labor casualization associated with subsequent waves of agro-industrial and neoliberal restructuring. Specifically, I examine how the adoption of agro-ecological methods aimed at enhancing producers' autonomy from both input and output markets is contingent upon the creation of coordinated initiatives of farmer-to-farmer exchange, training, and innovation within the relational context of peasant cooperatives, groups, schools, and networks. Put differently, my case studies underscore how the ability of individual producers to engage with practices that emphasize “diversity, synergy, recycling and integration” (Altieri and Toledo 2011) is mediated by the rise of interlinked networks that ensure the availability of dynamic and diverse flows of seed and crop varieties, knowledge, and resources through relations of reciprocity and de-commodified exchange. In this context, the pursuit of autonomy is approached as a relational endeavor, rooted in the promotion of an ontology of interdependence through which both living nature and social labor are transformed, sustained, and reproduced.

In chapter 2, I examine the epistemic challenge posed by locally adaptive and collaborative methods of seed selection and reproduction developed within the context of peasant struggles for autonomy. Focusing on the mobilization of participatory and decentralized initiatives of wheat selection and diversification in Italy and France, I analyze how the promotion of seed diversity and genetic variability on-farm calls into question the assumptions, organization, and goals of conventional plant breeding research, as well as the criteria codified in the structure of European seed regulations.

Specifically, I discuss how the politics and practice of dynamic and diverse strategies of agro-biodiversity reproduction unravel the discourse of genetic purity, stability, and uniformity informing conventional models of crop development. On one level, by foregrounding the relationship between seed diversity and peasant autonomy, the mobilization of peasant-led initiatives of crop diversification exposes the biopolitical roots of formal plant breeding research predicated on fixed notions of seed quality and productivity as tools of agrarian transformation. In this respect, by focusing on variety mixtures and populations as the embodiment of heterogenous gene flows, methods of cultivation, and environmental conditions, the development of on-farm strategies of seed reproduction reflects a “paradigm shift” in agronomic research that sheds light on the limitations of conventional plant breeding as a major cause of biodiversity loss and food system vulnerability in times of economic restructuring and climate change. Correspondingly, the promotion of methods that enhance the relationship between genetic variability and specific crop adaptability is closely associated with the production of agronomic knowledge as a decentralized and participatory process sustained by relations of reciprocity and collaborative work. As underscored by the increasing adoption of on-farm wheat breeding within the context of agro-ecological farming in Italy and France, the re-appropriation of seed autonomy is practiced as a relational instance of collaborative experimentation that stands in stark contrast to the specialization and professionalization of plant breeding programs.

In chapter 3, I examine the relationship between the adoption of agro-ecological practices that decrease reliance on inputs and external capital and the creation of “markets without merchants” aimed at establishing unmediated

connections between producers and consumers. I particularly focus on the mobilization of mechanisms of direct sale and solidarity purchasing groups (Gruppi Acquisto Solidale, or GAS) in Italy, where the emergence of alternative infrastructures of food exchange constitutes a site of collective experimentation with politicized practices of mutuality and social reproduction. Specifically, I analyze how the creation of unmediated links with consumers allows agro-ecological producers to avoid costs of certification, indebtedness and compliance with market-driven regulations, while fostering the co-production of values that drive the adoption of specific agricultural practices and shape notions of food quality and just price beyond the monolithism of the capitalist value form. In this context, the development of producer-consumer alliances reflects the attempt to redefine the social, economic, and ecological aspects of food provisioning by regaining direct control of the supply chain, and is premised on co-produced processes of collective negotiation shaping the ways in which laboring bodies and non-human nature are transformed, reproduced, and valued. As an alternative to instrumental and utilitarian models of market choice and economic valuation, the mobilization of initiatives of collective consumption driven by relations of solidarity and an ethics of care moves beyond individualized and neoliberal interpretations of consumer “citizenship” or “sovereignty,” by promoting a redefinition of collective agency as social transformation that is hardly a matter of individual choice of a-political action. Accordingly, the politicization of production-consumption activities as a dialectical unity and nexus of social reproduction is closely associated with the promotion of autonomy as a realm of connectivity, relational praxis, and creative experimentation.

## **Methods**

This dissertation is based on 18 months of ethnographic research conducted over the course of several years from 2011-2015. My fieldwork for the first chapter was based in 4 different provinces of the Spanish region of Andalusia and 4 different provinces of the Italian region of Veneto, where I conducted interviews with peasant producers and researchers affiliated with local and regional seed networks, members of farmers' unions, and public officials, and collected qualitative data through participant observation at seed and biodiversity fairs, seed swap events, on-farm training sessions, farmer-to-farmer workshops, and regional meetings organized by the Italian and Spanish seed networks. The collection of ethnographic data was complemented by historical and content analysis of census data, local newspaper articles, seed networks bulletins, and publications issued by regional offices of the (Italian and Spanish) Ministry for Agriculture, official farmers' unions, and local NGOs. I used these observations, interviews, and primary documents to examine the context within which contemporary processes of re-peasantization are situated; the ways in which producers who self-identify as "peasants" pursue autonomy; and the meaning of peasant autonomy in the context of European economic restructuring.

Ethnographic research for the second chapter was conducted in Brussels and in 7 different regions of Italy and France, where I interviewed peasant producers, agronomists, nutritionists, plant breeders, seed industry representatives, members of national agricultural research institutions, and representatives of the EU. I collected ethnographic observations by attending participatory plant breeding sessions; farmer-to-farmer meetings of seed evaluation, cleaning, and exchange; collective harvesting

and threshing events; artisanal bread making workshops; and conference meetings organized by the consortium of seed networks and research institutions involved in the international project SOLIBAM (see chapter 2). I also analyzed primary documents on the history of plant breeding in Italy and France available through the digital archives of INRA (France) and CREA (Italy), the archives of the Institute of Agrarian Genetics and Experimentation “Strampelli,” and the archives of the Italian and French seed networks. These data allowed me to examine how and why agroecological producers work with diverse crop populations and variety mixtures, the processes through which agro-ecological knowledge is produced, the relationship between peasant autonomy and seed diversity, and the biopolitical roots of plant breeding criteria entrenched in the structure of seed regulations.

The third chapter is based on fieldwork conducted in the Italian regions of Veneto, Emilia Romagna, Toscana, and Liguria, where I interviewed peasant producers and members of solidarity purchasing groups (GAS), and conducted participant observation at GAS meetings, on-farm consumer visits, on-farm weekly markets, and solidarity economy fairs. I also consulted census data, annals of the National Institute of Statistics, GAS newsletters, local and national newspapers, and surveys conducted by the national farmers’ unions Coldiretti and CIA on the composition of Italian farms, and the changing role of direct sale mechanisms over the last two decades. I drew from this research to examine the relationship between peasant autonomy and the politics of unmediated consumption, the ways in which production and consumption are mutually constituted, and the relationship between value practices and relations of social reproduction.

By conducting fieldwork over multiple years, I had the opportunity to observe processes of socio-ecological transformation that are dynamic, open-ended, and constantly evolving. This is true for the spatial temporality of variable crop populations that interact with diverse farming practices through combined processes of adaptation and change. By returning to my field sites during subsequent harvesting seasons, I could better embrace the complexity of agro-ecological approaches that call into question the drive to make agronomic research more “predictable,” precise, calculable, and “climate smart.” Correspondingly, the time frame of my research allowed me to better examine the relationship between contemporary processes of re-peasantization and the crisis of social reproduction associated with the economic recession of the last 8-10 years. While the adoption of peasant ways of farming and practices of collective consumption was accelerated by the crisis, the political potential of these initiatives reaches beyond the scope of current processes of economic restructuring. As a form of prefigurative politics, the pursuit of autonomy at the intersection of food production/consumption activities is generative of social change insofar as it is premised upon interdependent practices of experimentation that are transformative of socio-ecological relations. These instances of relational praxis are best approached through methods of inquiry that I define as “ethnography of the possible,” sensitive to the study of ontological openings materialized in interactions, imaginings, and collective “capacities to aspire” that enable different ways of reproducing people and environments (see Menon 2010). Rather than focusing on systematic comparisons or performative outcomes, this approach underscores the growing significance of newly created spaces of possibility and experimentation that

move beyond both state-driven and market-led projects of agrarian transformation, showing the limitations of grand narratives of rural change, and challenging the ethos of austerity and the subjection of social reproduction to the imperatives of capital accumulation.

Within the European political context, the promotion of relational autonomy entails complex and sometimes ambiguous relationships with the state at different scales of governance. Confronting the regulatory power and sanctioning mechanisms of EU seed laws and agricultural policies, these initiatives create transformative ecological and socioeconomic arrangements through the appropriation of values and practices beyond the purview of state control. By the same token, state resources—at the EU, national, and regional level—are mobilized to develop and sustain collaborative research programs, to support the transition to agro-ecological farming and on-farm processing, and provide legal visibility to the politics of direct sale. At the interstices between the biopolitics of rural modernization and the rolling out of neoliberal restructuring, state resources and infrastructures can in some cases act as a catalyst for the coordination of new forms of solidarity and are used to promote the creation of new commons and the collective safeguard of common goods. In this respect, the focus on my research is not on the political and legal battleground of changing regulations and state policies, but on the mobilization of collective solidarities that engage with “generative” forms of power (Cresswell 2000, Massey 1994) beyond the binary opposition of resistance and control.

This approach resonates with what Santos (2002) defines as an “hermeneutics of emergence,” reflecting the attempt to underscore and elicit the emancipatory

potential of alternatives that, while fragile and incipient, broaden the spectrum of possibilities through experimentation, and open up spaces for the transformation of values at different scales. From this perspective, the case studies examined in the following chapters can be linked to, and compared with, the pursuit of relational autonomy through newly emerging ontologies, networks of solidarity, and forms of associative production in the Global South, and within different locales of the world economy (Santos 2006, Leyshon et al. 2003). These instances of mobilization are not separate from the market economy and confront the constraints of global capitalism insofar as they operate in market dominated environments. By politicizing the agency and value of social reproduction, however, they challenge the normativity of capital value practices and make room for different configurations of social power, underscoring how reality is a field of possibilities that are not reducible to what exists (Santos and Rodriguez-Garavito 2006:xxii), but are largely defined by what they have the potential to become.

## CHAPTER 1

### **The Relational Ontology of Peasant Farming: Autonomy, Agro-ecology, and Seed Diversity in Southern Europe**

#### **Introduction**

In the mountainous region of Liguria, Italy, peasant producers gather once a year at the end of the planting season to exchange their seeds through a collectively organized seed swap called “Mandillo dei Semi.” The swap involves a wide range of locally adapted varieties of tubers, wheat, legumes, garden vegetables, and plant cuttings accompanied by detailed descriptions of their agronomic characteristics, origins, and growing requirements. Regularly attended by hundreds of participants, the event provides producers with an opportunity to not only share their seeds, but also engage in collaborative initiatives of knowledge exchange associated with the reproduction of biodiversity and genetic variability in the fields. Throughout the year, similar events take place in many other Italian regions, following the growing cycle of specific crops or coordinated by the Italian seed network *Rete Semi Rurali*<sup>3</sup>. Their frequency has exponentially increased over the last decade, as a fundamental component of producers’ growing involvement with the reproduction of heterogeneous crop populations that can better adapt to the specificity of local contexts and reduce dependence on external input.

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<sup>3</sup> In the 6 months between November 2015 and April 2016, for example, the network has recorded and publicized 27 different initiatives of seed exchange mobilized by peasant groups and organizations from all over Italy (Rete Semi Rurali 2016).

Significantly, the mobilization of seed swaps has become increasingly associated with the transition to agroecological farming all over Europe. In Spain, regionally based seed networks organize seed exchange initiatives on a monthly basis, while producers affiliated with the French seed network have instituted a regulated system of seed sharing structured in different working groups per crop variety. In a similar vein, the European Coordination of Farmers' Seeds hosts a yearly platform of seed exchange that serves as an international source of reciprocal seed access for producers switching to agro-ecological methods and confronted with the limitations of a commercial seed system developed to fit the needs of industrial agriculture. An international seed swap was also set up in front of the European Parliament in January 2014, when more than thirty organizations united in Brussels as part of the "Mobilization to Defend Farmers' Rights" organized by the European Coordination of the transnational peasant movement La Via Campesina.

Countering the impact of neoliberal shifts in the governance of agro-food chains, the act of exchanging farmer-based seeds plays a key role in the reconstitution of "peasant" ways of farming rooted in collective processes of labor and knowledge intensification that enhance autonomy from both upstream and downstream agro-industries and financial capital (Sevilla Guzmán 2007, Van der Ploeg 2009, 2010). Specifically, in the European context of agricultural restructuring, the use and exchange of seeds and crop varieties that are suited to low-input growing conditions and reproduced in accordance with diversified farming practices and needs (Ceccarelli

2009, Lockie and Carpenter 2010, Altieri and Toledo 2011) is closely associated with the mobilization of grassroots notions of "peasantness" and "peasant" practices that politicize a distinctive approach to food and agriculture and call into question the superiority or inevitability of the agro-industrial model. In this respect, moving beyond classical theorizations of the peasantry as a clearly defined object of study characterized by an internal "logic" that defies the logic of capital (Chayanov 1986, Scott 1976), or turned into an "anachronism" (Bernstein 2001) by processes of class differentiation and capital incorporation, the current mobilization of peasant identities represents a form of positioning and resistance that is practiced in the construction of open-ended alternatives. Put differently, far from constituting a fixed or abstract category, the term "peasant" reflects the attempt to give visibility to forms of experimentation and cooperation that focus on the conditions and possibilities of autonomous socio-ecological reproduction in the current neoliberal age (McMichael 2006).

At the core of contemporary processes of re-peasantization, the pursuit of autonomy is approached as a relational process of social and environmental co-production aimed at: a) regrounding labor in its metabolic exchange with living nature; and b) creating alternative patterns and spaces of cooperation. On one level, autonomy is enhanced through the adoption of farming methods that nurture the co-production of human and non-human nature. In this respect, providing an alternative to conventional, input-dependent agronomic methods, the intensification and re-

skilling of labor in agro-ecological terms addresses a fundamental cause of the separation of agriculture from its biological base, and of labor from nature—what Marx described as the “metabolic rift.”<sup>4</sup> As the product of direct observation, experimentation, and innovation, this fine-tuning of labor underlies the selection of crop varieties, growing cycles, intercropping and companion planting strategies, irrigation methods, and harvesting techniques that can be autonomously managed, sustained, and reproduced. In this context, the producer is not separate from, but part of the system under observation (Uphoff 2002), and strives to enhance the combination and interaction of biological processes in relation to constantly changing biotic and abiotic conditions. Specifically, through the application of agro-ecological methods, the soil is no longer regarded as a “repository for production inputs or as a terrain to be exploited and mined,” but treated as a “living system in which micro- and macro-organisms interact with organic and mineral materials to produce environments below and above ground in which plants, animals and humans thrive” (Uphoff 2002:10). Within this framework, non-human nature is approached as a relational entity with active properties, and the co-production of food becomes “the

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<sup>4</sup> In his critique of political economy, as presented in *Capital*, Marx defined the concept of socio-ecological “metabolism” as a dynamic and interdependent exchange between humanity and nature, a process by which man “acts upon external nature and changes it,” and “simultaneously changes his own nature” (1976: 283). This relation of mutual interdependence is radically transformed under capitalism, as the commodification of land and labor causes an irreparable “rift” in the metabolic interaction of society and nature that is further deepened by the industrialization of agriculture and farming practices. Within this framework, the concept of metabolic rift is best understood as part of a broader critique of the mutually constitutive causes and conditions of alienation associated with the development of capitalist agriculture and the capital-wage labor relation. On the one hand, the conversion of agriculture into a site of accumulation is mediated by the displacement of agricultural activities off-farm in the effort to squeeze biological constraints out of production. On the other hand, the reorganization of food production as a “branch of industry” separate from self-organized cycles of socio-ecological reproduction is closely associated with the emergence of estranged labor as a historically specific condition of existence.

central unifying material and symbolic linkage that bridges and binds the social and natural together” (Goodman 1999:23).

By the same token, in the context of contemporary struggles for autonomy, the reconstitution of peasant agroecologies is not *internal* to self-sustaining farms or individual production units. Peasant farms do not (cannot) exist in isolation but are co-produced within networks of reciprocal exchange, knowledge sharing, and cooperation. In order to reproduce autonomous agro-ecological methods, peasant producers participate in the creation of new commons and collaborative working arrangements, and are involved in decentralized initiatives of collective innovation. This form of relational or “relative” autonomy (Milone et al 2015) is epitomized by the mobilization of networks of seed sharing and exchange that provide access to locally adapted and genetically heterogeneous seed, create a shared platform of experiential innovation, and provide technical support for the legalization of seed exchange and distribution. Rather than constituting a rural labor movement in the traditional sense, these networks are based on a broad range of interlinked initiatives, projects, and everyday forms of co-production that enhance both the adoption of agro-ecological practices and the diversification of income-generating activities on-farm. As such, the meaning of autonomy is intrinsically connected with the collective formulation of peasant identities as expression of a “relational ontology”: the promotion of peasant ways of farming is shaped by a shared relational frame of

interaction where new visions, practices, and values nurture an ethics of alterity and being-in-common.

Through the lens of seed activism, this paper examines the relationship between the practice of agro-ecology and the politics of peasant engagement with an ontology of interdependence. I specifically focus on case studies of re-peasantization in Veneto, Italy, and Andalusia, Spain, two regions where the emergence of peasant networks of agro-ecological exchange confronts the legacy of modernist policies of rural transformation as well as the impact of more recent neoliberal approaches to labor casualization. Both instances of mobilization are characterized by distinct agrarian histories and socio-political repertoires, and the producers involved do not fit rigid categorizations or a homogeneous economic profile: they use diverse methods, work in diverse environments and their farms differ in size and composition. This “differentiation,” however, doesn’t contradict their positioning as peasant producers whose identity is shaped by a politics of co-existence and mutual co-production. By working as peasants in the neoliberal age of capital accumulation they pose a challenge to reductionist interpretations of agrarian change that dismiss the viability of autonomous paths and portray them as already incorporated in, or functional to, capital. In this context, the promotion of autonomy should be interpreted as a process (and not an end in itself) which necessarily requires an ethics of otherness and is embedded in the creation of new links and attachments, to people and to living matter.

### **From rural exodus to repeasantization in Veneto, Northern Italy**

One of the key features of the process of agricultural modernization in Southern Europe was the drive to substitute capital for labor. In Italy, the agricultural population dropped by more than two thirds between 1950 and 1980—from 8.6 million to 1.8 million—and currently accounts for less than 5% of the workforce (D’Attorre and De Bernardi 1993). This trend was particularly evident in the northeastern region of Veneto, where 43 percent of the population was still employed in agriculture in 1951—with the vast majority of rural producers working as independent smallholders (INEA 1960). Only 10 years later, in 1961, the number of farming units was cut in half, with further drastic reductions in the decades to come (INEA 1980). As the amount of producers pushed out of farming surpassed the need for off-farm labor, hundreds of thousand emigrated to other Italian regions or to foreign countries in search of employment (Fanfani 1986).

One of the main causes of this drastic rural exodus was the rapid introduction of labor-saving technologies, including mechanization and new industrial methods for maintaining soil fertility and controlling pests that revolutionized all aspects of production (Bevilacqua 1990, Vellante 1981, Della Valentina 1994). The use of new machines directly influenced the organization of growing methods and cropping patterns, leading to the withdrawal from mountainous regions and accelerating the standardization of farming practices (D’Attorre and De Bernardi 1994, Fanfani 2000). Correspondingly, the widespread adoption of chemical inputs opened the way for

greater specialization, including many areas of monocultures (Pezzati 1994). This transition was directly supported by public policies that embraced the use of chemical and mechanical techniques imported from international markets, especially the United States, and functional to the consolidation of private industries (Orlando 1987, D'Aneo 1980).<sup>5</sup> Put differently, the public sector prioritized the role of input industries in determining the direction of agricultural development, while discarding the significance of alternative forms of biological, zootechnical, and agronomic innovation (Fabiani 1993: 582).

By the mid 1980s, agricultural production in Veneto had become highly capitalized, with substantial investment made in the development of intensive livestock farming, mechanized wine harvesting and mono-cropping of corn, cereals, sugar beet and oilseeds. Parallel to the mass out-migration of farmers, the use of tractors and combine harvesters increased tenfold in the 1950s and 1960s (Della Valentina 1993: 404). In the following decades, the region's consumption of chemical fertilizers and pesticides reached the highest levels in the country (ISTAT 1966-1985; ISPRA 2013).

The expansion of mechanized, high-input farming in Northern Italy was entirely consistent with the model of modernization promoted by the Common Agricultural Policy (CAP) at the European level. Established in 1957 as a core

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<sup>5</sup> In 1952, for example, the Italian state released a twelve-year plan of agricultural support that extended loans and mortgages for the modernization of rural infrastructure. More than 50 percent of that credit was tied to the purchase of agricultural machinery and directly benefited the auto-company Fiat, which at the time enjoyed an almost complete monopoly on tractor sales (Crainz 2007: 244).

mechanism of European market integration, the CAP provided a regulated framework of price supports and market protections aimed at enhancing agricultural production through technical progress and improved labor efficiency (Commission of the European Economic Community 1959). Specifically, the institution of commodity price support programmes geared toward increased outputs encouraged the adoption of capital-intensive technologies as well as the consolidation of larger farms (Grant 1997, Ingersent and Rayner 1999, Sheingate 2001). From the outset, this system intensified the impacts of the Marshall Plan on European agricultures by setting major commodity crops on a path to industrial farming that replicated the US model (Friedmann 1993). Within the CAP framework, the socio-economic (and ecological) role of agriculture was subordinated to the promotion of industrial and export-led growth. In Italy, these policies translated into the orchestrated marginalization of labor-intensive modes of production that had historically shaped the structure of rural life (Fabiani 1986).

As the output of industrialized farming increased, so did its ecological impact. In Veneto, the expulsion of large parts of the labor force from agriculture is closely associated with past and present trajectories of land abandonment, soil erosion, and hydrogeological instability. The abandonment of farmland over the period 1983-2006 has led to the loss of 80,000 acres through soil erosion (Consiglio Regionale Veneto 2013), while urbanization has increased at a rate of 3,500 acres a year since the late 1980s (ISPRA 2012). In mountainous areas, these processes have magnified the

impacts of extreme climate variability and contributed to a sharp increase in landslides (Conti 2014, Garcia-Ruiz and Lana-Renault 2011). In a parallel development, high nutrient discharges from intensive livestock production and crop fertilization have resulted in severe levels of eutrophication of the Venice Lagoon. Likewise, the region is periodically affected by groundwater contamination caused by pesticide runoff in the Po Valley (ISPRA 2013, Cordiano 2015).

During the industrial boom of the 1950s and 1960s, the restructuring of Italian agriculture was portrayed as functional, and subordinated, to the growth of other economic sectors. Within the framework of economistic developmentalism, the role of agriculture was to supply internal and European markets with competitive commodities, and constitute a growing source of demand for industrial (and financial) products (Fabiani 1986). This approach was an integral components of policies that sought to keep wages low, while establishing a system of social protections to safeguard workers as “political subjects of the state” (Koenig-Archibugi 2003:102; Molé 2012). By the 1970s, in the aftermath of intense trade union mobilization, Italy’s labor code included provisions that minimized the risk of job loss for workers with long-term contracts and offered extensive pension and health care benefits (Boeri and Garibaldi 2005). Rooted in the separation between employed and unemployed, this system shaped an understanding of labor stability and labor rights that was radically undermined by the introduction of neoliberal reforms in the 1990s and 2000s (Bini 2003, Cafruny and Ryner 2003).

As part of a European-wide transition toward increasing monetarism and market liberalization, the Italian welfarist approach to stable employment has been replaced by an emphasis on more deregulated and competitive labor markets. In line with neoliberal principles of marketization and flexible accumulation, the implementation of policies that legalize “precarious” labor contracts with little benefits and safeguards has resulted in higher unemployment rates, a growing informal economy, and a destabilizing process of labor casualization, with short-term and long-term workers pitted against each other (Ferrera and Gualmini 2004, Molé 2012). The impacts of neoliberal labor restructuring have been particularly far-reaching in the Veneto region, where the development of flexible labor strategies is closely associated with the articulation of labor regimes characterized by a culture of “precariousness” and widespread cases of “mobbing” in the workplace (Molé 2012, Di Martino and De Sanctis 2003).

Against the background of increasing job insecurity and great ecological uncertainty, the reconstitution of peasant-like ways of farming reflects a re-centering of the role of agriculture as a source of employment (social reproduction) and environmental stewardship. In Veneto, re-peasantization occurs as producers respond to growing concerns over the socio-ecological effects of agro-industrialization, and young workers seek to enhance control over the purpose and organization of their labor. The “new” peasants are family farmers who have transitioned from “conventional” to agro-ecological methods, small-scale organic producers involved in

mechanisms of direct sale, urban farmers working in solidarity economy districts, young members of cooperatives established in mountainous areas, and agriculturalist newcomers who have quit working in other sectors to find more meaningful employment in agro-ecological farming. They are often engaged in multiple activities (from seed reproduction to on-farm processing) and they self-identify as *peasant* producers to differentiate their goals, practices, visions, and values from other forms of agricultural production.

As illustrated by specific case studies discussed below, the re-appropriation of seed management activities constitutes a core component of agro-ecological training in processes of repeasantization. Supported by newly emerging practices of interdependence, many peasant producers and groups are affiliated with the Italian seed network and collaborate at the promotion of seed saving and seed diversity as a source of autonomy that is co-produced and collectively shared. In this context, agroecology is not only a form of ecological praxis, but also an instrument of political and social transformation.

*Agro-ecological training in the lowlands: The Itinerant Experiential School of Organic Farming*

The Itinerant Experiential School was funded in 2004 by a group of peasant producers and agronomists committed to the promotion of participatory learning in organic farming in the Veneto lowlands. Seeking to reverse the structure of conventional

agricultural research and training programs based on top-down information flows and technology transfer, the school is organized around weekly meetings of farmer-to-farmer exchange that prioritize the development and diffusion of experiential knowledge originating from agro-ecological practice. Hosted by peasant farms in the provinces of Venezia, Treviso, Verona, Padova, and Ferrara, the school is attended by full-time producers and people who are in the process of transitioning to or are interested in agro-ecological farming. Each meeting is dedicated to a different issue, addressed both theoretically and first-hand: the production and selection of farm-saved seed; the use of green manures, mulches, and crop rotations; the ability to manage integrated crop-livestock systems; the recognition and identification of crop pests, natural enemies, and auxiliary agents; the introduction of biological pest control and crop protection mechanisms; the management of crop diversity in space and time, and the development of mechanisms of direct sale.

As a comprehensive and unique experiment of its kind, the school is composed of a variety of working environments whereby producers can compare, contrast, experiment, and collectively devise specific farming methods and techniques. Focusing on the forms, dynamics, and functions of nature's materiality in its relation to social labor, the school seeks to promote a model of agriculture that is "re-productive rather than extractive," generates employment, and reconstructs the metabolic unity between the cultivation and consumption of food. Most producers in charge of coordinating the school's activities started to practice organic agriculture in

the mid-late 1980s, when the term “organic” emerged as a signifier of small-scale agro-ecological farming. Other producers combine their work in the fields with technical advising and agronomic assistance to small organic farms in nearby regions. In a similar vein, over the past ten years the school has been actively engaged in the organization of nation-wide participatory research projects, public meetings on food sovereignty and organic farming, and initiatives of international knowledge exchange with agro-ecological producers in Latin America and West Africa.

The reproduction of peasant farming is in this context understood as a collective effort that is sustained by relationships of trust and reciprocity. Indeed, the institution and activities of the experiential school are premised upon the development of a relational ethics that guarantees and safeguards the transmission of information, skills, competences, and genetic material among producers, as well as the continued renewal of farmer-to-farmer networks over time. In this respect, the school embodies both a constellation of physical places and a shared approach that foster the co-production of interdependent subjects, sites, and practices. As one of the founders of the school explained:

We can't exist in isolation, disembedded from our inter-dependence. This way of farming is not based on prepackaged solutions; it is our collective experience, or the sum of our experiences, that can be better translated into the specificity of each situation... It is a learning process that results in a web of linkages and relations of trust, so, for example, if I don't have my own animals and I need manure to fertilize my fields, I know where to find it and I am confident that those cows or horses were appropriately fed... and if I give my seed away, I can be sure that it won't get lost or spoiled.

The practice of exchanging seeds and disseminating knowledge about seed saving and seed selection techniques constitutes a core component of the school's curriculum. Specifically, the school enhances the reproduction of seed diversity on-farm both directly—insofar as producers participate in the development of common seed management strategies—and indirectly—fostering the reconstitution of knowledge-intensive labor practices that can adapt to the concrete particularities of different agricultural contexts. One of the sites that periodically hosts seed training sessions is the organic farm *Madre Terra*, situated in the province of Venice. Run by two producers who started to work together in 1989, the farm covers less than three hectares of land composed of hedges, ditches, and surrounding woods that attract a large number of insects, birds, amphibians, reptiles and mammals useful for keeping harmful pests under control. The practice of green manuring is purposely integrated in the system of crop rotations with the aim to increase soil fertility, reduce weeds, and promote the development of auxiliary agents associated with agro-ecological diversification. Stemming from 15 years of on-farm experimentation, the reproduction of farm-saved seeds involves both local varieties accessed through networks of nearby farmers, and varieties originally bought on the market and subsequently managed under agro-ecological conditions over several cultivation cycles. Seeds are propagated through a process of massal (i.e. phenotypic) selection, with producers focusing on those plants that show special traits in terms of their

adaptation to local conditions, quality and productivity. At harvest time, all produce is sold on-farm or delivered to solidarity purchasing groups in the surrounding areas.

Among the different horticultural crops reproduced on-farm, Madre Terra puts special emphasis on the selection and multiplication of local radicchio varieties as exemplary product of the interdependence of human agency and non-human nature. Indeed, radicchio seeds are obtained after a year-long cycle of on-farm crop management, which involves different phases of varietal selection, storage, growth, and reproduction. A group of 50-100 “mother plants” is selected from the radicchio harvest in the late fall, then transplanted in pots and kept indoors during the winter months, to be transferred back in the fields in the spring. The collection of seeds takes place in the summer at the end of the flowering period, during which radicchio plants cross-pollinate by the action of specific insects. Once collected, radicchio seeds are stored in glass jars until the following spring, when they can finally be sown. By carefully reproducing this cycle over many years, producers working at Madre Terra and with the Experiential School have substantially expanded the genetic diversity of radicchio crops, as well as the cultural practices and income-generating opportunities associated with its use. Premised upon selection criteria developed within specific socio-ecological contexts and collectively reproduced through experiential training, this work underscores how the reskilling of labor within networks of reciprocal exchange is closely associated with the development of practices that can both sustain and be sustained by the functional diversity of crops and agro-ecosystems.

*Re-peasantization in the mountains: Coltivare Condividendo and La Fiorita Cooperative*

Since the 1990s, after decades of abandonment, the Veneto mountains have also become key sites of re-peasantization, characterized by the development of farming cooperatives and agro-ecological networks, and spearheaded by an influx of young producers. Significantly, in this area, agriculture is undergoing a transition from “traditional” peasants to peasants by choice, where the notion of peasantness puts renewed emphasis on the value of social labor and territorial stewardship. While operating at the margins, these producers are part of an important process of social and cultural transformation that brings together tradition and innovation, formal science and experiential knowledge, labor security and environmental preservation. In this context, the adoption of agro-ecological practices is inherently linked with the promotion of local crops and the valorization of territorial specificity within short supply chains. Such activities are pursued within networks and mechanisms of cooperation that allow producers to access seeds, knowledge and training, to share costs, and sustain each other’s work and future prospects.

Coltivare Condividendo (Growing by Sharing) is a network composed of peasant farmers, agronomists, and solidarity purchasing groups from the mountainous province of Belluno, which includes large tracts of the Italian Dolomites. Established in 2008 with the goal to enhance ways of farming that protect soil health and fertility within diverse agro-ecosystems, the group works at the collective management of

community gardens and farms, coordinates meetings of agro-ecological training, and promotes the conservation and use of diverse seeds and landraces through participatory selection and exchange. Each member of the group participates in the reproduction of crop varieties that no longer circulate through conventional channels but can be adapted to specific growing conditions and managed within self-sustaining cycles. With more than one hundred trial plots scattered in different valleys and mountain slopes, the group has recovered and multiplied more than 150 traditional varieties of beans, peas, wheat, corn, and other local fruits and vegetables.

Only agro-ecological producers are allowed to access and multiply these seeds, which are kept separate from intensive farming. In order to assist each other in the process of growing, selecting, and reproducing crop diversity in the fields, these producers adopt shared methods of data collection, observation, measurement, and analysis which can be used as a common knowledge base. Through the network, knowledge is produced as an extensive, decentralized, collective process that is not concentrated in the hands of a few experts or confined in specific locations.

The practice of saving and selecting seeds on-farm is a key feature of what producers in the network define as “relational agriculture.” Indeed, as they seek to oppose the expansion of intensive monoculture and develop sustainable strategies to grow quality foods in the mountains, members of Coltivare Condividendo are engaged in a shared project of socio-ecological co-production. This concept is discussed by one of the organization’s spokesmen:

We call it *relational* agriculture because it is based on relationships—among producers and with the earth. It is a mutually enriching process of experimentation and sharing which also creates social cohesion in our territories. We want to move beyond the idea of farmers as isolated individuals who receive subsidies to cover the cost of technology and chemical inputs. We work by sharing knowledge, tools, and seeds; without public funding, and in total respect of nature.

Within this framework, agriculture is not practiced as an entrepreneurial activity: peasant producers do not pursue the maximization of profits but seek to reproduce their territories and livelihoods by sharing techniques, strategies of innovation, and spaces of experimentation.

The renewed importance of agro-ecological farming in the Alps is also illustrated by the experience of La Fiorita Cooperative. La Fiorita was founded in 1977 in Cesiomaggiore, a small town in the Belluno Dolomites, with the goal to coordinate collective purchases of feed grain and farm inputs for small producers, especially dairy farmers. By the 1990s, however, as the growth of factory farming in the lowlands progressively undermined the viability of dairy farming and cattle breeding in the mountains, the Cooperative's role and vision had changed. Indeed, over the last two decades, La Fiorita has become increasingly involved in the promotion of local crop varieties (potatoes, corn, beans, barley, and spelt) by coordinating each phase of the production process, from access to seed to collective processing and direct sale. During the same period, its membership has almost doubled and currently accounts for more than 200 small and very small producers.

In order to reproduce and commercialize local crops within the Cooperative, producers are required to follow a set of rules regarding the adoption of agro-ecological practices. These include the introduction of polycultures, the use of crop rotations, the banning of synthetic chemical inputs, and the development of integrated methods of fertilization and pest management. In addition to assisting its members in the process of reproducing seed diversity on-farm, the Cooperative directly coordinates the production of seed in fields that are collectively owned. In this respect, the development of methods of crop selection and reproduction that are mutually agreed upon provides an alternative to organic certification: rather than bear the cost of third party auditing to gain “external” recognition, La Fiorita producers seek to operate within very short supply chains based on relationships of trust.

Reviving a history of cooperativism that had been eroded by decades of out-migration from agriculture, La Fiorita’s involvement with agro-ecological farming is part of a broader struggle to sustainably reproduce local economies and environments and resist current processes of land grabbing in the Alps. As one member describes:

We are not only trying to promote rural livelihoods in the mountains by cultivating traditional crops: our work is also a form of resistance to industrial agriculture and the colonization of our territories. I am particularly referring to industrial wine makers and large-scale apple producers who come from other valleys and buy our land to expand their business, or to show that they have the right to produce more. In the first case, their investment has a destructive ecological impact on our territories; in the second case, land is bought for speculative reasons and while they intensify production in their own regions our fields are left uncultivated.

Sharing a widespread concern among producers from the Belluno Dolomites, the Cooperative is involved in the mobilization of campaigns to make these land deals more transparent and open to public scrutiny, as well as to better regulate the use of chemical inputs in the area. More importantly, as many of its members are young producers looking at agriculture as a source of livelihood, La Fiorita provides a platform of active resistance to the agro-industrial model. The valorization of labor-intensive practices of low-input farming, biodiversity preservation, and collective decision-making is in this respect geared toward the construction of peasant possibilities as a relational process and form of politics that is currently reshaping the socio-natural environments of the Alps.

### **Resisting labor displacement: peasant agroecology in Andalucía, Spain**

The coupling of agricultural modernization and rural exodus was a key feature of agrarian change in post-1945 Spain as well. Between 1950 and 1970, the percentage of the population employed in agriculture decreased from nearly 50 percent to nearly 20 percent, as 2.3 million peasants and landless laborers were pushed out of farming under the developmentalist logic of the Franco regime (Instituto Nacional de Estadística 1980).<sup>6</sup> Indeed, since the early 1950s, state policies promoted the technological development of agriculture as a means to release cheap labor for other economic sectors, contain land demands, and increase production of raw materials for

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<sup>6</sup> The number of agricultural producers was reduced by another million in the following decade (1970-1980), accounting for only 14 percent of the economically active population in 1981 (Instituto Nacional de Estadística 1990).

agro-industries (Cabana and Diaz-Geada 2010, Watson 2008). Such transition depended on the introduction of large-scale mechanization and a greater application of external inputs that emphasized the primacy of capital over land and labor (Freire and Taboas 2013, Pan Montojo 2012).

The southern region of Andalusia was particularly affected by the adoption of labor-saving technologies geared toward the political demobilization of peasant producers. As a region characterized by the greatest concentration of extensive agricultural holdings (*latifundia*) in the country, Andalusia became a primary target of irrigation policies and infrastructural projects that integrated the interests of large land owners with the modernizing tenets of the Green Revolution (Fernandez Prieto and Pan Montojo 2014). These policies sought to restrain the demands of landless peasants and temporarily employed smallholders who constituted the vast majority of rural laborers and had long been struggling for land redistribution and agrarian reform (Watson 2008, Gomez Benito 1996). In contrast, the consolidation of large land units was instrumental to the expansion of cultivation methods that relied on widespread mechanization and chemical fertilization, thus substituting capital for labor. Focusing on economic modernization as a “solution” to rural inequality, the regime liberalized rules on internal and external migration in order to accelerate the transition to a model of production with “more agrarian entrepreneurs and less farmers” (Cavestany 1955). Confronted with increasing land consolidation and shrinking opportunities for

employment, hundreds of thousands of Andalusians left the region during the first three decades of the Franco era.

Within the institutional framework of the regime, the introduction of Green Revolution technologies was imposed on rural society as an expression of technocratic authoritarianism. Reflecting the dominant role played by technical experts in the Ministry of Agriculture, the formulation of agricultural policies in the 1950s embraced a top-down approach to modernization that foreclosed the possibility of alternative forms of peasant knowledge or innovation (Taboas et al 2013). In fact, despite the ruralist rhetoric of agrarian fascism, the new agricultural technocrats worked with old and new landowners to dismantle peasant cultures and horizontal solidarities and replace them with hierarchical relations between state engineers and local elites, on the one side, and peasant producers, on the other (Pan Montojo 2012:86). This approach became further entrenched in the 1960s and 1970s with the adoption of new programs of agrarian extension based on US assistance and training (Gómez Benito 1996). Even though Spain was not included in the Marshall Plan, the U.S. was directly involved in the creation of the Agrarian Extension Service (1955) which mirrored the US cooperative extension system and constituted a key modernizing instrument of Spanish agriculture (Sánchez de Puerta 1997)<sup>7</sup>. The primary goal of the AES was to increase agricultural production and assist producers in the application of new

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<sup>7</sup> In 1955, the US extended financial aid and technical assistance to the Franco government through the McCarran amendment to Public Law 480. Accordingly, the Agricultural Extension Service was launched with direct assistance from US extension agents who trained Spanish agronomists in Spain, in the U.S. and at special institutions such as the International Agricultural Center at Wageningen (Fernandez Prieto 2012).

technologies through direct consultations, group meetings, courses, demonstrations, publications, radio broadcasts, and publicity campaigns (Gomez 1996:211-212, Fernandez Prieto 2007). During the 1960s and 1970s, these programs were particularly channeled toward the introduction of new crops and intensive livestock farming in newly colonized areas and highly concentrated landholdings that were considered of adequate size and structure to adapt to technological innovation (Cabana and Diaz-Geada 2014).

Focusing on the large-scale landowner as the preferred subject of innovation, the technological package of the AES was imposed on a countryside that was becoming increasingly disarticulated by unemployment and outmigration. Unemployment rates rose in the 1970s, as the decoupling of urbanization and industrialization undermined the central pillar of modernization policies. Parallel to urban deindustrialization, rural employers responded to increasing wage costs by shifting production toward less labor-intensive crops. In Andalusia, between 1976 and 1980, almost three hundred thousand acres of labor-intensive “social crops” (e.g. cotton and beetroot) were replaced by the easily mechanizable (and more profitable) crops of cereal and sunflower (Watson 2008:459). Correspondingly, 264,400 rural laborers lost access to agricultural employment between 1971 and 1980 (*ibid*).

These trends were deepened by Spain’s entrance in the European Union in 1986. The process of EU integration required a set of structural reforms including

increased competition and industrial restructuring, privatization of public enterprises and deregulation of labor markets.

Within this framework, in order to adjust to the competitive pressures of the common agricultural market and comply with the mechanisms of CAP support, the agricultural sector embarked on yet another transition toward further specialization and intensification. More specifically, greater emphasis was put on the production of export-oriented crops (fruit and vegetables) and products subsidized by the EU (olive oil, wine, livestock and industrial crops) both at the regional and farm level (Richards 1999). Within the terms set by the structure of CAP support, greater specialization went hand in hand with increased land consolidation, as payments were based on acreage and historical yields. As a result, the number of small farms has dramatically declined since the 1980s, while the average size of agricultural holding has increased in most regions of Spain. In 2010, farms with 100 hectares or more of utilized agricultural area (UAA) represented only 5 percent of all agricultural holdings but 55 percent of the total Spanish UAA (EUROSTAT 2012).

Spain's accession to the EU has had profound impacts on Andalusia, where the expansion of export-oriented horticultural and olive production has contributed to the drastic enlargement and intensification of agroindustrial farming. As the largest olive-growing region in the world, Andalusia is currently the primary producer of olive oil in Spain, contributing to nearly three quarters of the country's exports. This development is closely associated with the reception of CAP subsidies that, starting in

the late 1980s, were coupled with levels of production and encouraged the enlargement and intensification of olive plantations by means of higher planting density, increased mechanization, input use, and irrigation (Beaufoy 2000). Consequently, over the last three decades, the exponential growth of olive monoculture has caused increasing levels of soil erosion, overexploitation of water resources, water contamination, biodiversity loss, and displacement of mixed land uses where olive trees were historically integrated in a matrix of farming, pasture, and forestry (Lefebvre et al 2012, Garcia Brenes 2007).

The primacy allocated to agro-exports has also radically modified the structure of horticultural production in the region. Specifically, this transition has led to the extensive territorial transformation of the Southeastern province of Almería, which is currently characterized by the largest and densest use of greenhouses for horticultural production worldwide. The Almería system is composed by an integrated web of small and highly capitalized farms that rely on the intense use of inputs provided by agro-industries and require external services for distribution and sales. More significantly, despite the small size of most agricultural operations, the horticultural boom is premised upon the exploitation of wage labor under increasingly deteriorating economic and work conditions. Indeed, when confronted with the growing power of retail chains, the growing price of inputs and greater competition, farmers are increasingly compensating for the reduction in profits by lowering wages and creating

a flexible pool of (mostly foreign) laborers inhabiting extremely precarious livelihoods (Aznar Sanchez et al. 2014).

Beyond agricultural restructuring, the combination of unemployment and precarious employment has become a defining social condition of contemporary Spain (and especially Andalusia) in the age of neoliberal reforms. Between the mid 1970s and the late 1990s, a series of labor reforms paved the way for the progressive deregulation of the labor market by undermining the position of trade unions in collective bargaining and increasing the number of unprotected and flexible contracts subject to functional and geographical mobility (Albarracín 2002). The reduction of wages and weakening of labor conditions, however, did not contribute to a reduction of unemployment. Instead, within a couple of decades, unemployment rates rose from 6 to 20 percent (IMF 2015). This trend was deepened by the implementation of structural adjustment policies in the aftermath of the 2008 financial crisis, as Spain was required to undertake austerity measures under the terms of the bailout agreements from the European Central Bank, European Commission, and International Monetary Fund. These measures included deep spending cuts, regressive taxes and a sustained process of labor market deregulation. As a result, long-term unemployment rates quadrupled between 2008 and 2012, and youth unemployment reached an all time high of 56 percent in 2013 (OECD 2013). Significantly, in 2014 the region of Andalusia recorded the highest unemployment rate (34 percent) in the entire European Union (EURES 2014).

The growing precariousness of employment in a context of historical land insecurity frames the transition to agro-ecology in Andalusia as an instance of a broader struggle over the conditions of social reproduction. In the aftermath of the Franco era and parallel to the implementation of neoliberal reforms, agro-ecology has become one axis of resistance that brings together old and new demands for land with the promotion of autonomous employment through environmental stewardship. The mobilization of agro-ecological alternatives to the agro-industrial model is epitomized by the creation of cooperatives on occupied land, and the growing participation of producers in training programs, networks of seed and knowledge exchange, and mechanisms of direct sale. While hard to quantify, the articulation of new forms of access to land, seeds, knowledge, and sources of income is weaving direct relationships between production and social reproduction that enhance socio-ecological integration and resilience. In Andalusia, this work has been pioneered by peasants involved in land occupations for subsistence farming, and committed to the reproduction of diverse seed systems suited to the needs of autonomous production and healthy/socially just consumption.

*From landlessness to agroecology: peasant innovation and seed autonomy at La Verde*

The historical and political roots of ecological farming in Andalusia emerged in the 1980s when the farmworkers' union, the Sindicato de Obreros del Campo (SOC), linked longstanding demands for agrarian reform with the mobilization of direct actions to occupy or appropriate abandoned farmland. Echoing earlier anarchist

traditions, these occupations sought to counter the rise of unemployment caused by agricultural industrialization by focusing on forms of land use that could sustain rural livelihoods (Watson 2008). The goal was to establish a large degree of autonomy from agro-industries by growing food for direct consumption while distributing the surplus to local markets in the community. In some cases, producers formed cooperatives and developed mechanisms of collective work and direct distribution that spearheaded the formation of broader territorial networks in the following decades (Luetchford 2014).

This approach is exemplified by the experience of La Verde cooperative in Villamartin, a small *pueblo* in the province of Sevilla. La Verde was founded in 1987 when a group of SOC day laborers obtained three hectares of public land to produce food for self-sufficiency, as an alternative to the growing expansion of mono crop farming in the large agricultural holdings that characterized the structure of land ownership in the area. Today, the cooperative brings together six families working on 14 hectares of land and sells the majority of its products directly through local markets and consumer associations. From the outset, La Verde adopted an agro-ecological mode of production as a way to secure a year round supply of fruit and vegetables, reduce costs, work independently from conventional markets, and counter the negative socio-environmental impacts of industrial farming (Perez, 2011). For the same reasons, and due to the lack of commercial varieties suited to organic agriculture, the use of local seeds of horticultural crops has become a core component of La Verde's farming practices. Over the years, the cooperative has developed the largest bank of

farm-saved seeds in Spain, which currently supplies most organic smallholders in the region.

As pioneers of organic agriculture in Southern Andalucía, producers at La Verde maintain a “holistic” approach that aims to distinguish itself from mainstream organics (cf. Lockie et al.2006; Luetchford and Pratt 2011). Accordingly, to reduce dependence from all off-farm inputs—biological and synthetic—they enhance soil fertility through ecological processes of nutrient and energy recycling based on crop rotations, intercropping, fallowing, and the use of manure. Within this context, while distinct varieties from the same population are sowed at different times to disperse the risk of crop failure and extend the harvesting season, the diversification of land use through intercropping, flowering plants, and agroforestry is meant to encourage natural enemies of pests and reduce the incidence of weeds. In a similar vein, wild plants from the area are used as forage and green manures, losses are tolerated, and insect habitats are allowed to thrive as part of the farm’s “ecological infrastructure” (Scialabba et al. 2002; Luetchford and Pratt 2011:91).

In order to autonomously sustain the functional diversity of local resources, La Verde has developed an integrated system of on-farm selection, storage, and multiplication of seeds. Building upon a range of cultivars collected from local smallholders and public seed banks, this system has evolved through different forms of farmer-to-farmer exchange, participatory breeding, and experimentation. Since the foundation of the cooperative, its producers have been actively involved in local and

regional initiatives of seed exchange to ensure the free flow of genetic materials underlying the development of heterogeneous crops and locally appropriate varieties (cf. De Schutter, 2009). Through these activities, La Verde has become an important hub of knowledge exchange and peasant innovation. Over the years, its members have turned it into a vibrant center of agroecological training for young researchers and producers, hosting hundreds of visitors who join them to study and work, in addition to organizing workshops, talks, on-site visits, and participatory trials on the selection and management of farmers' seeds (Soriano et al., 1996). As one producer explains:

The practice of agro-ecology is like an open book. Our history is rooted in collective knowledge and our work thrives in the commons: we learn from others and we share what we do. Look at our seed bank. That is the product of collective work and is reproduced through mutual training and collaboration. Our autonomy, as peasants, depends on an open system of reciprocal flows. Our strength, which can also turn into our weakness, lies in creating relationships with people. Which is also why this work is so labor-intensive.

Accordingly, parallel to the collaborative development of an autonomous source of locally adapted seeds, La Verde has mobilized to create direct and informed relationships with consumers and secure access to a system of distribution that circumvents corporate middlemen. In particular, the cooperative's members have built upon direct contacts with neighbors and local consumers, held meetings, sold produce at market stalls or through local shops, and linked up with other organic producers to create a marketing cooperative. At present, they supply several organic shops and purchasing groups on a weekly basis, in addition to distributing their seeds to smallholders and farmers' groups all across Spain. In this respect, the work undertaken

at La Verde does not constitute an isolated example: it is part of a “constellation of producer-consumer cooperatives, land occupations, peri-urban gardens, political groupings and research departments” (Luetchford and Pratt 2011: 89) that are actively engaged in the promotion of agro-ecological farming in Andalusia. In response to the growing levels of unemployment associated with the implementation of austerity measures, land occupations have reemerged as a strategy to secure access to basic means of social reproduction, and the adoption of agro-ecological practices constitutes the preferred venue for autonomous experimentation (López Garcia and López López 2003; Autoría Colectiva 2006). Correspondingly, producers are forging new links with other producers and with consumers in complex and evolving networks that are reshaping the ways in which food, knowledge, and innovation are produced and distributed at the local and regional level.

*The Andalusian seed network and the creation of seed commons for agro-ecological farming*

The adoption of agro-ecological farming methods in the Andalusian countryside is closely associated with the reproduction of locally adapted seeds as a vehicle of recombined genotypes and newly formed diversity that co-evolve with changing socio-cultural practices and needs (Visser, 2002; Chable et al., 2009). As the example of La Verde illustrates, the reproduction of heterogenous crop populations that can better adapt to the specificity of local contexts constitutes a core strategy of

“distantiation” from agro-industries and mainstream markets. Over the last two decades, this renewed focus on the role played by diverse seed systems in agro-ecological farming has led to the creation of a broad network that brings together peasant producers, urban gardeners, consumer groups, and researchers committed to the recovery, use, and exchange of locally adapted varieties. The Andalusian seed network (Red Andaluza de Semillas) was founded in 2007 and is currently composed of 300 members (including La Verde cooperative) working with more than 400 varieties of cereal, fruit, and vegetable crops.

The primary role of the seed network is to organize and coordinate meetings, workshops, training programs, and select publications that promote the diffusion and exchange of seeds and knowledge among agro-ecological producers (Gonzalez 2011). By connecting and integrating distinct and decentralized initiatives of seed selection and use, the network operates as an emerging “seed commons” that is accessed and reproduced through rules of reciprocity and transparency. When producers introduce local varieties in the network, they are asked to commit to an initial phase of characterization and evaluation that precedes the diffusion and exchange of seeds with other users. Accordingly, in addition to creating a collective seed bank, the network has focused on the production of new inventories that characterize each variety on the basis of morphological and agronomic descriptors and allow for the reproduction of knowledge associated with their use (Soriano et al., 1998).

Bridging the politics and practice of seed autonomy, the network seeks to facilitate the diffusion of applied knowledge in the context of peasant farming. As a collective effort sustained by the co-production of experimental projects and farming methods, the reintroduction, selection, and use of crop landraces is closely associated with a renewed definition of peasantness vis-à-vis other agricultural identities:

In our own “dictionary”, the word agricultor (farmer) refers to someone who works or cultivates the land, while campesino (peasant) refers to someone who belongs to or is related to the land. That means that the term peasant embodies a broader connotation of relationships with the land and with other people who work the land, which includes ecological, cultural and social relations. It is a way of life that is intimately integrated with agriculture. If we use the term farmer, on the other hand, we think of people who practice agriculture as a commercial activity and consider the land to be a form of capital or a commodity, which normally includes private ownership (Soriano 2011).

In this vein, the network promotes the reproduction of agro-biodiversity in the fields as a means through which peasant ways of growing and knowing can be sustained. Put differently, the selection of local seeds is carried out following criteria that enhance the specificity of local cultural repertoires, traditions, and farming methods, while fostering the interdependence of different learning processes geared toward the co-production of autonomy and relational experimentation.

### **Redefining autonomy and peasantness**

The promotion of agroecological farming as a relational process constitutes an attempt to redefine the meaning and praxis of autonomy within the current context of neoliberal restructuring. Specifically, the re-articulation of peasant identities and

modes of farming should be interpreted as both product of, and response to, the implementation of neoliberal policies that have progressively eroded access to public and de-commodified sources of socio-ecological reproduction while promoting the autonomy of self-managed individuals within expanding markets. These policies include the deregulation and casualization of labor markets, the marketization of both environmental commons and environmental “externalities,” and the private re-regulation and standardization of food quality and sustainability. Focusing on market transactions as the optimal means to achieve human well-being, the neoliberal project has advanced an individualized idea of autonomy that addresses subjects primarily as economic actors whose agency is reduced to the maximization of profits.

Within this individualist framework, autonomy is constructed as separateness, or differentiation of the self from the other according to a competitive logic. In order to pursue their self-actualization, individuals are encouraged to act as entrepreneurs of their own “human capital” and examine all forms of social interaction through the “grid of economic intelligibility” (Foucault 2008). The autonomous subject is in this respect defined with reference to the symbolic model of *homo oeconomicus*, which acts as “entrepreneur of himself, being for himself his own capital, being for himself his own producer, being for himself the source of his earnings” (ibid: 226). Correspondingly, parallel to the flexibilization of labor, the neoliberal paradigm entails an “individualization of the wage relation” (Bourdieu 1998:97) through the establishment of individualized contracts, targets, indicators, performance evaluations,

and delegated responsibilities that are geared toward increased competitiveness and self-exploitation of the workforce (Rose 1996).

The neoliberal emphasis on individual self-management, choice, and entrepreneurial potential is thus inherently associated with the development of new techniques of government that integrate specific forms of individual responsabilization with artificially arranged and contrived mechanisms of self-discipline and self-control (Foucault 1991, Burchell 1996). This leads to the “instrumentalization of a regulated autonomy,” (Rose 1996) whereby the realization of personal liberty is contingent upon the development of a whole array of organizational forms and technical methods eliciting the economic-rational conduct of market exchanging individuals (Barry, Osborne and Rose 1996). In this context, exclusive focus is put on paid labor and properly maximizing economic behavior, while unpaid labor and behaviors guided by other rationalities are devalued or encroached upon (Harvey 2005, De Angelis 2007). As such, these techniques converge to weaken or abolish collective structures or solidarities embodying values other than the “market axiomatic” (Deleuze and Guattari 2004).

The neoliberal construction of autonomy as internalized market discipline is rooted in discursive representations of the economy as a separate and self-contained object or institutional sphere (Mitchell 2002). In this respect, the depiction of human agency in market terms constitutes a form of “enframing,” reflecting the attempt to “make what is internal to the economy distinct from what is external, and thus make

calculation and exchange possible” (ibid: 300). This dualist approach is extended to the autonomization of production from social reproduction, and of the social from the natural. In particular, building upon the instrumental utilitarianism of modernist and liberal socio-natural orderings, the neoliberal project further entrenches the objectification and commodification of nature by means of new forms of governance, privatization, and enclosure that deal with the biophysical world as an object of management and market valuation (McCarthy and Prudham 2004, Heynen et al 2007).

Positing a fundamental abstraction of human action from the world within which this action occurs, the artefactual status of neoliberal autonomy leads to increased social insecurity, fragmentation, and vulnerability. Indeed, following this approach, the realization of freedom and individual autonomy presupposes not only the drive to own and monetize nature but also the reduction of humanity to a means of production confronted with growing precariousness and the self-responsible prevention of risks (Bookchin 1982, Butler 2004). By the same token, the increasing socio-ecological precarization resulting from neoliberal restructuring has spurred the emergence of alternative interpretations and practices of autonomy as a site of struggle and resistance. Specifically, in the context of grassroots attempts to reproduce secure livelihoods, socio-ecological and epistemic commons, and solidarity economies, the notion of autonomy is mobilized to signify a form of praxis that is relational, co-produced, rooted in an ethics of otherness and being-in-common (Castoriadis 1987, Levinas 1981, Nancy 1991). Drawing from feminist, anarchist, eco-socialist, and

politico-philosophical critiques, this alternative approach focuses on autonomy as an “ontological opening:” a creative process that moves beyond the closure of liberal individualism and capital-centric narratives by instantiating a politics of co-existence and co-responsibility (Gibson-Graham 2006, Bollier and Helfrich 2012, Graeber 2004).

On one level, the formulation of relational understandings of autonomy foregrounds the social as an essentially collective achievement (Buber 1970, Castoriadis 1991). Special emphasis is put on cooperation over competition (cf. Kropotkin 1968) and on the various forms of negotiation, experimentation, and emancipation stemming from the ontological proposition of “being-with and being-together (in the sense of the world)” (Nancy 2000:35). Within this framework, autonomy is pursued through open-ended forms of engagement with others (Pickerill and Chatterton, 2006), aimed at constructing and expanding “the affective and material spaces of the in-common” (Popke 2010:446). Accordingly, the articulation of autonomous spaces does not constitute an end state, but a form of action, a moment of creation, a process that is always relative and necessarily incomplete (Laclau 1990).

On another level, the politics of being-in-common is extended to an understanding of nature-society relations as a mutually constitutive, “dialectical unit” (Watts 1983). In this respect, the interdependence of humans and non-human others is seen as an expression of the interconnected nature of living reality, calling for an ethics of co-responsibility and stewardship (Peet and Watts 2004, Castree and

Braun 2001, Latour 1993). Focusing on the unique concatenations of human and nonhuman activities and relations, this approach underscores how the autonomy of human practices is produced through entanglement with evolving sources of subsistence and ensured by the local complexity of material conditions (Moore and Robbins 2015:157). Correspondingly, this renewed attention on the social reproduction of labor as both dependent on and co-constitutive of processes of environmental change, illuminates the emancipatory potential of socio-natures that seek to “elude capitalist control and follow autonomous paths” (ibid. 154).

In the field of agrarian politics, these interrelated components of the struggle for autonomy are closely associated with a redefinition of the meaning of “peasantness” as a *relational* identity constituted through socio-ecological co-production, cooperation, and interdependence. From the perspective of this relational ontology, the term “peasant” does not signify an abstract or objective category that can be specified or measured by “appropriate indicators” (Bernstein 2009:65), but rather a set of practices and form of politics rooted in specific historical conditions and constantly evolving (see Wolford 2010, Edelman 2013). Accordingly, this approach problematizes trans-historical and teleological theorizations of the peasantry as a strictly defined social class, mode of production, or type of society, that is either characterized by an “internal” economic logic (Chayanov 1986), or subject to differentiation/extinction<sup>8</sup> (Bernstein 2014), and formal or real subsumption to capital

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<sup>8</sup> Bernstein’s basic position in this regard is that “there are no ‘peasants’ in the world of contemporary capitalist globalisation” (2014:1044).

(Banaji 1977, de Janvri and Garramon 1977, Bernstein, 1994, Goodman and Redclift 1982).

In the current context of social and economic restructuring in Southern Europe, the reconstitution and reinvention of “peasant” ways of farming constitutes a form of “positioning” that foregrounds the reproduction of labor and diverse agricultural socioecologies as a source of autonomy. Specifically, the contemporary *mobilization* of peasant identities reflects the attempt to distantiate food relations from the imperative of capital extraction, and engage with agricultural practices that call into question the inevitability or desirability of the agro-industrial model. Peasant farming is thus turned into a site of experimentation with ways of being and doing that seek to counter the marketization of human labor and non-human nature by resisting the separation of production from social reproduction. In this respect, the creation of seed commons in Italy and Spain exemplifies the diverse ways in which producers pool resources, share labor, exchange knowledge, and develop common alliances aimed at co-producing autonomous livelihoods in the countryside.

## **Conclusion**

Since the combined food, energy, and financial crises of 2007-2008, the concept of “ecological” or sustainable farming has been selectively incorporated in the formulation of mainstream responses to food security challenges and climate-related risks. Invoking the use of ecological methods and resource conserving agricultural

practices, the discourse of “sustainable intensification” and “climate-smart agriculture” has been widely embraced by the World Bank, the FAO, and leading agribusinesses as a solution to the problem of food supply in a context of climate uncertainty (The World Bank 2011, The World Bank 2014). In this framework, the assumption is that global food insecurity is caused by insufficient food production and that productivity must be increased through higher yields on existing agricultural lands to avoid the environmental costs associated with agricultural expansion in other areas (Garnett et al 2013, Campbell et al 2014). Significantly, rather than questioning the effectiveness or sustainability of the agro-industrial model, the goal of “sustainable intensification” is entirely consistent with the contemporary consolidation of conventional, mono crop, and high-tech farming, and the attendant incorporation of agroecological principles in a neo-productivist paradigm (McMichael 2014). This is exemplified by the promotion of genetically modified crops as climate adaptation strategies and zero-tillage methods (Abergel 2011), and the corporate deployment of precision farming or “prescriptive planting” techniques as science-based approaches to sustainable ecosystem management (Antle et al 2015).

In direct opposition to the corporate use of ecological farming as a “technical fix,” the mobilization of agro-ecological practices by today’s peasants points to the consolidation of the agro-industrial model as a significant cause of food insecurity, land degradation, and global climate change. As such, in the context of contemporary struggles for autonomy, the reconstitution of peasant ways of farming through

agroecology promotes a relational approach to agriculture that is distinctively different from capitalist farming, even in its most sophisticated ecological variants (see Duncan 1996). To be sure, the driver of capitalist innovation and/or “ecological” experimentation is the extraction of exchange value from “fictitious” commodities (land, labor, food), a process that is grounded in the exploitative terms of the capital-labor relation (cf. Polanyi 2001 [1944]). Under this rationale, what needs to be reproduced is the ability to generate profits within ever expanding and globalized circuits of capital accumulation. By contrast, while operating within an economy dominated by capitalist relations, peasant producers are not subordinated to the imperative of profit maximization but rather strive to autonomously sustain their livelihoods and resource base. In the formulation of peasant agroecologies, both the organization of labor and the adoption of specific labor practices are shaped by a relational ontology of co-production that evades capitalist control. In fact, “capitalism might be the dominant form in these interactions,” but it does not follow that we can interpret the values and activities of non-capitalist forms “through a capitalist lens” (Pratt 2009: 163).

Embodying contemporary forms of open-ended experimentation with alternative ways of (re)producing food, knowledge, and socio-natures, the politics of peasant farming does not fit rigid characterizations as a unitary, uniform, or “populist” project (Bernstein 2009). Correspondingly, even if today’s peasants are the product of neoliberal processes of casualization, displacement, and enclosure, their “viability”

and future prospects cannot be reduced to a political-economic analysis of class differentiation (see Bernstein 2014, McMichael 2015). Beyond the reductionism of capital-centric (en)framing, the struggle for peasant autonomy makes room for an ontology of socio-ecological interdependence, where the co-production of non-utilitarian and emancipatory socio-natural orderings is premised upon the cultivation of collective solidarities and equally distributed social power.

## CHAPTER 2

### **Dissident Seeds: Population varieties, Agro-ecological Innovation, and the Politics of Science**

#### **Introduction**

From 2010 to 2014, a consortium of 23 research institutions from 10 European and 2 African countries worked at the collaborative research project SOLIBAM (Strategies for organic and low-input integrated breeding and management) to evaluate and enhance the role of agro-ecosystem diversity and decentralized innovation in reproducing sustainable farming systems and climate adaptation strategies. Building upon the work of agro-ecological producers in different countries and regions, the project included 51 comparative field trials that experimented with the creation and evolution of cultivated diversity by focusing on genetically heterogeneous crop populations and seed varieties. In addition to identifying the criteria for seed selection associated with organic and low-input agronomic practices, SOLIBAM underscored the relationship between the promotion of diversified seed systems and the development of innovative models of decentralized and participatory research on-farm. After 4 years of experimentation, the project demonstrated that working with the complexity of agro-ecosystems at all levels—through the use of diverse seeds, cropping systems, and methods of innovation—is the best strategy for improving crop

adaptation to fluctuating environmental conditions and for increasing yield stability and food quality in different social, agronomical, environmental, cultural, and economic contexts (Bocci 2014). Accordingly, the consortium issued a set of policy recommendations urging the legal recognition of farmer-based seed selection and exchange within more integrated and pluralistic seed regulations.

Taking a holistic approach to the evolution of living matter in the fields, the reproduction of diverse crop populations and variety mixtures adapted to local socioecological conditions challenges the restrictive scope of European seed regulations that require seeds to be genetically uniform, distinct, and stable in order to qualify for legal distribution and use. More to the point, the methods and results of on-farm seed selection and evolutionary crop management call into question the universality of scientific criteria informing the structure of seed regulations, underscoring how the production of agronomic science and plant breeding strategies is rooted in specific social goals, cultural norms, and ideological constructs. To be sure, the development of industrial agriculture in the twentieth century was in large part premised upon the breeding and release of genetically uniform crops (pure lines, clones, F1 hybrids), suited to the standardization and capitalization of food production, harvesting, processing, and distribution in increasingly elongated commodity chains (Kloppenburg 2005, Fowler 1994, Pistorius and van Wijk 2000). In the context of conventional plant breeding, the pursuit of uniformity is geared toward the isolation and replication of traits that make crop growth compatible with high input use, thus

increasing the likelihood of high productivity over a wide range of geographical environments (Ceccarelli 2009, Goldringer and Dawson 2012). The fixation of pure lines and homogeneous hybrids is in other words instrumental to the development of monocultural systems that can be “widely adapted” to different geographical regions by concealing environmental variations through the extensive application of external inputs (irrigation, mechanization, fertilizers, and pesticides).

In Europe, the codification of plant breeding methods imbued with an industrialist ideology of purity and uniformity stems from the genetic modernism of early-mid twentieth century agronomic research promoted by fascist or proto-fascist regimes. Premised upon phyto-eugenic visions that associated genetic homogeneity with higher yields, the selection and distribution of seed varieties was reconstituted into a biopolitical instrument of state control and intervention within the framework of autarkic policies aimed at increasing domestic food production and self-sufficiency (Bonneuil and Thomas 2010, Saraiva 2010). As illustrated by the development of plant breeding in fascist Italy and Vichy France, seeds were used as a disciplinary tool of state management to rationalize agricultural production and transform farmer practices, with the effect of establishing a sharp divide between seed selection and crop growth, and between farmers and scientists. In this context, the rise of state-supported breeding programs aimed at making plant performance more predictable and amenable to mass reproduction went hand in hand with the progressive displacement of farmer’s agency in crop evolution and innovation, leading to the

emergence of a new “seed regime” in which new elite varieties crafted by science would supplant farmers’ old landraces and genetically heterogenous seeds (Bonneuil and Thomas 2010, Iori 2013).

These developments provided the blueprint for post WWII agricultural modernization policies that institutionalized the dominant role of formal plant breeding and its relationship to seed commodification. During the 1950s and 1960s the structure of European seed policies and regulations normalized the specific selection criteria used by commercial plant breeders as a precondition for variety registration, release, and distribution. Correspondingly, combining the goal to increase agricultural productivity with the drive to substitute capital for labor, these laws systematized the professionalization of crop and life sciences in the hands of “experts,” while reconfiguring the role of farmers as end users of new technology. Premised on a reductionist approach to the multiplication of homogeneous, mono-variety seed under controlled conditions, the standardization of seed markets was closely associated with the development of top-down, specialized, and increasingly privatized systems of knowledge production and dissemination. Over the last 50 years, the codification of disciplinary criteria aimed at simplifying agro-ecological complexity to fit the requirements of industrial production has marginalized alternative interpretations of what constitutes agronomic science and how that science should be produced. At the same time, the consolidation of a model of farming that is dependent on a limited number of varieties selected through repeated backcrossing between “elite”

germplasm lines has become a major cause of agro-biodiversity loss and food system vulnerability in times of climate change (Döring et al 2011, Gepts 2006).

Against this background, the recent mobilization of collaborative initiatives of on-farm seed selection and diversification constitutes a dissident approach to the object and methods of agronomic research that foregrounds the benefits of biological and cultural diversity in practices of agro-ecological adaptation. Specifically, over the last two decades, agro-ecological producers have become increasingly involved in projects of participatory plant breeding and decentralized innovation within networks of seed and knowledge exchange aimed at developing an alternative seed system of locally adapted cultivars and evolving crop populations. These networks are active in more than 12 European countries and coordinate local, regional, and international programs of collective experimentation with dynamic, adaptive, and diverse strategies of agro-biodiversity reproduction. As an alternative to the reductionist manipulation of individual plant traits or genes intended to make crops more resistant to climate change, this model of innovation embraces the complexity of socioecological co-production by working with variety mixtures and populations as the embodiment of heterogeneous gene flows, methods of cultivation, socio-cultural practices, and constantly evolving environmental conditions. More to the point, the mobilization of participatory seed selection and evolutionary breeding trials is part of a process of labor intensification aimed at reducing dependency on external capital through the reproduction of self-managed resources on-farm, including knowledge (cf. Van der

Ploeg 2009). As a core component of producers' autonomy, the development of farmer-based seed systems "augments the reproductive value of agricultural resources on-farm" (McMichael 2013:147) and enhances the de-commodification of farming as a practice. Within this framework, and in stark contrast to the dominant model of agricultural research, knowledge is re-appropriated as a productive resource that can be reciprocally accessed, exchanged, and reproduced through non-hierarchical processes of collaborative innovation, negotiation, and debate (cf. Holt-Jimenez 2006).

In this paper, I examine the epistemic challenge posed by the methods and goals of participatory plant breeding by focusing on the mobilization of decentralized initiatives of wheat selection and diversification in Italy and France. Significantly, throughout the twentieth century the goal to increase wheat yields and make the production of wheat amenable to increased input use greatly influenced the structure and direction of conventional plant breeding as an instrument of rural transformation. At the European level, the standardization of seed testing and certification criteria is entrenched in a discourse of purity and genetic uniformity that was largely deployed in French and Italian wheat breeding programs both in the 1920s-1940s and in the postwar era. By the same token, the practice of selecting, reproducing, and processing wheat on-farm has become a key site of grassroots mobilization in the rural areas of Italy and France, where the emergence of seed networks during the last 15-20 years has provided agro-ecological producers with a shared platform of de-commodified seed access and collaborative innovation.

Within the context of participatory plant breeding initiatives coordinated by *Réseau Semences Paysannes* in France and *Rete Semi Rurali* in Italy, the goal is to generate, rather than suppress, the genetic variability of wheat populations as a fundamental source of yield stability, good grain quality, and higher resistance to biotic and abiotic stresses (Di Silvestro et al. 2012). Correspondingly, focusing on the production of agronomic knowledge as a decentralized and participatory process, these initiatives promote a model of innovation that is autonomously mobilized, expanded and reproduced through relations of reciprocity and collaborative work. Premised on the politicized exchange of forms of knowledge that are plastic, permeable, and open to multiple interpretations, negotiations, and action (Scott 1998, Pimbert 2010), this approach disrupts the self-evidence of universalist/standardized scientific representations of seed quality and agricultural productivity informing the practice of agricultural research. The production of seed autonomy is in this respect the embodiment of mutually constituted epistemic and material struggles that both contest and deconstruct the bio-political and disciplinary mechanisms associated with extant hierarchies of knowledge and power.

### **Seed registration and the politics of scientific standards**

The structure of seed access and circulation is strictly regulated in Europe by specific seed trade and variety protection laws. Each member state of the European Union is required to maintain a national catalogue of officially recognized varieties as a

mandatory precondition for variety release and commercialization. In order to be legally registered nationally and in the EU Common Catalogue, varieties have to meet standards of distinctiveness, uniformity and stability (DUS) and undergo testing to prove their value for cultivation and use (VCU) over a minimum two-year period. Within this framework, a crop variety is considered “distinct” when it is distinguishable by one or more characteristics that results from a particular genotype or combination of genotypes, from all other registered varieties (Council Directive 2002/53/EC, Article 5). More importantly, to be classified as “uniform,” a group of plants of a given variety must have genetically similar or identical characteristics with very few aberrations. Only pure lines, first generation hybrids or clones meet this standard. These criteria are closely associated with the requirement of stability, implying that the distinguishing characteristics of a distinct and uniform variety remain unchanged after repeated cycles of propagation (Council Directive 2002/55/EC, Article 5).<sup>9</sup>

To qualify as “valuable” for cultivation, varieties are tested in controlled environments (i.e. at research stations), where high levels of inputs are often used to improve the trials for statistical analysis (Louwaars 2001:107). In this context, a variety’s VCU is considered satisfactory if it offers a clear improvement with regard to “yield, resistance to harmful organisms, behaviour with respect to factors in the physical environment and quality characteristics” (Council Directive 2002/53/EC). In

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<sup>9</sup>This genetically dominated legal meaning of stability contrasts with the use of the term in agronomy, where various statistical concepts of stability focus on how little the yield or quality of a crop varies over locations or time (Döring et al. 2011:1945)

practice, since the organization of testing trials encourages the development of crops adapted to favorable agroecological conditions under monocultural management, the evaluation of new varieties emphasizes improved productivity as the decisive characteristic. The “legal” seed market envisioned by these regulatory mechanisms is thus composed of a limited range of “predictable” cultivars that are bred to maximize their performance through the application of external inputs.

Significantly, the criteria that regulate the management and distribution of commercial seeds are also structuring the recently created market for organic seeds. The requirement to use organic seeds in organic production was first introduced by a European Council regulation (2092/91, *OJ*, L 198, 22 July 1991, pp. 1-15) in 1991 and went into effect in January 2004, following the mandatory establishment of computerized databases for the registration of commercially available varieties in different countries (EC 1452/2003, *OJ*, L 206, 15 Aug. 2003, pp. 17-21). These regulations make it compulsory for organic farmers to use seeds from registered varieties that were reproduced for at least one generation under organic conditions. Paradoxically, the same rules prevent organic farmers from using locally adapted seeds that cannot be included in the national databases because they do not fit conventional standards of certification (IFOAM, 2011). As a result, these provisions limit the supply of organic seeds to the short-term propagation of commercially bred varieties under conditions of “input substitution” (Rosset and Altieri 1997), thus curtailing the range of genetic diversity available to farmers. Within this context, the production and

distribution of organic seeds is turned into a new “high-value” market concentrated in the hands of few corporations, further deepening the separation of farming and breeding activities.

The history of seed legislations in Europe is closely associated with the development of a commercial seed sector in the first half of the twentieth century (Bonneuil and Hochereau 2008, Louwaars 2007). The requirement of variety registration in official seed catalogues was originally introduced to facilitate the creation of efficient and transparent seed markets, “where variety names and varieties themselves were used for commercial purposes only” (Louwaars 2002:132). In particular, the establishment of seed registers was aimed at assisting professional breeders and commercial seed producers in their efforts to prevent fraud and curb practices of unfair competition. The first register of qualified varieties was established by the German Agricultural Society in 1905. Such registers became compulsory when national seed laws were enacted in Europe in the 1940s (Louwaars 2002). Seeking to link distinct varieties to clearly identifiable names, registration was based on the description of specific morphological traits and agronomic characteristics, including minimal standards for purity and germination rate. As an instance of seed commodification, the regulation of seed marketing practices legitimized the work of private seed companies that sought to provide farmers, as consumers, with a distinguishable and reliable product. By the same token, the compulsory use of seed registers delegitimized the role of farmers as seed selectors and producers, insofar as

the criteria used to define what constituted a distinguishable and reliable variety were only applicable to commercially bred seeds.

Focusing on the notions of genetic uniformity and stability, in addition to the requirement of distinctiveness, the institution of seed registration and testing systems in the 1940s privileged the standardization of artificially bred varieties that were created and multiplied in laboratories and research stations. To be sure, the varieties of seeds utilized and reproduced on farm, as an expression of diverse farmers' practices and needs, were often distinct, but not genetically uniform. Within this context, the maintenance and generation of variability within and between crop varieties was in many cases associated with yield stability, better adaptation, and diverse end uses. Conversely, the development of genetically identical or uniform cultivars required multiple years of pure line selection derived from artificial hybridization or pedigree breeding. These techniques sought to construct crop varieties as homogeneous living forms that could be circulated and recombined with predictable efficiency (Müller-Wille 2007, Mendelsohn, 2005), unaffected by the space-time of evolution in the fields. Operating beyond the scope of farmers' adaptive practices, the production of pure lines and uniform hybrids exploited the diverse genetic composition of landraces and local varieties to artificially develop fixed traits that were replicated as "technical objects" without variations.

How did the criteria of genetic purity and homogeneity become so entrenched in the structure of seed laws? The representation of pure lines and homogenous

hybrids as the only legitimate and acceptable form of certifiable seed reflects the economic, political, and epistemological dimensions of phyto-genetic modernism in the field of crop science. As illustrated by the development of modern wheat breeding, the goal to standardize seed production for agro-industrial purposes was imbricated with complex cognitive and material constructions of plant varieties as objects of scientific knowledge and biopolitical control. By disciplining notions of seed identity, quality, and productivity, the regulation of seed markets encouraged the consolidation of breeding methods that turned the quest for crop monomorphism into a tool of agrarian transformation, while rendering other agronomic approaches untestable, and therefore illegible.

### **Manufacturing modern wheat: scientific breeding and the quest for genetic purity**

Wheat is an autogamous crop, which self-pollinates within populations composed by mixtures of highly homozygous plants that evolve through dynamic adaptation in different environments. The variability of wheat landraces within composite populations is maintained by occasional and spontaneous crossings and mutations, and reproduced by selective agronomic techniques and farming practices. Historically, the availability of diverse and genetically variable cultivars has facilitated the adaptability of wheat varieties to a wide range of climatic and environmental conditions: since ancient times wheat has been the major staple food of the Mediterranean Basin,

characterized by widespread cultivation throughout Europe, West Asia, and North Africa.

Compared to the early decades of the twentieth century, the number of wheat varieties used today is extremely limited, with widely similar, and uniform genetic composition. In Italy, for example, the total range of soft wheat genotypes currently under cultivation includes less variability than what was available in a single field at the beginning of the century, with less than 10 certified varieties covering more than half the national territory (Barcaccia and Falcinelli 2012:541). In France, more than 90 percent of registered wheat cultivars share at least one common parent in their pedigree (Velvée 2009:56). As opposed to the 365 distinct varieties grown in the 1930s (Bonneuil and Thomas 2009), the national wheat crop is currently based on 15 lead cultivars accounting for over 70 percent of bread wheat production, and only 10 durum wheat cultivars occupying nearly the entire sector (Velvée 2009:54). This erosion of genetic diversity results from the application of techniques of genetic “improvement” aimed at developing monogenotypic lines and single-cross hybrids suited to the expansion of high-input farming (Allard 1999).

In Europe, the constitution of “improved” wheat varieties is rooted in a “fixist” approach to crop development that shaped the breeding methods of plant geneticists in a context of industrial modernism. Embracing the “pure line” paradigm that Danish biologist Wilhelm Johannsen had proposed in 1903, early twentieth-century breeders sought to isolate permanent biological types with strictly identical genomes that would

react in an undifferentiated way to given conditions and produce stable and predictable effects (Bonneuil and Thomas 2009:538)<sup>10</sup>. These efforts to engineer genetic sameness conceptualized purity “as a structural property, engraved in the genotype (i.e., homozygosis),” and associated with the possibility of neutralizing living beings from environmental or evolutionary influences (ibid). The pure line approach built upon the method of geneological or pedigree breeding pioneered by the French commercial breeder Louis de Vilmorin (1816-1860) and further developed by Italian breeders Francesco Todaro (1904-1935) and Nazareno Strampelli (1900-1942). Focusing on the transmission of hereditary traits as separate from the influence of “external” factors (climate, inputs, farming practices), this method sought to isolate the “intrinsic genetic identity” of pure line cultivars in order to develop standardized genetic products with predictable fixed behavior (Saraiva 2010:468).

The development of pure lines was based on the selection of the descendants of individual plants obtained through repeated self-fertilization, and replanted in separate rows to single out groups with identical morphological and physiological traits (Felice 2011). In stark opposition to on-farm methods of mass selection, the goal was to identify different “racial” lines within specific wheat varieties, and isolate the source of elite germ plasm that would be serially reproduced over subsequent generations

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<sup>10</sup> In Johannsen’s view, the concept of genetic purity was associated with a static approach to crop evolution and heredity. As he explained (1911:139,146): “The genotype conception is thus an ‘ahistoric’ view of the reactions of living beings—of course only as far as true heredity is concerned. This view is an analog to the chemical view, as already pointed out; chemical compounds have no compromising ante-act, H<sub>2</sub>O is always H<sub>2</sub>O, and reacts always in the same manner, whatsoever may be the ‘history’ of its formation or the earlier state of its element...A special genotypical constitution always react in the same manner under identical conditions.”

(see Todaro and Bonvicini 1929)<sup>11</sup>. In Italy, the breeding programs led by Todaro and Strampelli in the first three decades of the twentieth century focused on high productivity, lodging resistance, and rust susceptibility as core selection criteria. The process of genetic improvement was in other words aimed at developing wheat varieties that would perform better according to specific traits (rust resistance, early flowering and maturity and short straw), and could tolerate high levels of inputs to increase production (Lorenzetti 2012). In this respect, portraying the breeder as a “creator who could design plants according to specific needs” (Iori 2013) Strampelli complemented the genealogical method of pure line selection with the possibility to combine characters from different varieties through hybridization: after obtaining stable first generation hybrids (F1) through artificial pollination, he sowed the seeds of each different spike of the second generation in small plots, repeating the same steps over successive generations until an homozygotic individual was identified (Saraiva 2010: 469)<sup>12</sup>.

Measuring crop productivity in absolute terms, Italian plant breeding programs particularly focused on the development of lodging resistant varieties that allowed for

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<sup>11</sup>Working at the development of fixed lines within controlled laboratory spaces, the breeding programs of Todaro and Strampelli did not consider environmental conditions as important selection variables. In particular, Todaro disregarded environmental variations insofar as his goal was to “purify” varieties that were already cultivated in specific areas as a means to stabilize better-than-average results and avoid imports. Strampelli, on the other hand, looked at environmental differences as a testing ground to collect information on the performance of his hybrids at the end of the propagation cycle, but worked to develop uniform fixed lines that would perform well in spite of those differences (see Iori 2013).

<sup>12</sup> Drawing from both intra-specific and inter-specific hybridization, the model of wheat improvement developed by Strampelli included the realization of at least 800 cross and backcross combinations of more than 250 varieties, and the phenotypic selection of about one million plants and of tens of thousands “fixed” lines on the basis of several morphological, physiological, and agronomic characters related to productivity, adaptation, resistance to biotic and abiotic stresses, and grain quality (Sciarazza Mugnozza 2005:53). Only a very small percentage of these lines was subsequently adopted on a national scale, limiting the range of diverse germ plasm available to farmers.

an increase in input use. Indeed, insofar as the problem of lodging grew with the application of chemical fertilizers producing taller plants, breeders put special emphasis on the isolation and/or hybridization of short stem or semi-dwarf varieties that would raise the maximum production achievable under high-input conditions. Significantly, these efforts preceded the release of Norman Borlaug's Green Revolution varieties by a couple of decades. In addition to modifying practices of soil protection and nutrient recycling, the introduction of new varieties embodied a sustained effort to transform an agricultural sector that was still predominantly composed of self-sufficient farms. In particular, the deployment of Mendelian principles of crop selection became an instrument through which breeders like Todaro and Strampelli could claim a "separate scientific space" for their programmes, whereby the controlled and systematic development of improved seeds was opposed to on-farm practices of seed sharing, reproduction, and exchange (Iori 2013:16).

During the 1920s, the distribution of "elite seeds" was integrated in the top-down program of rural transformation promoted by the Italian fascist regime. Within the context of the so-called "Battle of Wheat," launched in 1925, the state heavily endorsed the production and adoption of commercially bred seeds and funded a vast network of breeding stations that could experiment with new varieties. Specifically, in the attempt to raise domestic production through intensive farming methods, the regime implemented specific policies geared toward the replacement of "old" landraces with new wheat varieties—what became known as the "change of seed" initiative (Felice 2011:123). This program entailed either the distribution of new seed

with the obligation to plant it, combined with the withdrawal of the same amount of “common” grain, or the distribution of subsidies for the purchase of improved varieties. As a result, within the first 4 years of implementation, more than 100,000 quintals of farmer-based seeds were replaced with “scientifically” bred F1 hybrids and pure lines largely derived from Strampelli’s wheats (ibid). Correspondingly, after 1928, the widespread adoption of these varieties was enhanced by the release of a new protocol on fertilization that called for an increase in the use of nitrogen fertilizers. To be sure, the Battle of Wheat was closely associated with the goal to modernize and boost the output of the chemical industry, which directly benefited from the massive diffusion of seed with high phosphates and nitrates intake (Saraiva 2010:463). In Italy, the production of improved wheats accounted for no more than 3 percent of the national market in 1925. In 1932, the percentage had risen to one third of the cultivated grain area, and by 1940 the use of new varieties had completed monopolized production in the fertile areas of the Po Valley. As a whole, with the exception of the South, the regime’s policies had led to the substitution of local cultivars with elite seeds on 80 percent of the national cultivated territory (Felice 2011:138).

The fascist-led reordering of the seed sphere in Italy was part of a distinct phase of agrigenetic modernization that involved large parts of the industrialized world from the 1920s to the 1940s. In this period, states established a new kind of biopolitical connection with seeds as a pivotal vehicle of agrarian change, source of production, and object of scientific management. In the attempt to raise agricultural productivity, they implemented new rules for the use and marketing of seed, promoted

plant breeding research, and managed the acquisition of plant genetic material (Kloppenburg 2005, Flitner 2003, Pistorius and van Wijk 2000). In most cases, especially under fascist or proto-fascist regimes, the connection between states and seed was framed by a quest for genetic purity and uniformity that was discursively linked with eugenic ideas and programs. Epitomized by the “purification work” undertaken by the German seed law of 1934, which outlawed the use of 438 out of 454 existing wheat varieties (Flitner 2003:177), this phase of intense state intervention in the seed sector embraced eugenic concepts of heredity and varietal cleansing that linked the improvement of agricultural organisms with the genetic betterment of the social body. By the same token, the promotion of breeding programs that focused on the fixity of genetically pure and identical individuals was directly associated with the possibility of control and mass production of stable life forms (see Scott 1998). By driving genetic flows from breeding laboratories to the countryside, and regulating the construction of seeds as clearly identifiable, homogeneous and standardized products, state policies led the technical rationalization and commodification of seed markets as an instrument of industrial development<sup>13</sup>.

The effort to manage seed production as an object of state control constituted a key component of French agricultural policies under the Vichy regime. In the aftermath of France’s defeat in 1940, the Vichy government’s technocratic and authoritarian reorientation of wartime food and agricultural policy put plant geneticists in charge of a planned seed economy that systematized the diffusion of improved plant

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<sup>13</sup> For a comparison with Green Revolution policies during the 1940s-1960s see Fitzgerald 1986, Fitting 2011, Gupta 1998, Cullather 2010.

varieties while suppressing the use of heterogenous cultivars deemed obsolete (Bonneuil and Thomas 2009). In 1942 a seed bureau was set up at the State Secretariat of Agriculture, together with a Permanent Technical Committee of Varietal Selection (CTPS) responsible for the development and implementation of technical rules with regard to the production, control and certification of seeds and plants. Significantly, the primary goal of the CTPS Variety Testing System was to “screen cultivars that could be adapted to large areas of cultivation, and “decrease the number of cultivated varieties...without administrative constraints” (de Boef 1942). Committed to elevating the “genetic value” of seeds and regulating the flow of “genetic progress” injected into farmers’ fields (Bonneuil 2006), the CTPS decreed the elimination of most landraces and older commercial lines from the seed market, by compiling lists of recommended and forbidden varieties for each region (ibid: 301).

Like Italian breeders, the leading plant geneticists of mid-twentieth-century France privileged a fixist paradigm of seed selection that conceptualized phenotypic traits and yield potential as intrinsic properties of plant varieties. This approach was particularly embraced by the head of the department of plant breeding and genetics Jean Bustarret, who codified the difference between uniform and unstable varieties in a seminal article published in 1944. Specifically, Bustarret departed from evolutionary biology to define varieties as “technological objects” that could be classified on the basis of their mode of obtention (pedigree breeding, asexual reproduction, mass breeding, etc.), and according to notions of distinctiveness, uniformity, and stability

(DUS). Focusing on pure line varieties as the most perfectible input of agricultural production, the DUS criteria were subsequently imposed by the CTPS as mandatory requirement for registration and commercialization, supporting the development of a system of intellectual property on seeds as clearly identifiable commodities (Bonneuil and Hochereau 2008:1317). In a similar vein, the classificatory system developed by Bustarret and his colleagues associated the “value” of plant varieties with the possibility of determining, through controlled agronomic experimentation, their degree of profitability and productivity as fixed, a priori, characteristics (ibid). Accordingly, starting in 1945, the seed catalogue managed by the CTPS became an official tool to assess the “value for cultivation and use” (VCU) of plant varieties that privileged high yielding and widely adaptable cultivars while contributing, year after year, to the exclusion of landraces. The first crop to be systematically screened for regulation was bread wheat: the number of varieties included in the catalogue decreased from 400 to 131 between the early 1930s and 1955, and was limited to 65 in 1966. By the 1960s, landraces had been completely removed from the official catalogue (Simon 1999, Demeulenaere 2014).

Since their institutionalization in French seed laws, the DUS and VCU criteria have dominated the structure of international and European plant protection and marketing regulations. In 1953, the first International Code of Nomenclature for Cultivated Plants defined a variety as “an assemblage of plants that: a) has been selected for a particular character or combination of characters; b) is distinct, uniform

and stable in those characters; and c) when propagated by appropriate means, retains those characters” (ISHS 1953, art. 2.3). In 1961, Bustarret spearheaded the creation of the International Union for the Protection of New Varieties of Plants (UPOV) that established an international regulatory frameworks for the protection of new, uniform, stable, and distinct varieties developed by professional breeders. In particular, the 1961 UPOV treaty provided breeders with Proprietary Variety Certificates granting exclusive rights over the reproduction and sale of protected varieties. In 1966, The European Community set up a uniform certification schemes sanctioning the right to restrict the marketing of seed to sufficiently pure, stable and homogeneous varieties. In 1972, the UPOV system of plant protection was combined with the creation of a Common Catalogue for members of the European Community, following the same criteria used in the original French catalogue. In this distinct regime of knowledge production, whereby the development of valuable seeds was conceived of as separate from the variable context of specific farmers’ practices and environmental conditions, the professionalization of scientific breeding supplanted the role of food producers in the selection and evolution of diverse, useful, or new cultivars. Working to optimize the stability of a reduced number of genotypes over large cultivation areas, the harmonization of variety protection and marketing laws was especially geared toward the release of standardized seed inputs within increasingly capitalized food markets.

In the field of wheat breeding, the separation of crop development from farming activities was deepened by the introduction of new techniques of laboratory

selection during the 1950s and 1960s. In post war Italy, the method of inter-specific hybridization was combined with mutation breeding in order to make wheat varieties, and especially durum wheat, more responsive to chemical fertilization, mechanization, and industrial processing. Specifically, in order to release varieties with desired alterations, seeds were treated with both chemical and physical mutagens like X-ray, gamma rays, fast neutrons, and thermal neutrons (Bagnara and Scarascia Mugnozza 1973). During the first phase of mutation breeding, seeds or other plant organs had to be delivered for irradiation to a nuclear center, in Italy or abroad. As they grew in experimental fields, special emphasis was put on reduced plant height, as well as other types of mutation which could affect spike size, structure and fertility, resistance to diseases, and maturity rate. Subsequently, hybridization between mutants with the same character was widely adopted to obtain a more drastic expression of the mutated character (Sciarazza Mugnozza 2005). This process led to the development of “Creso,” the variety of durum wheat with the highest percentage of certified seed currently distributed in Italy (Maluszynski et al 2009).

Since the 1970s, the goals and structure of plant breeding research have been increasingly influenced by the consolidation of corporate power in industrialized food chains. In France, the leading agency for agricultural research INRA, founded in 1946, has significantly reoriented its breeding programs to suit the needs of major agro-chemical and seed corporations, primarily focusing on wheat hybridization to assist in the release of highly commodifiable inputs that do not retain their uniform and stable

traits when reproduced in farmers' fields (Bonneuil and Thomas 2009). In Italy, commercial seed breeders have responded to the rapid concentration and internationalization of input and processing industries by establishing strategic partnerships with leading firms like Barilla, Plasmon, and Basf. In the 1990s, this corporate-driven research has produced wheat varieties resistant to herbicides through mutagenesis, and created high-gluten hybrid lines more amenable to the industrialization, mass production, and mass distribution of wheat-based products (Felice 2011).

As a whole, the combination of pure line selection, hybridization, and mutation breeding programs associated with the growth of the agro-industrial model has supplanted wheat landraces with modern wheat cultivars that are often characterized by high yield performance but are dependent on the large-scale use of fossil fuel and chemical inputs for their widespread adoption and agro-environmental adaptability (Veteläinen et al. 2009). Correspondingly, while showing high levels of resistance to specific pathogens or environmental constraints, genetically uniform wheats are not buffered against environmental fluctuations and novel stress factors when the direction and range of environmental changes are highly unpredictable (Döring et al 2011). More to the point, the introduction of semi-dwarf and lodging resistant wheat genotypes has resulted in reduced size and depth of root systems, lower nutrient-use efficiency, decreased weed competition and greater reliance on herbicides, greater susceptibility to diseases, and reduced protein content (Lammerts van Bueren et al.

2011:194). As such, these varieties lack traits of crucial interest for farmers who seek to reduce dependency on agro-industries, work under low-input conditions, and strive to increase soil fertility by closing the nutrient cycle as much as possible.

### **Reproducing wheat diversity: population varieties and participatory plant breeding**

Over the last two decades, the emergence of a growing movement toward organic and agro-ecological farming in Europe has corresponded with an increasing involvement of local producers with seed selection and production methods that defy the institutionalized criteria of conventional plant breeding. Specifically, since the late 1990s agroecological wheat growers from different regions of France and Italy have become active participants in decentralized initiatives of cooperative experimentation (usually defined as participatory plant breeding, or PPB) in order to reassert control over the development of seed varieties more suited to their diverse socio-natural conditions and autonomous reproduction (field notes 11-12). The basis for these projects comes from “old” and heterogeneous wheat cultivars conserved in farmer-based or regional seed banks and put in circulation through networks of farmer-to-farmer exchange within and outside their area of origin. The goal is to reverse the conventional focus on “wide” adaptation —whereby uniform cultivars are deployed across large geographic regions by replicating the high-input model of monocultural management in different environments (Lammerts Van Bueren 2012:3)—by

generating genetic variability and selecting varieties for “specific” adaptation not only to the physical but also to the socio-economic environment in which they are utilized (Ceccarelli and Grando 2007:350).

Within the context of agro-ecological farming, producers engage with the evaluation, adoption, and diffusion of intra-specific crop diversity in order to reduce the risk of crop failure, generate sustained yields with lower costs and intake requirements, and access more varied dietary and livelihood opportunities (Ceccarelli 2009, Lockie and Carpenter 2010, Altieri and Toledo 2011)<sup>14</sup>. In particular, reflecting a holistic approach to the functional diversity of locally adapted breeds, the reproduction of genetic variability on-farm allows producers to focus on a number of desired traits beyond yield and resistance to individual stress factors, and select varieties that are adapted to low nutrient levels, contribute to good soil structure and soil fertility, and are characterized by “morphological and phytochemical traits that reduce disease susceptibility, enhance weed competition, and increase pest feeding deterrents” (Lammerts van Bueren and Myers 2012:6). In this respect, the development of heterogeneous cultivars is promoted as a way to better cope with fluctuating and constantly changing environmental pressures, and enhance the “complementation,” “cooperation,” and “compensation” of different genotypes within complex agro-ecosystems characterized by variation in soil qualities, topography, and

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<sup>14</sup> In particular, the use of heterogeneous cultivars is seen as an alternative to the “resistance breakdown” of modern varieties, implying that pests and pathogens are able to adapt themselves so quickly to new pure line high yielding cultivars that resistance is broken down, usually between four to seven years after sowing or planting. Hence the four to seven years’ requirement to build up new resistance, which is referred to as the “boom and bust problem” committing farmers and breeders to a treadmill of varietal replacement (Pistorius 1997: 38).

water availability. Put differently, the genetic heterogeneity of diverse populations allows producers to focus on varieties that *complement* each other in the use of limited resources and are subject to minimal between-plant competition. This is exemplified by the mixture of genotypes with different rooting patterns, different light interception strategies, or complementary forms of resistance to pathogens. In a similar vein, varieties that produce volatile compounds with a repellent or toxic effect against pathogens can *cooperate* in protecting other genotypes from pest attack. Lastly, the use of mixed varieties with genotypes that can withstand different environmental conditions has a significant *compensation* effect that results in higher yield stability over time (Döring et al 2011, Lammerts Van Bueren and Myers 2012).

In the newly emerging context of on-farm wheat breeding initiatives mobilized in Italy and France, seeds are sown and resown as part of larger populations<sup>15</sup> that are neither uniform nor “stable” (according to the regulatory use of the term), but have the capability of evolving and adapting to the conditions under which they are grown due to their highly diverse genetic constitution (Döring et al 2011:1944)<sup>16</sup>. Focusing on the evolving properties of composite populations, rather than the fixist predictability of pure lines, this selection method is premised on a dynamic approach to the role and benefits of socio-natural “change, exchange, and admixture” that radically departs

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<sup>15</sup> The term “population” refers to a pool of plants cultivated in the same location (or field), in which individual plants are not genetically identical to each other and can crossbreed. Two special cases of populations are Composite Cross Populations (CCPs), created by crossing of different varieties, and varietal mixtures, obtained through the physical mixing of seed of different varieties.

<sup>16</sup> The adaptability of crop varieties increases with the generation of genetic variability and the reproduction of genetic diversity (Cooper, Spillane and Hogkin 2001). Specifically, in a mixture of genotypes, adaptation results from practices of mass selection or population breeding leading to an increase in frequency of the most adapted components, or from the emergence of a new genotype with higher fitness through recombination (Thomas et al 2015).

from the mechanistic and reductionist interpretation of crop development embraced by modern plant breeding. As a distinct object of study and scientific debate, the concept of evolutionary population, or population variety, foregrounds the cyclical and diachronic temporality of on-farm selection and biological reproduction vis-à-vis the industrial time of synchronized laboratory experimentation. In on-farm population breeding, seeds are not mass produced as replicable and permanent units, but they are harvested, stored, and reproduced as living matter that changes over time through combined processes of circulation, mixture, and natural/human mediated selection.

A core component of producers' engagement with this dynamic approach is their ability to access mutually constituted webs of genetic rift, gene flow, and knowledge sharing by participating in decentralized networks of seed exchange. As exemplified by the mobilization of Réseau Semences Paysannes in France and Rete Semi Rurali in Italy, the circulation and exchange of seed among agroecological producers enhances the adaptability of crops to fluctuating biotic and physical pressures by increasing their genetic variability (Hodgkin et al. 2007, Whitlock 2003, Thomas et al 2011). In this respect, the concept of specific, or local adaptation moves beyond rigid or reified notions of "the local" as a geographically bounded space or clearly defined set of cultural practices. To be sure, the process of varietal selection and reproduction on-farm does not constitute an isolated endeavor, but a participatory activity associated with shared mechanisms of decentralized innovation, knowledge exchange, and cognitive co-production. Premised on a renewed emphasis on farmers'

role as both seed curators and creators, the reappropriation of seed autonomy is practiced as a relational instance of collaborative experimentation that poses an epistemic challenge to the specialization and professionalization of plant breeding programs.

The mobilization of participatory population breeding initiatives reflects an open-ended approach to knowledge production that is distinctively different from the organization of conventional crop research. Significantly, the practice of formal plant breeding is characterized by top-down decision-making and inward oriented information flows, where farmers are merely seen as recipients of research rather than as participants in it. In this system, organized as a chain, “seeds and genes flow from gene banks to breeding programs, and onwards to seed production and distribution programs,” to finally arrive in farmers’ fields as an external input used to produce a marketable crop (Louwaars 2002: 26). Conventional crop research is also positivist in nature, assuming that there is a body of objectively verifiable knowledge that can be accumulated through the production of empirically testable hypotheses. This paradigm is characterized by reductionist explanatory models that fail to account for the dynamic complexity of ecosystems and for the multiple and interrelated variables that produce what farmers see as a valuable crop or cropping system (Pimbert 2010). As a result, the application of reductionist knowledge to conventional plant breeding translates into simplified and standardized production systems where labor is made more productive within expanding circuits of capital (cf. Lewontin 1982).

Focusing on participatory<sup>17</sup> learning as key for the local adaptive management of biodiversity and agro-ecosystems (Holling et al. 1998, Borrini-Feyerabend et al. 2007), the practice of on-farm population breeding provides an alternative approach. In this context, agroecological producers are directly engaged in the co-production and validation of knowledge embodying diverse local realities, priorities, and categories. Both the cultivation of variety mixtures and the integrated process of seed selection, propagation, and exchange are based on collaborations not only among producers from different regions, but also with agronomists, geneticists, biologists, social scientists, as well as representatives from non-governmental organizations. As such, the creation of shared platforms of open-ended experimentation problematizes the “great divide” (Latour 1987) between *scientific* and *local* knowledge (Demeulenaere 2014, Agrawal 1995), as well as the essentialized portrayal of all forms of local knowledge as intrinsically holistic, empowering or ecologically sound. On one level, by emphasizing how contrasting epistemic criteria can be enrolled to assess seed quality, yield stability, and crop value, the method of specific crop adaptation and population breeding sheds light on the contextual and political nature of scientific practice.<sup>18</sup> Correspondingly, as a hybridized combination of socio-historical

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<sup>17</sup> In the context of on-farm population breeding, the term “participatory” is used as a synonym for “cooperative” to emphasize the relational approach embraced by seed producers in their struggle for autonomy. Its connotation therefore diverges from proliferating discourses of “participatory” development, “participatory” resource use, or “co-management” that are associated with the deployment of neoliberal forms of governance—whereby the concept of local “participation” implies a devolution of responsibility lacking structural change in patterns of resource access and use—or constructed as all-empowering frameworks that elude critical analyses of multi-scalar power relations, impacts, costs, discrepancies, and contestation on the ground (cf. White 1996, Cooke and Kothari 2001, Hart 2002, Williams 2004, Cornwall and Brock 2005, Craig and Porter 2006).

<sup>18</sup> In other words, as Scoones and Thompson (1994: 29) put it, both local knowledge and scientific knowledge “are general and specific, theoretical and practical. Both are value-laden, context-specific and influenced by social relations of power.”

repertoires, experiential trials, laboratory testing and technical analyses, this method underscores the heterogeneities and discrepancies informing the production of scientific knowledge. On another level, the reappropriation of seed selection and diversification activities is pursued through opportunities of knowledge exchange that elicit the emergence of multiple (and divergent) interpretations, debates, variation, and action. What is produced is not a homogeneous, “locally” based, coherent body of knowledge, but a relational approach to knowledge production that is mobilized as a de-commodified source of autonomy sustained by newly emerging forms of collective praxis (cf. Wenger 1999).

*Réseau Semences Paysanne and the network of peasant-bakers*

Founded in 2003, the French seed network is composed by 77 organizations of organic, agroecological and biodynamic producers involved in on-farm processes of seed selection, propagation, and exchange. In particular, in order to promote access to crop varieties that are suited to the needs of low input, diversified, and autonomous farming systems, the network offers a space for producers to work collaboratively on the immediate in situ dynamic management of agricultural biodiversity by coordinating initiatives of cooperative plant breeding structured in different working groups per species (wheat, corn, vegetable, fruit and fodder) (Chable and Berthelot 2006). Over the last decade, these groups have been actively engaged in the organization of workshops, training sessions, and visits to farms with the aim to

encourage the diffusion of seed varieties, as well as the exchange and pooling of tools (seeders, sorters), knowledge, and experiences (Demeulenaere 2014). Within the network, a group of more than 200 producers is currently engaged in the reproduction of evolving wheat populations based on mixtures of heterogenous cultivars that are valued for their adaptability to different growing methods, artisanal processing, and dietary uses.

The increasing adoption of on-farm wheat breeding across the French territory sheds light on the growing link between low-input farming and seed autonomy. Significantly, in stark opposition to the epistemic norms of formal plant genetics and breeding programs, the goal of the wheat network is to promote a diversification of selection criteria so that autonomy is enhanced within different agro-ecological contexts and at each stage of the production cycle—from the promotion of soil fertility to the reappropriation of artisanal milling, baking, and processing methods. Focusing on the interaction and impact of different crops on the farming system as a whole, seed producers seek to attune their methods of cultivation to the evolution of a number of desired and interrelated traits—e.g. rate of crop maturity, nitrogen extraction, and nutrient uptake, ease of harvest and storage, taste, suitability for intercropping, etc.—that broaden the definition of seed quality enshrined in official regulations. In areas where agro-ecological methods of polyculture are integrated with animal husbandry, the cultivation of tall, long stemmed wheat varieties is considered particularly beneficial. In the context of farms practicing methods of permaculture, wheat cultivars

are selected with an emphasis on their root morphology and the capacity to establish interactions with favorable soil characteristics, as well as their adaptability to early sowing. And for wheat producers who are directly involved in milling, baking, and pasta making activities, the composition of grain mixtures is geared toward the optimization of preferred kneading and cooking qualities, organoleptic properties, and nutritional value (field notes 10-11). As Jean Francois Barthelot (interview 6.12.14), peasant baker in the department of Lot-et-Garonne, puts it:

The need to take into account the relation between plants and their physical and pathological environment is well understood by the scientific community. But the conceptual tools used to comprehend the relation between plants and their environment, and with human beings who grow them, are so different that the results of scientific research are often opposed to what peasant producers look for. These producers' experience of living nature in different contexts shows the ability of crops to evolve and adapt to their territory, and the fundamental importance of the relationship between plants, solar energy, and human nature. It's the living organism, in its integrity, that interacts, and this interaction cannot be isolated organ by organ, or at the molecular level.

The diverse nature of producers' needs and strategies of reproduction makes them particularly resistant to the cultivation of modern wheats. In this respect, members of the wheat network are especially critical of what they define as the triple "compaction" effect of modern wheat breeding, realized through the introduction of dwarfism, or reduced plant height, the segregation of heavier and compressed ears, and the development of "harder" varieties characterized by high gluten content and molecular weight. These selection criteria are reversed, in primis, by the valorization of taller wheat varieties with deeper roots and increased root mass, abundant straw, greater shading ability, and greater absorption of sunlight. Similarly, producers seek to

avoid the reproduction of tightly packed spikes that reduce the level of grain exposure to air and sunlight. Finally, wheat varieties characterized by lighter and “softer” types of gluten are preferred for their suitability to artisanal baking techniques, their digestibility, and improved nutritional properties (field notes 10-11). Working with wheat varieties as an expression of living nature, rather than an objectivized farm input, this approach underscores the importance of the singularity and alterity of plants and their evolving interactions with diversified farming cultures and ways of knowing.

In order to develop an alternative seed system that is not controlled by professional breeders or corporate chains, the wheat network is characterized by a decentralized, “peer-to-peer” (Bonneuil and Demeulenaere 2007) structure of reciprocal exchange and collective learning. On the one hand, seeking to foster a shared approach to the realization of producers’ autonomy, its members limit the amount of exchanged seed to what is necessary to generate new variability and innovation, while prioritizing the process of specific adaptation on farm. As explained by one producer (interview 6.24.11):

We need to exchange seed as a place to start, and a way to create new mixtures and observe how different varieties interact in our fields...that’s how we experiment, we select we can decide for ourselves. But each of us has to be responsible for maintaining and reproducing this diversity, in solidarity with others. We are not selling or commercializing our seed, what circulates among us is based on mutual trust and responsibility.

Within this framework, the practice of seed exchange is regarded as a fundamental source of new diversity and local crop adaptability. Nonetheless, seeds do not “freely” circulate across different territories, but are exchanged in consonance with mutually

recognized rules and obligations. Specifically, members of the wheat network extend what they define as rights of “collective use” to producers who, at different times and according to their means, act as both recipients and providers of farm-based seeds (interview 2.26.11). Reclaiming the centrality of seed (re)production as a labor-intensive practice, this approach reflects the attempt to develop an alternative to the division of labor between crop innovation, multiplication, and use characterizing the structure of conventional seed chains.

On the other hand, the practice of farmer-to-farmer exchange is not limited to seed but constitutes a core vehicle of knowledge sharing. In this respect, wheat producers have been directly involved in different projects of varietal description and characterization as a way to share the results of on-farm observation and experimentation with other participants. These activities are also aimed at comparing and confronting the adaptability of population varieties in different contexts, as well as the diverse methods of selection and techniques of transformation associated with their use. The organization CETAB (Center for the study and welcoming land of wheat), for example, was created in 2004 to collectively manage a collection of more than 250 old wheat varieties in the French department Lot-et-Garonne. This collection constitutes a dynamic site of agro-biodiversity reproduction that is used as a shared platform for on-farm visits and training sessions, experimental breeding and seed multiplication. Within the organization, a group of producers is currently collaborating at the evaluation of 94 composite wheat populations obtained through mixtures and manual

crossings, with the aim to test their agronomic, nutritional and organoleptic characteristics and make this information available to the rest of the network. In a similar vein, in 2009, CETAB hosted the 4-day international meeting RENABIO that provided an open forum of knowledge sharing and exchange to more than 150 wheat producers from all over the Mediterranean Basin.

Another organization that has pioneered projects of collective experimentation is Triptolème, in the region of Bretagne. Founded in 2005, the organization hosts around 600 heterogeneous varieties of grain distributed over a dozen interconnected farms, and is actively involved in the mobilization of initiatives of cooperative selection and agro-ecological multiplication of wheat landraces. In addition to providing shared access to seed, farming tools, and field trials, Triptolème coordinates yearly events of collective harvesting and threshing that bring producers together as a “community of practice” (Wenger 1999). In particular, from 2009-2012, these activities were linked to the experimental project PaysBlé (Lands of Wheat), aimed at developing shared strategies for the promotion of seed autonomy among peasant producers in the region. As peasant baker Nicolas Supiot (interview 7.19.14) describes:

Faced with the lack of organic seed suited to our agro-ecological methods, and threatened by the introduction of GMOs in France, we have managed to mobilize for the production of our own seed. Paysblé is an attempt to open new ways, to give voice to an integrated mode of farming that reunites what was once separated: producers, researchers, and consumers are involved in the construction of a *phenomenological*, rather than a priori, approach to the cultivation, selection, and transformation of plants within diverse ecosystems, food cultures, and solidarity economies.

Over the last decade, the work undertaken by groups of producers and producers' organizations at the regional level, has been incorporated in multi-year research programs coordinated by different consortia of European research institutions and seed networks at the international level. These include the EU-funded projects Farm Seed Opportunities, SOLIBAM, and DIVERSIFOOD that, over subsequent experimentation cycles, have mobilized an extended network of cooperative plant breeding initiatives within and across different European countries.

*Rete Semi Rurali and the agro-ecology of on-farm wheat*

The Italian seed network Rete Semi Rurali was founded in 2007 by a group of 30 organizations that have spearheaded the mobilization of an agro-ecological seed system in the different regions of Italy. In particular, the network has played a key role in coordinating legal, experimental, and technical initiatives geared toward the recognition and valorization of farmer-led processes of crop reproduction, from the selection of seed to on-farm strategies of transformation and direct sale. Over the last five years, these activities have put special emphasis on the creation of shared mechanisms of exchange and innovation in the field of wheat breeding, transformation, and consumption. The organization of collaborative research has involved the coordination of parallel field trials on variety mixtures and evolving populations as well as the creation of structured platforms of data collection, analysis, and distribution. Within the network, wheat producers have established productive

collaborations with agronomists and researchers from different Italian universities, in order to underscore the nutritional benefits of composite wheat population and associated storage, milling, and baking techniques. Correspondingly, the promotion of more autonomous methods of innovation has been supported by the development of direct links with consumers aimed at creating a shared ethics of mutual awareness and co-responsibility.

The co-production of seed autonomy and unmediated food chains is exemplified by the experience of the organic farm Floriddia, situated in the province of Pisa, Tuscany. Seeking to cut costs and reduce dependency on chemical inputs, the farm switched to organic production in 1987, and started to work with older varieties of grain (wheat, barley, spelt, and millet) in 2006. In light of the agronomic and economic benefits thereby attained, producers at Floriddia have since grown, selected, and adapted wheat landraces as their major source of market diversification and enhanced autonomy over the supply chain. To that end, the farm has pioneered innovative strategies of organic cereal breeding and carried out the first participatory breeding trials in Italy, in collaboration with networks of small producers and agronomists from all over Europe.

Combining the results of natural crossings and mass selection, these trials have led to the development of composite populations with higher levels of genetic diversity and local adaptability. A blend of these varieties is currently used to produce bread and pasta sold on local and regional markets, and is re-sown year after year. In

this respect, alongside the goal to reproduce biodiversity and soil fertility on farm, producers at Floriddia put special emphasis on the selection of wheat varieties with adequate protein content and nutritional value suited to the flexible demands of artisanal milling and baking. Indeed, while industrial processing operations require cereals with constant and high protein content and relatively hard gluten, artisanal bread making techniques—from stone-milling to the production of natural yeasts and sourdough—adjust the baking process to variable protein content or to mixtures of different types of flour as a way to retain higher levels of nutrients and diversify the range of potential end uses. Accordingly, in order to achieve full control over the production process, the farm is equipped with its own mill, pasta processing machines, and wood fire ovens, in addition to a selling point to distribute the final products directly to consumers.

The plant breeding activities undertaken at Floriddia are premised upon a constantly renewed exchange of knowledge and experiences among wheat producers and artisanal bakers from different regions and countries. Specifically, as an open access site of cooperative experimentation on wheat landraces, the farm has instituted a seed bank and more than 200 trial plots used as a shared ground to test, select, and reproduce heterogeneous populations characterized by specific agroecological traits. Over the last five years, this work has been part of several research project sponsored by Rete Semi Rurali and involving a network of organic and agro-ecological farms as participants in a newly emerging, decentralized, and democratic community of

“knowledge innovators” (Tovey 2002). As Rosario Floriddia (interview 6.10.2013) explains:

Each farm prepares three plots of 1.5 per 30 meters, one for bread wheat, one for durum wheat and one for barley. Each plot is sown with a mixture of a thousand varieties and cultivated with the methods of organic agriculture. At harvest time, it is the producer who chooses the best spikes and grain which he will then re-sow during the following autumn. At the end of the growing season, the producer makes a further selection and progressively increases the space dedicated to the selected mixture until he obtains enough seed to sow in the open fields. In this way, over the course of 4-5 years the producer can develop a population variety that won't be widely adapted throughout Europe but that is more adapted to the characteristics of his fields and to the agronomic practices of organic production.

At the same time, Floriddia continues:

The exchange of experiences among farmers who are carrying out the same kind of work but operate under different socio-ecological conditions has produced extraordinary results. It is through this participatory process that the producer is once again a protagonist, re-learns, and reasserts control over his own labor.

In line with this approach, in the summer of 2013 the farm hosted the international meeting “Let's cultivate diversity” organized by the European Coordination on Farmers' Seeds and attended by more than 400 farmers, researchers, and consumer groups from 10 different countries. Among them was Giuseppe Li Rosi, a Sicilian producer who has been working at the reproduction of wheat landraces for the last ten years. His farm, Terre Frumentarie, extends over 200 hectares in the municipality of Raddusa, the “City of Grain,” and constitutes an important hub of seed and knowledge exchange for producers in the region. Calling himself a “rebel” against the results of conventional breeding, Li Rosi began to grow old Sicilian varieties of heirloom wheat

as a form of resistance to the asphyxiating effects of direct dependency on industrial capital associated with the commodification of certified seeds. Indeed, as Li Rosi (interview 2.10.2012) explains:

Using locally adapted seeds the producer is no longer forced to conduct his farm as an open-air detachment of the industry or a transformation center of fossil fuels into food...

This is what we have been taught for the last 50 years, with universities and agronomists telling farmers to buy chemical fertilizers to make the land more fertile, and ensure that their wheat will produce more, and buy herbicides to resolve fungal diseases that are attacking new varieties because they have no connection with nature.

Accordingly, Li Rosi continues:

The struggle to reassert farmers' dignity should not only focus on their rights but also on their direct relationship with nature...You cannot fix this kind of knowledge on paper, or teach it through the books or regulate it with laws because the rules that govern agriculture are the rules of nature, of relations, and of dimensions. And being a farmer means being a chemist, a biologist, a meteorologist, a mechanic, a technician, a doctor, a veterinarian...it means all of this.

By practicing varietal selection and breeding activities under agro-ecological conditions, Li Rosi has been able to reintroduce more than 50 varieties of wheat that local farmers used to grow in the 1920s before the rise of the formal seed sector. To that end, since 2004, his farm has been working with the regional Cereals Research Institute in order to access, test, and disseminate germplasm and cultivars that had long being stored away from their actual reproduction in the fields. This initiative is linked to a broader project involving a network of 50 producers who are simultaneously conserving and expanding wheat diversity on farm, trained in the

practice of seed selection and multiplication through participatory meetings of farmer-to-farmer exchange (ACRA 2013).

Over the last decade, the management of wheat diversity on farm has allowed Li Rosi and other producers in the region to re-skill their labor along the entire supply chain, from seed to plate. In this respect, special emphasis is put on the nutritional value and versatility of different varieties used to bake bread, or to make pasta, and that are called with different names in different parts of Sicily according to the specific role they play in the preparation of traditional foods. For example:

There is one variety of wheat, called *Tumminia* or *Timidia* or *Triminia* that you can sow even in late February and in three months it is ready to be harvested. This variety is versatile because it can be used to bake desserts, bread, pasta and pizza. There are also *Ustrazza bisazze* and *Russello*, with which you can bake a sort of hard bread and have different names depending on what you produce with them. And we also have, among others, *Cuccitta*, *Biancuzza*, *Maiorca* and *San Martinara* with other forty-five, fifty names that take you back into the past and that we have brought back to life (Li Rosi 2012).

Growing wheat landraces, Sicilian producers are re-appropriating part of their history as an added value and source of inter-generational knowledge exchange. At the same time, the mobilization of local and traditional cultural repertoires becomes an important strategy of market diversification, which enhances the development of direct linkages between producers and consumers within broader networks of solidarity and co-responsibility.

## **Conclusion**

The realization that formal plant breeding leads to genetic erosion and biodiversity loss had already gained public awareness among crop scientists and plant geneticists in the early decades of the twentieth century (Harlan 1972, Vavilov 1992). Starting in the 1950s, the concern that the products of millennia of crop evolution and adaptation were being replaced by monocultures containing a narrow spectrum of genes prompted the creation of national and international gene banks to collect and conserve potentially useful germ plasm in cold storage (Pistorius 1997, Fowler et al. 2000). Reflecting the dominance of breeders and breeders associations, early conservation efforts focused on ex situ, rather than in situ, collections as a way to “preserve genetic material under controllable conditions,” unexposed to the “jumble of mixed linkages” and continuously changing agricultural practices in farmers’ fields (Frankel 1970). Following the Mendelian tradition, special emphasis was put on the preservation of already selected material as a safe source of extractable genes that could be transferred to elite lines with little disturbance to other desirable traits (Pistorius 1997:26). The local adaptive qualities, or adaptability, of crop populations were not regarded as valuable features, and associated with the appearance of unpredictable constraints to crop development and yield improvement.

Since the institutionalization of seed banking networks coordinated by international agencies like the FAO, the creation of long-term, ex situ, low-temperature storage has become the prevailing model of biodiversity conservation on a

global scale. Reducing genes to resource stocks for breeding purposes, this approach prioritizes a particular kind of “instrumentalized genetic life” (Van Dooren 2009: 375) that is used as an input of production and divorced from the relational entanglements of biological organisms with thick webs of environmental, cultural, and socio-natural interactions. In this view, the notion of “diversity” is reinterpreted in *quantitative* terms to signify the numeric collection, or cataloguing, of the genetic information contained in seeds and crop varieties. More to the point, the atomistic reconfiguration of crop varieties as assemblages of genetic material is associated with a static, rather than dynamic, conception of crop hereditary identity, development, and adaptation. Significantly, a relatively static approach to conservation is also encountered in national and regional initiatives geared toward the valorization of local products or crops, including the implementation of protected geographical indication or designation of origin schemes, the creation of Slow Food Presidia, and the introduction of recent legislation on the registration of conservation varieties. These measures typically limit the reproduction of agrobiodiversity in space and time, by making the protection of “locally adapted” varieties or typical products contingent upon their connection with narrowly defined “areas of origin” or communities of users. As such, they fail to account for the evolving character of “local” crops as the product of dynamic processes of biosocial exchange and adaptation within and beyond different regions, farmers’ fields, and cultural practices (cf. Bertacchini, 2009; Bocci, 2009).

The practice of on-farm population breeding offers a dissident approach to the preservation, renewal, and reproduction of agro-biodiversity in times of climate change. Within integrated systems of crop selection, multiplication, saving, and exchange, the “conservation” of biological diversity is seen as a dynamic activity intertwined with the diversification of breeding purposes and farming methods. Rather than keeping crops and gene pools identical to their allegedly original or “pure” traits, the goal is to cultivate seed flows and embrace the complexity of co-evolutionary adaptation through mutual learning and open-ended experimentation. In this respect, the adoption of methods that enhance the relationship between genetic variability and specific crop adaptability challenges the self-evidence of scientific criteria that associate high levels of crop uniformity with better quality and higher yields. Correspondingly, while promoting the articulation of cognitive spaces that contest dominant scientific hierarchies and systems of expertise, the mobilization of cooperative breeding initiatives also shape the material transformation and re-organization of territorial space through the appropriation of productive resources (Trauger 2014). Sustained by collaborative mechanisms of knowledge production and exchange, the selection, use, and distribution of unregistered –and therefore formally illegal—seed varieties embodies a politicized assertion of territorial autonomy that challenges the regulatory power and sanctioning mechanisms of the state. Indeed, the pursuit of autonomy is practiced within a context of relational praxis that is not codified by formal rules of seed commercialization or intellectual property protection.

Put differently, while seeking to raise public recognition of the necessity and viability of an alternative model of agricultural research and seed/food production, the development of on-farm, peer-to-peer, decentralized methods of agro-ecological innovation is not geared toward the marketization of new seeds, knowledge, or genes. It rather reflects the growing participation of European producers in newly emerging material and epistemic commons based on mutually agreed notions of collective rights, ecological responsibility, and transformative action.

## CHAPTER 3

### **Autonomous Production, Unmediated Consumption: The Politics of Direct Sale and Solidarity Purchasing Groups in Italy**

#### **Introduction**

Over the last three decades, the persistent food security, food safety, and environmental crises of the agro-industrial model have spurred the proliferation of grassroots demands for greater transparency, fairness, equity, and sustainability in the organization of agro-food systems. Situated within a context of neoliberal restructuring, the emergence of social, ecological, and ethical concerns and rising consumer interests in food quality and traceability has been in large part appropriated by and contained within the development of a “corporate-environmental” food regime (Friedmann 2005) whereby the greening of corporate governance is premised upon managerialist visions of sustainability and consumerist strategies of market enhancement (Goodman 2000). With the retail sector playing an increasingly powerful role in the organization and management of supply chains, the “quality turn” has provided new opportunities for capital accumulation mediated by privately established systems of auditing, accreditation, labeling and certification largely removed from public control (Clapp and Fuchs 2009, Gibbon and Ponte 2005). This trend is exemplified by the introduction of supermarket own brands and private standards

(Busch and Lawrence 2005), the shift to direct contracting (Dolan and Humphrey 2010), the implementation of third-party certification schemes where compliance costs are absorbed by producers (Campbell 2005, Hatanaka et al. 2006), and the development of new mechanisms of retail governance that interact with marketing, pricing and distribution strategies to enable and constrain specific forms of ethical consumerism (Lockie 2009). The transformation of organic farming into a large-scale, long distance, and often monocultural industry—characterized by the rapid growth of a web of enterprises that produce, process, transport, advise, supply inputs, certify, and market organic foods—further illustrates the impact of (increasingly privatized) regulatory mechanisms aimed at “greening” the food system through increased market accountability and the standardization of practices (Guthman 2004).

In a parallel development, the promotion of food relocalization as an alternative to conventional food chains has often led to a reification of notions of place, territoriality, and social embeddedness by privileging the creation of market-based approaches to the valorization of local resources (Dupuis et al 2006, Hinrichs 2003, DeLind 2006). This process is particularly evident in the EU, where regions and producers have been encouraged to capitalize on quality production, place differentiation, and value-adding as part of attempts to stimulate endogenous economic growth (Marsden 1999, 2004; Morgan et al. 2006). In this context, farmers are portrayed as “entrepreneurially minded individuals” (Holloway et al. 2007, Marsden and Smith 2005) able to exploit the growing demand for quality products and

the scope for branding goods, services, and places in order to generate new streams of “natural, social, and cultural capital” in a demanding business environment (Belletti et al. 2003, Ray 1999). Geared toward the commodification of territorial attributes, quality signs, and images of place, the process of adding value to farm outputs is consistent with the goal of “enterprising conduct” (Higgins 2005) and build the managerial capacities of producers in terms of profit generation, customer retention and market efficiency. As such, the self-managed marketization of local foods and typical products can be easily accommodated within the instrumental rationality of neoliberal techniques of governance and “regulation by value” (McCarthy 2005, Peck and Tickell 2002, Miller and Rose 1990).

And yet, in times of economic and socioecological crisis, the mobilization of alternative forms of food provisioning and production-consumption relations is not limited to the marketization of “defensive” forms of localism (Dupuis and Goodman 2005) at the margins of dominant processes of corporate appropriation/conventionalization of quality standards and organic agriculture. In the context of agro-ecological farming, the growing involvement of producers with mechanisms of direct sale constitutes an attempt to avoid costs of certification, indebtedness, and compliance with a “hygienic-bureaucratic model” (Higgins and Lawrence 2005) of market-driven regulations and systems of calculation. As a core component of relational struggles for autonomy, the adoption of labor-intensive practices that decrease reliance on inputs and external capital is closely associated with the creation

of “markets without merchants” aimed at establishing unmediated interactions with consumers. For agro-ecological producers, the institution of new infrastructures of direct food provisioning—on-farm, at farmers’ markets, or by means of direct deliveries to collective purchasing groups—constitutes an opportunity to build alliances with consumers and create a shared frame of reference for the valuation of livelihood resources that foregrounds relations of trust, reciprocity, and interdependence without turning every local system of production into a commodified source of added value “with its certified claim to uniqueness” (Pratt 2009).

Rather than extracting value from reified markers of spatial differentiation, the process of co-producing spaces of conviviality (Illich 1973), connectivity, and shared relationality is “placed” in living contexts that are fluid and open to change. Reflecting a contextual, and experiential politics of praxis, the emergence of “place-food-body connections” (DeLind 2006) that reject the separation of production and consumption into distinct domains embodies a relational ontology of place (Massey 1994, 1999) as an articulated nexus of life-sustaining ecological and cultural interactions. Within this framework, the mobilization of producer-consumer networks “in place” (Dupuis and Goodman 2005, Amin 2002) discredits attempts to enclose peoples, resources or knowledges within a discrete or bounded “local” domain (Castree 2004), and is rather associated with the promotion of modes of socio-natural belonging that nurture the creation of new commons and the collective safeguard of common goods.

In this paper, I examine the relationship between the transition to agroecological farming and the emergence of solidarity purchasing groups and solidarity economy districts in Italy. I particularly focus on the creation of unmediated links between agroecological producers and collectively organized consumers as a distinct practice of social reproduction that questions the monolithism of market-based systems of valuation, following Tovey's (2010) suggestion that while the attribute of "alternative" food networks has been applied to various forms of food relocalization through short supply chains, "it is still useful to distinguish those food projects that rest on oppositional attitudes to the capitalist food economy from those which attempt to join that economy on more favorable terms." As a collective site of political experimentation, the redefinition of production-consumption relations involves the possibility of enacting the economy "otherwise" (Gibson-Graham 2006, Leyshon and Lee 2003), giving transparency to the complex metabolic, material, and discursive practices that constitute the "value" of food as a signifier of diverse socio-ecological orderings and political imaginaries.

In Italy, the number of producers involved in initiatives of direct sale grew by 70 percent between 2000 and 2010 (Giuré and Giuca 2012) and has more than doubled over the last 5 years (Coldiretti 2015). While the practice of direct marketing is not necessarily linked to the adoption of specific farming methods or alternative values—and has also been deployed as a value-adding strategy by conventional farmers or in the context of highly commodified specialty food markets—it plays a particularly

important role for farms engaged in crop diversification, energy recycling, direct processing, and decentralized innovation, and seeking to distantiate themselves from both input and output markets (ISTAT 2014, Coldiretti 2013). Specifically, the mobilization of unmediated infrastructures of food provisioning constitutes a key strategy for producers of heterogenous seeds and crops who seek to avoid formal certification by involving consumers in shared definitions of labor and food quality that are not codified in labels and standards but embodied in specific farming practices and processes.

Correspondingly, the last 15-20 years have seen a sharp increase in initiatives of collective consumption carried out by a burgeoning number of solidarity purchasing groups (Gruppi di acquisto solidale, or GAS) in different Italian regions. Aimed at promoting the mutual coordination of direct food purchases according to shared ethical principles, these groups provide a relational space for the formulation of collective action and livelihood practices that politicize the role of consumers as co-producers of changing forms of socio-ecological reproduction. At present, more than 2.5 million households are involved in this transition: the number of GAS increased by 400 percent between 2008 and 2014 (Coldiretti 2014). Their widespread presence on the Italian territory is linked to the creation of solidarity economy districts (Distretti di Economia Solidale or DES) that bring together producer-consumer networks committed to the realization of social, agro-ecological, and institutional alternatives to instrumental and utilitarian models of market choice and economic valuation.

As sites of political experimentation, these newly emerging webs of direct food provisioning and producer-consumer alliances shed light on the transformative potential of “anomalous or subversive” value practices (Butler 2000) that move beyond individualized and neoliberal interpretations of consumer “sovereignty” or “citizenship.” Within this context, the redefinition of production-consumption activities as a dialectical unity foregrounds the relational articulation of “alternative frameworks of sense” (Melucci 1988) informing the way in which labor practices and ecological processes are valued. While the creation of solidarity economy networks is not exterior to or disentangled from the structuring of market hegemony, it denotes the generative power (cf. Foucault 1980, 1984, Butler 2000, Cresswell 2000) of alternative forms of political practice sustained by a relational ethics of reciprocity and care and embodying a non-instrumental approach to human and non-human nature. In this respect, these initiatives underscore how the value attributed to social reproduction is a matter of politics (cf. Appadurai 1986), broadly construed as “a practice of creation, reproduction, and transformation of social relations” (Laclau and Mouffe 1985:153), that shapes how life is produced, and sustained, across generations.

### **Consumptive production, productive consumption**

The politics of food consumption has become a prominent research theme in the field of agro-food studies over the last thirty years. On the one hand, arguing that political-economic analyses of food systems were “too focused on production and ignored

consumption” (Hartwick 2000), a number of studies have sought to “bring consumers back in” (Goodman and Dupuis 2002) by underscoring their importance as active participants in food provisioning (Fine 2002, Lockie 2002). In particular, drawing from commodity systems theorizations of the mutual interactions of food production, marketing, and distribution (Friedland 1984), much of this work has examined consumption as a key site in the construction and extraction of value (Goodman 1999, Guthman 2002) associated with the movement of commodities from farm to table (Fine and Leopold 1994; Gereffi and Korzeniewicz 1994; Hopkins and Wallerstein 1994). Correspondingly, growing attention has been put on the role of consumption as “a source of, and way to express, social identity” (Lockie and Salem 2005), within the framework of analytical attempts to redefine consumption practices as expressions of reflexive agency and subjectivity. In this respect, a number of authors have emphasized how consumer values and preferences are imbricated in changing notions of rights and responsibilities that are constitutive of contemporary manifestations of active citizenship (Jackson and Thrift 1995, Lyson 2004, Booth and Coveney 2015). Specifically, the concept of consumer citizenship, or sovereignty, has been linked to the study of rising consumer interests in food quality, health, and social embeddedness (Baker 2004, Morgan et al. 2006, Miele and Murdoch 2002), the emergence of new forms of green or ethical consumption (Barnett et al. 2005, Seyfang 2006), and the potential role of consumer agency as a source of cultural subversion or resistance (Humphery 1995, Maniates 2002, Hassanein 2003).

On the other hand, critics of this approach have emphasized how the language of consumer choice, agency, and sovereignty constitutes a central discursive tool of neoliberal forms of governance that conflate citizenship and consumerism. In this context, the practice of sustainable consumption is encouraged as an expression of self-discipline and individual responsibility (Rose 1999) that can be channelled through the purchase of particular goods and services furthering the extension of market relations. At the same time, the promotion of utilitarian models of ethical decision making is closely associated with the deployment of “technologies of agency” (Dean 1999)—i.e. techniques of marketing, advertising, retail geography, product development, retail pricing, product labeling, standards regimes, etc.— used to mobilize people as consumers of particular products (Miller and Rose 1997, Lockie 2009). Thus, much of the literature on neoliberal restructuring underscores how the expression of consumer agency entails a process of “learning how to make choices” (Allen and Guthman 2006), or “to be shaped, guided and molded” into agents “capable of exercising freedom” (Dean 1999:165) that is highly dependent on the acquisition of expertise, skills, and knowledge in relation to particular commodities (Abercrombie 1994, Lockie 2009). In this respect, the notion of consumer choice obscures the relations of power implicated in production-consumption networks (Lockie 2009), and brings about the “eclipse of collective dimensions of citizenship,” as the meaning of citizens rights and responsibilities are “progressively consumerized” (Barnett et al. 2005:46). More to the point, the depoliticizing techniques of neoliberal

governmentality reinforce the idea that the pursuit of individual self-interest through consumption will automatically produce a greater common good (Johnston 2008), and that “social change is simply a matter of individual will rather than something that must be organized and struggled over in collectivities” (Allen and Guthman 2006: 412).

To a certain extent, current accounts of the pervasive power of neoliberal rationalities and “rolled out” neoliberal programs resonate with critical theorists’ conceptualizations of consumption as the opposite of agency and subjected to tools of subservience that reinforce domination (Adorno and Horkheimer 1944/1972). Reflecting a rather static formulation of ideology as “false consciousness,” this body of work portrays mass consumers as largely passive and manipulable actors, unable to act politically and bound to the exercise of choices that are generally unreflective and pre-determined. Significantly, a similar treatment of “ignorant” versus “well educated” or “discerning” consumers is found in contemporary theorizations of alternative food networks (cf. Murdoch and Miele 1999) that tend to frame emerging forms of consumer activism through the lens of an “elitist” sense of reflexivity (Goodman et al. 2011, Guthman 2003). Set apart from what are perceived as “passive” consumption practices embedded in industrial food chains (Morgan and Murdoch 2000), the concept of reflexive consumerism can easily lead to the commodification of a “taste of distinction” (Guthman 2002) within uneven and contested geographies of food access and use. As such, while recognizing that consumer agency cannot be

discussed in isolation of structural inequalities and materialities of power, the reification of conceptual binaries between “agentic consumers and disciplined subjects” (Johnston and Cairns 2013) runs the risk of downplaying both the promise and limits of political action that goes beyond the expression of market preferences and individualized purchasing practices.

A productive attempt to deconstruct the “consumer as sovereign,” versus “consumer as dupe” dichotomy (Schor 2007) is offered by studies that foreground the mutual constitution of producer-consumer relationships, as well as the “immediate unity” (Marx 1973) of production and consumption beyond exchange. On one level, the role of consumption activities in the constitution of social relations is captured by Marx’s notion of “consumptive production” (ibid:91), which allows for more nuanced accounts of the materiality of social reproduction. In this framework, consumption is also production of human beings, values, and needs; it encompasses not only the act or mode of buying, but also how things are used afterwards at different points of their “social lives” (Appadurai 1986), within the household, in the context of non-market exchanges, and in the reproductive world where they gain other meanings (Goodman and Dupuis 2001, Miller 1987, Narotzky and Besnier 2014). On another level, the symmetrical concept of “productive consumption” (Marx 1973:90) refers to the mutual process of creation and use, transformation and reproduction of laboring bodies and non-human nature: production is also consumption as the spending of energy, labor and resources involved in processes of socio-ecological change. The

immediate identity of productive and consumptive activities is thus found in practices of social reproduction that are not contained in separate domains but underlie the material and symbolic constitution of lifeworlds and life sustaining systems.

This dialectical unity plays a particularly significant role in alternative configurations of food production-consumption networks. Grounded in the metabolic relations of agricultural labor processes and the corporeal metabolism of laboring subjects and human bodies (FitzSimmons and Goodman 1998), the nexus of food and social reproduction constitutes a realm of connectivity and relational praxis. In this respect, the mutual involvement of producers-consumers in practices of socio-ecological nourishment, where “even the ingestion of food is about production as well as shared meaning” (Guthman 2002), enables a redefinition of agency as social transformation that is hardly a matter of individual choice or a-political action. From this perspective, the articulation of agroecological, rather than industrialized, metabolic relations is premised on co-produced processes of collective negotiation shaping the ways in which laboring bodies and non human nature are transformed, reproduced, and valued. Correspondingly, the transformative potential of consumer-producer alliances hinges on the collective mobilization of cooperative and relational practices linking the symbolic and biological dimensions of food as an area of social struggle.

As illustrated by the emergence of solidarity purchasing groups in Italy, the development of unmediated systems of food provisioning is not situated in a position

of “ontological purity” (McCarthy 2006) vis-a-vis the market economy. These networks operate in market dominated environments and are shaped by complex entanglements between the mainstream and the “relational contingency of what is regarded as alternative at any one time and in any one place” (Holloway et al. 2007). By focusing on the politicization of collective agency in matters of social reproduction, however, the creation of producer-consumer alliances challenges the “normativity” (Gibson-Graham 1996) of capital value practices as well as the uncritical acceptance of consumption as the primary basis of social action (Bryant and Goodman 2004). Ensnared in the junctures of everyday life, these initiatives promote the enactment of relations of trust and an ethics of care, networks of reciprocity, and non-commodified systems of valuation that illuminate the contradictions and ruptures within capitalist models of growth and consumerism, and make room for different configurations of bio-political and social power.

### **Gruppi di Acquisto Solidale: Redefining consumption in common**

In Italy, the term “solidarity purchasing groups” (GAS) refers to groups of households that cooperate in the implementation of unmediated practices of food provisioning by establishing direct and collective relationships with producers on the basis of ethical, political, and environmental criteria<sup>19</sup>. Since the first GAS was created in 1994, the number of groups has grown exponentially: there are currently more than 2,000

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<sup>19</sup> In the Italian Finance Law No. 244 of 24th December 2007, Article 1, paragraphs 266-268, GAS were recognized as “non-profit associations set up to carry out collective purchase and distribution of goods for ethical, social, solidarity and environmental sustainability purposes.”

registered GAS on a national scale, and many more are constantly being formed on an informal basis (Coldiretti 2014, Rubino 2014). Each group is usually composed of 30-50 families (although some GAS include more than 100) who coordinate their collective activities through non-hierarchical assembly meetings and organized subgroups of neighboring households. Links with producers are developed through regular on-farm visits and direct correspondence, and the logistics of collective purchasing is based on the involvement of all members in integrated chains of product ordering, delivery, collection, and payment. The concatenation of planning, coordination, and distribution practices is premised on equally shared responsibilities and time commitment that go beyond the act of buying and contribute to the elimination or reallocation of tasks and competences away from dominant food retailers (Fonte 2013). In this respect, in addition to bypassing the role of middlemen and retailing chains, the coordination of direct mechanisms of product collection and delivery eliminates the need for packaging, ensures product freshness, reduces transportation costs/impacts, and provides a shared and unmediated space of consensus-building around issues of just price, work ethics, fairness, and sustainability (Brunori et al. 2011, Grasseni 2013, Fonte, 2013).

At its core, the emergence of solidarity purchasing groups across the Italian territory constitutes an attempt to redefine the social, economic, and ecological aspects of food provisioning by regaining direct control of the supply chain. Specifically, the mobilization of collective consumption is aimed at securing access to healthy, more

sustainable food that reflects “transparent pricing and socially acceptable conditions of labor for all those involved” (Grasseni 2014:181, see also Gesualdi 1990, Laville 1994, Saroldi 2001), thus countering the distancing and alienating effects of mainstream markets as well as the specialized organization of certified niche markets. Rather than relying on notions of food quality codified “at the distance” (Dupuis et al 2006), GAS members select their providers through personal connections and regularly meet with producers to discuss the adoption of specific farming practices, the organization and quality of labor, and “issues of price formation and price variation, production planning and risk sharing” (Fonte 2013:237). Accordingly, the co-production of transparency and reciprocity is practiced as an alternative to formal organic certification, reflecting the belief that “the only guarantee of real traceability consists in personal intervention in the food chain” (Grasseni 2014: 183).

What distinguishes the mobilization of GAS from other forms of collective consumption or group purchasing is the explicit commitment to a “solidarity” approach toward producers, GAS members, disadvantaged social groups, and the environment. In interviews<sup>20</sup> with members of Northern Italian groups (in the regions of Veneto and Emilia Romagna), for example, the concept of solidarity was linked to the goal of supporting the role of food and agriculture as a source of social reproduction, dignified labor, and environmental stewardship. These principles guide the choice of connecting with small-scale producers who live off their own labor and

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<sup>20</sup> Interviews were conducted between 2013 and 2014 with members of VenezianoGAS (Venezia), GASIA (Treviso), GasMo (Modena), GAS Iqbal Masih (Reggio Emilia).

seek to stay autonomous from circuits of financial indebtedness and price competition. Correspondingly, the search for quality food translates into a preference for low-input farming sustained by practices of crop diversification and energy recycling. Special emphasis is also put on developing connections with producers who are involved in forms of “social agriculture” by integrating vulnerable groups of people (e.g. individuals with physical or mental disabilities, ex drug-addicts, detainees etc.) in their farming activities. These motivations are similarly listed as key drivers of GAS mobilization in a number of studies and surveys conducted in other regions, as well as at the national level (Grasseni 2014, Bonaiuti 2005, Bertell et al. 2013, Fonte 2012).

While engaging with different dimensions of mutuality and care (Offer 1997, Sage 2007) in their purchasing practices, GAS members do emphasize price considerations in their selection of products that are not only healthy and sustainable, but also affordable. The vast majority of group participants come from lower middle class families who operate on a tight budget and have been affected by the ongoing economic downturn associated with the financial crisis (field notes 13-14). In this context, GAS members are “not just engaged in a moral struggle to consume ethically,” they are also “struggling to make ends meet” (Grasseni 2013). The determination of what constitutes a “good price,” however, is not based on mere economic calculations or perceptions of market signals, but negotiated between producers and consumers according to shared notions of fairness and “just” value. As indicated by different participants:

We trust our producers to set a price that is just when it covers all farming costs and rewards their labor. When we are dealing with small producers, who have little output, a few animals, minimal inputs, we know we can make a difference...at the same time, we can access good quality food at a price that is lower than the organic food sold in supermarkets, sometimes even lower than bad quality food. That is possible because we buy as a collective. This is what makes prices “fair” for both [producers and consumers](interview 7.14.13).

Of course we can't think that our GAS will change the world...but we have the capacity of establishing different relationships with people who work, who dedicate their life to do something that is hard, and risky, especially from an economic perspective. We can't completely remove that level of risk, but we can cooperate, knowing that the price we pay can allow him [i.e. the producer] to keep working tomorrow (interview 7.20.13).

I don't see it as a mere exchange of goods for money. Of course what we buy has a price, but I think our mode of buying has more to do with an exchange of values, knowledge, support. We can dialogue, get to know each other, our projects and lifestyle choices. We get to see how the land is treated, how the territory is taken care of. We are all working people who depend on this land (interview 6.27.14).

Unlike other forms of ethical consumption or political consumerism, GAS members are personally involved in the co-production of values that drive the adoption of specific agricultural practices and shape notions of just price. Within this framework, the act of buying is transformed into a series of interrelated processes of mutual reflection, negotiation, and engagement that reshape the temporality and spatiality of exchange. Indeed, the concatenation of on-farm visits, assembly gatherings, product selection, order placement, and weekly collection involves relational forms of spatial and temporal organization that redefine how members approach both the concept and value of food provisioning. In this respect, participants in solidarity purchasing groups describe their method of shortening the food chain as a form of politics that is

embedded in the reconfiguration of daily social relations among interdependent subjects.

The way a GAS works...it is not like going to the supermarket where you buy everything at the same time and in one place. You have to get organized and make time, and space, for the different phases of a collective purchase....We take turns to collect the orders, stay in touch with the producers, and coordinate the weekly deliveries. We have a place for assembly meetings and neighborhood meetings, a place for product collection, and our food comes from many different producers...and it takes time to meet them, deliberate, decide our collective criteria, and communicate with them. That's why I don't see it as just another way of buying food. It's a commitment to a different way of interacting with the people who live around you, and act together...a form of "simple" politics...simple in a positive sense, that is practical, everyday politics (interview 8.7.14).

Inside the GAS you are pushed to think about what is necessary, why we select certain products, which ways of working the land are most valuable to us, and the impact of our commitment over time. This way of doing things is both very simple, as we get rid of all intermediaries, and extremely complicated..it really reshapes your daily interactions with a fundamental component of life. And to do it collectively...that is the real challenge (interview 8.9.14).

When you make an order, you need to think in advance: how much do I need? How much will I use and how? You start to realize that there are only two cuts of filet in one pig, if we collectively buy two pigs, I can't expect to eat a specific cut every time. You learn how to cook different things, and if something is not available, you just cook something else...I realized that I ended up buying less, wasting less...to think about my consumption habits, and their impacts, more holistically (interview 5.30.13).

As an expression of everyday GAS politics, the practice of doing, knowing, and buying in common is part of a broader rethinking of needs as not exclusively met through commodities, but through a combination of need reduction, cooperation, collective approaches, and a culture of relational mutualism (Guadagnucci 2007, Bosi et al. 2009, Mano 2002). In this context, the re-appropriation of negotiated and interpersonal modes of food provisioning is associated with the discursive

mobilization of notions of de-growth and “voluntary simplicity”<sup>21</sup> that stem from a collective critique of consumerism, and the ecological and political implications of mass provisioning and unsustainable lifestyles (Razeto 2002; Saroldi 2003).

Significantly, over the last decade, this form of activism within solidarity purchasing groups has contributed to the development of interconnected networks of “solidarity economy districts” (DES) in different Italian regions. Defined as “laboratories of civic, economic, and social experimentation” (Forno 2013) these districts bring together consortia, associations, social cooperatives, consumer groups, and public institutions involved in the development of cooperative supply chains through direct interactions with autonomous producers. Despite their still limited territorial diffusion, DES have become pivotal connecting spaces for translocal and inter-regional initiatives that seek to orient the articulation of diverse economies premised on relations of reciprocity and mutuality. Since the early 2000, for example, a network of GAS and DES has collaborated with different groups of Sicilian and immigrant producers working on lands expropriated from the Mafia and struggling to find access to regular systems of distribution. This collaboration has allowed producers to engage with agroecological methods and rely on sustained sources of income in a context of historically high unemployment (Gunnarson and Forno 2011).

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<sup>21</sup> In Italy, the concept of voluntary simplicity (*semplicità volontaria*, o *sobrietà*) is closely associated with the emergence of “Bilanci di Giustizia” (founded in 1993), an informal network of around one thousand families committed to the reduction of consumption and the redefinition of daily needs through ethical decision making. The goal of each member is to compile monthly reports of all forms of consumption (of food, clothing, house bills, energy, transportation, health care etc.) in order to eliminate what is deemed superfluous and redirect what is essential toward the purchase of ethical and sustainable goods/services. Significantly, these initiatives played a key role in the development of the first GAS in Italy and are often at the forefront of newly emerging solidarity economy districts in different regions (Guadagnucci 2007).

Correspondingly, as officially recognized political subjects, different coalitions of GAS have spearheaded the mobilization of collective purchases from producers affected by the 2009 and 2012 earthquakes in Abruzzo and Emilia Romagna, promoted workshops, campaigns, and educational programs on themes related to food sovereignty and environmental justice, and mobilized against the “cementification” and corporate grabbing of farmland in different municipalities (Grasseni et al 2013, Fonte 2012).

In the attempt to reshape the way in which food, as a “relational good” (Deriu 2014), is co-produced and exchanged, participants in GAS and DES networks do not measure the impact of their actions in economic terms. The transformative potential of their initiatives is rather framed as a form of aspirational politics materialized in interactions, imaginings, and everyday practices that enable different ways of (re)producing people and environments. This relational process plays a particularly important role for agroecological producers who access unmediated systems of food provisioning as an opportunity to engage with diverse and autonomous forms of socio-ecological valuation, experimentation, and reproduction—an expression of collective “capacities to aspire” (Appadurai 2004) within newly created spaces of possibility (cf. Harvey 2000).

### **Agro-ecology and direct sale: building food alliances beyond distribution**

According to the latest agricultural census, released in 2013, more than 450,000 Italian farms— accounting for nearly 30 percent of the total—are currently involved in short-supply chains through mechanisms of direct sale (ISTAT 2013). As data from the National Institute of Statistics and the National Institute of Agrarian Economy underscore, this percentage has quickly grown over the last two decades, even though the total number of people employed in agriculture has suffered a steady decline (ISTAT 2014, Giuré and Giuca 2012)<sup>22</sup>. In a context of increasing market volatility and corporate concentration, the transition to direct systems of food provision reflects the attempt to avoid the so-called “squeeze on agriculture” (van der Ploeg 2006), whereby producers’ autonomy is constrained by decisions taken upstream and downstream in the food chain, and reassert control over the production process in the absence of other intermediaries. Specifically, out of the total number of farms involved, a main distinction can be drawn between producers who sell only part of their output (e.g. wine or other select products) on-farm, and those who establish unmediated links with consumers as their exclusive channel of distribution. The latter group includes producers who self-consume 50 percent or more of their own

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<sup>22</sup>Given its growing significance, the practice of direct sale has recently become the object of specific legislative provisions seeking to discipline its continued implementation within a clearly defined regulatory framework. In particular, between 2007 and 2013, the Ministry of Agriculture has issued a number of decrees indicating the categories of producers and methods of direct sale that are considered legal and officially sanctioned, thus providing visibility to an alternative system of distribution that is not integrated in conventional channels. By the same token, these provisions tend to privilege an entrepreneurial approach to the practice of direct sale, by making the scope of legal recognition contingent upon the previous inscription of all producers in recognized registers of “agrarian enterprises” that are involved in agriculture as a commercial activity (MIPAAF 2015).

production<sup>23</sup>, operate on a small or very small scale, and often engage in labor intensive activities of on-farm processing and innovation (Giaré and Giuca 2013, Rossi 2012). In particular, the mobilization of systems of direct sale constitutes the most viable and effective form of distribution for farms that strive to sustain non-conventional practices of crop diversification and soil protection while seeking autonomy from formal certification. For agro-ecological producers who participate in networks of seed saving and exchange, this strategy is closely associated with the adoption of peasant ways of farming and a collaborative approach to the pursuit of autonomy, as illustrated by a number of case studies in different Italian regions<sup>24</sup>.

#### *Consorzio della Quarantina, Liguria*

The Quarantina Consortium was first established in 2000 by 20 Ligurian farmers committed to the preservation and reproduction of the white *Quarantina* and other potato varieties that were traditionally cultivated in the mountainous hinterland of the Genova province. It has now grown to 480 members, including 60 producers, 60 shops and restaurants, and a few hundred consumers organized in solidarity purchasing groups. As a precondition for membership, all producers in the Consortium practice family-run, peasant ways of farming that combine both self-consumption and direct sale. Correspondingly, as a leading participant in the Italian seed network, which it co-

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<sup>23</sup> The 2013 census reported that nearly half (49.3 percent) of Italian farms are included in this category. Significantly, the census also indicated that 34 percent of all surveyed farms self-consume the entirety (100 percent) of their production (ISTAT 2013).

<sup>24</sup> Qualitative data on the politics of direct sale in the context of agro-ecological farming were collected over subsequent periods of fieldwork between 2011 and 2015. A few significant examples are included in this study.

founded in 2007, the Consortium is actively engaged in different initiatives of peasant-led innovation, seed sharing and knowledge exchange through which its members participate in the selection, description, and on-farm management of a wide range of cultivars that were grown in the region before the introduction of commercial seeds. These include both vegetable and cereal varieties that are reproduced within integrated systems of crop diversification, nutrient recycling and local adaptation aimed at reducing dependency on external input and output markets.

In order to autonomously reproduce their resource base and market access, the Consortium's producers have developed a shared set of rules and work practices. Producers of "consumption" potatoes, for example, are required to give notification of their planting, growing and harvesting methods, to use common marketing strategies (i.e. the same label and bags), as well as to assess their potential yields and expected demand. Likewise, the Consortium follows shared criteria for the reproduction of seed potatoes, which are grown at specific altitudes to decrease vulnerability to pests and diseases, and sold to other members in pre-established quantities and at given dates. At the end of the production cycle, all potatoes are distributed at a set price of €2 per kilo, which reflects a collective calculation of average annual costs, yields, and hours of farm work. By so doing, producers are able to closely monitor the quality of their seeds and final produce, as well as to operate within an autonomous network separate from conventional channels.

The decision to sell at a guaranteed price is closely associated with the development of direct ties and participatory alliances between producers and consumers. In this respect, the Consortium has devised specific strategies of communication and exchange that focus on direct sales and on-farm visits as an opportunity for local consumers to actively engage with local producers and their work. As members of the Consortium explain:

I see direct selling as a concrete opportunity, or rather the only opportunity to communicate what we are doing, share our commitment. Instead of selling “things,” we try to show how we produce food, and the uniqueness of our products. And we do consume what we sell, those products are our food, we *eat* what we sell. We establish a relation between food producers and food eaters at the moment of exchange...where our potatoes and our vegetables become carriers of value and meaning, and mediators of new relationships between growing food and nourishing people (interview 5.30.11).

We invite consumers to see how we take responsibility for producing our food in the best possible way. We feel responsible to produce in a specific territory, and reproduce our seeds...we take responsibility for the fertility of the soil and the future of that territory. And we can only show that in personal interactions with people, when we are not just exchanging food but building relations of trust in what we do (interview 6.5.11).

The Consortium’s distinctive approach to the development of territorial alliances is also epitomized by the decision to work independently from external support and certification schemes. In particular, while opting for a system of auto-certification, the Consortium has refused to receive publicity or collaborate with organizations like Slow Food:

Since we are trying to live off our work, we seek to sell directly and reduce costs without paying for formal certification...Slow Food was also interested in creating a Presidium, and the provincial government offered to pay for it, but we refused. A Presidium costs 13,000 Euros, and we would have rather

received that money for collective purchases of farm tools or useful machinery. There was no need for Slow Food to undertake research and collect information to create a Presidium, therefore the question was: what do they need 13,000 Euros for? The answer was that they need that money to manage the marketing system of a typical product. This creates an artificial demand which is completely autonomous, separated from the actual supply of typical products, and this gap can only be covered by agro-industries (interview 6.11.11).

Accordingly, rather than welcoming the opportunity to validate their products through Slow Food labels and advertising, the Consortium's producers focused on the potential risks associated with the creation of a Presidium:

They create expectations that are then fulfilled by others...Maybe unconsciously, Slow Food creates the conditions for the commodification of typical products. We have criticized them publicly on this, arguing that to valorize typical products you have to mediate the market with the producers themselves, creating a demand that is never higher than 30-40% compared to the actual supply, and never higher in absolute terms compared to the potential supply. If you stay within that 30-40% margin, you know that producers are guaranteed a fair price, if you go beyond that, you lose control, and the market is taken over by someone else. This entails close ties between producers and consumers, and relations of reciprocity that cannot be commodified.

In the end..we are considered heretics by Slow Food because we don't need them. As if Slow Food had saved peasant agriculture and not peasants themselves. You don't save seeds if you don't save peasants. Seeds don't live on their own (ibid).

Arguing that the adoption of standards mortifies the diversity of good farming practices while empowering external players at the expense of local users, the Quarantina producers give priority to the development of transparent and unmediated links with consumers. In this respect, their work is particularly supported by alliances with solidarity purchasing groups that have become members of the Consortium and co-responsible for its reproduction over time. Within this separate system of provision,

the Consortium focuses on locally adapted crops not to be “localist,” élitist, or nostalgic, but as a way to sustain peasant producers in the mountains, and their effort to reproduce interdependent socialites and ecologies as an expression of difference and relational autonomy.

### *Cooperativa Mais Marano, Veneto*

The role played by direct systems of food provision in sustaining the autonomous reproduction of crop and livelihood diversity is also exemplified by the experience of the Marano Cooperative, in the province of Vicenza. The Cooperative was founded in 1999 by a group of 25 producers committed to the reintroduction and renewed adaptation of a variety of corn named *Marano*, which used to be grown to make polenta before the advent of hybrid seeds (and the conversion of corn crops into animal feed and industrial products)<sup>25</sup>. Today, the group works within an integrated networks of experiential fields, local mills, and direct sale facilities that constitute a “dissident space” in a regional context dominated by corn monocropping. Supported by the Institute of Agrarian Genetics and Experimentation “Strampelli,” the Cooperative conducts all seed selection/saving activities on farms located in upland areas, to reduce the risk of genetic contamination, and collectively manages the

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<sup>25</sup> Until the mid twentieth century, nearly all corn varieties cultivated in Italy were based on landraces or local cultivars, developed over three centuries of massal selection in farmers’ fields. In 1946, there were at least 94 different varieties of corn grown in the Veneto region. Only 10 of them were hybrids (Pino and Bertolini 2003). Producers used to distinguish the traits of open-pollinated corn based on different rates of precocity, vigor, color, height, spike density etc., as well as different culinary and cultural uses (Zapparoli 1937). The Marano variety was classified as Agostano, or ripening in August, and used in the production of polenta—a staple food of the Northeastern diet. Starting from the 1950s-1960s, almost all local varieties of corn were replaced by hybrids imported from the United States, by means of direct substitution or uncontrolled hybridization (Barcaccia and Falcinelli 2005).

process of seed collection, cleaning, storage, and distribution according to shared rules. The flour is sold directly on-farm and at weekly farmers' markets, or included in the range of farm products delivered to solidarity purchasing groups. In this respect, most producers approach the reproduction of Marano corn as a strategy of crop differentiation through which they seek enhanced control over their labor and livelihood sources:

We produce the Marano variety in rotation with other crops. Our GAS appreciate it. I personally work with 7 different GAS and I also sell apples and older varieties of wheat. The rest of the farm is for self-consumption...we take pride in our work because we can see that people are rediscovering the taste of corn for polenta, which is what Marano is for. There are 310,000 hectares planted with hybrid corn around here, we only produce on 80-90 hectares concentrated in the foothills...but we have a different market, as long as our corn doesn't get contaminated (interview 4.30.11).

Significantly, while striving to share and co-produce the value of "traditional" crops with local consumers, the Cooperative has sought to distantiate itself from other forms of territorial valorization considered counterproductive:

Slow Food approached us some years ago, to create a Presidium. But it turns out that our corn is now planted in too many valleys to receive protection as a typical product. Our seed has travelled, other producers are experimenting with it, and its adaptation is not confined to a restricted territory. We are happy about it, but Slow Food is not because they can't create a marketing operation around it. We would like to receive official recognition for our work, but Slow Food has now become a big enterprise of gastronomic marketing and local producers are rarely involved (interview 4.28.11).

As an alternative to the commodification of taste and typical products (Lotti 2010), the Cooperative promotes the value of local varieties as income-generating sites of collective experimentation, cultural exchange, and alliance building. Accordingly,

over the last 5-6 years some of its producers have become actively involved in other networks of decentralized seed selection and exchange focused on the specific adaptation and dissemination of farm-based crops and cultivars, especially wheat. This work has linked the Cooperative with newly emerging arenas of collaborative innovation on locally adapted cereals as mixtures of heterogenous populations that are collectively managed and reproduced through participatory breeding trials in different regions. At the same time, the opportunity to engage with the adaptive reproduction of diverse cereal varieties has allowed the Marano producers to participate in the development of short supply chains and autonomous circuits for their distribution, in collaboration with other cooperatives and solidarity economy districts operating within and beyond the Cooperative's region.

*Mondeggi, "farm without owners," Toscana*

In June 2014, 200 hectares of abandoned public farmland in the province of Firenze were turned into a "peasant presidium" by a group of 20 producers committed to restore the property and convert its large territorial patrimony into a source of income and livelihood for the nearby population. The decision to occupy the Mondeggi farm, which includes vineyards, pastures, olive groves, forests, and a constellation of rural buildings, was implemented after several attempts to dissuade the Provincial government from selling off the estate and its agricultural infrastructure. From the outset, the occupation was supported by a large popular committee named "Mondeggi,

Common Good” that has been negotiating the terms of a legal recognition based on collective and inalienable rights of civic use for the last two years. During this time, the 20 residents, together with more than one hundred temporary volunteers, have rehabilitated the farm house, barns and sheds, developed a large vegetable garden, restored the vineyards and olive trees, and started to raise farm animals. Simultaneously, the farm has become a territorial hub of knowledge exchange and collective experimentation, used as a common space to organize meetings, workshops, on-site visits and training sessions on peasant farming and agroecology. With the aim to organize a “peasant school” within the estate, the Mondeggi group has hosted participatory trials on the selection and management of self-produced seeds; the use of intercropping, crop rotations, green manures, and biological crop protection; the practice of animal rearing and apiculture; the management and recycling of locally available water; the maintenance, harvesting, and processing of products on-farm, and the development of mechanisms of direct sale (field notes 15/16).

In addition to providing a source of livelihood for the people who have moved to live and work there, the farm has been turned into a vast expanse of social gardens open to local users seeking to access a plot of land for self-consumption. Both the gardens and the olive fields are shared on the condition that they be managed with agroecological methods and all decisions are taken within assembly meetings open to anyone interested in participating. Through this collaborative approach, the Mondeggi group has developed a system of “popular custody” aimed at the preservation of what

is perceived as a common *good* rather than a form of common *property*. The goal is to cultivate practical alternatives to the deterioration of abandoned farmland that can reconstitute territorial alliances among producers, with consumers, and between urban and rural areas. Correspondingly, the mobilization of a distinctively peasant approach to the preservation and reproduction of common lands and resources is associated with the pursuit of autonomous forms of social reproduction that stand in opposition to the agro-industrial model of farming as well as the neoliberal model of labor precarization.

To set the foundations of co-produced practices of autonomy, the group working at Mondeggi has established reciprocal relations with several GAS and solidarity economy networks in the region. Products are both bought and sold through solidarity purchasing groups in the attempt to distiantiate the farm from conventional markets. More importantly, the opportunity to establish direct links with consumer groups has allowed producers at Mondeggi to build upon a system of mutuality and support while operating at the margins of illegality. As one producer explains:

The Regional President of the CIA<sup>26</sup> accused us of posing unfair competition to nearby producers because we are working the land without the necessary authorizations. He accused us of stealing public resources and damaging the reputation of hard working farmers who have always followed the rules....We responded that we are not trying to operate as a commercial farm, that we are practicing agriculture as a source of livelihood, that we are working to restore abandoned lands and preserve our territory. We don't pose a threat to commercial farmers, they are getting squeezed by the big players...If we are still here is because we have built alliances, networks of solidarity, and because

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<sup>26</sup> Confederazione Italiana Agricoltori (Italian Agricultural Confederation).

we are working hard...and the Provincial government knows that (interview 1.15.16).

Correspondingly, in order to sustain a project of peasant autonomy that is still in its early stages, the group has started to distribute some of the harvested products through networks that seek to connect and integrate newly emerging forms of repeasantization in different regional contexts. These include the experience of the SOS Rosarno cooperative, founded in the aftermath of the 2010 farmworkers' riots that exposed inhumane conditions suffered by immigrant laborers in the southern region of Calabria. The cooperative brings together 30 African and Italian producers involved in peasant farming as an alternative to labor exploitation in the agricultural sector and sells oranges, mandarines, lemons, kiwis and olive oil to different solidarity economy platforms, and purchasing groups. Another group affiliated with the Mondeggi project is ContadinAzioni, which operates in Sicily and is composed of immigrant and local producers seeking to counter the Sicilian Mafia's abusive treatment of both land and labor, as well as its involvement in export-oriented and corporate markets<sup>27</sup>. As a coalition of "peasants in action," the group engages with agroecological methods and distributes olive oil, wine and other regional products through solidarity networks that are separate from conventional channels controlled by the Mafia. These instances of peasant mobilization are co-produced through shared links of reciprocal support. As one Mondeggi resident puts it:

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<sup>27</sup> According to a report issued by the Italian Federation of Agricultural Workers in 2012, the infiltration of "agro-mafia" activities in the food chain accounts for 5-10% of the entire Mafia economy (between 12 and 17 billion Euros). The scope of mafia rackets goes from workers' recruitment (often times as slave-like labor) to distribution, including significant sales of fake "made in Italy" foods (FLAI 2012).

We are trying to connect our different initiatives within a network of solidarity economies. The GAS that have been in touch with us are also supportive of peasant producers in Calabria and Sicily. We went to Rosarno and they have come here. We participate in similar events and we all seek to access a fair route to make a living. So we are in this together, and the consumer groups too (interview 1.25.16).

Beyond the development of alternative food networks, the mobilization of interconnected mechanisms of unmediated food provisioning politicizes the relation between peasant production and direct sale, reframing the exchange of food as a practice of social reproduction. As the Mondeggi project underscores, these initiatives are often marginal, fluid, subject to constant negotiation and redefinition. They embody forms of practical interventions in the everyday process of making a living that are not definite or complete, but focused on the process of building means of autonomy through silent transformations that shed light on possible trajectories of social change. This is what can be defined as an instance of “prefigurative politics” (de Leonardis and Deriu 2012), or the attempt to create new ontological openings involved in the articulation of different socio-ecological orderings and subversive value practices.

## **Conclusion**

The current economic recession produced by the worldwide financial crisis of 2008 is best characterized as a crisis of social reproduction—a crisis in the ability of individuals and communities to reproduce their livelihoods. Coupled with increased

unemployment<sup>28</sup> and job precarization, and an increased cost of living, the implementation of austerity measures in the old centers of Western capitalism has made it more difficult for people to access services in key areas of social reproduction, such as health and education, along with social benefits and other welfare provisions. In Italy, austerity policies have imposed a continuous increase in the retirement age, a drastic reduction in social spending, the progressive privatization of health care, and the restructuring of schools and universities under a strict regime of budget cuts (Petrelli 2013). Between 2010-2013, the National Fund for Social Policies (including measures in support of childhood and minors' rights, families, immigrants, the elderly etc.) lost 90 percent of its resources, while the amount of public spending on social housing was cut by 95 percent over the last decade (Curcio and Morini 2015). According to a recent study on social cohesion published by the Italian Institute for Social Security (INPS), 14,3 million people (23 percent of the population) lived in poverty in 2012.

At the same time as they produce increased economic and political uncertainty, these times of crisis are driving (if not forcing) people to adapt their old modes of livelihood to changing conditions and to create new ones. As the fragility of economic and political structures is dramatically exposed, the terrain of social reproduction—comprising all the work that sustains the material and immaterial conditions of life as well as the creation and maintenance of social relations—becomes a powerful

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<sup>28</sup>In Italy, the unemployment rate for young adults (15 to 24 years old) reached 44.2 percent in 2015, while the overall unemployment rate was 12.7 percent (ISTAT 2015).

laboratory for experimentation with modes of doing, relating, and pursuing value that do not privilege “a particular domain of activity (exchange), a particular intentionality of action (gain), or a particular valuation process (calculation)” (Narotzky and Besnier 2014). In Italy, the economic crisis has favored the emergence of new forms of mutuality and the growing mobilization of different forms of solidarity economy (Bertell et al 2013, Deriu 2012). In the area of food provisioning, people are devoting more time to collectively secure fresh produce at fair prices directly from farmers<sup>29</sup>. The number of GAS has increased during the economic recession, registering an exponential growth since 2008 (Galasso 2013). Correspondingly, a growing number of producers, and especially young producers, has transitioned to peasant ways of farming that combine self-consumption with mechanisms of direct sale. Re-centering the role of agriculture as a source of livelihood, the number of new “young peasants” who entered the sector in 2015 registered a 35 percent increase over the previous year<sup>30</sup>. The vast majority of them is involved in activities of on-farm processing, social agriculture, and direct selling (Coldiretti 2016).

Moving beyond the marketization of social reproduction, the collective reinvention of food provisioning has economic, social, and political implications. In the context of GAS activism, the co-production of food as a relational good becomes a catalyst for a “social pedagogy of sustainability” that is “transformative of lifestyles in

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<sup>29</sup> At the same time, according to a report issued by Oxfam in 2013, 2,7 million Italians have started to produce food for self-consumption.

<sup>30</sup> Significantly, the number of female producers increased by 76 percent over the same period (Coldiretti 2016).

a way that ethical consumption at the individual level would not be” (Grasseni 2013: 171). By promoting autonomy through direct, unmediated interventions in the food chain, this relational form of social praxis nurtures the interdependence of growing crops and growing bodies within networks of reciprocity encompassing both tangible and intangible resources, practices of “commoning,” and connections of trust and care. Significantly, the redefinition of food as an object of political action and mediator of processes of social change is particularly supportive of agro-ecological and peasant transitions that foreground the nexus of farming and social reproduction. In this context, the production of meaning attached to the reproduction of living labor and non-human nature is predicated on face-to-face relations of social cooperation from which autonomy takes shape. Such an approach to the co-production of value eschews the marketization of difference, as underscored by agroecological producers’ attempt to distantiate their practices from the commodifying gaze of official certification, geographical denomination, or Slow Food protection.

Reflecting the dialectical entanglement of production-consumption relations, the politics of direct food provisioning embodies the dynamic complexity of collective action. The mobilization of solidarity purchasing groups is not based on homogenous social practices or organizational forms but is inherently open-ended, and subject to conflict, negotiation, mediation, and change. In order to develop an alternative system of food procurement, time is spent in painstaking meetings and discussions, on-farm visits and mapping of producers, negotiations, and mutual learning. The coordination

of working groups, logistical activities, and collective decision-making is often times extremely difficult and susceptible to contradictory outcomes. The viability of systems of direct delivery is also based on careful planning on the side of producers, who are required to coordinate production, harvesting, and post-harvesting activities through a complex assessment of weekly orders and long-term consumer support. Shaped by fluctuating biotic and abiotic conditions and changing product availability, these practices entail a necessary level of flexibility which is best sustained through dialogue, communication, and a shared commitment to relations of trust and solidarity (Brunori et al. 2013).

As a forms of creative politics, the promotion of unmediated practices of food production and exchange remains “minoritarian” (Deleuze and Guattari 2004), and yet is able to articulate a challenge to the ethos of austerity and the subjection of social reproduction to the “capitalist value form” (Marx 1967). Underscoring how “the ultimate stakes of politics is not even the struggle to appropriate value; it is the struggle to establish what value is” (Graeber 2001: 88), these initiatives suggest that alternative frameworks of meaning are possible, and are partly defined by what they have the potential to become (Melucci 1989). In particular, the political meaning of alternative value practices is constituted in and through networks that sustain their reciprocal indeterminacy to collectively create co-produced courses of action. To be sure, the “relational” autonomy of agro-ecological value practices and peasant ways of farming is built through networks of cooperation and solidarity that politicize the work

and time of social reproduction beyond the act of exchange. Correspondingly, the creative redefinition of production-consumption activities as a dialectical unity can only be understood in a “relative” sense (Gramsci 1971), as realized in coordination with others. Stemming from these interconnected instances of experimentation, the re-appropriation of food as a signifier of changing lifestyles and socio-ecological practices foregrounds the mobilization of a newly emerging praxis of social reproduction, understood both in the narrow sense of what is required to sustain life, and in the more expansive sense of building collectively oriented trajectories to transform the future.

## CONCLUSION

In January 2015, the governing body of the FAO International Treaty on Plant Genetic Resources for Food and Agriculture, together with a consortium of 69 agricultural research centers, launched the new program DivSeek (Diversity Seek Initiative) to streamline the use of germplasm stored in international seed banks through a unified system of data management and characterization. A diverse group of “experts”—breeders, plant and crop scientists, genebank curators, bioinformaticians, database and computational managers, policy specialists, lawyers, funders, donors, private sector participants, and representatives of international organizations and treaties<sup>31</sup>—gathered in San Diego to formulate the program, which was broadly publicized as an attempt to “unlock” the untapped potential of crop diversity and “promote the effective utilization of genetic variation in plant improvement” in order to develop “more resilient crops that are able to generate step changes in yields, similar to that resulting from the Green Revolution” (DivSeek White Paper 2015:2). Premised on the assumption that “agricultural production must increase by 60 percent by 2050” to feed a growing human population, the initiative was described as having the potential to transform crop improvement into a “predictive science” by combining the application of state-of-the-art genomic, phenomic and molecular technologies with mathematical models and breeding trials (ibid:13). More specifically, the goal of DivSeek is to turn

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<sup>31</sup> In addition to the FAO, the institutions represented at the meeting included Cornell University, Bayer Crop Science (USA), DuPont Pioneer (USA), Monsanto (USA), Syngenta (Switzerland), and the Gates Foundation.

the genetic variation contained in the approximately 7 million crop accessions stored in international seed banks<sup>32</sup> into “accessible, standardized, and readable” templates that would allow plant breeders to better calculate how different genetic traits contribute to plant performance (i.e. growth, development, yield and nutritional composition) in diverse climatic environments, thus making the development of new crops “faster, more efficient, and more cost-effective” (FAO 2015).

Soon after its approval, the DivSeek program was criticized by the European coordination of seed networks as a breach of the FAO Treaty and an incentive to the patenting of genetic information that was originally entrusted to the FAO Multilateral Mechanism under conditions of (regulated) open access and benefit sharing<sup>33</sup>. Indeed, the release of computerized datasets aimed at facilitating the use of standardized genotypic and phenotypic descriptors associated with genebank germplasm, most of which shared by local farming communities free of charge, contradicts the Treaty’s original mandate of supporting farmers’ rights and their role in the reproduction of heterogenous crop within diverse farming systems. As representatives from different European seed networks made clear, these tools are of no use to farmers—who do not

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<sup>32</sup> Including, for example, 100,000 varieties of Asian rice (FAO 2015).

<sup>33</sup> The International Treaty on Plant Genetic Resources for Food and Agriculture was adopted by the FAO Conference on 3 November 2001 and was ratified by the EU on 31 March 2004. Recognizing the “enormous contribution of farmers to the diversity of crops that feed the world” the Treaty establishes a Multilateral System that provides access to the germ plasm stored in international seed banks provided that recipients share benefits they derive from the use of genetic materials. More specifically, Article 5 of the Treaty requires the Contracting Parties to promote and support farmers and local communities in managing and conserving their plant genetic resources. Under Article 6, the Contracting Parties committed to develop and maintain policy and legal measures aimed at fostering the development and maintenance of diverse farming systems and maximizing intra- and inter-specific variation of landraces. Article 9 recognizes the contribution of local and indigenous communities and farmers to the conservation and development of plant genetic resources as a basis for food and agriculture production and places the responsibility for realizing Farmers’ Rights on national governments (FAO 2009).

grow genetic sequences or “digital genomes” and do not need this information—but are rather tailored to suit the needs of commercial breeders and seed industries (EC-LLD 2015). To be sure, the composition of the body of experts in charge of implementing the DivSeek program both reflects and reproduces the division of labor between seed breeders and food producers that is so central to the consolidation of conventional crop development and its commercial expansion.

In addition to developing sophisticated tools for the transfer of knowledge and genes from farmers’ fields to plant breeders and breeding companies, the DivSeek initiative embodies a reductionist approach to crop “improvement” that frames the issue of agricultural productivity as a technical problem responsive to technical solutions. Correspondingly, by making genetic variation quantifiable as numerical data included in computerized databases, this approach seeks to circumscribe an arena of research and intervention “in which calculations can be applied” (Li 2007:2). In this respect, the process of bounding, characterizing, and rendering crop diversity legible and amenable to intervention “anticipates the kinds of intervention that experts have to offer,” while at the same time deepening “the boundary between those who are positioned as experts and those who are subject to expert direction” (Li 2007:7, see also Ferguson 1994, Rose 1999). Focusing on professional breeders, and not farmers, as the beneficiaries of new technologies that can make the development of new crops more “predictable,” efficient, and climate-smart, the FAO program is indicative of the

research and policy agenda pursued by mainstream agricultural institutions in times of food system crisis and climate change.

Within contemporary processes of re-peasantization, the “valorization” of seed diversity reflects a distinctively different approach to the practice and politics of food production in a context of economic and ecological uncertainty. Rejecting the technocratic attempt to control, calculate, and predict the functions of specific genes within scientifically engineered conditions of production, the mobilization of integrated strategies of agro-ecological farming and autonomous cooperation embraces crop diversification as a fundamentally spatial and temporal process—an expression of difference that is produced through co-evolutionary adaptation and exchange, open-ended experimentation, and heterogenous mixtures of genetic variance in particular crops and particular places. In different regions and countries of Europe, the cultivation of seed diversity constitutes a core component of peasant farming practices engaged with an ontology of interdependence and co-production that stands in stark opposition to the extractive and input-dependent model of agro-industrial productivism. Seed flows and heterogenous crop populations are grown within networks of collective innovation and knowledge exchange that reassert the centrality of experiential and relational praxis, while eluding the division of labor underpinning the consolidation of expert rule. Correspondingly, moving beyond the

“anti politics” (Ferguson 1994) of technocratic crop improvement<sup>34</sup>, and the “biopolitics” of genetic modernism, the promotion of labor intensive and collaborative practices of crop diversification reflects a form of political positioning that foregrounds the reproduction of labor and diverse agricultural socioecologies as a source of autonomy. The politics of seed saving and exchange is in this respect closely associated with the development of unmediated markets and producer-consumers networks that nurture relations of solidarity and an ethics of mutuality and care. As diverse crops travel through interpersonal modes of food provisioning, their “value” is turned into a signifier of interdependent socialities and ecologies sustained by creative configurations of livelihood practices and collective action.

### **A social movement?**

The engagement of peasant producers with relational methods of seed and market diversification is premised on newly emerging forms of being, learning, and doing in common that are integrated in collective structures and solidarities embodying values other than the “market axiomatic” (Deleuze and Guattari 1980). Given the political implications, do these instances of collective action turn producers, and the consumers who support them, into members of a social movement? How and to what extent does

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<sup>34</sup> As questions of crop improvement are rendered “technical” (Rose 1999), they are simultaneously rendered “nonpolitical” by excluding structures of political-economic relations from diagnoses and prescriptions (Li 2007:7). This approach is epitomized by the “anti politics machine” (Ferguson 1994) of international programs that frame problems of agricultural productivity, rural poverty, and rural development in ways that match the implementation of technical interventions falling “within the repertoire” (Li 2007).

the mobilization of seed, peasant, and food provisioning networks reflect the features and dynamics of a movement?

Two main interpretive approaches to the nature, purpose, and organizational form of collective action run through the literature on social movements. On the one side, reflecting a predominantly American tradition, “resource mobilization” theorists have focused on social movements as structured organizations of rational actors involved in the pursuit of political goals and increased material benefits (Tilly et al. 1975, McAdam, McCarthy and Zald 1988). On the other side, European “cultural” theorists like Touraine (1988, 1995) and Melucci (1987) have argued that social movements are not primarily realized in their political and organizational manifestations, but are to be conceptualized as loosely networked “cultural laboratories” contributing to the emergence of alternative values, social practices and life-styles. A recent reformulation of the difference between these two theoretical perspectives suggests that political orientations and strategies are the dominant characteristic of “old” social movements or the movements of pre-reflexive modernity, whereas most “new” social movements are more concerned with meaning, culture, and the articulation and defense of new or marginalized social identities (Escobar and Alvarez 1992, Della Porta and Diani 2006, Woods 2003).

Significantly, the mobilization of collective action within peasant and consumer groups, cooperative plant breeding initiatives, and solidarity networks evades the political/cultural dualism of social movement theory. These initiatives are

not necessarily formalized as strategy-oriented organizations, nor “submerged” (Melucci 1988) or confined to the sphere of meaning as separate from the articulation of material struggles (cf. Vitale 2008). In the context of contemporary processes of repeasantization, the goal to reshape labor relations, livelihood sources, and spatial and socio-ecological orderings is inextricably linked with the elaboration of alternatives knowledges, “ways of life,” and “ethical models through which social practices are constituted” (Touraine 1988:40-41), underscoring the mutual interdependence of symbolic, epistemic, and material struggles of social reproduction. More to the point, the open-ended experimentation with a relational praxis of autonomy underscores the conceptual fragility of the term “movement” in addressing heterogenous forms of action that are political insofar as they seek to transform social relations, value practices, and co-produced sociocultures.

In the European context, the category of movement becomes a decisive political concept in early twentieth century theorizations of state power and social order that ceased to see people as a constitutive political body and posited the emergence of an autonomous element (a movement) in charge of managing, protecting, and sustaining society (as a demographic entity, or population) (Agamben 2005). Epitomized by the writings of Carl Schmitt, this approach linked the primacy of the notion of movement with “the becoming un-political of the people” (ibid) and the transformation of people into populations. Likewise, in the theoretical and linguistic universe of western industrial societies, the term movement has been historically

deployed in relation to struggles seeking to achieve integration within the existing socio-political order or attempting to move that order forward, rather than subverting it (Buechler 2011, Heberle 1951, Kotef 2015). By inscribing social struggles into a narrative of progressive temporality, this view makes them consistent with the expansion of an existing regime, or “economy of movement” brought about by the increasing penetration of market relations and the capitalist value form. Even when confronted with rather divergent contemporary interpretations, these contentious etymological connotations problematize the applicability of the term movement to forms of collective action that have not explicitly called themselves as such.

Rather than constituting a social movement, the mobilization of politicized practices of social reproduction can be characterized as an expression of creative and emancipatory biopolitics that gives visibility to open-ended trajectories of social change. By generating variability in the fields, developing new forms of food provisioning, and weaving dynamic spaces of cooperation and doing in common, the mobilization of seed and producer-consumer networks is not only aimed at countering the impact of seed laws, corporate concentration, and economic downsizing, but is generative of alternative ways of approaching the value and reproduction of human and non-human nature (or life itself) that move beyond the binary opposition of domination and resistance. Underscoring how hegemonic forms of power create a particular kind of world, but are not totalizing, stable, or static, the promotion of peasant farming and unmediated food linkages invokes notions of solidarity,

mutuality, degrowth, and food sovereignty that materialize in farmer-to-farmer networks, face-to-face relations, lived commons, and collaborative experimentation. In this context, the notion of food sovereignty is approached as a form of praxis, rather than a movement, understood as an “other-seeking and dialogic” activity that produces new ontological openings through the material enactment of relational autonomy.

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