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Unpacking the Discursive Construction of Heirloom Seeds: Discourses, Contests, Connections

Müzeyyen Pandır[*] Maral Erol[**]

Abstract

The 2006 Turkish Seed Law prohibited the selling of uncertified heirloom seeds, triggering heated debates on and around seeds. This paper examines the construction of discourses on heirloom seeds in Türkiye, focusing on the arguments of the key social actors in the field with a view to understand how knowledge production is taking place on seed. Conducting interviews with key state and non-state actors and analyzing their published documents related to heirloom seed through discourse-historical approach, we examined the argumentative perspectives shaping the discourse on seed. The results revealed a discursive dichotomy constructed between "heirloom seed" and "certified hybrid seeds". In particular, built on commercial and food security concerns, the state discourse frames heirloom seeds as low-yield and unable to feed the nation in comparison to certified hybrid seeds, whereas non-state discourse using the perspectives of agrobiodiversity and farmers' sovereignty construct heirloom seeds with superior features, qualifying them as compatible with biodiversity and the current global and regional economic, environmental and climate problems. The study concludes that different perspectives and interests produced contradictory knowledge about seed (hence food) and caused different realities to exist simultaneously within this knowledge.

Keywords: seed, heirloom seed, knowledge production, discursive construction, discourse-historical approach

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[*] Asst. Prof. Dr., Işık University, Humanities and Social Sciences Department, İstanbul, Türkiye (Corresponding Author).
Email: muzeyyen.pandir@isikun.edu.tr, ORCID: https://orcid.org/0000-0003-1590-4689

[**] Prof. Dr., Işık University, Humanities and Social Sciences Department, İstanbul, Türkiye.
Email: maralerol@gmail.com, ORCID: https://orcid.org/0000-0002-1648-2492

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1. Introduction

The world is currently facing the largest food crisis in modern history, which is caused by various factors such as the climate crisis, drought, rising costs of production, rising food prices, and the impact of COVID (World Food Programme, 2022). The availability of sufficient and safe food in a country is crucial, so discussions on food security and safety have become increasingly important. Generally speaking, one camp argues that industrial (conventional) agriculture, which involves large-scale production of crops using hybrid and genetically modified seeds with chemical fertilizers and pesticides, is causing the loss of food security and safety (Horrigan et al., 2002; Thrupp, 2000). The other camp, backed by agribusiness, the food industry, and the media, claims that only industrial agriculture with higher yields can feed large populations, and that conventional seeds do not harm health (Kimbrell, 2002). Seed remains at the center of these discussions, highlighting the importance of studying the discursive construction of seed to understand how seed, the basis of food and life, is constructed as a subject.

This paper focuses on the construction of seeds, particularly heirloom seeds[1] in Türkiye. Through a discourse-historical approach (DHA) of critical discourse analysis (CDA), the paper examines the discourses of key social actors who actively produce knowledge, policy, and/or action related to seed, and explores how their arguments on heirloom seed overlap, differ or conflict. The overall aim is to understand the knowledge production on seed as well as to observe which wider discourses, motivations, or interests are shaping the knowledge on heirloom seeds.

Heirloom seeds have become a popular subject in Türkiye since the discussions on the 2006 Seed Law No. 5553[2] (2006). This law banned individual farmers from selling unregistered seeds and only allowed the exchange of such seeds without payment, aiming to make the legal system more compatible with international laws and treaties (Bağcı & Özer, 2021). In 2018, the law was amended, and the Regulation on Registration, Production, and Marketing of Local Varieties[3] was passed, detailing the registration and certification process of the seeds for trade. However, the law and subsequent regulation have faced criticism from NGOs, environmental organizations, farmer unions, and individual actors concerned about food safety and sovereignty. As a reaction, seed exchange events were organized and local organizations started seed banks, leading to a "seed movement" in Türkiye. In such an atmosphere, different social actors' discourses on heirloom seeds started to compete and struggle for recognition and acceptance.

In the following, the paper first presents a conceptual background on the understanding of heirloom seeds, touching on its relationship with biodiversity, economy, culture and also neoliberal agriculture policies. It then provides contextual information on the policing of seeds

[1] In the daily language, academic literature, and public discussions, the terms heirloom seed, local seed, and landrace are used interchangeably. We prefer to use the term "heirloom seed" throughout the paper for the sake of consistency. All these terms refer to open-pollinated plant varieties that are bred, saved, and replanted by small farmers and become compatible with a particular locale through natural selection over a period of time.

[2] The Law, from here on.

[3] The Regulation, from here on

in Türkiye. The methodology section introduces the involved social actors, the data, and the method of analysis. The results and discussion section reveals and discusses the findings on the discursive construction of heirloom seeds in Türkiye, focusing on the overlapping and competing discourses of the social actors and the motivations behind their arguments.

2. Conceptual framework and background

2.1 Heirloom Seed in the Literature

Literature on seed predominantly falls under the agricultural sciences, which include agronomy, agricultural engineering, and horticulture. However, heirloom seeds are not specifically defined in this literature. At most, they are considered as open-pollinated varieties that can be used as a "genetic resource", owing to their genetic adaptation to specific locales (Akar, 2020; Gıda, Tarım ve Hayvancılık Bakanlığı [Turkish Ministry of Food, Agriculture and Livestock][4], 2018a; Kloppenburg, 1988). "Landrace" is another term used to refer to open-pollinated varieties that have adapted to specific places (Tan, 2009). This term is also often used in legislative texts (Arıkan, 2016). International organizations and treaties may refer to the use and exchange of seeds as "crop genetic resources", "plant genetic sources", or "plant genetic material" (Aksoy, 2014). Within this more general term, distinct plants developed by breeders are called "variety" or "cultivar" in Turkish law (Türkiye Büyük Millet Meclisi [TBMM], 2006). We also see the term "peasant seeds" in the United Nations Declaration on Peasant Rights, together with the phrase "farm saved seeds" (United Nations [UN], 2018).

In ecology and environmental sciences literature, especially in political ecology, the social and cultural elements in developing and cultivating plant species are emphasized, also taking into consideration the cultural preferences for certain dishes, as well as rituals and cultural meanings attributed to certain plants. The term "farmer's varieties" is preferred when talking about traditionally developed and bred plant species (Shiva, 2016a). When the focus is more on biodiversity, the terms "local variety" and "traditional and locally adapted landraces" are used (Ficiciyan et al., 2018).

The social sciences literature, which encompasses fields such as anthropology, sociology, political economy, and STS, considers seeds and heirloom seeds within the broader context of food systems and agricultural transformations, sometimes in relation to the GMO debates. Various terms are used in this context, including "heirloom seeds", "heirloom plants" (Nazarea, 2005), "heirloom varieties" (Jordan, 2015), "landrace" (Nizam & Yenal, 2020), and "farmer-landrace varieties" (Graddy-Lovelace, 2020). Discussions about heirloom seeds typically highlight the duration of their use, their cultural significance, traditional food systems and knowledge practices, and open pollination (Rhoades, 2013).

[4] The Ministry, from here on.

2.2 Heirloom Seeds' Relationship With Biodiversity, Economy, Culture, and Neoliberal Policies

Agricultural sciences literature focuses more on the breeding of hybrid or genetically modified varieties with increased productivity and resistance to certain conditions, relegating heirloom seeds to resources for breeding that can be protected ex-situ (i.e., in seed banks and collections of research organizations). However, social sciences literature takes a broader perspective on the issue of heirloom seeds, examining it from a historical, social and political economy perspective, touching on themes such as biodiversity, climate change, the rights of indigenous populations and farmers, biopiracy, food security, food sovereignty, the global neoliberal economy, cultural heritage, and locality.

Conservation of heirloom seeds is emphasized as a means of protecting agricultural biodiversity (Aistara, 2011; Çelik, 2013) and small farming practices (Trauger, 2017). Increasingly, climate change is also cited as a reason for the necessity of seed biodiversity, as plants that naturally evolved to withstand drought and other extreme climate conditions would become more important in the changing climate conditions (Adaman et al., 2020). There is also a sub-theme examining the co-evolution of indigenous populations and seeds with cultural practices of exchange (Nazarea et al., 2013; Zimmerer, 2003), linking the subject to the question of who owns the seeds. The flow of germplasm in the form of seeds from the global South, where most plant varieties originated, to the centers of global North, where they are used as genetic ingredients for the commodified seeds, is defined as biopiracy (Shiva, 1999) or bioprospecting (Dalyan, 2018). Türkiye is also mentioned as part of these flows of germplasm, with some authors stressing the critical importance of the Anatolian peninsula as the origin of many domesticated crops and including two Vavilov centers of diversity (Kan et al., 2017).

Food security and food sovereignty are two other concepts cited in relation to heirloom seeds and define two different frameworks. Food security is defined as "a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Gibson, 2012, p. 21). In this sense, food security is about access to food and meeting the nutritional and safety needs of the population but not about who controls the food system. In contrast, food sovereignty stresses issues of ownership and power, problematizing the commodification of genetic materials. It was developed as a concept by the international agrarian movement La Via Campesina in 1996 and can be summarized as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (La Via Campesina, 2007). In this definition, the stress is on the right of the people instead of corporations to be the ones determining food policies and food systems.

In connection with this argument, some studies on seeds refer to a historical narrative about how hybrid seeds developed by industry replaced heirloom seeds from the 1960s and 1970s onwards, in a process called the Green Revolution (Rhoades, 2013). The Green Revolution has been criticized for loss of biodiversity, as well as causing small farmers and producers lose control over seeds, becoming dependent on multinational corporations selling seed, chemical fertilizers, pesticides and herbicides (Rhoades, 2013; Shiva, 2016b). In some sources, the

proliferation of genetically modified seeds is also referred to as "the Second Green Revolution" (Budak, 2013). In the political economy literature on agriculture in Türkiye, the same historical trajectory is often used, where the issue of seeds is often situated in a larger framework of deregulation and privatization of the agricultural sector starting in the 1980s (Aksoy, 2010; Keyder & Yenal, 2013; Nizam & Yenal, 2020). Part of this literature on the Green Revolution and neoliberal economy focuses on the process of seed commodification, examining the development of hybrid, genetically modified, and trademarked seeds by multinational corporations in increasingly industrialized agricultural systems (Kloppenburg, 1988).

Looking at the studies on agriculture and seeds in Türkiye, there are conflicting views between those prioritizing production with certified seeds in industrial agriculture and those prioritizing production with heirloom seeds through traditional agricultural practices. The first group of studies advocates biotechnology and production with certified seeds to cope with low yields in today's challenging global conditions. These studies examine the situation and problems of the Turkish seed industry and propose increasing the production and consumption of certified seed as a solution to low yields due to climate change and drought. Support to reduce producers' production costs and new ways of market control are among other proposed solutions to improve the industry (Aras, 2019; Bağcı & Özer, 2021). In the second group, studies examine the conservation and sustainable use of heirloom seeds under the same global conditions, such as the climate crisis. They highlight the importance of heirloom seed varieties for the future of sustainable agriculture. Such studies conducted in the field of science (Çiftci et al., 2023; Doğan, 2024) focus on the genetic diversity and characteristics of seeds and examine the resistance and conditions of heirloom seeds in terms of adaptation and durability. Studies in the social sciences focus on the socio-economic and ecological role of heirloom seeds and highlight the importance of heirloom seeds for biodiversity and local ecosystems, and for their suitability for today's climatic environmental conditions (Atalan Helicke, 2019). Some study and report good examples of production with heirloom seeds in farming communities (Nizam & Yenal, 2020; Yıldız & Özkaya, 2024), provide sociological investigations of agroecological food and farming systems by observing the production processes and techniques of the producers adopting agroecological principles (Şişman, 2023).

There are also studies that examine the effects of neoliberal agricultural policies and industrial agriculture on the agricultural economy at macro and micro levels (Aysu, 2008; Ceylan, 2019; Keyder & Yenal, 2013). These studies assess the socio-economic and socio-ecological consequences of neoliberal agricultural policies, highlighting their negative impact on Türkiye's agriculture, nature and ecology, and see these policies as new means of exploitation (Adaman et al., 2020; Akkuş, 2023; Aksoy, 2010). Thus, they argue for a shift away from industrial agricultural practices and support agricultural policies based on localization and food sovereignty.

2.3 Seeds in the Turkish Policy Context

Türkiye followed a public-dominated seed policy until the mid-1980s. The legal developments in agricultural production and trade since the 1990s aimed at the nonlinearization and privatization of the sector, including the seed sector (Nizam & Yenal, 2020), and made private and global seed corporations main actors in the field of seeds (Bağcı & Özer, 2021). The 2006 Seed Law was introduced, marking the completion of private sector restructuring. The Law and its 2018 amendment caused ongoing arguments and dissatisfaction among the social actors in the field.

The Law aimed to regulate the seed sector to improve the quality and yield of seeds. The most important change it brought was banning the trade of uncertified seeds; the seeds subject to trade had to be initially registered and certified by the Ministry. Registration of seeds involves determining the agricultural characteristics of the varieties and only the seeds of registered varieties are allowed for trading. In 2018, the Regulation made it clear that only professional organizations, NGOs, universities, and public institutions can apply for seed certificates, excluding individual farmers from the list. In addition, it excluded farmers who did not use certified seeds from receiving financial support from the Ministry. Civil society organizations responded to the regulation by filing a case against it, arguing that farmers are the primary caretakers and producers of seeds, responsible for their survival over time, and therefore, no property rights on traditional or wild varieties are acceptable (Nizam & Yenal, 2020). The discussion also highlights that granting farmers the ability to apply for certification does not resolve the issue, as the majority of small and individual farmers lack the necessary knowledge and financial resources to handle the bureaucratic duties involved in the registration and certification process (Şık, 2018).

These legal developments have restructured agricultural production, indirectly forcing farmers to use certified hybrid seeds from seed corporations (Şık, 2018). Hybrid seeds need to be rebought every year for productivity; thus, the legal regulations signified the commodification of the seed, shifting seed sovereignty from farmers to corporations. In addition to losing their positions as seed breeders, farmers have become dependent on seed corporations, who were the new rulers of the seed sector.

With the Law, Türkiye Tohumcular Birliği (Türkiye Seed Growers Association, TÜRKTOB), an organization of seed producers and traders was also founded to support the seed breeding corporations. The Law gave TÜRKTOB the authority to arbitrate conflicts between its members and third parties, which may include farmers (Aksoy, 2010). To circumvent the conditions imposed by the law, NGOs started seed exchange festivals, making the exchange of seeds between farmers and hobbyists an event that takes place outside of the commercial realm, hence not regulatable by law. The NGOs that initiated seed festivals and networks were also concerned about protecting agricultural biodiversity and cultural heritage in the face of a strictly regulated seed sector geared towards certain types of seeds, decreasing the number of varieties continuously planted (Çelik, 2013).

3. Methodology

3.1 Data

This research analyzes the discourses and arguments on heirloom seed using critical discourse analysis, specifically the discourse-historical approach as outlined by Reisigl and Wodak (2009). Like other approaches to discourse analysis, both CDA and DHA focus on the construction of subjects, objects, actors, and/or events through discourse, as well as the role of social, historical, political, and economic factors in the construction process. Many examples of CDA study a small or medium-sized group of purposefully collected cases, such as conversations, published texts, or transcribed speeches from interviews (Reisigl & Wodak, 2009; Wodak & Meyer, 2009; Forchtner, 2019). Therefore, purposeful sampling techniques often determine which cases to study. This is necessary because qualitative research focuses on a small number of cases to understand the phenomena in depth, so it requires selecting not random cases but cases that contain in-depth information about the subject under study (Patton, 2002, p. 46). The purposeful sampling technique is also used in this study to create the sample.

In the study, data is collected through interviews conducted with institution officials and individuals, as well as through the published documents of the institutions. Firstly, the state and non-state organizations, institutions and individuals that are actively producing information, actions and/or policies on seeds in Türkiye were identified and contacted for interviews. Out of 28 contacts, 13 agreed to participate. Prior to data collection, approval was obtained from the Scientific Research and Publication Ethics Committee of Işık University (Approval decision full date: April 12, 2021, Decision number: 3175), and all interviewees gave informed consent. Secondly, we searched the institutions' publications on seeds and studied those that contained comprehensive information on actors' views and perspectives on heirloom seeds and related issues. In total, our corpus consists of twenty-four texts: thirteen transcribed interviews and eleven published documents. Below are brief definitions of the actors interviewed and the documents studied.

3.2 Social Actors

The targeted organizations, institutions, and individual social actors are the Ministry, TÜRKTOB, TMMOB Ziraat Mühendisleri Odası (Chamber of Agricultural Engineers, ZMO), Çiftçiler Sendikası (Farmers Union, Çiftçi-Sen), Buğday Ekolojik Yaşamı Destekleme Derneği (Buğday Association for Supporting Ecological Living), small farmers, and individual academicians working on the subject.

We also wanted to reach seed corporations to conduct interviews; however, none responded to our requests, thus we could not include data from individual seed corporations. However, TÜRKTOB, which is an organization consisting of seed corporations, represents the views and interests of these corporations.

3.2.1 State Actors

The Ministry is the main governing body, making decisions, developing agricultural policies, and organizing the actions of other institutions and farmers. It is critical to examine the Ministry's role as a social actor in developing discourses and practices around heirloom seeds. The Ministry publishes its strategic plan on agriculture in the Strategic Plan 2013–2017 (Ministry, 2013) and Strategic Plan 2018–2022 (Ministry, 2018b). These two documents together cover the period from 2013 to 2022 and make no direct reference to heirloom or local seeds. Instead, local varieties are referred to as "genetic materials" that should be registered and used for breeding new hybrid seeds. No mention of heirloom seeds is surprising because in 2017, the Turkish government started to emphasize national and local agriculture and initiated activities on local seeds. We assume that this lack of emphasis is because the strategic plan approaches the local/heirloom seed from an instrumentalist perspective and defines it as raw material for developing new hybrid seeds. As a result, we primarily collected data on heirloom seeds through interviews with two ministry officers in managerial positions. The ministry representatives' statements on other related subjects, such as certified seeds, hybrid seeds, and agriculture, were all compatible with the published strategic plan materials.

3.2.2 Professional Organizations and Public Bodies

TÜRKTOB is established by the Seed Law (TBMM, 2006). On its website, the association defines itself as a "professional organization in the nature of public institution" and "the top organization of our country's seed sector with the authority granted by law" (TÜRKTOB, 2023). The two analyzed documents (TÜRKTOB, 2015; TÜBİTAK TÜSSİDE, 2017) detail TÜRKTOB's views on seeds and heirloom seeds.

Another important social actor is Ziraat Mühendisleri Odası. ZMO was established in 1954 and operates under the Union of the Chambers of Turkish Engineers and Architects, which is a "professional institution as a public body in constitutional terms" (ZMO, 2022). In the three documents under analysis, ZMO expresses its opinions on heirloom seeds, essentially criticizing the Ministry's actions and the legal regulations that target agriculture and seeds (2018a; 2018b; 2018c).

Çiftçi-Sen is one of the most active organizations producing and sharing opinions on the developments in agriculture in Türkiye. The selected and analyzed document is an interview conducted by Tuba Çameli (2019) with the Çiftçi-Sen's President Abdullah Aysu. Here, Aysu shares in detail his views on agriculture and seed, which are repeated in other publications of the union.

3.2.3 Non-governmental Organizations

One NGO that has been particularly influential on knowledge production about heirloom seeds in Türkiye has been Buğday Derneği. It has been actively working to encourage and support the use of heirloom seeds in agriculture among farmers and individual producers through publications, events, and programs. The analyzed documents from Buğday are two guidelines that gather comprehensive information about seeds and agriculture (Buğday, 2009; 2020):, one

interview with the chair of the organization conducted and published by Leyla Aslan Ünlübay (2017) and one interview we conducted with a representative from Buğday.

Aside from Buğday, we interviewed two founding members of a now-defunct NGO that was influential in the seed movement in Türkiye in the 2010s. Since the NGO was no longer active and they were not in contact with its former members, they did not consent the name of the NGO to be used in this publication; thus, we are omitting details about this NGO. However, the study incorporates the views of the two interviewees, who are academics actively researching and writing about seeds and agriculture like the other scholars interviewed.

3.2.4. Small Farmers

We conducted three interviews with small farmers. One of them is retired from the military and currently owns a small farm. He collects heirloom seeds, records them individually and grows them. He previously played an active role in the heirloom seed exchange events and their initiation, but because he was unsatisfied with the recycling of the seeds among the growers, he has stopped exchanging. The other two farmers continue their family profession of farming and earn their living from farming. They have knowledge about heirloom seeds, use heirloom seeds and consume them for themselves, but the products they sell are certified hybrid seeds which they buy from seed corporations.

3.2.5 Academicians

To explore the academic and scientific perspectives on heirloom seeds and agriculture, we conducted interviews with seven academicians. They are from various disciplines (agriculture, sociology, anthropology, gastronomy, and culinary arts), but all have previously worked with different NGOs and have conducted and published research on either seed or agriculture.

3.3 Data Analysis

We used DHA to analyze the actors' arguments about heirloom seeds and related issues in the texts of interview transcriptions and published materials (Reisigl & Wodak, 2009). The particularity of DHA is that it emphasizes the historical context in which the discursive statements are constituted and examines their relations to other broader discourses, pointing out the continuities, contradictions or breaks in the discourse. Exploring how the discourse under study relates to other discourses and texts allows for an intertextual and interdiscursive analysis of the studied subject (Reisigl & Wodak, 2009, p. 95), which is also important for this study. In the present study, social actors express their opinions on heirloom seeds mostly in response to the Law and its regulation of agricultural practices, and in doing so, they produce similar or conflicting arguments emerging from different perspectives. DHA reveals the diversity of perspectives in a discourse as it pays attention to the argumentation strategies that actors develop, by questioning how they justify their arguments, which perspectives they draw on, and which other arguments they intensify and mitigate to convince or even manipulate their audience (Reisigl & Wodak, 2009, p. 88).

Adopting Reisigl and Wodak's (2009) strategies for analysis, we analyze the discursive construction of heirloom seeds in the texts by focusing on how heirloom seeds and other related seeds, objects, events and/or processes are a) named and referred to (nomination), b) what characteristics and qualities are attributed to them (predication strategies), c) which arguments are employed in the discussions (argumentation strategies), d) from which perspectives these nominations, attributions and arguments are expressed (perspectivization strategies). Following this, each text was then analyzed by asking questions such as how the social actor named and defined heirloom seeds and related objects, what positive and negative characteristics they attributed to them, what characteristics they highlighted, what arguments they used to defend their views, what arguments they used to refute the arguments of other actors, and within which broader perspectives or discourses they spoke. In this way, the main themes that emerged in the different views on heirloom seeds and related issues were revealed, and the similarities, differences and conflicts between actors' views were identified, as well as the wider discourses and interests (whether economic, food security or biodiversity) that construct their views. Overall, the analysis revealed the construction of knowledge about heirloom seeds from a variety of conflicting positions.

4. Results and Discussion

In exploring how heirloom seed is discussed by different social actors, one initial observation was that there is a remarkable similarity between the discourses of the Ministry and TÜRKTOB, (which we will altogether call "state actors"), and between the discourses of non-state actors (ZMO, Çiftçi-Sen, Buğday, farmers, academicians). The discourses of the first and second groups, which we will refer to as state discourse and non-state discourse, are opposite to each other.

Categorizing TÜRKTOB's discourse as a state discourse at the level of analysis may seem disputable. In the beginning, as explained above, we perceived TÜRKTOB as a professional organization based on its status and self-definition. However, while studying the discourse on seeds and agriculture, we noticed that the association's discourse repeats the Ministry's discourse in many ways. We decided to categorize TÜRKTOB alongside state actors, taking into account its direct formation under the state's seed law.

The analysis of different social actors' discourses on heirloom seeds revealed similarities as well as conflicts. Certainly, other related topics and processes such as hybrid seeds, general approach to agriculture etc. are mentioned during the interviews and in the published documents. Here, the focus will remain on the main discourses constructing heirloom seeds and its related subjects and issues, and the argumentative perspectives on which the actors draw.

4.1 Discursive Construction of the Dichotomy Between Heirloom Seed and Certified Seed

Social actors use the terms heirloom seeds and local seeds interchangeably. Likewise, the terms certified seeds, registered seeds and hybrid seeds are used interchangeably too. Heirloom seeds are predominantly discussed in relation to certified seeds. The pros and cons of both

seed types are constantly compared to each other, constructing a difference and competition between the two, also constructing both as each other's Other. In the state discourse certified seeds are constructed with superior qualities and heirloom seeds are constructed as their inferior, while it is the other way around in the discourses of non-state actors.

In state discourse, the dominant perspective on heirloom seeds and agriculture concerns the economy and food security, which is about having sufficient, safe, and nutritious food to feed the population. From these perspectives, the main goal of agricultural activities is constructed as providing society with "sufficient", "quality" and "healthy" food (Ministry, 2013). In the interviews, the emphasis on sufficient food is paralleled with the emphasis on achieving high efficiency in production, which is set as the aim of agricultural activity to feed the nation. In this context, a clear division is made between heirloom seeds and certified hybrid seeds: certified hybrid seeds are constructed as key to achieving high efficiency in production, while heirloom seeds are defined as not having high enough yields and not being efficient.

Meanwhile, heirloom seeds are defined as "genetic materials", adapted to a region and reliable against the sicknesses and threats of that region. The fact that they are not standardized and are efficient only where they are adapted limits the usage of heirloom seeds to specific regions and raises the question of efficiency. The Ministry perceives and uses heirloom seeds as a genetic raw material that should be registered and used in plant breeding programs to produce advanced seeds with improved qualities. Therefore, heirloom seeds are important from an instrumentalist perspective rather than having value on their own. Here, heirloom seed is primarily qualified as "inefficient", thus cannot produce high yields and feed the nation. Production levels are also cited as important from an economic point of view because when production decreases, food prices increase and the capacity for exportation decreases. Altogether, the use of the heirloom seed is represented as carrying risks of food insecurity and a decline in the economy.

In this respect, the Ministry and TÜRKTOB prioritize the usage of certified (mostly hybrid) seeds in agriculture. The Ministry even provides financial support only to those farmers who use certified seeds. In their discourse, certified seeds are defined only by means of positive qualities such as "high yield", "high quality", "profitable", "advanced" and "quality seed". Health concerns are rejected through predications "not harmful to human health" and "carrying no risk to health". The question of infertility of the hybrid seed, which is commonly discussed in public discourse, is mentioned only by TÜRKTOB (2015). TÜRKTOB defines hybrid seeds as "not infertile" but confirms that second generation hybrid seeds may cause "some casualties in terms of high yield and quality", thus "it is preferred that they are renewed every year". Thus, it is understood that TÜRKTOB's definition of hybrid seed refers to first-generation seeds only.

The discourse of non-state actors differs from the state discourse in that it assigns positive qualities to heirloom seeds. The terms heirloom seed, local seed, local variety, and heirloom variety are qualified as being "adapted to its local geography", "resistant" to diseases and pests, "resistant to drought", "more diverse compared to advanced varieties", "compatible" with changing climate, environmental and soil conditions, "not requiring chemical fertilizer". Heirloom varieties involve seeds with different genetic structures (not standardized) and they guarantee growing products under different challenges even if with a lesser yield. Therefore,

they are classified as "insurance". They also require "less water", "fewer fertilizers and chemicals", which make them "cost-effective" and "less threatening" for human and environmental health (Buğday, 2009; 2020). In these ways, the non-state discourse approaches agriculture and heirloom seeds from the perspectives of biodiversity and food safety. More importantly, non-state actors develop a holistic approach as they perceive agriculture as part of a whole system. The use and protection of heirloom seeds is perceived as important to protect our "food, culture, health, environment and future". In this respect, heirloom varieties are a "warranty" for future generations, thus they are "more valuable than gold" (Buğday, 2020; Aslan Ünlübay, 2017). But they also accept that heirloom seed is "not high yield."

The discourse of non-state actors considers "certified varieties", "hybrid varieties", and "improved varieties" together as part of conventional agriculture. Their arguments are actually in dialogue with the state discourse, but in an opposing way. Certified seeds are high yield argument is overturned with the argument that they can produce high yield "only" under the conditions in which they are developed. In case that one of these conditions is not met, the yield decreases. Thus, certified varieties are qualified as "delicate" under changing conditions and "not resistant to disease and pests" (Buğday, 2020). It is added that certified seeds "bring more agricultural inputs" because they require the usage of fertilizers, chemicals and more water, so they "increase farmers' expenses" and they are "efficient for the short term" only (Buğday, 2009). Also, certified hybrid seeds do not produce quality products when the seeds are saved and sown the following year, thus they "lose their commercial value" and farmers need to buy these seeds every year from seed corporations, which is a concern for farmers' and food sovereignty, as it is discussed in detail in the next section.

It is in these ways that non-state actors define certified hybrid seeds as doing more harm than good arguing from the perspectives of biodiversity, food safety and food sovereignty. This is their general approach towards the whole conventional agriculture system, whose main actor is hybrid seed. The discourse constructs conventional agriculture practices as a threat to the whole ecosystem because they aim to produce standard products with high yield and such practices cause ecological harms such as "loss of biological varieties", "land degradation", "surface and groundwater pollution", as well as damaging the sovereignty and economic well-being of farmers. With these arguments, the discourse supports agroecological agriculture, which involves traditional agriculture practices (Aslan Ünlübay, 2017).

4.2 Seed Ownership and the Question of Dominance: Corporations vs. Farmers

Non-state actors define heirloom seeds or local varieties as "our common assets" (Çameli, 2019), "commons of the country and humanity" (ZMO, 2018a; 2018b; 2018c), and thus their shared view is that there shall be no ownership on the local varieties. The strongest conflict with state discourse emerges from this point, particularly due to the seed regulations in 2006 and 2018. The NGOs reacted against the legal changes arguing that they indirectly form an ownership on the seeds, by privileging seed corporations over farmers. This argument and critique appear in the discourses of all the non-state actors, but ZMO is the one who provided the strongest criticism in its documents, particularly targeting the regulations on local varieties (ZMO, 2018a; 2018b).

In its documents, ZMO defines local varieties as "part of biodiversity", "indispensable to biodiversity and small family farming" and "natural wealth" (2018a; 2018b), thus states that local varieties are "our common assets". It intensifies this view by directly referencing Article 168 of the Constitution, which states that "[n]atural wealth and resources shall be under the authority and at the disposal of the State. The right to explore and exploit these belongs to the State". From this point on, ZMO criticizes the Ministry's regulations by qualifying them as "contradicting the constitution" by creating an ownership over the seeds. Since the farmers cannot apply for seed certification, ZMO states that the genuine purpose of the regulation is "not to protect the origin of the local varieties" by registration, but forming a "trade system, which makes local varieties subjects of trade and private ownership, which are against the Constitution". It also qualifies the agriculture system as "not fair and equal", "protecting the monopolized corporations" (ZMO, 2018a; 2018b). Moreover, it defines legal regulations on local varieties as "the disposal of the wealth by regulation" and argues that "the society shall not remain silent" to this action (ZMO, 2018b). In this way it constructs an "us" and "them" division between the public and the Ministry.

The discourse of Çiftçi-Sen evokes the discourse of ZMO by strongly opposing the corporations' ownership over the seed, but a particularity in its discourse is that it also constructs "multinational corporations" and "IMF and World Bank" as the social actors, and "globalization" as the social phenomenon causing a "grave condition" in the Turkish agricultural industry, particularly since the 1980s (Çameli, 2019). It argues that the interventions of the IMF and World Bank ended the functioning of the national agricultural institutions, which had been organizing and supporting the industry until that time, and the state's seed policy allowed importing of seeds, which led the multinational agricultural and food corporations to become dominant in Turkish industry. Identifying "globalization" as a problem, it states "the antidote of globalization is localization" (Çameli, 2019). Localization refers to forming a national agricultural structure again, by forming more horizontal local institutions and institutes. The local municipalities and co-ops are perceived as the "embryos" of such local institutions, and they need to become more active in this process.

In the statements of non-state actors, the real owners of the seed are explicitly identified as "farmers", "peasants/villagers", "public", but "not corporations". The common argument that runs through their statements is that for centuries local varieties are developed as the result of farmers' practices of selecting and planting the best ones among wild plants according to high yield and best flavor. Therefore, they define farmers as "plant breeders" (Aslan Ünlübay, 2017; Buğday, 2020), "keepers and reproducers" of the seed (academics), whose labor had enabled the development of the seeds since the time of permanent settlement (Çameli, 2019). So, the ownership of seed belongs to farmers. They accept that there should be a control process through public research institutions, where the seeds should be developed and distributed to farmers by publicly owned institutions not driven by profit, and seeds may be sold at reasonable prices. With these practices, the purpose is to protect farmers' rights, maintain food sovereignty and prevent farmers' dependency on seed corporations (Aslan Ünlübay, 2017; Buğday, 2020).

In these ways, non-state actors foreground the perspectives of food sovereignty and farmers' sovereignty while discussing the seed. They raise the point that "whoever dominates the seed, dominates agriculture and food," meaning that those corporations developing the seed with certain qualities determine the qualities of the agricultural system. For example, the academics stated that since certified or hybrid seeds are not resistant to disease and pests, the same seed corporations also develop and sell pesticides for the diseases. Also, the seeds need to be bought every year. In these ways, corporations control not only agriculture but also the food and health industries. This is how the seed registration process is linked with seed sovereignty and food sovereignty in the discourses of non-state actors.

5. Conclusion

The aim of this study has been to unpack varying approaches and arguments towards heirloom seeds in the Turkish context and to understand how contradictory knowledge production has taken place due to the conflicting interests of the social actors. Their differing views on heirloom seeds are reflected through the perspectives of economy and food security on the one hand and from the perspectives of food safety, biodiversity, and food/seed sovereignty on the other.

State actors speak from the perspectives of economic development and food security, prioritizing feeding the nation and decreasing food prices with high-yield certified hybrid seeds. Certified seeds, developed and improved in laboratories using heirloom seeds as genetic material, are defined as superior in contrast to heirloom seeds, which are defined as inefficient and unimproved.

Non-state actors, on the other hand, speak from the perspectives of biodiversity, food safety, and food sovereignty, positioning heirloom seeds as part of agrobiodiversity. Since all local varieties are adaptive to their own local conditions, this makes them compatible with the challenges of their locales and decreases the need for pesticides, fertilizers, and water. These arguments position heirloom seeds as a sustainable solution to the ongoing global threats of climate change, drought, and land degradation. Therefore, non-state actors approach heirloom seeds holistically, viewing the entire agricultural production as a component of the ecosystem and prioritizing the use of heirloom seeds as a duty to safeguard the future of food, health, environment, and culture.

Another major conflict in the discourse on heirloom seeds concerns ownership over seeds, which brings in the discussion of seed sovereignty. When the seed is positioned as part of biodiversity, it becomes a common asset for all. Non-state discourse highlights the farmers' labor in the survival of the heirloom seeds until today and positions them as the owners of the seeds. However, it is argued that the bureaucratic and costly processes for seed registration and certification prevent farmers from being seed producers. Having to buy certified seeds from seed corporations not only commercializes the seed but also leaves farmers dependent on corporations. Therefore, from the perspective of non-state actors, the concept of farmers' sovereignty becomes part of the discourse on heirloom seeds.

Overall, this study has discussed the bifurcated perspectives on heirloom seed in the Turkish context. The study's inclusion of more farmers would have been beneficial, as they are the

primary users of the seed. However, the limited research period has hindered the ability to reach more farmers. Future studies, specifically concentrating on small farmers and investigating their perspectives and utilization of certified and heirloom seeds, could enhance our comprehension of how the broader discourses like food security, food sovereignty, and biodiversity manifest in the practical actions of farmers in the field. Another limitation of the study is the lack of input from seed companies, as their responses to our interview requests were not positive. We attempted to address this shortfall by incorporating TÜRKTOB, their representative association, but a future study should delve into the seed companies' viewpoints on heirloom seeds for a more thorough analysis.

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The authors declare that this article complies with ethical standards and rules. Ethics committee approval was received for this study from the Işık University, Scientific Research and Publication Ethics Committee (Approval decision full date: April 12, 2021, Decision number: 3175).

AUTHOR CONTRIBUTION
Müzeyyen Pandır | Concept/idea; Literature review; Design; Data collection/analysis; Interpretation of data/findings; Drafting; Critical review; Funding; Supervising; Final approval and accountability.
General contribution rate: 50%

Maral Erol | Concept/idea; Literature review; Design; Data collection/analysis; Interpretation of data/findings; Drafting; Critical review; Funding; Supervising; Final approval and accountability.
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CONFLICT OF INTEREST
The authors declare no conflict of interest.

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