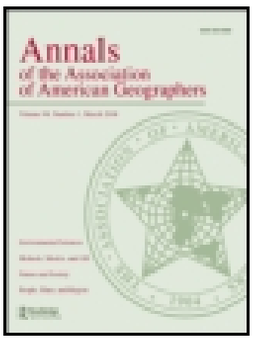

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Making Heritage: The Case of Black Beluga Agriculture on the Northern Great Plains

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This article considers the perils and potential of an increasingly popular alternative food commodity: heritage and heirloom foods. Drawing on ethnographic research with Black Beluga lentil farmers in Montana, I develop a process-based means of conceptualizing heritage agriculture, to avoid the pitfalls of simply reifying old crop varieties. This article makes three contributions to scholarship on alternative food commodities: (1) modeling a method of generative critique of alternative food movements that are in danger of being undermined by their articulation as commodity markets, (2) demonstrating how feminist ethnography of situated knowledge production can provide insight into processes of cross-species learning through which alternative food systems are created and sustained, and (3) suggesting that a reflexive approach to alternative food movement praxis is the best means of fostering environmental sustainability and social justice. *Key Words: alternative food, feminist geography, heirloom, heritage, situated learning.*

本文考量一种逐渐流行的替代粮食商品之风险与潜力：袭产与祖传粮食。我运用对蒙大拿种植有机黑扁豆的农民进行之民族志研究，建立一个以过程为基础的概念化袭产农业之方法，以避免仅仅具体化早期作物品种多样性的陷阱。本文对于替代粮食商品的学术文献作出三大贡献：（1）针对另类粮食运动的具生产力之批判方法进行模式化，而该运动正因连结商品市场而面临受到破坏之危机，（2）证实女性主义民族志的情境化知识生产，如何能够对跨物种学习过程提出洞见，而另类的粮食系统便是透过该过程创造并维繫之，以及（3）主张对另类粮食运动实践的反身性取径，是促进环境可持续性和社会正义的最佳方法。*关键词：替代粮食，女性主义地理学，祖传，袭产，情境学习。*

Este artículo explora los peligros y el potencial de un producto alimenticio alternativo cada vez más popular: los alimentos de la tradición y reliquias familiares. A partir de investigación etnográfica entre cultivadores de la lenteja Black Beluga de Montana, desarrollo un medio basado en proceso para conceptualizar la agricultura de heredad tradicional, para evitar caer en la trampa de simplemente reificar antiguas variedades de cultivos. Este artículo hace tres contribuciones a la erudición relacionada con productos alimenticios alternativos: (1) modelando un método de crítica generadora a los movimientos en favor de alimentos alternativos en peligro de ser socavados por su articulación como mercados de mercaderías, (2) demostrando la manera como la etnografía feminista para la producción de conocimiento situado puede producir mayor compenetración con procesos de aprendizaje trans-especie, a través del cual se crean y se conservan sistemas de alimentos alternativos, y (3) sugiriendo que un enfoque reflexivo a la práctica del movimiento de alimentos alternativos es el mejor medio para fomentar la sustentabilidad ambiental y la justicia social. *Palabras clave: alimento alternativo, geografía feminista, recuerdos de familia, herencia, aprendizaje situado.*

Scholars engaged in a critique of the industrial food system in hopes of changing it find themselves fighting a two-front battle. On one front, the dominant system of food provision continues to foster old and new social injustices, environmental harms, and public health problems, all of which demand critical examination (Weis 2007). At the same time, alternative food movements—which have arisen, in part, as a response to critiques of the industrial food system—require no less careful attention. Because alternative food movements are not outside the political economy that gave rise to the very phenomena they critique, these movements experience pressures to articulate their goals in terms legible to industrial capitalism (Taylor 2005; Guthman 2007). Unsurprisingly, such pressures often have the effect of compromising, undermining, and even coopting these movements, derailing attempts to establish a food system that puts people and planet before profit (Raynolds 2004; Johnston, Biro, and MacKendrick 2009). Scholars, then, have increasingly seen the need to engage critically with alternative food movements, particularly when the focus of these movements shifts from fostering alternatives to commodities to selling

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alternative commodities, such as local food or organic food (Clarke et al. 2007; Baird and Quastel 2011; Goodman, Dupuis, and Goodman 2012).

Critical engagement with alternative food movements is a nuanced task. It is important to recognize that alternative commodity markets often create "interstitial spaces" (Galt, Gray, and Hurley 2014) in the industrial food system: Premiums paid by alternative food consumers support producers who wish to invest in more agro-ecological methods of production and, in some cases, socially just systems of provision. In a market context, alternative food sectors have supported many valuable advances in food system sustainability that might otherwise have been financially unfeasible (Dupuis and Goodman 2005; Baird and Quastel 2011; Goodman, Dupuis, and Goodman 2012).

By commoditizing the value of alternative food systems with labels such as local or organic, however, alternative food movements also have the potential to reduce complex critiques of the industrial food system to imperfect and cooptable proxies. Thus, local, organic, and fair-trade markets have become bifurcated between mission-driven farmers and consumers, who understand proxy terms like "local" and "organic" as references to a complex set of practices and values, and market-driven actors, who exploit the shallowest meaning of these proxy terms to achieve premiums in the marketplace (Dupuis and Goodman 2005; Johnston, Biro, and MacKendrick 2009; Raynolds 2009).

The cases of local and organic are illustrative. For mission-driven actors, "local food" is a proxy term for a food system that is both bioculturally adapted and relational, shot through with thick social ties that engender a sense of mutual responsibility along the supply chain. Yet multinational corporations selling processed foods in chain stores have found that they, too, can describe many of their products as local, should one of their facilities or suppliers happen to be near the point of sale (Dupuis and Goodman 2005; Blake, Mellor, and Crane 2010). Similarly, mission-driven actors use the term organic to refer to food grown in diversified, agro-ecological systems, using practices like cover cropping and crop rotation. Yet major food retailers who have moved into organics can undersell mission-driven farmers by purchasing foods that adhere only to the minimum practices legally required to meet the U.S. Department of Agriculture's organic standard: abstaining from the use of a regulated list of disallowed agricultural chemicals but doing little to actively build soil fertility or design healthy agroecosystems (Johnston, Biro, and MacKendrick 2009). Thus, local and organic commodities have come to exhibit the classic feature of all commodities: They frequently become abstracted from the relationships and processes through which they are produced and consumed.

Faced with alternative food movements that both critique and reproduce elements of the industrial food system, scholars are often torn between celebratory and critical responses, as evidenced in spirited debates about topics such as school lunch (Allen and Guthman 2006; Kloppenburg and Hassanein 2006). One can get the sense from the alternative food literature that critical geographers must choose a side: supporting alternative food movements or critiquing them (Carlisle 2014). And yet, Dupuis and Goodman (2005) have managed to articulate a middle ground, encouraging a reflexive approach to terms like local, to revitalize the potential of these movements by focusing them on dynamic and process-based understandings of their aims. As Dupuis and Goodman have demonstrated, researchers can offer generative critique[1] to alternative food movements, by using the tools of critical theory and providing richly empirical accounts of the processes and relationships involved in the everyday making and remaking of food systems.

Following Dupuis and Goodman, this article presents a generative critique of another alternative food movement that has recently begun to take the form of an alternative commodity: heirloom and heritage foods. Following a short discussion of the pitfalls of the heirloom or heritage commodity, as commonly understood, I use the bulk of this article to develop a process-based understanding of heirloom or heritage agriculture, drawing on fieldwork with lentil farmers on the northern Great Plains of the United States. This article makes three contributions to scholarship on alternative food commodities: (1) modeling a method of generative critique of alternative food movements that are in danger of being undermined by their articulation as commodity markets, (2) demonstrating how feminist theories of situated knowledge production offer insights into the processes of cross-species learning through which alternative food systems are created and sustained, and (3) suggesting that a reflexive approach to alternative food movement praxis is the best means of fostering environmental sustainability and social justice.

The Rise of Heirloom and Heritage Foods

"Try Organic Food . . . or as your grandparents called it, 'Food.'" As this refrigerator magnet slogan humorously explains for the case of organics, heritage and heirloom foods are not, in themselves, new, but the concept of them as a distinct type of food became possible only with the industrialization of agriculture. In the years following World War II, U.S. agriculture transitioned to a more industrial model, focused on using chemical inputs to maximize yields of a narrow range of hybrid crops. The diversity of crops previously grown on family farms shrunk, as large-scale systems of production, distribution, and consumption demanded a more homogenous supply of raw agricultural materials (Jordan 2015).

In response, a small-scale movement of farmers, gardeners, and scientists concerned about the loss of agricultural and culinary diversity began actively preserving varieties no longer cultivated for commercial use. Initially there was no formal market for these "backyard" varieties (Jordan 2007). Around the turn of the millennium, however, heirloom and heritage varieties followed other alternative food movements down the path of commoditization. Jordan (2007) identified the rise of the organic sector as one factor in the commoditization of heirloom and heritage foods, along with the growth of farmers' markets, the slow food movement, and farm-to-table cuisine. In open-air markets, grocery stores, and restaurants, the monikers "heritage" and "heirloom" became familiar signifiers of the diverse food species that industry left behind, their value monetized into a premium.

Heritage and Heirloom Defined

Generally speaking, heritage and heirloom foods are defined as genetic varieties of plants or breeds of animals that predate the rise of industrial agriculture in the mid-1940s. In the case of plants, this means that the variety must be able to reproduce itself from seed saved the previous year: Hybrid varieties developed for commercial use from the 1940s forward do not qualify. Some definitions are stricter and include only varieties or species developed and preserved outside the commercial seed and breed trade (Watson 1996; DeMuth 1998; Jordan 2007).

Unlike the term organic, which has a precise meaning regulated by the U.S. Department of Agriculture, neither heritage nor heirloom has a legal definition. The two terms are used more or less interchangeably by both producers and consumers. Heirloom is the more common term and is more closely associated with vegetables and the U.S. context. Heritage is more frequently used to describe livestock breeds or in the context of the Global South and indigenous agriculture (Watson 1996; Graddy 2013; Livestock Conservancy 2014; Jordan 2015).

Technical definitions typically frame the value of heirloom and heritage foods in terms of agricultural and culinary diversity, highlighting the importance of agrobiodiversity in securing global food security and rural livelihoods in the face of climate change and volatile commodity markets (Watson 1996; Graddy 2013). Yet most definitions circulated within the heirloom and heritage food movement evoke a far richer landscape of meaning, tied to notions of authenticity, community identity, and ancient, traditional wisdom. Consider the following definitions from the Seed Savers Exchange and Livestock Conservancy Web sites:

> When people grow and save seeds, they join an ancient tradition as stewards, nurturing our diverse, fragile, genetic and cultural heritage. Our organization is saving the world's diverse, but endangered, garden heritage for future generations by building a network of people committed to collecting, conserving and sharing heirloom seeds and plants, while educating people about the value of genetic and cultural diversity. Few gardeners comprehend the true scope of their garden heritage or how much is in immediate danger of being lost forever. (Seed Savers Exchange 2006)

> Heritage breeds are traditional livestock breeds that were raised by our forefathers. These are the breeds of a bygone era, before industrial agriculture became a mainstream practice. These breeds were carefully selected and bred over time to develop traits that made them well-adapted to the local environment and they thrived under farming practices and cultural conditions that are very different from those found in modern agriculture. (Livestock Conservancy 2014)

Jordan (2015), a sociologist who has been studying the heirloom and heritage food movement for the better part of the past decade, observed that people attach meaning to a genetic heirloom, believing that such foods connect us to something more authentic than supermarket fare. Seeds become carriers of not just biodiversity, Jordan found, but also local, regional, national, and even transnational identity. Seeds directly descended from old seeds come to possess "a kind of genetic authenticity that translates into the phenotype of the particular plant" (Jordan 2010, 14).

The Problem with Heritage and Heirloom Food Commodities

When presented as an alternative food commodity, heritage and heirloom foods encounter many of the same problems evident in the commoditization of local and organic foods. The terms heritage and heirloom can and have been coopted by actors interested chiefly in market premiums, as evidenced by Walmart's "Heritage Agriculture" initiative, a marketing ploy to repackage a distribution logistics program previously termed "Agile Agriculture" (Hinrichs 2013). Walmart's use of the I-95 corridor as one of their Heritage Agriculture regions also illustrates another pitfall of alternative food commodities, articulated by Harris (2010) in the context of local food: Conventional food systems, like alternative ones, are "located in places and contribute to the meaning and experiences of those places through the social relations that sustain them" (366). There is nothing inherently normative about local or heritage phenomena.

In addition, heritage and heirloom foods are particularly subject to two culturally inflected hazards of alternative food commodities. As Dupuis and Goodman (2005) warned in the context of local food, alternative food standards can end up serving the machinations of local elites and the xenophobic tendencies of sectionalism. As Blake, Mellor, and Crane (2010) pointed out, again for the case of local food, alternative food commodities are often marketed via classed and raced strategies that undermine their potential to generate political mobilization.

These last two concerns point to the way in which the commoditization of heritage and heirloom varieties presents a set of distinct problems not necessarily raised by the commoditization of local and organic food. Tied as they are to notions of traditional, closed societies as more sustainable—and repeatedly associated with nostalgia for a premodern past—mainstream understandings of heritage and heirloom commodities harbor the worrying potential to serve as a Trojan horse for outdated notions of traditions as static assemblages of native people, plants, and animals (Bryant and Goodman 2004). Whereas mission-driven articulations of heritage and heirloom agriculture appear to counter such tendencies through the embodied, dynamic practices of seed and knowledge sharing, commoditized articulations of heritage and heirloom food more acutely reify the genetic phenotype itself. These commoditized heritage foods can reinforce dominant agrobiodiversity conservation methods that extract genetic materials from their cultural, social, and cosmological context, thus exploiting the people who develop, grow, eat, and "think with" these foods (Graddy 2013).

Hence, heritage and heirloom foods are ripe for a more thorough investigation of the dynamic processes that the proxy adjectives attempt to capture and commoditize. For this purpose, the term heritage is more useful than the term heirloom, as it contains richer associations with process and relationship. To realize the richness of this term, it is helpful to shift our perspective away from a narrow focus on abstracted genetic phenotypes toward the social and cultural components of heritage, particularly knowledge.

In what follows, I draw on the insights of feminist ethnographers of knowledge production, as well as my own fieldwork with Black Beluga lentil farmers in Montana, to develop a process-based means of conceptualizing heritage agriculture. I have deliberatively chosen a case study that both meets commonly understood definitions of heritage foods and challenges many of their assumptions. Black Beluga lentil is a nonhybrid cultivar, developed before 1940, outside the commercial seed trade. The history of this cultivar and its contemporary cultivators is indeed shot through with thick social relations and connections to larger social and cultural phenomena. Yet, the living heritage of Black Beluga lentil cultivation is not a nostalgic reference to the past but a dynamic association among people and plants engaged in a struggle against their marginalization by the industrial food system. Rooted in the semiarid soils of north central Montana, amidst the extractive grain monocultures of the northern Great Plains, these lentils and their farmers work to foster a shared agricultural heritage of regeneration and mutual aid.

The Promise of Heritage Agriculture Movements

The promise of heritage agriculture comes to the fore when grounded in a conceptual foundation informed by the feminist ethnography of knowledge production. In this article, I bring together three concepts developed by feminist ethnographers to describe learning and knowledge production as situated within cross-species communities of practice: Haraway's (1988, 2008) notion of "becoming with" other members of our ecosystem, Lave's (1991) concept of "situated learning"

among communities of practice, and Rocheleau's (2011) "rooted networks" model of human and nonhuman association. Taken together, these three concepts provide a process-based conceptual foundation for heritage agriculture, without recourse to biological determinism or temporal boundaries.

Haraway's (1998, 2008) concept of "becoming with" human and nonhuman others emphasizes the coconstitution of organisms, from the bacteria living within human gastrointestinal tracts to "domesticated" companion animals. Relatedly, Haraway (1988) understands all knowledge as socially produced or "situated," a concept extended, by Lave, into a theory of learning.

Lave (1991) described "situated learning" by explaining that "developing an identity as a member of a community and becoming knowledgeably skillful are part of the same process, with the former motivating, shaping, and giving meaning to the latter, which it subsumes" (65). Although such learning is an organic feature of social life, Lave explained, it has become problematic in the industrial world. Contemporary pedagogic trouble stems, in part, from commoditization, which interrupts the interaction necessary to develop holistic epistemic identities and communities of practice. To resituate one's learning, then, hinges on reestablishing ties with one's human and nonhuman relations. Missing from Lave's original formulation of situated learning, however, is a discussion of nonhuman actors, as Lave's term describes learning among humans.

Thus, to extend the concept of situated learning to nonhuman members of food systems, I draw on the concept of rooted networks, developed by Rocheleau (2011), to describe agroforestry systems in the Dominican Republic. As Rocheleau explained, rooted networks are "complex assemblages of plants, animals, people, physical landscape features, and technologies—created through the habit-forming practices of connection in everyday life" (209). Recruiting the term "network" from Latour's actor network theory and infusing it with theories of power developed by political ecologists, Rocheleau emphasized that both human and nonhuman actors participate in the constitution of knowledge networks. As such, Rochealeau's model is useful for mapping cross-species spaces produced through processes of situated learning, an apt frame within which to understand heritage agriculture. Following Rocheleau, I take seriously the notion that nonhuman actors like Black Beluga lentils are agential participants in such networks.

Methods

This article is based on an ethnographic case study. To understand the formation of agricultural heritage among Black Beluga lentil farmers in Montana, I undertook research typical of a supply chain study: I conducted interviews, surveys, and field visits with each producer for the company that markets these lentils, as well as with the staff at the processing plant and several downstream buyers. I supplemented these methods with a more "ecological" approach, aiming to understand this agricultural community as the product of its connections and relationships, including those not formalized by market transactions or contractual ties. I used snowball sampling to identify the diverse network of nongovernmental organizations, university-based researchers, socially responsible investors, current and former agency personnel, and nonaffiliated producers key to the work of the company. In all, I completed in-depth interviews with twenty-five growers, fifteen other members of the supply chain, and twelve technical assistance personnel. I made field visits to nineteen farms, accompanied organic inspectors and the founding farmer of the company on similar field visits, and attended farm tours, workshops, and work parties as a participant-observer. Finally, I consulted oral histories and archives maintained by the Montana Historical Society, the Alternative Energy Resources Organization, and the company, and also conducted archival research into the deeper history of the lentil variety now marketed as Black Beluga. I conducted most of this research during the 2011 and 2012 growing seasons, but follow-up continued through 2015.

A Case Study of Making Heritage: The Co-Constitution of Black Beluga Lentils and Their Farmers

As Haraway (2008) so poetically put it, "we have 'never' been individuals" (32). Rather, all beings are multispecies: Our biographies are really ecologies. Given their histories, Black Beluga lentils and their cultivators are particularly attuned to this reality of interrelation. Both have been subject to the logic of industrialized grain agriculture, which has continually separated them from the connections they need to flourish. The global grain industry has routinely cast these lentils and their farmers to the margins of the agrarian economy and only sporadically found them

valuable. Similarly situated with respect to their common problem of commodity markets, Black Beluga lentils and their growers carry a shared political heritage. In this section, I narrate the deep, interconnected history of Black Beluga lentils and their farmers, before turning to farmer testimony about developing knowledge together with their plants.

In 1988, Conrad, Montana, farmer David Oien planted a funny black seed. Small and nonuniform, it had little in common with the neighborhood cash crop, wheat. In fact, it was a closer relation to the weeds that Oien's neighbors worked so hard to keep out of their fields. To most herbicides, the squatty plant was just another broadleaf, and in nearly any other farmer's field, it would have been swiftly eliminated along with Canada thistle and bindweed.

But Oien did not use herbicides. He was one of the area's first organic growers, and he was interested in an approach to agriculture that relied more on plants and less on chemicals. The key to making biological farming work on the northern Great Plains was a plant-based source of fertility that could replace synthetic ammonium nitrate, which was the reason Oien was experimenting with this black seed. His acquaintance Jim Sims, a rogue researcher from Montana State University, had been trialing the hard-seeded cultivar and was impressed with its ability to "fix" atmospheric nitrogen. Like all legumes, this plant could pull nitrogen from the air, convert it to an available form, and deliver the key nutrient to the root zone of the soil for use by other crops. But unlike its Midwestern relative, soybean, this plant did not mind the dry climate or lack of irrigation, and it would not give up if the rain didn't fall. Its "indeterminate growth habit" was ideal for life on the climatically volatile Montana prairie. The low-to-the-ground plant could grow modestly when moisture was available and pause during dry spells, rather than bolt at the first sign of water stress.

This unfamiliar legume—a lentil—was a strange sight among Conrad's ubiquitous wheat and barley fields. But as Oien came to learn, it should not have been. Among the oldest domesticated legumes, lentils like this one had been grown together with wheat and barley since the beginning of agriculture. As Solbrig and Solbrig (1996) have noted:

> Archaeologists have found seeds of wild relatives of the lentil in pre-agricultural settlements at Mureybit and Tell Abu Hureyra in Syria together with wild wheat and barley. From many ancient farming villages in the Middle East they have recovered carbonized seeds dated 9000 to 7000 BP. Lentils were also found among the remains of Neolithic farming communities in ancient Egypt and of the first farming villages of Crete and the Balkans. (42)

Wheat, lentils, and farmers share a deep, interconnected history. Thus, the story of their reunion was not so much about why, on this day in 1988, this lentil appeared in Oien's grain field. What really needed explaining was why it had been absent.

From Czechoslovakia to Conrad

After several centuries living among farmers, grains, and a diversity of other species, this lentil variety was placed on a new trajectory when a plant collector from the Russian Federation picked it up in Czechoslovakia, where it was traditionally prepared every New Year to ensure good fortune. The Russian plant collector, hoping to secure some of this good fortune for the Soviet state, took it back to the Vavilov Research Institute of Plant Industry. Then, on 22 June 1967, a sample of the lentil's germplasm was donated to the U.S. National Genetic Resources Program, where it was identified as Plant Introduction (PI) 320952 and shipped off to the Western Regional Plant Introduction Center in Pullman, Washington (U.S. Department of Agriculture 2013). As the Cold War raged, and agriculture in both North America and the Russian bloc further industrialized, PI 320952 sat in a repository in Pullman. For five years, no one touched the forgotten companion of the amber waves of grain being hybridized, genetically modified, and planted "fencerow to fencerow" by dueling empires, which had once seen in this lentil the possibility of shared promise.

In 1972, a young plant breeder from Idaho was hired by the University of Saskatchewan's Crop Development Centre to research alternatives to wheat. The Cold War grain race had resulted in overproduction, which meant low quotas and low prices for Canadian farmers, who were stuck with field after field of identical, unmarketable crops. The state monopoly—the Canadian Wheat Board—refused to buy the surplus grain, and growers were understandably reluctant to plant more. Instead, they lobbied their university to develop a new option. PI 320952 was one of approximately a thousand hopefuls selected from among the collection at the U.S. Department of Agriculture's Western Regional Plant Introduction Center. In an unreplicated short row, on a university-owned plot in Saskatoon, Saskatchewan, the seed reacquainted itself with life on a farm.

PI 320952 did not command a more thorough trial until 1984. But when University of Saskatchewan professor Alfred E. Slinkard did grow it out, the unusual plant got his attention. As he recalled in our interview,

> I went up there to harvest the plots and everything was ripe except this one. It was green as grass. I said, hey, that one may have potential for green manure.

At that time, Slinkard, like David Oien, had his eye on plants that could provide cheap soil fertility. Unlike Oien, Slinkard did not have anything against chemicals, but petroleum-based farm products such as fertilizers had gotten expensive, and their prices were just as subject to global geopolitics as wheat. So "green manures"—legumes that could be planted as fertilizer crops and turned into the soil rather than harvested—were worth investigating. Slinkard (or Dr. Lentil, as he would come to be known) increased the seed of PI 320952, evaluated it, and promoted it as a green manure crop. He named it Indianhead lentil, after the research station where he worked.

Oien, who was conducting his own variety trials on his Montana farm, was one of the first to pick up Slinkard's buzz about Indianhead lentils. Montana farmers had the same problems as Dr. Lentil's Saskatchewan constituents—low wheat prices and high fertilizer prices—compounded by a particularly severe late-1980s drought. So when renegade researcher Jim Sims offered Oien some seed, he decided to give Indianhead lentils a shot. The Conrad farmer planted the tiny black seeds in 1988, making him one of the first Montanans to grow a lentil.

As it happened, Oien's enthusiasm was a lucky break for the nitrogen-pumping plant, which had already been cast aside by its Canadian promoter. "Due to the severe drought of 1988 and resulting low yields and the rapidly increasing production of lentils as a cash crop, Indianhead lentil was never grown widely," Slinkard would later write in his triumphant history of Canadian field crop breeding, *Harvest of Gold* (Slinkard and Vandenberg 1995, 192). Finding Indianhead inadequate as a cash crop, Dr. Lentil shifted his focus to a large green variety, Laird, which would make him famous and generate millions in Canadian agricultural exports. But whereas Slinkard looked at Indianhead's 1988 performance and saw low profits, Oien saw low water demand. He and three friends added it to the line of green manures they were marketing to fellow organic farmers through their fledgling venture, Timeless Seeds.

Indianhead lentil performed well in Oien's variety trials, at least in agronomic terms, but Timeless Seeds could not make money on green manures either. Their business model had banked on significant expansion of organic acreage across the northern Great Plains, and in the end, the contradictions of industrial faming were not sufficient to loosen its hold on either the culture or the agriculture of the region. If Timeless Seeds was going to survive, it needed to develop a commodity to sell directly to consumers.

Undaunted, Oien shifted his focus to a newly popular edible lentil, French Green, which landed Timeless Seeds a distribution deal with grocery chain Trader Joe's in 1994. Instead of trying to sell lentil seeds to their neighbors as fertilizer, they could now offer to buy them—as food—and market them at a premium. Timeless Seeds still supplied the occasional bag of Indianhead lentil to committed organic farmers, but the black seed was mostly a test plot curiosity. Once again, it appeared to be headed for obscurity.

Yet, almost as quickly as it had revolutionized the Timeless Seeds business model, the Trader Joe's deal went bust. Discouraged by sluggish summer sales of French Green lentils (which customers apparently wanted only for wintertime soups), the grocery chain abruptly cut the product line right before harvest season, leaving Oien and his growers literally holding the bag. Timeless Seeds turned to a much smaller buyer focused on specialty foods, hoping to unload some of their lentil surplus. Lola Weyman was willing to purchase a few of Oien's French Greens, but what she really wanted was something novel, something that would appeal to gourmet consumers looking for foods of distinction.

Oien cruised through his remaining plot of Indianhead lentil, fingering the unusual seeds as he tried to imagine them at a white tablecloth restaurant. Dr. Slinkard had never registered the variety as a food crop or even as animal feed. But Oien and his livestock, much like their Czech predecessors, had been sampling it all along. "It's not released as a food," he told Weyman, "but it's killed neither me nor the cows nor the pigs nor the sheep." That was enough for the specialty buyer, who knew nothing about nitrogen fixation but loved the eye-catching hue of the little-known lentil. Oien balked at the ugly colonial connotation of the variety's registered name, Indianhead, but Weyman had already cooked up another identifier for the inky seeds, which reminded her of a high-end caviar: Black Beluga.

With help from Weyman and a growing consumer base for organic specialty foods, Black Beluga lentil became a signature crop for Timeless Seeds. Reinvented as a high-value niche product, the specialty lentil could economically sponsor a diversified farming system based on legume-generated fertility, allowing Oien and his collaborators to have their nitrogen and eat it, too.

By 2005, appetites for specialty foods had given way to trendy heritage and heirloom varieties, and the well-traveled legume was promoted by Whole Foods as part of its Authentic Food Artisans program (Kalins 2005). This value proposition lasted no longer than any of the earlier schemes to which PI 320952/Indianhead/Black Beluga had been party. But when the deal fell through this time and Whole Foods dropped their program, it did not matter. The plant and its farmers had already developed a strong enough relationship to resist the industrial logic that had previously driven a wedge between them. Next, drawing on ethnographic data as well as the preceding history, I discuss the development of these plant–people relationships as forms of "becoming with," "situated learning," and "rooted networks," toward a revised understanding of heritage agriculture.

"Becoming With" Black Beluga

Black Beluga lentils and their growers carry shared memories of their interrelation with one another. The process of domestication—or what Haraway would encourage us to understand more dynamically as "becoming with"—has left farmers uniquely attuned to plant behavior, while familiarizing plants with human cultivation. Where legumes have grown before, symbiotic rhizobia bacteria remain in the soil, ready to once again set up nitrogen factories in plant roots. Meanwhile, farmers recall cultural techniques used with former legume companions.

The ways in which Black Beluga lentils and their farmers have become with one another, moreover, are entwined with deep political and cultural histories, as becomes apparent when considering the distinct trajectories of this lentil in Canada and Montana. When Slinkard grew out PI 920352 in 1984 and promoted it as a green manure crop, he was aware that the structural forces of commodity agriculture had erected a barrier between farmers and their legumes. "I think high seed costs have kept many farmers from using these legumes the way they should," he told the John Deere magazine, *The Furrow* (Kessler 1987, 32). Slinkard hoped to solve this problem with Indianhead lentil, which his seed-dealing partners could sell at less than half the cost of other green manures on the market. But although a study by one of Slinkard's colleagues (Biederbeck 1988) found Indianhead to be the most economical green manure option in a four-species trial, its author noted that his conclusions were subject to the shifting dynamics of a larger political economy, given the increasing availability and lower price of other annual legumes and the abundance of cheap inorganic fertilizer. Meanwhile, Slinkard was already concluding that lentils could improve a farmer's fortune even more directly if they did not just fertilize cash crops but were marketed as a tradable commodity themselves. Thus, lentil farming in Canada never fundamentally challenged industrial agriculture. Instead, lentils found a place in the processes of heritage formation occurring within mainstream Canadian agribusiness: They "became with" conventional farming.

Although Canadian farmers (and their lentils) had experienced cyclical crises of global grain production just as severely as their U.S. neighbors, the experience north of the border had been different in important ways. All North American wheat growers had felt the pain of periodic global grain surpluses, which were particularly glutted in the 1960s. Canada, however, had a regulated grain market, managed by the Canadian Wheat Board, which enforced quotas to keep prices up. So Canadian farmers experienced a political crisis—a state monopoly unwilling to buy their crop. Thus, Canadians tended to focus their frustration on their centrally planned agricultural institutions. Pulse crops—edible legumes—offered an alternative, as they could be sold outside this state-regulated system.[2] In Canada, then, lentils became the harbinger of free market agribusiness, a welcome escape from the problem most immediately evident to individual growers: the Canadian Wheat Board and its quotas.

In Montana, however, farmers experienced the woes of wheat agriculture as a market crisis of low prices, which made them more suspicious of commodity capitalism. For David Oien and his allies, the promise of lentil agriculture was that of escape from the ravages of the global grain market and its ups and downs, in favor of something more stable and agronomically sound. Importantly, lentils were not embraced as a mainstream cash crop in Montana (although that might be slowly changing), so they remained a

"movement" crop, associated with an alternative economy, management system, and politics—an alternative heritage.

Although political and cultural histories are important to the way in which Oien and his fellow farmers have "become with" Black Beluga, the material qualities of the lentil itself have proven equally consequential. As a broadleaf plant, this lentil presented a fundamental challenge for conventional grain farming systems of the late 1980s, which relied on broadleaf generalist herbicides to keep wheat fields "clean." Moreover, its small, hard, black seeds are nonuniform, which frustrates industrial production (it is too small for modern farm equipment), industrial marketing and processing (it is inconsistent), and even industrial kitchens (the lentils do not cook evenly). The plants are short and noncompetitive, which makes them resilient members of a diversified farming system but pesky weed enablers in the context of industrial monoculture. The lentil's indeterminate growth habit helps it survive droughts without sapping soil moisture but makes it impossible to standardize harvest time or harvest height. Its form of growth privileges the production of nitrogen (protein), which both requires connections with other organisms (symbiotic rhizobia bacteria that colonize its roots) and creates them (as lentils provide nitrogen fertility to their neighbors and successors).

What Black Beluga lentil agriculture reveals to wheat country, then, is the inescapable reality of interconnection. Whereas chemical fertilizers and herbicides have allowed farmers to pretend, at least for a period of a few decades, that wheat can be grown alone, lentils are grown in rotation with other plants. A portion of each lentil harvest is realized in the form of a subsequent plant, for which lentils provide constitutive nitrogen and organic matter. These legumes are, indeed, never individuals. Hence, lentils contest narratives that insist on a view of the world as comprised of discrete physical and economic units, each with their own independent value.

Accordingly, by far the most consequential aspect of the Black Beluga's materiality is its triple potential at harvest time. All edible seeds raise the tension of dual potential: They can be saved and replanted or consumed as food. As edible legume seeds, though, lentils add a third wrinkle: They can also be plowed under to fertilize the soil. This third wrinkle adds another dimension to the choice between "use value" and "exchange value" described by Marx ([1867] 1976) as the central dilemma of the commodity form, the quintessential tension of capitalism. Each season, farmers confront a decision they never had to make for wheat. Should they sell their lentils? Save them for seed? Or plow them down to return all that nitrogen back to the farm? Can they create a balance among these three options that will allow them to survive in the context of a market economy?

Making Heritage: A Dynamic Process

Situated Learning for Going Against the Grain

To address such questions, Black Beluga farmers needed to educate themselves, and they did so in their capacity as what Lave (1991) called "situated learners." The Black Beluga farmers I interviewed were aware that the structural forces of industrial agriculture had created obstacles to their education. Industrial farming not only eliminated biological bonds of knowledge, they told me, but substituted chemical and mechanical affinities in their place. "I think it's kind of scary not knowing how to work with life forms, just knowing how to work with chemicals," said one Timeless Seeds grower. Another agreed: "Unfortunately, most of the farmers I know are a heck of a lot better mechanics than they are agronomists, and something's wrong with that."

Nonetheless, both farmers had successfully gained the know-how to convert from monocultural grain production to diversified organic agriculture. Indeed, as the history of Black Beluga lentils and their cultivators makes clear, the global political economy of cash grain farming has proven essential to the formation of the political heritage necessary to alternative agriculture. It was the farm crisis of the 1980s—a combination of drought, rising fertilizer prices, and unstable wheat markets—that created the conditions of possibility for lentils to enter the farming know-how of the northern Great Plains.

Although farmers characterized some of their learning as a process of economic de-alienation, both epistemic obstacles and epistemic transformation were rooted in broader aspects of their identities. As in other sustainable agriculture networks (Hassanein 1999; Bell 2004), successful situated learning informed not just changes in production and marketing practices but also a resituating of individuals within their social worlds.

Timeless Seeds began this learning process modestly in the mid-1980s, when its four founders

reintroduced biodiversity on their own land. As the company's founders added new plants and practices, their fields became farm-scale experiments. What happened if they planted their seeds further apart? Closer together? Deeper? Shallower? The Timeless Seeds farmers grew test plots of several legume varieties and took notes on the results but, more important, they invited their neighbors to see for themselves. Beginning in 1989, Timeless Seeds hosted a field tour every year, and the combination of direct interaction with plants and direct interaction with one another gave tour-goers confidence that they could substitute legumes for chemicals on their own farms. Heartened by positive responses to these field tours, a Timeless Seeds cofounder who also chaired the board of the nonprofit Alternative Energy Resources Organization (AERO) wrote a grant to scale up farmer-to-farmer learning. In 1990, AERO launched the Farm Improvement Club program, under the leadership of newly hired staffer Nancy Matheson. Matheson had studied the 1940s-era corn and beef improvement clubs sponsored by the Extension Service in the Midwest, after hearing about them from an older farmer who attended an outreach session. "It was, in part, those clubs that so effectively spread the technology of post-war, industrial agriculture throughout rural America," Matheson (1993) reasoned. "Perhaps the same mechanism could help spread sustainable agricultural technology across Montana" (2).

Matheson, however, knew that such clubs were not just about the particulars of weed management and drought-tolerant varieties. She had grown up near David Oien in Conrad, Montana, and her family had attended Farmer's Union meetings at her country school. Like those Farmer's Union meetings, Matheson envisioned, Farm Improvement Clubs could provide something their members required more than anything: community. Central Montana's sparsely populated plains were lonely enough as it was, and skipping the ritual trip to the fertilizer dealer meant losing a friend. Facing the double isolation of rural life and their unorthodox approach, sustainable agriculturalists could find the moral support they really needed at club meetings without ever having to be explicit about it.

The Farm Improvement Club model was simple: AERO offered small grants of up to $800 each to groups of four or more producers. Each group proposed a project to investigate a common interest or problem related to resource conservation and sustainable production. The Farm Improvement Clubs had to be farmer directed, but they also had to include a technical advisor from either a university or a government agency. This stipulation provided farmers with access to expertise and resources but also served to educate the technical "advisors" about agro-ecological practices. At the end of the year, all of the clubs gathered to share what they had learned—and participating farmers frequently offered midseason demonstrations as well.

Beginning in 1990, with six clubs and thirty-three farms and ranches, the program grew to function as a veritable parallel Extension Service—with the added bonus of slowly bringing along members of the publicly funded agricultural research establishment. Over the next decade, AERO grants would support more than 120 clubs and 500 participating producers. By 1994, the U.S. Department of Agriculture was funding AERO to teach its extension agents about sustainable agriculture: The agency awarded the organization a $91,000 grant to develop and implement training programs across five states. The success of the Farm Improvement Club program, I contend, stemmed from its explicit approach to situated learning as a process not just of knowledge acquisition but also of relationship building and identity formation—that is, the making and remaking of heritage. To illustrate this process in further detail, I turn to farmer descriptions of learning.

Embodied Education

> To have diversity means you have to hold complexity in your head and your body. (Timeless Seeds grower)

For Black Beluga farmers, learning a new form of agriculture has been a corporeal process, not unlike training for a sport. Growers have physically developed new habits and abilities of perception, which shift both what is visible to them and what actionable conclusions they draw from what they see. In a place so fully committed to wheat monoculture, this is no small feat. The farmer just quoted spoke of her experience cleaning out and adjusting farm equipment to manage sixteen different crops. To farm this way, she explained, she had to literally learn to see such everyday diversity as a good thing, rather than a frustrating obstacle to efficiency. By learning to better notice and appreciate the ecological complexity of her farm, this farmer came to perceive the diversity of her system as characteristic of a healthy operation, rather than as a nuisance to be eliminated. Whereas other area farmers hoped to glimpse tall stands of wheat, nicely "headed out," she best loved the crop that her neighbors

considered a threatening contaminant: rye. Instead of "messiness" or "competition," she saw species working together, and she enjoyed digging up lentil plants to uncover the nitrogen-fixing bacterial nodules at the tips of their roots.

Learning new ways of seeing their farms shifted Black Beluga growers' relationships, not just to other knowers but also to the "objects" of knowledge. As one of the partners of Timeless Seeds told me,

> Organic farming is fascinating. You sit out there on the tractor and you're going around and around and you just have all this time to think about how to make a farm work. What's going to make this weed go away or is this really a weed or do people just call it a weed?

It is difficult to overstate the importance of this epistemic shift: questioning the identification of another organism as a weed and considering whether that plant might have a legitimate role in the agroecosystem. In the rural U.S. context, where nationalistic, militaristic, and masculinist imagery and language have long encouraged farmers to aggressively control unwanted plants, this grower's epiphany deeply challenges received wisdom about the proper boundaries and constitution of agrarian community. If the substance of this grower's question thus creates a powerful new epistemic space, his mode of arriving at it is perhaps even more revolutionary. Recounting his thought process on the tractor, the farmer described opening himself to a relationship with his plants, such that it was no longer solely his prerogative to "make a farm work." Rather, he tried to listen to what the farm had to teach him about how they might work together. As farming came to seem more like a conversation, through which the farm talked back, weeds appeared to Black Beluga growers as teachers[3] or biomass, alleviating the need for herbicide. Problems formerly confronted with ruggedly individual action might now be solved through interaction.

As Black Beluga farmers deepened such connections, discrete activities—such as weed management—came together into an interrelated way of life. A longtime Timeless Seeds grower explained this slippery slope toward agro-ecological farming, in which the search for a solution to a specific problem led farmers to make much more fundamental changes than they anticipated.

> Everyone is not going to go out on the ledge all the way to organic, but getting them on the continuum of organic/sustainable/stewardship/conservation, then they would start to move down through all of those. Once they figured out, "I'm not having as much evaporation of water in the summer, I can keep my soil covered with a nitrogen fixing crop, I have all this biomass" . . . their brain couldn't quit after they had taken one step off the entrenched conventional wisdom. They began to have fun with farming again.

In this personal, embodied manner, Black Beluga farmers formed a collective epistemic heritage. Their paradigm shifted from independence toward interdependence.

Can the Subterranean Speak? Learning with Lentils

Yet, growers did not learn only from one another or from the static example of nonhuman others. Rather, their community of situated learners included the other members of their agro-ecosystem.

When I visited one of these farmers in the spring of 2012, he explained how his nonhuman neighbors help him figure out what and when to seed. "I've got this tree in the backyard that's just greening up now," the farmer told me, "and that means it's time to plant." As the farmer explained to me, both he and his tree "learned," by recording and responding to abiotic environmental factors, when it was time to put crops in the ground. Given the added uncertainty of climate change in a place already prone to volatile weather, this process of learning had to be repeated anew each year, and although the farmer could have pursued it independently—feeling the moisture in the soil and watching the volume of precipitation collected in his rain gauge—he felt his tree had certain strengths in its learning capacities and that he would do well to consult it.

This farmer, moreover, did not just consult his plants about when to grow. He also learned with them in determining what to grow. In a field he had intended to double crop with chickpeas and lentils, he had noticed a stand of volunteer buckwheat. The typical characterization of an uninvited plant—a weed problem—occurred to the farmer. But he considered why the buckwheat might want to grow there and whether it might make sense to grow a triple intercrop rather than just the double one he had planned. The extra shade would be good for the lentils, he concluded, and would give the chickpeas some cover, both from sun and from deer. As a nitrogen-feeding grain, buckwheat would use some of the nutrients being produced by the two legumes below it, but it would also reciprocate with the nutrient its own roots

made more available in the soil: phosphorous.[4] These particular three plants seldom grew together and had never done so in this place. But along with their farmer, they learned. The three crops matured simultaneously, and the farmer enjoyed a triple harvest. His seed cleaning facility learned about intercrops, too, determining for the first time how to use its equipment to sort out these three particular seeds from one another.

Next, following Rocheleau's conception of "rooted networks," I draw from interviews to map the cross-species spaces produced through such processes of situated learning, sketching some elements of the agricultural heritage developed by these lentils and their farmers.

The Lentil Underground: A Rooted Network

One of the most foundational ground rules observed by this rooted network was a more "dialogic" (Bell 2004) mode of interaction. A new member of the community of practice described how she came to embody this more conversational form of farming.

> One of the things we've realized is what tremendous things peas[5] can do for the soil. It's amazing when you've been in a field that's been chem-fallowed[6] for a number of years, and then you never work it. You go in and you spike in your seed with your shovels, with your tips on your air seeder, so it really is never worked as such, and it's hard to get even the air seeder in the ground some years. Last year was terrible. We were losing tips off the air seeder. I mean that's hundreds of dollars trying to get that seed in the ground, and then we broke the big packer wheels on the back, just from the ground being hard. So I think that's the biggest difference I've noticed is it mellows up the ground and you can dig in the ground and can see angleworms. It just is a healthier ground.

For this newly organic farmer, working with legumes rather than against hardpan led to a healthier soil, which she came to see as a living organism of its own, rather than a static medium. By entering into a multispecies relationship with peas, earthworms, and other denizens of her farm's soil, this farmer learned, she could support this below-ground ecosystem, which would in turn support her crop. She did not need to break the tips and packer wheels on her seeder in a frustrating attempt to force wheat on unreceptive hardpan. Instead of struggling to "bust" the sod, she could work with it.

Another Black Beluga grower told me that working with soil was fun. "It's amazing to see how it invests in your future, after coming from the conventional mindset: an annual crop with an annual payoff." This farmer's partnership with his soil had given him a long-term, relational perspective on "investment," which shifted his notion of value. A soil willing to invest in its farmer's future invited reciprocity, and the embodied practice of this reciprocity further shifted farmers' approach to economics, such that the value of plants within the rooted network trumped the typical valuation of crops based on the price they fetched when leaving the agroecosystem. "Don't concentrate on which crop is the most economically valuable," another farmer told me, synthesizing his farming philosophy, "do everything for soil health."

Despite the economistic language that farmers often used to describe such relationships with plants and soil, the practice of mutual care within this rooted network went beyond two-way, utilitarian transactions. Investments in soil health, this farmer explained, were mediated by other nonhuman partners—including microscopic tillers.

> I went out there after the corn was harvested and we had a good residue, but the microbial activity—they ate everything in that field. It was almost as if you went in there and tilled. But we didn't do that, the bugs did that, and it's got a wonderful crop of spring wheat this year.

As these farmers changed their approach to agriculture, they developed kin-like relations of care, not just with nonhuman organisms but also with noncommodity organisms. One grower spoke of the balanced "diet" he was "feeding" his mycorrhizae, with his mix of cover crop residue and volunteer grains. Another exclaimed that weeds were just as good for the soil as what he planted, and a third insisted that "if you farm to take care of the bird population, you're doing good things." In these ways, Black Beluga growers expanded relations of care beyond the limited circle of nonhumans whose flourishing directly translated into harvest-time bounty. Engaging birds, worms, weeds, and mycorrhizae, they expanded their awareness of their rooted network, beyond the organisms they farmed to the organisms they farmed with.

Whether inducted through Farm Improvement Clubs or other means, members of this rooted network extend the process of "becoming with" Black Beluga lentils into a multispecies community of practice. A final series of quotes illustrates the knowledgeable skills demonstrated by members of this community of practice, for whom identity, community, and agronomy have become integrated components of their agricultural heritage.

One such knowledge practice was enacted through an embodied identity as regenerators, a disposition farmers shared with their nitrogen-fixing legumes. "It's been one of my philosophies to buy good built equipment used that you can repair," said one farmer. "I can't sell things, but I can fix them," another farmer told me. "That's what we do," said a third. "Clean up, rebuild." Black Beluga lentils and their cultivators also shared an unusually generous tradition of mutual aid, which refashioned kinship networks according to membership in the community of practice, rather than physical proximity or biological relation. As one man said of his fellow Timeless Seeds farmers,

> If I need some equipment or some help, they're right there and I reciprocate. I don't have that with my really close neighbors. Even my brother said, organic growers really help each other out.

Equally critical to this rooted network was an ethic of patience, a commitment to "the long game." A grower in his early thirties told me why he was not giving up on lentils, although this year's crop had failed.

> You have to *plan* for lentils, more than for grain. Lentils are a long-term crop that requires long-term thinking.

At the core of this rooted network was an appreciation of interconnectedness. Such connections, however, did not settle into a static, equilibrial harmony. Rather, farmers' attunement to interconnections included an awareness of their relations with actors who threatened their communities of practice. For Black Beluga lentils and their growers, interconnection was a dynamic condition, which inspired further interaction, dialogue, and contestation of agrarian norms. A relatively new member of the network reported that

> Five years ago, anybody you asked would have said I was the quietest person you've ever met. I don't think that's the case anymore. See that [industrial] plant over the horizon? That was going to be coal. It's natural gas now, which is still bad, but not as bad. I testified in front of a lot of people for that. I wrote speeches. That knocked the socks off a lot of people. We shut 'em down. I'd like to say AERO did it, organic did it, but then again, I'd like to say we all did it. I didn't want nothing to do with that dusty, stinky mess. I realize that's somebody else's property, but this is our property, too.

Membership in the community of practice had helped this farmer articulate relations of conflict as well as relations of partnership. For this multigenerational grain grower, who lived in a conservative Republican neighborhood, learning with lentils was a political awakening. Even as he spoke to me, I could hear him reframing libertarian notions of agrarian responsibility in more collective terms.[7]

For farmers such as this one, membership in this rooted network conferred a sense of place among a community of subjects. A new faith in the open-ended possibilities of interaction replaced their shaken faith in linear causality and that ability of individuals to manipulate one another or nonhuman nature. As one farmer told me,

> I've always been used to just making something happen because you can, because you put your mind to something, you just make it happen. That's not the way it is in farming. There's so many variables, so many other risks that you don't . . . that you have no control. Farming is just a massive undertaking in managing chaos.

"We can guide things as much as possible," this farmer's husband added, "but also trust in that plant's desire to survive, too."

At the extreme, these farmers spoke of surrendering their very bodies to the collective, much as their legumes did each fall. When I visited one of Montana's first lentil growers, he was consoling his neighbor, who worried that he would die before achieving the objectives of his conservation planting. "I don't think it's ever too late to plant a tree," my host told his friend. "Have them put your ashes at the base of the tree and cycle ya. The birds'll enjoy you."

Conclusion

Like previous generative critiques of alternative food commodities, this article is intended as a constructive intervention, to aid proponents of heritage foods in fostering more just and sustainable food systems. The most common existing understanding of heritage foods, as genetically and temporally circumscribed commodities, discursively limits itself to premodern, niche status. In this discursive formation, heritage agriculture cannot meaningfully challenge industrial agriculture, because its subaltern position is necessary to its authenticity—and its commoditized articulation is subject to cooptation. Yet, if we understand heritage agriculture in terms of socioecological processes, it can scale up and serve more transformative ends. Viewed through the lens of feminist theories of situated knowledge production, heritage agriculture is a dynamic process of cross-species learning. By

"becoming with" human and nonhuman relations, agriculturalists can form communities of practice for situated learning and develop rooted networks of knowledge and mutual aid. As Black Beluga lentils and their farmers demonstrate, such agricultural heritage does not arise automatically through geographic or biological proximity. Socially and ecologically constructed, sometimes across great distances, heritage is both cosmopolitan and contested, entangled with processes of social and environmental change. As Dupuis and Goodman (2005) argued for the case of local food, we need to move beyond asking whether an agricultural practice or product is heritage and ask what kinds of heritage formation processes are at work. It is this reflexive, process-based understanding of heritage agriculture—not preset standards—that can best serve as a guide toward environmental sustainability and social justice.

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Notes

1. I borrow the term "generative critique" from Verran (2001), who elegantly defined it as an imaginary that could "enable futures different from pasts" (20). McFarlane (2011) further explained that generative critique does not merely debunk hegemonic knowledge, but is "constantly generating new associations, knowledges, and alternatives" (212). This approach is important here, because this article seeks to reorient understandings of heritage agriculture away from dominant, commoditized discourse by highlighting the knowledge production of an agrarian community engaged in making agricultural heritage.
2. This information was obtained in an author interview with Alfred E. Slinkard, 24 June 2012.
3. In 1995, this group of farmers organized a 130-person conference of producers, scientists, educators, and technical assistance providers entitled "Weeds as Teachers" (Hilander 1995).
4. The relationship between buckwheat and soil phosphorous is an emerging area of research. See Rick et al. (2011).
5. Like lentils, field peas are legumes, so they add nitrogen to the soil.
6. Chemical fallow refers to treating a field with herbicide and leaving it bare, a common rotational practice among conventional grain farmers on the northern Great Plains. By ensuring that nothing grows, this practice is thought to conserve soil moisture and prevent the buildup of a weed seed bank.
7. It might also be that this farmer did not discover collective agrarianism de novo by participating in this rooted network but, rather, came to realize that his practices of agrarian care were already collective and out of step with the libertarian rhetoric of his neighborhood. When I visited his farm, he showed me protest signs demanding "fairness" and "parity" for farmers, which he and his father had carried in National Farmer's Organization marches in which he participated as a child. This was one reason he had gotten interested in organics, the farmer explained, "because you get a little more fairness." This farmer's encounter with the proposed coal plant highlighted a previously unproblematic disjuncture between discourse and practice. Membership in the Black Beluga community of practice gave him the social and epistemic tools to articulate this disjuncture and challenge the common sense of his neighborhood.

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