Bless Our Southern Roots: A Transgenerational Approach to Southern Agriculture

by

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"I myself have often wondered why this green memory, out of such a cornucopia of powerful, indelible, life-altering, and formative remembrances, sticks with me so strongly. I suspect it was the simplicity of the act--and the fact that it had no ulterior motive other than the sharing, the maternal gesture, and the witness of taste. This thing, this moment, was more than about eating, it was about experience, about sharing in a free and simple way we rarely achieve as we grow older. I give, and you receive.

Ain't it good?
Ain't it good?
Ain't it good?
It is.
An initiation into the flavor of the world."

Randall Keenan
“Greens: A Mess of Memories about Taste”

Been a long time gone,
No I ain’t hoed a row since I don’t know when.
Long time gone, and it ain’t coming back again.

The Dixie Chicks
“Long Time Gone”
The Plant Life Cycle

- Seed Dormancy
- Germination
- Seedling Establishment
- Growth
- Flowering
- Pollen Transfer
- Fertilization
- Seed Dispersal
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Introduction

Improperly contextualized, the stories of ordinary people stand in danger of remaining just that: stories. To become something more, the partial, ‘hidden histories’ have to be situated in the wider worlds of power and meaning that gave them life.

Comaroff and Comaroff

Towards the end of the summer before my senior year, I decided that in a last-ditch effort to find more farmers to interview for my thesis, I would drive about 45 minutes south of Atlanta (on I-75, which extends from Michigan to Florida) and visit the Georgia State Farmers Market, a 150-acre outdoor market and major produce distribution point for the Southeast. I dragged along my friend Hannah (a lover of road trips and farmers markets), and we set off one Wednesday morning in search of farmers, a watermelon, and some of the last peaches of the season. On our way down, singing along to the Dixie Chicks’ “Goodbye Earl,” we glimpsed something previously unnoticed, something we had not expected to encounter: a small cemetery tucked away under the exit ramp towards Cleveland Avenue. After a quick Google search, we determined what we had almost missed: the Jeremiah S. Gilbert Memorial Cemetery.

We witnessed the remnants of what used to be a much larger cemetery set aside by plantation owner Jeremiah Gilbert in the mid-1800s for enslaved African Americans and their family members. The cemetery was eventually opened to the rest of the local African American community, and at most consisted of one acre and approximately

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1,700 graves. At some point in the 1950s, as development surrounding Atlanta continued, several strip malls were built on the old cemetery. These businesses thought their proximity to gravesites would deter customers, so they removed most of the headstones and put them in their basements. Thirty years later, while constructing the exit ramp for Cleveland Avenue, the Georgia Department of Transportation (GDOT) was going through the old buildings that stood on the land they were developing, and found the gravestones. After some investigation, they designated a small patch of land (accessible only from the interstate entrance ramp) to house fifty-three of these headstones, and a large white Jesus statue.³⁴⁵⁶

![Figure 1: Aerial view of Jeremiah S. Gilbert Memorial Cemetery, surrounded by the I-75 South Cleveland Ave. exit ramp](image)

⁶ The statue didn't make it to the plot due to dissent from the local community regarding a lack of separation between church and state and the inappropriateness of a white Jesus statue lording over the displaced graves of enslaved African Americans.
⁷ "I-75 S Cleveland Ave Exit," (Google Maps: Google, 2017); ibid.
While the market wasn’t as bustling and fruitful as we had hoped (although we did buy a watermelon, some field peas, peaches, and boiled peanuts, there were no farmers present, only middlemen), this experience has stuck with me ever since. At a specialty Truett’s Grill Chick-fil-a on the way home, Hannah and I tried to find words to describe seeing the graveyard, but all we could muster was “unbelievable.” Even though Georgia is an old state, in Atlanta it’s easy to forget what used to be on the land and is now businesses, parks, and apartments. After all, Atlanta was burned to the ground in Sherman’s March to the Sea at the end of the Civil War, and unlike other, more blatantly historic cities elsewhere in the United States, it has very few old landmarks. I’m still wrestling with Gilbert Cemetery in my head—how it is proof of the South’s selective memory, the usual inadequate memorialization of enslaved African Americans, but also the beginning of an effort to finally honor enslaved peoples, sharecroppers, and a history of racialized oppression.

This project, which I initially conceived of as a more plant-centered study, has transformed into a response to my stumbling upon the Gilbert Cemetery. Throughout

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the upcoming chapters, my goal is to investigate cultural memory and heritage among Southern farmers and delve into the ways farmers from various backgrounds pass on traditions, knowledge, and culture from one generation to the next, and to work through some of the questions and feelings my experience at the cemetery incited. During this process, I have kept in mind anthropologist Zora Neale Hurston’s words, “Research is formalized curiosity. It is poking and prying with a purpose.” My intention for this project is to better understand the intersection of history, land, culture, modernization, race, politics, and community in the context of Southern agriculture. By exploring these factors and their relationships, I endeavor to better understand the framework in which heirloom seedsaving has remained prominent among marginalized communities in the South.

I chose to focus my project in the Southeastern United States, a region with an identity unlike any other part of the United States, steeped in racism, nostalgia, and stereotypes. Though I was born and raised in Atlanta, Georgia, I am technically not “Southern.” Instead, I’m considered a “transplant,” someone who’s family is from another region but grew up in the South. My identity as someone from the South but not Southern has granted me a sort of outsider within status, a term I borrow from anthropologist Faye V. Harrison, who uses it in her book, *Outsider Within: Reworking Anthropology in the Global Age* (2008) to signify her place “inside” the discipline as a trained anthropologist, yet “outside” of academic culture as an African American woman. Whereas she distinguishes herself from “an academic comfortably incorporated into the

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mainstream,” I found myself negotiating with my identity as a Southerner, which has been crafted more by not being from New England rather than being born and raised in Georgia. Many of the farmers I interviewed who were fourth and fifth generation Southerners were quick to remind me that I’m from a city, go to school far away, have a barely discernable accent, and don’t come from an agrarian background. Throughout the process of coming to terms with my self-attributed and perceived identity, I found anthropologist, artist, and activist Gina Athena Ulysse’s description of alter(ed)native accounts particularly poignant. She describes her book, Downtown Ladies: Informal Commercial Importers, A Haitian Anthropologist, and Self-Making in Jamaica (2007), as:

[A] counternarrative articulated from what I call an alter(ed)native perspective to the conventionalities of the dominant discourse within anthropology. It is alter as in other and native as in I was born in the region and am ascribed that identity.\(^{11}\)

One of the largest struggles for me throughout this process was negotiating my regional identity as I found myself simultaneously defending and criticizing Southern culture. When writing this thesis, my intention was in no way to blame individual farmers and others in the agricultural sector for what I find problematic in the South. Instead, I strive to highlight the ways in which the past has informed modern day society and established a precedent for perpetuating parts of the past that oppress people of color and those of a lower socioeconomic status. I do not intend to insinuate that the history of the South is entirely malevolent. Rather, I argue that it is vital to understand and account for all aspects of the past, in order to better use history to forge a future in which cultural amnesia is replaced by an acknowledgement of all aspects of the previous events and trends.

\(^{10}\) Faye Venetia Harrison, Outsider Within: Reworking Anthropology in the Global Age (Urbana: University of Illinois Press, 2008), 12-13.

My experience conducting research and compiling this project has elucidated how the past, like land, has layers. Whether we acknowledge it in history books or not, Southern history is embedded in both memories and the land. There have been efforts to record history from a time before the people who remember what sharecropping was or before using tractors was the norm. Even so, it is important to realize that history is constantly and consistently being ignored, potentially never to be uncovered, in favor of parts of the past that are more palatable to those in power, in this case, land-owning white farmers. What is obscured and what is unearthed is a direct result of the South’s selective memory, which reflects historical empowerment and marginalization and leverages white memory and narratives. I aim to make a compelling case for why it is imperative to combat the concealment of unsavory aspects of the past, and display ways in which farmers who are excluded from the dominant, whitewashed narrative seek to circumvent the suppression of their cultures.

I would like to acknowledge Anthropology’s history of studying, classifying, and reducing the “other.” In choosing to examine seed savers, who occupy the margins within the broader context of Southern agriculture, this thesis is in many ways partaking in what has been a problematic aspect of the discipline. Seed savers, gardeners and farmers who save the seeds of the plants they grow to replant in the next season, have come to occupy the margins due to their unconventional practices, which tend to stem from a history of exclusion from landowning and mainstream agriculture. So, I study “the margins” while accounting for the greater social implications of this focus and with the intention of shining light on the alternative modes of cultural preservation that better sustain the food, the people, and the land. Through my research, I found the margins of conventional Southern agriculture to be comprised of farmers who were forced there
historically, and have remained there due to their ancestors, their practices, and a sociopolitical climate that perpetuates this divide. The seedsavers I interviewed for my thesis were aware of their position on the margins, and chose to respond by embracing their history and practicing forms of agriculture that turned marginalization into empowerment. Virginia Nazarea, an anthropologist and ethnoecologist, writes in her book *Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservation of Biological Diversity* (2005):

> [T]he resilience, expediency, and fuzziness of decision-making frameworks and coping strategies of small-scale farmers and gardeners are effective as countermemory, or counterhegemony, precisely because they are ad hoc and sheltered at the margins of modern, commercial agriculture, where they can carve out a more sovereign space.\(^{12}\)

Because of seedsavers’ positions on the margins, they too embody countermemory and a perception of the past that illuminates more than just a landowning and white narrative. I believe their perspective is a valuable and necessary counterpoint to a hegemonic version of the past often touted as *the* history of the South, and seek to explore how the lives and practices of seedsavers on the margins effectively resist the modernization of agriculture and its consequences. Throughout this process, I have tried to be sensitive to the ways in which my interpretation of my field experiences with farmers, whether seedsaving or not, differs from those who spend, to put it bluntly, their lives in actual fields.

To gather the stories and opinions of Southern farmers, I spent the latter half of the past summer meeting and interviewing farmers and agriculturalists in Georgia. I visited seven farmers and interviewed another three over the phone. All are from Georgia, with the exception of one farmer, Iris Welty*, from Virginia. For their privacy,

I have given all of the farmers and agrarians I interviewed pseudonyms, marked with an asterisk (*). I also interviewed representatives of the Georgia Peanut and Cotton Commissions, the Tifton Seed Lab, Georgia Seed Development, Georgia Crop Improvement Association, and a seed scientist from the University of Georgia. Of the farmers I interviewed, all identified as white except for Kent Loomis* and Iris Welty*, who were also the only two farmers not raised on farms. Loomis and Welty, in addition to Ted and Jo Bushwick*, an older white couple who farm on Ted’s family land in north Georgia, comprise the farmers on the margins who practice seedsaving. All of the other farmers I interviewed are white, were raised on farms, and don’t save seeds.

In addition to my correspondence with farmers, I relied on interviews conducted by Southern historian Lu Ann Jones for the Smithsonian’s Southern Agriculture Oral History Project. I was able to access these recordings and transcripts at the archives of the Smithsonian National Museum of American History in Washington, DC. The Smithsonian interviews I read and listened to offer perspectives on agriculture from farmers who were alive during many of the transitions to modernized agriculture I mention later in my thesis. Of these farmers, all except one were white and everyone was raised on farms, though some worked as sharecroppers instead of owning their own land. I chose to focus my analysis on farmers from Georgia to correspond with my field sites. I want to acknowledge that throughout my thesis I refer to the broader southeastern region, despite my own research being centered in Georgia. Although the majority of farmers I interviewed are from Georgia, the themes I examine pervade throughout the rest of the region, and much of the literature I draw upon focuses on the entirety of the region.
Figure 3: A map of the Southern United States. The dots mark locations where either I conducted interviews or where Lu Ann Jones conducted interviews for the Smithsonian Southern Agriculture Oral History Project.
Agriculture has been crucial in forming the Southern identity. Even today, much of the Southern United States’ economy is propelled by agriculture, yet the experience of the agrarian lifestyle differs significantly based on race, socioeconomic status, location, and type of crop grown. In considering some of these factors, I propose that modes of culture and heritage preservation also differ among these groups, and by turning to the history of the South’s social relations between those who have been and remain in power and those who have been marginalized, we can understand some of the nuances regarding which parts of the past are prioritized for whom. Within Southern agriculture, this discrepancy tends to manifest itself in an unequal allocation of resources, whether through land, research, funding, or government aid. In the first chapter, I will be drawing parallels between the necessity of carrying on a family’s agricultural legacy and seed dormancy, and focusing on how, for both farmers and plants, the key to perpetuation is in ensuring the viability of the next generation, whether by land staying in the family or by establishing favorable conditions for germination.

I continue in the next chapter by exploring how the “environment,” which I define as the social, political, economic, and biological climate, determines both a farm and a plant’s ability to survive and grow. For Southern farmers, the environment is strongly dictated by a past that oppresses people of color and those who are poor. In this chapter, I briefly outline moments in history that exemplify how Southern society has perpetuated racism and other forms of discrimination. By acknowledging historic persecution, I hope to demonstrate how social factors, especially adverse ones, impact a farmer’s viability, and how this influence is strengthened when very specific qualities such as farm size, income, and productivity disproportionately determine what is considered successful. In addition to the sociopolitical aspects of Southern culture, many
farmers I met with mentioned how Southern soil and climate contribute to the success and diversity of agriculture there. However, definitions of diversity differ between conventional and marginal farmers, and these varying perspectives reflect how society regards certain farmers over others. The agricultural diversity practiced by seedsavers signifies their use of plants as symbols of countermemory, whereas mainstream agriculture prefers methods that don’t account for social or crop diversity. By delving into the past and consequent differing practices and characterizations, I hope to highlight how societal distinctions contribute to a farmer’s ability to pursue agriculture. This influence is comparable to how a seed’s ability to germinate and become established is dependent on the presence of a certain ecological environment optimal for growth. Without these conditions, the seed is less likely to create new seeds; similarly, farmers on the margins experience greater difficulty pursuing agriculture in a social environment that devalues them and their work.

Over the past 70 years or so, global agriculture has changed significantly due to mechanization and standardization, consequences of industrialization and globalization. The push for farming to become more economical and profit-oriented has led to an agricultural sector in which farmers need to grow and conform to industrialization or risk losing their livelihood. As machinery and chemicals have taken over, the traditions and cultural knowledge of farmers, especially those on the margins, have been labeled as “rural” and “old fashioned” and consequently targeted for replacement. In tandem with mechanization, what used to be the many roles of a farmer have become moot. Whereas a farmer used to know the intimate details of all aspects of their work, the specialization of different parts of agriculture, facilitated by scientific and technological developments, has made it so that a farmer only needs to buy into the modernized system sold by these
corporations in order to remain viable. Consequently, those unable to afford or access new technologies, primarily people of color and poorer farmers, have a substantially harder time penetrating the barriers of entry into the mechanized agricultural scheme. In this way, farming has lost its appeal of agency over one’s livelihood and has become integrated into huge multinational corporations and their desire for capital.

Finally, in the last chapter, I will explore, in depth, how seed hybridization, an aspect of agricultural modernization, directly impacts marginalized farmers and seedsavers. Hybridized seeds are unable to produce viable offspring, thereby disrupting the plant life cycle and rendering a plant unable to reproduce. Agribusinesses have developed, marketed, and sold hybridized seeds because they require farmers to buy seeds, as well as a host of accompanying chemicals, anew each year, increasing profits for the corporations and making the farmers dependent on their products. One way that farmers, primarily those on the margins, are combatting this disruption is by saving heirloom seeds, many of which have been passed down in their families and communities for multiple generations. Agribusiness’s disturbance of seeds parallels the ways in which Southern politics and society displaces, oppresses, and perpetuates the exclusion of farmers on the margins, who are resisting systematic discrimination by continuing to farm on their own terms. Seedsavers, by maintaining varieties able to be passed from one generation to the next, exemplify how regaining control over biological cycles simultaneously entails reclaiming and perpetuating their own culture. Though the agency of seedsaving practices originated from a place of oppression and discrimination, these farmers have transformed their exclusion from conventional agriculture into the creation of a space embracing alternative modes of living, farming, and remembering.
I have structured this project to roughly follow the plant life cycle, beginning with dormancy, followed by germination, seedling establishment, growth to maturity, flowering, pollen release and transfer, fertilization, and finally seed dispersal before the cycle is completed and returns to dormancy. Through this organization I hope to emphasize the cyclical nature of both human and plant generations, as well as their susceptibility to disruption. If, at any point in the life cycle, the process is interrupted, the plant can’t reproduce. Both agriculture and the plants grown are reliant on the success of future generations in order to survive, and throughout my thesis I will draw connections between the cultivators and the cultivated. In order to demonstrate how the plant life cycle parallels the cultural aspects of my project, I’ve included brief biological vignettes, demarcated with a ☛. By inserting these pieces on biology I draw attention to how the needs of a plant are analogous to the needs of culture: both need to be fostered, to be exposed to nurturing conditions, and to be given the opportunity to adjust in order to thrive. Though the majority of my thesis is ethnographic and written in a more narrative form, there is a shift in language in the short biological sections. Some of the terms used in these vignettes may be unfamiliar to some readers, and while I attempt to explain any potentially unclear terms within the chapters, I have also included a glossary of biological terms for clarification.

☚ Only the most recently evolved terrestrial plants have seeds. Earlier plant ancestors, from algae to mosses to ferns, released spores to reproduce. However, spores are finicky, requiring a constantly moist environment in order to allow the plant to continue to the next phase in development and reproduction. As plants slowly grew larger and in varied environments, they started to develop seeds as we know them today. Seed-bearing plants are called spermatophytes, which translates to “seed plants.” The first spermatophytes were gymnosperms, which
literally means “naked seeds.” Well-known gymnosperms include conifers, such as pine and fir trees, and gingko trees. All gymnosperms have seeds with no protective coating. Though these seeds are more fit to survive because they don’t need water to remain viable, they are still highly susceptible to the elements. Most recently, a little over 160 million years ago, angiosperms, “enclosed seeds,” first originated. Angiosperms are characterized by having a seed coat—a hardened layer that houses the part of the seed that will eventually become the next generation of plant. Over the course of the past 160 million years, angiosperms have quickly become the most prominent forms of plant life: most agricultural crops are angiosperms.¹³ So far, nothing has proven more evolutionarily advantageous than the coated seed, with its ability to survive for months, seasons, and even years. Within each seed is a story of surviving against the odds, a story of enduring through thick and thin just to ensure that another generation will live to undergo the same process.

¹³ Quickly in term of the geologic/evolutionary time scale.
Figure 4: A peanut plant, *Arachis hypogaea*.\(^4\)

I. Dormancy / Generations

THE CO-EVOLUTION OF THE SOUTH AND AGRICULTURE

“Growing up in a small Southern town, you either go into agriculture or go to jail. I chose agriculture.”

Connor Calhoun*15

The United States South is inherently tied to agriculture: Southern economies, for the most part, have always been heavily based on farming. Early in the United States’ history, inevitably entailed the exploitation and displacement of enslaved and indigenous peoples. Since then, farming has remained a symbol of the South, even though less than one percent of those living in the South actively farm today.16 Agriculture differs regionally, and, as David King*, a representative of the Georgia Cotton Commission shared with me, “in the South people live on the farm and are always there: Southern agriculture is more of a lifestyle.”17 Now, in Georgia, for example, though there are fewer farmers than ever, the agricultural sector is still one of the largest in the state, contributing over $74 billion to Georgia’s economy.18 This is in part due to the growth of jobs relating to the agricultural industry other than farming, many through state agricultural extension programs and research done at local colleges and universities. The average farm size has grown, and, along with it, expectations for the quantity of

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15 CC, in discussion with the author, August 2016.
17 DK, in discussion with the author, August 2016.
production. By looking to increase productivity and economic value, farmers have had to make decisions about their methodology, the consequences of which are already beginning to negatively impact the land, biodiversity, and the lives of smaller-scale farmers. However, as Vandana Shiva, a scholar and environmental activist based in India, explains, what is often coined as “growth” by industry is in fact “a form of theft from nature and people.”¹⁹ I argue that the thefts Shiva refers to are prominent when considering the history of agriculture of the United States South and the trajectory for the continuation of the transition to a more technological agro-economy.

Agriculture may be the backbone of the South, but it is founded on lives, materials, and pasts that have been violently appropriated—that is, stolen—from others. Through this process of co-opting, the United States South has commandeered and erased fragments of both human and plant histories. Consider some of the main row crops found on most large-scale farms: cotton, peanuts, soy, and tobacco. Cotton originated in Central Asia and South/Central America, peanuts in Brazil/Paraguay, and soy in China. Peaches, the fruit claimed by Georgia’s nickname, “The Peach State,” and found on all state identification cards and license plates, are originally from China as well. Most of what we grow in the United States did not originate here, according to Jack Kloppenburg, an environmental sociologist who focuses on the intersection of culture and agriculture, in his book First the Seed: The Political Economy of Plant Biodiversity (2005).²⁰

Early in the nation’s history, the seeds of potential agricultural crops were taken from other continents and brought to the United States to build the agricultural repertoire of the country in a way that conformed to white settlers’ understanding of agriculture.

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Thomas Jefferson, the third president of the United States and slave-owner, was a huge supporter of the import of germplasm, and wrote in his 1980 “Summary of Public Service”: “The greatest service that can be rendered to any country is to add a useful plant to its culture.” The plants that became key players in Southern agriculture were ones whose original climates were hot and humid, similar to the weather in the South. This climate and the resulting productivity are in part what allowed the South to be a primary agricultural region of the United States, and are the source of pride for many Southern farmers, who credit the land for its bounty instead of properly acknowledging those who were forced to work it.

In addition to germplasm co-opted from other parts of the world and modified to fit our needs, the labor and land required to maintain the old Southern agrarian lifestyle were also stolen: enslaved peoples were imported from Africa, Native Americans were enslaved and forced off of their land, and histories were disrupted and rewritten to promote an agricultural agenda. The way Southern agriculture is experienced and navigated at different moments and times in history is hugely determined by race. For whites, land can be viewed a symbol of freedom and opportunity, whereas for African American enslaved peoples, the land may symbolize a tool of oppression and a place that must be negotiated with, instead of owned, and a reparation promised but never delivered. As Paul Outka, a scholar of English and Environmental Studies notes in his book, Race and Nature: from Transcendentalism to the Harlem Renaissance (2010), nature’s significance could be described in terms of ownership, “The sublime white subject

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22 Dianne D. Glave, Rooted in the Earth: Reclaiming the African American Environmental Heritage (Chicago, IL: Lawrence Hill Books, 2010), 42.
possesses the scene; the traumatized Black subject is possessed by it.” Capital, whether land, people, or plants, has hugely impacted how nature is conceived of, and consequently treated and preserved. This distinction is still present in modern-day Southern agriculture. When considering the preservation of agricultural heritage, I contend that white farmers place a greater emphasis on property, because historically land ownership has been a capitalistic symbol of a person’s sovereignty and prosperity, whereas the farmers of color I interviewed felt independent as a result of their ability to work as they pleased.

Figure 5: A cotton boll, in the family *Gossypium*. The white downy fruit surrounds the seed within.24

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And so our mothers and grandmothers have, more often than not anonymously, handed on the creative spark, the seed of the flower they themselves never hoped to see: or like a sealed letter they could not plainly read.

Alice Walker

An angiosperm seed spends most of its “life” as little more than a small capsule of what will eventually become a plant. A seed first forms within a plant ovary, more commonly referred to as a “fruit.” The formation of a fruit begins with a flower, which, biologically, is the reproductive organ of a plant. Each flower contains both the male and female reproductive organs and produces both male and female gametes. Similar to animal reproduction, these gametes (the sperm and egg) combine during fertilization to form the zygote, which will become the plant embryo and eventually the plant. The seed develops within the ovary/fruit, until it is mature enough to grow into a new plant. However, plant growth rarely occurs immediately after seed development. In the words of Thor Hanson, a biologist who recently authored the book, The Triumph of Seeds: How Grains, Nuts, Kernels, Pulses and Pips Conquered the Plant Kingdom and Shaped Human History (2015), seeds “are live plants that have simply put development on pause, waiting until they land in just the right place, at just the right time, to send down roots and grow.” A seed sits, waiting for the proper conditions in which the plant it will become can thrive. Seeds can wait in this inert phase for thousands of years. If nothing else, seeds are patient. This phase of a plant’s life history is broadly defined as “any pause, for any length of time, that takes place after a seed matures and before it sprouts.”

Agriculture relies on generations: of the crops grown and of the people growing the plants. Both are necessary in order to ensure the survival of the other; without either,

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27 Ibid., 90.
agriculture, as well as many of the foods we are accustomed to seeing on grocery store shelves, would not exist. But beyond ensuring the survival of the plants, many farmers also need to make sure their farms will remain economically viable, so their children and grandchildren will have access to the same agrarian lifestyle and farming practices they inherited from their parents and grandparents. Henry Clayton Dorminy, a farmer from Tifton, Georgia interviewed by Lu Ann Jones for the Smithsonian’s Southern Agriculture Oral History Project, explained that he began farming because his father “was farming. That’s the only thing there was to do down here was to farm…I didn’t know anything else actually.”

Farming is so ingrained in Southern culture that his wife, when asked if she ever considered not marrying a farmer said, “You know, I didn’t thought too much about it. And I guess it’s the person and how much you think of them. So I never thought too much about it ‘cause I’d been raised on the farm and used to the farm. I just never thought anything about it.” This notion of agriculture as the only option was common among the farmers that I interviewed. Most of the white farmers were deeply sentimental regarding agriculture and shared stories of working with their grandparents and parents on their family’s farms.

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29 Ibid., 30.
Almost all farms, no matter the size, types of crops or how the farmers choose to raise their crops, are, at their core, “family farms,” and over the years of a family’s ownership of the land, the physical farm and property becomes an heirloom. A farm heavily relies on the desire of the next generation to continue farming, a problem many farms are facing after crop prices collapsed in the 1980s. As a result, many sons of farmers during the 1980s and 90s chose not to return to their families’ lands. As a result of these decisions, fifty-eight is the current average age of farmers in the United States.31 There is growing concern that this aversion to perpetuating the family business will gravely affect the future of agriculture—after all, as Connor Calhoun*, a representative of the Georgia Cotton Commission shared with me, farming is a “generational thing.”32 In another interview conducted by Lu Ann Jones, Clyde Purvis, a farmer from Tifton, Georgia, explained that he learned how to farm because, “I had watched my father farm.

30 “2012 Census Highlights”.
31 Ibid.
32 CC, in discussion with the author, August 2016.
He was a good farmer.” When prompted to explain what made a “good farmer,” (as Jones pointed out in her interview questions, “These days, it seems to take a Master’s degree to be considered a good farmer”), he replied, “Well, they had the experience. One thing, they knew when to plant, and, by nature, they’d learn a lot of things. And they knew how to plow stuff and how to plant it, how deep to plant this, and I’d seen other people do it too.” The transfer of knowledge from parent to child, and even from nature to farmer as Purvis depicts, assumes there will always be a next generation to receive the knowledge and the land. This forces farmers and others in the business of agriculture to branch out. For example, Mark Carter*, a farmer and cotton gin owner I interviewed in the Georgia Cotton Commission conference room located on the Georgia National Fairgrounds and Agricenter, discussed this impact and the changes his family has had to make due to the ways farming has changed since he was a child:

My younger sister just moved back home too—we feel like we are carrying on our great-grandfather’s and grandfather’s legacy, a large chunk of our land is the same as theirs. It’s a good thing for us to be carrying on these generations even when we didn’t know them. I have two daughters, and at least one of them is going to have to go into the [cotton] gin business—somebody’s going to have to come back and do it. It’s easier for women to get into the business, we have about 80 employees and a lot of agriculture is just managing people. Right now I’m making sure that they get to see all aspects of running the business, looking at the value of raising a family in a small community, the benefits of being in agriculture, with the close knit family that agriculture is.

For Carter, his family’s legacy manifests through business and land. By working to maintain the property that his ancestors’ owned, he is ensuring his children will be able to carry on this legacy in the same way he and his sister have been able to do.

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34 MC, in discussion with the author, August 2016.
However, the primary “players” in agriculture have been forced to change their business models in order to sustain the family business. Farming, in order to remain profitable as a livelihood, has diverged from tradition and become more than a man’s job. Farms that are unable to change their mode of inheritance are sold once the older generation retires. For example, the farm of Michel and Barbara Porter* in Pitts, Georgia, which was first bought by Michael’s grandfather and hosts the house in which he and his father grew up, has since been leased out and sold to neighboring farmers. In the case of the Porters, they have three daughters, none of whom work in agriculture now, and only one of whom lives in Georgia.35 In addition to changes in the inheritance of the family business, large-scale farmers over the last few decades have shifted to new agricultural technologies in order to maintain the family business, and thereby maintain land ownership. These technologies have prioritized the preservation of a certain type of agrarian lifestyle: that of the large-scale row-cropper characteristic of mainstream Southern agriculture. In another interview by Jones, Woodrow Harper Sr., a farmer from Hartwell, Georgia, recalled, “No I never did [think about leaving here]. I don’t care too much for the city. I never did think about leaving. My thought was trying to do what my daddy did.”36 Harper’s interview, conducted in 1987, shows how those raised on farms enthusiastically pursued an agrarian lifestyle. Since then, with the loss of the desire to walk in their parents’ footsteps, the dynamic of modern family farms is changing, or, in some cases, ceasing to exist. Between each generation of farmers lies the possibility they will be the last for that family, because future generations will not feel compelled to maintain their heritage through agriculture. But, a desire to maintain identical ways of life restricts other types of agriculture from flourishing. In only passing on the farm and land

35 M&BP, in discussion with the author, August 2016.
as it has always been, I argue that large-scale farmers are failing to account for the unknown and the potential for the growth of something beautiful. The past is not all beautiful, and not all parts of it should be relived.

In Southern United States culture, specific trends and events have shaped who and what determines exactly which traditions are inherited. These trends are heavily influenced by who has historically had the most social and economic power; in the South, this means whites, especially men. Though it has been over 150 years since the end of the Civil War and emancipation and nearly fifty years since the end of the Civil Rights Movement of the 1950s and 60s, structural power dynamics disproportionately favoring wealthier white men are still heavily present in the modern-day South.

Today, most of the agricultural sector is composed of family farms that have grown into huge agribusinesses, able to maintain their prominence because of government subsidies. Bobby Hawkins*, a white farmer from southern Georgia I interviewed over the phone one morning who has been working in agriculture for almost thirty years, explained that he needs government funding because, over the course of his career, “everything is all just so much bigger,” making it hard to make a profit without help from the government.37 Whereas government funding is essential for Hawkins’ profession, not all farmers receive the same level of federal support. As I will demonstrate in chapter two, USDA subsidies are disproportionately granted to white farmers, perpetuating the gap between conventional and marginal agriculture.

Those who have been in power are also the ones who determine which parts of the past are memorialized and which are forgotten, often leading to romanticized and incomplete “selective” memories that only account for white renderings of history.

37 BH, in discussion with the author, August 2016.
These versions of the past glorify the “good ol’ days,” without taking into account the narratives of those who were killed, enslaved, hurt, displaced, and marginalized. I maintain that this power dynamic manifests itself in current agriculture when considering who owns land, who has been able to own land for the past 150 years, and what the repercussions of a heavily race-based determination of land ownership are.38

Of the farmers and agricultural professionals I met and interviewed, there was a clear divide between the practices and mentalities of those who farmed on land that had been in their family for generations, and the methodologies of those whose families still did not or had not owned land until this generation or were displaced from their land by white people. For the most part, those who have owned land for decades are mostly concerned with ensuring that there would be someone to take care of the land, so the land would remain a farm for future generations. On the other hand, those who didn’t inherit land found other ways of preserving the memories of their ancestors and keeping them viable. These farmers focused on modes of preservation that were not tied to a particular place: by emphasizing more mobile ways of remembering their histories, such as seeds, they are able to carry these memories from place to place. Kent Loomis*, an African America farmer I talked to over the phone from Atlanta, Georgia, who primarily works as an educator for those without access to gardening and fresh and organic vegetables, described how for him, farming and teaching were ways of connecting with the next generation.39 Forced relocation resulted in marginalized farmers developing methods that are easier to teach, share, and ultimately, preserve because of their ability to be moved. One such mode of mobile preservation is seed saving. Seeds, small enough to fit in a pocket and strong enough to remain inactive for many years, are an ideal way to

38 Glave, Rooted in the Earth, 9.
39 KL, in discussion with the author, August 2016.
save plants until there is a suitable place for growing. An environmental anthropologist based at the University of Georgia in Athens, Virginia Nazarea argues that for those who have migrated from one place to another, seeds offer a mode of combatting the globalizing forces that threaten their connection to their homes:

Seedsavers carry with them their living pasts through the seeds that they collect, grow, and pass along. The pressure of globalization and modernity may suffuse their very existence, but they secure their place through the seeds that they sow and the aroma, tastes, and textures that they harvest and share. Whether these farmers and forgetters are rooted in their ancestors’ soil or transported to adopted homelands, their seeds carry intimate personal histories and counter loss of memory and identity.40

In this way, seedsaving acts as a form of countermemory. Most of conventional agricultural is rooted in land that since being stolen has remained in the hands of (usually) white men wealthy enough to own land and is milked until it is unable to nourish plants on its own. By relying on seeds to recall the past instead of land, seedsavers are contesting the notion that owning land is the only way to farm successfully. Through this process, they are nurturing tokens of their heritage and making them widely available for future generations.

Mobility aside, only some traits survive wholly intact from one generation to the next. Others are tweaked and altered until they take a form most likely to reproduce or be reproduced. This is witnessed in the way teosinte, the ancestor of modern corn, transformed over hundreds of years into what we now recognize as corn, or the way stories have a tendency to change with each retelling. Biologically speaking, the process by which some traits are kept and others changed is referred to as selection. Selection can occur two ways: naturally and artificially. Whereas natural selection refers to the way in

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40 Nazarea, _Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservation of Biological Diversity_, 136-37.
which genes that lead to traits more likely to ensure an organism’s survival are
maintained, artificial selection entails interference by another factor, often human.\textsuperscript{41} The
goal of selection is to retain beneficial, or in the case of artificial selection, preferential,
characteristics allowing the organism to be more reproductively successful or desirable.
The change in the frequencies of traits in a particular population, evolution, is adaptive if
selection occurs in a way that enables the organism to be better suited to its
environment.

For agricultural crops, certain traits such as size, flavor, and yield are selected
because the humans growing and eating these plants favor them. Humans tend to select
for increased yields and more viable seeds that will grow bigger.\textsuperscript{42} Selection also occurs in
social contexts, and in the South, an “environment” exists in which being white and
owning land is advantageous, and white people are given the authority to “select” and
preserve aspects of their culture. This selective benefit simultaneously leverages certain
plants or groups while erasing the cultures and histories of others. When considering the
factors influencing how changes occur, it is vital to recognize how who has been in
power and who has been marginalized affects the selection process. For the most part,
society has prioritized the traits that those in power have chosen to acknowledge,
forming a sort of “selective” cultural memory and knowledge. One example of this
selection was made apparent to me by Connor Calhoun*, a representative of the Georgia
Cotton Commission. When I asked him for a brief history of cotton in the United States,
he began by telling me about the evolution of agriculture in Georgia, stating that Georgia

\textsuperscript{41} I realize that the dichotomy between natural and artificial isn’t this tidy, and that there is much
discussion regarding whether or not humans are natural. However, for the sake of this project, I am
regarding the human selection of specific crop traits as artificial selection. This distinction will become
more clear as I continue to discuss how large agribusinesses select and modify for traits that aren’t
ultimately beneficial to the plant. Still, I feel it is necessary to acknowledge that there is a lot more that
could be said about the natural/artificial divide and where humans fit into that scheme.

\textsuperscript{42} MC, in discussion with the author, August 2016.
only adopted the practice of enslaving Africans because they had to keep up with South Carolina and that historically Black colleges and universities were formed because it “wasn’t fair” for Black students to go to school with white students.⁴³ Both of these statements are willfully ignorant of the social truths that encouraged the exploitation of people of color and established segregation, and reflect a history that has been constructed by white people and upholds ongoing structural racism as inevitable.

In addition to natural and artificial selection, a third way an organism changes from one generation to the next is based on transgenerational phenotypic plasticity. For any organism, whether plant, animal, fungi, or bacteria, the genotype is the information that is contained in the DNA, the genetic code. The phenotype is the visible collection of traits coded for in DNA in the context of the organism’s environment. For example, the genotype is the sequence of DNA in a pea plant that determines the shape of the peas, and the phenotype is the physical shape of the pea, smooth or wrinkled, visible when we open up the shell. Transgenerational phenotypic plasticity is the ability for these observable characteristics to change from one generation to the next based on the parent’s environment. A common example is how plants whose parents were grown in dry environments will be more drought-tolerant than plants whose parents were grown in moist environments. Plasticity in this regard is evidence that more than just the genetic code dictates an organism’s function, the conditions in which it and its parents were raised also influences its survival. All of this goes to show how innate the relationship between an organism and its environment is, and how the effects of the environment can manifest themselves in just one generation—as opposed to the many generations of natural or artificial selection required to confer visible changes to an organism. A plant’s ability to fine-tune its phenotype based on the environment increases its chance of survival—and these modifications are also retained in the seed. For this reason, it is immensely

⁴³ CC, in discussion with the author, August 2016.
valuable for plants to undergo the cycle of producing new seeds, because each new generation’s performance is influenced by its parents’ environment.

**AGRICULTURAL ORIGINS**

When tillage begins, other arts follow. The farmers, therefore, are the founders of human civilization.

Daniel Webster

God looked down from His planned paradise and said, ‘I need a caretaker’—So God made a farmer.

A mug in the Porter* home

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Figure 7: Top: A corn seed germinating. Bottom: Lateral section of a corn seed.\(^4^4\)

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Similar to the way the endosperm provides nutrients and energy for the growing embryo, seeds, plants, and the food they provide have supplied humans with the necessary “fuel” to build civilizations. Biologist Thor Hanson elaborates: “More than perhaps any other natural objects, these small botanical marvels paved the way for modern civilization, their fascinating evolution and natural history shaping and reshaping our own.”\textsuperscript{45} The domestication of edible plants into crops able to be grown in the same place from year to year permitted hunter-gatherers to settle into a single place and form agrarian societies. By staying in one place to tend to their fields, our ancestors were able to develop these areas into some of the oldest communities and settlements known. It is important to note nomadic communities still exist with rich histories and cultures, but the vast majority of peoples can trace their histories back to agricultural communities, blurring the lines between these two lifestyles.

For the sake of this project, I will be focusing on peoples whose ancestors dwelled in agricultural societies, because it is in these lineages that the co-evolution between humans and their crops is most apparent. The relationship between plants and animals has evolved into a self-perpetuating cycle: we rely on plants for food, and have therefore domesticated them, and domesticated plants have returned the favor by turning us into sedentary creatures whose livelihood depends on keeping the plants alive and productive. Agricultural crops rely on us, we rely on them, and both rely on farmers to negotiate the exchange. Yet, all of this is changing: in the United States, less than one percent of people are farmers, despite the tremendous population growth the country has seen. Despite our long agricultural history, from yeoman farmers and small

\textsuperscript{45} Hanson, \textit{The Triumph of Seeds: How Grains, Nuts, Kernels, Pulses, & Pips Conquered the Plant Kingdom and Shaped Human History}, xxiv.
homesteads in the North to plantations in the South and ranches out West, the United States is now less agriculturally based (and arguably less agriculturally aware) than ever. Consequently, we must reconsider how our relationship to food (and the plants from which they stem) has changed and continues to change now that most people do not interact with their food before it appears on grocery shelves.

Almost all of the food we eat can be traced back to seeds, from fruits to vegetables and even dairy and meats—cows and chickens eat grains, which are seeds. Even though farmers grow plants for us to consume (or to feed animals raised for human consumption), plants grow and fruit and go to seed so a new generation, their offspring, may be born—not to selflessly feed our human societies. In fact, according to biologist Thor Hanson, “...the foundation of the human diet laid in co-opting seed food, stealing the nourishment designed for baby plants.”46 The source of our diet is also the basis for our ways of life, as Kent Lomis*, a small-scale Black farmer in Atlanta explained to me during our conversation: “many of our indigenous stories start with growing. This is powerful and shows us how to survive—food provides us with the energy to move forward and on.”47 He later told me:

Being from the South, many of us brown people, indigenous from this land, connect to ancestors, regaining that intergenetic and spiritual experience, [through] eating culture, [and] reestablishing our culture—a lot of people say that Black people don’t have culture, but lo and behold...48

His relationship to the land is informed and augmented by the food and plants he grows. By farming, Loomis is establishing the countermemory that Nazarea mentions; Loomis’s work demonstrates one way in which willful, deeply-rooted culture is being embraced

46 Ibid., xxv.
47 KL, in discussion with the author, August 2016
48 Ibid.
and lived. The connection to the land experienced by this farmer is rooted in a nurturing relationship as opposed to an exploitative one. Loomis feels that those indigenous to the land are able to remain tied to it regardless of displacement or oppression because the land is a part of their history and culture. This connection pervades forced separation through seedsaving, which allows farmers to connect to the land and its practices no matter their location.

Though not always reflected in mythologies, this need to cultivate the land for survival is fundamental to most agricultural societies. Similar stories and histories from around the world, emerging from the independent development of agriculture in multiple locations, are evidence of how fundamental agriculture has been for the world and humanity. However, humanity’s reliance on plants and the constant need to work the land to produce sustenance makes room for a dynamic between the producers and consumers that, as I demonstrate, is easily exploitable.

As humans have advanced technologically and industrially, we have also advanced agriculturally. The earliest farmers found that by artificially selecting and planting seeds from plants with desirable traits, the next generation would be able to retain these traits and provide the best nourishment (usually measured by size and yield). So, to take advantage of the way genes and therefore traits are inherited, these farmers interfered with plants’ natural cycles in order to create new breeds of plants more suited to human consumption. For example, corn and most other grains are descended from grasses (these are all in the plant family Poaceae, which includes rice, wheat, bamboo and even the grasses in our lawns). Corn is descended from teosinte, a grain that is significantly smaller, with fewer seeds per ear and only one ear per stalk. Originally domesticated in Mexico, ears of corn (also called maize, or Zea mays according to the
scientific binomial nomenclature system) are several times the size of its ancestor, with many more kernels per ear and many more ears per stalk. Artificial selection, the process by which humans pick and choose which organisms have the ideal traits and only allow those organisms to reproduce, has created modern day agricultural crops, as well as hundreds of dog breeds and tulip cultivars (just to name two organisms that we’ve influenced). However, when deciding which traits to prioritize and therefore manipulate, human-determined uses and aesthetics are prioritized over the organism’s health or needs; this is why some plants (and purebred dogs, for that matter) are so prone to diseases and other developmental or health issues. Similar to the prejudices that determine which parts of and perspectives on history are preserved, societal pressures also shape plant and animal breeding. Southern history has been manipulated to benefit white men and ignore people of color, and plants have been bred to better suit human needs and for capitalist incentives, often at the cost of the plant’s wellbeing. According to biologist and popular science author Thor Hanson, “Without the ability to manipulate pollination and save the result as durable seed, it's hard to imagine our ancestors ever succeeding in agriculture...plant breeding [is] a series of experiments in coevolution that has changed both plants and people forever.” It’s no wonder environmental anthropologist James Veteto has called agriculture “one of the most important acts of humanity”; the ability to continuously produce more than enough plant-based food in the same area year after year has given humanity enough time to “cultivate” ourselves too.

49 Hanson, *The Triumph of Seeds: How Grains, Nuts, Kernels, Pulses, & Pips Conquered the Plant Kingdom and Shaped Human History*, 69.
FOUNDATIONS AND NOSTALGIA

“Perhaps—I want the old days back again and they'll never come back, and I am haunted by the memory of them and of the world falling about my ears.”

Scarlett O’Hara

Countermemory triggers reconnection to our past and our inner selves by subverting dominant messages that tend to deny identity and sense of place.

Virginia Nazarea

The United States South is heavily steeped in nostalgia and a desire to preserve what many call a “simpler” lifestyle, more like “the way things used to be.” Nostalgia is characterized by a longing to return, whether to a place or time. Anthropologist C. Nadia Seremetakis, in her book *The Senses Still* expands on the nostalgia, explaining that it originates from the Greek counterpart, *nostalghia*, which:

…is a composite of *nostó* and *alghó*. *Nostó* means I return, I travel (back to homeland)…*Alghó* means I feel pain, I ache for, and the noun *alghós* characterizes ones pain in soul and body, burning pain (*Kaimós*). Thus *nostalghia* is the desire with longing or burning pain to journey. It also evokes the sensory dimension of memory in exile and estrangement.

This sentiment and desire for what has passed is paramount in Southern culture and is rooted in a defense of what is seen as the “Southern way of life”—something different from the rest of the country in both pace and mannerisms, although what that pace and those mannerisms are depends on who you ask. The antebellum South is heavily romanticized by white Southerners as a place filled with hoop skirts, sipping lemonade on porches, and Southern hospitality (a la Margaret Mitchell’s *Gone with the Wind*), while the worse aspects, including enslavement, displacement, and the obscene systematic

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52 Nazarea, *Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservation of Biological Diversity*, 44.
racism of the Jim Crow era are glossed over by those who have historically been in power and consequently disproportionately influenced history. Through this process, the portions of the past that are recreated reinforce unequal dynamics reminiscent of the pre-civil rights and antebellum eras, such as unfair systems of land ownership, discrimination by the USDA, and segregation.

Through my interviews I found that older white Southerners remember the past fondly, as a time of hard work, but always a return to family and community. For example, the Porters\(^*\), an older white couple in southern Georgia who had been farming on land inherited from the husband’s side of the family (the wife’s father had been a sharecropper on nearby land), recounted to me in their living room, surrounded by scrapbooks and religious and farm memorabilia, “It was hard work but it was a family thing what we did. We all worked together and played together.”\(^54\) The selectiveness of the white Southern memory that chooses to disregard the uglier parts of the past risks the erasure of the histories of people and plants implicated in the foundations of the agrarian South and continue to be forced to live in a society that does not uplift them. This prioritization of white history and erasure of Black and indigenous histories becomes even more evident when seeking to explore the ways in which preservation of the agrarian lifestyle occurs in different communities throughout the South. Throughout my research, it became apparent that those who historically owned land prioritize maintaining their land and keeping it in the family, whereas those who in the past were unable to own land or were pushed off of their land have found alternative methods of saving their culture and knowledge, including saving their seeds. The people who have turned to unconventional forms of agriculture and preservation routes, referred to as

\(^54\) M&BP, in discussion with the author, August 2016
those “on the margins” by environmental anthropologist Virginia Nazarea, have been forced to select mobile modes of remembering, reflecting their history of being repetitively dislocated by white people.\textsuperscript{55} Nazarea describes the role of the margins in seedsaving by positioning the margins as a place of “negotiating boundaries and finding openings in novel and spirited ways,” as well as areas that “provide spaces wherein dominant discourse and policy are contested in thought as well as in practice.”\textsuperscript{56} By retaining seeds, farmers on the margins are able to select for traits that they choose to remember and ensure that these qualities will be present for the generations to come. A dormant seed, carried from one piece of land to another over the course of many years, has some of the same cultural significance as land that has been passed down for many generations. However, I argue that this form of remembrance does not carry the same nostalgia that land-owners feel towards their farms. There is a degree of privilege associated with nostalgia, and the past is only desirable for those with the luxury of being able to romanticize it. Those on the margins still strive to retain the past, but as a way to survive rather than as a method of recalling a supposedly “better” time.

\textbullet{} A seed can undergo two types of latency: dormancy and quiescence. The primary difference between the two is that quiescence is merely a phase of “relative inactivity,” whereas dormancy is defined as:

\ldots{}a special condition of arrested growth in which the plant and such plant parts as buds and seeds do not begin to grow without special environmental cues. The requirement for such cues, which include cold exposure and a suitable photoperiod, prevents the breaking of dormancy during superficially favorable growing conditions.\textsuperscript{57}
The conditions a seed requires to exit dormancy and continue growth into a plant varies by species: some require a period of extreme cold followed by a thawing phase, some need to be digested and excreted by birds or other animals, and others need to be exposed to fire, to name a few. Only once these conditions are met can a seed germinate and sprout into a plant.

Dormancy is characterized by desiccation, in which the seed can lose up to ninety five percent of its water and the seed coat hardens to form a protective shell around the tender interior. This is the state in which we usually think of a seed: small, hardened, and dry (think of a corn kernel, a bean, or a grain of rice; all of these are desiccated seeds). Though dormancy may seem long and uneventful, throughout this period the seed prepares to sprout into a plant that will live to create more seeds, so the process can begin again. In this manner, one seed becomes many, and the plant is able to perpetuate its genetic lineage and keep from going extinct. A seed’s entire purpose can be somewhat summed up as securing the embryo until it is in a safe place to flourish.

KNOWING AND GROWING

“What we eat, had you not roasted it, could have been a plant.”

David King

The seed, for the farmer, is not merely the source of future plants and food; it is the storage place of culture and history. Seed is the first link in the food chain. Seed is the ultimate symbol of food security.

Vandana Shiva

Seeds, at their botanical core, are the “unit of reproduction of a flowering plant.”

Each seed, assuming it encounters the conditions required to germinate, will eventually grow into a plant that, if left to reproduce, will produce tens, if not hundred or thousands, of seeds. In this way, plants are able to ensure that at least some amount of

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58 DK, in discussion with the author, August 2016
59 Shiva, Stolen Harvest: The Hijacking of the Global Food Supply, 8.
their offspring will survive to undergo the same cycle. A seed, by housing the plant embryo, is a miniature DNA reservoir. But, more than just biological information, the seed also contains cultural significance. Considering the seed and the plant it will become as food, the connection becomes more obvious. Food, as sustenance, plays an unavoidably large role in any culture; along with water, it is the bare necessity for survival. Urban farmer Kent Loomis* draws the connection between saving seeds and saving culture by explaining, “food is culture, so losing food is the same as losing culture. People bring foods from their cultures, and food is a way of maintaining the cultures that make America what it is, or what it could be, today…Food comes with culture, it is a source of good and bad…Food determines food and culture.” Seeds and plants thus become symbolic of what permits culture to propagate itself. Therefore, as seeds generate more seeds, they are continuing both genetic and cultural lineage. Through these cycles of reproduction, traits of the plant are able to come to fruition and be maintained for the next generation. Additionally, the intimacy between the cultivators and the cultivated grows, and this relationship shapes both the farmer and the plant. In this way, as anthropologist James Veteto suggests, “cultural memories can run parallel to the genetic codes contained in cultivated plants.”

The dual nature of seeds as both biological and cultural adds a new dimension to familiar plants, and our conception of farmers as not just people who grow seeds, but also as people who know seeds and keep cultures alive. Mark Carter*, a fifth generation cotton farmer from Vienna, Georgia, explained to me during our meeting in Perry, Georgia, “most folks get great satisfaction, from taking nothing and making something, from a tiny seed to a giant plant.” Farmers historically have had a relationship to seeds

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60 KL, in discussion with the author, August 2016
that considers seeds as multifaceted entities full of memories. Southern anthropologist James Veteto describes, “These memories are characterized by intimate impressions and understandings of the properties contained within seeds, combined with what individual farmers have learned from empirical experience, sensory embodiment, and social learning from others.”62 Prior to the introduction of hybridized seeds unable to produce viable offspring, a large portion of a farmer’s knowledge and skill revolved around the ability to be familiar enough with different varieties in order to select successful seeds.63 By physically retaining seeds, the cultures of those farmers and gardeners are also being preserved. Most seeds come with a story, and those who save seeds know that when they decide to keep a seed, they are also keeping that plant and the person who grew its story, as well as maintaining biodiversity.64 As Iris Welty* a Black farmer and seedsaver based in Virginia, told me over the phone one evening, “Lots of seeds come with a story—they aren’t just a vegetable—the story takes you back to a time and place.”65 Similar to how conventional farmers consider maintaining their family’s land as a method of preserving their heritage, farmers on the margins choose to preserve their family’s seeds as a way of invoking the past—hence the name “heirloom seeds.” Virginia Nazarea also makes the connection between plants and place, stating:

But first, let us consider ‘heirloom,’ ‘vintage,’ or ‘old-timey’ plants in relation to sense of place, where I think they have the greatest bearing. The very fact that these adjectives are used for traditional species and varieties of fruit trees, vegetables, and ornamentals is an indication of the familiarity, affection, and dignity associated with what has been passed down from generation to generation. Signifying not only age but, more importantly, lineage and legacy, heirloom plants are highly prized by many Southerners…(80)

62 Ibid.
64 IW, in discussion with the author, August 2016
65 Ibid.
According to her analysis, the South is a place where farmers seek a connection to the past. Traditions are highly esteemed, and farmers seek to maintain customs their parents and grandparents also participated in; out of this desire to perpetuate the past sprouts the tradition of heirloom seedsaving and seed sharing. For example, Ted and Jo Bushwick*, farmers that I interviewed at their family farm in north Georgia, grow a quarter acre of Hawkins Prolific white dent field corn that Ted’s grandfather began planting in the 1920s. These stalks are almost twice as tall as Ted, and are grown with squash and beans as the three sisters, a tradition Ted’s ancestors learned from the Cherokee people indigenous to the place he calls home. Since then they have saved the corn seeds, as well as seeds from a variety of other plants that they grow, as a way of keeping his grandfather’s memory alive.  

Within each seed, no matter how large or small (seeds can range from the size of a grain of sand to larger than a bowling ball), resides the plant embryo and the endosperm (nourishment from the mother that the seed uses until it is able to absorb resources from its environment), all encased in a seed coat. The plant embryo contains all of the genetic information the plant needs to determine what sort of plant it is and how it will grow. Being able to wait for the ideal cocktail of temperature, oxygen, and moisture increases that seed’s odds of surviving until it can produce the next generation.

The seed, with its mature embryo, stored food, and protective seed coat, confers significant selective advantages over plants lacking seeds: the seed enhances the plant’s ability to survive adverse environmental conditions and facilitates dispersal of the species.

66 T&JB, in discussion with the author, August 2016
67 Evert, Eichhorn, and Raven, Raven Biology of Plants, 526.
For these reasons, some scientists have called the seeds characteristic of gymnosperms and angiosperms the “greatest innovation in the history of nature.”

Figure 8: a peanut seed. 

Reticulate pod of *Arachis hypogaea*

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68 Hanson, *The Triumph of Seeds: How Grains, Nuts, Kernels, Pulses, & Pips Conquered the Plant Kingdom and Shaped Human History.*

II. Germination / Resources

INHERITANCE

“God told me to take care of the land for future generations…money doesn’t last, but land does.”

Ted Bushwick*70

For many Southern farmers, their likelihood of achieving success as a farmer depends on what they are born with—socially, racially, and economically. Agriculture is a high-risk business: one failed crop could make or break a season’s revenue, and the loss of one season’s revenue could prevent a farmer from being able to afford the materials necessary to grow again the next season. Whereas ensuring a farm survives is stressful, Mark Carter*, a farmer and cotton gin and peanut buying point owner said his favorite part of the year is:

…getting started, planting crops, and four or five days later checking for sprouting. It’s also the hardest part—we’re so financially and emotionally invested. You put everything you can into a crop to make it—the main goal is being able to do it all another year.71,72

If a farmer has inherited their land, equipment, or even a good reputation, it will be a lot easier to remain prosperous. Regardless of how hardworking a new landowning farmer might be, it will be significantly more difficult for them to break—even financially than for a farmer who works land that has been in their family for decades and generations—

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70 T&JB, in discussion with the author, August 2016
71 A peanut buying point is the location that serves as a liaison between farmers and peanut shellers.
72 CC, in discussion with the author, August 2016CC, interview by Eva Rose Steinberg, 2016.
emphasizing how little agency a farmer actually has and the huge role family history can play in determining a farmer’s success.

Agriculture, no matter how it is practiced, is an energy intensive process. Seasons and years of depleting the earth and natural cycles of their nutrients without fallow time results in farms requiring vast amounts external resources. Not only are huge amounts of human or mechanical labor needed, but also additions of water, nutrients, and in the cases of conventional agriculture, fertilizers, pesticides, and other chemicals. These chemicals are especially necessary because the land has become so nutrient and resource poor. Without added nutrients nothing would grow, and plants grown in these conditions are more susceptible to pests and weeds. Likewise, generations of farmers have become depleted; events such as the market crash of the 1980s and more regular fluctuations in seed and land prices have deterred the children of farmers from following in their parents’ and grandparents’ footsteps. This holds especially true for farmers on the margins. Generations of oppression through displacement, enslavement, sharecropping, and other forms of institutionalized racism and discrimination made it economically difficult to manage a farm, resulting in a steep decline in Black farmers. Woodrow Harper Sr., a Black farmer from Hartwell, Georgia, who participated in the Southern Agriculture Oral History Project, explained that the main reason for the decline of Black farmers in the South was because:

[T]hey wasn’t able to support it financially. And it was a few landowners, the majority of landowners was white and they saw fit to do other things with their land, which they had all the priority to do that if they want to. So, after jobs opened up in Hart County pretty good, our younger people saw that they could make more cash money working publicly than they could out here on the farm, which the income mostly comes once a year.73

73 Harper, "Southern Agriculture Oral History Project."
A farmer’s inheritance can be conceived of in several regards: physically, culturally, and intellectually. For Southern agriculture, these factors feed into each other, and without all three—the farm itself, the desire to farm, and the knowledge of how to pursue farming—it is difficult to be a successful farmer. Consequently, those born with any of these factors are more likely to prosper and enjoy farming, and have children wishing to pursue agriculture as well. A farmer without land will not have the means to grow and thrive. When asked to explain why the number of farmers has declined, S.L. Wellborn, a farmer from Jefferson, Georgia shared how in his experience:

[People have had more money, though they live from hand to mouth, a lot of them. But they have had an income from off the farm. And younger people are not farming. That’s been a big, major thing… It’s hard, and it’s hard to get started. If you didn’t inherit it from your father, it’s almost impossible to go out and buy land and start farming. With the squeeze now and the soybean prices were depressed. Cotton’s a little better than it has been… one of the questions I asked was how many farmers in this community are less than 50 years old. Well, we didn’t find but one or two or three in this whole county.]

By starting an agricultural career already with land, a farmer is more concerned with maintaining the family heritage than with establishing a new farm. Maintenance rather than establishing is a very different sort of work, and requires more resources and energy to accomplish. It is much more difficult to establish a new farm than to uphold an old one. This is not to undermine the feat of running a financially successful farm, just to emphasize how those who have not had to purchase land and turn it into fields suitable for growing have an advantage over those who must start from scratch.

Once a seed encounters the proper conditions, it will exit dormancy and begin to grow. It is possible that a seed will never get to this stage—the majority of

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seeds in the wild will not grow to maturity for a number of reasons, such as being eaten, rotting, or just never finding a suitable environment. However, if a seed does make it this far, the way it begins its growth into a plant sets the stage for the rest of its life. A seed is only able to begin the journey to becoming a plant because of the energy and nutrients packed into the seed coat with the embryo. Creating one seed, let alone hundreds or thousands of seeds, requires huge amounts of energy. Most of a plant’s energy is allocated to seed production to increase the probability of as many seeds as possible having a chance of germinating and growing to maturity. Evolutionarily, a plant’s only goal is to live long enough to produce viable offspring, and over time, plants have developed methods of increasing the likelihood that they will be able to pass their genes on to the next generation.

THE SOUTHERN “ENVIRONMENT”

I can imagine, though, that the threat of losing the soil one had tilled perhaps in all memory, of not being able to claim it, was threat of a breath withheld.

Lauret Savoy\textsuperscript{75}

Only if we know how the land was can we tell how it is.

Wendell Berry\textsuperscript{76}

A new plant’s likelihood of survival is not wholly dependent on the stores it acquires from its mother—it is also dependent on the seedling’s ability to transition to getting its own resources from the environment and whether or not there are actually reserves to be tapped into. Similarly, Southern farmers must negotiate the amenities they get from their families and the amount of support available to them in their communities. However, the necessity of negotiating with the surrounding social

\textsuperscript{75} Lauret Savoy, \textit{Trace: Memory, History, Race, and the American Landscape} (Berkeley, CA: Counterpoint Press, 2015), 100.

\textsuperscript{76} Wendell Berry, \textit{The Unsettling of America: Culture and Agriculture} (Berkely, CA: Counterpoint, 1977), 30.
environment becomes significantly more complicated when the environment is based on generations of systematic discrimination. Though there have been efforts to reduce racism in agriculture, lingering effects of these oppressions remain. A lingering effect of the social and political trends that made marginal farmers unable to own land or make enough of a profit is that the companies and government organizations meant to help large-scale farmers do not acknowledge or provide assistance to those on the margins.

Perhaps the most famous example of systematic discrimination by the USDA provided fodder for the 1996 Pigford v. Glickman Supreme Court case, in which Timothy Pigford, on behalf of Black farmers, sued Dan Glickman, the secretary of agriculture in the mid-1990s, for systematic racism against Black farmers. This discrimination was manifest as the denial of farm loans and reduced payment for crop and disaster payments for minority farmers, as well as through ignored complaints about this racism. This and a following case entitled Pigford II were both settled after the USDA was found guilty of perpetuating discrimination against Black farmers.77 Due to the South’s racial and political history, combined with discriminatory trends from the USDA preventing the emergence of new farms, the main producers of large-scale agriculture commodities are the same families who have owned land for decades.

Figure 9: Farmers in Georgia, according to the 2012 USDA Census.\textsuperscript{78}

Figure 10: Farms and their operators in Georgia, according to the 2012 USDA Census.\textsuperscript{79}

\textsuperscript{78} "2012 Census Highlights".
\textsuperscript{79} Ibid.
The difficulties in establishing a farm in an adverse societal environment is reminiscent of a plant trying to grow in the nutrient-poor soils of an overworked field. However, unlike the fertilizers available for plants, there is no readily available supplement for farmers on the margins. This makes sustaining and imbuing an agricultural heritage to the next generation even less feasible for farmers. A plant that doesn’t establish a way to thrive in its environment has no hope of surviving to make seeds, and a farmer that is unable to farm will have a significantly harder time passing on an agricultural lifestyle to their children via conventional land-based modes of inheritance.

The connection between a farmer and the land is both practical and deeply emotional, especially in the context of the South. Wendell Berry, a farmer, historian, and writer deeply concerned with the changing agricultural landscape, asserts that the

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Ibid.
relationship between farmers and the land is less deeply rooted than that of indigenous peoples and the land. He explains:

The Indians did, of course, experience movements of population, but in general their relation to place was based upon old usage and association, upon inherited memory, tradition, veneration. The land was their homeland. The first and greatest American revolution, which has never been superseded, was the coming of people who did not look upon the land as a homeland.81

The arrival of colonists and consequent genocide and displacement of indigenous peoples was never mentioned by the majority of large-scale farmers I talked to, further evidence of the selective memory exercised by Southern history. However, Ted Buskwick*, a white small-scale organic farmer from north Georgia told me that his farm has “been a family farm since they ran the Indians off.” The acknowledgement of this legacy of settler-colonialism was unusual: it simultaneously felt shrouded in a sort of colonial romanticism yet recognized the origins of their land in a way uncommon among most Southern landowners. Even more surprisingly, Ted and his wife, Jo*, who don’t have any children, plan to repatriate their land by transferring it back into Cherokee hands after they die because they “don’t trust anyone else to keep the land as a farm.”82

Mark Carter*, the only large-scale farmer to mention the ties between Southern land and indigenous peoples to me, clarified in our conversation, “Farmers were the first environmentalists…a lot of farms are Native American lands converted to farms—there’s an [inherent] emotional connection to the land.” He later added, “It’s very American to own land—you know it’s your living.”83 His interpretation of white acquisition of Cherokee land in the South includes a transferal of a romanticized notion of the relationship between indigenous peoples and the land, followed by an equation of

81 Berry, *The Unsettling of America*, 4.
82 T&JB, in discussion with the author, August 2016
83 MC, in discussion with the author, August 2016
the procurement of land by any means necessary. Additionally, his use of land ownership to define being “American” is demonstrative of some of the worst parts of Southern history and attitudes; he uses an argument comparable to manifest destiny to defend the exploitation and abuse of land and people.

The farmers I interviewed were especially proud of Southern soil and land, claiming it “has lots of minerals,” and consequently, “more taste and flavor comes from the good ground.” Other farmers expressed profound concern for what would happen to their land after they had to sell it. In his interview for the Smithsonian project, Harper recounted to historian Lu Ann Jones:

I had one man say, ‘I’m not worried about finding a job. I’m concerned about what is happening to what I’ve worked with for so long.’ It’s the trauma of seeing this land in somebody else’s hands and not knowing what is going to happen to it. It’s just an awful lot of sentimentality involved in it. That’s the way I view it.

Land becomes sentimental because of a long life of working, nurturing, and depending on it, and in this way grows to be a sort of heirloom.

In order to fully consider why it is so difficult for a Black farmer to own land, it is vital to explore the ways in which the South is built on a foundation defined by systematic oppression. The results of these forms of institutionalized discrimination are visible throughout Southern agriculture. For example, Woodrow Harper, a Black farmer from Georgia, explained to Lu Ann Jones for the Smithsonian project that many sharecroppers lost their jobs because:

Well, right around here people who were able to own land, they say a better thing maybe to let one man handle the whole thing and maybe the sharecropper is knocked out, because he’s had to be responsible for the sharecropper….That’s

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84 T&JB, in discussion with the author, August 2016
85 Harper, "Southern Agriculture Oral History Project."
the situation where the average people wasn’t able to own land, to farm. They might own two of three acres or five or six or ten acres where they live and that’s it. But that’s not a farm living. So it’s just been tough. That’s the reason for some of the changes now.86

Considering that the majority of landowners were white and many of the sharecroppers were not, most of the farmers “knocked out” were African American, perpetuating the discrepancies between who owns land.

As a result of the racism ingrained in the South, it remains extremely difficult for a Black farmer to survive solely by farming. Pete Daniel, a curator and scholar of Southern history, explains in his book *Dispossession: Discrimination Against African American Farmers in the Age of Civil Rights* (2013):

> The moment that civil rights laws promised an end to discrimination, tens of thousands of Black farmers lost their hold on the land, in part because of the impact of science and technology on rural life but also because they were denied loans, information, and access to programs essential to survival in a capital-intensive farm structure.87

Due to the lack of assistance provided for Black farmers, some, such as Harper, had to take out loans in order to maintain their farms. In his testimony, Harper relayed how, in addition to his loan, he had to have a night job in order to supplement their farming income just to make enough money to survive.88 Similarly, Bobby Hawkins*, a white farmer I interviewed, began farming only fifteen years ago and works at the local tri-county Ag Farm dealer in addition to farming on land he leases.89 In these ways, the resources that the farmer and the farm are born with begin to parallel the resources a seed receives from its mother—both require a certain amount of energy in order to grow

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86 Ibid.
89 BH, in discussion with the author, August 2016
and flourish successfully, but there are environmental factors, social, racial, political, biological, or otherwise, that alter and inhibit growth.

Much of a farmer’s success can be attributed to whether or not their family owned land. Whether they continue to actively farm the land or continue to work in the agriculture sector, a lot of what determines their career path is how their families portrayed agriculture. Of all of the people I interviewed or read interviews with, only Kent Loomis*, a Black urban farmer from Atlanta, Georgia, didn’t grow up on a farm or gardening. He was born, raised, and is currently living and working in Atlanta. A common theme across farmers who also grew up on farms was, “I didn’t know anything else.” These farmers pursued farming partially because they were exposed to it at an early age, even though it didn’t necessarily lead to huge profits or job security, and in part because they weren’t encouraged to try a different profession. As Clyde Purvis, a farmer from Tifton, Georgia, interviewed by Lu Ann Jones said, “I learned it’s not how much land you got, it’s how you use what you’ve got.” Many farmers who inherited an agricultural lifestyle but little or no land expressed similar sentiments—they were determined to continue farming despite the challenges they faced and their exclusion from conventional large-scale agriculture. Author Lauret Savoy ponders this connection to the land regardless of lack of ownership in her moving memoir, *Trace: Memory, History, Race, and the American Landscape* (2015). She writes:

> What is clear is that into the twentieth century very few African American families came to possess land as their own property. I’ve wondered what deeper forms of possession, more concrete and felt, they had. Not finding their stories doesn’t mean they never existed. Spoken words, exhaled breath, are to me just as real as paper records. So is soil embedded into one’s palms.

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90 Dorminy, "Southern Agriculture Oral History Project."
91 Clyde Purvis, ibid.
I argue that retaining agriculture as a way of life and not just as a means to an end, despite decades of discrimination, is an essential component of the connection of seedsavers to the land. By continuing to uphold their ancestors’ livelihoods these farmers also encouraged a relationship to nurturing and working the land, exemplified through using seeds from the plants their parents grew. Though they may not have owned the land, they developed profound connections to it as a result of years of work and generations of nurturing, eating, and sharing the same plants.

(BIO)DIVERSITY

“You name it, it’s grown in Georgia”

Each species of plant responds to different environmental cues to commence plant growth. It’s possible a seed will never be able to grow if the necessary environmental conditions don’t arise before the seed is eaten, decomposes, or is buried under too much dirt and leaf litter to ever be exposed to light cues. Germination, as defined by Raven Biology of Plants (2013), is “The beginning or resumption of growth by a spore, seed, bud, or other structure.” Though a vague definition, in the context of this piece I will focus on seed germination, the beginning of growth by a seed. However, before examining the processes by which a seed is able to germinate, it is important to understand the different components of a dormant or quiescent seed. In the previous chapter, I explained that the seed consists of three main components: the embryo, the endosperm, and the seed coat. More specifically, each seed is organized along an axis with one or two cotyledons (the plant’s first leaves), the apical meristems (points of extreme cell division that will eventually become the plant’s shoot and root), and

93 RB, in discussion with the author, August 2016.
94 Evert, Eichhorn, and Raven, Raven Biology of Plants, G-10.
a radicle (the embryonic root). Once the seed begins to grow, each of these parts will give rise to the main parts of a plant: the shoot, root, and leaves.

Figure 12: Three varieties of peaches from Fort Valley, Peach County, Georgia. From left to right: Frances, Johnsons Early, and Carmen.95

Many of the farmers and agricultural officials I interviewed credited Georgia’s soils and microclimates for its agricultural success. Georgia, as a generally mild and humid state, is ideal for farming because growing seasons are long, making it possible to work the land for the majority of the year. As a result of the climate, most farmers are able to grow a variety of plants, including cotton, peanuts, soy, tobacco, pecans, peaches, watermelons, and blueberries (to name a few of Georgia’s largest crops). This “diversified” agriculture is often contrasted to the monocrops of the Midwest, where farmers primarily grow only corn or soy.96 While interviewing Ben Sherman*, Ray Byrd*, and Brandon Butler*, all of whom work at the Georgia Crop Improvement Association and Georgia Seed Development, they expressed immense pride regarding the

96 RB, in discussion with the author, August 2016
biodiversity in Southern agriculture, and even explained to me that because there are so many different crops grown there, big seed companies tend to focus their energies in the Midwest, where there is more land and it is easier to dominate the market. Consequently, smaller seed companies and the University of Georgia are able to fill the gaps left by the absence of a large company monopoly, which leads to more opportunities to develop better and more productive varieties. These professionals warned that Georgia’s crop diversity is both a “curse and a blessing:” the diversity provides a level of security because it allows the farmer to spread the risk over multiple commodities, but it also makes it difficult to focus on developing any one plant.97 This narrative of robust crop diversity was confirmed by the Georgia Department of Agriculture’s Tifton Seed Lab, which Seth Hammond, an employee there, told me is “more diverse than any lab in other states.”98

However, in talking to farmers who do not participate in the large-scale agriculture practices typical of row crops, biodiversity takes on an entirely different meaning. Not only do farmers grow a wide array of different species, but many grow multiple varieties of each species, some of which have been in their families and communities for many generations. Virginia Nazarea maintains that a diverse agricultural landscape isn’t novel, explaining:

If we think about it, the nurturance of biodiversity in farmers’ fields has existed for as long as farmers have cultivated, and tinkered with, their plants, whether driven by scarcity and need or curiosity and fun. For this reason, we need to be cognizant of, and faithful to, the mechanisms and dynamics that have favored the persistence of genes and gene complexes in home gardens and small-scale farms as well as the borders of commercial plots.99

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97 BS, in discussion with the author, August 2016
98 SH, in discussion with the author, August 2016
At the root of this discrepancy in biodiversity is the source of seeds and the environments in which the seeds are grown. Though the land in Georgia might have started out “real rich,” the soil has become unhealthy after years of intensive agriculture that slowly stripping away nutrients. Now, the land can only sustain plants with heavy fertilizer use. Other consequences of growing plants in these sorts of agricultural environments include a higher susceptibility to pests. Because the crops are grown in the same plots year after year, the insects that feed on them know to return to the same locations. To combat the growing number of pests, farmers are forced to apply strong chemical pesticides to their crops, which leak into and harm the soil as well as kill potentially beneficial insects. Similarly, farmers spray their crops with herbicides to ensure weeds do not take over their fields. To make sure that the intended plants don’t die, large seed companies have developed herbicide resistant plants, which are even more expensive. In total, the combined cost of modified seeds, fertilizers, pesticides, and herbicides, not to mention the amount of equipment and hired (often migrant) labor required to maintain these huge plots of land are monstrous. Wendell Berry is very cognizant of the effects of these inputs to the land, but maintains that farmers and agribusinesses are unaware, saying, “Nor is there any acknowledgement of the influence of ‘monster’ technology (‘acre-eaters’) on the soil, the produce, the farm communities, and the lives and characters of farmers.”

Similar to the selectiveness directed towards the killing, appropriating, and oppressing present in Southern history, large-scale farmers ignore the larger consequences of their practices, choosing instead to emphasize how they are able to turn a profit and perpetuate their methodology year after year.

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100 Berry, *The Unsettling of America*, 61.
Connor Calhoun*, a representative of the Georgia Cotton Commission elucidated to me, “Farmers are asset rich and cash poor:” all of their money lies in the land and equipment. In this vein, farmers with land inherited from their families, if they want to keep the land, are forced to adopt growing practices that maximize productivity, even if it entails sacrifices for the environment and biodiversity. Experts on food sustainability Cary Fowler and Pat Mooney, in their book *Shattering: Food, Politics, and the Loss of Genetic Diversity* (1990), lament the loss of this biodiversity, not only because it signifies a decrease in the varieties of plants, but also because it endangers the potential for evolution to occur:

The genetic diversity being lost today is the foundation of future plant breeding, of future plant evolution. If enough diversity is lost, the ability of crops to adapt and evolve will have been destroyed. We will not have to wait for the last wheat plant to shrivel up and die before wheat can be considered extinct. It will become extinct when it loses the ability to evolve, and when neither its genetic defenses nor our chemical are able to protect it. And this day might come quietly even as millions of acres of wheat blanket the earth.

In contrast, the farmers on the margins I talked to were much more conscious of the effects of their work on the land. They seemed to curate as many varieties of each plant as possible, as opposed to growing only one cultivar of each crop. There are a number of ways that farmers on the margins are more open to curating biodiversity, whether intentionally or not. Part of this is due to not needing to work just to keep family land. Farmers who are not tied to any one piece of land, especially huge swaths of land, have more freedom to cultivate the land in a way that is not solely focused on economic gain. This leads to the cultivation of seeds for reasons other than their productivity, durability, and pest-resistance; instead, these smaller-scale farmers embrace plants that, though not

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101 CC, in discussion with the author, August 2016
conventionally perceived as productive or efficient, have been worked by farmers for many generations and reflect the diversity of agriculture and farmers in Georgia. Iris Welty*, a Black farmer at the forefront of seedsaving as a form of preservation, explained that one of the main reasons to save seeds is “to preserve genetic diversity—with growing climate instability, genetic diversity can help us free ourselves. Saved seeds are more pest resistant and can produce under lots of different pressures.”

Farms at the margins are also more likely to engage in sustainable methods, such as crop rotation and less of a dependence on chemicals, which maintains healthier soil life. Considering how plants, especially heirloom varieties, are indicative of culture, these farmers, by cultivating greater biodiversity, are also cultivating cultural diversity—as Kent Loomis* told me, “messing up biodiversity eventually spreads and eventually messed up culture. It leads to societal breakdowns.” He later added that by planting heirloom seeds and unconventional breed, farmers are ensuring “A continuation of families of plants—humans, plants, and the environment are all living creatures. Different plants come from different places, and wherever we go there will be plants to feed us.” He and many other small-scale farmers understand our reliance on diverse cultures and plants in order to survive, and even thrive, as a society. We are dependent on the continuation of these lineages for nourishment and sustenance, both in the form of food and in the form of learning from other’s cultures and experiences. Economist Stephen A. Marglin, in his chapter “Farmers, Seedsmen, and Scientists: Systems of Agriculture and Systems of Science” from the collection *Decolonizing Knowledge: from Development to Dialogue (1996)*, acknowledges the lack of sustainability, diversity, and

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103 IW, in discussion with the author, August 2016
104 KL, in discussion with the author, August 2016
105 Ibid.
resilience in modern day agriculture and the consequences for both farmers and the environment, describing:

That is why ultimately there can be no agriculture for the people that is not agriculture of the people, agriculture by the people. People’s knowledge developed over centuries, even millennia, is the most important safeguard against disaster and the most sure basis of a resilient, adaptive agriculture. For this reason, diversity is a necessary to our development as human beings as it is to ecological balance. Just as exotic species like the snail darter maintain the diversity of the gene-pool, so does a variety of practices maintaining the diversity of forms of understanding, creating, and coping that the human species has managed to generate. But within the human species culture rather than instinct bears the primary load of the intergenerational transmission of knowledge. So the necessary diversity must be cultural rather than biological.\textsuperscript{106}

Marglin’s case for cultural diversity opposes agriculture as it is now, more mechanized and consolidated than ever. Agriculture removed from the people is less farming and more mining, and leaches the earth of nutrients and the people of culture. Culture in this context is crucial to the survival of people, land, and plants; imbued within culture lie the traditions and knowledge that allow seedsavers to form countermemories and recall narratives opposing oppression and discrimination. The practices of seedsavers add diversity to the plants being grown and simultaneously reinforce traditions that deviate from the norm and promote the histories otherwise ignored.

The degradation of land and usurping of resources in the name of modernity and progress is nothing new. However, the increase in machinery and chemicals has made land use more uncaring than ever. The exploitation of the land is paired with the exploitation of the already marginalized caretakers and workers of the land. As Paul Outka explains in his book \textit{Race and Nature}:

Evidence abounds that enslaved people, both in oral and written testimony, were intensely aware of how profoundly slavery depended on a violent and mutually constituting relation between Blackness and a degraded pastoral—the reduction of the human to a locus of agricultural productivity, fertility, or a commodified and domesticated animality.\(^{107}\)

The enslavement of African Americans, as Outka elucidates, was founded on the same sentiment that white people should possess and domesticate the land that backed the displacement and genocide of indigenous peoples in the South. Through the conflation, degradation, and consequent exploitation of farmers on the margins and nature, Southern society has established a precedent that does not value the preservation of the culture, land, or plants of those existing outside of mainstream large-scale agriculture.

\(^{107}\) Outka, *Race and Nature from Transcendentalism to the Harlem Renaissance*, 1st, 51.

On the other side of the axis, the seed’s cotyledons emerge in the form of what look like either one or two smaller leaves. Prior to sprouting, during germination and early seedling development, the energy stored in the cotyledons is digested by the growing embryo and used to fuel the plant’s early stages of growth. These pre-leaves jumpstart the plant’s photosynthetic activity, permitting the plant to make more energy for growth and storage. Eventually, the cotyledons shrivel and dry and fall off the plant. At this point, the seedling is established, and officially considered a “young plant.” This portion of a plant’s life, from germination through establishment as an independent organism, “constitutes the most crucial phase in the life history of a plant.”109 If, at any point during this process, something goes awry, the plant is unlikely to become fully established and survive to maturity, let alone reproduction. A plant’s survival is completely dependent on its ability to transition from using energy from the mother to acquiring resources from the environment.

Figure 13: Two species of bean seeds germinating

III. Growth / Mechanization

THE MODERN FARM

New was better, old was not meant to survive.

Pete Daniel\textsuperscript{111}

Figure 14: A modern tractor and combine, both seen in Pitts, Georgia, able to work up to sixteen rows at once.

Throughout the past century, conventional agriculture has transformed into something almost unrecognizable from its origins. These changes in farming are frequently attributed to “growth” and “progress,” but moving towards maximum crop productivity has had serious repercussions, especially for marginalized farmers and the land. Deborah Fitzgerald, a historian of the mechanization of agriculture expounds, “Looking at American agriculture then, one sees little technological or industrial activity before 1920. Most farm families, whether owner-operators or tenants, performed all the

\textsuperscript{111} Daniel, Dispossession, xi.
work themselves, often with the assistance of mules, horses, or hired hands.”112 She adds that throughout the rest of the 20th century, there was an “emergence of an industrial logic or ideal in agriculture…farmers and their families had to contend with a new set of opportunities and constraints, most of which grew out of the new industrial production systems.”113 Throughout the 1900s, a surge in larger and more efficient equipment changed agriculture globally. Farmers were able to accomplish more with less labor and fewer workers, allowing them to expand their operations.

As Deborah Fitzgerald continues to explain, “These systems, epitomized by the modern mass production factory and industrial boardroom, linked capital, raw material, transportation networks, communication systems, and newly trained technological experts.”114 However, the industrialized agriculture system doesn’t account for the familial aspect of so many Southern farms. It prioritizes business and money making, as Deborah Fitzgerald elucidates:

In exhorting the farmer to 'think of the farm as the business unit,' the expert was telling farmers something negative and something positive. Farmers should not think of their farms as just the place where they lived, or as a temporary job until something better came along, or as their fate. They should not think of their farms in only sentimental or romantic terms. They should not think of their farms only as supporting a rural way of life. They should think of their farms as places of business, perhaps as factories for producing things like pork and wheat, as places where productive activity was all business. It was fine for a farmer to enjoy the work, to appreciate the country air, and to have an emotional attachment to the land, just so long as this did not interfere with the business of farming.115

This mentality directly contrasts how many of the white people I interviewed perceived their livelihoods; these farmers and agrarians overwhelmingly fondly recalled their

112 Deborah Fitzgerald, Every Farm a Factory: The Industrial Ideal in American Agriculture (New Haven, CT: Yale University Press, 2003), 17.
113 Ibid., 3.
114 Ibid.
115 Ibid., 50.
childhoods on family farms. In their focus on maintaining family land and memories, they overlook how by adopting many of the changes resulting from modernization they have complied with this newer notion of the farm as a business unit. Though all of the white large-scale farmers with inherited land that I interviewed mentioned new reliance on machinery, technologies, and chemicals, they also maintained that above all else, they were innately connected to the familial aspects of agriculture. Somewhere between these opposing conceptions of the farm as a business and of the farm as a family heirloom is the reality. Farmers privileged enough to survive mechanization can afford to overlook the ways in which industrialization has created a more uniform agrarian landscape and focus instead on the more romanticized aspects of their profession. I argue that those on the margins, however, have always maintained an acute awareness of the ways in which their lifestyles and practices were discounted in the push for mechanization. Stephen Marglin, an economist known for his work regarding how economic thinking undermines community, emphasizes:

[I]ndustrialization and modernization were themselves predicated on a political as well as a psychological transformation; industrialization and modernization could not have taken place without the destruction of the political institutions which shaped and expressed the existence of the rural community…without the institutions that gave meaning to community, farming gradually became less a way of life than a way to make a living; the farmer became the agribusinessman."

This psychological and political shift, then, resulted in an agricultural sphere that not only valued efficiency and factory mentality over all else, but actively sought to undo much of the rural way of life. But more than just seeking to render rural communities and livelihoods moot, the industrialization of agriculture has necessitated it—modernized

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agriculture is lauded for its improvements, but only in reference to a negatively skewed perception of traditional farming practices. Consequently, marginalized farmers are placed in a position of double disenfranchisement: they are marginalized historically because of their race and economic status, and again labeled as outsiders because of their unconventional traditions due to their marginality. For these reasons, farmers on the margins must seek ways to subversively hold onto their heritage while still earning a living.

Through the development of streamlined agriculture, companies have created machines, chemicals, and seeds supposedly appropriate for any type of farmer. Farming was once diverse, with distinctive practices accounting for the different regions, crops, and climates. However, following industrialization, farmers are now considered as identical units, requiring the same machinery and technology regardless of the nuances of the people, the land, and the plants. Historian Deborah Fitzgerald, author of *Every Farm a Factory*, establishes:

> Observers of the American agricultural landscape have long struggled to develop a pithy and panoramic characterization of the scene, only to be stymied by the vast diversity of farming experiences throughout the fifty states. The size of the country itself is noteworthy, and this alone would prevent easy pigeonholing. Different landscapes blend with different crops, livestock, climates, and cultural traditions, rendering a single, generalized identity almost impossible.¹¹⁷

Despite these differences, the technologies taking over modern day agriculture aren’t suited to diverse climates. Instead, by thinking of the farm as a “business unit,” agriculture has become a uniform process to make profits at the expense of crop diversity. Where there were once nuances comprising a portion of the farmer’s relationship with their land and crops, the modernization of agriculture has brought in

¹¹７ Fitzgerald, *Every Farm a Factory*, 33.
technologies nonspecific to any farm. Southern farms now look more similar than ever, each growing the same crops using the same methodology and technology, even selling to the same corporate distributors. Companies capitalize on the few common needs and concerns of farmers and are able to create a market for products ignoring the differences between plant varieties, environments, and agricultural practices. This unvarying treatment works in favor of the large agribusinesses, which don’t have to make as many products, even if it is ultimately disadvantageous for the farmer. As Cary Fowler, a prominent agriculturalist and sociologist, and Pat Mooney, a food security and sustainability expert, warn:

To simplify the environment as we have done with agriculture is to destroy the complex interrelationships that hold the natural world together. Reducing the diversity of life, we narrow out options for the future and render our own survival more precarious. It is life at the end of the limb.\textsuperscript{118}

By simplifying farms, plants, and people, the stories that once distinguished one family farm from another are diminished into a narrative of transforming rural areas into efficient units of production. Fowler and Mooney maintain the danger to our survival of continuing to grow food the way we currently do and of treating the environment as a resource mine. However, those in power haven’t heard this message, or simply don’t care. To fortify these structures that fail to take natural systems into consideration, large-scale farmers are forced to pump their fields full of fertilizers and other chemicals, compensating for what they are lacking by buying into more high-input methods. The rationalization and systematization of agriculture led to an industry that, according to Deborah Fitzgerald, became “less about people and their problems and more about

\textsuperscript{118} Cary Fowler, \textit{Shattering}, ix.
processes and products.\textsuperscript{119} By neglecting the emotional aspects and perspectives of an agrarian lifestyle and erasing the human farmer in exchange for the potential of higher and more consistent productivity, farmers who didn’t own land fell to the wayside and were left to fend for themselves in an increasingly harsh and mechanized world.

\begin{quote}
Once a plant is established, its goal is to grow in order to acquire the nutrients and energy necessary to produce seeds. Plants gain all of their energy through a process called photosynthesis in which they are able to convert sunlight, water, and carbon dioxide into sugars. They then store these sugars as chemical energy for later use. When humans eat plants, these carbohydrates are what nourish us and provide us with energy. In order to make these sugars, the plant needs roots to uptake water from the soil, leaves to absorb sunlight and carbon dioxide, and a stem to connect the two. All of these parts of the plant are also growing through the division of specialized meristematic cells, which grow up or out so the plant will gain height, depth, and girth. The more a root system grows, the more water and minerals it can absorb; the thicker and taller the stem is the better it can support the plant and reach sunlight; and the larger and more plentiful the leaves the easier it is for the plant to access sun and carbon dioxide. However, a plant will not survive if it spends all its energy on growth. Instead, it needs to find a balance between growing so that it can produce energy, but not so much that there is no energy remaining for healthy seed production.
\end{quote}

\textsuperscript{119} Fitzgerald, \textit{Every Farm a Factory}, 34-35.
AGRICULTURE AS SCIENCE

“A peanut’s a peanut, not *Arachis hypogaea.*”

Debbie Scott*\(^{120}\)

“A farmer, he’s always been considered kinda ignorant like, but a farmer’s got to be pretty smart to survive.”

Clyde Purvis\(^{121}\)

Industrial agriculture gains its power by leveraging the conception of a farm as a factory and offering new technologies to maintain this role. Historian Deborah Fitzgerald expands this argument by adding, “Indeed, the dramatic changes in twentieth-century farming were usually described as stemming from the twin forces of science and technology, in the form of tractors, hybrid seeds, pesticides, electrification, and so forth.”\(^{122}\) Giant agritechnology companies have convinced farmers they should abandon their traditional knowledge for newer, more “scientific” methods, leading to the devaluing of older techniques that are often times healthier for the earth and the plants involved. The replacement of the “old” with the “new” disproportionately affects those on the margins. As Michael K. Steinberg, an anthropologist and geographer, points out, “Extension and development officials, who associate local and traditional crops with poverty and backwardness, often target local crop varieties or landraces for replacement.”\(^{123}\) In a similar vein, anthropologist Virginia Nazarea attests, “Western knowledge and rationality must admit that other knowledges and cosmologies are of equal validity and worth.”\(^{124}\) Industrialized agriculture’s tendency to overlook the

\(^{120}\) DS, in discussion with the author, August 2016

\(^{121}\) Purvis, "Southern Agriculture Orgal History Project."

\(^{122}\) Fitzgerald, *Every Farm a Factory*, 5.


\(^{124}\) Nazarea, *Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservation of Biological Diversity*, 49.
practices and people of the margins has resulted in what Nazarea later refers to as “monocultures of the mind” in which technology and standardization are prioritized above all else. Through the process of industrialization and constant advances in new technologies, an antagonistic relationship has been established between farmers and nature. Instead of working with nature, the goal of agribusiness is to thwart and eventually surpass anything perceived as a threat to “progress.” Consequently, unnatural components have been developed to supposedly augment agriculture, despite the inevitable consequences that will impact not just the environment, but also humans. Artificial soil amendments and other chemicals are applied in enormous quantities to circumvent any natural limitations on productivity, leading small scale organic farmer Ted Bushwick, and his wife, Jo*, to complain that “fertilizer and chemicals is eating us up.” They relayed how before they were organic farmers, Ted used to go out and spray the plants. He would come back with a bloody nose and would be sick for days after each pesticide application, catalyzing their switch to organic methods. Their experience is telling about the incompatibilities of large-scale methods and small farms—these chemicals are not intended for farmers who don’t have the machinery to keep their distance from the pesticides. In order to use the sprays and other chemicals safely, farmers need to buy into the whole industrialized package.

The shift from farmer to businessman and combined with agriculture’s preoccupation with science have left farmers in an unfortunate situation. They are forced to learn an entirely new set of skills to operate in a mechanized manner, and if they want to keep up with the science behind the new seeds and chemicals and tractors, they also need to learn about an industry developing at breakneck speeds. As Ben Sherman,* Ray

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125 T&JB, in discussion with the author, August 2016
Byrd,* and Brandon Butler,* representatives of the Georgia Crop Improvement Association and Georgia Seed Development, explained to me on drizzly morning in Athens, Georgia:

When large companies became increasingly involved in agriculture, beginning with the invention of hybrid corn, people began to reminisce about how good it used to be. What they don’t realize that the only thing that’s changed is [the pace of] change. We are just working to find what works for you in order to make the system work. We don’t change to be mean, we change to keep up. We are working to make the ag[riculture] system functional, because nature isn’t perfect.”

By constantly working to tweak nature to better suit industrial agriculture, the potential for the passing of knowledge from one generation to the next is essentially negated. Nostalgia plays a tricky role in the realm of mechanized agriculture, the same farmers who adopt new technology are also the ones who can afford to look back fondly on the past. Through my interviews I encountered a rationalization of industrialization by nostalgia: farmers justified their shift in practices as necessary in order to preserve their family’s agrarian lifestyle. However, large-scale farmers, in viewing land as the sole key to preserving their heritage, have failed to interpret the gravity of changes in practice to their livelihoods. In order to thrive, a farmer needs to adjust to the newest machinery and techniques available, all while continuing to grow and produce. Considering how difficult it is to make a living as a farmer, it follows that the number of farmers continues to decrease. In tandem with the decrease in the number of farmers as casualties to the furthering of science is the loss of varieties of seeds. Agricultural activists Cary Fowler and Pat Mooney, in their book *Shattering,* about the loss of genetic biodiversity stemming from modernized agriculture, blame the preference shown for science over tradition for

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126 BS, RB, and BB, in discussion with the author, August 2016
the loss of biodiversity, maintaining, “Seeds are unique in that the means of production—seed—is often also the end product for consumption. The rapid replacement of old ‘farmer’ varieties with new ‘scientist’ varieties can hasten the demise of old genes.” 127 Along with the loss of these genes is the loss of the knowledge, culture, and memory associated with them, which was once an integral part of agriculture.

The surviving farmers have an incredible repertoire of knowledge—they need to be well-versed in entomology, pathology, weed science, and agroeconomics, just to name a few fields—all in order to stay up to date with the changes occurring in agriculture. Deborah Fitzgerald acknowledges the need (and in many cases, the failure) to keep up with technology, explaining:

Another agriculturalist felt that there were far too many people trying to operate farms in the first place, and it would be great if one could get 'those who have not the training nor ability nor capital nor cooperative instinct' to get off the farms. In addition, farmers were blamed for using insufficient methods, for being stuck in old fashioned practices and attitudes, and for being undercapitalized and overconfident. 128

Rhetoric encouraging farmers to keep up or abandon their livelihood led to a steep decrease in the number of farms and farmers, while those that remained grew significantly in size. According to Ray Byrd*, a representative of Georgia Seed Development:

Agriculture transformed from just a type of living to a business—in the 1860s most poverty was on farms. Now that is gone due to modernized large farms being economic engines and businesses that are looking for return on their investments, not just trying to feed their families. 129

This connection established between the changes in agriculture with a decrease in

129 RB, in discussion with the author, August 2016
poverty on farms places those who had to leave their work for monetary reasons, often marginalized farmers, outside of the equation, exacerbating the inequalities already so present in the South. In order to maintain larger plots of land and fulfill this ideal, farmers had to keep buying bigger and better machines, and the cycle of modernization continues. Throughout this saga of modernization and consequent reduction in the number of farmers, the USDA:

…dismissed farm failures as the natural consequence of farmers’ adoption of machines and chemicals, but in fact, the USDA shamelessly promoted capital-intensive operations and used every tool at its disposal to subsidize wealthy farmers and to encourage their devotion to science and technology.130

The USDA’s role in pressuring farmers to adopt new practices while also neglecting to help farmers on the margins places these farmers in a predicament in which they can’t meet the new standards and are blamed for what was really the fault of larger systems at play.

The farmers able to keep up with the new agrarian demands are content with it—Bobby Hawkins*, a farmer I talked to from Southern Georgia said that although “machines are all just so much bigger,” he prefers this increase in size, even though it is more costly to continuously purchase tractors, fertilizers, chemicals, and other tools.131

His rationale for preferring large-scale equipment was “anything under 2,000 acres is hard to make a living off of” without big machinery’s assistance. He also noted that although he thinks the technology is worth it, the increase in machinery has decreased the need for farm laborers. The decrease in farm workers is a direct result of the push to conceive of the farm as a business unit that needs to keep up with ever-changing technologies.

130 Daniel, Dispossession, xi.
131 BH, in discussion with the author, August 2016
However, yielding to industrialization is not simple for all farmers. Michael Porter*, an octogenarian farmer from Pitts, Georgia told me, “You don’t see as many farms anymore—farming is now a lot less hard work because they have machines for everything. Even peanut picking is computerized.” Some blame industrialization for not just the changes in agriculture, but also for the loss of farming communities. Oral Historian Lu Ann Jones, in her interviews for the Smithsonian Southern Agriculture Project, shared that, in her opinion, agriculture has changed because of machinery, as well as a “younger generation” without community-oriented values. She draws the connection between these two factors, explaining that the increase in mechanization created an attitude of self-reliance as working with others became unnecessary. Additionally, I argue that communities no longer share and exchange knowledge as a single type of agriculture has emerged and farmers now need to devote themselves wholly to maintaining their own operations. David Allen, a farm manager for Coker Seeds in Hartsville, South Carolina, interviewed by Lu Ann Jones, supported these claims, stating: “We have fewer farmers. Truthfully, they’re busier farmers and you don’t see as much of that [communities working together] going on anymore.” The dissipation of agricultural communities also destabilizes the knowledge and knowledge of sharing that had been a part of older Southern agrarian communities. Historian Pete Daniel explains:

Knowledge handed down or gained by trial and error was devalued and forgotten while formulaic methodology and machines grew in importance. The staggering human cost that accompanied this transformation was eclipsed by the celebratory sheen of tractors and picking machines, insecticides and herbicides, and hybrids

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132 MP, in discussion with the author, August 2016
134 David Allen, ibid.
and genetically modified seeds.\textsuperscript{135}

The replacement of traditions with technology favored those who could afford it and delegitimized those who couldn’t, as Nazarea explains, “[technology] displaces local knowledge with external, ‘scientific’ expertise as a guiding principle for agriculture and devalues commensal and ritual practices that require a wide variety of plants and animals for their persistence.”\textsuperscript{136} In this way, the continuous belittling of marginal farmers’ culture and practices perpetuates the placement of unconventional and traditional farmers on the margins.

I contend that the shift towards mechanization and subsequent decline of small-scale farmers favored those who could obtain new machines and methods and led to a disproportionate decline in the number of Black and Native American farmers. Woodrow Harper Sr., a Black farmer interviewed for the Smithsonian Southern Agriculture Oral History Project described the beginning of these changes in his interview with Lu An Jones for the Smithsonian, “Well, it happened because farmers who try to farm big has frozen the little fellow out. You see, we have very few landowners and we have to rent land from the white man. And he’s going to rent it to where he can get the most money.”\textsuperscript{137} Regarding Black farmers in Hart County, Harper later added:

If there ain’t some drastic changes for the next ten years, won’t be any. It’s on its way. Like I said before, the big fish is eating up the little ones…I know one or two farmers said they’re throwing their hands up because there wasn’t nothing in there. In other words, they was forced out of the thing financially.\textsuperscript{138}

Harper’s experience highlights how the change in emphasis of farming is accompanied

\textsuperscript{135} Daniel, \textit{Dispossession}, 7.
\textsuperscript{136} Nazarea, \textit{Heirloom Seeds and Their Keepers: Marginallity and Memory in the Conservation of Biological Diversity}, 38.
\textsuperscript{137} Harper, "Southern Agriculture Oral History Project."
\textsuperscript{138} Ibid.
by a shift in the amount of income required of a farmer to remain viable. The transition into the new industrialized farm system weaned out marginal farmers who were not able to afford the new technologies necessary to produce the amount of crops needed to make enough money to keep farming, exemplified by USDA director Earl Butz’s famous “Get big or get out” sentiment.\(^{139}\) Harper, when asked by Lu Ann Jones about new developments in technologies, replied:

> We can’t afford to go into that kind of thing. Therefore, we had to start cutting back on our crops to keep our heads above the water. Most of us are just barely hanging on. It appears to me that, like I said before, the big fish is eating up the little ones, and they’re going to freeze us out. But I like farming and that’s all I’ve ever done in my life.\(^{140}\)

Throughout his life as a farmer, he became less and less able to keep up with the new developments, but had no way to move to a different job—his only option was to farm, even though he was barely making ends meet. The business of agriculture has no place for farming as a livelihood, and the farmers who chose to continue practicing the old methods couldn’t survive because they weren’t able to afford remembering through farming. One can imagine that after watching parents, family, and neighbors struggle to continue farming, younger generations would be less inclined to want to pursue agriculture. Howard Reed and his wife, Bunice, farmers interviewed for the Smithsonian project, explained: “The small farmer, they getting less and less of them. I think it’s a bad thing….The small farmer, just the home farm you might say, getting less and less of ‘em. There’s a lot of folk won’t even grow garden. And it’s good for your health to do a little thing like that, it’s good for you.” His wife added, “People don’t want to work.”\(^{141}\)

However, is the decline of farmers really due to a lack of desire to work, or an inability to

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\(^{139}\) Daniel, *Dispossession.*

\(^{140}\) Harper, "Southern Agriculture Oral History Project."

\(^{141}\) Howard and Bunice Reed, ibid.
work hard enough to maintain a farm without enough money or land to start? It’s possible that the small farmers the Reeds are referring to are the ones who couldn’t “get big”—and were therefore forced to “get out.”

THE FREEDOM TO FARM

“Well, out here on the farm—of course it’s important that you work when you’re needed, but you have your freedom.”

Woodrow Harper Sr.142

Many of the farmers I talked to associated farming with the freedom to be their own boss. They were in charge of their lives, and couldn’t imagine being told what to do. However, if farmers are obligated to buy into industrialized agriculture, are they really their own boss? At what point do large corporations dictate their jobs and farms? Where farming used to be a community livelihood, since mechanization has taken over, it has become more uniform and more isolated in practice. Farmers are buying into the same technologies, but instead of sharing their knowledge they are working on their own, relying on companies for information instead of on their neighbors. Agriculture has become a more competitive industry, resulting in a climate less likely to foster friendly relations between farms, as Dent Emerson, a farmer interviewed for the Southern Agriculture Oral History Project, told Lu Ann Jones. He shared that, in his opinion, agriculture changed because:

…money became too easy for farmers to get, and they tried to expand beyond their means and they got really self-centered…. As long as money was—they could put off repaying it and stuff, they didn’t need each other. Because they could just borrow some more money and hire the help. We had to depend on each other. We didn’t have the money to do all that stuff. I don’t think we

142 Woodrow Harper, ibid.
wanted to either. Like you feel sorry for farmers now, but their brought it on theirselves. Most of it, I think, did.\textsuperscript{143}

Older farmers generally shared similar sentiments about the new agricultural practices: mechanization disincentivized collaboration and reciprocity and only farms able to exist in isolation survived. Farmers once relied on their community of fellow farmers for support, but now rely on chemicals and biotechnology. Oral historian Lu Ann Jones interviewed S.L. Wellborn, a frustrated farmer from Jefferson, Georgia, who explained, “And the independent [farmer], there’s no such thing as an independent grower, that I know about, anymore. They’re all tied in, integrated. And that bothered me.”\textsuperscript{144}

Wellborn’s discontent with farmers’ dependence on technology reflects a larger trend of transforming agriculture into an assembly line of sorts. The loss of agrarian communities and the consequent reduction in culture sharing makes it more difficult for unconventional agricultural methods to survive. The margins are shrinking, and while seedsavers work to maintain countermemory through preserving and sharing seeds, the businesses they oppose are consolidating and growing in power. However, several of the agriculturalists I talked to resisted this criticism of modern day agriculture. According to Ray Byrd*:

Advancements in technology have allowed people to not work on farms. You can now grow more food more productively with fewer people. People romanticize agriculture and the simplicity of the lifestyle, but for the most part they wouldn’t want to give any part of their lifestyles up—people don’t really want to farm.\textsuperscript{145}

This sentiment supports the industrialization of agriculture by both justifying the decrease in the number of farmers as a result of their unwillingness to farm (as opposed

\textsuperscript{143} Dent Emerson and Arnalee Winskie, ibid.
\textsuperscript{144} Wellborn, "Southern Agriculture Oral History Project."
\textsuperscript{145} RB, in discussion with author, August 2016
to their inability to keep up financially) and assuming that the decision not to farm is solely in the hands of the farmer, rather than a consequence of systems that disproportionately affect marginalized farmers. This rationale works under the assumption that advancements in agriculture have led to the freedom to choose one’s profession, instead of being forced into agriculture by one’s parents. However, this claim is contradictory, for as I have argued, farming today relies on passing knowledge, land, and the desire to farm from one generation to the next. This puts marginalized farmers in a situation in which they are unable to farm, but also told the reason they can’t is due to their own choice or laziness, when in fact there are deeper systematic explanations for their exclusion from agriculture. I have noted that to circumvent this exclusion, marginalized farmers have adopted methods that differ from their conventional counterparts. These alternative practices are necessary both because they have no other options but also as a way to maintain control over their own food supply. As Kent Loomis* told me one Wednesday evening after teaching a class at the urban garden where he works, “controlling the food supply is controlling people—and America isn’t a place where people like to be controlled.”146 Loomis’ desire to be involved and in charge of the entirety of his farming, from seed to product, reflects agriculture free from mechanization and industrialization.

146 KL, in discussion with author, August 2016

Once a plant has grown to a certain size, it will begin to produce flowers. Flowers are the sexual organs of the plant, and for most species contain both the female and male reproductive organs. The sex distribution of the flowers varies by species: some species have separate male and female plants, some have individual male and female flowers on the same plant, and others, called “perfect
flowers,” have both male and female reproductive systems in each flower. Often, flowers are colorful and showy in order to appeal to pollinators who are attracted to them for their brightness, scent, and occasionally ultraviolet markings. Many flowers contain nectar, a sugary substance that feeds pollinators as they go from plant to plant, incentivizing them to nestle in the flower, where they can pick up more pollen. As pollinators travel, they spread pollen to new flowers, where it can fertilize the ovaries of new plants, and spread genetic material to new areas.
IV. Fertilization / Reproduction

RECOMBINATION

“I believe that if farmers that can stick in there, hold in there a little while, [it] is going to be better after a while.”

Woodrow Harper Sr.147

In order for most plants to make seeds, female eggs must be fertilized by male pollen. This process, known as pollen transfer, leads to the merging of gametes, from which the fertilized egg grows into the seed. Sexual reproduction, the combination of gametes from two different organisms, has evolved in many species. Through this process, genetic information is shared and recombined to form plants with new arrangements of traits. Sexual reproduction is hugely advantageous due to the creation of new mixtures of traits, because with a wider range of traits, there are more options for selection to act on, leading to a higher chance of adaptive evolution occurring. Sexual reproduction, fertilization, and the subsequent formation of genetically diverse seeds allows for a higher probability of potentially advantageous traits to be shared and perpetuated from one generation to the next through the seed.

Though I have made the case for how the continuation of agriculture relies on the passing of traditions from generation to generation, agriculture’s perpetuation is also influenced politically, technologically, and economically. The pressures exerted by these factors are responsible for the modern changes to agriculture. According to agricultural sociologist Jack Kloppenburg, agriculture has been conflated with industry, and

147 Harper, "Southern Agriculture Oral History Project."
emerging practices are those that are the easiest to commodify, regardless of the consequences on the land and farming communities. These forces have maintained cycles in which the same methods are necessary year after year, differing only in size (larger), cost (more), and supposed efficiency (greater). It is next to impossible for a large-scale farm to deviate from these patterns without requiring huge amounts of labor and time. Change is only permitted within the pre-established norms of scientific innovation—the same machines, just bigger and faster. Science and technology’s dominance within agriculture have forged a disjointed power dynamic in which those making many of the decisions behind new developments in agriculture don’t actually work on farms. This differs markedly from how seed companies were once run. Coker Seed Company, which was a family company until it was bought out in the late 1980s, and according to Mrs. Allen, who’s husband was a lifetime employee of Coker, it “…was run like an accommodation of the farmers, not like a company, not like a business.” Coker was run by farmers and thereby, kept farmers’ best interest in mind, whereas newer companies are solely motivated by the acquisition of capital, no matter the human cost.

The discordance between decision-making and the actual labor is demonstrative of how farms have become more consolidated and systematic. With so much authority in the hands of large companies who profit immensely off of this exploitative style of agriculture, sustainable methods become undesirable as they might compromise productivity. As Brandon Butler*, who works with Georgia Seed Development at the University of Georgia told me, “Cotton farmers in Georgia are sustainable—they’ve been growing for roughly 200 years. If it wasn’t sustainable, they wouldn’t still be

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148 Kloppenburg, First the Seed.
149 Allen, "Southen Agriculture Oral History Project."
His use of the word *sustainable* in this context differs vastly from how many farmers on the margins use it. Conventional agriculture values any means necessary to increase crop production and therefore maintain family land by emphasizing the longevity of maintenance instead of focusing on avoiding the depletion of natural resources, even when these practices exhaust the land of nutrients and other resources. I argue that these differing meanings of sustainability have created a dynamic that caters to agriculture as influenced by the perpetuation of discriminatory social practices. Prioritizing the continuation of land ownership for exploitation over tending to the land acts in conjunction with a willingness to retain the land at all potential costs, even through exploiting the land’s resources, to form a system that permits exploiting people to work the land. This attitude, in addition to perpetuating ownership, also preserves the equation of African American and indigenous peoples with an exploitable version of nature. Paul Outka discusses white people’s conflation of enslaved peoples with an environment that existed to be exploited made it acceptable, and even encouraged to use and abuse:

In racially identifying slaves with the agricultural pastoral, especially with domesticated animals, a terrible sort of transitive algebra allowed whites to conjoin racial and ecological violence. Since whites could do whatever they wanted to nature, and since African Americans were considered part of nature, both land and slave were made utterly instrumental in white desire, objectified as natural resources to be exploited and ‘improved’ in the same gesture.  

Outka emphasizes a huge dissonance between racial relations, histories, and the land. White people sought to domesticate and develop the land, and enslaved African Americans suffered as casualties of the white war on nature. This confusion of exploitation and improvement underscores much of today’s Southern agriculture, as

150 BB, in discussion with author, August 2016
151 Outka, *Race and Nature from Transcendentalism to the Harlem Renaissance*, 1st, 25.
mechanization is revered with no attention paid to the grave repercussions for marginal communities and the land. Since new technologies enable farmers to extract more from the land, they are viewed as improving agriculture economically. Consequently, exploitative patterns that are a continuation of the past and mirror the oppression of marginalized peoples are practiced in the name of “progress.”

However, contrary to the equation of farming with extracting value from the land, farming at its best is about tending to the land and ensuring it remains productive without large quantities of inputs. Wendell Berry, a white farmer, writer, and activist, in his essay collection *The Unsettling of America* (1977), describes a separation regarding how people treat the land: there are those who nurture the land, and others who exploit the land. Berry explains that while early farmers once engaged in a caring relationship with the land, the modernization of agriculture has resulted in farmers that now abuse the land in order to keep up. However, this analysis fails to mention the exploitation of enslaved African Americans prior to the mechanization of agriculture. Modern day agriculture’s exploitation of the land, in a way, is just a continuation of the co-opting of African American lives for crop production. I argue that the exploit/nurture divide Berry outlines regarding the land reflects a broader dichotomy between large-scale agribusinesses and unconventional farming on the margins, in which agribusinesses, boasting technological advances and increased profits, employ exploitative and exclusionary methods to maintain control over land and the agricultural market. In contrast, agriculture on the margins emphasizes caring for the land and the plants in order to advocate for a countermemory that accounts for the diversity of farmers and their traditions. From this dynamic emerges an antagonistic relationship between

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152 Berry, *The Unsettling of America*. 

conventional and traditional agriculture. For example, the Bushwicks*, while showing me around their small plots of vegetables nestled into the hillside they inherited from their great-grandparents, shared emphatically that “we ain’t gonna sell out.” They are determined to hold onto agriculture as their ancestors practiced it, lamenting that this has become more difficult over the past ten years because of the increase in pollution and weeds, which have led to ramifications that are difficult to avoid without the use of chemicals or fertilizers.

Figure 15: A shed in the Bushwick’s* fields that was built by Ted Bushwick’s grandfather.

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153 T&JB, in discussion with author, August 2016
As a plant grows and eventually reproduces, it is constantly responding to its environment and changing its behavior in relation to its surroundings. Though evolution is a slow process, organisms can show changes in phenotype in response to stressors from one generation to the next that they haven’t evolved yet. With this faster response time, plants are more likely to survive in quickly changing conditions and be sure to still produce seeds in inhospitable environments. In this way, plastic responses to a plant’s surroundings highlight small changes that may eventually become significant as stressors become more extreme. Unlike most other traits, the way a plant expresses plasticity isn’t encoded in that plant’s DNA. Instead, these changes often occur as molecular modifications to the genetic strand, and may differ even among otherwise genetically identical plants. Consequently, plants can individually adapt to their environment, instead of requiring modifications to occur on a larger scale in order to change as an individual.

At this point, I would like to distinguish between the ways in which new generations are formed. On one hand, reproduction can imply a desire to maintain the past, for example, preserving a plantation house in order to continue the memory of the antebellum South. On the other hand, there can also be regeneration, implying the development of new changes in the next iteration so that what is being recalled might be more amenable to its current environment. The gist of what is being passed down is the same, but there is the potential for change. These alterations are crucial because without the possibility for deviation from within, there is no chance to even begin to fix residual problematic legacies. This difference is perhaps best explained by Serematakis’s differentiation between American and Greek nostalgia/nostalgia.

Nostalgia thus is far from trivializing romantic sentimentality. This reduction of the term confines the past and removes it from any transactional and material relation to the present; the past becomes an isolatable and consumable unit of time. Nostalgia, in the American sense freezes the past in such a manner as to
preclude it from any capacity for social transformation in the present, preventing the present from establishing a dynamic perceptual relationship to its history.\footnote{Seremetakis, \textit{The Senses Still}, 4.}

This distinction between longing for and consuming the past is pivotal to my exploration of the reproduction of Southern agricultural heritage. Yearning for the past entails accepting that it is out of reach, as opposed to recreating it by any means possible. Serematakis’s analysis of these two versions of the past highlights what I propose to be one of the main differences between how the agricultural center and the margins conceive of the past. The margins experience the past in a way much like the Greek \textit{nostalghia}, manifest as a dynamic material connection to the homeland, whereas the center’s notion of nostalgia longs for a past that has truly \textit{passed}: to relive it would be to regress into history. Virginia Nazarea uses Seremetakis’s interpretations of nostalgia to describe how:

\begin{quote}
In heirloom plants and folk varieties we find ‘artifacts laden with perpetual recall.’ Their persistence against the hegemony of modernity sustains stirrings of nostalgia, making the desire to journey back, or to re-create a place, less of a romantic anachronism and more of a real possibility, perhaps even a sensible one. It is important, in this regard, that seeds and plants are not only distinct and tangible, but also portable; they can be treasured and hidden, or displayed and exchanged.\footnote{Nazarea, \textit{Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservation of Biological Diversity}, 114-15.}
\end{quote}

Heirloom seeds and plants are vital as a physical, tangible manifestation of \textit{nostalghia}, especially for those who are threatened and devalued by modernized agriculture; as Nazarea claims, in the perpetuation of these varieties are “cultural conduits bridging the past and present.”\footnote{Ibid., 43.} Though farmers on the margins might not have the consistency of a piece of land to connect them to the past, I argue that seeds are a comparable, if not
more effective, mode of cultural preservation due to their mobility, longevity, and ability to be shared among a community.

In the context of Southern agriculture, there is a “myth” of change within large-scale methodologies. Yes, machinery and technology are booming and constantly developing, but this hasn’t resulted in the emergence of increased opportunities for new or marginalized farmers. Instead, I maintain that these systems reinforce the same discriminatory patterns that have existed for at least as long as there has been a Southern United States. By continuing to exploit the land for profit to ensure keeping farms in the family, conventional agriculture devalues the work and livelihoods of marginalized farmers. There have, of course, been changes to agricultural practice and life, but they haven’t led to anything besides continued oppression and environmental destruction. New generations are formed from the past, but they need to be built with the future in mind as we learn from our mistakes. Generations of farmers come from agrarian lineages, but it isn’t enough to just keep the same land. Instead, farmers should actively strive to embody a less exploitative and incorporated profession—only then will agriculture revert to a way of life instead of merely industry.

Modern day agriculture is trapped in a cycle of machinery and chemicals. With institutions such as 4-H clubs, vocational agriculture schools, and the Future Farmers of America (FFA), children are taught to value the farm in its modern, mechanized iteration, which teaches an early acceptance of the entirety of agriculture, including the flaws. The FFA, founded in 1928, originated “from a time when boys were losing interest and leaving the farm.”157 Seven years later, the New Farmers of America, an African American group modeled after the FFA, was created, and in 1965 the two

157 "Ffa History," https://www.ffa.org/about/what-is-ffa/ffa-history.
groups merged as the FFA became integrated. In 1969 the FFA was co-educated, and now, according to their online fact sheet, roughly one third of members are female.

Despite over fifty years of integration, sixty eight percent of members are white. On the “History of the FFA” page on the website, the organization describes their goals as:

Their [early FFA leaders] mission was to prepare future generations for the challenges of feeding a growing population. They taught us that agriculture is more than planting and harvesting – it's a science, it's a business and it's an art.

FFA continues to help the next generation rise up to meet those challenges by helping its members to develop their own unique talents and explore their interests in a broad range of agricultural career pathways. So today, we are still the Future Farmers of America. But, we are the Future Biologists, Future Chemists, Future Veterinarians, Future Engineers and Future Entrepreneurs of America, too.

However, the only mention of sustainability on the FFA website was regarding the longevity of proposed projects. How will those expected to maintain agriculture in the future be able to continue when they are being taught methods that are not only harmful to the earth, but also to members of local communities and cultures?

For those outside of conventional agriculture, there other modes of inheriting the farming livelihood. These alternative methods encompass changes in the social environment, whereas groups such as the FFA largely engage in an attempt at replicating the past—the goal is to encourage youth to engage in agriculture within the cycle. On the margins, however, I argue that farming and agricultural knowledge are passed on through customs and practices that highlight the people and memories, rather than the ability to be monetarily productive. With the mechanization of agriculture and the “go

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158 This information comes from the FFA 2016-17 Fact Sheet, in which only 60% of members disclosed their race. I extrapolated the number provided above from this information. Other adjusted percentages were: Hispanic/Latino, of any race (22%); Black, non-Hispanic (5%); American Indian (1.67%); Asian, Native Hawaiian, Pacific Islander (1.67%); and two or more races (1.67%).


160 "Ffa History".
big or go home” mentality, however, it is unclear if these traditions will suffice. The consequent decrease in farmers on the margins also signifies a reduction in the potential for non-conventional forms of agriculture to persevere.

**DISRUPTION**

Pollination is the spreading of male gametes to female ovaries where fertilization can occur. The evolution of pollen changed the life histories of plants. Whereas early plants’ pollen had to be moist, pollen today is able to endure dry conditions and travel great distances while still remaining viable. Because of pollen, plants have been able to grow in drier climates. Pollen can be dispersed in many ways; carried on the wind, ushered from plant to plant by insects, birds, and small mammals, and in some cases, it can be moved by water from one aquatic plant to the next. Once the pollen grain, containing two sperm cells, reaches the female flower, it sprouts a pollen tube through which the sperm travel to fertilize eggs within the female ovary. Post-fertilization, the zygote undergoes a series of intricate steps of cell division, rearrangement, and growth before it becomes a mature seed, already waiting to encounter the conditions necessary to germinate. By the end of maturation, the seed contains the embryo, which is arranged along an axis that reflects the eventual structure of the plant. Eventual sprouting and growth is characterized by the location of the apical meristems that will give rise in opposite directions to the shoot and the root, one day growing the plant from both directions as it begins a new life cycle.
Figure 16: Lateral section of an angiosperm flower undergoing fertilization. At the top of the image are the male gametes (pollen grains) that have landed on the stigma, some of which have sprouted pollen tubes to the female gamete (egg) within the ovule.\textsuperscript{161}

\textsuperscript{161} King, \textit{The Cambridge Illustrated Glossary of Botanical Terms}, 130.
One way culture is passed down on the margins is through the practice of seed saving. This is an incredibly symbolic tradition, due to the seed’s range of meanings. For these reasons, I am going to devote the remainder of this chapter to discussing the repercussions of the mechanization of agriculture, how this is combatted through seed saving, and how the politics of seeds reflects cultural aspects of modern day agricultural communities. Vandana Shiva, noted physicist and activist, in the introduction to her collection of essays, *The Vandana Shiva Reader*, elaborates:

Free exchange among farmers goes beyond mere exchange of seeds; it involves the exchange of ideas and knowledge, of culture and heritage. It is an accumulation of tradition, of knowledge of how to work the seed. Farmers gather knowledge about the seeds they want to grow in the future by watching them actually grow in other farmers’ fields. This knowledge is based on the cultural, religious, and gastronomic values the community accords to the seed and the plant it produces as well as qualities of drought, disease, and pest resistance, longevity, and other aspects.\(^{162}\)

In this way, the inability to share and exchange seeds excludes the potential for exchanging culture and knowledge. These prohibitions result from the capitalization of agriculture and consequent patenting of the technologies and seeds produced and distributed by agribusiness, and, as Shiva points out, “if seeds become ‘intellectual property,’ saving and sharing seeds become intellectual property theft.”\(^{163}\) Restrictions on seed sharing are a consequence of the shift to a more business-like and less community-oriented agricultural climate. In this vein, Dent Emerson, a farmer interviewed by Jones, reflected on how in farming, “You used to share everything. Like any vegetables you had. If we had more okra and Miss Elizabeth didn’t, she’d come get okra. Or if they had something we didn’t have, we’d share it.”\(^{164}\) Sharing seeds preserves biodiversity, food


\(^{163}\) Ibid., 3.

\(^{164}\) Winskie, "Southern Agriculture Oral History Project."
security, and culture, and is “based on cooperation and reciprocity,” qualities which have been greatly diminished by the mechanization and specialization of agriculture.\footnote{Shiva, \textit{The Vandana Shiva Reader}, 4.}

Figure 17: Okra (\textit{Abelmoschus esculentus}), a plant commonly grown in the Southern United States.\footnote{A. Stahl, \textit{Malvaceae. Stahl Watercolor Number 376, Species Abelmoschus Esculentus.}}

Plants are typically able to reproduce through pollination, relying on wind, insects, water, or other animals to spread male gametes to the female ovaries. Once this occurs, the seed, contained within the fruit, begins to grow. After they have matured, seeds are planted and, assuming they germinate, they will grow into mature fruits and make new seeds, and the cycle continues. Over the past seventy years, biotechnology has introduced hybridized and genetically engineered seeds. This means the seeds, in order to have traits such as higher yields, frost, pest, and herbicide resistance, seedless fruits, or
higher yields, have been specially bred in a way that is broadly referred to as hybridization. Thor Hanson, using seedless watermelons as an example, explains:

[I]n the mid-twentieth century, plant breeders discovered that chromosomes could be doubled chemically, and that back-crossing a tetraploid with the diploid parent produced infertile hybrids. The upshot for watermelons was a normal-looking, sweet-tasting fruit incapable of filling itself with seeds. For consumers, it offered convenience, and for seed companies it offered control, since farmers and gardeners would have to buy new seeds every year rather than saving their own. ¹⁶⁷

In this way, the plant life cycle was exchanged for the pattern of buying new hybridized seeds and their necessary chemicals year after year. Ben Sherman* and Ray Byrd*, representatives of Georgia Seed Development and the Georgia Crop Improvement Association, explained to me during our meeting in Athens, Georgia that they saw the development of new modified seeds as “filling a need within agriculture,” because seedsaving by farmers was “a failure, due to farmers not having proper conditions.” They later added that companies are working to “develop the best performing varieties, with pest resistance and higher yield,” reasoning, “it went this direction because heirloom [varieties] have inferior performance.”¹⁶⁸ However, not all farmers experienced the promised increase in yield, and recent studies have emerged showing companies haven’t fulfilled their promises of higher productivity.¹⁶⁹ Because of the control these companies exert over farmers and the information they receive, the reality of the results of hybridized seed crops remains largely unnoticed. Dorothy Dove, a farmer interviewed for the Smithsonian archives responded to historian Lu Ann Jones’s question regarding changes in yield after implementing hybridized seeds in the 1950s, “Well, I guess some

¹⁶⁷ Hanson, The Triumph of Seeds: How Grains, Nuts, Kernels, Pulses, & Pips Conquered the Plant Kingdom and Shaped Human History, 212.
¹⁶⁸ BS and RB, in discussion with author, August 2016
of it [made a difference], yeah. I can remember in the corn. I guess it was different. The way you planted it so close and put so much on the land and fertilized it so high and all like that. Well, they said it improved the yield a lot.”  

From this testimony, we can glean that the supposed benefits of hybridized seeds weren’t as revolutionary as the companies have led farmers to believe. On the contrary, the growing methods that accompanied the seeds were more expensive, both for the farmer and for the environment. Despite the increased cost, farmers remain trapped in this capital web due to the control agribusinesses exert over their livelihoods, unable to break free for fear of losing their family land.

Along with the purchase of hybridized seeds, farmers need to buy the accompanying pesticides, herbicides, and fertilizers, since the new plants aren’t strong enough to grow and ward off pests and competing weeds. These herbicides aren’t always species or family specific, so seeds for crops are altered for herbicide resistance, breeding plants able to tolerate the masses of chemicals sprayed on them. This causes companies to increase their prices for seeds that they have forced farmers into needing, and further exerts their control over all aspects of agriculture. Even though the cost of participating in industrialized agriculture is steep, scientific development’s sway over agriculture is unwavering, as ethnoecologist Virginia Nazarea demonstrates: “national and international research and development agendas as well as markets are so powerful that they practically dictate what varieties farmers will plant.”  

I argue that conventional farmers lack the room that those on the margins have to make their own decisions regarding how to practice agriculture, and in this way, the margins have a sort of

freedom those who have historically been in power lack. It is in this space formed by historical oppression that countermemory is able to sprout and take hold.

These new industrialized seeds can no longer be saved by a farmer, which, in addition to costing more money, means the plants grown have lost their ability to retain phenotypic modifications that increase plant survival from one generation to the next. Where plants were once able to adapt to their environment, they are now made to be uniform across all climates. From an ecological standpoint, this doesn’t make practical sense, as plants are more likely to survive if they are specifically adapted to their location, which only occurs once they’ve grown there for many generations. Farmers, who once forged a deep intimacy with their specific plants, now have a relationship reduced to an entirely mechanized process. Given the potential cultural significance of the seed and what it means for a farmer to have a relationship with and pass this growth through their family, the mitigation of this interaction directly inhibits the perpetuation of cultural connections to seeds. Recalling seed activist Vandana Shiva’s message, the significance of seeds encompasses a farmer’s history and knowledge as well as the history of the land each seed has adapted to thrive in.

Beyond the lack of feasibility for farmers, hybridizing seeds mitigates a plant’s capability to reproduce and extend their genetic line for another generation. The offspring of hybrid plants are therefore unable to retain their parents’ desirable characteristics, to the extent that it’s impractical for farmers to even attempt to save seeds from purchased hybridized plants. Additionally, a vast network of legal restrictions augments the power of biotechnology companies at the expense of farmers. Many seeds produced by these corporations are modified in their labs, enabling agribusinesses to obtain patents for the genetic material within the seed. This means the price of seeds
includes royalties that then go to the development and breeding of new varieties. Because of the patents held by large-scale agribusinesses, farmers who try to save seeds face the possibility of being sued by these companies.\textsuperscript{172} Ted and Jo Bushwick*, the small-scale farmers I talked to on their farm in north Georgia mentioned lawsuits against small farmers as one of the main reasons they “hated” agribusinesses. In their words, this is because “They don’t let you save seeds. If you do, they’ll sue you and take your farm.”\textsuperscript{173} In reality, many of the cases involved farmers who saved seeds from plants unintentionally pollinated by hybridized plants from neighboring farms. Regardless of the source of these law suits, they signify a new agricultural climate in which there is a dichotomy between an all-encompassing trust on the part of some farmers, while others show a distinct mistrust of, and in some cases disdain for, of large companies. Kent Loomis*, the urban farmer I spoke to in Atlanta, rationalized seed saving in part because it cuts out the “crazy corporations who want complete control and have us eating terminator seeds. If it terminates itself it’ll terminate you; one plus one is two.”\textsuperscript{174} His conviction of the ill intent of agribusiness is common among farmers on the margins, and I have tried to make a case for how this reflects the ways in which farmers on the margins, especially farmers of color, have been oppressed and discriminated against in the South.

\* Inherent to each seed is the expectation that it will someday be able to produce a new plant, with new seeds, and continue that genetic line into the future. In order for this to occur, the seed needs to be able to produce seeds that are also viable. Hybridization, the process Thor Hanson describes with seedless

\textsuperscript{172} Paul Harris, "Monsanto Sued Small Farmers to Protect Seed Patents, Report Says," \textit{The Guardian} 2013.
\textsuperscript{173} T&JB, in discussion with the author, August 2016
\textsuperscript{174} KL, in discussion with the author, August 2016
watermelons, effectively eliminates the ability for the plants resulting from these seeds to produce future generations with the same traits as the parents. By inducing polyploidy (an increased, abnormal number of chromosomes) and back crossing polyploidic plants (breeding plants with an irregular number of chromosomes with their parents), the offspring are genetically unable to produce seeds with the necessary number of chromosomes to reproduce successfully. The seeds of hybridized plants have been bred so they cannot produce viable seeds, disrupting the plant life cycle and forcing farmers to rely on seed companies if they want to grow the same breed again. This disruption reflects the other ways in which agriculture has disturbed the land, as well as the lives and cultures of those on the margins.

RESISTANCE

Through heirloom plants, seedsavers make tangible an alternative landscape, a landscape steeped in power and memory.

Virginia Nazarea

The processes and histories of colonization, displacement, enslavement, discrimination, and oppression have excluded marginalized farmers from the industrial form of reproduction. Instead of using conventional methods tied in with large-scale agribusinesses to pass on their knowledge and traditions, they have been forced to find alternate modes able to survive despite a social environment that devalues and actively attempts to replace their work and livelihoods. I wish to draw a parallel between the disruptions these farmers and their communities have faced and the ways in which hybridization has interrupted a plant’s life cycle: in both cases, the ability for generation to occur is inhibited, if not completely prevented. Though obviously different, there are

similarities between the two and the ways they are being combatted by resisting concepts of ownership, challenging the way things have always been, and continuing to exchange culture and seeds to ensure their survival.

For marginalized farmers, saving, sharing, and exchanging seeds serves as an alternate method of preserving their culture, and, as I argue, a form of resistance. It maintains the growth of plant varieties that the farmers’ ancestors grew, creating a shared experience and knowledge passed from one generation to the next along with, and through, the seeds. These traditions directly combat the disruption that marginalized farmers have endured due to centuries of oppression and discrimination, as well as the challenges they face as a result of the modernization of agriculture and prominence of agribusinesses. Though displaced from one piece of land to another and prevented from owning their own land, marginalized farmers that practice seedsaving have control over what they grow and are able to carry it from one place to another. Anthropologist Virginia Nazarea suggests:

> By continuing to use their [those on the margin’s] land, time, and energy in cultivating and exchanging a wide array of plants, and obviously enjoying it, they poke fun at the twin demigods of modernity—productivity and efficiency—and whittle away at their façade of invincibility. In a very real sense, they challenge the normative assumptions of linearity and progress by their very presence. In so doing, they counter despair and offer hope.  

I maintain that in addition to working towards a counterhegemonic agricultural practice, seedsaving farmers preserve their traditions. As Iris Welty*, a noted farmer and seedsaver told me during our phone conversation one Sunday night, “If we want to have independence, we need to have seedsaving.” These farmers’ resistance to the idea of owning seeds is closely related to themes of challenging other forms of oppression in

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176 Ibid., 50-51.
177 IW, in discussion with the author, August 2016
which they lack the freedom to make their own decisions or pursue agriculture the way they desired. Though seedsaving is subtle, it is still an effective way to undermine agribusiness and the oppression it perpetuates. Political scientist and anthropologist James Scott describes:

> Where everyday resistance most strikingly departs from other forms of resistance is in its implicit disavowal of public and symbolic goals. Where institutionalized politics is formal, concerned with systematic, de jure change, everyday resistance is informal, often covert, and concerned largely with immediate, de facto change.\(^{178}\)

I contend that seedsaving as a form of resistance against larger political and economic systems reflects the mentality that Scott portrays; it isn’t overt or showy, instead, in its consistency and understatedness it is able to continuously undermine political, economic, and social systems that exacerbate the conventional/traditional agriculture divide.

Through seed preservation, farmers are able to remain in control of what they grow and how they grow it, despite the surrounding influence of large-scale agriculture. For some, this has led to ostracization from their local communities. For example, the Bushwicks* shared with me that even though they use organic methods because they’re “trying to keep the earth healthy, all the other farmers are in Monsanto herbicides.” They later added, dejectedly, “when we talk about being organic, people think we’re crazy. We’ve become outcasts…agencies don’t help us.”\(^{179}\) Of the many other farms in northern Georgia they are aware of, only one other is organic, and it is entirely composed of greenhouses. However, the Bushwicks* also expressed a sense of pride in their work, even if it has led to social isolation, sharing that “we know better than to use


\(^{179}\) T&JB, in discussion with the author, August 2016
their [large scale agriculture’s] methods.” In their opinion, the prevalence of modified vegetables, which are nutrient deficient and calorie rich, have led to people being “fat with a full belly and starving to death;” they have food to eat because production has increased, but they gain nothing from consuming this food. This paradox is reminiscent of the way in which the mechanization of agriculture has altered the reproduction of knowledge. Though there are plenty of new technologies and developments, they lack the cultural knowledge present in non-industrialized agriculture: in a way, new farming is culturally starved, even though it is abundant as farms are larger than ever. Kent Loomis*, the farmer from Atlanta I discussed seedsaving and urban agriculture with, explained to me that he saves seeds because it creates “room to keep spreading love and work. It ensures we can feed ourselves, that we can do it on our own. Food access is important, because those who control the food supply control you.”

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180 Ibid.
181 KL, in discussion with the author, August 2016
V. Dispersal / Thriving

“It’s not just about the farmer, it’s about all of us.”

David King*182

Though the future of agriculture seems bleak as increasing amounts chemicals are added to the land and agribusinesses acquire more patents and power, practices such as seedsaving and small-scale farming offer a potential way to maintain both culture and the environment. Farmers on the margins who resist the modernization of agriculture by saving seeds are ensuring that their children will have the same access to the past through seeds and traditions as their ancestors did. Cary Fowler and Pat Mooney, in their book *Shattering*, offer:

Future generations will deal with these problems either with or without the crop genetic resources that exist today. We assert it is our moral and evolutionary responsibility to see that future generations have these resources to use or not, as they deem appropriate.183

Referring to the repercussions of agribusinesses’ rise, Fowler and Mooney urge us to continue to recognize the work of those on the margins, because although large-scale agriculture encourages passing the land to these farmers’ children, the livelihood and heritage of farming is being lost in the process. I argue that it is our responsibility to keep not only the seeds, but also the nature of sharing that keeps communities thriving. Despite the prevalence and control exerted by agribusinesses, the answer to the changing world isn’t to continue down a supposed road of “progress.” Instead, as Vandana Shiva

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182 DK, in discussion with the author, August 2016
183 Cary Fowler, *Shattering*, 89.
proposes, “The future of farming is based on love and care for the living soil, the living seed, and living food, all of which protect the well-being of the planet and its people.”

Farming is a process of tending to and supporting new life, and this shouldn’t entail pursing capitalistic gains at the expense of the health of the people, land, and plants. Through an atmosphere of caring and nurturing, farmers such as Kent Loomis* have been able to learn and grow. Loomis, in our conversation, shared that for him, “coming from the intercity of Atlanta and seeing how Atlanta’s changed—In these iron walls, to say I grow here, is awesome and fantastic.”

There is no one way to preserve agricultural heritage, as I have shown, diverse traditions are passed down through land, practices, and seeds. By acknowledging the histories and memories of both conventional and marginalized farmers, the culture of farming in the South will be able to persevere and foster plants and people.

Once the seed is mature, it needs to find a piece of ground in which to wait to germinate and grow a new plant. The process by which seeds travel from the mother plant to their future location is dispersal. There is no one way that dispersal occurs; some seeds are carried by wind, some by water, some by animals on their fur or in their intestinal tracts, and some by insects. Similarly, there is no one location that seeds aim to travel to, instead, they hope to land in a place far enough so that there isn’t completion, close enough that the climate is the same, and in a place with enough access to resources so that they might germinate and grow successfully. Once a seed has dispersed, it will wait through dormancy to begin the cycle again.

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185 KL, in discussion with the author, August 2016
Glossary

These definitions are combined from: *The Cambridge Illustrated Glossary of Botanical Terms*, the *Dictionary of Modern Biology* and *Raven Biology of Plants*.

Angiosperm
Flowering plants whose ovules are enclosed in an ovary, literally, a “seed in a vessel.”

Backcrossing
A cross between a hybrid plant and one of its parents or a genetically equivalent organism.

Chromosome
One of the pairs of strands in the nucleus of the cell that bears genes in a linear order. The number of chromosome in a cell will vary according to the species, cultivar, hybrid etc. concerned.

Cotyledon (seed leaf)
One of the first leaves of the embryo of a seed plant, typically one in monocotyledons, two in dicotyledons, and two or more in gymnosperms.

Dicotyledon (Dicot)
Flowering plants having two cotyledons.

Dormancy
The state of being inactive; a special condition of arrested growth in which the plant and such plant parts as buds and seeds do not begin to grow without special environmental cues.

Embryo
A young plant developed sexually or asexually from the ovum. In spermatophytes is contained within the seed.

Endosperm
A tissue containing stored food that develops during fertilization and is later consumed by the growing plant. Only found in angiosperms.

Epicotyl
The part of a seedling above the cotyledon(s) that gives rise to the stem and leaves.

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186 King, *The Cambridge Illustrated Glossary of Botanical Terms*.
188 Evert, Eichhorn, and Raven, *Raven Biology of Plants*. 
Evolution
The derivation of progressively better-adapted forms of life from simple ancestors.

Fertilization
The fusion of a male and female reproductive cell resulting in a zygote.

Flower
The structure in angiosperms concerned with sexual reproduction.

Fruit
A mature, ripened ovary (or group of ovaries) with its enclosed seeds and sometimes with attached external structures.

Gamete
One of the male or female sex cells (usually haploid) that unite at fertilization to form a zygote (usually diploid).

Gene
One of the units of heredity occupying a fixed position (locus) on a chromosome, that either by itself or in combination with other genes is responsible for a particular characteristic, e.g. height, flower color, etc.

Genotype
The genetic constitution, latent or expressed, of an organism.

Germination
The development of a seed into a seedling; the beginning or resumption of growth by a spore, seed, bud, or other structure.

Germplasm
Living genetic material, such as a seed.

Gymnosperm
A group of plants whose ovules are naked (not enclosed in an ovary).

Hybrid
A plant resulting from a cross between two or more plants, genetically unlike and belonging to different taxa, a cross between two species in the same genus, a cross between two species in different genera.

Hybridization
The formation of offspring from unlike parents.

Imbibition
Absorption of water and consequent swelling.

Meristem (apical and lateral)
An area of tissue, found especially in the tips of shoots and roots, and in the cambium, that continues to undergo cell division throughout the life of the plant.

Monocotyledon (Monocot)
Flowering plants having one cotyledon.

Ovary
The lower part of the carpel, containing the ovules. A mature ovary, sometimes with other attached parts, is a fruit.

Ovule
A structure which, after fertilization, develops into a seed.

Ovum (egg)
A non-motile female gamete.

Phenotype
The physical appearance of an organism, resulting from the interaction between the organism’s genetic code (genotype) and its environment.

Phenotypic Plasticity
The extent to which the manifestation of the phenotype is influenced by the environment.

Photosynthesis
The process by which green plants convert carbon dioxide and water into carbohydrates in the presence of sunlight.

Pollen
The small grains which contain the male reproductive cells of the plant.

Pollen tube
An outgrowth from a germinated pollen grain which carries the male gamete(s) down into the ovule.

Pollination
The transfer of pollen from male to female.

Polyploidy
Having more than the usual two sets of chromosomes in the cell.

Primary/taproot
The first root of the plant, developing as a continuation of the embryo’s radicle.

Quiescence
A state of relative inactivity.

Radicle
The young root as it emerges from the seed, normally the first organ to appear on germination.

Seed
A unit of sexual reproduction developed from the fertilized ovule.

Seed coat
The outer layer of a seed.

Seedling
A young plant that has grown from a germinated seed.

Spermatophyte
Seed bearing plants, including gymnosperms and angiosperms.

Zygote
The cell (usually diploid) resulting from the fusion of male and female gametes.
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