

How knowledge deficit interventions fail to resolve beginning farmer challenges

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Abstract Beginning farmer initiatives like the USDA's Beginning Farmer and Rancher Development Program (BFRDP), farm incubators, and small-scale marketing innovations offer new entrant farmers agricultural training, marketing and business assistance, and farmland loans. These programs align with alternative food movement goals to revitalize the anemic U.S. small farm sector and repopulate landscapes with socially and environmentally diversified farms. Yet even as these initiatives seek to support prospective farmers with tools for success through a knowledge dissemination model, they remain mostly individualistic and entrepreneurial measures that overlook structural barriers to productive and economic success within U.S. agriculture. Analysis of the BFRDP's funding history and discourse reveals a "knowledge deficit" based program focused on the technical rather than the structural aspects of beginning farming. This is contrasted with qualitative analysis of beginning farmer experiences in California's Central Coast region. The discrepancies between the farmer experiences and national structure of the BFRDP program ultimately reveal a policy mismatch between the needs of some beginning farmers and the programs intended to support them.

Keywords Land access · Beginning farmers · Beginning Farmer and Rancher Development Program · Knowledge deficit model · Agricultural policy · Land tenure

Abbreviations

BFRDP	Beginning Farmer and Rancher Development Program
FSA	Farm Service Agency
NIFA	National Institute of Food and Agriculture
USDA	United States Department of Agriculture

Introduction

At a 50-acre farm in the California Central Coast¹ region, I spoke with Alejandra, who personifies the ideal outcome of the beginning farmer movement. Coming to the United States in the mid-1980s, she described herself as the latest of "three generations of migrant farmworkers" from the Mexican state of Guerrero, following in the footsteps of her father and grandfather, who emigrated for contract labor in earlier decades. In 1995, with the Rural Development Center in Salinas, she completed a 3-year training course in organic agricultural practices. Since then, she has successfully distributed her farm products to high-value urban farmer's markets and restaurants in the San Francisco Bay Area. Building on this success, she acquired a loan to purchase a parcel with a homesite near Hollister, where land prices are far lower than the prime farmlands of the Central Coast valleys. This drive to gain new skills and knowledge allowed her to find an alternative to the monotony of working as a field laborer, becoming a diversified farmer in her own right. But her story is also punctuated by a series of structural challenges that defy her expertise, willingness, and capacity.

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¹ I use the term "Central Coast" to refer to the growing regions of Santa Cruz, San Benito, and Monterey counties in California.

In the summer of 2015, the well on her property collapsed. The required repair represented a major re-investment, one that she was struggling to afford. When I visited for an interview, the field was fallow. With no crops, she could not meet the demands of her farmer's markets and had to give up her participation as a vendor. She managed to cobble together an additional 10 acres of leased land nearby, irrigated with water supplied by the county. But by then, she found herself at the bottom of a waiting list to re-enter her usual farmer's markets. She was thus forced to sell to a regional wholesaler at lower prices, a fact she lamented after so many years of premium direct markets. While touring the abandoned vegetable fields, the farmer presented me with a leather-bound valise of recommendations she had received from a plethora of organizations including a "certificate of appreciation" from the USDA. Pointing at them, she expressed frustration at a hypocrisy in these accolades:

What good is it to me? They say, "What great work you have done organizing with farmers, how good that you are a leader, what a good example you are." ... What good is it to have recommendations from all these organizations ... and trainings! I have done programs, courses to educate myself more, learn more about business ... what good is it for me? What good does it do me to travel to New Mexico to receive a training? Tell me! It doesn't make any sense.

For Alejandra, there is a clear and troubling disconnect between her proven individual capacity to learn, labor, and improve as a farmer and her ability to overcome the structural challenges she faces when farming as a primary livelihood. In a sense, her history follows an ideal skills-building playbook for beginning farmers. Yet, nevertheless, she finds that following this path of self-improvement has left her in a precarious position. The frustration of being in this state after so much commitment to her craft is summed up in her question: "What good is it to me?"

This farmer's question captures the essence of the policy mismatch that motivates this paper. At the national level, there is growing momentum towards the goal of creating and supporting new farmers with novel programmatic supports of training, capacity-building, and loans (Niewolny and Lillard 2010; Sureshwaran and Ritchie 2011; Freedgood and Dempsey 2014). Yet farmers who participate in these programs may find that their training does not provide them with the tools to address the dire problems they face. I argue that the dominant model of beginning farmer supports is limited by its subscription to a "knowledge deficit" model. This logic assumes that new farmers are primarily held back by lack of skills and information and that remedying this gap will catapult them into successful farm operations. To critically appraise such logic, I juxtapose thematic analysis of the Beginning Farmer and Rancher Development

Program (BFRDP) with narrative data from Latino beginning farmers in California. I show that the deficit model transcribes a technical rationality into the beginning farmer space, embracing values of individual improvement, self-sufficiency, and market-based interventions.

The knowledge deficit model at work in beginning farmer support mechanisms reveals the underlying assumptions about how the food system works that are held in both "expert" (agronomists, non-profits, extension agents, researchers) and "lay" (farmers, BFRDP participants) communities. In investigating the potential consequences of basing support programs on these assumptions, I expand on Alejandra's original question, "What good is it to me?" to ask: how does the BFRDP align with the USDA's stated goals to support new farmers? And, more pointedly, to what extent does this approach respond to the barriers that farmers face? If the breadth of strategies under a knowledge deficit model falls along individualistic, entrepreneurial, or market-based mechanisms, then structural barriers are left unaddressed. This oversight in intervention approach raises concerns about which farmers will be preferentially supported by beginning farmer programs and which farmers are left to fall through the cracks.

I begin with a brief literature review that traces the contours of the beginning farmer "movement" and sketches the knowledge deficit model and its associated outcomes. This literature review lays the groundwork to explore ethnographic accounts of beginning farmers who experience structural barriers in California's Central Coast region. With these structural barriers in mind, I analyze the efforts aimed at solving beginning farmer problems by analyzing the funded proposals of the BFRDP. I conclude that beginning farmer interventions overwhelmingly adopt a knowledge deficit intervention model, rather than address structural barriers. The resulting policy mismatch elides power imbalances and may serve to entrench disparities in the food system. Finally, I propose alternatives to the knowledge deficit model that could make the BFRDP and other efforts to support beginning farmers achieve the goals that the movement supposes.

The beginning farmer "movement": good food redux?

The need for new farmers is underlined by the prospects of an aging (and shrinking) farmer population (the average age is now 58) and the 91.5 million acres of US farmland projected to change hands in the near future (USDA NASS 2016). Politically, supporting beginning farmers through government programs is a bid to revitalize disappearing rural livelihoods (Reid 2013). In addition, proponents of alternative agricultural systems see the support of new

farmers with an environmentalist ambition as a way of side-stepping political transformation of a food system resistant to change (Bradbury et al. 2012; Markham 2014). Over the past decade, activist groups, non-profit organizations, and federal agencies have tried to set up new support programs to address these overlapping issues (Hamilton 2011). They believe that finding ways to attract new farmers into agriculture will instill new agricultural production values that will grow in future generations. Instead of relying on traditional methods such as inter-generational family training and agricultural colleges, special programs are thought to be needed to deliver knowledge to people who have not farmed previously.

Since 2008, the U.S. Department of Agriculture (USDA) has provided over US \$100 million in funding for the BFRDP, with US \$20 million in available funds earmarked in 2016 (OPBA 2016). This support represents 3.1% of all USDA Research, Extension, and Economics spending in 2016² (DeLonge et al. 2016). The Federal Farm Credit Association, for example, has a dedicated loan program for farmers under the age of 35 and in 2013, the network of lenders made over 58,000 new loans totaling US \$8.35 billion to eligible borrowers (FCA 2014). In a number of states, legislators have introduced and passed bills that will provide partial student debt forgiveness as long as participants commit to farming for a designated number of years (e.g., The New York State Young Farmers Loan Forgiveness Incentive Program).

In concert with federal and state priorities to generate new farmers, there is a general surge in non-profit and alternative food activity. Advocacy and research groups, like the National Young Farmer Coalition, Land for Good, the Farmer's Guild, Stone Barns Center for Food and Agriculture, and the New Entry Sustainable Farming Project, are targeting new farmers in outreach, networking, training, and policy advocacy events. Farm incubators, which provide agronomic training while offering subsidized farmland, have increasingly become established nationwide (Overton 2014). These research, extension, and industry efforts coincide with a popular sense of environmental activism and "back to the land" ethos by young farmers committed to redefining agriculture through innovative agronomic and marketing practices. Farming in this sense is in part defined by practices that avoid chemical use, protect biodiversity, reduce greenhouse gas emissions, and create rural revitalization. These ideals appear in venues like the Farm Hack startup, films like *The Greenhorns*, the celebrity chef laden

annual MAD symposium in Copenhagen, Canada's New Agrarians, and the new stylish *Modern Farmer Magazine*. These spaces of reform are notably middle class, educated, and white (Guthman 2011).

As excitement ballooned for alternative food movements in an idealistic wave, the prescriptions for good food reforms like "vote with your fork" and "eat local" were tempered by scholars who questioned market-based or neoliberal solutions to food system problems they saw as structural issues rather than errors of individual choice (Guthman 2000, 2007; Goodman 2004; DuPuis and Goodman 2005). Critiques from a justice and political economic focus have pressured alternative food system proponents to increasingly focus on policy and process over purely market-based mechanisms (Holmes 2013; Alkon and Agyeman 2011; Guthman 2007). But as the lists of institutionalized beginning farmer activities and their underlying sentiments attest, a tendency to romanticize farmers engaged in "good food" abounds (DeLind 2010).

Critical work in this vein emphasizes how agricultural reform interventions tend to end up replicating entrenched visions of government. Guthman (2008a) shows how contemporary agricultural activism intersects with the embrace of neoliberal rationalities by fostering strategies based on consumer choice, localism, diet based self-improvements, and food entrepreneurship. Morris (2008) shows how the use of conservation easements to protect agricultural land for the future relies on the rationality of private property and thus contributes to "roll-out" neoliberalism. The outcome of this neoliberal embrace, both authors argue, is the narrowing of political possibilities in food system efforts. Minkoff-Zern's work among minority farmer populations goes further to show how neoliberal imaginaries in food system reform efforts produce unequal benefits, often exacerbating disparities among low-income farmers of color (Minkoff-Zern and Carney 2015; Minkoff-Zern 2014). Given this commentary on food system intervention writ large, it follows that a similar critical examination of beginning farmer interventions is warranted. While some supports for new farmers may succeed, the benefits are unequal, creating a selective pressure on the types of farming and farmers that can truly enter the system.

The knowledge deficit model: a durable program of government

I invoke the concept of the knowledge deficit model to characterize the dominant approach to beginning farmer interventions. The model, and its theoretical history, is a useful concept of expert-lay dynamics within public understanding of science frameworks (Hansen et al. 2003; Einsiedel 2000). A review of knowledge deficit literature reveals an ossified

² The USDA Research, Extension, and Economics (USDA REA) budget is a rather small portion of the total USDA budget, which includes items like subsidies and crop insurance. In 2016, the USDA REA was less than 2% of the total USDA budget.

political strategy for remedying social problems with predictable outcomes and associated mentalities of governance.

In a knowledge deficit model, environmental and social problems are often attributed to lay people who lack the knowledge to make appropriate decisions or to behave more sustainably. For example, many government officials assume that farmers are causing land erosion through their improper soil management practices, because of a lack of understanding of the mechanisms of soil loss (e.g., Blaikie and Brookfield 1987). The solution, then, is to provide lay people with the missing knowledge and thereby correct their misconceptions and gaps. This can be achieved through one-way dissemination of knowledge from credible, officially recognized experts (Irwin and Wynne 1996; Jasanoff 2005). This sets up a contrast between a knowledgeable expert and an ignorant public, obscuring the social construction of both expertise and ignorance (Cortassa 2016). Lay people are treated as passive receptacles of information and as having no role in helping produce or evaluate the knowledge. The knowledge is meaningful precisely because experts have recognized, defined, and validated it. In doing so, the knowledge deficit model produces a state of “non-knowing” defined in comparison to some authoritatively determined ideal of expertise (Irwin and Wynne 1996). In other words, experts are the ones whose knowledge matters most.

Critics of the knowledge deficit model have identified several core weaknesses, which are instructive for better understanding the beginning farmer intervention landscape. First, campaigns to rectify a knowledge deficit have been shown to be ineffective at “improving” understanding as experts would define it. In the case of publically funded science literacy campaigns in England, post intervention surveys of participants revealed little improvement in the metrics of science understanding, thereby undermining the validity of the approach (Miller 2001). Additionally, case studies showed that those individuals who did experience measurable gain in scientific literacy did not uniformly change their attitudes towards scientific issues, remaining asymmetrical to expert opinion (Durant et al. 2000). Even though there was new knowledge produced by these campaigns, the knowledge did not influence decision-making or behavior in a meaningful way.

This critique, based on utility, paved the way for science studies scholars to question the privileged status of expert knowledge embedded in the deficit model in the first place (McNeil 2013). Scholars argued that specialized knowledge is not the most important nor the only type of understanding at work in complex systems (Funtowicz and Ravetz 1993). Instead, the knowledge deficit model was shown to undermine local knowledge and values through unilateral delivery of expertise, deepening divides between “expert” and “lay” (Fricker 2002). These contributions showed how the content of the outreach offered by professional institutions ends

up coproducing technocratic values (Brunk 2006) without questioning the power structures embedded in those systems (McNeil 2013).

Reflection on the privileged status of expert knowledge in public spaces dovetails with the results of substantial research focused on traditional agricultural knowledge (Altieri 1995), horizontal and peer-to-peer learning among farmers (Rosset et al. 2011; Holt-Giménez 2006), and critiques of historical cooperative extension models (Warner 2008; Warner et al. 2011). The legacy of the land-grant system has been a top-down technology program from the academies and experiment stations to the landed agriculturalists of the nation (Warner 2008). Scrutiny of this legacy shows the social construction of such expertise, often used as a tool to drive desired forms of agricultural production (Henke 2008; Hightower 1972). This work has led to alternatives to the vertical model of knowledge dissemination in agricultural extension, including state-sponsored funding on horizontal farmer-to-farmer networks (Warner 2007) and participatory approaches to sub-domains like plant breeding (Kloppenburg 2010) and sustainability learning (Pretty 1995).

Despite the critiques of the deficit model, state-sponsored knowledge delivery programs to solve social problems are ubiquitous, appearing in domains such as public health (Corburn 2003), public understanding of policy (McNeil 2013), and public education (Pitzer 2015). One way to characterize such a durable strategy for solving social problems is what governmentality scholars identify as a “program of government,” or designs put forth by state and non-state actors to “configure specific locales and relations in ways thought desirable” (Rose and Miller 1992). Programs of government are the mechanisms that embody certain political rationalities, translating the ideals of authority into lived experience. The replication of subjectivities through such programs and their associated technologies, is what is thought of as “government from a distance” (Rose et al. 2009).

Importantly, scholars in disparate fields have situated the knowledge deficit model within neoliberal rationalities (Petrovic and Kuntz 2014; Dutta 2015). Indeed, the knowledge deficit articulates strongly with neoliberal hallmarks like a programmatic commitment to market solutions for societal problems, the abdication of state subsidy in favor of self-sufficiency, and the favoring of entrepreneurship (Peck and Tickell 2002).

Approach

I investigate how BFRDP programs respond to the structural challenges of beginning farming by: (1) exploring the drivers of beginning farmer challenges and (2) describing the overall intervention logic of the BFRDP. To understand the nature of barriers that farmers face, I

use interviews and participant observation with farmers in California. The resulting narratives aim to contextualize barriers to entry emblematic of the beginning farmer experience. To understand the dominant approach of the BFRDP, I analyze the themes and content of funded grant proposal documents. This analysis reveals the scope of interventions within the funded BFRDP programs. These two bodies of evidence allow for a contrast between the structural barriers farmers experience and the USDA's institutional effort aimed at remedying these challenges.

Beginning farmer challenges are described through semi-structured interviews and farm and facility visits in the Central Coast growing region. I focused on observing and interviewing farmers in periods of transition, particularly farmers who are planning to scale up their operations. The experiences of 35 farmers were analyzed, including 26 who gave in-depth semi-structured interviews. All farmers had <15 years of agricultural experience and were under 50 years old. Of the farmers interviewed, 21 were former immigrant farmworkers, and 20 of the interviews were conducted in Spanish. Interviews were carried out on farm fields or in community meeting rooms. I shadowed farmers through daily activities such as sowing crops, business planning, filling out paperwork, hand weeding, and visiting potential parcels of land to rent. I also attended multiple instances of regional development programs, including workshops on marketing, business management, crop production, land acquisition, and tax preparation.

To analyze the institutional response to beginning farmer challenges, I examined the 215 BFRDP funded proposals between 2009 and 2015 available on the USDA National Institute of Food and Agriculture database (NIFA 2016). Using a thematic analysis approach, I coded each proposal by the type of beginning farmer problem the grantee institutions aimed to address and the principal grant funded activities planned. I also measured the distribution of proposals that focused on beginning farmer land access barriers, because previous work identified land access challenges in the study area (Calo and De Master 2016). The project activity codes were characterized by the BFRDP's intended list of suitable grant activities and were thus coded deductively from the Request for Proposals (NIFA 2016). If the proposal activity did not align with one of the BFRDP's suggested grant activities, they were labeled accordingly. The proposal's main problem frame was coded inductively from the problem statements of each proposal. I also examined proposal discourse that was representative of the main problem frames and grant activities. Finally, I took note of proposals that appeared as outliers in their approach to beginning farmer challenges both in problem frame and proposed activities.

Failure to launch: structural barriers in the Central Coast

The challenges of being a beginning farmer in a food system dominated by large-scale and capital-intensive agriculture are relatively well known. Among other challenges, farmers entering the system struggle with acquiring the necessary start-up capital, securing markets for their produce, and identifying or acquiring suitable farmland (see Ahearn 2013; Gillespie and Johnson 2010; Parsons et al. 2010; Galt 2013; Beckett 2011 among others). Farmers adapt to these access barriers in a variety of ways, like renting less than suitable land in residential areas, supplementing farm revenues with off-farm income, and establishing novel and niche consumer chains (Minkoff-Zern 2017). While these barriers are sometimes attributed to the political economy of an agricultural system that encourages consolidation, global market chains, and economies of scale (e.g. Lyson 2004; Gillespie and Johnson 2010; Beckett and Galt 2014; Wittman et al. 2017), less clear are the leverage points for intervention so that challenges can be reversed or remedied. Work in this area explores how key challenges like access to land, capital, and markets are institutionally mediated through mechanisms like direct regulations, informal customs, and racial discrimination (Morris 2008; Minkoff-Zern 2017). This work suggests that for the goals of the new farmer movement to be realized, these structural issues need to be clarified and addressed (Wittman et al. 2017).

In this section, I concentrate on two key structural barriers that challenged farmers who were attempting to scale up their fledgling operations. These barriers are noteworthy because they stand out as persistent in the face of successful access to more agronomic or entrepreneurial knowledge: (1) access to land that is mediated by landlord negotiations and (2) ethnocentric preference embedded in beginning farmer supports that regularly favors white English-speaking farmers. These structural barriers—whether rooted in informal social networks or systemic ethnocentrism—hold back some beginning farmers who otherwise energetically apply themselves to overcoming their individual knowledge deficits. Understanding the structural aspect of these challenges frames the analysis of the BFRDP, as the major national program aimed at alleviating the challenges farmers face.

“One decision can put you out of business”—access to land

When examined closely, the land access barrier is linked to a number of structural and institutional challenges. As high costs of land ownership and encroachment of non-farm land-use in agricultural regions (Katchova and Ahearn 2016) relegate new farmers into tenant relations, farmer experiences in California show how access to land is mediated by

the unequal power relationship between tenant and landowner. One farmer who is reaching the end of his tenure at a regional incubator program described how he has been searching for land for a long time but has struggled to find something that meets his production vision. Even though he has proven his ability to produce quality organic produce and market his goods at the incubator, his difficulty finding more permanent farmland is representative of how land access acts as a structural barrier.

Well [it has been] really bad. I haven't been able to find anything. It's been about three years, and I haven't found anything that is satisfying Yeah there are parcels around, but sometimes they don't have water, or they have other characteristics, like they are really far away, or they are not good for strawberries, and that is what I want to put in.

Access to information about where there are available and suitable parcels at first seems like a problem that is remedied by providing more knowledge. But interviewees describe how gaining preliminary access to a parcel is often the result of a series of informal negotiations between prospective tenant and landlord. In these circumstances, the unequal socio-economic and cultural power of the landlord comes to the fore. These dynamics are widespread, playing out in an ethnically skewed distribution of land ownership. In California, 45% of all farmland is rented out to others (Bigelow et al. 2016). Non-operators (defined by the USDA as landlords who lease farmland but do not themselves individually or as a corporate entity manage the activity of farming) dominate leased land both nationally and in California (87 and 83% respectively). In the last USDA census of 2012, 97% of all principal landlords are classified as white (80% in California) (USDA NASS 2016). Even when farmers can secure a lease with satisfactory terms, tenant farming brings incredible risk, especially in cases where owners are looking to sell the land. Farmers add value to unfarmed land, often investing substantially in infrastructure to support their operations, and then learn that their landlord may want to sell the property. While “lease to-own” provisions do exist in some agricultural leases, they were very rare among the beginning farmers I interviewed.

At an 18-acre parcel near Prunedale CA, I met Ernesto, whose diversity of crops were on display in the spring; rows of marigolds stood next to vibrant strawberries and following those, tomato starts propped up with freshly purchased pinewood stakes. Greeting me for the first time, he gave me a very firm handshake and switched easily and frequently from English to Spanish during our conversations. The farm sold over 110 varieties of crops over the course of the growing season and sold almost exclusively to direct markets or boutique retailers that pay high prices. Two times a week, Ernesto transported his product to farmer's markets in Tracy

and San Francisco (about a 2-h drive). Some of his crops were prearranged with advance contracts to organic vendors (e.g., 500 lbs. of early girl tomatoes were earmarked for an organic ketchup company in the San Francisco Bay Area) and smaller regional groceries. Despite this background, he tempered his success by noting the precariousness of his position:

If you don't have a good relationship with whoever the owner is, things might go sour. So [being a renter] influences the way you are farming, and it's another issue that you always worry about. Is this a place where I'm going to stay? Because you don't own it so somebody else can make a decision that will put you out of business.

Like Alejandra, Ernesto appears to fit the model for using individual capacity and entrepreneurship to make inroads into California agriculture. He succeeded in gaining high-quality agronomic skills through training programs. He learned business and marketing strategies and applied them to build a resume that would appeal to potential land leasers. He took advantage of a variety of sources of start-up loan programs. Despite all this, his status as a tenant farmer remains precarious, where his lack of autonomy could destroy his ability to reproduce his livelihood through agriculture. He adds tremendous value to the land, but would not receive that value if the land was sold. Essentially, the positive outlier among the set of interviewees is nonetheless embedded in a sort of neo-feudal relationship. The land access barrier is one that defies individual capacity.

In California, where tenant farming dynamics dominate beginning farmer demographics, the power of the landowner exerts a strong effect on access to land. Farmers may pursue various strategies to improve the land suitability for their operations, but these changes come with a risk attached, because the value of these investments cannot be taken with the farmer if they move to a different lease. Absent of any agriculture-specific provisions in a lease, the tenant may be expected to incur the entire cost of a capital improvement, even though the added value of the property is transferred to the landowner. This was the case when one farmer decided to invest \$20,000 into a new well for a rental property in San Benito County. He explained:

The owner didn't want to help us [pay for a well], and that's one of those things where, if you decide to put it in you can't bring it with you when you leave. I mean, how are you going to take it out if it is however many feet under the ground?

In this particular instance, the types of improvements the farmer implemented were not fully explicated in the lease, which put the onus of construction entirely on the tenant. Negotiations between actors in the food system, like in the

case above, may also be mediated by unequal ethnocentric preference, as described in the next section.

“If you are illegal, you aren’t eligible for anything”—ethnocentrism among farmer support mechanisms

Minkoff-Zern has written extensively about the position of Latino farmworkers who seek to become farm operators both in California and nationwide (see Minkoff-Zern et al. 2011; Minkoff-Zern 2017). This work shows how racialized discrimination puts a unique set of pressures on these farmers, ultimately shaping the forms of agriculture they are able to pursue. A lack of Spanish language programs in state supports, a system of benefits that mandates legal status, and daily exclusion from beneficial resources based on race ultimately constrains these farmers into a unique form of agriculture that relies on family labor and excludes costly inputs when possible.

Here, I show how sociocultural identity can mediate the many access points in the process of acquiring secure tenure and other supports as a beginning farmer. If landowner-tenant dynamics are fraught with ethnic disparity as regional statistics indicate, then ethnic identity can be connected to the perceived credibility of a prospective farmer. This can lead to ethnocentrism among landlords. As one farmer notes:

There are some owners that have the heart to rent to small-scale farmers, but there are very few people like that. One of the hardest problems is credibility—cultural credibility. The large part of property owners are Anglos, *gringos*, and the majority of us that are looking for small parcels are Latinos. So, culturally we disagree sometimes. And if there isn’t anybody to intervene for you, it can be really hard.

In this view, those who decide to rent to a small farmer must have the right “heart” or sense of charity to take on someone with less “credibility.” The farmer then connects this sense of charity with ethnic identity, suggesting the default choice for an “Anglo” landlord would not be a Latino farmer.

Among the interviewees, a common manifestation of ethnocentrism was the requirement of legal status for access to agricultural supports. Farmers report their inability to apply for Farm Service Agency (FSA) loans because of the federal requirement of listing a social security number. This extends to fear of utilizing a realtor because the office may inquire about legal status. One farmer describes the scenario:

[Realtors are asking about citizenship status] because they have to ensure for the landlords that you can pay for the land and that you are currently employed and that you are good for the money.

Even though California legal code prevents businesses from screening based on legal status, the farmer still felt excluded from the services of the realtor based on the possibility of being screened. An additional barrier associated with ethnocentric preference among supports is legal status and cultural difference between small scale farmer needs and the agency programs:

I’m very frustrated in how little support there is for the small farmer. There being so much money within the agencies, within the government programs. Legal status is such an additional and terrible barrier, because if you are illegal, you aren’t eligible for anything ...

This farmer views her position as a series of structural slights by the powerful agricultural agencies who overlook her person and her vision of agriculture. The seemingly simple language barrier that persists between some beginning farmers and members of agriculture support agencies is viewed as a much more severe sociocultural barrier.

There is supposed to be support, but for certain reasons, maybe who’s doing the outreach, the help doesn’t get through! If they show up at your office, and if you speak English, well that’s all right. But if you don’t speak English, as they say in Mexico ... “you’re screwed.” There is no one to help you, okay? So, I believe it will be a long time until the small-scale farmer is supported as they should.

From her position, the beginning farmer interventions she has experienced are insufficient and, at times, unjust. Her solution is not more or better or innovative training, for in her view she has accomplished these steps without attaining the promised benefits. Instead, she questions the policies that govern agriculture and calls for structural change.

The majority of the programs, the funds and the resources that come from the government are designed solely for the big farms. This is where change should come. This is what you should be writing about, because we can jump, we can scream, we can cry, but we have nothing. No one listens to us, no one, no one is going to take the time to say, ‘Oh, we have to change governmental policies to generate more support for the small farmer.’

Similarly, Minkoff-Zern’s (2017) recommendation for farm policy is to include the unique challenges of transnational peoples into beginning farmer interventions. Otherwise, these farmers will continue to be constrained, regardless of individual capacity. This section has shown how the key beginning farmer challenges of access to land and ethnocentric preference are structural in nature and are blind to the technical proficiency of start-up farmers. In the next section, an analysis of BFRDP proposals helps to show how

Table 1 BFRDP funded projects and their principal problems targeted

Problem frame	Count	Occurrences (%)	Total funding (\$)	Funding (%)
Under-represented farmer challenges	63	29	31,975,937	30
<i>Farm business knowledge gap</i>	33	15	15,723,127	15
<i>Unaware of technical assistance</i>	25	12	12,504,325	12
Lack of service outreach	24	11	11,936,584	11
<i>General agricultural information lack</i>	17	8	9,891,904	9
Access to land	15	7	6,296,017	6
<i>Agronomic skills gap</i>	11	5	5,442,604	5
Capital gap	9	4	3,918,727	4
Urban agriculture problems	9	4	3,705,528	4
Lack of adequate curriculum	4	2	2,244,246	2
Other	5	2	2,238,522	2

Emphasized rows are proposals that fall most clearly into the knowledge deficit approach

the USDA and grant recipients visualize the key problems facing new farmers and their intervention approach.

The BFRDP: a knowledge deficit program

The USDA received authorization to establish the BFRDP in the 2008 farm bill, and has approved continued funding until 2018. The BFRDP is the flagship governmental program that supports new entry farmers and carries the mission “to enhance the sustainability of the next generation of farmers” (NIFA 2016). The program represents the dominant public model of how to support beginning farmers and funds many beginning farmer intervention programs. The “Purpose and Priorities” section of the federal program states:

The primary goal of BFRDP is to help beginning farmers and ranchers in the U.S. and its territories to enter and/or improve their success in farming, ranching, and management of nonindustrial private forest lands, through support for projects that *provide education, mentoring, and technical assistance* to give beginning farmers the *knowledge, skills, and tools needed to make informed decisions* for their operations, and enhance their sustainability. (NIFA 2016, emphasis added)

In its call for proposals, the program frames the beginning farmer problem as one of a knowledge deficit model. As discussed above, this model assumes that presence or absence of official expertise—the “knowledge, skills, and tools needed to make informed decisions”—makes the difference between a farmer that succeeds and one that fails. BFRDP-funded projects act upon knowledge deficits through programs that train new farmers in agronomic techniques, farm business planning, and marketing strategies.

The NIFA program analyzed lists 215 proposals funded over 7 years (2009–2015), with a total funding disbursement of \$105,877,521. In terms of BFRDP funding priorities, the beginning farmer problem is predominantly framed as a problem of knowledge gaps (40% of all proposals indicated a gap of agronomic, business, or awareness of technical assistance as the main justification for their proposal: Table 1).

The logic of these programs suggests that if farmers overcome their lack of training in farming, marketing, and farm business management, they can overcome the diversity of barriers to entry into agriculture facing them. Likewise, this logic signifies that failure is a result of individual lack. Some proposals state this explicitly:

Many beginning farmers do not have the knowledge networks, the personal relationships, or the capacities to take advantage of the myriad programs and services available to help make them successful.

Another proposal places the problem in the “shortcomings” of the unknowledgeable farmers: “Shortcomings by participants include lack of farm knowledge, lack of capital, and lack of equipment.”

The assumption is that if the program can remedy these informational shortcomings, farmers will be successful. Another proposal that represents the entrepreneurial deficit category adds an additional layer of assumption about the beginning farmer landscape in their desire to focus on farm business training:

These new farmers tend to be college educated and deeply committed. They are driven by an intense desire to learn about all facets of owning and operating a farm business. Significantly, many start with no farming background. Recognizing this experience gap, [we] worked with a group of new and estab-

Table 2 BFRDP funded projects and their principal proposed grant activities

Main proposal activity	Count	Occurrence (%)	Total funding \$	Funding (%)
Technical agronomic training	64	30	33,567,133	32
Entrepreneurial or business training	76	35	35,629,165	34
Marketing strategies	15	7	7,353,479	7
Land access	13	6	6,813,750	6
Farmland transfer	11	5	5,421,444	5
Financial training	10	5	5,153,194	5
Farm safety training	4	2	805,358	1
Curriculum development	7	3	4,725,771	5
Natural resource management training	6	4	2,034,059	2
Policy-advocacy	3	1	1,977,159	2
Other	6	3	2,397,008	2

lished farmers to design and create a two-year new farmer training plan we call our Journey person Program. (emphasis added)

This proposal defines the beginning farming problem as one of prospective, highly educated entrepreneurs who lack the farm business acumen to carry out their desires. Indeed, with farmers who have the resources to attend and thrive at a 4-year university, the only missing piece to their success is actual on-farm experience.

While the problem frames of proposals are somewhat diverse, the proposed activities coalesce around horticultural training and entrepreneurial training (65.8% of all proposed activities, Table 2). These technical trainings take the shape of outreach materials, training workshops, incubator programs, webinars, and business training consulting services.

The tensions of the knowledge deficit model are particularly visible in proposals that invoke a dominant problem frame of “underrepresented farmer challenges” (29% of proposals, Table 1). These programs indicated the primary problem they aimed to solve was the unique challenge that underrepresented groups face while working towards becoming farmers.³ Many programs in this category invoke structural barriers in their problem frame, such as the weakness of federal outreach, language barriers in accessing agricultural supports, and in some cases, historical dispossession of farmland. The proposed activities of these programs nevertheless fell dominantly along entrepreneurial or individualistic program activities as their mode of intervention (36.5% proposed technical agronomic training, 31.7%

proposed farm business training, and 9.5% proposed teaching marketing strategies). One representative program in this category describes their plan to meet the needs of socially disadvantaged farmers through entrepreneurial and production practices:

[Immigrant farmers] frequently lack financial or production skills, are unaware of technical resources, or lack English-language proficiency for accessing technical information. The objective is to assist these beginners with development of small scale farm enterprises through training and technical assistance that will: (1) improve participants’ financial and business skills, (2) connect them with a network of resources, and (3) gain and improve production skills.

In this instance, the structural problem areas of lack of access to adequate finances, social disadvantage, or lack of familiarity with English among immigrant farmers frame the difficulty of beginning farmer success. The program activities proposed are notably individualistic and merit-based, focused on improving business skills and fine tuning production *as a means of* overcoming the structural barriers explicitly identified. Many programs proposed pedagogy that recognized some structural barriers. These proposals planned to offer training in the native language of participants, the production of pictorial agronomic curriculum, or, in a proposal that focused on training women farmers, the hiring of female instructors to teach technical skills. However, while innovative and culturally-specific pedagogy is a crucial part of addressing structural blind spots of the knowledge deficit model (McNeil 2013), the theory of change of these programs remains firmly rooted in individualistic and market mechanisms. Indeed, overall, the proposals resoundingly focus the site of intervention within the individual farmer. One proposal states this in clear terms: “the project’s objectives are designed to change the behavior of our target audience.”

³ The USDA BFRDP maintains a funding goal of 25% funding towards proposals that focus on underrepresented groups. My analysis shows that the BFRDP is meeting or exceeding that goal. There was tremendous diversity among the proposals in how grant writers identified these groups including veterans, women, youth, urban farmers, distinct ethnic groups, low-resource, refugees, etc.

Table 3 The presence and absence of land access within BFRDP proposal problem frames

Presence/absence	Total funding	Percent total	% Funding
Absent	44,176,320	43.2	41.7
Present	61,701,201	56.7	58.3

Webinars, new curricula, online resource sharing, horticulture classes, and credential programs all intervene by asking individual farmer learners to take on new skills through dedicated application to these programs. Farmers are asked to diversify their business acumen in addition to their farming practices. Beginning farmer success is defined as the mastery of these entrepreneurial skills. In this sense, the majority of BFRDP programs align with, and thus reify, a modern neoliberal vision of agriculture.

A key consequence of this logic is to individualize responsibility for overcoming structural barriers. A focus on how the BFRDP attends to one specific beginning farmer challenge, land access barriers, highlights this dynamic. Access to land is a prime concern of beginning farmers and often a chief reason that prevents farmers from succeeding (Shute 2011; Ruhf 2013). A history of uneven land ownership, large parcel sizes, and ballooning land values all restrict a new farmer's ability to get on the land (Beckett and Galt 2014). Furthermore, farmers who do find suitable land within their budget face an informal vetting process as they seek to align with landlord values (Calo and De Master 2016). A look at the proposal activities focusing on the land access barriers further define the implications of the deficit model at work.

First, the structural problem of land access is frequently omitted from proposal problem frames (43.2% of proposals, Table 3).

In these omitted cases, proposals leave the challenge of land acquisition up to the individual farmer to solve, or target farmer audiences who already have secure land access. When proposals in the BFRDP do identify land access as the major problem, the grant activities fall along similar individualistic logics. Thirty-six percent of proposals indicating land access as a major problem propose entrepreneurial training followed by 23% proposing horticultural training (Table 4). These programs understand the land access problem as one of microeconomics. If the cost of leasing or buying land is cost prohibitive, then increasing the economic buying power of the beginning farmer through improved entrepreneurship removes the barrier.

Twenty-two programs addressed the land access problem through focusing on mechanisms for farmland transfer, agricultural lease workshops, farmland matching, or strategies for increasing farming on conservation easements. While these programs addressed the land access problem more

Table 4 Proposal activities aimed at addressing land access barriers

Main proposal activity	Count	Percent of proposals (%)
Entrepreneurial or business training	44	36.1
Technical agronomic training	28	23.0
Land access	13	10.7
Marketing strategies	10	8.2
Farmland transfer	9	7.4
Financial management training	6	4.9
Natural resource management training	4	3.3
Policy-advocacy	3	2.5
Farm safety	2	1.6
Curriculum development	1	0.8
Other	2	1.6

head-on than say, improved marketing strategies, whether or not these techniques address the structural barrier of land access is less clear. Previous work challenges the use of conservation or agricultural easements to support beginning farming (Morris 2008). By prohibiting development, these tools simultaneously reduce market lease rates and increase the total farmland available (Johnson 2008). While these mechanisms are indeed a policy tool, they still fall mainly under a market incentive or disincentive approach. Morris (2008) argues, through a review of conservation easements in California, the increase in easements and the decrease of state action in preserving farmland is a prime example of 'roll out neoliberalism' and serves to accrue value to existing private landowner structures.

Outliers

Clear outlier proposals offered activities that either defied categorization, took a systems approach to addressing beginning farmer programs, or proposed activities to address structural barriers. The systems perspective outlier programs (Ruhf 2013) tended to invoke multi-level collaborations, like one proposal to investigate the legal framework of the FSA to increase inclusivity. Another outlier collaborated with immigrant rights groups to analyze and advocate for the legal mechanisms for land ownership among farmers without clear citizenship status. Finally, one program leveraged their association's connections to fund visits to the state capitol for legislative meetings with agricultural decision makers in their region. These outliers were similar in that they tended to challenge automatic privileging of specialized, expert knowledge.

Another type of outlier proposed activities that tended to address structural barriers more directly. In one such program, an urban agricultural beginning farmer proposal

earmarked a living wage salary for participants as it sought to create new farmers from post-incarceration populations. Through the program, the status of the underrepresented group, post-incarcerated persons, was re-imagined through an employment opportunity. The proposal did not assume that through urban horticultural training alone the participants would remove their social disadvantage. A final outlier offered to train absentee landowners (identified as living in distant urban centers) in modes of agricultural land transfer. While the method certainly fits a knowledge deficit model, it puts the burden of training on the landowner rather than the small farmer.

This analysis of the BFRDP funded grants suggests the dominant approach to addressing beginning farmer programs is through a knowledge deficit model. It is clear that these programs acknowledge individual beginning farmer problems like the complexity of farm business management and the expertise required for small scale horticulture. But these results invite the question: does this type of programming meet the challenges that beginning farmers face? Is the knowledge deficit logic sound for beginning farmers? As the evidence from farmer narratives show, barriers like access to land and racialized exclusion have little to do with individual capacity.

Discussion and conclusion

Experiences of beginning farmers in the California Central Coast show how some key barriers to success are structural in nature. These barriers like land access, the challenges of being a tenant farmer, and racial exclusion are embedded in social relations like landlord tenant interactions, regulations like immigration policy, and historical private property regimes. In the Central Coast, these barriers act unequally on different ethnic groups. For some aspiring Latino farmers in California and across the U.S., the feat of acquiring land title is shown to be difficult or perhaps impossible for transnational farmers (Minkoff-Zern 2017). This work demonstrates that these barriers based on ethnic identity ultimately constrain the shape of agriculture these farmers can take on. Going further, I would argue that these barriers also constrain the utility of beginning farmer interventions that act from a knowledge deficit approach.

My analysis of the BFRDP reveals the dominant effort to motivate the next generation of beginning farmers is largely through individualistic and market-based means. The results show a program aimed at rectifying a knowledge deficit mainly through agronomic and entrepreneurial training programs. These strategies aim to increase supply of new farmers and their capacity to transition new acreage into restorative farm enterprises. Yet the farmer narratives represented in this paper reveal how the deficit approach

falls short of addressing the structural nature of several central beginning farmer challenges. The limit of the knowledge deficit approach is a flawed logic that suggests the injection of cognitive resources will help farmers overcome structural barriers such as ethnocentric preference of supports or landowner–tenant dynamics. For institutions working on supporting beginning farmers in their regions, it is worth considering the extent to which providing new knowledge remedies the specific challenges their constituents face. Without doing so, the result may be creating a new resource pool that is essentially inaccessible to the farmers that face barriers structural in nature.

The review of BFRDP proposals suggests how knowledge deficit logics embedded in the call for proposals has the effect of replicating those logics across the entire BFRDP program. The parameterized grant making program a priori establishes a logic of self-improvement for supporting beginning farmers and is embodied by the grant receiving institutions and in turn, beginning farmer communities. This may explain why most funded projects frame their target problems as knowledge gaps among their farmer constituents and propose programs to improve technical capacity, thus reinforcing the dominant logic. In a review of a pioneering food philanthropy venture called Vivid Picture, Guthman (2008b) similarly identified how the narrow logics within the original request for proposals had the effect of constraining the generated strategies for change. As the granting process developed, Guthman noted how more political strategies like de-regulating pesticides and re-orienting public research priorities fell to the wayside to solutions like consumer education and green business models. Embedded priorities, like win–win solutions, incentive-based programs, entrepreneurship, and quantitative evaluation were embraced by the grant receiving organizations, deepening the spread of these strategies. Of course, grant proposals may not be indicative of actual grant activities, but inserting alternative logics of agricultural interventions into grant proposals could mean not receiving funding.

One potential consequence of farm support programs that overlook structural barriers is to exacerbate inequity in the food system (Holt-Giménez and Shattuck 2011; Minkoff-Zern and Carney 2015). Farmers without structural barriers receive the benefits of public individualistic supports while others, based on their social location, fall behind (Ayazi and Elsheikh 2015; Minkoff-Zern 2014). Without a focus on the structural aspects of beginning farming, new farmers will certainly be produced, but that success will likely favor particular classes of new farmers (i.e., those who are highly educated, well-resourced, and white). Those, like Alejandra, who overcome their individual knowledge deficits through training programs, nevertheless confront a system of barriers that exist outside the realm of technical training or entrepreneurial tactics.

One outcome is a major discrepancy between the food justice and food sovereignty objectives that many beginning farmer institutions hold and their implementation of training programs that deepen divides in the food system.

Faced with the limits of a knowledge deficit approach, science scholars suggest a more democratized epistemology is needed to address complex systems (Miller 2001; Funtowicz and Ravetz 1993). Cortassa (2016), writing on alternatives to the knowledge deficit, suggests a model that redefines expertise, where:

Specialized knowledge is not the only knowledge nor in principle the most valuable at play. Instead of being regarded as passive recipients, people should be seen as fully competent agents who assume an active role in the relationship relying on their own expertise, skills, values, and criteria.

Much theory in participatory agricultural extension and farmer-to-farmer knowledge production supports this adjustment in epistemology. Numerous experiences show how a de-emphasis on expertise and support for local knowledge can lead to greater understanding of complex agricultural systems (e.g., McGreevy 2012; Röling and Wagemakers 1998). However, while a commitment to these democratized epistemologies address some shortcomings of the knowledge deficit model, it is unclear how much leeway individual actors have to enact these types of programs, given the guidelines set in the BFRDP.

Given this limitation, I offer a parallel example found in the field of public health intervention where grant parameters were redefined to open the boundaries of change strategies. Federal health interventions that relied solely on individualistic behavior change models have faced withering criticism from scholars who investigate the social determinants of health (Marmot et al. 2008). A focus on health services was seen as insufficient and reactionary, rather than working towards upstream investigation into the drivers of health inequity (Jones et al. 2009). One response at the federal grant-making level has been the Centers for Disease Control's call for policy engagement to address individual health outcomes (Bunnell et al. 2012). The agency has set up a funding mechanism called the Policy, Systems, and Environmental (PSE) improvement strategies in order to motivate healthcare practitioners to address individual health via structural solutions. These include financing the placement of community members on health planning boards and the creation of tools for community representation within bureaucratic organizations (Honeycutt et al. 2015). This framework carries an implicit understanding that well-intentioned individualized health interventions may exacerbate health inequity, and interventions should focus on changing the broader policies and norms around health instead of seeking to make behavior change. This paradigm shift

could be imagined in a beginning farmer/agricultural policy landscape.

Following this concept, a policy engagement oriented BFRDP could preferentially support projects that contribute to resolving the structural barriers that farmers face. While technical training is certainly a crucial part of agriculture, solely relying on individualistic training to hurdle structural barriers is an engine of disparity. Following the model of the systems-oriented PSE programs, the BFRDP would spend less time providing horticultural advice to farmers like Alejandra and more time supporting her participation in the governance and making of her regional food system.

In this hypothetical shift, grant recipients who previously focused on creating new capacities amongst beginning farmers work to create a system where those same farmers have improved chances at success. Instead of educating farmers about how to negotiate a fair lease, programs would work towards appointing a farmer representative like Alejandra to county housing boards in the pursuit of novel ordinances to protect tenant farmers. Farmer support institutions could test these ordinances, like a provision that compensates tenant farmers for capital improvements and share the results in other new farmer communities. Instead of solely teaching farmers business management, programs would lobby to reduce ethnocentrism in the existing agriculture loan products available. A beginning farmer support program that looks upstream to structural barriers would not just teach marketing strategies, but rather challenge buyers and shippers to innovate on contracts that meet the needs of low-resource farmers. Alternatively, farmer advocates could challenge the monopolizations of shippers.

A BFRDP in this vision unbound by the limits of the knowledge deficit model would acknowledge how power influences winners in the food system instead of reifying singular pathways to change. In a food system with significant structural barriers to entry, making better farmers does not necessarily mean making new farmers. Beginning farmer experiences are diverse, and in many cases, improving cognitive resources may be central in their success. But this assumption needs to be examined before implementing such programs while attempting to support all beginning farmers in a just manner.

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Compliance with ethical standards

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

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