



# It's not just the farm: enterprise and household responses to the pandemic by North Carolina niche meat producers

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## Abstract

The Covid-19 pandemic raised questions about the viability of food chains and created new opportunities for small-scale producers. This study reports on findings from a project directed at investigating how niche meat farmers respond to external challenges and threats including those related to their position as small-scale producers and those that are pandemic-related. A purposeful sample ( $N=5$ ) of local meat producers in NC, recruited through their producer network, were interviewed twice (in 2021 and again in 2022) via Zoom. Informants were interviewed about the characteristics of their farm enterprises and households. The niche meat farmer informants in this study are diversified, values-based operations that utilize pasture-based production practices. They draw upon their farm enterprise and household assets, including the allocation of labor to farm, non-farm, and household activities, to meet economic production and social reproduction needs. Overall, our results show that the resiliency of the niche-meat producers flows from this integration of the farm enterprise and the household. While the data are based on a very limited sample, the results are consistent with literatures on women in agriculture and peasant economy. Therefore, we argue that future studies of how small-scale farms react to exogenous change, like the pandemic, include details on household composition and the gender division of labor for on-farm, off-farm, and social reproduction activities.

**Keywords** Niche meat · Family farms · Resilience · Social reproduction · COVID-19 pandemic · Social and economic needs

## Introduction

In 2020, the US food system faced an exogenous shock in the form of COVID-19. The novel virus and its harm to human health forced changes to social interaction patterns and economic processes that reverberated across the entire food chain encompassing production, processing, distribution, and consumption. News reports highlighting shut-downs at meatpacking plants, the mass slaughter of hogs that

could not be processed, and the dumping of milk impacted Americans' confidence in their food supply (Yaffe-Bellany and Corkery 2020a, 2020b). This fragility at a moment of crisis led to increasing interest in local food systems and farm resilience, with specific emphasis on how small-scale, family-type farms confront exogenous changes and threats to their persistence (Kolodinsky et al. 2020; Midendorf et al. 2021; Zuckerman et al. 2021; Taylor et al. 2022).

Many studies documenting how small-scale family-type farmers responded to the COVID-19 pandemic investigated changes in the farm enterprise relative to the production of commodities for the new market opportunities generated by supply chain disruptions (Ladyka et al. 2022; Murakami et al. 2023; Richards and Vassolos 2023). While this emphasis on the dynamics of economic production is important, feminist scholarship on gender and agriculture (Sachs 1983) and classic works in the field of peasant studies (Chayanov 1966; Wolf 1966) show that family-type farms are more than enterprises producing commodities. Of equal importance

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are how they operate as households engaged in a process of social reproduction.

Social reproduction refers to the activities and resources required to maintain the social needs of the household, like childcare, healthcare, and eldercare (Bakker 2007). Studies of social reproduction show how the social needs of the farm household are linked with the capacity to operate the farm enterprise (McFadden and Gorman 2016; Becot 2020; Becot and Inwood 2022a; Becot and Inwood 2022b). Therefore, investigating how family-type farms of different types and scales integrate economic production and social reproduction is important for understanding their functioning and ability to respond to exogenous events such as those produced by the pandemic (Budge and Shortall 2023).<sup>1</sup>

In this paper, we present a “case study” of the integration of economic production and social reproduction using data collection from a two-year study of niche meat farmers in North Carolina. Prior to the onset of the pandemic, our team, which included animal scientists and Extension personnel, was designing an inter-disciplinary study of the association between farmer welfare and animal welfare in niche meat operations.<sup>2</sup> Given changes in the structure of agriculture and the decline in the number of farms, we wanted to investigate the enterprise and household factors, such as values-based production practices, off-farm labor, and household composition, that contributed to small-scale farm persistence in this particular and growing sector of agriculture (McFadden and Gorman 2016; De Rosa, McElwee, and Smith 2019; NASS 2021; Whitt et al. 2023). When the pandemic began, this preliminary work positioned us to complete two waves of interviews with a purposeful set of niche meat farmer informants in North Carolina.

In the following sections, we begin by outlining relevant concepts from the literatures on farm resilience and responses to the pandemic. We include information that describes niche meat farms, the nature of their on-farm commodity production, and their role in the structure of

agriculture. Then, we detail the data collection process, including the recruitment of informants and the interview process. In addition, we describe how we developed a codebook and thematic analysis of the descriptive and qualitative data from the interviews. Thematic analysis of the qualitative data identified three core themes from the two waves of interviews that describe how the niche meat producers organize the processes of economic production and social reproduction and how they adapted to endogenous conditions in general and specifically to the exogenous shocks presented by the pandemic. While the data are based on a limited number of interviews, we find that the niche meat farmer informants’ capacity for farm resilience during the pandemic depended on their ability to allocate and shift family and gendered labor among on-farm commodity production, off-farm labor, and household social reproduction activities.

## Situating the research

The unexpected conditions created by COVID-19 also brought new attention to the issues of farm resilience and sustainability (Darnhofer 2020a). Resilience is the ability to persist, adapt, and transform relative to changing conditions (Darnhofer 2014). This ability to buffer against shocks, create new farm-level enterprises, shift sources of income, and pivot in response to changing social, economic, and environmental conditions has become a key indicator for assessing the viability of food systems (Worstell and Green 2017). As such, a resilient system reorganizes itself in response to change, yet maintains basic functionality and identity (Knicker et al. 2018; Green et al. 2017).

Darnhofer (2020b) argues for a relational approach to the study of resilience that considers the material and symbolic relations that allow farms to respond to unexpected changes in conditions. Relations within the farming system and relations between the farming system and its context are important for understanding how agricultural systems can respond to unforeseen changes. These relations are both material, like flows of money and power, and symbolic, such as farmers’ meaning-making processes (Darnhofer 2021). Based on these material and symbolic relations, farmers develop varied responses to exogenous shocks to the food system conditioning their capacity to persist, adapt, and transform.

Studies of farm resilience demonstrate the role of certain elements in making farming systems more resilient, such as diversity and flexibility (Smith et al. 2016; Green et al. 2017; Worstell and Green 2017)<sup>3</sup>. For example, Ladyka et al.

<sup>1</sup> While not directly the purview of this manuscript, other scholarship has shown that while the enterprise and household are integrated, the two still function with their own logics producing a competition for resources. This leads to trade-offs between the enterprise and household as the farm family seeks to adapt labor allocation to shifting circumstances. For more detailed analyses of this trade-off dynamic, see Bennett, Kohl, and Binion (1982) and Becot and Inwood (2024).

<sup>2</sup> The research team consisted of four people. The two sociologists were both US citizens, White, and males. One sociologist had experience with volunteering in urban agriculture and scholarship on historical transitions in food systems. The other sociologist has a scholarly record of studying small-scale agriculture. One animal scientist is White and male and is a non-US international scholar focused on animal genetics. The other animal scientist is a US citizen, Latina, and female, with research focused on niche production and multi-cultural career development. Both animal scientists had direct farming experience in terms of their research and lived experience.

<sup>3</sup> There is overlap between the current farm resilience literature and the scholarly emphasis on farm persistence. In both instances, the focus has been on understanding and explaining the conditions that permit the farm enterprise to continue to operate, and more optimistically,

(2022) showed that small farmers in Washington responded to the COVID-19 pandemic through diversification of products, finding new distribution channels, and being nimble in the face of changing conditions. Adaptation through product diversification and expansion of on-farm enterprises (e.g., agri-tourism) have been demonstrated in studies of New England dairies and in case studies from the European Union (Ashkenazy et al. 2018; Snorek et al. 2023). Additional studies show that farm resilience is embedded within larger systems, such as state regulatory apparatuses (Greenhill et al. 2009; Sinclair et al. 2014; McFadden and Gorman 2016). For example, in a study of Michigan family farmers, Taylor et al. (2022) found that participation in government programs was a key factor in persistence during the pandemic. In general, studies of farm resilience tend to emphasize the farm as an economic unit producing commodities for exchange. Accordingly, resiliency is dependent upon the production capacity of the farm enterprise including the quantity and quality of information and social connections (Scoones 2009; Worstell and Green 2017; Ashkenazy et al. 2018; Darnhofer 2021).

The role of gender and family in the social reproduction of the farm household is addressed in studies of peasant economy and in studies of gender and agriculture. These studies direct our attention to the characteristics and interrelationship of the farm enterprise (the production of commodities for exchange and/or household consumption) and the farm household (gender roles, composition, lifecycle) and social reproduction). Classical studies of peasant farm households (e.g., Chayanov 1966; Friedman 1978) analyze how the integration of farm income streams with subsistence production provides the basis for farm persistence. Contemporary studies of peasants and small-scale family agriculture in regions outside of the United States continue to highlight the familial and gendered division of labor and its role in the diversified organization of economic production and social reproduction (Bessant 2006; Ncgoya and Kumarakulasingam 2016; Ado, Savadogo, and Abdoul-Azize, 2019; Gascón and Mamani 2022; Tran et al. 2022).

In the United States and North America, studies of female farmers in family-type farms detail the complex interrelations of gender, farm production, and household social reproduction. These studies describe how women's work in farm households contributes to the survival of the farm unit and the social sustainability of the food system (Sachs 1983, 1996; Bouquet 1984; Rosenfeld 1985; Hall and Mogyorod 2007; Wright and Annes 2014; Wright and Annes 2016; Ball 2020). Studies of farm households' social needs document how male and female heads of farm households navigate

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thrive (e.g., Schulman and Green 1986; Inwood and Sharp 2012). A comparison and integration of the literatures on resilience and persistence is a task for future scholarship.

childcare, healthcare, and eldercare as crucial components of their lived realities (Becot 2020; Rissing et al. 2021; Becot and Inwood 2022a; Becot and Inwood 2022b). Similarly, empirical studies detail the importance of farm household and gender issues for understanding how the pandemic had differential impacts on farm men and women (Darnhofer 2020a). One study provided evidence that COVID-19 led to an increase in labor allocated to social reproduction for women thereby decreasing their overall sense of wellbeing. (Becot 2022; Budge and Shortall, 2023). Another study found that a crisis in the farm enterprise was a catalyst for a crisis in the farm household leading to familial and workplace conflict (Sprung 2022).

The COVID-19 pandemic also prompted a set of concerns about the vulnerability of the industrial model of food production and new attention to the role of small-scale family-type farms in local food systems (O'Brien 2020). Niche meat producers were one group of small-scale, family-type farms that received increased attention during the COVID-19 pandemic because these producers were seen as an alternative to supply chain bottlenecks (Richards and Vassalos 2023; Syukron and Su 2023). Picardy et al. (2019) define niche as "differentiated from conventional [meat] by claimed quality or credence attributes, which may relate to price premiums for the meat" (2). This can involve a smaller volume of production, the use of specific production practices (e.g., silvopasture) or direct to consumer market channels (e.g., farmer's markets) (Wheatly 2003; Honeyman et al. 2006). Prior studies of niche meat producers document their reasons for resistance to the industrial production model that include farm viability, animal welfare, and consumer preferences (Grey 2000; Gwin and Thiboumery 2014; Wheatly 2003). When COVID-19 occurred, increased consumer demand for niche meat provided evidence of the importance of local production for food system resilience, even if the lack of coordination and infrastructure hampered the longer term potential for this sector (Richards and Vassalos 2020; Lioutas and Charatsari 2021; Richards and Vassalos 2021; Richards and Vassalos 2023). This emphasis on the unique characteristics of the production of commodities for local markets by niche meat producers needs to be balanced by studies of how their households balance production and social reproduction.

To summarize, studies of the resiliency of small-scale family-type producers and the role of family and gender in agriculture all point to the importance of studying the relationship between the farm enterprise and the farm household. This emphasis on the integration of production and reproduction is exemplified by Becot and Inwood (2020), who explicitly call for research that examines how household issues, the life course, and the gendered division of labor impact farm persistence. Therefore, we argue that

how small-scale family-type farms (in this case, niche meat farms) allocate gendered labor to economic production and social reproduction should be a core topic for studies of farm resilience. In this paper, using data from interviews with a select group of niche meat producers, we analyze how household composition, lifecycle, and the family and gendered division of labor structured their farm enterprise and household social reproduction activities and conditioned their responses to the COVID-19 pandemic.

## Methods

The study design and research protocols were approved by the NC State Institutional Review Board (eIRB#: 20944)

Results from this study are based on a qualitative research design employing semi-structured interviews with a purposeful cohort of niche meat farmers. Each niche meat farmer informant was interviewed on two separate instances during the summer months of 2021 and 2022. The purpose of this panel design was to investigate informant responses to the COVID-19 pandemic at two points in time: one in the middle of the COVID-19 pandemic and one when pandemic social distancing regulations were ending.

### Recruitment and data collection

Participation from the niche meat farmers was solicited by two collaborators from NC Choices. NC Choices is a network of small-scale, niche meat producers affiliated with North Carolina State University's Center for Environmental Farming Systems. The inclusion criteria for the study were that a farmer informant had to operate a niche meat farm that included hog production in the state of North Carolina. Niche meat was defined as utilizing pasture-based production practices to raise the hogs. Collaborators contacted six farmers on behalf of the project in 2021, and five agreed to participate. The recontact rate for the second round of interviews in 2022 was 100%. The five niche meat farmer informants were active participants in NC Choices programs and had experience working with NC State Extension to support their farm enterprises. Their connections to formal resources and support represent a potential bias in this purposeful sample. The niche meat farmer informants were compensated for their time on both interviews with gift cards worth fifty dollars each.

We utilized a semi-structured interview protocol with a mixture of open-ended and closed-ended questions. This means that while there was a set of questions that the interviewer relied on to guide the conversation, the interviewer could ask follow-ups and probes in order for the niche meat farmer informant to elaborate on their statements (Berg

2009). Additionally, while closed-ended questions were meant to collect specific data points, farmers could also provide context to their responses to be utilized in qualitative analysis of transcripts.

Two semi-structured interview protocols were utilized over the course of the study. In terms of niche meat production, the 2021 questionnaire included questions about hog and pork production. In the second year (2022), the interview protocol was revised to account for the diversity of livestock in each farm operation<sup>4</sup>. Baseline questions about basic demographics, on-farm and off-farm work by members of the household, sources of household income, and the nature of the farm operation were repeated in each year. As well, open-ended questions were included in both waves to elicit responses on what it means to be a farmer, how household labor is divided between family members, relationships with organizations and people, types of business practices the farm relies on to generate income, and how the informants' responded to the COVID-19 pandemic. The instrument was reviewed by project partners at NC Choices. Each year a pretest and review of the instrument occurred through mock interviews<sup>5</sup> with one of the NC Choices collaborators who was also a niche meat producer with grounded knowledge and with an Extension agent who also operates a niche meat farm.

Each interview occurred via Zoom to reduce the overall time commitment of niche meat farmer informants and align with IRB COVID-19 procedures to reduce risks to the health of human subjects. The interviews lasted between one and two hours depending upon the farmer informant. The interviewer in 2021 was an undergraduate, white male and the interviewer in 2022 was an undergraduate, white female. Both were participating in a summer internship program. The interviews were audio recorded and then transcribed utilizing a third-party transcription service (Rev.com). After each interview, the interviewer created a memo describing initial impressions in order to inform analysis.

### Data analysis

Analysis of the open-ended questions from the 2021 interview began with a process of reviewing the first set of transcribed interviews and memos that led to discussions of possible codes among the research team. These open codes (e.g., pasture, marketing, non-farm business activities) were

<sup>4</sup> The revised interview protocol is available as a supplemental file.

<sup>5</sup> The mock interviews doubled as training for undergraduate research assistants that joined the project as part of the Agroecology Scholars Program in Research and Extension supported by North Carolina State University's Center for Environmental Farming Systems. Additional training was provided to the undergraduate research assistants in the form of readings on how to conduct interviews and constructive feedback from the post-mock interview.

paired with fixed codes related to different possible types of assets (e.g., environmental, human, financial). Thematic analysis was employed in a staged process as a qualitative strategy to build from codes into a set of descriptive themes (Saldana 2016; Vaismoradi and Snelgrove 2019). In each round of coding and thematic development, emphasis was placed on coding for the allocation of labor in both the farm enterprise and household.

The first round of interviews was coded by two members of the research team using Dedoose, a qualitative data analysis software program. The coders compared their coding results, discussed disagreements in code application, and then arrived at consensus by going through each of their separate codes. This was done to establish inter-coder reliability through a test-test design to assure code agreement overtime (Krippendorff 2004). The second round (2022) of informant interviews were coded by one coder using Dedoose, based on what he learned from the consensus results of the first round of interview codes.

Based on coding from the two rounds of interviews, a set of themes were constructed to describe how household composition, lifecycle, and the familial and gender division

of labor conditioned labor allocation and thereby informant responses to the COVID-19 pandemic. In addition, coded excerpts for each theme were compared to identify any changes between the two interviews. An additional set of themes were built to describe the production of the niche meat farmer informant operations. Themes that emerged from this discussion were values-based agriculture, diversification, and pasture-based production. The multiple sets are important, because together they provide for a detailed analysis of the integrated farm enterprise and household.

The three themes were conjoined with an analysis of data from the closed-ended questions. That analysis involved the development of a spreadsheet for each interview year. These data were then converted into a table to describe the niche meat farmer informants as a group, and thereby classify their farming operations and households. The closed-ended questions supported analysis of the farm household by providing additional data points on family labor and off-farm labor.

## Description of the niche meat farmer informants and their production systems

This section provides a detailed description of the farming operation and information on overall household composition and family labor for this purposive sample. The niche meat farmer informants in this study were White, US citizens, middle-aged, some of whom could be considered beginning farmers because they had less than 10 years in niche meat production (see Table 1). They had a range of acreage in pasture. Two had inherited assets, with one inheriting the land upon which the household currently farmed. Three of the informants were self-identified female farmers, and two were self-identified male farmers. They tended to rely on family labor, with all farmer informants reporting that family members beyond themselves participated in the farm enterprise. Four farm families had babies or toddlers (two of these farm families had a baby in between the first and second interviews), two farm families had children between 4 and 12, one had a teenager, and one farm family had elders. All farms reported hiring at least one non-family laborer although this was dependent on the timing of specific enterprise activities, such as whether they were processing chickens on-farm or managing diversified distribution channels.

The niche meat farmer informants reported that their future plans included expanding their enterprises. Although plans for future growth did not necessarily reflect a perception of profitability. Three out of the five informants stated that were “barely breaking even.” The informants used a range of distribution channels for their products, including

**Table 1** Description of niche meat farmer informants

Descriptive	Range or count
Age	33 to 52
Years in niche meat	7 to 11
Household composition	Number of farm households with babies or toddlers: 4 Number of farm households with children between 4 and 12: 2 Number of farm households with teenagers: 1 Number of farm households with elders: 1
Acres of pasture	33 to 150
Number of hogs	15 to 250
Number of cattle	0 to 50
Number of chickens	200 to 3,000
Number of distribution channels	4 to 7
Number of species	2 to 6
Number of farms growing flowers, vegetables, and/or forage	5
Number of farms with off-farm income	3
Number of farms with on-farm business activities	3
Hired labor	1 to 10
Family labor	2 to 4
Number of farms with inherited assets	2
Profitability	Barely breaking even = 3 Making small profit = 1 Comfortable profit = 1
Plans for growth	Growing = 4 Staying the same = 1

farmers' markets, CSAs, online, retail, wholesale, restaurants, and farm stands. In addition, they produced multiple species and had varying numbers of animals (see Table 1). For example, a farm with 2 animal species was preparing for a 3rd species to be brought on after fencing had been completed. The farmers tended to have a mix of on-farm production, off-farm work/income, and on-farm business activities.

The niche meat farmer informants also described themselves as practicing a values-based approach to agricultural production that includes supporting community food systems and promoting animal welfare as important values for how they frame and make decisions about the farm enterprise. As one farmer informant described their value-based production system:

Big advocate about kinda knowing where your food comes from and, healthy food being your first kind of defense for your just overall health... and just the ability to regenerate land more with livestock.

Based on these values, the informants deployed a set of farm-based adaptations and strategies including networking, pasture-based production, and diversification that emphasized animal welfare and long-term viability. Networking linked together the niche meat farmer informants with customers and with other farmers who shared their production values and practices. They utilized their knowledge about sustainable agriculture to bond with customers who sought these types of values-based products. For example, one informant described how he used certain practices, standards, and values to market the farm and its products:

They [meaning customers] value kinda transparency. So knowing me, the farmer, face-to-face and us being very transparent about our practices is more important to our customer base because we direct market, because we have that direct interaction with our customer.

Networks and the sharing of core production values were important to connecting with other farmers. For example, during the COVID-19 pandemic, values-based production practices formed a basis for aggregating products across farms:

Some of my neighbors, who were raising meat in a like-minded way, they had lost contracts with restaurants and they weren't able to go to farmers markets and things like they had been doing. And so we said, "Well, we'll just... We'll purchase- we'll purchase any meat from you and put it on our order form and

that'll be good for you but it'll also give our customers more variety.

Another informant comments on how pasture-based production was employed as a practice to promote the farm and its values:

And, like, when we do, like, flyers or any of that sort of stuff, and I try to use pastured pork on our, like, social media as a hashtag or a term that we use with frequency.

Pasture-based production was also a way to support diversification in terms of production and on-farm business activities, such as agri-tourism and summer camps. All of the farmer informants noted that their business planning included diversification of farm commodity production. One farmer informant described the strategy in this form:

Have a mix of diversified enterprises that bring in income in lots of different ways so that when our vegetables have the lowest income time of the year, we typically have the highest income from pork. Um, vice versa. We can sort of cash flow each enterprise that way and keep a really steady healthy cash flow throughout the year.

So, even when consumer demand for niche-meat increased due to the impacts of the COVID-19 on the processing of standard commodity-meat production, some of the niche meat farms could only expand within the limits of a pasture-based system.

In general, the niche meat farmer informants in this study can be described as values-based, diversified, and small-scale family type farms using pasture-based methods and participating in the local food system through networks with consumers and farmers markets (Malak-Rawlikowska et al. 2021; Pfeifer et al. 2022). This description, based on the interviews, is important for understanding the ways in which they integrated economic production and social reproduction included in the following discussion of thematic results.

## Thematic results and discussion

From the analysis of the qualitative data from the two waves of interviews, we identified three themes that describe the integration of farm production and household social reproduction: on-farm economic production, off-farm labor, and social reproduction (see Table 2). The themes are consistent with prior literature analyzing the role of farm households as units providing gendered labor to varied activities that

**Table 2** Themes

Coding themes	Definition
On-farm economic production	Activities geared toward the production of commodities for sale and services, such as summer camps and agri-tourism
Off-farm labor	Economic production that occurred for non-farm income
Social reproduction	Activities to maintain the household and address social needs, such as providing childcare or healthcare

enable farm resilience and persistence over time (Chayanov 1966; Friedman 1978; Sachs 1996; Ngcoya and Kumarakulasingam 2016; Wright and Annfaes 2016; Snorek 2023). The themes illustrate how gender and the demography of the farm household operates as a source of labor for the farm enterprise and functions as a reservoir of human capital to draw upon for farm enterprise, off-farm work, and household social reproduction activities. And, while the themes are presented as separate instances, they are ontologically intertwined in terms of the real-world dynamics and processes. In other words, while one might analyze on-farm production, off-farm labor, and social reproduction separately to isolate certain characteristics, the lived experience of these small-scale family farmers is that decisions about one are conditional with the other. Similarly, while each individual niche meat farmer informant in this study does not necessarily represent all the themes, we are treating them as a composite for purposes of this paper.

### On-farm economic production

In terms of labor for on-farm production, a household composed of able-bodied, older children, adults, or retirees may have access to family members to provide labor for the farm enterprise.

For example, social distancing regulations that led to virtual schooling also resulted in increased labor for the farm enterprise by teenagers. One female niche meat farmer informant described how their 16-year-old supports on-farm economic production:

He gets up in the morning, he helps...making sure everyone's got water, food, that kinda stuff.

By 2022, that child had returned to in-person school, thereby reducing his participation in on-farm labor and production:

So, my youngest son is 17, so he's still in school. So, he helps in the summers and on the weekends and, and after school...his role is pretty minimal. (female farmer informant).

In another example of household composition's role in allocating labor to on-farm production provided by a different female niche meat farmer informant, a father-in-law was identified as a principal source of unpaid labor for economic production on the farm:

An unpaid, retired, I guess, volunteer on farm on a daily basis. He contributes probably four hours a day of work where it comes to collecting eggs, or sorting eggs, or mowing lawns or running the tractor.

The importance of the extended family for on-farm labor extends beyond those who occupy the same physical dwelling as immediate family members that have alternative dwellings also provide on-farm labor:

So, there's one family member I did not mention because she doesn't live with us, but our 24 year old daughter also works for us weekly. She gives us about six hours to 10 hours a week (female farmer informant).

In this case, family labor was used to control the costs of operating the farm. This does not mean the labor is unpaid, as older children were discussed as being compensated for their labor. Rather, family labor is not paid similar to that of labor hired from outside the household nor does it require the hiring of outside workers with pertinent human capital. Furthermore, in this specific case, business growth related to the pandemic led to the hiring of external workers because the pool of family labor was insufficient to meet economic production demands:

So we didn't used to bring anybody in. We could pretty much handle it all ourselves. Um, but our business has really blown up since the pandemic, and so we're having to bring in more people (female farmer informant).

The pool of family labor is also impacted by other factors, because as members age and the family passes through the demographic lifecycle, the supply of on-farm labor from family members may change:

And as I get older...it's harder to do some of the things I used to be able to do without even thinking about. (female farmer informant).

As such, the composition and demographic characteristics of the farm household is an important factor for on-farm production and the ability to respond to exogenous shocks and changing endogenous conditions.

A gendered division of labor for on-farm production activities was discussed by the farmer informants. For

instance, the gendered division of labor between on-farm production and administration was mentioned by one of the informants:

We both make decisions, big picture decisions, about the entire farm. He makes day-to-day decisions for all the animal enterprises. And I make day-to-day decisions for the vegetable enterprises, the vegetable and cut flowers. Beyond that, I do most of the marketing and social media and email campaigns, and that sort of stuff, and bookkeeping. And he does all of the big farm maintenance and, repairs, and that sort of stuff (female farmer informant).

The use of digital technologies proved important during the pandemic, even if described in generational terms:

I think especially in COVID...I saw a major gap between some of the older generation of farmers that weren't able to pivot as nimbly to like online models. And the younger farmers that were able to do that and maintain their customers (female farmer informant).

This sentiment was also attached to a call for addressing internet access in rural access:

I think that obviously goes hand in hand with... general broadband internet should be in every home (female farmer informant).

This informant also discussed how the gender division of family labor between on-farm production and administration tasks was altered due to the pandemic:

Before COVID, I did most of the feeding, most of the milking, most of the day-to-day stuff, but since COVID, I have moved much more into administrative role. Not by choice, but by necessity (female farmer informant).

However, there were also instances in which this gendered split between on-farm production and administration was not present. For example, one of the farmer informants described both spouses having a similar allocation of time to on-farm tasks including time spent on production and administration:

We work together to handle the logistical end of it. Uh, when it comes to transporting product, making deliveries, um, you know, website upkeep, marketing, and things like that (male farmer informant).

The gendered division of labor extended to other types of economic activities on the farm, such as summer camps. In one instance, a female farmer head of household managed the on-farm summer day camps and its activities for children while the male farmer head of household participated in on-farm production activities. While both were contributing to on-farm labor, the female role is consistent with the gender stereotype of childcare being a gendered female activity. And when the summer camp activity was initially shutdown due to social distancing regulations, family labor was reallocated.

As such, the capacity for members of the household to participate in on-farm economic production of commodities operates as an enabler of farm resilience. Underlying that capacity is household composition and a gendered division of labor, conditioning who can do what to generate income from on-farm production. In addition to pandemic related shifts in on-farm family labor (e.g., virtual school for children), the farmer informants in this study experienced shifts in their families' off-farm employment and labor allocation.

### Off-farm labor

On-farm labor allocation and the division of labor by family and gender in the farm enterprise are integrated with off-farm employment. The spouse of one of the farmer informants worked off-farm to generate income that sustained the household and did not provide labor in a sustained form to on-farm economic production. This situation created tension between the male and female heads of household because the farm enterprise was not considered profitable for the overall household budget:

But there's not, like, perfect alignment of kind of values or aspiration, and sort of what we want the farm to, what the farm means to us, if that makes sense (male farmer informant).

In this case, the income from the spouse's off-farm labor was being converted into loans for operating the farm. This male niche meat farmer informant, who reported being at the point of exiting farming prior to the COVID-19 pandemic, decided to ramp up production relative to the COVID-19 pandemic because of an initial increase in consumer demand for niche meat:

I could have sold what I had in our freezers and kind of closed up shop, and that was our initial plan before the pandemic, because I had started working this other job. And, so I was just going to kind of sell the meat that I had, and look into kind of selling some of the equipment I had and stuff. So, I had a decision to either



do that, or leverage this opportunity to sell people on the CSA concept.

Thus, the off-farm labor of the female head of household created the opportunity for the male head of household to increase labor allocation to on-farm economic production in order to respond to pandemic-induced consumer demand of local meat.

Another way that off-farm labor impacts the household's allocation of labor to on-farm production was evidenced by the statements from a female informant about her allocation of time to her off-farm job:

But it's gonna be hard though because... I'm not able to do as much on the farm as I would like to do, because I'm working too many hours, but hopefully I'll figure out a way (laughs) to make it all work. Who knows?

In the first interview, this female farmer informant reported that the additional income from off-farm employment was a benefit during the pandemic because they had lost income from on-farm sources. In the second interview, she indicated that due to changing conditions, off-farm employment had become a hindrance for on-farm production and income generating activities. Specifically, the need for more work in their off-farm job created a conflict with the increase demand for niche-meat from the farm enterprise. In addition, the time demands of the female head of household's off-farm labor meant that other members of the family needed to increase the hours they provided to on-farm economic production:

You know, my kids will probably work more hours, especially my daughter. She's gonna take on more hours. She said she's interested in doing that (female farmer informant).

Another female farmer informant describes a shift in household on-farm and off-farm labor allocation in response to the increased economic opportunities presented by pandemic-induced changes in consumption:

So, my husband, he works off-farm currently, but is about ready to move full-time to the farm within the next couple of months. He's transitioning right now.

Furthermore, for off-farm labor, the impacts of the COVID-19 pandemic depended upon the occupation of the family member and whether or not it required public interactions. In some cases, the pandemic decreased the amount of time and income from off-farm work when jobs and hours shifted

due to pandemic social distancing requirements. For example, one male farmer informant described how the expansion of their farm business and pandemic based reductions in off-farm work by the female head of household impacted on-farm work and labor:

Plus the business has grown a good bit. And so we also know that if she did go back to work, that we would have to hire at least one other full-time employee to take her place here.

In certain instances, the pandemic had no impact on the allocation of labor to off-farm income generating activities. Another female farmer informant described how the male head of households off-farm work was functional for the farm operation because his contractor skills also provided labor for maintenance on the farm:

My husband is 41 and he's kinda, I guess, our primary builder. So, in him we have, you know, big infrastructure projects. You know, he's a contractor so he will manage those things. And he works full-time, you know, off-farm so he's not a paid employee of the farm yet.

To summarize, the pandemic was a catalyst for some of the niche meat farmer informants to increase on-farm family labor in response to the economic opportunities presented by an increased demand for local meat. In some cases, this involved a decrease in off-farm family labor and in others, it involved members of the family increasing their on-farm work because other members continued their off-farm jobs. Therefore, it is important to note that much of the effect is case dependent, showing why it is important to have detailed accounts of farm enterprise and household activities linked with data on household composition and the division of labor. These shifts in the allocation of off-farm family labor were also evident in changes to family labor allocations for social reproduction.

## Social reproduction

The demographic composition of the household and its point in the lifecycle may also create limits for on-farm and off-farm work due to the social reproduction needs of the farm household. One male farmer informant describes how having a child and the needs of social reproduction became a catalyst for changes in the family allocation of off-farm and on-farm work:

When we had her son in December, she took her maternity leave and then took an extended leave. And

then that led to a leave of absence. And now it is summer when teachers are off. And we're not sure if she's gonna go back or not. It's not really in the plans for her to go back. So, it looks like both of us will be full time on the farm. Um, yeah, and we'll not be relying on outside income.

In this case, the pandemic was a catalyst for the informant not returning to her full-time off-farm work after the birth of a child and maternity leave. A combination of endogenous and exogenous factors changed how this household allocated labor to the integrated farm enterprise and household.

Another example was presented by a female farmer informant that recently had a child. The female head of household reported heavily reducing her farm labor in order to dedicate herself to child rearing:

Since having a kid and I'm less physically out there in field every day.

In addition, for this female farmer informant a new child led to a change in healthcare access, as the family moved off of private insurance secured through the Healthcare Marketplace onto Medicaid, a form of public insurance. Consequently, this female farmer informant reported an increased level of stress because of the time involved and difficulty in accessing the health insurance that the family needed for social reproduction:

It's been really hard to find providers for Medicaid.

This female farmer informant went on to state that expanding Medicaid would be beneficial for farmers when asked about what could be done to support new and young farmers. The need for health insurance was stated as a reason for maintaining an off-farm job by another female farmer informant:

there's not really any financial reason to do it. I get, you know, I get things, so I get, like, health insurance and stuff, so we don't have to pay for it all out of pocket, so it definitely benefits us.

This quote exemplifies discussions in the existing literature on the role of off-farm jobs providing access to healthcare, thereby directly linking off-farm jobs and incomes with household social reproduction (Becot and Inwood 2022a).

The social reproduction needs of the farm household resulted in one of the male farmer informants reducing his allocation of on-farm labor in order to meet the childcare and education needs of his family during the social distancing period of the COVID-19 pandemic. That occurred when

the male farmer informant was pursuing increased on-farm production to meet the demand generated by the COVID-19 pandemic. For this farmer informant the shift to virtual and home-based schooling led to increases in his allocation of time to home and childcare. Notice, in this case the dominant gendered tendency concerning who does social reproduction activities in the household does not apply because the female spouse's off-farm labor is the primary source of household income:

As I homeschooled our kids for a year, um, and I've been shouldering a lot of the, you know, household responsibilities and with the kids, and stuff like that (male farmer informant).

Additionally, the allocation of family labor to childcare (i.e., social reproduction) and farm enterprise activities changes as children age. This was evidenced by a female farmer informant discussing the summer camp that they ran on their farm, which also doubled as a form of childcare for their own children:

My kids are aging out, so I mean, my youngest is 17 now, so it's just like...That's part of the reason why it was good, it was like it gave something for three weeks for my kids to do, and now that's, you know, that's gonna be more of a hindrance having that, having those kids there.

Here again, we find evidence for how regardless of the pandemic, changes in household composition impact reasons for allocating labor to economic production and social reproduction.

Therefore, household composition, stage in the family life course, and the gendered division of labor condition the activities of the niche-meat farmer informants in this study by enabling or limiting on-farm economic production, off-farm work, and the allocation of labor to the social reproduction needs of the household.

## Conclusions

The literature on farm resilience before and during COVID-19 has sometimes eschewed linking together economic production and social reproduction or attending to the question of gender (Darnhofer 2020a; Lioutas and Charatsari 2021; Ladyka et al. 2022; Taylor et al. 2022; Murakami et al. 2023). The isolation of economic production from social reproduction belies the material reality of how a farm's allocation of human capital to differentiated activities is dependent upon the needs of both. Following Becot and Inwood

(2022b: p. 1113), the literature may be “discounting farm households’ lived experience [which] could lead to situations where we overlook the early warning signs of a looming crisis.” The results of this study of niche meat producers provide evidence for the importance of analyzing the farm enterprise and household as an integrated and gendered unit when seeking to explain how farms adapt to change.

In summary, labor allocation across the integrated farm enterprise and household is an important factor for understanding how farms and farming systems are able to maintain their functions in the face of external threats and crises. Our research instrument specifically asked questions about gender, household composition, and labor allocation that permitted an analysis of family and gender roles in economic production and social reproduction. Without this focus in research design and data collection, an analysis of the role of family and gender in the allocation of tasks for economic production and social reproduction would not be possible. As such, the results of this study demonstrate the importance of including questions on household composition and labor allocation in survey and interview protocols.

Furthermore, the longitudinal research design allowed us to assess the concrete ways that the small-scale, family-type farm informants adapted to the COVID-19 pandemic as an exogenous shock to the system. In certain instances, adaptations were temporary, like the case where the child whose changing school modality conditioned the amount of labor that they allocated to on-farm production. In other instances, the changes were permanent, such as the case when the pandemic-based decline in a spouse’s off-farm labor as a teacher was converted into labor for on-farm production. This case also highlights how farm resilience is an outcome based on the interaction of multiple factors, some internal to the farm household and some external. The finding highlights the importance of the relational approach to resilience studies exemplified in the work of Darnhofer (2020b). Therefore, one needs to consider pre-pandemic relations and factors in addition to pandemic-related ones in analyzing farm and household adaptation and resilience.

This issue is not limited to family-type farm households. The division of labor by gender for non-farm households is a core topic in studies of time use and household production (Bridgman et al. 2022; Collins et al. 2021; Zacharias et al. 2024). For example, a study comparing males in rural and urban households with regards to their performance of sex-typed chores found that rural males participated more in household production than males in urban locales (Quadlin and Doan 2018). A study investigating parenting roles in non-farm households found that gaps in childcare infrastructure during the pandemic reinforced traditional gender roles in the division of labor within the household (Dunatchik et al. 2021). Alternatively, a case study of Swiss

family farming configurations found new arrangements in the traditional gender division of labor by gender that offered new pathways towards gender equity (Contzen and Forney 2017). Thus, there is a need for continuing research that explores farm and non-farm contexts in the study of the division of family labor by gender.

There are policy and practical implications for this research. Following prior literature on the social and economic needs of the farm, policymakers should recognize how social reproduction is important to farm system resilience (Becot 2020; Becot and Inwood 2020; Rissing et al. 2021; Becot and Inwood 2022a; Becot and Inwood 2022b). For example, policies supporting access to childcare, eldercare, and healthcare that expand the autonomous capacity of farmers to allocate labor to activities that generate income from farm and non-farm work and also meet the social reproductive needs of the household are warranted. In addition, practitioners that work with farmers should seek out forms of support and analysis that will aid farmers in strategizing how to sustain their integrated farm enterprises and households. Specifically, how could farm business plans include discussions of household composition, lifecycle, and the familial and gendered division of labor in strategizing for on-farm and off-farm income streams while also managing social reproduction?

There are limitations to this exploratory study. The data in this study are from a small, purposeful sample of niche meat farmers linked into formal institutions and in proximity to urban areas. While our data comes from interviews at two points in time, the time range of one year is very limited in terms of accessing the continuing impacts of the pandemic. Panel studies with interviews across a wide time range are needed in order to assess changes over time. Additionally, the demographic characteristics of the informants’ farm households, their types of farm commodity production, and their geographic locations are very limited. As such, the farmer informants are a non-representative sample that includes certain biases that may mean that the data are based on exceptional cases rather than the norm or the full range of variations among small-scale niche meat farm operations and households. For example, because all of the participants identify as White, there could be differences between them and non-White farmers in terms of how household composition conditions labor allocation to economic production and social reproduction. In addition, our research instrument could be improved to include more detailed questions regarding the ways that household tasks, subsistence production, and community bonds shaped the responses of the farmer informants.

Additional research should investigate the integration of the farm enterprise and the household in other types of farm households and farming operations, in other types

of farming systems, and in other geographic locales. For example, a study of small-scale Black farmers found that there was a patriarchal division of labor for on-farm production and household social reproduction activities (Garrett and Schulman 1989). A study of an African-American farming community found that farmers used their collaborative networks with households in the surrounding community to meet demands for on-farm labor beyond what could be supplied by the immediate members of the household (King et al. 2018). A study of New York farm families found that “work-family narratives” for their gendered divisions of labor evolved and varied over time in response to changes in the household and farm (Dreby et al. 2017). A study of Iowa female row-crop farmers found that younger women expressed doubt about the sustainability of performing masculine farm work and female care work (Nichols 2024). Therefore, the understanding of gender, farm and household labor allocation and adaptations to change in family-type farm operations would benefit from comparing farms and farming communities by race, ethnicity, and geographic location. Given that USDA data show that off-farm income is the prime source (50% or more of total household income) for many of the farms that it classifies as “small family farms”, the gender division of labor in both on-farm and off-farm jobs is clearly an issue relevant to a wide range of farm operations (Whitt et al. 2023). Expanding the research to include mid-sized and large-scale family farm operations may show that there are different forms of farm enterprise-household integration and different types of adaptations to the pandemic.

An additional limitation of the current work is the focus on the farm-level as the unit of analysis and on the farmer and his/her household as the unit of observation. Ideally, there should be an analysis of the political-economic opportunity structure because adaptations to the pandemic are not solely a farm-level phenomena. Institutional and structural conditions impact farm households and their responses to change (Holt-Giménez, Shattuck and Lammeren 2021). Do farmers in other national contexts with expanded access to support for social reproduction needs exhibit different patterns of farm and household integration and different patterns of resilience? International and comparative analyses would add further insights into these important issues.

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