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## Transitional Workplaces: Alt-Meat and Beef Producer Health and Safety in the Kansas Flint Hills

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### Introduction: using potential growth in the cultured beef industry to think about transitional workplaces

On May 5, 2022, Kansas Governor Laura Kelly signed the “Fake Meat Labeling Bill” (SB 261). The new law requires consumer labeling to indicate that alternative meat products are not conventionally produced meat.<sup>1</sup> The bill received unanimous bipartisan support, was the focus of lobbying efforts by the Kansas Livestock Association, and is widely viewed as a response to perceived threats of the alternative meat (or alt-meat) industry to the Kansas economy and rural ways of life. The products covered in the bill can vary widely, beginning with well-established plant-based alternatives, such as those sold under the MorningStar Farms brand. It also includes more recent developments in the plant-based space such as offerings by companies like Impossible Foods, which use newer technologies to create plant-based proteins that more closely resemble conventional meat. In addition, a growing contingent of start-ups are now attempting to bring cultured meat to market. Cultured meat is made of animal cells grown in cell cultures within bioreactors and is not yet sold to consumers in the United States.

While alt-meat of all kinds has seemed to trigger anxiety among Kansas lawmakers and livestock producers, scholars have not yet considered how any alt-meat sector might shape the future of Kansas beef production and the well-being of those dependent on it. This commentary explicitly focuses on the potential impacts of cultured beef as an alternative meat product that would most directly compete with conventionally raised beef. This commentary is necessarily limited, therefore,

to considerations of how a growing cultured beef sector might impact small to mid-sized producers in the Flint Hills of Kansas and excludes not only other kind of alt-meat but also other kinds of workplaces, such as feedyards and slaughterhouses. We draw on our original dataset of 30 semi-structured interviews, primarily with Kansas beef-producers on small to mid-sized operations and other ethnographic data to ask how increased consumption of cultured beef might impact the well-being of conventional beef producers on family farms in the Flint Hills region of Kansas. Although it provided insights to help us think about potential impacts of alt-beef, these data were gathered in the context of an ethnographic project designed with a different purpose, to assess what parents think about the benefits and risks of raising children around beef cattle. Participants recruited were those who raised beef cattle and had children between the ages of 10 and 18 years. Interviews focused on participant perceptions of benefits and risks of raising children around beef cattle. Because interviews were open-ended, data were gathered about future aspirations for both family and the family farm. Interviews took place in participants’ homes, on their family farms or ranchland, at workplaces, in public spaces, and online via videoconferencing due to the constraints of COVID-19. Each interview typically lasted around 45–60 minutes and sometimes involved additional conversation and/or tours of farms and livestock. Direct observation, a common ethnographic method, was used during site visits and observations were recorded as fieldnotes.

We argue that to better understand the future impacts of cultured beef on conventional beef

production as a workplace, we must think through specific geographic, cultural, and socio-ecological contexts rather than only within national-scale scenarios. In doing so, we offer four possible transitional workplaces that may become more significant in a cultured beef future. This approach brings together perspectives from cultural anthropology and the social-ecological model to argue for a more inclusive definition of “workplace” and its future transitions. Doing so, we believe, opens new and broader possibilities for what can count as agricultural health and safety, potentially adding to the vitality and resiliency of the field.

### **Current research: social impacts of alt-meat on rural communities**

A small body of literature considers the potential social impacts of alt-meat on rural communities. A review by Broad<sup>2</sup> concluded that alt-meat would lead to reforms within the existing corporate food regime but would likely not result in increased food sovereignty at the community level. Helliwell and Burton<sup>3</sup> argue that while some claim cultured meat will improve sustainability, impacts on rural communities and ecosystems have been almost entirely neglected. At the time of writing, we found only one study that attempted a holistic analysis of potential opportunities and threats of alt-meat on rural producers and communities in the United States.<sup>4</sup> Opportunities relevant to beef producers include: ranching genetic material for cultured beef, building bioreactors in rural communities, and transitioning grazing land to crop land. Surprisingly, the study found no significant risks to small beef producers because these operations tend to draw on multiple revenue streams, in addition to cattle. In contrast, a similar study conducted in Brazil found that small-scale producers may be negatively affected before larger conventional beef producers.<sup>5</sup> That studies in the United States and Brazil came to opposite conclusions about small-scale producer highlights the importance of accounting for place-specific contexts and differences when thinking about the potential social impacts of cultured beef.

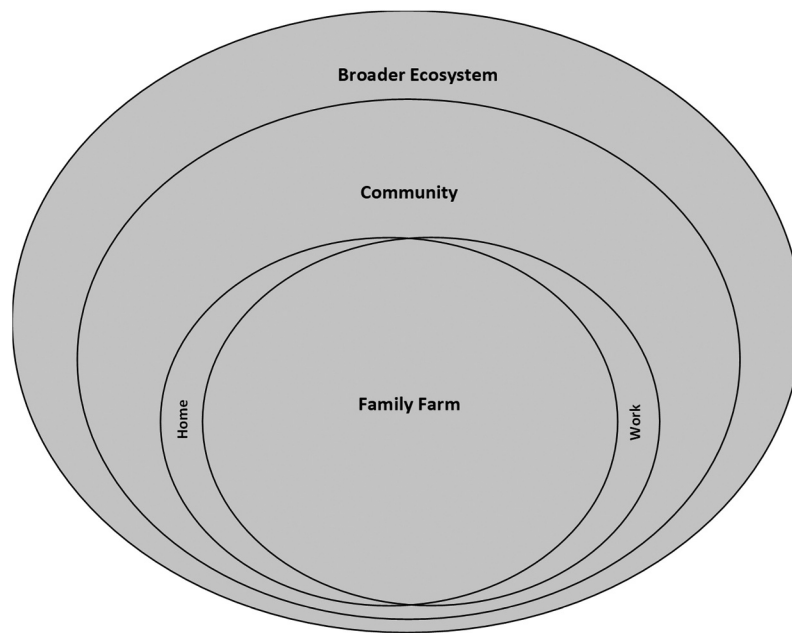
### **Socio-ecological contexts of Flint Hills communities**

Our research with Kansas families adds place-specific nuance to national-scale conclusions about the potential impacts of cultured beef in the United States. For example, while it is true that smaller operations usually depend on multiple sources of revenue, profit margins can be thin, meaning the elimination of cattle could be a significant loss. Furthermore, it is not true that grazing land can easily be converted into crop land in the Flint Hills due to the rocky and hilly terrain that contributed to preservation of the region as the largest remaining area of unplowed tallgrass prairie in North America.<sup>6,7</sup>

The broader socio-ecological context of the Flint Hills provides additional considerations when thinking about possible workplace transitions. Most importantly, the tallgrass prairie ecosystem evolved as a balance of three drivers: climate, native grazers, and both natural and anthropogenic fire.<sup>6,7</sup> During the mid to late nineteenth century, bison were largely replaced by domesticated cattle.<sup>6,7</sup> Prescribed burning became more common in the early to mid-20<sup>th</sup> century, and both cattle grazers and prescribed burning are now considered critical for a healthy tallgrass prairie ecosystem.<sup>6–9</sup> For example, where landowners do not utilize prescribed burns, grasslands usually become less productive grazing lands due to invasion by woody species, especially redcedar,<sup>6–8</sup> which can also increase wildland fire risk.<sup>10,11</sup> For this reason, many cattle ranchers burn grasslands to increase the availability of native grasses. This amounts to an incentive for some landowners to implement controlled burns, a practice the co-authors have observed ethnographically, not only in the Flint Hills but also on West Texas ranches.<sup>12</sup> In short, these unique historical and socio-ecological factors make the Flint Hills an important local counter-example for critiquing national-scale assumptions about the general benefits and risks of alt-meat.

### **What is a workplace for beef-producing families in the Flint Hills?**

Analysis of our interviews with beef-producing parents in the Flint Hills shows that participants do not



**Figure 1.** Family beef producers in the Flint Hills think of the family farm as both workplace and home.

think the family farm as workplace can be separated from the family farm as home (see Figure 1). Instead, home, work, family member, and worker overlap significantly within the cultural model of the family farm. Participants also tend to see the family farm as embedded within larger community and ecological practices, including grazing and burning practices mentioned above. Since the workplace for beef-producing families is equally “home” and “work,” possible changes to this workplace may tend toward either work or home as the home and work become distinct experiences. In the next section, we explore both possibilities.

### **Cultured beef and workplaces in transition: four possibilities**

The following are some possibilities for how beef-producing operations may transition to different kinds of workplaces or to non-workplaces, such as suburban homes, that retain workplace practices, such as operating compact tractors as a lifestyle choice. Each possible transition is grounded, first, in our ethnographic insight that family farms are understood to be equally workplaces and homes. This insight comprises the major contribution of our ethnographic data to our reflection on possible transitions. In addition, each transition assumes key drivers of change found in the literature on

potential social impacts of alt-meat (see above) and socio-ecological research showing the interrelationships of cattle, fire, and the ecological health of grasslands (see above). The first possible driver of change we identify is the increased demand for cultured beef that may result in decreased demand for conventional beef. Second, a decline in conventional beef production in the Flint Hills may have negative ecological impacts and increase wildfire risk (see above). Third, the alt-beef industry could create jobs in the Flint Hills by building a local bioreactor. From these possible drivers, we have identified four transformations of conventional beef-producing family farms as they are now. These possibilities are not exhaustive and were selected as examples that clearly show how an understanding of the family farm as both home and workplace can help broaden our understanding of both workplace and safety.

### **1. Negative economic impacts that result in declining farmer health and safety**

Decreased demand for conventional beef could narrowly increase farm safety by reducing exposure to injury by large livestock. However, decreased demand for conventional beef can also increase financial stress on Flint Hills beef producers and contribute to declining farmer health and safety in several other ways. For

example, financial stress on farmers is positively correlated with declining mental health and suicide,<sup>13</sup> less safe farm practices overall, decreased investment in personal protective equipment and safer equipment, and increased injuries among farmers (Figure 2).<sup>14</sup> Furthermore, the health hazards of farm stress can be intergenerational. Stoneman and Jinnah<sup>15</sup> have shown that increased stress on farmers who are fathers is correlated not only with increased injury to fathers but also riskier work behavior and increased injury to children who work on the farm. The consolidation of livestock production and resulting loss of family farms and ranches may also contribute to shifts in the work and workforce in other ways that impact health and safety.

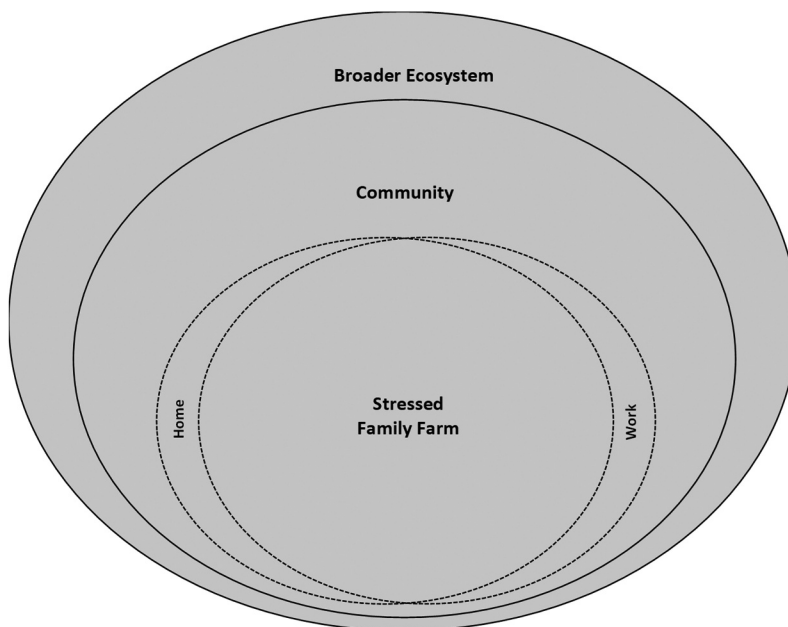
## 2. The domestication of formerly agricultural practices

Possible financial stress stemming from the ascendancy of cultured beef and other socio-economic shifts may accelerate a transition of Flint Hills beef-producing land into non-agricultural rural space and the separation of domestic and work life present on family farms. Combined with suburban expansion into grasslands, this transition could include a domestication of formerly agricultural practices, including the use of small farm equipment and livestock for hobby/lifestyle

purposes (Figure 3). In these cases, to the extent that agricultural health and safety already deals with family farms (which are both occupational and domestic) it may also have a great deal to contribute to domestic rural health and safety in which practices usually associated with agriculture persist. Key considerations will be the similarities and differences between lifestyle or hobby agriculture and the domestic dimension of family farms, for example, in the use of ATVs, operating compact tractors, livestock handling, and child rearing.

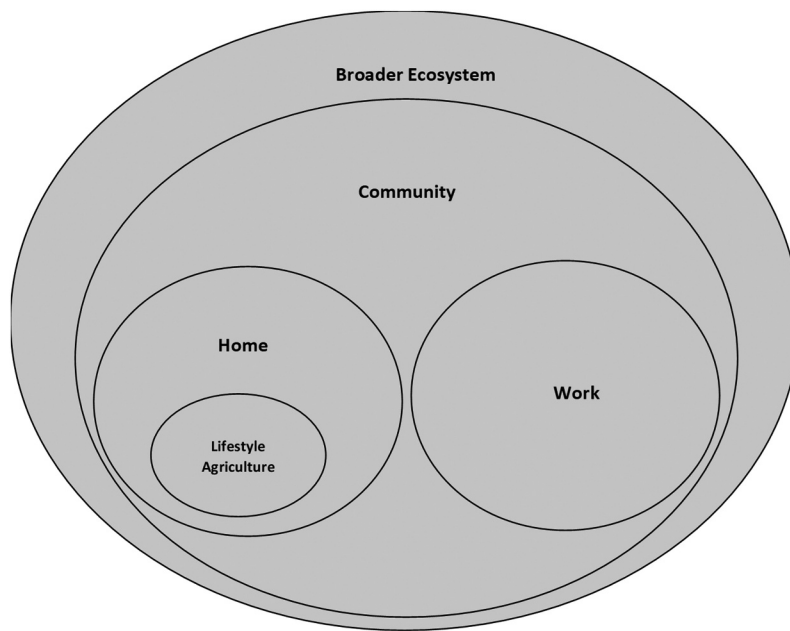
## 3. The emergence of wildland fire as an increasingly salient workplace

Not all former beef-producing grassland will become non-agricultural rural living space. Much may cease to be managed properly, resulting in an overgrowth of invasive redcedar. Lack of management poses increased wildland fire risk not only to rural populations in Wildland-Urban Interface (WUI) areas in the Flint Hills but also to the beef producers that remain. Former beef-producing and surrounding lands can quickly re-transition into workplaces during wildland fires as firefighters battle to keep infrastructure, homes, and local populations safe (Figure 4). Furthermore, wildland firefighting likely represents one of the most dangerous occupations within the agricultural sector.<sup>16</sup>



**Figure 2.** Financial stress results in negative health and safety impacts, indicated here by dashed lines.



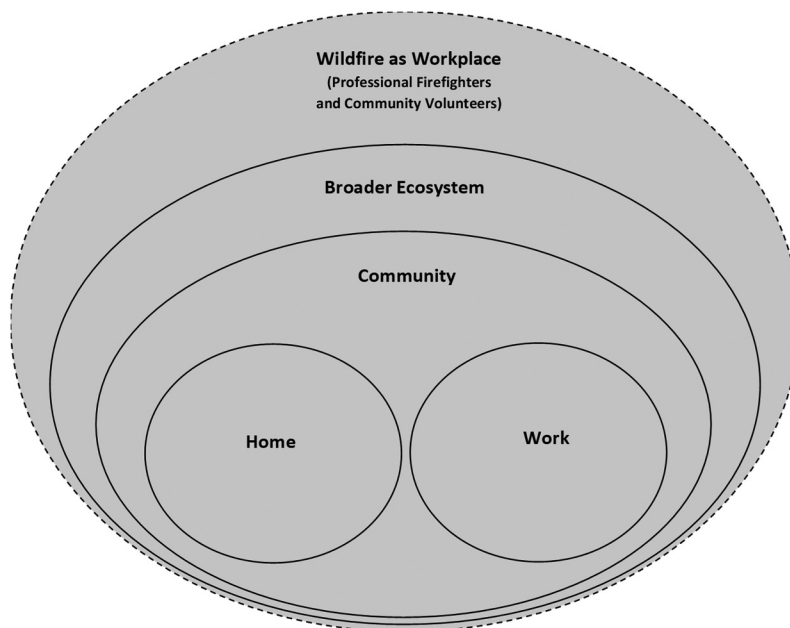


**Figure 3.** The family farm is no longer a farm and differentiates into distinct occupational and domestic spheres. However, agricultural practices persist as lifestyle or hobby practices in the domestic sphere.

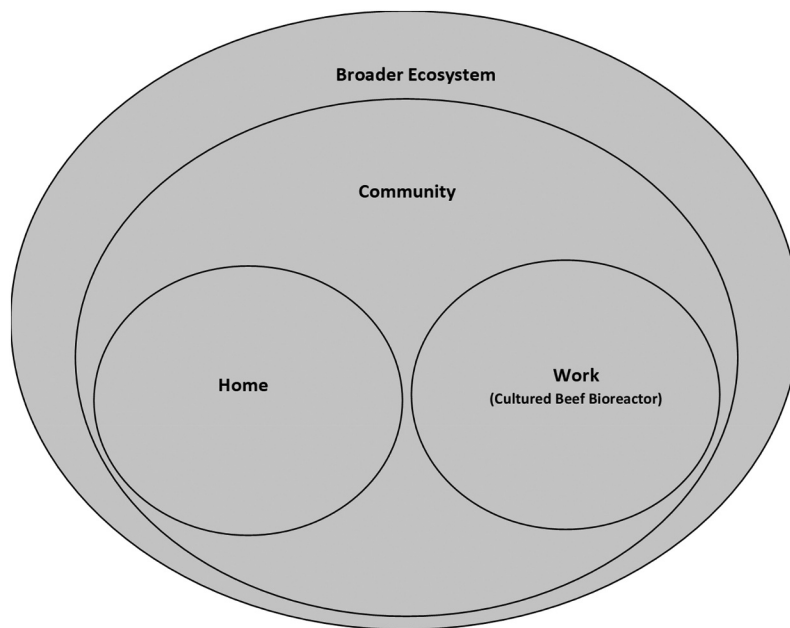
#### 4. The emerging cultured beef workplace

The human and knowledge capital associated with Kansas State University makes the construction of a bioreactor facility in the Flint Hills a logistical possibility (Figure 5). We have found no literature on the unique safety challenges of using

bioreactors to produce cultured meat. In contrast, general bioreactor health and safety seems to be well understood already, including appropriate measures for dealing with physical, chemical, and biological hazards.<sup>17</sup> Individual laborers in relatively controlled cultured beef facilities would likely be safer than their counterparts in



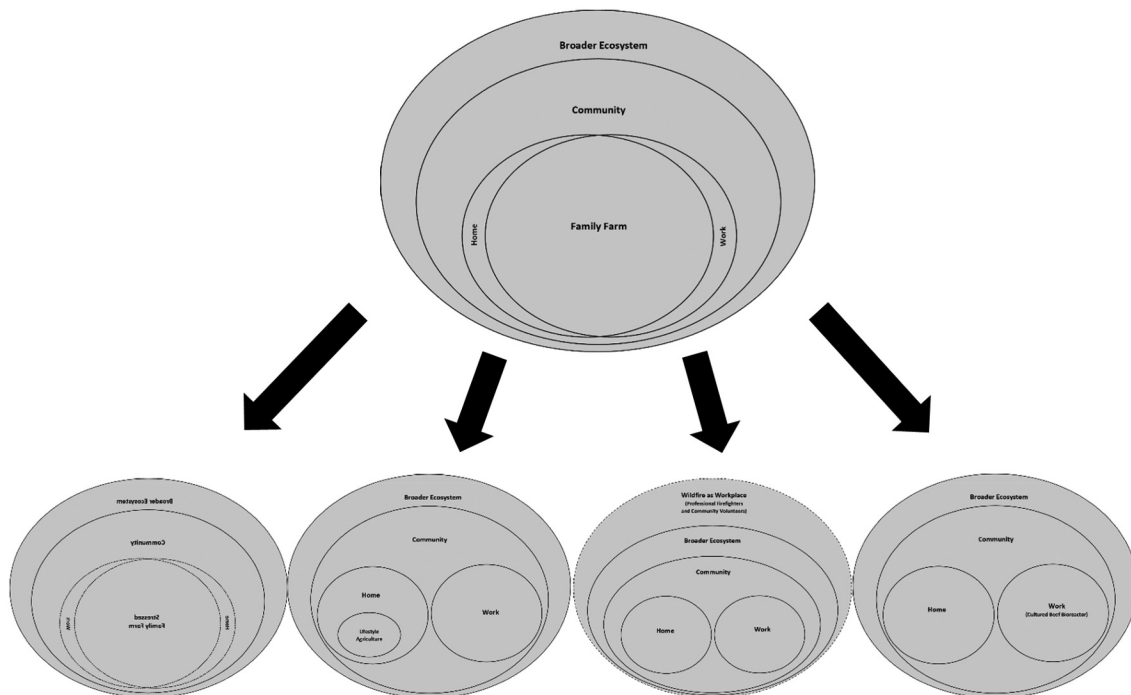
**Figure 4.** Less grazing and prescribed burning result in more and increasingly intense fires. More professional and community volunteer firefighters are needed to protect a more precarious socio-ecological system, indicated by a dashed line.



**Figure 5.** The integrated domestic and occupational dimensions of the family farm differentiate into distinct home and work spheres. In this case, work is in a cultured beef bioreactor facility located near Manhattan, KS.

conventional beef production, as proponents of cultured beef claim. However, as [Figure 6](#) suggests, a more holistic comparison would not be between conventional beef producers as they are

now and cultured beef facilities, but a comparison between all transitional workplaces, such as those described above, and conventional beef production as it is now.



**Figure 6.** Four possible transitions of the family farm into other kinds of workplaces.

## Insights about workplace and openings for agricultural health and safety

Possible alt-beef futures offer an excellent opportunity to reflect on how those futures might unfold for beef producers in specific contexts. We have used potential growth in the alt-beef industry as a specific example, but the changes to Flint Hills family farms identified here could be caused in other ways as well. The most important lesson is that the integrated workplace-home of the family farm that is now an object of agricultural health and safety research and intervention may look different in the future. Understanding how this might happen can create new opportunities for the field by, for example, showing how households may retain agricultural health and safety challenges. Our ethnographic insight that many beef-producing families in the Flint Hills do not see the workplace as separate from the domestic sphere allows us to see transitional workplaces in broader terms and apply agricultural health and safety expertise in new and changing situations. Foremost among these, we suggest that as the agricultural work practices of the family farm survive within non-agricultural, rural spaces as lifestyle practices, agricultural health and safety expertise will need to strengthen its presence in the domestic sphere. We recognize that not all agricultural work is occupational, and agricultural health and safety knowledge is more applicable than it is currently designed to be because it emphasizes the notion of “workplace” and for the most part neglects how households of various types may also include agricultural practices. For example, tractor safety is relevant for anyone that operates a tractor regardless of whether it is used for a person’s business or home. In short, even if we lose family farms, we need not abandon families.

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## Disclosure statement

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