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The Entanglements of Agrarian Ethics with Agrarian Risks and Leveraging Them in Agricultural Health Safety

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Abstract

Agriculture is the most dangerous occupation in the United States for both workers and bystanders. Family farms highlight an intersection of domesticity and labor. Agrarian ethics of animal husbandry, land stewardship, and kinship are often conflated and constructed to accommodate unpredictable risks (e.g., weather, financial markets). Here, the right or good agricultural practice is assessed in light of an acute event. Risks of illness and injury are often relegated to the realm of acute unpredictability and accepted as intrinsic to desirable ways of life. The following is a description of agrarian ethics and risks generated from personal experience and ethnographic inquiries in the Midwest, the Intermountain West, and Texas over the past 10 years. This paper assesses health and safety within agrarian ethics. These results and discussion lead us to an important conversation about how we can be more detailed in the use of terms like “cultural appropriateness.” It also raises the question as to what is really at stake in public health perspectives like those found in the socioecological and extended parallel process models when deployed in agricultural health and safety.

Keywords

ethics; risk; anthropology; ethnography

Introduction

The following is a description of agrarian ethics and risks generated from personal experience and ethnographic inquiries in the Midwest, the Intermountain West, and Texas. The relationships between risk and ethics need to be accounted for and leveraged in the field of agricultural health and safety, a discipline charged with preventing injuries, illness, and death in the most dangerous occupational sector in the United States.[1] These descriptions of agrarian ethics and risks are designed to be testable and can be evaluated in the more familiar methodologies found in occupational medicine, public health, and epidemiology. This discussion is of critical importance and highly relevant in this special edition of the *Journal of Agromedicine* featuring anthropologists in the field of agricultural health and safety.

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A core element within behavioral decision-making is the ability to judge what is the right and/or best thing to do in a particular situation.[2] Behavioral change then must account for the possibility of altering an individual 's judgement or empowering them to use their existing judgement. In the field of health and safety, this act of judgment also requires some kind of risk-calculation. When acts of judgement and risk calculation intersect, ethics play a critical role in whether an individual diverts from the normative, the instinctual, their habits, and the way things have always been done. Those interested in promoting behavioral change need to be aware of the ethical commitments relevant to the targeted individual and the community or communities with which they identify. Those who are not will have only anecdotal hints as to whether their proposed behavioral changes (or its vehicle of implementation) are counter to, symbiotic with, or irrelevant to those ethical commitments. This is a critical mistake, especially when voluntary adoption is what we can expect in the field of agricultural health and safety in United States.

Moreover, in agriculture, there is heightened relevance of personal beliefs and values because of the overlapping domains of labor and domestic life. The lack of federal or state oversight certainly contributes to this. The concept of “agricultural exceptionalism” is an appropriate general assumption, though some states certainly regulate farms more than others. That being said, even large “corporate” agricultural operations often imagine the binds and mystique of the family farm. In the end, most agriculturalists think of the home as a worksite and vice-versa. Therefore, critiques of labor practices land squarely into the sanctity of the private life, often where ethics are developed and fostered between individuals. This makes social-cultural understanding even more relevant.

Studies of the relationships between ethics and risk have been dominated by moral philosophers and social theorists.[3-8] Behavioral scientists have contributed little outside of discussing their own professional ethics.[9-14] Therefore, what follows is a proposal of its use in agricultural health and safety theory given its merits elsewhere. The basis of this discussion is grounded in ten years of ethnographic inquiry. It is designed to be descriptive and may generate more questions than answers. For example, are agrarian ethics and agrarian risks related in a manner relevant to agrarians' decision-making regarding their own and other's health and safety? This is an anthropological question. If the answer is yes, and I argue it is, how might these relationships be leveraged in a manner to improve health and safety? This is a question for epidemiologists and other experts in public and occupational health.

The primary examples provided here come from shifting relationships to labor in Upper Midwest dairies, specifically in regards to robotic milking systems and immigrant labor in large dairies. Another key example comes from assessing the attitudes of beginning farmers and ranchers towards children's health and safety on farms. These results and subsequent discussion lead us to an important conversation about how we can be more specific and deliberate in the use of terms like “cultural appropriateness.” It also raises the question as to what is really at stake in public health perspectives like those found in the socioecological and extended parallel process models when deployed in agricultural health and safety.

Methods

A distinguishing feature of social-cultural anthropological research is the “ethnographic toolkit.” This is a broad and diverse collection of research methods and methodologies (e.g., surveys, interviews, participant-observation, focus groups, cognitive mapping, cultural domain analysis, social network analysis, archival research, community-based participatory research, and grounded approaches).[15] Any method that lends itself to describing the ideas, beliefs, and behaviors of an individual or group within a social context is ethnographic. As such, the toolkit is also an attitude and philosophy towards all kinds of research.[15] That is, the ethnographer will never restrict their research activities to one or two methods, because when the research context demands a new approach, he/she will pull it from the toolkit without hesitation. This can be uncomfortable for those in the world of biomedical research. Nevertheless, productive fieldwork within a community will often demand this varied approach.

In addition to multiple methods, the results presented here originate from multiple projects and research aims. This is because ethnographic fieldwork lends itself to long-term relationships where extracurricular encounters with research participants outside isolated research activities are common. Thus, many topics can be broached multiple times and from different vantage points. This is not uniquely anthropological, but leveraging it towards research results can be. Those of us in agricultural health and safety are familiar with this in the sense that we often have an immediate farm community from which we draw research subjects, community advisory board members, and opinion leaders. In turn, it is not unusual to cross paths with them socially or as a part of other community-engaged, non-research oriented projects. Keeping detailed fieldnotes, revisiting the informal topics more formally when given the opportunities, and subjecting the notes to coding schemes and social theory, however, is often unique to the ethnographically bent researcher.

As such, I have spent a decade interviewing, watching, agreeing with, debating, admiring, abhorring, working alongside, and thinking critically about US farmers and ranchers. Ethics have always been an important topic. Risk has become a much more common topic in the last 3 years, given my recent station in agricultural health and safety research.

Much of the discussion regarding agrarian ethics comes from my 7 years of doctoral study examining the ethics of US ranchers.[16] I recorded and coded over 40 interviews with ranchers across the United States. Most were from the Intermountain West (Idaho, Wyoming, Montana, and Utah) and Texas. These open-ended, semi-structured interviews were recorded as MP3 files. When this technology failed, some were captured through cell-phone voice-recording applications and note-taking. In these less than ideal situations, the final transcripts or fieldnotes were reviewed by everyone involved for accuracy. Differences in memory or opinion were described and added to the note. They did not lead to the deletion or alteration of the original note or partial transcriptions. Therefore, final transcripts and coding took disagreement, forgetfulness, fixation, and multiple voices into account. Daily life, after all, is built of all these elements.

In addition to formal interviews, I also spent days and weeks doing participant-observation. That is, I observed, recorded interviews, took pictures, and took notes, as well as worked on agricultural operations. Afterwards, I would write fieldnotes, trying to capture the thoughts, feelings, and general experiences in writing so that I could revisit them later. These notes provided quotations and descriptions for my writing. I also drew upon them to help me build coding and analysis schemes. Thus, these fieldnotes from participant-observations allowed me to understand how my personal experiences shaped my interpretations of others' statements and behavior. Allowing the same vicissitudes of life that affect your research community to affect you is at the core of the ethnographic experience.

It is not always easy to do participant-observation with some communities. For example, when researchers wish to know more about the daily lives of prisoners, drug abusers, or politicians, they can conduct fieldwork. However, it is unlikely they would they would want or be allowed to embrace the core practices of these subjects. In the case of farm or ranch work, many anthropologists would have a steep learning curve to do so, but it would not be impossible. I, however, came from the communities of rodeo and ranching prior to anthropology. This is a type of domestic anthropology, studying the community you have identified with before or beyond your ethnographic inquiry. This is also an admittance of bias, something that is acceptable to embrace and deal with openly in ethnographic study. Thus, my own background in farming and ranching in southeast Idaho always permeates my work. My personal and research experiences in rodeo are rarely relatable to agricultural health and safety (besides a rich understanding of specific kinds of risk taking). In the end, backgrounds in both farming and rodeo expedite rapport building with the farm and ranch community.

The research projects I have conducted and methods I have used during my last 3 years in the field of agricultural health and safety research have been equally as varied. The results reported here stem from over 39 pile-sorts with dairy farmers, agricultural bankers, and agricultural insurance agents. Each pile-sort was accompanied by an hour long, semi-structured interview. Fieldnotes after each encounter were taken. While I do not report on the pile-sort results here, the interviews and fieldnotes have revealed important ideas about risk and trust when it comes to injury prevention on the farm.

In addition to these pile-sort interviews, my research team and I have also conducted 36 interviews with beginning, socially disadvantaged, and military veteran farmers and ranchers. Specifically, we have inquired with beginning and socially disadvantaged farmers and ranchers about how they deal with the risks to children on their agricultural operations. With military veterans entering agriculture, we have broached the topics of risk analysis skills, the spectrum of risks in combat versus agricultural work, and the means of dealing with the hazards and benefits of farming for veterans as a health population. With all these groups, the open-ended, semi-structured interviews served as opportunities to discuss risk more generally in terms of small-businesses, family businesses, and homes, as well as in terms of occupational health and safety. In the last 2 years, digital transcripts and personal fieldnotes produced from these efforts have been subject to inductive and deductive coding.

Results and Discussion

Social theorists have been deliberating the concept of risk vigorously now for over 30 years. Social theorists have also gained much ground in dealing with ethics.[16-23] Granted, these are not new pursuits, but we certainly see that that they have become much more pronounced in recent decades.[21] US farms and ranches are rich places to learn about how people's thoughts and behaviors can be filled with particular ideas about what is risky and/or ethical.

If technological or behavioral changes abide within the agrarian ethical system or move that ethical project into the future, agrarians find ways to accommodate those changes or even fully harness them. Preliminary data regarding robotic milking systems illustrate this point. This can be compared to the growing use of immigrant labor in dairy operations. Afterwards, I will illustrate how agriculturalists categorize different kinds of risk and where health and injury fit. It is also an opportunity to contrast this with how health and safety specialists understand mitigating risk.

Agrarian Ethics

My doctoral work applied a reinterpretation of more philosophical ethical systems to the lives of US ranchers, essentially a domestic or native anthropological project.[20-24] My current work is mostly located in central and northern Wisconsin, a region replete with dairy, cranberry, and ginseng farms as well as timber operations and rural communities in general. Like ranching, dairy farming falls into a model of agrarian ethics that is constructed around the three ethical domains of animal husbandry, land stewardship, and kinship.[16]

Ideally, the rancher or farmer finds a way to meet all the ethical obligations that these three different domains present, and therefore find themselves in the center of the model (see Figure 1). These domains are constructed around a number of elements, including recruitment, training, and the development of judgement. That is, an ethical domain includes how someone comes to be an ethical subject, how and what they are taught in order to be ethical, and how they and others can be subject to proper judgement.

There is going to be slippage into one domain or another from time to time, especially when balancing work with family. Critical to this discussion, however, is the degree to which the ethics of kinship bleeds into the daily labors of farming and ranching. Such is the nature of intergenerational projects like family farms. Because of this overlap, changes in how a farmer or rancher breeds herds, rotates crops, or does a particularly dangerous task are in immediate proximity to the judgement of what is best for the intergenerational project.

Farmers are often seen as simply recalcitrant to behavioral change unless it has to do with improving profits. This certainly makes sense, especially since it is difficult to imagine a family farm surviving the vagaries of markets and production technologies through multiple generations without the ability to adapt. However, many farms still allow human health and safety to persist as unmitigated financial losses. Therefore, health and safety changes must also improve abilities to be a successful and ethical agrarian. To illustrate, compare the use of robotic milking systems to hiring immigrant laborers.

One robotic milking system allows 60-70 head of dairy cattle to be milked 3-4 times a day voluntarily, often without the assistance of workers to herd them into parlors, prep and milk them, and return the cows to their respective pens.[25] These robotic systems are initially a large up-front investment (around a quarter million dollars per robot) and are reputed to have a steep learning curve in the first year of operation. However, these robots absolve the farmer from finding, training, and retaining large numbers of skilled laborers. Moreover, they simultaneously satisfy the ethical demands of animal husbandry and kinship. One dairy farmer reflected:

> "I've never had to pull a drunk robot out of the ditch - workers, yes, but not robots. … An investment in these robots is an investment in keeping the farm in the family. My kids want to farm if they have these kinds of improvements."

Our preliminary research specifically focused on robotic dairies has revealed that many farmers invested or are thinking about investing in this operational change in order to spend more time with their family (e.g., attending their children's afterschool events, going on vacation, exploring their own and others' interests outside of farming). They also cited that robotic systems are a mechanism to retain/recruit their children as future farmers, thus continuing the highly valued intergenerational aspect of the family farm. The robotic system is also viewed as good for the herd because they receive consistent treatment, and the farmer feels as though they have more time amongst the herd doing health checks. Some robotic systems are even connected to micro-chipped and wearable information devices on the individual cow. This allows the system to find and isolate sick cattle as well as separate a sick cow's milk from the larger batch.

Preliminary work also reveals that robotic systems will likely result in fewer worker injuries by eliminating exposures to large animals and repetitive motion. There is less large animal handling, culling criteria are much stricter (misbehaving cows are simply too expensive), and content healthy animals cause fewer injuries. In the same regard, farmers with robotic systems may have more time for sleep, exercise, recreation, and training. Ideally then, this kind of agricultural system is capable of helping to mitigate issues of fatigue, depression, anxiety, and lack of knowledge, all of which contribute to illness and injury. However, if the animals are handled less than normal, robotic dairies may push injuries downstream to others like veterinarians and hoof trimmers.

While robotic systems are ideal for the progressive conventional family farm (say two or fewer unrelated employees per year), large dairies must account for increasing the number of employees necessary to operate. In recent years, much of agriculture has consolidated into fewer, but larger farms. This is true in dairy as well, where the number of operations with more than 300 cows has dramatically increased.[26] In Wisconsin, there are now at least 60 farms milking 3,000 or more head. The labor needs of this expansion have been largely met through the hiring of immigrant labor from Central and South America.

This has had a number of effects on agricultural health and safety specific to dairy. Dairy farmers were and remain largely unaware of labor laws, including those about safety standards and workers' compensation. It has also posed a linguistic and cultural barrier to training, both in terms of the job itself and how to do that job safely. One farm in Minnesota

has gone out of its way to improve the conditions of workers both on the job and in what was a very skeptical community. This included escorting workers to their respective churches, taking them to community events, eating meals with them, and spending time outside of work with them. Finally, the farmer would occasionally fly to the region where most of the workers were from and get to know their families, deliver letters, and assure the families that their relatives in the United States were doing well. The farmer explained that they felt they had to go back to the “old farm model” where farm hands were treated like family. Part and parcel to developing these stronger bonds to the workers was improving their working conditions. This progressive farmer remarked:

> “Looking into the future, we simply saw the need to go back to the old model of farm hands. They have to be thought of as family. It's the only way to retain a good man or woman to the dairy. … I don't think I'm being innovative or unique, just making the best decisions for my farm and my family.”

Most dairy farmers have not put this much thought or effort into learning how to manage workers. In fact, many have had no training in workforce management. A young dairy farmer in central Wisconsin explained that he felt greatly handicapped because he was raised and trained to be a good manager of cows and crops, not people.

> “I never thought I'd be farming like this. I grew up looking after 60 cows over on the small corner property west of here. We keep calves there now. I'm learning everyday about having business partners and employees. … Your safety programs are exactly the kinds of things I don't think about until you bring them to me.”

This farmer employs over 30 Hispanic workers and has participated in a number of safety research projects and initiatives. The quote above was from a discussion about a project aimed at developing a promotor model for Hispanic dairy workers. In the model, the health promotor is equipped with knowledge about injury prevention specific to dairy and workers' rights. The efforts by this farmer to fully understand his relationship with workers are a prime example of how the increase in hired labor in dairy is not only a shift in safety and health concerns but social-cultural ones as well. Highlighted here is the expansion of ethical concern. The burgeoning dairy farmer today may know what is best for crops and cows, but they are still sorting out what is the right and best way to manage workers.

Immigrant workers' ethics are also important in terms of health and safety. Today, many immigrant laborers in agriculture do not have a lot of experience working with crops and livestock. They are not as initially tied to agrarian ethics as the farm owners. They do, however, often have strong ethical sentiments about what their work means to their family here and abroad. Indeed, the ethical obligation to retain employment may motivate the worker to take unnecessary risks and to express less concern for their working conditions. However, workers who are properly trained in animal husbandry and land stewardship can certainly come to appreciate and execute the agrarian ethic. This is yet another reason for farm owners and managers to fully train their workers and shift their company philosophy towards a worker-centered model.

Differing Perceptions of Risk

Risk management is not a foreign term to most farmers and ranchers today. In fact, many of those who attend short agricultural courses at universities or pursue degrees in agriculture get some schooling specifically in risk management.[27-28] The problem is that during both informal training practices, such as growing up on a farm, and formal training, such as college courses, injuries and illness are not broached as risks that specifically need managing. Therefore, the skills and knowledge that make up good judgement in mitigating health and safety risks are rarely fostered.

Agrarians often believe that risks due to the vagaries in weather and financial markets are largely meant to be endured. However, the major difference here is that the federal government, banks, and insurance companies have developed safety nets for when these events occur. Crops can be insured for damages from hail and flood. Surpluses will be bought at minimum prices. Farms can be measured by potential income despite a bad year. What is similar between these events and an injury is that they are often marked by the belief that there is little we can do to prevent them from happening. So the attitude towards acute events that damage the farm and ranch is to be prepared to deal with the results rather than invest in their prevention. One rancher in western Wisconsin remarked:

> "You wake up and take on the day ahead of you. The work is difficult and sometimes dangerous. We've talked about that quite a bit, but you can't control everything around you. If it rains, it rains, you just deal with it as it comes."

This perspective sacrifices a sense of intentionality and replaces it with what is deemed the best reaction. Unfortunately, according to one farmer this means "taking accidents on the chin, rubbing dirt on it, and getting back to work."

This is very different from how health and safety experts imagine the way to best address risk. First of all, they have a very technical understanding of what hazards and risks are and how they are related. In contrast, many laymen, farmers, and ranchers, as well as most anthropologists, use the terms interchangeably. In any case, health and safety experts deal with risk by mitigating the hazard. The hierarchy of controls is a schematic understanding of abating hazards and is salient amongst health and safety specialists (Figure 2). Needless to say, it is not well known to farmers or ethicists.

Because many farms are exempt from Occupational Safety and Health Adminstration (OSHA) inspection, and because OSHA is largely unfamiliar with agricultural work, farms of all sizes act largely autonomous in terms of how much or how little they mitigate the risks of injury and death. This is especially true in terms of worker protection standards.[29] Thus, a large part of what agricultural health and safety specialists do is try to convince farmers and ranchers to adopt the 'expert' understanding of risk and hazard mitigation both for themselves and others.

Where Risk and Ethics Meet

As an example for where risk and ethics can meet in the effort to prevent agricultural injuries, consider a campaign poster that is meant to motivate farm parents to keep their children away from tractors (Figure 3).

Figure 3 shows a poster, which is a product of the National Children's Center for Rural and Agricultural Health and Safety, a federally funded research center headquartered at the National Farm Medicine Center. Child deaths on farms are a major issue, again because of how many kids live on farms and are exposed to the hazards of the worksite. As a result, a child dies in a farm related accident about every three days. Many of these are non-working children on or around tractors.

This poster captures where risk and ethics can be seen coming together, although the poster was not necessarily designed with agrarian ethics in mind. The intervention message here is very clear. We can greatly reduce the risk of injuring or killing children on farms if we simply do not allow them to ride on tractors. This poster also places the obligations of kinship back into a familiar perspective. That is, quality time can be had on the farm, children can be raised well on farms, but it takes a degree of separation in not only space, but activities as well. My speculation about this campaign's representation of risk or ethics has not been tested. It does appear, however, that the model of agrarian ethics presented here can both describe daily lives of farmers as well as disentangle important understandings of risk and risk communications.

Conclusion

Agrarian ethics, in their most general but generative form, normally account for three domains: kinship, land stewardship, and animal husbandry. Knowing how a subject becomes a knowledgeable practitioner of these ethics can be useful for those concerned about agrarians' best practices. If we have a better understanding of how farmers and ranchers imagine risks and ethics, we can design interventions that both mitigate hazards and try to satisfy agrarian ethical commitments. This is especially true when we consider concepts that are often critical to intervention science like cultural appropriateness, efficacy, and influence.

If interventions were researched, designed, and disseminated such that they facilitated an agrarian satisfying the ethical domains, something that was culturally appropriate may become culturally enticing. Culturally appropriate could mean more than accommodating cultural differences; it could mean assisting in particular cultural projects and goals. The examples discussed here crossed over animal husbandry and kinship. Like low-stress animal handling, robotic milking systems are thought to improve herd care and reduce injuries. They also assist in the recruiting of a new generation of dairy farmers, thus facilitating the ethics of kinship found in an intergenerational endeavor.

Similarly, when we consider models like the extended parallel process model,[30] an intervention can approach the subjects' senses of efficacy such that it aims to improve their ability to fulfill ethical obligations. The example given here was found in an intervention message tasking parent's to be deliberate with their understanding of quality time with children and that it does not include tractors. Nevertheless, it also assigns them a kinship role (reading a book to them in this instance) that is feasible and recognizable insofar as they desire to be good parents and good farmers.

Lastly, when interventions are working within the socioecological model,[31] accounting for these ethical domains can help us discern the kinds of influential people around farmers and what their influence entails. Whose judgement matters the most to a farmer? Who does the farmer trust the most when thinking critically about animal health, crop health, and the intergenerational goals of the family farm? Knowing which community members carry this kind of esteem in the ethical domains is advantageous when trying to implement behavioral changes using influential community members as channels.

So far, this pursuit of identifying how ethics and risks intermingle has been solely descriptive. That analysis, however, is critical in guiding interventions so that they can be effective. In the end, if something can be more accurately described, it is more likely that it may be leveraged into application to improve the human condition.

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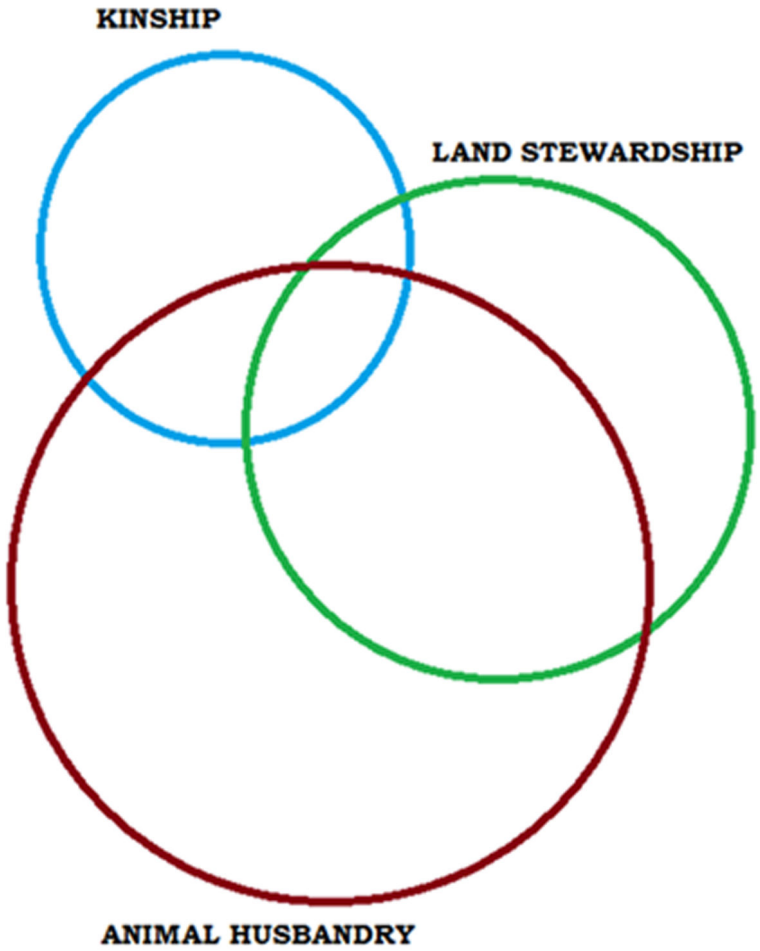

Figure 1.
A model of agrarian ethical domains.

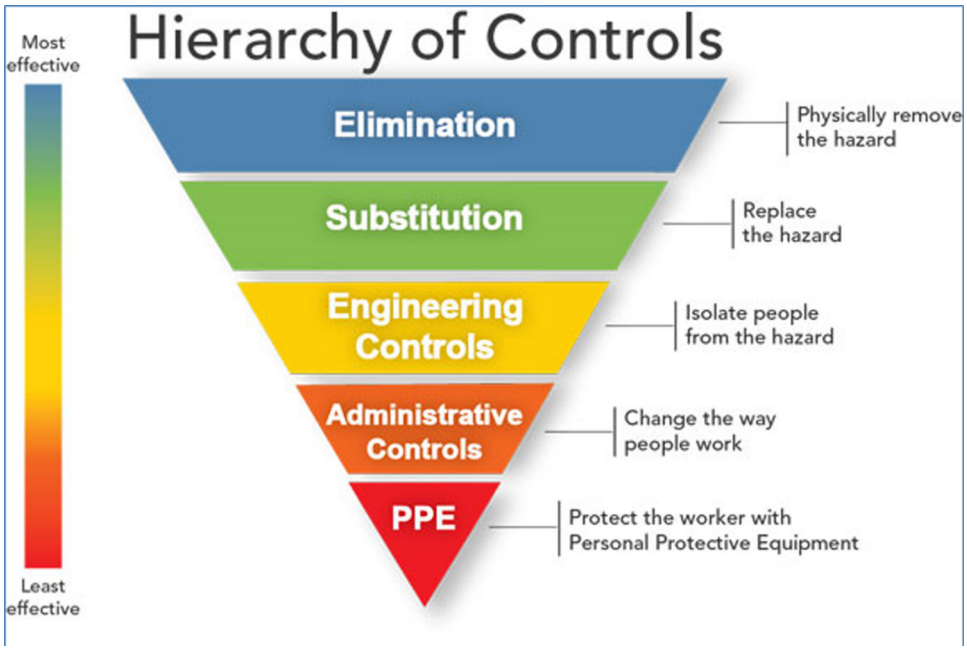

Figure 2.
Hierarchy of controls.

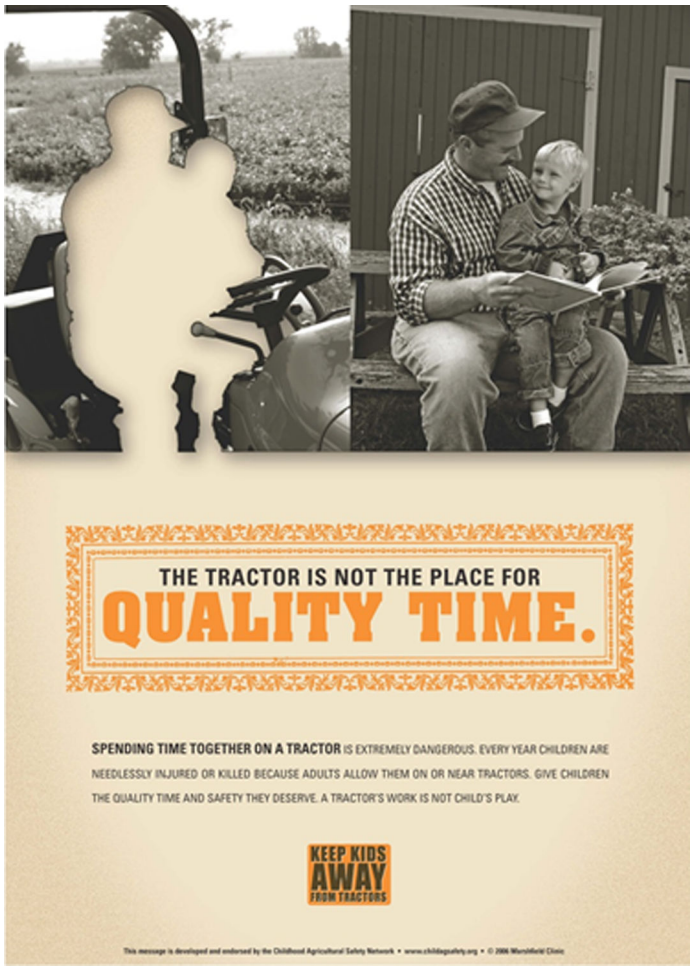

Figure 3.
Quality time poster.