# Public Health Ethics and Sustainable Agriculture

Ethical Support for a Healthy Farmer

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**Abstract:** This paper explores the hazards of conventional industrial agriculture on the health status of farm workers and draws upon ethical concepts of public health to offer support of sustainable agriculture as a means to improve the health of farm workers. Among occupations observed in the United States agriculture rates highest in occupational morbidity and mortality. Among farm workers there is a disproportionately high prevalence of respiratory illness compared with other occupations and given the low prevalence of smoking among farmers. Recent decades have seen a shift in the demographics of the American farm worker population and currently a majority of employees in this occupation are foreign born, raising special concerns with regard to health literacy and health care access. Ethically, farm worker autonomy, informed consent and empowerment through knowledge, along with utilitarian theory combine to support a transition to sustainable agriculture.

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In a commentary entitled, *Defining Goals and Conditions for a Sustainable World*, John Cairns, a scientist with the Virginia Poly-Tech Institute, writes that, "Increasing attention has been paid to possible biophysical limits to the growth of human society", and that, "There are at least two ways to respond to limits: one is to deal with the consequences of exceeding limits as they are encountered; the other is to adjust behavior now to preempt the unpleasant consequences of exceeding limits to growth. The types of adjustments that may be necessary are the focus of the concept of sustainability" (Cairns, 1997). It is the position of this paper that preemptive action toward sustainability is a public health imperative to improve the overall health status, access to health care, and health literacy of farm workers, and to prevent further overburdening of the farm worker populations' health by intensive conventional industrial agriculture.

The World Health Organization defines health, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948). The Public Health principles of beneficence, non-maleficence, respect for autonomy, and distributive justice are the foundations through which the field attempts to uphold, protect, and improve the health of the United States population. The Public Health Leadership Society, a subdivision of the American Public Health Association, in 2002 published, *Principles of the Ethical Practice of Public Health*. The document develops a code of ethics based on American social values of health, community, and action. The document also states, "Public health is understood within these principles as what we, as a society, do collectively to assure the conditions for people to be healthy" (Public Health Leadership Society, 2002). The Ethical Principles outlined by the Society correspond to what are defined as the essential functions of Public Health (see Appendix A). Based on these Principles and functions public health must

address the living and working conditions of farm workers, as current conditions are not health promoting (National Center for Farmworker Health, 2009) (Bartholomew, 2006).

Since 1943 the United States, along with other governments, has been committed to the development of a permanent food and agricultural organization. In 1962 the FAO (Food and Agricultural Organization of the United Nations), cooperatively with WHO (World Health Organization), established and operationalized a set of international food standards (FAO.org). The FAO's publication, *Ethical Issues in Food and Agriculture* states, "Helping to build a food-secure world for present and future generations implies the promotion of sustainability, which is itself of major ethical significance" (FAO, 2001). "FAOs mandate . . . describes a vision for building an ethical and equitable food and agriculture framework" (FAO, 2001). As a committed, supporting member government of the FAO, the United States should cooperate with and promote sustainability in agriculture. As an extension of the United States Public Health practitioners within the United States can look to foundations in the Beijing Platform to promote and sustain social justice through sustainable agriculture. The Beijing Platform was created in order to guarantee to females equal rights and freedoms in the human family; a main precept of which being, that such rights and freedoms are an "indivisible part of all human rights and fundamental freedoms" (Levy & Sidel, 81). The platform relies on the ethical principle of autonomy (Morrison, 45) to promote its focus on empowerment and relies on the principle of justice, more specifically distributive justice to ensure implementation of rights, i.e.: human rights. Additionally, the platform determines to foster the advancement of women; again relying on the principle of autonomy, but more concretely on Aristotelian logic and natural law, in which all beings are to maximize or optimize their own potential without hindrance from society. "This

means that it is part of the natural order for all entities to strive to maximize their potential. To deny something its ability to actualize its potential is to violate its very nature" (Morrison, 17).

The declarations of the Beijing Platform deem it unethical and out of line with international morality to violate the 'very nature' of the female human; in a woman or in a girl child (Levy & Sidel, 81).

Ethicists can offer support to the platform by upholding and promoting its principles not only for women and girls but for all workers.

Informed consent and rights to know, as fundamental elements of the principle of autonomy, impress upon the public health ethics of agriculture, the need for precautionary education and information for workers dealing with hazardous and toxic substances. Accidental exposures due to lack of information are avoidable risks and therefore, NIOSH seeks to minimize these in the agricultural setting with training and safety standards, including material safety data sheets for all chemicals. Personal protective equipment can reduce exposure to gases and dusts and greatly reduce respiratory exposures. Properly ventilated work areas are a primary engineering control which can be employed as well. OSHA regulation for chemical handling is also a form of an administrative control in agricultural safety (Di Nardi, 2003).

Due to the nature of farm work and the hazards associated with Agriculture as an industry, such as "high risk for fatal and nonfatal injuries, work-related lung diseases, noise-induced hearing loss, skin diseases, and certain cancers associated with chemical use and prolonged sun exposure" (Center for Disease Control, 2010), the National Institute for Occupational Safety and Health considers agricultural to be among the most hazardous of all industries. Furthermore, occupational mortality rates indicate that for all occupations in 2007

there was a mortality rate of 3.7 deaths per 100,000 workers. However, this same data when calculated as an industry specific figure for agriculture indicated 25.7 deaths per 100,000 agricultural workers (National Center for Farmworker Health, Inc., 2009). In this same study, produced by the National Center for Farmworker Health, Inc. in 2009, it was also found that throughout 2006, as an industry, agriculture was second only to construction in number of days of work missed due to occupational injury or illness. For all diseases within the occupation, respiratory illness has the highest morbidity and mortality rates (Linaker and Smedley, 2002). Additionally, among all occupations, Agriculture has the highest morbidity and mortality rates for respiratory illness (Department of Health and Human Services, 2007). This is significant in that it speaks to the hazards of continuous and repeated exposure in the occupational environment. The potential hazards within the agricultural workplace include organic dust inhalation, chemical exposure as it relates to respiratory illness, and exposure to cumulative chemicals of animal wastes. A particular occupational illness known as "Farmer's Lung" is known to be an allergy-related disease, with etiology in the "dust from moldy hay, straw, corn, silage, grain or tobacco. The disease can be a sudden attack or a slow, progressive disease that can cause permanent lung damage, physical disability and even death" (National Center for Farmworker Health, Inc., 2009).

"In 1999, the U.S. Environmental Protection Agency (EPA) estimated that, nationwide, there were 10,000 to 20,000 incidents of physician-diagnosed pesticide illnesses and injuries per year in farm work alone. However, EPA recognized that its estimate represents significant underreporting and that no comprehensive national data are available on the extent of pesticide illnesses" (Stephenson, 2001). In all areas of the agricultural industry there are controls and preventions in place intended to safeguard workers. As varied as the nature of the work, are the

safeguards to insure healthy workers. Underutilization of personal protective equipment and non-adherence to safety guidelines and procedures are often cited as areas of concern in safe guarding agricultural workers.

Although NIOSH maintains standards and OSHA has established protocols, including Personal Exposure Limits and Threshold Limit Values, to reduce and avoid exposure to chemical hazards in the workplace, studies indicate that in some states with large agricultural labor forces, law violations by employers can account for over 40% of pesticide poisonings (National Center for Farmworker Health, Inc., 2009).

As a population, there is a special issue with farmworkers with regards to migration and legal status. When addressing research questions toward issues of farmworker health, a distinction must be made between international farm workers, who working outside of the United States may not have legal loop holes to trip over en-route to accessing healthcare, and farm worker populations in the United States. (Agricultural Justice Project, 2010). Among agricultural workers in the United States, up to 70% of U.S. farm workers are estimated to be undocumented, totaling about 500,000 people" (http://www.workpermit.com, 2008). The legal status of migratory agricultural workers negatively affects accessibility to care (Fernandez, M. et al. Cultivando La Salud, in Bartholomew, 2006).

From 1989 to 1998 there was an increase from 10% to 81 % in the proportion of foreign born farm workers in the United States farm worker population (Thompson, 2002). In the United States the well-developed infrastructures of the public health framework on the one hand and the over developed bureaucracy of its scope on the other stipulate trouble for the migrant and simultaneously migratory agricultural working class. This group of persons is at once legally

marginalized and also socially oppressed by the current industrialized conventional commercial

agriculture system. The marginality of illegal immigrant workers affects the health status of these

workers because the covert nature of their lives precludes openly accessing care, particularly the

affordable public care provided to low income citizens, for which they technically do not qualify.

Moreover, private care in the United States has reached a level unaffordable to most working

citizens, unless they are insured. Illegal workers do not have insurance coverage which qualifies

them to receive health care provider support and they are therefore not accessing health care.

Simultaneously, this group of workers endures harsh conditions of long hours, involuntary

exposures due to proximity of work and residence, and a low literacy rate associated with lack of

access to education. Each of these factors further exacerbates the negative health consequences

of their social marginality and translates into low or poor health literacy (Fernandez, M. et al.

Cultivando La Salud, in Bartholomew, 2006). Limited availability of worker population health

data is directly associated with the seasonality of the work and the migration of the population.

Because workplace and residence are often one and the same, the population is inherently rural

and lacks access to urban health care systems. This inaccessibility of care associated with rural

populations also contributes to scarce health data (National Council for Agricultural Worker

Safety and Health, 1989).

Safety in occupational settings in the United States is regulated and overseen by the

Occupational Safety and Health Administration. Through the Occupational Safety and Health

Act, Congress delegated authority to OSHA to make and enforce rules to implement the general

duty standard. The Act itself establishes the one workplace standard, known as the "general duty

standard." The general duty standard states: "Each employer shall furnish to each of his

employees employment and a place of employment which are free from recognized hazards that

are causing or are likely to cause death or serious physical harm to his employees" (United States Department of Labor, OSHA, 2011).

In an historical context, ethics originates as study in ancient Greece. "Derived from the Greek work ethikos ("of or for morals"), ethics is a branch of philosophy concerned with the study of values or morality. The ancient philosophers who pioneered the study of ethics were largely concerned with the functioning of society as a whole and the individual's role in it. Today, ethics also relates to corporate social responsibility" (Krause, T. R., 2007). This point emphasized by Krause of the shift over time in the focus of the field of ethics reflects a change in the modern relationships between human beings and their world and extends beyond the corporate world to encompass social responsibility on many levels. This notion of social responsibility has prompted the expansion of the use of the ecological or eco-social model for research and intervention design (Krieger in Levy and Sidel, 2006) (Trochim, 2005) and provided the backdrop for the development of the study of social justice and public health. From this perspective, scholars like Krieger conclude "that social justice is the foundation for public health" (Krieger in Levy and Sidel, 2006, p463) and that a paradigm of practice must be based on "theory, monitoring, etiology, and prevention" (p463).

Social responsibility, as a component of ethics evolved out of the Utilitarian School of Thought as promoted by John Stuart Mill, and Emmanuel Kant. John Stuart Mill gave rise to the ideals of utilitarianism on the contention that one should act as to create or produce happiness; to do otherwise would be unethical (Mill, J.S., 1863). Individual action would please or displease in this theory's origins; later sets of actions were categorized and grouped into rules of action giving rise to the term rule utilitarianism. This mode of thought promoted good through principles of good in sets of action; such as 'keep promises'. Such a rule would intrinsically

produce 'good' under this approach. Through this perspective we see Kant's concept that in order to produce good one should act only in a way which is universally accepted (Smart, J.J. C., 2006). Utilitarianism is the theory of achieving the greatest good for the greatest number (Morrison, E., 2009).

This is the prevailing mode of thought in Public Health in the United States today (Soskolne, C. L., 2011). As stated in the third 'Principle for Ethical Practice', "Public health policies, programs, and priorities should be developed and evaluated through processes that ensure an opportunity for input from community members" (Public Health Leadership Society, 2002). By addressing these stakeholders in determining the greatest good, public health officials will increase the external and internal validity of their studies (Trochim, 2005); engaging communities in the process of Kant's, "self-governing will" (Morrison, 2009, p20). Utilitarianism is employed in policy and decision–making processes at local, regional, state, and federal levels.

It is suggested that sustainable farming practices can reduce negative health exposures for farmers. Current heavy reliance on animal products and animal product production in North American food systems seriously affects the health of farmers and farmworkers. For example, it is found that, "the widespread use of antibiotics in livestock has accelerated the development of antibiotic resistant pathogens which may increase the risk of severe infectious diseases in workers handling and processing livestock" (Douwes, 2003). Heavy reliance on livestock, feed for livestock, land for grazing, and over use of chemicals make our current agricultural industrial system unsustainable.

In their article "How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture" Horrigan et al. (2002) address concerns regarding the safety of our current agricultural production system and envision effective changes toward sustainability which would reduce harmful exposures of farm workers. They recommend movement away from animal feed production and away from heavy reliance by consumers on animal products, as the land and resources used to accommodate them could be more efficiently utilized. Sustainable and organic farming practices make use of biological relationships on nature and limit or prohibit completely the use of agro chemicals, thereby eliminating farmworker exposure to such chemicals (Horrigan et al., 2002). The high rates of respiratory illness within the industry evidence the need for improved 'biological relationships' within agricultural. Although the evidence is less present, some studies have linked farmworker pesticide exposure with development of neoplasms and other forms of cancer. Studies show that despite a low prevalence of cigarette smoking, farmers exhibit higher rates of low cancer than other groups (Alavanja, 2004).

In 2002 the organization Students for Action with Farmworkers commissioned an anthology of research, which came to be titled The Human Cost of Food (Thompson and Wiggins, 2002). As an advocacy council working side by side and in conjunction with farmworkers to achieve just working conditions, the not for profit agency has educated interested individuals through a large scale ongoing internship program. The interns are often former farmworkers or the children of farmworkers, persons who have had first-hand knowledge of the living and working conditions of conventional agricultural industry. The organization originated in the 1970's and continues to serve farmworkers and students today. According to the SAF website, the struggle to achieve safe and healthy working conditions, to empower farmers

through education and health literacy, and to improve farm workers' access to health care

services, has been largely driven by the farmworkers themselves (http://saf-unite.org/).

Martin Donohoe, MD as Chief Science Advisor to the *Campaign for Safe Food* and a

member of the *Oregon Physicians for Social Responsibility* notes, 'pesticides' with respect to

'worker health and safety' as well as, 'factory farms, CAFOs (Concentrated Animal Feeding

Operations) and agricultural antibiotics' as major issues of conventional agriculture which can be

effectively addressed through a transition to sustainable agricultural practices. In defining

'sustainable foods' Donohoe lists a number of characteristics from social responsibility to

nutritional quality and includes the following in the qualifications for 'sustainable food' in the

*Campaign for Safe Food*:

- Fairly or cooperatively traded between producers, processors, retailers, and consumers

- Non-exploiting of employees in the food sector in terms of rights, pay and work
  conditions
- Environmentally beneficial or benign in production and processing

Experts suggest that sustainable agriculture can provide a safer, healthier occupational

environment for agricultural workers; therefore, Public Health should ethically support the

transition to sustainable agricultural practices. In order to better protect and improve the health of

farm workers, public health should also support a transition toward sustainable and organic

agriculture through both theory and practice and incorporate its concepts into future public health

educational paradigms. Through the use of the ecological or eco-social models of assessment and

intervention design for developing policies and programs public health practitioners will more

inclusively embrace all stakeholders, in this case farm workers, farm residents, and families of

farmworkers, as well as safety officials and public leaders. In this way they will be better equipped to mobilize and engage participants, prioritize health from within populations, and access the capacity of communities to solve problems from within. This has been promoted from within the industry through the Student Action with Farmers, National Center for Farmworker Health, United Farm Workers, the National Agricultural Survey, and the Farmworkers Support Committee, known as CATA, have made strides toward improved working conditions and the increased autonomy of farm workers in recent decades. Safe occupational practices must be emphasized through ongoing education and inspections and continued respect for OSHA regulations and NIOSH standards. Much work remains, and sustainable agriculture provides an avenue through which public health can support improvements of the overall well-being, and health of farm workers. Farm worker autonomy, informed consent and empowerment through knowledge, along with utilitarian theory combine to support a transition to sustainable agriculture from a public health perspective.

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**Appendix A**

**Correspondence of the 12 Ethical Principles**

**with the 10 Essential Public Health Services**

**Essential Public Health Services**                    **Ethical Principle**

1. Monitor the health status to identify community health problems

(5) collect information

(7) act on information

2. Diagnose and investigate health problems and health hazards in the community

(5) collect information

3. Inform, educate, and empower people about health issues

(4) advocacy and

empowerment

(6) provide information

4. Mobilize community partnerships to identify and solve health problems

(12) collaboration

5. Develop policies and plans that support individual and community health efforts

(1) protect and promote health; address fundamental causes of health risks

(3) processes for community input

(5) collect information

6. Enforce laws and regulations that protect health and ensure safety

(2) achieve community health with respect for individual rights

(3) feedback from the community

(7) act upon information

**Essential Public Health Services**                    **Ethical Principle**

7. Link people to needed personal health services and assure the provision of health care when

otherwise unavailable

(4) advocate for and empower; basic resources available to all

(8) incorporate diversity

8. Assure a competent public health and personal health care workforce

(11) professional competence

9. Evaluate effectiveness, accessibility, and quality of personal and population-based health

services

(3) community feedback

(5) collect information

10. Research for new insights and innovative solutions to health problems

(5) collect information

No corresponding essential public health service

(9) enhance physical and social environments

(10) protect confidentiality

**Appendix B: Table 1.**

**The four system conditions (for sustainability)**

System condition

    1. Substances from the Earth's crust must not systematically increase in the ecosphere

This means: Fossil fuels, metals, and other minerals must not be extracted at a faster pace than their slow redeposit and reintegration into the Earth's crust

Reason: Otherwise the concentration of substances in the ecosphere will increase and eventually reach limits-often unknown-beyond which irreversible changes occur

Question to ask: Does your organization systematically decrease its economic dependence on underground metals, fuels, and other minerals?

System condition

    2. Substances produced by society must not systemically increase in the ecosphere

This means: Substances must not be produced at a faster pace than they can be broken down and integrated into the cycles of nature or deposited into the Earth's crust

Reason: Otherwise the concentration of substances in the ecosphere will increase and eventually reach limits-often unknown-beyond which irreversible changes occur

Question to ask: Does your organization systematically decrease its economic dependence on persistent unnatural substances?

System Condition

3.  The physical basis for productivity and diversity of nature must not be systematically diminished

This means: We cannot harvest or manipulate ecosystems in such a way that productive capacity and diversity systematically diminish

Reason: Our health and prosperity depend on the capacity of nature to re-concentrate and restructure wastes into new resources

Does your organization systematically decrease its economic dependence on activities that encroach on productive parts of nature, e.g., over-fishing?

System Condition

4.  Fair and efficient use of resources with respect to meeting human needs

This means: Basic human needs must be met with the most resource-efficient methods possible, and their satisfaction must take precedence over provision of luxuries

Reason: Humanity must prosper with a resource metabolism meeting system conditions 1-3. This is necessary in order to get the social stability and cooperation for achieving the changes in time

Does your organization systematically decrease its economic dependence on using an unnecessarily large amount of resources in relation to added human value?

(Cairns, 1997).