Sustainable Agriculture Practices to Protect Vulnerable Communities

Executive Summary

Introduction

The highly industrialized agriculture system in the United States has left natural resources depleted, the environment degraded, and vulnerable populations exploited. In North Carolina, an economy highly reliant on its agriculture industry, the mass production and processing of food and other agricultural products utilizing pesticides and harmful fertilizers has left the state to cope with the effects of non-renewable fossil fuels and other harmful side effects of the industry. These practices have left environmentalists and policymakers alike, pessimistic about the long-term sustainability of the industry. While the agriculture industry has taken a toll on the environment, its adverse effects also disproportionately harm the laborers upholding our food chain.

In transitioning to a more sustainable food system, North Carolina must integrate just and equitable labor practices along with the goals of food safety, accessibility, environmental protection, and animal welfare. In doing so, policymakers must prioritize the well-being of the industry's most vulnerable demographic, women. Promoting a green transition in North Carolina's agriculture and food processing industry is not only imperative to ensuring climate-friendly and sustainable agriculture but in protecting the working conditions of farmworkers, specifically women. Sustainable food systems and practices look to reduce sectoral reliance on pesticides, synthetic fertilizers, and fossil fuel-powered farm machinery (Horrigan et. al., 2002). In turn, the environment and the human labor force can benefit.

Current situation

Definitions of migrant farm labor

Agriculture is a leading industry for North Carolina's economy, generating over 60 billion dollars annually and accounting for approximately one-fifth of the state's income (Farmworkers Advocacy Network, 2012). North Carolina produces crops including tobacco, greenhouse and nursery, Christmas trees, vegetables, and fruits, bringing in more than $2.4 billion in sales for North Carolina each year. For decades, the fruits of North Carolina's agriculture have been labored by migrant farmworkers, helping to feed the country at large. North Carolina houses approximately 150,000 farmworkers each growing season, placing the state at 6th in the nation for the number of migrant farmworkers (Farmworkers Advocacy Network, 2012). The US Department of Labor estimates that 53% of farmworkers in the United States are undocumented and 21% are green card holders (U.S. Bureau of Labor Statistics, 2022). Ninety-four percent of farmworkers in North Carolina are native Spanish speakers. Thus, the vast majority of farmworkers in both North Carolina and the United States are assumed to be foreign-born.

Two forms of employment historically disaggregate farmworkers in the United States: seasonal workers and migrant workers hired under H2A visas. Seasonal workers are individuals seeking employment in the agriculture industry but who do not move from their permanent residence to pursue agricultural work. On the other hand, migrant workers holding H2A temporary visas are recruited under standards from the U.S. Department of Labor, to travel from their permanent residence to pursue agricultural work. The federal H2A visa program provides temporary visas for agricultural workers after recruiters demonstrate that there are no US citizens willing to be hired. This program supplies 27% of all North Carolina farmworkers, with the majority of H2A workers recruited from Mexico. (Lambar, Thomas, 2019). For the purpose of this

paper, I will primarily evaluate the impacts of North Carolina's agriculture industry on female Latinx migrant farmworkers.

Methods:

This literature review examines relevant research on working conditions for Latinx women in the agricultural sector of North Carolina. The review results were compiled and analyzed and included relevant qualitative and quantitative data from the literature.

A scan of relevant research was conducted between September through October, 2022, focusing on peer-reviewed articles and journals with gray or nontraditional literature including government documents. The searches were conducted using Google Scholar and Articles+ of the University of North Carolina at Chapel Hill's library database. Research was organized by focusing on themes and looking for intersections within those three fields. The sources were compiled from different academic fields including Agriculture, Sociology, and Behavioral Science. The search was extended to a 20-year time frame to account for limited robust literature on the specific subsets of this population. Research investigating the intersectionality of the themes explored in this review was even more limited.

A comprehensive list of key terms and strategic search combinations were developed. Boolean operators (e.g., AND, NOT, OR) and keywords were used to further guide the search. Once an initial broad search was completed, and a list of articles compiled and reviewed, more targeted searches were conducted to fill in gaps in the literature and ensure that all relevant topic areas were covered. To organize and analyze the literature, I used the citation management software, Mendeley. Tags were created to categorize the articles based on the theme.

Results

History of exploitation

Migrant farmworkers have a history of enduring exploitative labor practices. The H2-A visa program in theory is required by federal law to guarantee at least minimum wage, housing consistent with government standards, work for at least three-fourths of the period set by the contract, worker's compensation, and transportation expenses. While these regulations exist in theory, they lack effective enforcement, resulting in opportunities for exploitation. H2-A workers are entitled to seek legal assistance from the Legal Services Corporation ("LSC") to refute issues pertaining to wages, transportation, housing, and employment rights as outlined in their contract. However, workers are not allowed to seek assistance on civil rights or immigration matters. Farmworkers face several barriers to advocating for their rights including difficulties accessing legal aid due to residence and work in remote areas, lack of education or awareness of legal offices, language barriers, and fear of retaliation (Stockdale, K. E., 2012). Human Rights Watch found signs of blacklisting and fear among H-2A workers in North Carolina that sought legal assistance, were vocal in unions, or tried to expose harsh working conditions (Stockdale, K. E., 2012). In the United States, the employment-at-will doctrine states that employers may terminate the employee for any reason or no reason at all while adhering to federal law. In this case, terminated employees have the opportunity to pursue other employment opportunities. However, workers on the H-2A visa are not afforded the liberties described in these free labor market policies. As foreign H-2A employees are tied to their employer for residence and employment, if terminated, workers are subjected to deportation. In addition, if farmworkers upset their employees, they are at risk of blacklisting and retaliation as the H-2A visa program contains no effective protections for workers against employer blacklisting and retaliation (Stockdale, K. E., 2012). The risk of deportation and lack of employment mobility contributes to the systemic exploitation of migrant farmworkers.

For these reasons and others, farmworkers continue to face low wages and few legal protections. For example, the average annual income of a farmworker in North Carolina is $11,000, placing them as the second lowest-paid workforce in the nation. Farmworkers in North Carolina earn 35% less than the national average (Farmworkers Advocacy Network, 2012). The State profits from the labor of these workers while only incurring a fraction of their labor cost. Trapped in cycles of poverty with no employment mobility, migrant farmworkers experience other negative consequences due to the nature of their work including food insecurity. A 2006 study found that approximately 5 in 10 farmworker households in North Carolina reported not being able to afford enough food to feed their families (Farmworkers Advocacy Network, 2012).

Working conditions for female farmworkers

Pesticide poisoning, heat illness, musculoskeletal and eye damage, respiratory illness, and injuries are all common effects of the hazardous working conditions that migrant farmworkers are subject to. Agriculture continuously ranks as one of the three most dangerous occupations in the United States (Farmworkers Advocacy Network, 2012). Even still, and as referenced above, farmworkers are not afforded the same legal protections as other industries. Furthermore, the occupational health hazards associated with the work contribute to health disparities, especially amongst the most vulnerable demographics of farm workers: women of Latino descent and origin. Literature and research on the health of Latina farmworkers are sparse, with even less research available at the North Carolina state level. For this reason, a holistic overview of working conditions and health effects on women was broadened to include the entire United States rather than just North Carolina.

Female farmworkers account for approximately 25% of the migrant labor force in North Carolina (Jensen & Thames, 2021). While their share of the labor force is a minority, this can mean labor policies are often left untailored to account for gender differences. Female farmworkers are left susceptible to occupational health hazards as a result of negligent policies. For example, pregnancy and fertility are often not recognized or considered significant factors when women assume farm tasks. Women are put further at risk when exposed to harmful pesticides, needle sticks, and livestock hormones (AgriSafe Network, 2023). These risks can lead to potential fertility complications.

Pesticide Exposure

Women working in the agricultural industry face a number of risks that can compromise their physical health, particularly their reproductive health. One of these risks includes exposure to pesticides which can occur through inhalation, dermal contact, ocular, or ingestion (NC Department of Health and Human Services, 2022). Pesticide exposure is strongly associated with negative health outcomes among adult women and developmental outcomes in children. Long-term exposure to pesticides can lead to neurocognitive decline, pulmonary disease, cancer, and reproductive problems (Arcury et. al., 2018). Pesticide exposure can occur occupationally directly through farmwork, or non-occupationally indirect exposure in the household. Estimates show that between 10,000 and 35,000 farmworkers suffer from acute pesticide exposure each year in the United States (Castillo et. al., 2021). Women are especially susceptible to the negative effects of pesticide exposure. A study conducted from 1998-2007 examining pesticide-related illnesses and injuries in farmworkers found that female farmworkers are twice as likely to experience an exposure-related illness or injury than men (Kasner et. al., 2012). In moving towards more

sustainable agricultural practices, reducing sector reliance on pesticides is imperative to protecting the health outcomes of women and their potential children.

Access to health care for vulnerable communities (telehealth)

Discussion

In order to effectively advance health equity for North Carolina's most vulnerable farmworkers, it is imperative to address social determinants of health. This includes livable wages and benefits, freedom from discrimination and obstacles to joining a labor union, and safe working environments. A number of strategies and policy recommendations can be adopted to integrate more equitable labor practices into sustainable food programs. Some strategies to do so are described below.

Prioritizing Work Organization for Vulnerable Populations

The National Institute for Occupational Safety and Health (NIOSH)9 defines "work organization" as the processes and organizational practices that influence job design. Work organization takes into account the timing of when work is performed, seasonality, flexibility, physical and psychological demands of performing work, style of supervision and support, and work safety climate (Arcury et. al., 2014). Work organization has historically been considered for white-collar workers, with little research or enforcement for vulnerable populations like female migrant farmworkers. After conducting an experiment to measure the effects of job demands, decision latitudes, and job support on health, in a sample of immigrant female Latino manual workers working in poultry processing and residing in 4 western North Carolina counties, Acury et.al found strong correlations between work organization and health outcomes. For example,

carrying a heavy load was positively associated with having musculoskeletal symptoms, psychological demand was positively associated with musculoskeletal symptoms, increased skill variety decreased the odds of having musculoskeletal symptoms, and increased job control decreased the probability of having musculoskeletal symptoms (Arcury et. al., 2014). Overall, women migrant manual workers experienced high levels of musculoskeletal and depressive symptoms and relatively low quality of life. The data of this study should be interpreted considering its limitations in data collection from one region, in one state, and in one year. However, the sample size was large with a strong cross-sectional design.

Enforcing more inclusive work organization policies will amplify the experiences of female migrant agricultural workers and work to improve their occupational health outcomes. Cultivating supportive and safe environments through improved ergonomic policy designs for migrant agricultural workers, especially women, will protect workers in the long term. Instituting micro and macro-level support for vulnerable populations has been identified as an effective recommendation to improve occupational safety policy and work organization. This includes social support, management training, job skills training programs, and wage premiums for hazardous jobs (Arcury et. al., 2014).

Participatory Approaches

The Equitable Food Initiative (EFI) is a partnership of farmworker groups, businesses, and social justice organizations that works to improve working conditions and produce safe food through labor standards and training programs. The EFI works to promote accountability in labor and production practices by encouraging worker participation in Leadership Teams (LTs). These teams help implement and monitor labor standards, product safety, and environmental stewardship (Zoller et. al, 2020). Participating farms serve businesses like Costco and Whole Foods, which

have integrated fair labor principles into their international supply chains. To ensure adherence to the labor, food safety, and pest management principles of the program, these farms are audited by outside parties with feedback from the workforce (American Public Health Association, 2017). As described throughout this review, female migrant farmworkers disproportionately report anxiety and depression as a result of long hours, unsafe working conditions, low pay, and fear of retaliation in reporting complaints (Arcury et. al., 2014). EFI's framework works to disrupt these conditions and raise awareness about these chronically overlooked issues. In enforcing EFI's food safety and pest management standards, the organization works to address the intersectionality of negative environmental effects and hazardous working environments.

This multi-stakeholder and participatory approach helps to redistribute power and agency into the hands of workers. This strategy works to dismantle the power dynamic between employers and employees in the agricultural industry simultaneously combating worker marginalization while promoting more sustainable agricultural practices.

Agrotech to promote improved working conditions

Utilizing agrotechnologies to institute more sustainable approaches to agriculture not only works to preserve the environment but promotes the social protection of vulnerable populations like female farmworkers. This section describes Integrated pest management(IPM) as an approach to combat pesticide exposure and associated health risks among female farmworkers. When effectively adopted, this approach can address the intersectionality of equitable labor practices in a sustainable food chain.

Integrated pest management (IPM) has been identified as a means to increase agricultural profits, improve living conditions, and reduce risks of pesticide exposure. Integrated pest management is an environmental and socially conscious approach that works to identify pest and

site-specific acceptable pest levels, emphasizing control of pest populations rather than eradication. When pests populations are allowed to survive at an acceptable threshold, it lowers the probability of control resistance pests to provide the genetic basis for repopulating (Peshin & Dhawan, 2009). In addition, IPM combines strategies of crop sanitation, monitoring, mechanical controls, and responsible use of synthetic pesticides to reduce the reliance on and overuse of toxic pesticides. Integrating and prioritizing IPM practices in North Carolina's agriculture industry could prove to be beneficial for North Carolina and the United States on several fronts and throughout the entire agricultural production chain. These include reducing and ultimately replacing the use of synthetic pesticides, decreasing risk to human health, providing growers with a return on investment, and ensuring consumers have access to safe food. In promoting an integrated pest management system into North Carolina's agricultural policy design, crucial elements of society will benefit including its economy, its environment, and its labor force.

Digital Health Equity

- ***Increasing equitable access to telehealth resources***

Conclusion

Female migrant farmworkers are a particularly vulnerable demographic in North Carolina and the United States. Research and literature investigating their development outcomes in the agricultural industry are lacking. Their marginalization is further exacerbated by exploitative labor practices, and exposure to harmful pesticides. In promoting a sustainable food system, public policy must integrate just and equitable labor practices along with the goals of food safety, accessibility, environmental protection, and animal welfare. In order to do so, I recommend

prioritizing work organization for female farmworkers, integrating participatory and representative approaches, and utilizing agrotechnologies to promote sustainable agricultural practices.

References

American Public Health Association. (2017). Improving Working Conditions for U.S. Farmworkers and Food Production Workers. Retrieved January 18, 2023, from https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2018/01/18/improving-working-conditions

Arcury, T. A., Grzywacz, J. G., Chen, H., Mora, D. C., & Quandt, S. A. (2014). Work organization and health among immigrant women: Latina Manual Workers in North Carolina. *American Journal of Public Health, 104*(12), 2445-2452. doi:10.2105/ajph.2013.301587

Arcury, T. A., Laurienti, P. J., Talton, J. W., Chen, H., Howard, T. D., Barr, D. B., . . . Quandt, S. A. (2018). Pesticide urinary metabolites among Latina farmworkers and nonfarmworkers in North Carolina. *Journal of Occupational & Environmental Medicine, 60*(1). doi:10.1097/jom.0000000000001189

Castillo, F., Mora, A. M., Kayser, G. L., Vanos, J., Hyland, C., Yang, A. R., & Eskenazi, B. (2021). Environmental health threats to Latino migrant farmworkers. *Annual Review of Public Health, 42*(1), 257-276. doi:10.1146/annurev-publhealth-012420-105014

F. (2012). Farmworkers' vital contribution - farmworker advocacy network. Retrieved January 18, 2023, from https://ncfan.org/wp-content/uploads/2020/01/NC-Economy-2012.pdf

Horrigan, L., Lawrence, R. S., & Walker, P. (2002, May). How sustainable agriculture can address the environmental and human health harms of industrial agriculture. Retrieved January 18, 2023, from https://ehp.niehs.nih.gov/doi/epdf/10.1289/ehp.02110445

Jensen, A., & Thames, L. (2021). Fact sheet archives. Retrieved January 18, 2023, from https://ncfan.org/resource_categories/fact-sheet/

Kasner, E. J., Keralis, J. M., Mehler, L., Beckman, J., Bonnar-Prado, J., Lee, S., . . . Calvert, G. M. (2012). Gender differences in acute pesticide-related illnesses and injuries among farmworkers in the United States, 1998-2007. *American Journal of Industrial Medicine, 55*(7), 571-583. doi:10.1002/ajim.22052

Lambar, E. F., & Thomas, G. (2019). The health and well-being of North Carolina's farmworkers. Retrieved January 18, 2023, from https://ncfhp.ncdhhs.gov/wp-content/uploads/2020/03/The-Health-and-Well-being-of-NC-Farmworkers.pdf

N. (2022, August). Acute Pesticide-Related Illness and Injury in North Carolina, 2017–2021. Retrieved January 18, 2023, from https://epi.dph.ncdhhs.gov/oee/

Network, A. (n.d.). Take Charge of Your Health. Retrieved January 18, 2023, from https://f0c4c2e0632d8cbc8cf0-1ee2f12b5b447bf2ed4ab14451ea8912.ssl.cf2.rackcdn.com/agrisafe_b19d43b029c7f144232c265548fd4264.pdf

Peshin, R., & Dhawan, A. K. (Eds.). (2009). Integrated Pest Management: Innovation-Development process. *Springer, 1*. doi:10.1007/978-1-4020-8992-3

Stockdale, K. E. (2012). H-2A Migrant Agricultral Workers: Protected from Employer Exploitation on Paper, Not in Practice. Creighton Law Review, 46(4), 755-776.

Zoller, H., Strochlic, R., & Getz, C. (2020). Agricultural Workers' participation in certification as a mechanism for improving working conditions: The Equitable Food Initiative. *Journal of Applied Communication Research, 48*(6), 654-674. doi:10.1080/00909882.2020.1824075