

THE EFFECTS OF CHANGES IN NORTH AMERICAN AGRICULTURE ON HEALTH AND SAFETY ISSUES

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Abstract

Change has always been a feature of North American agriculture. The dominate changes that have occurred and their certain impact on agricultural health and safety are discussed.

Introduction

Although agricultural populations may not readily identify with Bob Dylan, he did place verse within the context of a musical setting and generate the following ditty: 'Come mothers and fathers throughout the land and don't criticize what you can't understand. Your sons and your daughters are beyond your command. Your old world is rapidly aging. Please get out of the new one if you can't lend a hand. For the times, they are changing' (Bob Dylan, 1964).

Change has always been a feature of the agricultural landscape in North America. Three dominate changes are certain to have an impact on human health populations working or employed within agricultural settings. These three changes are 1) a change in the overall production capacity of American farms, 2) a profound demographic shift within populations working or employed on American farms and ranches, and 3) profound change in public policy pertaining to the American food, fiber, and fuel supply situation.

Discussion

Across the last two decades the sale of the United States agricultural products has shifted in a significant manner toward large vertically integrated agricultural operations. In 1995 the top 3% (in size) of farms and ranches in the United States controlled approximately 45% of all agricultural production which moved into the food, fiber, or fuel marketplace. This change was driven by the enormous onrush of agricultural technological change, the existence of an inexpensive labor supply and a significant change in farm/rancher owner demographics. The adoption of new agricultural technologies has continued with almost no pause. It has hastened the emergence of agricultural operations which are both family and non-family owned and operated, but which possess common characteristics in terms of whole scale adoption of new technologies, new ways of organizing production capacity and new ways of moving that production

capacity to agricultural markets. These technologies include new management tools, new input technologies, new equipment, building structures and fixtures, and an emerging world food scenario in which the American agricultural producer plays an increasingly important role.

This change could not have been possible without access to a labor supply. This labor supply included both resident and non-resident migrant labor, enormous quantities of family (and child) labor, and the continued involvement of farm and ranch populations who have refused to retire at the age of 65 and who continue to maintain viable roles in production systems well into their 80's and 90's. This change was also propelled by the emergence of female owned and operated agricultural operations in the 1980's. For example, from 1982 through 1992 male operated farms declined by over 12%, while female owned and operated agricultural enterprises increased by a weighty 18%. Because many of these female owners are a "landed gentry," they are in a position to control a massive proportion of American's agricultural assets. They also contribute to the geriatrication of farm owner/operators who, at this juncture, are the oldest since record keeping on age of farm owner/operators began at the turn of the century.

Of significant interest in terms of the demographic shift has been the emergence of agricultural populations as a demographic minority, even in their individual resident counties. For example, within the state of Iowa farmers and ranchers are a demographic minority in 60 of Iowa's 90 plus counties, which in part is a reflection of the substantial increase in size of agricultural operations. Across the United States the average farm size in 1993 was approximately 475 acres, a significant increase over the average farm size in 1960 of approximately 300 acres.

Finally, in 1996 Congress passed the "Freedom to Farm Act" which insured that by the year 2002 Uncle Sam's role within American agriculture shall end. Now farmers/ranchers must manage "risk" without the aid of the federal government and must deploy mechanism that can ensure their economic and social survival. The impact of this policy change is wide-ranging and also involves local, federal, and state environmental agencies in farm and ranch decision making for the first time in this century.

Six person effects accrue from the changes documented above:

1. Concern for employee (worker) health status, given the evolving size of agricultural operations and their integrated complexity, the exposures which are experienced are likely to be varied and persist over substantial portions of an employees working life. Hence, the need for sustained attention upon employee health and safety with a particular need for disease prevention and health promotion initiatives, which are tailored for the agricultural worksite.

These interventions must entail more than an educational interface, given that change in employee behavior is unlikely to be sustained or effectual across an employee's working lifetime.

2. The young migrant worker on the American agricultural scene is quite likely to be male and to possess language capacity other than English. These young workers migrate across the United States and into Canada from several originating geographic locations including Asia, Central and South America and the greater Caribbean area. One of the more interesting demographic shifts in this worker population has been the emergence of migrant agricultural workers from portions of the Former Soviet Block. Many of these migrants are now employed in agricultural enterprises in the Pacific Northwest and the High Plains area of both the United States and Canada. These workers bring to the agricultural worksite latent health concerns and personal behaviors which may not contribute to near term improved health status. These workers, therefore, offer an important challenge for the agricultural worksite given that they are capable of contributing, in an enormous manner to the economic well being of agricultural enterprises in which they are employed and deserve access to efficacious disease prevention and health promotion initiatives.
3. The agricultural employee in today's agricultural enterprises may possess family relationships which include the presence of dependents. These dependents are often living and recreating in close proximity to the crops and other enterprises contained within the agricultural sector. The exposures may be only recreational or only lifestyle, but given the proximity to production agricultural worksites, these exposures may not be benign. Accordingly, it may be imperative to make other provisions in terms of daycare and lodging which place these dependent populations away from the agricultural worksite.
4. In some agricultural enterprises across North America the presence of young female employees is noteworthy. These enterprises might include some sectors of the cattle, swine, and poultry industries, and segments of the turf and nursery, and truck farming industries. Endocrine disruption is important from both reproductive and unregulated cell growth perspectives.

5. As the owner/operator segment of North American agriculture continues to age the overall health status of the aged worker could emerge as a significant agricultural health and safety factor. Research which has been underway for sometime documents that the aged worker in American agricultural worksites is at greater risk for injury resulting from slips and falls, as well as diminished decision making at times of stress and considerable physical exertion. The older worker phenomenon will require some restructuring of the agricultural worksite in order to accommodate these physiological changes.
6. Because American agriculture has now grown reliant upon an available workforce which may not deploy itself in agricultural operations for an occupational lifetime, a sustained need has emerged for employee training. This training will have to anticipate the types of technological and demographic changes which have been identified and shall have to address current and future bilingual propensity of the agricultural workforce. The bilingual requirements will be far more numerous than merely English and Spanish and shall have to address Asian, European, and African linguistic features.

These person effects have emerged given the sustained and rapid pace of change within the agricultural sector. However, this is not the first time that this sector has faced significant upheaval. Since the first Europeans arrived on this continent, and indeed well before their arrival, agrarian populations across North America had demonstrated capable resiliency when responding to environmental, climatic, and demographic change. The resiliency to adapt to these changes is at hand. Now the will must be marshaled to move towards a stable agricultural workforce, which possesses a health status that ensures North American populations are safe and stable, and have food, fiber, and fuel supplies well into the 21st century.