Restructuring, Environmentalism and the Problem of Farm Safety

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Abstract

This article examines the health and safety perceptions and practices of conventional, no till and organic grain farmers in Ontario Canada. Based on 12 intensive case studies, the analysis examines whether different restructuring and environmental orientations are related to different approaches to occupational health and safety. The analysis suggests that although there is a substantial level of awareness and knowledge of health and safety hazards among all the farmers, significant differences in practices are linked in complex and somewhat unexpected ways to the production and environmental approaches of the farmers. In particular, while economic constraints and rationales provide an overriding basis for risk-taking across all the farmers, the level and form that this takes is shaped by farmer orientations to farm management and the environment. The article also links both the common patterns and variations in farmer practices to corporate and government discourses on the prevention of environmental and occupational injuries, suggesting that mixed messages undermine any effort to intensify farmer commitment to safety.

Over the last 20 years, there has been an increasing awareness of the occupational health and safety (OHS) hazards in farming (Ontario Task Force on Health and Safety in Agriculture 1985; Sandbom 1986; Durey and Lower 2004; Halfacre-Hitchcock et al. 2006). In Canada, as elsewhere, this has been reflected in efforts to develop new legislation and regulations, educational programmes, voluntary farm environmental and safety audit programmes and safety media campaigns (Ontario Ministry of Labour 1991; Ontario Farm Safety Association 1993; Canadian Agriculture Safety Association 2000). While safety issues were gaining increasing attention, farmers were also experiencing major pressures to restructure their operations in response to increasing global competition, rising input and land costs, and low food prices at the farm gate (Goodman and Redclift 1991; Winson 1992; Lind 1995). Within the context of neoliberalism and free trade, Canadian and provincial governments have been seeking to scale back and withdraw from farm support programmes, thus further intensifying the push on farmers to become more cost efficient and flexible (Agriculture Canada 1989; Agricultural Odyssey Group 2002). To add to this mix, a concurrent focus on farm environmental impacts has also intensified over this
same period, with particular reference to concerns about farm chemical pollution and soil degradation (Agricultural Groups Concerned about Resources [AGCare] 1992a, 1992b, 2007). In the face of mounting public pressure and production costs associated with environmental damage, farmers were encouraged through legislation, voluntary programmes and media campaigns to adopt more sustainable farming practices (Crosson 1991; Hall, 1998a, 1998b; MacRae et al. 1993).

While there has been a virtual explosion of research on farm safety practices, very little of this research has been directed at understanding the mediating and discursive influences of farm restructuring and environmentalism on risk perceptions and safety practices. This article reports on an exploratory study of 12 cases studies of conventional tillage, no till and organic farming, aimed at understanding the role that restructuring and environmental discourses and pressures play in shaping safety orientations and behaviour at the points of farm production.

The farm safety literature

Most examinations of farm safety practices have tended to focus on the individual characteristics of farmers or farm workers – their perceptions, their attitudes, their knowledge, their cultural beliefs, their socioeconomic situation, their employment/ownership status and so on (Arcury et al. 2002; Rao et al. 2004; Halfacre-Hitchcock et al., 2006). These factors are typically conceptualised as mediating or moderating the effects of safety education, regulations and other programmes aimed at informing and transforming farmer behaviour (Cassell and Day 1998; Siez and Downey 2001; Stave et al. 2007). Some studies have documented inadequate training and knowledge as persistent problems, especially among migrant farm workers (Murphey-Greene and Leip 2002; Espluga Trenc 2004; Halfacre-Hitchcock et al. 2006), but other research suggests that experienced farmers and farm workers have a basic knowledge base about the most common health and safety hazards and preventive measures. The consistent problem identified in the literature seems to be the application and interpretation of this knowledge in regular daily farming practices (Halfacre-Hitchcock et al. 2006).

With respect to farm workers, the two significant factors found to play important roles in mediating the application of safety knowledge are the workers’ socioeconomic situation and their perceived control over their work. This reflects similar findings in the broader OHS literature (Walters and Haines, 1988; Glasbeek and Tucker 1999; Landbergis et al. 1999) but it is often pointed out that farm workers, again migrant workers in particular, are much more likely to be in highly tenuous positions, with weak organisational representation, limited regulative protection and limited citizenship rights (Grieshop et al. 1996; Arcury et al. 2002; Arcury et al. 2005; Halfacre-Hitchcock et al. 2006). As might be expected, studies of farmers or growers tend to indicate a greater degree of perceived control and responsibility, and accordingly, are more likely to utilise their knowledge of safe practices (Vaughn 1993; Arcury and Quandt 1998).

On the other hand, some studies have recognised that farmers also often face various financial, material and social constraints, sometimes differentially and situationally, relating to their economic circumstances, dependence on chemicals, market
shifts, technology access, weather pressures, soil and weed conditions, community cultural standards and so on, which may have a similar influence in shaping their knowledge, control and risk perceptions and actual safety practices (Cassell and Day 1998; Espluga Trenc 2004). However, most analyses still focus on the individual situations of the farmer without acknowledging the larger context that shapes farmer perceptions, constraints and strategies. Among other things, this means that while it is acknowledged that there are broad social forces and discourses directly aimed at influencing farm safety (such as safety legislation, training and communications programmes), little or no attention is given to other concurrent or competing discourses that may also be shaping risk-related knowledge and practices (Tucker and Napier 1998).

For example, while considerable attention is given to the financial situations of the individual farmers, those situations, and the various ways that farmers respond, are rarely contextualised within an analysis of neoliberalism and globalisation, and their accompanying financial and discursive demands for increased individual responsibility, flexibility, productivity and efficiency. This is a significant oversight when one considers the large body of health and safety research on the negative health and safety effects of restructuring in other industries, where most of the evidence points to increased risks and pressures to take risks (Landsbergis et al. 1999; Godard 2001). Moreover, reflecting the usual reliance on survey data, most studies portray financial pressures in largely quantitative terms, recognising that some farmers have more resources and therefore less restraint than others, but giving us little sense of the strategic and discursive orientations to the business of farming that farmers take within these different situations or of how these orientations influence their risk perception and behaviour.

Similarly, researchers have paid little or no attention to the OHS impact of public and government demands for more environmentally sensitive farming practices. While it might be expected that environmental concerns and prescribed eco-friendly practices about pesticides and other chemicals may correspond to increased farmer health concerns and awareness, there are many different environmental issues and streams of thought in the farm environmental area with different implications for the various health and safety issues. For example, a small but growing number of farmers in Ontario and elsewhere has moved away entirely from chemical production to organic farming (Hall and Mogyorody 2001), while many others have adopted less exclusionary approaches to the pesticide and fertilizer issues, including integrated pest management (IPM) and no till (Macrae et al. 1993; Lighthall 1995; Hall 1998a). Conventional and alternative farmers tend to take very different positions on the level of risk associated with pesticide use (Beus and Dunlap 1994; Toma and Mathijs 2006) but there are other health and safety issues which come into play within these different approaches, including variations in machinery use, dust exposure, time pressures and work intensity. Moreover, as research demonstrates, there are substantial variations in farm orientations and methods within these different areas, including significant differences in the organic community with implications for safety practices, such as differential exposure to physical labour and mechanised equipment (Lighthall 1995 Hall and Mogyordy 2001; Guthman 2004).
The study

With these issues in mind, this article compares the health and safety perceptions and practices of 12 conventional, no-till and organic grain and mixed grain/livestock farmers in south-western Ontario. Both male and female spouses were interviewed at length on environmental and OHS issues. The health and safety questions were aimed at documenting their accident and disease histories, their awareness and knowledge of various farm hazards, their safety related procedures and their accounts and explanations of specific events and risk-taking actions. Environmental questions were focused on understanding their use of various soil conservation methods and chemical procedures. The interviews also included questions about their business and production approaches.

Each case study was then followed through a single growing season using participative observation. A minimum of five working days was spent at each farm during the planting, spraying and harvesting periods. A main objective here was to observe the farmers’ safety and environmental-related practices and to ask them to explain their actions in those contexts. Case studies were selected to reflect a range of farm sizes (100 acres to 1,000 acres), age levels (28 to 55 years of age) and farming methods (organic grain/livestock farms, no-till grain farms and conventional tillage grain farms). The case studies were identified during an 8-month period of observations of the activities of local and provincial farm organisations and through interviews with various organisation representatives (such as the Ontario Farm Safety Association, the Ontario Farm Association (OFA), the National Union of Farmers, the Soil and Crop Improvement Association, Canadian Organic Growers and Ecological Farmers of Ontario).

The article begins by outlining the different ways in which the case studies understand and approach economic and production demands. What the farmers know and think about the hazards on their farms is then examined, along with how they use this knowledge to make sense of the ‘need’ to control or take certain risks, focusing in particular on chemical-related hazards. The discursive bases of farm safety practices in the different case studies are then compared. Knowledge and the use of certain safety procedures, their decisions to use particular chemicals, and their efforts to organise or design their labour process with health and safety in mind are all examined with reference to their perception and understanding of current economic, health, and environmental pressures and strategies for addressing these pressures.

Farming orientations and strategies: responding to the economic and environmental crises

Conventional farmers

Eight of the 12 farmers were conventional grain farmers but five of the eight were also using no-till farming practices on significant amounts of their acreage. The three other conventional farmers were considering a shift to no-till farming and were involved in efforts to reduce their tillage but had made relatively few changes at the
time of the study. Two of the grain farm operators (CS1 and CS2) were large, in the neighbourhood of 1,000 to 1,400 acres, although most of their land was rented or share-cropped. The remaining conventional farmers (CS4 to CS8), two of whom had full time off-farm jobs (CS6 and CS8), had a smaller or more moderate acreage varying from 50 to 500 acres.

Three of the conventional farmers (CS 1, CS2 and CS5) were active in the local soil conservation club and the soil and crop improvement association, participating in research programmes testing a variety of soil conservation and cropping practices and in promoting voluntary programmes such as the environmental farm plan (EFP) (AGCare 1992b, 2001). The farmers reported that the economic advantage of no-till was their main motivation for making the shift in all cases, and indeed, no till was reported by the farmers to be a central part of their strategy to make their farms more efficient and profitable:

I was a little leery about this [no till] at first but when I looked at the numbers I could see the [economic] advantages of this. (CS2)

This was quite consistent with the government, corporate and farm organisation discourses promoting no till and conservation tillage as solutions to both soil conservation and financial problems (see AGCare 1992a, 2001; Standing Committee on Agriculture 1992):

With a no till system, machinery capital costs are reduced substantially.... No till eliminates the need for tillage equipment. No till also makes ‘cents’ with reduced labour requirements, less fuel usage and fewer trips over the field, farmers come out money ahead. With a no till system, fewer are needed to farm the same number of acres [which] allows farmers to farm more acres (Soil and Water Enhancement Programme 1993, p. 3)

Four of the conventional farmers (CS1, CS2, CS 5 and CS7) also expressed major concerns about soil erosion, compaction and other soil conservation issues as important motivations for their efforts to alter their tillage practices. Only one of the eight conventional farms expressed significant concerns about the environmental effects of no till, while all the others contested the criticisms that it involved a greater use of pesticides, or argued that the pesticides were relatively benign since they were herbicides rather than insecticides.

All the conventional farmers expressed significant concerns about low prices and other market pressures. However the four largest conventional farms (CS1 to CS4) were quite confident of their ability to survive these pressures. In two of the larger farm cases (CS1 to CS2), their profit strategies included the intensive management of purchasing and marketing decisions involving a heavy use of computers and communication networks, the explicit use of ‘lean production’ principles with reference to reducing input costs and labour steps and the adoption of flexible specialisation production aimed at diversifying production to meet shifting market and value-added demands (for example, producing different varieties of soybeans for specialty markets). Responding to shifting global markets was a key part of their strategy.

For these farmers, no-till farming was an integral part of their business strategy since it allowed them to reduce their labour steps (the plowing and cultivating) and their energy costs (Hall 1998b). All aspects of production were carefully planned and
monitored in these operations with an emphasis on maximising efficiencies rather than production in itself. They were also heavily capitalised farms with moderate to low debt loads. They were operating the latest machinery which was used and partially ‘paid for’ through extensive amounts of contract planting and spraying work for other farmers. Both these farmers were among the earliest farm in the region to employ the EFP audit.

Two other conventional farms were full-time 160–200 ha operations and all the land was owned. While no-till was under consideration in a small test plot in both cases, these farmers had made very few recent innovations in their production and management strategies and were not involved at all in the soil conservation groups or movement. At the time of the study, neither had used the EFP audit programme. They did not use computers and had made relatively few changes in their production methods and in what they were producing, although both did install additional storage bins to allow them to hold onto more grain after harvest. The female farmer in one of these families, who had been exceptionally active in farm production activities, took on a part-time job while the study was being done, but there were no other indications that they were under significant financial pressures to innovate. In the other case, the female spouse had been working full-time in a professional health job for some time and was not involved in the farm, but her income was not used to support the farm. Both farms were prosperous, with no apparent or reported financial problems. Newer equipment and machinery were used in both cases.

Three of the conventional farmers were quite young (CS5 to CS7), in their late twenties to early thirties, and expressed much more concern about their future as farmers than the older farmers. Although they were independent operators, all three were linked in some way to their parents’ farm in terms of shared land, machinery or production work. Like the larger farmers, they relied heavily on rented land, although this was a much smaller acreage in the 80–120 ha range. There was an emphasis on trying to reduce costs; often through the use of no-till or reduced tillage methods, although one of the three younger farmers was not using no-till, principally because he ‘couldn’t afford’ to purchase the no-till equipment. Unable to use no-till, the one younger farmer (CS5) was attempting to reduce his chemical costs through band spraying and hand and mechanical weeding. He also paid careful attention to purchase decisions and relied on some of his parents’ equipment to reduce his costs. On the whole, his equipment and machinery were older and he was carrying a moderate debt load.

The other two younger farmers (CS5 and CS6) had full-time off-farm jobs that made it possible to get the loans for their equipment. They also owned more of the land that they were farming. No-till was particularly attractive to them because of the reduced labour time, although one of the two (CS5) was heavily involved in the conservation organisations and expressed a stronger concern about soil conservation issues. These two farmers also sought to make their farms more profitable through diversification of their crops, one opting for tomatoes and wine grapes, the other for sunflowers, but both were not nearly as conscious about cost controls as the other younger farmer (CS7) or the larger-scale farmers (CS1 and CS2). One in particular had accumulated considerable debt in order to purchase new machinery for no-till, while the other had done so in order to purchase a tomato picking machine. Two of the three
younger farmers (CS5 and CS7) had conducted the EFP audit on their farms, but both acknowledged that their main inducement had been eligibility for the infrastructural money arising from their participation.

The off-farm jobs (CS5 and CS6), and in one case (CS7) the off-farm job of the female spouse, and parental support were critical buffers in the efforts of these farmers to develop these operations, but their survival was much more tenuous than the four more established conventional operators (CS1 to CS4). All three of the younger farmers reported significant financial pressures despite these buffers and both the farmers working off-farm wanted to work full-time on their farms but were unable to do so for financial reasons. While these three younger farmers were growth and business-oriented, their management and marketing activities were not nearly as sophisticated and intensive as that of the larger farmers (CS1 and 2).

The remaining conventional farmer (CS8) had a very stable farm operation with few significant innovations reported in production, marketing, or management approaches over the previous five years. It was a small 40 ha farm where the farmer had been a full-time off-farm auto worker since he was a young man. Now in his fifties, he continued to farm principally because he liked doing it, although he often contracted out key work such as planting or harvesting because of competing job demands. Although aware of environmental issues, he was not active in any organisations and relied for much of his knowledge about environmental issues largely on one farmer whom he hired to do contract work.

Organic farmers

Two of the 12 farms (CS9 and CS10) were fully organic livestock grain farms and two others (CS11 and CS12), one grain and one a hog/grain operation, were in the early stages of transition to organic farming. All four organic farmers explained their decision to move to organic as a rejection of conventional agriculture and its profit and growth orientation, although one of these farmers was actually quite entrepreneurial and growth oriented. This farmer (CS9) was seeking to rebuild and expand his 200 ha farm operation through a knowledge-intensive management and production system and the aggressive marketing of organic production nationally and internationally. Here the organic emphasis on crop diversity was reconstructed as a diversification business strategy as he moved quite aggressively to establish markets in the USA and Europe for a new range of crops. In contrast, the farmer in the other fully organic 100 ha operation (CS10) was not growth or business oriented, opting for small-scale, low-cost, mixed animal/grain production aimed at local markets and selling largely at the farm gate (Hall and Mogyorody 2002).

The other two transitional farms (CS11, CS12) fell somewhere in between these two extremes in terms of their orientation. Although in both cases there was a clear ideological commitment to a sustainable agricultural model, these farmers were also producing and marketing in the conventional system. The two farms in transition were limited by the fact that their fathers owned much of the land and were not supportive of organic farming. Regardless of this, neither farmer was intending to move to the CS10 kind of small-scale local operation, planning to continue with relatively specialised grain or grain hog operations, and hoping to tie into both local...
and non-local markets. However, in contrast to CS9, their goals were defined much more by their environmental interests than business and expansion goals. In the case of CS9, the shift to organic was much more clearly an integral part of his effort to deal with the effects of economic restructuring and some personal financial losses. His project was much more to ‘build an organic business’ and in that sense, his orientation was much closer to what some analysts have referred to as conventional organic farmers (Hall and Mogyorody 2001; Guthman 2004).

Three of the organic farmers (CS9 to CS11) reported significant financial pressures, while one (CS12) was buffered substantially by the fact that his father was one of the largest landowners in the area (2,000 acres). The poorer financial situations were also evident in the equipment and machinery used by three of the organic farmers. In these two cases (CS10 and CS11), the move to organic was understood not strictly in environmental terms, it was also about ‘being able to farm the way they wanted’ within the current economic environment. They had an image of farm life and farm work which they felt they could achieve through the shift to organic:

I don’t like chemicals but it’s the work too. I wouldn’t do this [organic] if I didn’t like it. It’s more physical but I like that (CS10).

In the case of the wealthier farmer (CS12), economic considerations played a minor role in his decision to move to organic. He was heavily committed to sustainability strictly in terms of its environmental aspects, perhaps more so than any of the other farmers. The other three organic farmers were members of the National Farmers Union (NFU), a more progressive farm group with limited membership in eastern Canada. The NFU’s formal policies aggressively challenge multinational agribusiness control, globalisation and free market policies (NFU 1991, 2005), in stark contrast to the main farm organisation in Ontario, the Ontario Federation of Agriculture (OFA) of which CS12 and all the other conventional farmers were members (OFA, 1995). The NFU actively promotes organic farming as a viable alternative on environmental and economic grounds, again as opposed to their very conventional pro-chemical stance of the OFA. Although one of the organic farmers refused to submit to the EFP audit, in part because it was being promoted by the OFA, the other organic grower did so relatively early on, but, again, this was mainly in order to be eligible for government funding for some things they had already identified as infrastructural needs (such as assistance with planting windbreaks and manure storage facilities).

**Farmers’ knowledge and judgement of work hazards**

Both male and female farmers in this study were generally aware of most farming hazards and had a basic knowledge of how to control the risks. They tended to list the same basic problems when asked to do so, including chemical exposures, grain dust, tractor and power take off (PTO) machinery, accidents, silo hazards, sun damage, noise, falls and road hazards. Perhaps reflecting the fact that all the male farmers had taken the provincially mandated pesticide safety course within the last two years (Ontario Ministry of Agriculture and Food 1993), they all knew the standard procedures for handling and spraying pesticides – that spraying should not be conducted.
on windy days, that they should wear respirators, rubber clothes, boots and gloves and
that they should store and mix chemicals in protected areas away from groundwater
sources and surface drainways. Although only one of the female spouses had taken
the course, the six women who were involved in their farm operations also knew the
basic safeguards. Both men and women also tended to know about the need to wear
dust masks in and around grain bins and when loading hay, and the potential for
suffocation in grain bins. Although there were no other specific safety courses which
the farmers had taken in the last five years, they were also quite good at listing the
standard safety procedures for operating and working on machinery such as com-
bines, tractors or PTOs.

All the farmers reported that they were far more aware of health and safety
hazards than even five years previously and had changed their health and safety
practices in significant ways. Older farmers in particular recalled the days, as recent
as the 1980s, when they would mix chemicals with bare hands and let their chil-
dren ride with them on open tractors, but this was behaviour that they now clearly
recognised as unacceptable. As one put it, ‘we just didn’t know then’. Most reported
that they had learned these things over the years from personal experience, at semi-
nars at farm meetings, by reading equipment manuals and news articles in the
farm media and again the mandatory pesticide safety course. The prevailing view
was that manufacturers and the government were now providing farmers with the
information and knowledge they needed to farm safely, and equipped with this
information, it was their responsibility to protect themselves and others working on
the farm.

This orientation was also reflected in formal institutional communications. Gov-
ernments, farm organisations, farm safety organisations and corporate discourses all
emphasise the message that everything that can be done has been done to give
farmers the knowledge and technologies they require to protect themselves and their
families. The rest is up to them:

Even when everything possible has been done, responsibility for living long on the farm will
still rest on the broad shoulders of the men and women who work the land. Ultimately, the
farmers themselves must learn to manage people in their care as carefully as they manage
their crops and land. (Canadian Agricultural Safety Association 2000, p. 24).

However, consistent with other studies (Rao et al. 2004), conventional farmers tended
to downgrade certain hazards to their own health, in particular pesticides, and all the
farmers tended to underrate the amount of injuries and fatalities in farming. When
asked directly if farming was as dangerous or more dangerous than mining or
construction work in terms of fatalities and injuries, all but one farmer (CS11) stated
categorically that farming was much less dangerous. This was despite the fact that
the Ontario Farm Safety Association had an active education campaign during the
1990s aimed at farmers, which rated farming as the most dangerous occupation in
the province (Ontario Farm Safety Association 1993, 2000). Although all agreed that
some chemicals had been bad for the environment and may have represented a risk
to farmers’ health in the past, many tended to assume that the risk had been exag-
gerated or had substantially reduced over the years through research and changing
practices and equipment (Rao et al. 2004):
I used to do some crazy things, spraying without any protection at all. But today’s chemicals are different and the [spraying] equipment in much better, I’m in an enclosed cabin. So it doesn’t worry me now.

For the most part, then, the common view was that they knew the hazards and controlled them through being careful and using commonsense. They all generally viewed themselves as safety oriented in their actions and as having control over the risks in their work:

Farmers know what they are doing. We’ve made a lot of changes in how we do things. The [mandatory government] pesticide course may be a bit of a joke to some people, but it tells you what you need to know.

Again, this self-construction of farmer knowledge, responsibility and control is quite consistent with government, corporate and farm organisation discourses on safety that insist that farmers have the tools and motivation necessary to prevent farm accidents and exposure to harmful pesticides. As observed in several farm organisation meetings (such as local Soil and Crop Improvement Association meetings and regional OFA federation meetings), there is also an important subtext that health and environmental hazards have been exaggerated by the media and the public. Not surprisingly, corporate representatives at these meetings also often reinforce a message which minimises the health or environmental risk:

Environmental groups are too quick to criticise farm chemicals without all the facts. This stuff is not factual that they talk about. It’s intentionally done to scare people. (Invited speaker, soil and crop improvement meeting)

In Ontario these arguments were used quite effectively throughout the 1990s to resist calls to end the exclusion of agriculture from OHS legislation and the demand for tougher pesticide regulations. Although farm workers were recently included under the Ontario Occupational Health and Safety Act, farm owners and their unsalaried family members continue to be excluded, even though most farm injuries and fatalities in Ontario are to farm owners and their families (Ontario Ministry of Labour 2006; Canada Safety Council 2007). A heavy emphasis on voluntary programmes has also been sustained as the foundation of government policy on farm pesticide use (Auditor General of Canada 2003).

With respect to farm safety practices, most of the farmers had not made health and safety considerations a priority in their day-to-day planning or purchase decisions. For example, when asked if any equipment or machinery was bought primarily for health or safety reasons, most were generally unable to cite a single purchase made with health or safety in mind. Sometimes health and safety were recognised considerations but they were almost always secondary:

I like that this [tractor] cab has a charcoal filter in the air conditioning but I can’t say it was the main reason I bought it.

Moreover, despite knowing most of the recommended procedures and protections, there were many safety practices which farmers followed irregularly or not at all. For example, while all the farmers knew the procedures for mixing and loading pesticides for spraying, few followed all the basic recommended safeguards. Most of the farmers
did not use proper safety clothes or breathing apparatus and routinely threw their
clothes in the household washing machine (for other procedures, see Ontario Min-
istry of Agriculture and Food, Grower pesticide safety course manual 1993, pp. 117–147).
All had read the label when they first began using a particular chemical, but only three
reported any use of the material safety data sheet, provided through a government
regulated information system, which contains more detailed toxicological informa-
tion. They were mainly careful with those chemicals which had produced a personal
reaction of some sort in the past (for example, irritation to the skin or some other part
of the body or nausea) or if they had heard stories from other farmers about such
reactions. The common explanation for failing to follow the standard procedures for
handling chemicals tended to revolve around the belief that most of the chemicals
which they used today were relatively benign, although time pressures and force of
habit were often cited as underlying factors.

Farmers also acknowledged that they still took some other specific safety and health
risks that they shouldn’t be taking or ‘would rather not take’. For example, all the
farmers reported that they often worked very long hours and sometimes in the dark
during harvest and planting, despite their common understanding that accidents were
more likely in these situations. Moreover, while all the farmers acknowledged that
driving on the road with loaded wagons was ‘dangerous’, only a few of the farmers had
ever made arrangements to truck their crops to market or their storage bins, despite the
fact that some of these farmers were farming as much as 25 km from the home farm.
Economic considerations were their usual explanation for this: ‘I have to do with what
I got right now’ or ‘trucks are too expensive to rent on a regular basis’. However, there
were also other examples of glaring inconsistencies between knowledge and practice
which farmers acknowledged had little to do with economic considerations. For
example, they were all aware of the sun, dust and hearing hazards, but few routinely
wore sun protection, dust masks or hearing protection. Again, some referred to habit
or fatalism as a basis for their behaviour, while others simply shrugged and were unable
to offer an explanation. In some situations, it was evident that they had limited sense of
the likelihood of an accident and/or the likelihood of a serious injury or disease
occurring (Rao et al. 2004), and as such, these were not things that they worried or
thought about much unless they had an accident or close call, or perceived a health
effect or knew of someone else who had.

Differences in health and safety practices related to the farmers’
financial situations

Equipped with some sense of the broad tendencies in farmers’ views and practices,
the question that remains is whether there are any differences in health and safety
practices that are related to the farmers’ financial situations, their management
orientations and production strategies and their environmental orientations. The
task of this section is to determine if risk perception and behaviour are tied to the
way in which farmers differentially understand and approach the restructuring and
environmental demands emerging within the current economic and regulatory
context.
The managerialist approach

The two largest farm operators (CS1 and CS2) had more explicit and formal approaches to health and safety than most of the other farm operators, exhibiting better knowledge of manufacturers' instructions and government or safety organisation standards. More importantly, they had a certain sense of approaching health and safety as a formal planning or organisational issue. Much in the same way that they approached farm environmental issues, they saw health and safety as matters of efficiency and profitable management. At the same time, they had also adopted the idea that health and safety were best viewed as rational questions of cost and benefit:

I don’t use ammonia nitrate any more. You get a mouthful of that vapour and it can knock you right out. There is no reason to put yourself at risk for pennies you save – it’s not worth it. I weight risk against the cost – it’s not a formula or anything but it’s how I judge what is safe. I look at the formula of the chemical, what I have to do to mix it, how much exposure I get, what handling is involved, and then at cost and what I get from using it.

Given their close attention to cost and productivity issues within their orientation to efficiency and lean production, they had well-established rationalisations for decisions which often related to certain standard procedures or routines, but health and safety compromises were often built into these procedures and rationalisations and were rarely conceptualised as significant health or safety risks. Thus, although they were both more secure financially than any of the other farmers, the economics of purchase and organisational decisions were more clearly paramount in their decisions.

On the other hand, their managerialist approach meant that these farmers were less likely to take unplanned on the spot risks than the other farmers. This was partly because they were not faced with these choices as often, given that their newer, well-maintained equipment tended to perform as expected without as many breakdowns as the more poorly equipped farmers (Cassell and Day 1998), but it was also a function of their careful attention to production planning and the explicit integration of health and safety objectives in their planning. Nevertheless, both of these farmers reported that they felt 'driven' to get the work done, although one felt he was more able to slow down in the last couple of years, as he had achieved most of his business goals. The two also agreed that no-till had greatly reduced their time pressures. However, the ever-increasing size of their operations along with their contract work, represented a significant workload, which meant that these farmers, despite all the planning and calculations, tended to work long hours, often to the point of exhaustion.

In addition, these two farmers showed very little uncertainty about their knowledge regarding the safety of equipment or chemicals. They were confident that their use of the label instructions and the basic procedures protected them, and had perhaps the strongest conviction of all in this study that farmers controlled and were responsible for their own occupational accidents or health problems:

We don’t need more regulations. I know what I have to do to make this farm work, and getting hurt is not something I can afford. I prevent accidents by being as efficient and up to date as I can manage. It just makes sense to do it. (CS2)

Their commitment to no till farming as a business strategy also deepened their dependency on chemicals and, perhaps reflecting this commitment, they tended to
express complete confidence that their management strategies and up-to-date production technologies presented minimal risk. They both firmly rejected organic farming as uneconomic and impractical. As one put it, ‘organic won’t pay the bills’. Although neither had yet moved to IPM, they saw value in attempting to reduce pesticide use through programmes like IPM. As noted, they were both avid supporters and early adopters of the EFP and used the results to make a number of changes in their farm and farm practices.

The commonsense approach

The two more established moderate-sized farms (CS3 and CS4) had not formally integrated health and safety ideas into their thinking or operations nearly to the level of the first two case studies. Although both expressed concerns about environmental and health effects, they did not think about health and safety considerations as integral factors in their planning or organisational decisions. This did not mean that they ignored health or safety issues entirely, but that they tended not to think of them as integral to their business or production planning. Health and safety was understood more as simple matter of commonsense and personal knowledge than as an aspect of formal farm management:

I’m more aware of things now, so I take care. I use gloves when I’m mixing and handling; I tend not to spray on windy days – that sort of thing. I don’t pay too much attention to toxicology of chemicals I just look for something that will work. I’m not too concerned about the health effects on me but more concerned about others.

Moreover, CS3 and CS4 were more skeptical about the manufacturer and government claims of safety, and in other ways, were a little less confident that the previously described participants in their own knowledge of these hazards. While their uncertainty about the safety of the chemicals was a clear feature of these farmers’ attitudes, this too failed to translate necessarily into more care in their handling practices. One of the two farmers insisted, ‘I’m polluted, whatever damage was going to be done had been done’, through having handled much stronger chemicals in the past, so, as he put it, ‘I don’t worry about the health effects unless my kids are working with me’. The other showed more care and consistency in his handling practices but again these were practices informed more by commonsense than by clear attention to the recommended practices or detailed label instructions. What this also meant, however, was a greater tendency to make risk-related decisions in a spontaneous manner:

I used anhydrous ammonia (fertilizer) for the first time this year. I didn’t use it before because I thought it was too dangerous.

[Q. Why did you do that?]

Cost was the thing. I figure it saved me $15 an acre and I just decided on the spot to do it.

These farmers also reported high levels of stress associated with their work levels and recognised that they often took safety risks by working themselves too hard:

I get over-tired and stressed when I get behind in work. I get really worked up when I get behind, more so than anything else ... and push myself to the limit.
While they were aware and concerned about both health and environmental issues, there were few indications that either of these farmers were making the discursive connections between safety, environmental and restructuring issues. Thus, unlike CS1 and CS2, both these farmers seemed to be relatively untouched by the dominant farm environmental, safety and restructuring discourses preaching the integration of these issues within a comprehensive management approach. Perhaps more to the point, they did not accept the claim that environmental, safety and financial pressures required comprehensive changes in their farming organisation or practices. For them, being a safety and environmentally responsible farmer meant being more conscious and careful about how they farm and how they handle and spray chemicals for the sole purpose of preventing harm, but safety and environmental practices were not seen as integral to overall farm profitability. Reflecting this orientation, neither of these farmers was active in any of the soil conservation or farm environmental groups and neither had implemented the environmental farm plan, despite government offers of funding for farmers who participated.

**Taking chances**

As might be expected, the three younger farmers (CS5 to CS7), whose financial situations were much more tenuous than CS1 to CS4, were more likely to report economic pressures to take or accept risks (Cassell and Day 1998). They also identified more circumstances or situations in which equipment limitations or financial pressures ‘forced’ them to take chances, including working late and in the dark, rushing and cutting corners when mixing and loading chemicals, working with unsafe equipment and working without safety ropes in high areas. However, one of these farmers (CS7) understood these circumstances as having made him increasingly conscious of health and safety issues as formal problems which needed special attention. This had encouraged him to get actively involved in farm safety. He was the only farmer in the study who was involved directly in the local chapter of the Ontario Farm Safety Association and the only one to rate OHS as a more important issue than environmental problems.

As a result, he was much more rigorous in following the standard procedures for handling and spraying pesticides and he was the only farmer, other than CS1 and CS2, who had explicitly gone through the organisation of his work and his operation to identify potential hazards. He also consciously attempted to organise his work to limit the need to work longer hours during the heavy production periods. He was also the only farmer to credit his health and safety approach to his father who had a farm nearby – who, he claimed, having ‘picked it up’ working in an auto plant from which he had recently retired, had drilled it into him.

Perhaps even more so than the other two younger farmers, CS7 was faced with many more problems, given his older equipment and his limited resources. In relying on conventional plowing, and cultivation, and physical weeding, he also had a heavy workload, so he was still dealing with more circumstances in which he had to balance workload and time considerations, and where he frequently decided to accept or take certain risks for economic reasons. Although he was not involved in any conservation programmes or chemical reduction programmes, he was very conscious of soil
degradation and chemical pollution issues. As he explained it, this awareness of environmental issues had helped to push him to look at health and safety as an important issue which he needed to address through planning and organisation. However, unlike CS1 and CS2, and indeed, unlike any of the other farmers, his approach to health and safety planning was more consistent, creative and active, with little or no reference to efficiency or cost goals. He did these things because he wanted to protect himself and his family and he tended to see his health and environmental precautions as necessary or worthwhile economic costs to the farm.

**The minimalist approach**

The other younger farmers (CS5 and CS6), both with somewhat better financial situations because they had off-farm jobs, had the added problem of time constraints. They had also increased their workload with strategies to diversify and expand into various different crops, which meant using different chemicals and a broader range of equipment and labour processes. However, they demonstrated less concern for health and safety, which was also reflected in a more minimalist approach to safety procedures, especially in relation to chemicals. Neither of these farmers had formally integrated farm health and safety into their planning or thinking, but what separated these two farmers from each other was that one (CS5) was much more integrated into the more conservative mainstream farming organisations, particularly as an active member of the local farm soil conservation groups. As such, he was much more active in various environmental innovations and projects including an early user of the EFP on his farm. Like CS1 and CS2, who were also active members of these groups, he thought of conservation and environmental practices largely in business terms and was not overly concerned about pesticide or fertilizer pollution. In fact, he embraced the majority conventional view that the occupational and environmental hazards of farming had been exaggerated and accepted with complete confidence manufacturer’s claims that chemicals were safe to use.

Another farmer (CS6), and to a lesser extent the other younger farmer (CS7), were much more critical of the government and the major farm organisations such as the OFA and Soil and Crop Improvement Association, and tended to mistrust many of their initiatives including the EFP. They saw themselves as struggling to build their business against a large farmer establishment, multinational agribusiness and governments that were working against small operations like their own. For both these operators, this meant working hard and being independent and creative but, from their perspective, this also meant taking risks with work time, procedures and purchase decisions. As noted, for one of these farmers (CS7), these circumstances translated into a much clearer awareness of safety and a more explicit and consistent effort to control the hazards but for CS6, health and safety was not well-thought out as a formal issue requiring specific attention. Much as in the case of CS3 and CS4, OHS was approached largely a matter of common knowledge and sense.

The final conventional farmer (CS8) in the group was distinctive only in as much as he reported a stronger concern about safety and especially health issues related to chemicals. Like CS7’s father, he had developed this concern and his knowledge through his own off-farm work experience in an auto plant. He thus tended to be
relatively careful in his handling practices and his safety practices more generally. However, he also reported doing little to reorganise his work process or his equipment or make purchase decisions based on health or safety considerations and he showed very little interest in the safety or environmental practices of the farmer he contracted to spray and work on this land.

The organic farmers (CS9 to CS12), as one might expect, had the strongest concerns and opinions about the hazards of farm chemicals. In three of the four cases (CS9 to CS11), personal and family health considerations were the central reasons they used to explain their shift to organic farming, although one of these participants was also strongly motivated by business interests. The two fully organic farmers (CS9 and CS10) spoke at length about cancer in the family and the fear of cancer in the immediate family as a central motivation behind their elimination of chemicals on their farms:

I was really conscious about health. I lost a close friend to cancer. He was into [farm] chemicals a lot. He showed me how to do it – how to spray and work it up. I followed him one day when he was spraying. I felt really bad after. (CS10)

All three of these farmers credited the environmental movement and subsequent changes in the farm community (such as the introduction of the pesticide safety course) with raising their awareness of these health issues.

Interestingly enough, in the one organic case where personal and health considerations were less central to the decision to move to organic farming, a farm which was in transition to organic farming, the pesticide handling and spraying procedures were much like those of most of the farmers, inconsistent or relatively minimalist, relying largely on gloves. In this case, the move to organic was understood more in broader ecological terms rather than in terms of personal or human health. And although the farmer understood and suspected that there were serious health risks to farmers associated with pesticide use, and was someone who deeply mistrusted company and government claims of limited health risks, he was relatively cavalier about his own handling and spraying procedures. He was unable to explain why that was the case when asked several times, except to say he was quite fatalistic, since he was in his fifties. As he put it, ‘the damage has been done already’.

None of the organic farmers had well-developed systematic approaches to other safety issues. There was little specific attention given to purchasing, planning or organisation around safety, and the approach to preventing accidents was generally understood in commonsense terms. Indeed, a male farmer on one of the organic farms exhibited by far the riskiest behaviour observed throughout the study in his use of machinery and during some barn construction work. This farmer (CS10) seemed to exhibit relatively little awareness of the potential for serious accidents, even with respect to his small children on tractors or working on the barn roof, but when asked specifically about whether he had any concerns about the risk of accidents, he said, ‘taking risks is part of what life was about’. He felt that it was important, even for his children, ‘to learn by taking risks’. From his perspective, he was giving his children the skills and the confidence to work on the farm by letting them ‘learn by doing’. Yet, this also meant that he tended to give very little attention to formal instructions, even to his children or farm workers. He also tended to approach his own work in this matter, paying relatively little attention to manufacturer or label instructions. His
health and safety practices were based substantially on his history of experiences such as close calls, illness incidents and accidents.

What is also important to recognise about the organic farmers as a group is that while they had eliminated or reduced their exposures to chemical hazards, they had some increased safety risks which, although they were recognised to some extent as major health or safety issues, were accepted as unavoidable. In the case of the three mixed grain/livestock farms, their labour processes were much more labour intensive, often more physical in nature, and continuous, with less time to maintain, plan and organise. With one exception (CS12), these farms were more tenuous financially, which meant that there were significant financial and equipment limitations that added to the risks and time pressures. On the other hand, one of the fully organic farms (CS10) that had opted for local market production also reported fewer time and financial pressures than the other organic farms that were more business and expansion oriented. Both the male and female farmers in this operation insisted that they felt under less pressure to overwork during planting and harvesting than they had prior to their shift to organic farming. Nevertheless, while their local market strategy did limit some time pressures, it was evident through on-the-farm observations that, like the other organic farmers, they worked long hours.

Discussion and conclusion

Responses to conflicting messages

Among farmers as a group, a couple of things stand out in this analysis. To begin with, the case studies suggest that the push for both improved health and safety and more environmentally benign practices during the 1990s have combined to make farmers more conscious of OHS as significant issues, with particular reference to farm chemical safety. With the possible exception of one case study, all the farmers demonstrated basic conceptions of the ‘key’ hazards and risks, and had adopted at least some of the practices promoted by manufacturers, safety organisations and the government. All four of the organic farmers had shifted to organic farming in response to either or both the environmental and health warnings about farm chemicals. While the evidence is clearly not definitive, in as much as this conclusion is based entirely on farmers’ self-reported changes in their awareness and practices, the detailed descriptions offered by many farmers about previous and current practices point to substantive gains in safety awareness and behaviour.

However, aspects of both the environmental and occupational health discourses in the farm community have also tempered both the level of concern and the actual precautions implemented by farmers. Agribusiness firms, government agencies and farmer organisations, concerned about the development of restrictive pesticide regulations, have been sending farmers conflicting messages about the level and degree of risk associated with chemicals and farming more generally (Hall 2003). On the one hand, farmers are being encouraged to change their practices to become safer, environmentally sustainable and efficient, while on the other, they are being told that the health and environmental risks associated with farm chemicals and other farm
practices have been exaggerated by environmental groups and labour unions. For some farmers, then, the looming prospect of more stringent legislation and regulations imposed by outsiders, experts, environmentalists and urbanites is a more significant threat to them than any actual health or environmental damage and it is this that underlies their attention to environmental and occupational health issues.

This helps us to better understand the often repeated frustration of many conventional farmers in this study that environmental groups, the public and the government are ‘unreasonably paranoid’. As one put it:

it’s absurd to ban chemicals based on research that rats develop tumours after being fed the chemical at 100 times the dosage they would receive in a lifetime of spraying.

While some of this dismissal of risk comes from the farmers themselves, in as much as they do value their independence and self-control and see chemicals as essential technologies (OFA 1994), agribusiness and extension services exploit and reinforce these tendencies by drawing connections between new chemical technologies and equipment and the capacity of farmers to minimise or neutralise risk. Farm publications and presentations at farm shows and exhibitions constantly emphasise the precision of new spraying equipment, the protection offered by new covered machinery and of course, the increasingly effective yet supposedly benign nature of current chemicals (Innovative Farmers Association of Ontario n.d.; Carter 1992; Monsanto Canada Inc. 1993; Surgeoner and Roberts 1993; AGCare 1994; Gallivan et al. 2005). Government sources all too often simply mimic the corporate line, reflecting their continued strong commitment to industrial chemical based farming (Agriculture Canada 1989). And while the mandatory government pesticide safety course required for farmer certification yields somewhat more mixed messages, its main thrust is to convince farmers that chemicals can now be used safely with minimal negative effects on workload, farm efficiency, health or the environment (Ontario Ministry of Agriculture and Food 1993).

Thus, an integral part of this discourse is the presentation of farmers as being ‘responsible’ and ‘in control’ (Rose 1996). The persistent message from the companies, safety organisations and government training programmes is that farm machinery and chemicals are safe if used properly, which ultimately directs attention to the farmers without fully acknowledging the limits of these technologies or recognising the significant economic, technical and production constraints on farmer control. Indeed, it is this image of the farmer as the independent operator that farmers themselves partly sustain by taking on certain practices, as well as the rhetoric of the ‘responsible’ farmer. Continued access to the full range of chemicals is especially seen as being threatened in this context under environmental calls for tougher pesticide legislation, but a broader discursive concern with intrusive health and safety regulations also operates in shaping the construction of other health and safety risks. As part of this process, farmers have been encouraged both by their own organisations (AGCare 1992a; OFA 1995) and by agribusiness to defend the healthy and safe nature of farming as a critical public relations exercise aimed at preserving their independence as farm operators (that is, by preventing the application of health and safety law to farmers). Again, this is not just a matter of understating chemical risks or concealing exposures or spills; it also applies to various other routine hazards that are widely
unacknowledged in the farm community, including such things as exposure to dust, gas and noise, working extremely long hours, working alone and working after dark.

To an extent, this discourse may help to push some farmers to act in substantive ways, in as much as they realise the political importance of minimising accidents and spills, but this does little to get them to pay closer attention to longer term and less visible health or safety threats. Moreover, by politicising health, safety and the environmental demands as threats to farm survival and independence, farm organisations, agribusiness and governments may ultimately undercut the commitment to sustained substantive change, encouraging farmers to think of health, safety and environmental programmes as short-term publicity or political exercises where the appearance of control is more important than the substance of actual production practices. As noted in the general OHS literature, this is an often noted problem with many corporate health and safety programmes and audits (Hall 1993; Hutter 2001; Saksvik and Quinlan 2003).

The contradictions of ‘being in control’

On the other hand, by emphasising the message that farmers control the risks through their consumption, protective and preventive actions, farmers are encouraged to take on a greater sense of responsibility that they need to do certain things to both understand and prevent hazardous conditions or practices (Ontario Farm Safety Association 2007). On the negative side, this process of farmer ‘responsibilisation’ (Rose 1996) understates and ignores all the limitations and constraints on farmer control, including the financial constraints, but it also translates into a shared view that farmers cannot continue to farm as before without thinking more explicitly about health, safety and environmental issues, seeking information, and making at least some changes. This plays out in different ways with different farmers but in most cases, the knowledge gained, whether acquired in the context of programmes like the EFP or the Pesticide Safety course, through personal reading and research, or through discussions with other farmers, has formed an important foundation of real change in some practices, if only to make farmers more conscious and cautious in certain areas of production.

As noted, one of the other messages contained in both the safety and environmental discourses was that significant efficiencies and cost reductions could be achieved through the adoption and integration of environmental and safety ideas and programmes. This too can be seen as having contradictory effects. On the one hand, the farmers who fully adopted this perspective (CS1 and CS2) were highly motivated by economic interests to make major changes in their planning and production practices, and many of those changes offered substantive protections.

Ironically, this means that the farms exhibiting the more comprehensive safety changes were also the most staunchly conventional, managerialist and neoliberal farms in the study. However, the cost and benefit logic of these formal and highly technical ways of thinking can also serve to conceal and legitimate safety risks as rational business decisions (Hall 1996), while ignoring the intensification of risks associated with these farmers’ orientations towards growth, flexibility and lean production. Unlike the less well-off farms where farmers often have no real choice, as in
continuing to work with unsafe machinery, risks such as working in the dark when fatigued may be taken not because the farm survival is at risk, but rather because it is cost effective to do so. In the final analysis, then, economics are still a rationale for taking rather than controlling risk.

By rationalising the persistence and even extension of their risk-taking as self-controlled informed choices, these farmers often were unable to understand, much less express, even to themselves, why they continued to push themselves to the limit, or why they took certain chances despite all their planning. On the other hand, it was their confidence in managing the farm through intensive planning and analysis that also encouraged them to develop their knowledge about work processes, inputs and hazards, and to think about health and safety as a formal part of their management planning and organisational process. Indeed, for both these farmers, the integration of the soil conservation and efficiency discourses emphasised their capacity to adapt and change, to rationally assess the farm operation and to restructure it in ways that exercised more control over what happened on the farm. This integration helped to sustain their conviction that they were in control of their work hazards. There was a significant element of truth in all this, but what remained hidden or unacknowledged were all the added stresses and pressures associated with producing and delivering a variety of high-quality products on time on an ever-increasing acreage.

Although the more reactive commonsense approaches of most farmers are quite problematic, in that they are often not conducive to active knowledge construction and renewal beyond immediate experience, the managerialist approaches to safety can also serve to deny indigenous knowledge and judgement because they defer to experts, technical specifications and science (Hall et al. 2006). Farmers become over-reliant on what they are being told and what they read, increasingly rejecting their own senses and feelings, as in one of the farmers who continued to use a certain pesticide despite feeling ill, never suspecting it was the pesticide because the label said nothing about his kind of symptom. The danger, particularly evident in one case (CS5) is often that what becomes adopted is a routine, procedurally based orientation which emphasises the passive acceptance of scientific knowledge and expert opinion (Walters 1985; Hall et al. 2006). This mirrors in many respects the way in which farmers have generally deferred more and more production decisions to input suppliers and corporate buyers.

Reasons for resistance

As the evidence suggests, despite all the talk about control and independence, most farmers acknowledge that they are often unable or unwilling to give health and safety a priority position in their day-to-day practices and decisions, more often than not because of economic or other resource considerations (Cassell and Day 1998). Indeed, despite the ‘win–win’ government discourse that ‘safety pays’, growers often find that safety concerns run contrary to efficiency measures, since the latter tend to intensify the labour process and the workload. As some of these farmers recognised, these measures are being pushed by the same corporations, government and farm organisations that are promoting safety and environmental practices as political and economic solutions. It is in that context that some begin to challenge and resist the hegemony of industrial agriculture, whether by adopting organic farming methods or by embracing aspects of
the environmental and safety discourses without accepting the neoliberal logic of restructuring. Unfortunately, in at least a few cases, this resistance can also be expressed by the dismissal of valid official knowledge claims and advisories.

Although the limits on farmer independence have become increasingly clear within the context of agribusiness growth and concentration, the variety of strategies and orientations evident even in the small sample in this study serve to illustrate the continued capacity of individual farmers to carve out different priorities, understandings and routines. True, with the exception of perhaps one or two cases, virtually all the farms exhibit a tendency of ignoring certain safety practices and accepting certain risks as necessary or unavoidable. Still, while most farmers in this study had not fully embraced the idea that a management integration of safety and environmental goals was key to their business success, most had seized on the government and corporate claims of risk control through knowledge. By selectively using that knowledge where it made sense to them, they constructed a level of confidence that they were safer and/or more environmentally secure.

The role of economic circumstances

This study also confirms that economic circumstances play a critical role in risk-related decisions (Vaughn, 1993, 1995; Arcury and Quandt 1998; Cassell and Day, 1998). However, the findings show that these circumstances can influence safety awareness and practices in distinct and complex ways. As might be expected, the farmers in more difficult circumstances were faced with more risk-related situations and pressures and often their preferred response was to ignore or de-emphasise health and safety (Cassell and Day 1998). However, the wealthier farmers were also often tied to an economic logic which rationalised risk-taking in ways that were just as compelling from their perspective (that is, business growth equals survival). Moreover, some of the safest farmers were those with the least financial resources. As suggested by one case at least, the financially based health and safety risks encouraged him to construct his work as involving health and safety problems that needed to be addressed systematically. It is hard to say whether this was, as the farmer himself suggested, just a question of his fathers’ influence that helped to set him on this track, but the major implication is that the influence of economic pressures on risk-taking can be played out in different and contradictory ways. This speaks to the theoretical importance of recognising the active and creative capacity of farmers to construct very different solutions to similar or equivalent economic pressures.

The relationship between OHS and environmentalist orientations

The findings also suggest that a stronger environmentalist orientation with respect to pesticides does not necessarily translate into stronger safety awareness and practices more generally, even with respect to personal pesticide practices. The reasons for this are complex, but the comparisons between conventional versus organic farming indicate a couple of important points. To begin with, organic farming tends to present farmers with a more labour-intensive production process and financial circumstances, which can increase the frequency of some risks, given the more physical and
labour-intensive nature of the work and the reliance on older equipment. As in the case of poor economic circumstances more generally, this may lead to a greater awareness and focus on safety (Vaughn 1995), and again, this may be shaped by a farmer’s ecological orientation.

However, none of the organic farmers in this study exhibited strong safety orientations, and at least one (CS10) was by far the most unsafe of the entire sample in his day-to-day production practices. Grounded in other ideas about the importance of experience and learning by doing, as well as a disdain for conventional farm organisations and government extension services, the organic farmer in question showed by far the least tendency to change his behaviour in response to the dominant safety risk discourses about accident and disease prevention. The strongest environmentalist of all the farmers (CS12), that is the person who was most concerned about the effects of farming on the eco-system, also exhibited some of the worst personal safety practices when handling chemicals, apparently reflecting a fatalism about his own health, given his more advanced age.

The relationship between OHS and political orientations

What is also interesting about both these farmers is that they were the strongest critics of capitalist industrial agriculture, neoliberalism and globalisation, and were operating their farms in more alternative economic fashions by emphasising local and direct marketing. As noted already, the two most neoliberal globally oriented conventional farms (CS1 and CS2) had made far more safety-related changes in their farming practices than the rest of the farmers, including all the organic farmers. The point here is not to argue that alternative farmers are necessarily less safe than conventional industrial farmers, especially given the small sample in this study, but it does suggest that the impact of safety knowledge and promotion may depend, in part at least, on the extent to which the messages correspond to the existing farmers’ environmental, political or economic orientation.

The dominant official message that farmers could achieve greater efficiency and productivity through safety awareness and programming may have worked with CS1 and CS2 because it appealed to and fitted into their business and managerial orientations. For the alternative farmers, these messages were unacceptable, given the assumption and advocacy of growth and global orientations to production and marketing, but even for those conventional farmers who were less managerial and growth-oriented (for example, CS3 and CS4), these messages were also difficult to integrate into their way of thinking and doing things.

The messengers may also be important for some farmers in as much as there were questions of trust associated with the organisations promoting the notion that safety ‘pays’. As noted, many of the farmers, particularly the organic farmers, viewed the government and certain farmer organisations with considerable mistrust, if not overt disdain. While some of the more progressive farm organisations such as the NFU place considerable emphasis on safety in their policies and programmes, it has probably not helped that organic farm organisations and publications in Ontario and Canada as a whole have not generally emphasised safety issues (for an example, see EFAO News 1995–2005).
Although limited by its small sample size, the analysis suggests that the construction of farm health and safety risks have been substantially shaped by industry restructuring and the changes in farm production and management approaches. Indeed, I would argue that the dominant forms of environmentalism and health and safety in the conventional farm community have taken discursive forms which closely reflect the emerging production and managerialist orientation on knowledge intensive planning, cost controls and flexibility. To the extent that these discourses retain a primary focus on profitability, there will be continued economic and ideological pressures which sustain risk-related conditions, labour processes and behaviour in the names of efficiency, flexibility and productivity.

However, this does not mean that farmers who resist or who are less absorbed or pressured by these managerial orientations are necessarily safer in their practices. Those who approach safety and/or the environment in a reactive, piecemeal and commonsense manner frequently lack an appreciation of the integrated prevention advantages or strengths promoted through the dominant managerial approaches and discourses, often failing to see or prepare for risks, especially those associated with new, unexpected or irregular conditions. Certainly, there are strengths to safety practices and routines based on commonsense, indigenous knowledge and personal experience, but unless these are accompanied by beliefs and conditions that challenge or neutralise financial, market and commodity pressures, these farmers are just as likely to compromise their safety standards in the interest of production goals as the more managerial, growth-oriented farmer. And even when those alternative beliefs do exist, there are still other factors that can limit actual changes in practices.

At first glance, organic farming seems to offer the promise of unplugging safety and environmental goals from the productivist imperative (Clunies-Ross and Cox 1994) but in the final analysis, these farms are also faced with questions of profitability and survival, even those that seek to disengage from wholesale and global markets. Indeed, their survival is often more tenuous than conventional farms. Off-farm jobs, limited debt loads, strong land access and rich parents can all help to buffer farmers from these pressures, allowing them to better anchor their production practices in sounder safety and environmental principles. But unless the organic movements can sustain their alternative orientations to food markets, while beginning to push farm safety as a matter of equal importance to environmental issues, it is difficult to see organic farming as any kind of answer to the farm safety problem.

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