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Organic Farming, Gender, and the Labor Process*

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ABSTRACT This paper seeks to explain variations in gender participation in farm production and decision-making through an analysis of organic farm types, sizes, and orientations. Based on both survey and case study data, the analysis shows that female farmers on vegetable farms and mixed livestock/cash crop farms are more likely to be involved in farm production and management than women on field crop farms, where mechanization and capital intensive production is much higher. The links to ideological orientations and motivations are also examined, suggesting that farmers with more conventional orientations to organic farming are also less likely to support gender equality.

A number of analysts have suggested that alternative farming has the potential to create more equitable gender distributions of farm labor and power by challenging productivist agriculture and its associated ideologies. Responding to the lack of strong research support for this argument, this paper seeks to demonstrate the need to distinguish alternative farmers by their actual practices and ideologies (Beus and Dunlap 1994; Buck, Getz, and Guthman 1997). By identifying and comparing conventional versus alternative labor processes and orientations *within* a large sample of Ontario organic farmers, we show that the gender division of labor and decision-making in organic farms are linked in important ways to the labor processes of different types of farms and to the ideological orientations of the farmers within those types.

Conventional versus Alternative Agriculture

A core argument regarding the impact of conventional productivist agriculture on gender relations is that increased farm sizes, specialization, mechanization, and commercialization have separated farm production from household reproduction and shifted women to the more marginalized farm support tasks such as bookkeeping, running errands, and making and transporting meals for their spouses and workers (Adam 1988; Meares 1997). The associated movement of women into off-farm wage labor jobs, reflecting both increased

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financial pressures and off-farm career orientations, is also seen as a key aspect of this marginalization (Rosenfeld 1985; Whatmore 1991). While women often continue to self-identify as farm operators, the evidence also shows that they define their roles and their influence principally with reference to the household rather than the business of farming. For many analysts, this phenomenon reflects both the limited involvement of women in production and the social construction of female farm and household activities as less central to the business of farming (Harper Simpson, Wilson and Young 1988; Lobao and Meyer 1995; Meares 1997; Reimer 1984; Rosenfeld 1985; Sachs 1983; Wilson, Harper Simpson, and Landerman 1994).

The observed connection between conventional agriculture and gender segregation is the basis of the proposition that ''alternative agriculture'', as understood by analysts such as Beus and Dunlap (1991), may offer the prospect of greater equity in the gender division of labor and decision-making (DeLind and Ferguson 1999; Feldman and Welsh 1995; Hall 1998a; Kloppenburg 1991; Meares 1997; Trauger 2004).[1] Since alternative farms are supposedly challenging the core principles of productivism (Abaidoo and Dickenson 2002; Clunies-Ross and Cox 1994), emphasizing smaller scale family farms with less mechanized labor intensive labor processes, less reliance on commercial inputs, increased diversity, and emphasis on local markets, the expectation is that this will open up more spaces for female involvement in day to day farm production and marketing. With these shifts in the labor process, greater female involvement in decision-making is also anticipated as women's knowledge and contributions are increasingly recognized and valued. At the same time, the greater joint involvement of men and women on the farm is also seen as potentially reversing the separation of farm and household production, which again reflects and reinforces a number of ideas about family farms and social and environmental responsibility which value female labor and knowledge.

With respect to the latter argument, Feldman and Welsh (1995) have suggested that alternative farms give more privilege to local farmer knowledge, which is both consistent with and offers opportunities for female knowledge and perspectives. Findings by Peter et al. (2000) also

[1] Beus and Dunlap (1991; 1994) are well known for their concepts and measures of conventional vs. alternative paradigms. Most of the measures in this study with reference to both practices and beliefs were adapted from the ACAP scale including farmer goals and motivations, emphasis on productivity and efficiency, role of science, the view of farming as a business vs. a way of life, the preference for natural over synthetic inputs and methods, energy use, and conservation.

suggest that males on sustainable farms have less ''masculinist'' views of nature and human control over nature than conventional farmers with implications for the gender expectations and conceptions of male and female activities. Some researchers have also tried to tie gender to ''Community Supported Agriculture'' (CSAs), suggesting that women are the principal participants in this movement because they are more community centered (Abbott Cone and Myhre 2000; DeLind and Ferguson 1999).[2]

Yet when looking more directly at female involvement in farm production and decision-making, the findings have been less than promising. For example, Meares (1997) found a persistence in ''classic'' gendered roles and responsibilities on the farm, in the household, and in the movement itself, with men continuing to dominate, whereas women remained as the less involved movement supporter, the occasional farm worker, and the major player in the household. She also notes that males and females looked at sustainable agriculture in different ways, with males retaining relatively conventional beliefs and ideas about the environment, which she argues is partly a reflection of the gendered production roles on the farm and in the movement. Chiappe and Flora (1998) also looked at the extent to which males and females shared the same alternative agricultural ideas as reflected in the Beus and Dunlap's (1991) conception of conventional and alternative paradigms and again found that although there were a number of similarities, women tended to place different meanings on some values such as independence and community. The authors suggest along similar lines to Meares (1997) that these different meanings and values reflect the distinct reproductive roles of women and their relative lack of participation in the farm labor process. Similar findings from Sachs (1996) and Trauger (2004) further reinforce the evidence that alternative farms are failing to yield consistent differences in gender relations, although Trauger (2004) also suggests that there are more public spaces within sustainable farm organizations, farmers' markets, and market gardening associations where women's identities as farmers are being asserted more readily.

Some of these findings can be read as hopeful signs of equity potential but they also provide less than overwhelming support for the

[2] CSAs usually operate as a group of consumers usually referred to as shareholders who purchase fresh produce from a particular or group of farmers. They pay the farmer(s), usually in advance, for a portion or share of the production from the farm's vegetable and fruit crops. The amount they receive depends on the size of the crop and, as such, the consumers share the risks of good and bad years with the farmers, while the farmers have more stable guaranteed incomes.

argument that alternative farming is yielding different gender relations *on* the farm. Yet, perhaps this is less than surprising when we consider the research literature on alternative farming, which demonstrates wide differences in actual ideological orientations and farming practices both *within and between* the various sustainable approaches (Allen and Sachs 1992; Buck, Getz, and Guthman 1997; Gale and Gordray 1994; Guthman 2004a, 2004b; Hall 1998b; Hall and Mogyorody, 2001; Saltiel, Bauder, and Palakovich 1994). If the thrust of the argument is that alternative farming should yield major differences in gender relations both because of a more labor intensive production process and certain ideological affinities, then perhaps we need to begin differentiating more closely what we mean by alternative farmers and farming.

With this in mind, this paper examines the differences in gender relations within the organic farming community in Ontario, Canada focusing on cohabitating heterosexual couples. Our decision to look at differences among organic farmers and the logic of our research design and analysis are based on findings from an exploratory study conducted in southwestern Ontario by one of the authors (Hall 1998a). In this study, it was found that female partners in organic farms were more involved in both farm production and decision-making than was the case in both conventional tillage *and* conservation tillage farms. Although conservation tillage is often viewed as a sustainable approach, very few differences were found between the conservation and conventional tillage farms in terms of farm size, mechanization levels, labor practices or environmental beliefs. Moreover, there were some indications in the study that female involvement had actually declined when the shift was made from conventional to conservation tillage. It was suggested that the reduced field time had shifted the distribution of gendered labor even further towards male dominance. This was particularly important because most studies in the gender and sustainable farming literature had failed to distinguish between the different types of sustainable farming, conflating a number of quite distinct sustainable farming systems such as organic farming and rotational grazing (Chiappe and Flora 1998).

However, as also noted in the study, a couple of the organic farms had more 'conventional' tendencies in the sense that they had higher levels of mechanization and crop specialization (Hall 1998a). And interestingly enough, these farms were somewhat more conventional in their gender relations on the farm and in the household. These results were particularly intriguing to us in light of other research evidence on the so-called 'conventionalization' of organic farming—that a significant and growing segment of organic farmers are large-scale operators

who continue to utilize productivity methods, market strategies and technologies (Buck, Getz, and Guthman 1997; Guthman 2004a,b; Hall and Mogyorody 2001; Lockeretz and Wernick 1980; Tovey 1997). Finally, there were indications that both gender and production differences *within* the three types of farms were linked to their farming orientations—that is, whether their practices and beliefs reflected 'alternative' versus 'conventional' paradigms (Beus and Dunlap 1991). The tentative conclusion was that the link between gender equality and organic farming depended substantially on whether the farmers were actually operating within either of these two paradigms.

Although limited by the small sample size, as are most studies in this area of research (Meares 1997; Trauger 2004), the Hall (1998a) findings convinced us that it was not enough to compare different types of sustainable farms. We needed to look at differences *within* those broad types in order to make better sense of the connections between the forms of production, environmental orientations and gender relations. In combination with the literature on conventionalization, (Buck, Getz, and Guthman 1997; Campbell and Coombes 1999; Coombes and Campbell 1998), the evidence encouraged us to focus on organic farming as the site where we were most likely to find significant differences in both gender relations and farming orientations.

As such, our objectives in this paper are threefold. First, we determine the level and type of variations in female participation in organic farm production and decision-making within the Ontario organic farm community. Second, we demonstrate a relationship between female production activities and decision-making power. And third, we account for variations in female participation in production and decision-making by considering differences in farm type, size and certain labor process characteristics which have been used in the literature to differentiate alternative versus conventionalized organic farms (Buck, Getz, and Guthman 1997). We also look specifically at differences in the ideological orientations of the farmers, with particular reference to their views on organic farming and the environment (Beus and Dunlap 1991). The general hypothesis is that the more ''conventionalized'' the labor process and the ideological orientation of the organic farmers, the more gender segregated the farms, both in terms of labor and decision-making. If confirmed, this hypothesis will provide evidence that the relationship between organic farming and gender depends on the approach that farmers take to organic farming. Significant emphasis is also placed on linking labor and capital intensification to gender, as a confirmation of both the

conventionalization hypothesis and a theoretical framework that points to the organization of the labor process as shaping gender relations in production.

Methodology

The research design involved a structured phone interview with 259 organic farm operators[3] followed by a subset of twenty case studies selected from the survey sample.[4] This paper focuses on cohabiting heterosexual couples (N=217), but it is noteworthy that within the original study, there were 20 farmers in the sample who were sole female operators. For the purposes of defining our population, organic farmers were defined broadly as farmers who sold farm products grown or raised without the use of synthetic chemicals or drugs. Each survey interview involved a series of closed and open-ended questions on farm history and farm practices, the distribution of farm and household tasks, farm plans, motivations, and beliefs. Following the work of Buck, Getz, and Guthman (1997), we use eight main indicators of conventional versus alternative farm practices—labor intensity, level of mechanization, farm size, farm growth, reliance on wage labor, reliance on off-farm inputs, debt load, and marketing practices. Our analysis of ideology relies here on twelve belief and motivation items, some of which were adapted from the Beus and Dunlap (1991) scale, while others were constructed to apply to organic farming more specifically.

The case studies involved participatory observations during the growing season and more in-depth interviews with the farm operator(s). When potential participants were contacted, we asked to speak to the main or primary operator/owner of the farm—the person most active in running the operation. Where there were two or more main

[3] A list of 411 organic farmers was compiled through various means (the membership lists of organic organizations and certification bodies in Ontario, farm ads and lists in organic publications and pamphlets, and recruitment booths at organic farm conferences and meetings). Everyone on the list was approached. While the refusal rate as a proportion of the total list was quite low (15%), we were unable to reach a significant number of people on the list (16%) because the phone numbers were no longer in service or there was no new listing for the persons in question. A portion (6%) also reported when contacted that they were no longer farming or no longer farming organically.

[4] We initially selected eighteen but one of the operations had split into two operations with the daughter operating as a completely separate farm; this was studied as a separate case study. Another operation had two overlapping but distinct farms operated by a son and his mother; again these were studied as separate operations. In some of our comparisons, we also include four other case studies, which were done in the same manner in a previous study (Hall 1998a) giving us a total of twenty-four. This helps us to strengthen our capacity to compare certain groups and certain characteristics of farmers.

operators, we asked them to select one person to do the interview. This procedure produced interviews with 202 males and 57 females. The case studies involved a team approach to observations, with a female observer working with and interviewing the females on the farm, and a male observer working with and interviewing the males.[5] For a three year period, we also observed the activities of three local, provincial, and national organic farmer organizations, which often allowed us to observe the activities of a number of our case studies within these contexts. The analysis of the survey data concentrates on the complete sample of cohabiting heterosexual farms where both male and female respondents are aggregated. However, we draw out and discuss the differences between these respondents, where relevant, and use our case studies to develop and support our interpretations of the survey results.

Variations in the Division of Labor and Decision-Making on Organic Farms

While a significant percentage of the heterosexual couple farms (38%) reported that decisions were shared equally, most organic farms exhibited a fairly conventional gendered division of labor and power. The ownership of the farm was usually joint (80%), but the males were typically the main operators of the farm in the sense that they did most of the field, maintenance, and machine operation work (see Table 1) and made most of the major farm decisions (see Table 2).[6] Although there were no task areas where more women than men were reported as having primary responsibility, women were more prominent in certain areas such as hand weeding and harvesting, bookkeeping, processing, and care of livestock. This kind of gender division of mechanical versus hand-based work and an emphasis on bookkeeping and non-field work has been reported more widely in the conventional and sustainable farm literature (Rosenfeld 1985; Sachs 1996).

On average, women were estimated to be working 24.9 hours per week on the farm during the growing season, while males were estimated as working 46.1 hours. These differences were largely constant across different farm sizes and farm types, although the gap

[5] The assumption was that most males and females would feel more comfortable relating to same sex researchers.

[6] Although the categorization of decision-making is based on one survey item (Who makes the major farm decisions—male, female, shared equally?), our case studies largely confirmed the value of this item in differentiating overall decision-making. On the other hand, the item clearly has limitations in differentiating different degrees of female involvement.

Table 1. Division of Labor by Gender: Married/Common Law

	Percentage of Respondents Primarily Responsible for Each Farm Task						
	Male Only	Male/ Other Shared	Male/ Female Shared	Female Only	Female/ Other Shared	Other*	N
Planting	44.0	15.0	22.0	7.0	1.0	8.0	214
Manure Management	69.0	15.0	6.0	3.0	1.0	6.0	198
Apply Fertilizer	57.0	13.0	10.0	4.0	3.0	13.0	140
Mechanized Field Work	53.0	21.0	12.0	2.0	3.0	8.0	206
Handweed/Harvest	15.0	22.0	36.0	10.0	6.0	11.0	188
Care of Livestock	29.0	22.0	40.0	6.0	1.0	2.0	136
Transportation	44.0	13.0	17.0	5.0	1.0	21.0	190
Equipment Maint.	70.0	16.0	3.0	0.5	0	11.0	216
Bookkeeping	34.0	3.0	16.0	40.0	1.0	6.0	217
Purchasing Supplies Parts/ Seeds/Equipment	70.0	3.0	15.0	12.0	0.5	0.5	217
Research	50.0	3.0	36.0	10.0	0.5	0.5	216
Processing	16.0	0	80.0	4.0	0	0	216
Marketing/Sales	50.0	4.0	28.0	10.0	2.0	4.0	203

* Other may refer to parents, children, business partners, or hired labor/contractors. In most cases, the other category is mainly the male child, father, or business partner in the male dominant tasks, whereas the female children and mother are more evident in areas such as processing and livestock.

tended to be more substantial in the farms with 500 acres or more (i.e., 30 vs. 70 hours).

There was even less sharing in domestic labor and household decisions (Table 2). Only a small minority of the couples were reported as sharing household decisions (15%) and housework (17%). Our data also show that women with small children (5 years or less) tended to devote fewer hours to the farm, both in absolute terms ($r = -.154$, $p < .05$) and in proportion to the total hours of labor required on the farm ($r = -.205$, $p < .003$). Female household and childcare duties remained regardless of the number of hours devoted by the female to

Table 2. Farm and Household Decision-Making

	Percentage of Primary Responsibility				
	Male	Female	Male/Female Shared	Other*	N
Farm Decisions	52.0	4.0	35.0	9.0	217
Household Decisions	2.0	81.0	15.0	2.0	217
Housework	3.0	71.0	17.0	9.0	217

* Refers to children, parent or cleaning person taking primary housework responsibility; refers largely to respondents' parents or in laws with reference to decision-making.

farm production or off-farm employment, suggesting that many women were doing double and even triple shifts in some cases.

When we disaggregate the responses and directly compare male and female respondents (in different operations), keeping in mind that this division was based on the self-definition of the 'main operator,' the female respondents with male partners were much more likely (64%) than male respondents with female partners (29%) to report that they shared the farm decision-making evenly, while the reported hours of farm work by females were more equivalent to the male contributions. Our case studies suggest that these differences between male and female respondents were partly a function of male and female perceptions of their relative contributions, with males in particular tending to underestimate their spouse's contributions, but they also tended to confirm that the female respondents were much more active on the farm and in making farm decisions than the female spouses of male respondents. In terms of household decisions and work, both male and female respondents tended to report that the female spouse was primarily responsible for the housework (80% vs. 86%) and household decisions (98% vs. 67%), but it is interesting to note that the female respondents were more likely to see household decision-making as shared, while almost all the male respondents saw their spouses as controlling the household.

While the case studies generally confirmed that the phone interviews were quite effective in identifying basic gender differences in farm and household participation and decision-making, they also helped to identify some important nuances and complexities in gender relations and the relationship between labor and decision-making. Except those few who were completely uninvolved in the operation, virtually all the women in heterosexual couples were involved to some extent in major farm decisions, at least in the sense that they were informed or consulted, especially if the decisions involved major expenditures such as the purchase of land or large pieces of equipment. However, on the whole, the case studies also showed that there was a substantial distinction between those families where decisions were reportedly shared equally or jointly and the majority of farms where the male still made the final decisions on important farm issues and virtually all the day to day management issues. A similar point can be made about segregated household decisions in that males were generally not involved in day to day domestic purchases, management, or child care, but were invariably involved and, despite their claim of female control over the household, often had veto power in major purchases or child decisions such as changing schools or discipline issues.

Another complexity in the actual decision-making situation is that many farm operations had divided the farm decision-making according to areas of involvement and responsibility. As such, some of the shared decision-making was really designated decision-making in that the female would be involved in making the final decisions around their areas of responsibility (e.g., purchasing and managing the dairy cows), while the male would retain power over his area of concentration.

Within our case studies, there were only a few heterosexual couple farms where it was apparent that both male and female *fully* shared decision-making. Where the respondents (male or female) had reported shared decision-making in the survey, we generally found the case studies confirmed substantial female participation in our observations and in qualitative interviews, but most males still appeared to exercise more influence on a wider range of issues usually on the grounds that ''he knew more.''

Establishing the Link between Production and Decision-Making

While the overall distribution suggests fairly conventional gender divisions of farm and household production and power in most households, farm decisions were shared equally in more than one third of the households (38%). The results also point to a fair amount of variability in the amount and type of female involvement in farm production activities as reported by farm respondents. This leads us to our next research question: Does production involvement of women increase their decision-making (Meares 1997; Rosenfeld 1985)? The survey data confirmed that the total number of female hours devoted to farm production tasks (see Table 4 for the complete list) was significantly related to female involvement in farm-related decisions ($r = .342$, $p < .01$). A relative measure of female contribution to the total labor on the farm provided an even stronger relationship, demonstrating that as their proportional contribution increased, so too did the female's involvement in decision-making ($r = .497$, $p < .001$).[7]

Housework and household decisions were also significantly correlated ($r = .163$, $p < .05$) suggesting that as males were more involved in housework, there was greater tendency for male involvement in decisions about child care, child education, household shopping, etc. There was no relationship between the amount of male/female housework and female involvement in farm production ($r = .001$), but female involvement in farm production was significantly related to

[7] The female contribution is defined here in proportion to the total hours of farm labor.

more shared household decision-making ($r=.196$, $p<.05$), suggesting there was also some greater interplay between household and farm production and decision-making. On the other hand, shared involvement in farm decisions was not significantly related to shared involvement in house decisions ($r=.077$).

Again, the case studies provided somewhat more nuanced and complex views of the relationships, with a few examples where males, and in some cases females retained major decision-making power despite their lack of involvement in farm production, apparently in some cases because of their off-farm incomes (Clement and Myles 1994:155). However, the majority of cases substantiated the general pattern that involvement in production formed an important foundation for decision-making powers especially as female farm involvement increased to include certain *routine or regular* production tasks (Meares 1997). The development of specific areas of expertise or specialization such as responsibility for chickens or for hand-weeding also seemed to be important in a number of case studies suggesting the importance of knowledge and control as underpinning the expanded decision-making power. Again as noted, and as the following quote illustrates, we sometimes found that decision-making power was distributed quite specifically around the areas of production activities where women and men were more dominant on the farm.

> Case Study 11. We organize like this: AG [her husband] is responsible for the crops and that's where he has the last say. And I am responsible for the cows and, and um, so that's where I have the last say and whoever was there who is interested in crops sort of works their way into this, and who is interested in cows works their way into the dairy farm and so on.

Where males continued to retain final decision-making power even in areas of significant female involvement, this imbalance was understood and accepted by both the male and the female as reflecting the different amount of time that the male had put into the farm, and his stronger personal history, knowledge, or experience with farming and, similarly, for the amount of time females put into the household. Sometimes this was understood in terms of what men and women ''traditionally'' did and for what they were ''best suited''; but more often, the link between production and decision-making was understood by the farmers themselves as simply reflecting what they took to be obvious, i.e., that the person with the most knowledge and experience should be making the final decisions.

Table 3. Female Involvement and Labor and Capital Intensity (Pearson Correlations)

	Female Labor Hours per Week	Decision-Making
Total labor time (person hours per week)	.168*	−.055
Labor per acre	.150*	.090
Investment in machinery	.206**	.163*

* $p<.05$ ** $p<.01$.

It was also clear in the case studies that housework and farm production were not generally being shared equally. Relatively few females felt that their significant involvement in the farm was fully compensated through greater male involvement in the housework, although a number of males and females were quite conscious of this inequity. On the other hand, as noted already, even among the more egalitarian farms, females still tended to do much more of the housework, while males were usually doing more of the 'farm work.' It is also worth noting from Table 4 that men continued to retain control over machinery, even in those farms where women were more involved in production and decision-making, which further reinforces the point that the division of labor, especially around mechanization, is still significantly gendered on virtually all the farms.

Labor Intensity, Farm Types and Female Involvement

Since female involvement in farm production seems to be strongly linked to decision-making, the next question is how do we explain different levels of female involvement within organic farms. As noted, a key argument underlying the prediction of greater gender equality in alternative agriculture is that alternative farming creates more demand and opportunities for female labor because it is less mechanized and more labor intensive. Using our survey data, there are two key ways that we can examine this argument. First, we can consider three relatively direct measures of labor intensity—total labor time (person hours per week), labor per acre and investment in machinery. As Table 3 indicates, all three of these measures are significantly related to female labor involvement ($r= .168$ and $r= .150$, $p<.05$; $r=.206$, $p<.01$), although only the mechanization measure was significantly correlated with female decision-making ($r=.163$, $p<.05$).

Although the above findings only weakly support the prediction with respect to female decision-making, a second way of looking at the labor

intensity question is to compare different types of farm operations that can be distinguished by their labor and capital intensity. This line of argument follows evidence that suggests higher levels of female involvement in certain types of *conventional* farms, in particular dairy and cattle farms where there are significant daily labor requirements involved in livestock care (e.g., Jones and Rosenfeld 1981), and vegetable farms where there are significant field labor requirements (e.g., Machum 2002). Since our phone survey drew in a wide range of quite distinct farm operations, including field crop farms, fruit and vegetable farms, and mixed livestock/crop farms, we were able to compare these three types of organic farms. Consistent with the conventional farm studies, the organic vegetable and fruit farms and the livestock farms were much more labor intensive than the specialized field crop farms, which relied on more capital-intensive mechanized production. The vegetable and fruit farmers reported an average of 162 person hours per week or 24.5 hours per acre per week in labor, while their use of mechanized equipment was usually quite limited. Field crop farmers reported only 97.4 hours per week or 0.9 hours per acre per week and a much greater use of machinery in production. The mixed farmers with crop and livestock production were in between the other two in terms of total labor time, at 128.5 hours per week. However, their levels of mechanization were, on average, as high as the field crop farmers, while production time per acre was limited to 2.9 hours per acre.

In terms of our hypothesis, the mixed livestock operations reported the highest *female* labor involvement among spouses with 28.3 hours per week, which was significantly different from women in field crop farms who reported only 15.7 hours ($t=3.121$, $p<.02$).[8] Female spouses working vegetable farms reported an average of 24.6 hours per week, which was again significantly different from the field crop farmers ($t=1.979$, $p<.05$). The number of specific areas of female involvement in farm production was also related to the type of farming (see Table 4). Compared to field crop farms, women on vegetable farms and mixed farms were more likely to be involved in a broader range of available activities including planting, fertilizer application, hand weeding and harvesting,[9] caring for livestock,[10] transportation of goods to market, marketing activities, purchasing seeds, other inputs, parts

[8] This t-test compares female hours in mixed farms vs. field crop farms.

[9] The smaller differences in mechanized field work may reflect the fact that many of the vegetable farms do very little mechanized work.

[10] The livestock in the vegetable farm context would be non-organic and generally a small part of the operation.

Table 4. Gender Division of Labor by Farm Type

	Percentage of Cases Where Women Were Involved*						
Farm Types	Manure Management	Planting	Fertilizer Application	Mechanized Field Work	Hand Weeding	Livestock	Transport
Field Crop Farms	0.0	6.0	0.0	13.0	36.0	-	0.0
Vegetable Farms	21.0	55.0	25.0	25.0	56.0	-	39.0
Mixed Farms/ Livestock	12.0	30.0	16.0	17.0	58.0	51.0	24.0

	Bookkeeping	Marketing	Purchasing	Research	Equipment Maintenance	Processing
Field Crop Farms	42.0	16.0	9.0	31.0	0.0	40.0
Vegetable Farms	47.0	45.0	45.0	52.0	7.0	65.0
Mixed Farms/ Livestock	66.0	52.0	26.0	51.0	3.0	68.0

* This includes cases where women had primary responsibility alone or shared it with spouse or others.

and equipment, and research and planning. The large number of women involved in livestock care is noteworthy and consistent with studies of differences among conventional farms (Jones and Rosenfeld 1981).

Finally, and most importantly, there is the predicted difference in terms of decision-making. In 75 percent of the field crop farms, males made the major farm decisions, while this was the case in only 55 percent of the vegetable farms ($t = 2.34$, $p<.05$). A similar difference existed between mixed crop livestock farms (57%) and the field crop farms ($t = 2.12$, $p<.05$). It is also worth noting that the vegetable and mixed farms were the only ones where females (N=8) reported primary responsibility for farm decision-making, as opposed to sharing equally or male dominance. Vegetable farms were also the only sites where women were farming alone without any male involvement.

Given that both the vegetable and livestock farms were more labor intensive than the field crop farms, these findings offer some support for the hypothesis that a farm's labor intensity is a key factor in shaping greater female involvement in production and decision-making. The case studies also largely support this claim. As noted earlier, most of the case studies (N=14) were selected to reflect a range of farm types and sizes without any reference to gender issues. When we looked at decision-making among the three types of farms, using our much more detailed qualitative data, we found that the vegetable and livestock farm case studies exhibited more female involvement and shared decision-

making than the four field crop farms. In two of the field crop farms, where women were putting in more hours they also had greater involvement in decision-making. A greater range existed in the amount of field and livestock work done by women in the livestock operations, although this did not always translate into varying decision-making. On the whole, the same kind of linkage was evident between farm workload and decision-making in most of the livestock case studies.

However, the case studies also suggest that the connection between farm types, labor/capital intensity, and female involvement is more complicated than a simple question of increased demand for female labor. For example, in some of our case studies where it was clear that the initiative to move to organic vegetable farming had been the female's, it was clear that vegetable farming was being selected in part because it required less land and capital:

> Land is very expensive around here. I didn't have much land so what was I going to do with it. It seemed obvious it had to be vegetables (CS3).

Field crop and livestock farming (with perhaps the exception of poultry) demand much more acreage; such farms require either a lot of money to purchase, or must be inherited. Partially confirming this latter point, the parents of 75 percent of the field crop farmers were themselves farmers, while only 43 percent of the vegetable farmers came from farm families. Moreover, 64 percent of the vegetable crop farmers began farming as organic farmers, while it was the reverse among field crop farms with 77 percent beginning as conventional farmers. Given the significant investment required, most livestock farmers came from farm families (62%), although they were more likely to have started their own farming careers as organic, especially those who also reported a more diverse range of livestock, vegetable, and field crops (59%). However, many of these farmers had started two or more decades ago, well before land prices had risen to their current high levels.

Another link between vegetable farming and female involvement is that many female organic vegetable farmers were often gardeners who had developed a certain skill set and knowledge base that were readily transferable. As other studies have shown, both urban and rural women are more active than men in home gardens producing for the household (Meares 1997). A number of the women in our case studies were home gardeners who decided that they would like to begin producing to earn income for the household.

> **Interviewer:** Can you describe how you became involved in organic farming?
>
> **Case Study 17:**: Yes, originally I grew organic vegetables, and when I lost my permanent job in Ottawa, I decided with my partner to start growing vegetables and to continue a part-time job out here. Growing vegetables was originally our retirement project.

Again, in contrast, field crop farming or livestock farming requires the development of a whole new set of skills and knowledge that are very different from gardening. But, two of our case studies also indicate that even in field crop or livestock farms, it was the female-tended family garden that played a role in the eventual shift of the farm to organic production.

> **Interviewer:** How did you get involved in organic farming?
>
> **CS 18:** Well I think that I've been interested in it since the kids were little. You know it was our own personal garden and the issues of spraying the lawns and fertilizing lawns, that sort of thing? Now I didn't feel comfortable with that so I persuaded BG [spouse's name] and his dad basically. I persuaded him to stop using fertilizers and that sort of thing on the area around the house. And then the last thing I could persuade him to do is to stop using dust on the potatoes. That was the hardest one to get BG's dad to stop. Anyway, I finally just said that the kids and I would be in charge of looking after potato bugs and that there was to be no more potato dust or the kids wouldn't be allowed in the garden. So of course he didn't want that to happen. … So then about eleven years ago or twelve years ago, BG was suffering from allergies. He wasn't sure that maybe he wasn't complicating his life by having just one more thing like chemicals in his life. So anyway, we decided at that point we were going to stop using all product inputs [on the fields]. So we went cold turkey eleven years ago.

Conventional versus Alternative Farm Characteristics

While our case study observations demonstrate that labor and capital intensity relate to female participation and farm types in complex ways, they also remind us that the hypothesized link between organic farming and gender cannot be understood solely as a function of how much physical labor is involved, nor can conventionalization be seen as a simple matter of increasing mechanization. The distinction between

Table 5. Pearson Correlations between Shared Decision-making and Farm Characteristics

Farm Characteristics	Pearson Correlations Farm Decisions by Type of Farms			
	Field Crop	Mixed Farms Livestock	Vegetable Farms	All Farms
Total Acreage	−.018	−.141	−.199	−.074
Total Organic Acreage	−.060	.097	−.109	−.098
Farm Size Growth	.042	.088	−.367*	.108
Debt Load	−.529**	−.550**	−.256	−.190
Reliance on Off Farm Inputs	−.100	−.268*	−.468**	−.425**
Amount of Wage Labor	−.246*	−.098	−.417**	−.158*
Wholesale vs. Direct Consumer Sales	−.242*	−.321*	−.131	−.223*

* $p < .05$; ** $p < .01$.

Note: A negative correlation in this table means that decision-making was male-oriented.

conventional and alternative approaches to organic farming relates to a number of other farm characteristics that need to be considered, including variations in farm size, farm growth rates, debt load, dependency on purchased off-farm inputs, and marketing practices (Buck, Getz and Guthman 1997). Many of these characteristics are also related to farm types. For example, field crop and livestock farms were consistently larger than vegetable farms.

When we examined some of these other variables (see Table 5) by farm type, the correlations provided further support for the claim that other conventional/alternative farm characteristics are linked to female involvement in decision-making. For example, vegetable farmers who reported a greater dependency on off-farm purchased inputs, higher debt loads, a higher farm size growth rate, wholesale marketing over local sales, and a greater dependency on wage labor (all indicators of more conventionalized operations [Buck, Getz, and Guthman 1997; Guthman 2004a, 2004b; Tovey 1997]), were less likely to report shared decision-making. Among field crop and livestock farms, debt level was particularly significant which likely reflects the broader range of debt within these groups. Debt can be seen as another measure of capital intensity, but other significant correlations (including marketing practices, wage labor, and dependency on off-farm inputs) suggest links between gender relations and broader differences in farmer orientations to organic farming.

Although farm size is often seen as an important measure of conventional versus alternative orientations to organic farming, there were no significant linear relationships between the total number of

hours of female labor and farm size, or between farm size and female decision-making, both for the sample as a whole ($r = -.074$) and within each farm type. The relative contribution of female labor and farm size were negatively related ($r = -.192$, $p < .01$). For the males, it was the reverse. Total male hours increased with farm size ($r = .327$, $p < .001$), with no significant link to the relative proportion of male hours. There were also some indications of a curvilinear relationship between farm size and female involvement in decision-making; that is, as farms increased from small (mostly less than 50 acres) to moderate sizes (100–300 acres), there was a reduction in the number of farms reporting shared decision-making. As the farms became still larger (+300 acres), the number of male-dominated farms declined back to the same levels as the smallest farms. There were not enough vegetable farms in the larger categories ($N = 2$ >300 acres) to determine whether this was occurring in this group, but both the field crop and mixed livestock operations revealed this same trend. It seems then that increasing size as a measure of conventionalized organic farming has the initial predicted link to female decision-making, but this effect disappears among the larger-sized farms.

Farmer Ideologies

As noted in the introduction, farming and environmental ideologies are also seen in the literature as an important aspect of the argument linking alternative farming to gender (Peter et al. 2000). Accordingly, we examined a number of belief and motivation items that were aimed at assessing the farmers' commitment to alternative ways of thinking, including their reasons for farming organically and their views on certain organic farming and environmental principles (Beus and Dunlap 1991; Buck, Getz, and Guthman 1997). From Table 6, we see that farmers who cited profit considerations as an important motivation for farming organically were less likely to report female involvement in labor ($r = -.239$, $p < .001$) and decision-making ($r = -.232$, $p < .001$), while those who viewed organic farming more as a way of life than a business were more likely to report female involvement in decision-making ($r = .167$, $p < .05$). Quite a few belief items were also linked to greater female involvement in production, including the principles of local production, non-reliance on off-farm inputs, and limits on farm growth. A composite measure of several of these items was also significantly related to female involvement in production ($r = .178$, $p < .05$), while female decision-making was tied significantly to levels of environmental activism and household organic food consumption.

Table 6. Pearson Correlations between Female Labor/Decision-making and Organic Motivations, Beliefs and Practices

	All Farms	
Motivations/Beliefs	Female Labor Hours Per Week	Female Decision-Making
Profit as Main Reason for Being Organic	−.239**	−.232**
Profit as Most Important Current Goal	−.204**	−.105
Belief in Limiting Off Farm Inputs	.191**	.027
Should Sell Locally	.167*	.087
Successful Farmer Should Use Profit to Expand	−.190**	−.199**
Organic Farms Must Become Larger to Meet Demand	−.156*	−.072
Must Support Wildlife	.039	.158*
Farming as Way of Life/vs. as Business	−.136*	−.167*
Conventional Composite Belief Measure	*.178**	*.097*
Other Related Practices:		
Support Local Wildlife	.099	.117
% Organic Food Consumed	.169*	.136*
Environmental Activism	.109	.176*

* $p<.05$; ** $p<.01$.

Although studies have suggested that a different orientation to nature and community is linked to a different form of masculinity (Peter et al. 2000), most of the items used to assess community ties and views on nature, with the exception of supporting wildlife, were not significantly related to the gender division of labor or decision-making among male respondents. This may indicate that the ideological link between alternative organic thinking and female involvement in farming has less to do with the specific ideas about nature, masculinity and femininity, and more to do with the underlying social values and concerns about the environment and society more generally, which are often an important aspect of the different motivations that farmers report. As one female farmer put it:

> I think the difference is traditional versus modern concerns. So it wouldn't matter whether it is conventional or organic - if you follow the traditional family model, the men do the farm work and the women do the housework. But I think because organic is a change, a complete change from conventional farming, there is more a tendency for it to be partnership thing. It is a conscious decision that a *family* has made to move away from a method of production - to better care for the land, for humane treatment of animals, to improve the environment, to achieve social justice… (JD)

Of course, as Guthman (2004b) and others have shown, not all organic farmers see their shift to organic in these terms, especially those who were motivated principally by what they saw as profit or market opportunities.

It should also be noted that when we compared farmer orientations within the different types of farms, we find that many of the relationships between organic motivations, ideas and practices, and female decision-making remained significant among field crop and mixed farms. To our surprise, considering the findings on farming practices (see Table 5), this was not the case for vegetable farmers. For example, the relationship between profit motivation and decision-making was not significant ($r = .165$, $p > .05$), while the correlations were significant among the field crop farmers ($r = 320$, $p < .01$) and among mixed farmers ($r = .268$, ($p < .05$). It is hard to know what to make of this finding except to suggest that an alternative orientation may be less important as a basis of gender involvement in vegetable farming (see next section for more discussion on this point).

It is also worth noting that although an increased profit motivation was positively related to farm size ($r = .170$, $p < .01$), the correlation between profit motivation and decision-making actually increased when we controlled for farm size ($r = -.225$, $p < .001$); that is, as the profit motivation increased, female participation in decision-making declined regardless of farm size. This would seem to reinforce the point that ideological motivations are important factors in themselves in shaping whether farms are organized in equitable gender terms.

Conventionalization and its Gender Implications

If ideological orientation is important in understanding the distribution of gender involvement in farm labor and decision-making, this suggests that the transformative potential of organic farming lies in part with the gender relations and orientations of people who are being attracted to the organic community. As we have demonstrated elsewhere (Hall and Mogyorody 2001), the newest (3 years or less) organic farmers are more likely to report a profit or cost-saving motivation as a primary basis of their decision to farm organically than the longest-term organic farmers (10 years or more) in Ontario. However, these differences are partly tied to the type of farming in that a greater proportion (46%) of the newer field crop farmers (3 years or less) stated that the promise of increased profits was very important to their decision, while the numbers of vegetable farmers (25%) and mixed farmers (27%) claiming this were much smaller.

The differences between the types of older farmers are also interesting. While 40 percent of the veteran field crop farmers (more than 10 years) cited profit as very important to their original decision to farm organically, very few of the long-term vegetable (14%) or mixed farmers (16%) cited profit as very important. This again suggests that different types of organic farms are more likely to attract people with distinct orientations to organic farming, with different implications for female participation. This may help to explain the finding that there is no overall relationship between the number of years farming organically and female decision-making since this varies with the type of farm (r= .079). The differences between different types of farmers may also explain why there is no overall trend towards less female involvement among the newer farmers.

There is also an intriguing link between decision-making and the origins of organic farmers, which varies with the type of farm. Field crop farmers who began farming organically were much more likely to report shared decision-making (50%) than those who had begun as conventional operations (19%). For the mixed livestock operations, there was also a notable albeit smaller difference in shared decision-making between those who started as organic farmers (57%) and those who switched from conventional farming (39%). On the other hand, there was virtually no difference for vegetable farmers—that is, 41 percent of vegetable growers who began farming organically and 40 percent of those who began as conventional farmers, reported shared or primary female decision-making.

These findings suggest further support for the claim that the conditions for field crop or livestock farming, i.e., prior ownership of a significant base of land and equipment, are more likely to encourage the transfer of conventional gender relations from the conventional context to the organic context (see also Hall and Mogyorody 2002a). Yet this also indicates that field crop and mixed livestock farmers who began at the outset as organic farmers were more likely to organize their production and decision-making in a more equitable manner, again implying that people coming into organic farming without a conventional agricultural background tended to be different in both their farming *and* gender orientations or ideas than conventional field crop farmers.

However, the fact that there was not much of a difference in the distribution of decision-making among vegetable farmers, whether they began as organic farmers or as conventional farmers, further reinforces the argument that there is something about the labor requirements of vegetable farming in itself which encourages the development of more

equitable gender relations. Whether this happens after the farmers become organic is not known, but it is worth recalling that most of the conventional vegetable farmers making this shift were relatively small scale operations. Even as conventional operations, these farms were not heavily mechanized and, accordingly, relied on a fair amount of family labor. Women may well have been more integrated into the production process and into decision-making *as conventional farmers* (Machum 2002) and were more likely to continue in this vein once they made the shift to organic farming. This does not mean that enhanced labor process demands within an organic context did not contribute to enhanced female participation, but it may be that the more central contribution that vegetable organic farming offers in terms of gender equality is the continued survival of small labor intensive operations that rely on more female labor, providing in turn a context for continued and perhaps enhanced involvement in decision-making.

A Way to Go Yet: The Persistence of Household Disparities

Before concluding this paper, we acknowledge important links between shared labor and decision-making in both farm production and the household (Clement and Myles 1994), which suggests some support for the argument that alternative farming orientations can help to reintegrate the household and the farm. This was especially evident in the finding that those farmers who defined their farms as a way of life for their families rather than as businesses distinct from the household, were more likely to report shared decision-making on the farm ($r=.167$, $p<.05$; see Table 5). Case studies were also useful here in that they generally confirmed that alternative-oriented organic farmers were more likely to be thinking about the farm and the household as one unit.

> **Interviewer:** How do you and B divide up *the farm work*?
>
> **Female R:** I spend one or two hours everyday doing something related to the farm on a regular basis, going out to feed the cattle, often on the tractor cutting, raking, or bailing hay. And then we sort of share the garden and cleaning the house because we're blitz housecleaners.

In the final analysis, relatively few families were fully sharing household and child-care responsibilities, and this includes most of the farmers who had alternative farming orientations. There is some evidence to suggest that the competing demands for female childcare labor and the relative availability of gender-typed off-farm labor in the

rural labor market may be key factors cutting across all types of farms and ideological orientations. In particular, the childcare effect was most evident, as might be expected, among people with younger children (Hall 1998a). While the total number of children was not related to female participation in farm production ($r=.062$), there was a negative relationship between the number of pre-school children and female farm involvement ($r= -.138$, $p<.05$) and decision-making ($r= -.164$, $p<.05$). Without time series data, we are unable to determine whether these early child care patterns are significant in shaping longer term patterns of farm labor assignment, expertise, and decision-making, but it should be noted that the cross-sectional data suggest that as their children grow older, the effect of children on female participation declines in importance.

However, many organic families were unable to survive on the incomes earned from their farms, making off-farm income essential. Geography, education, and skills play a big role in determining what is available and who ends up working off farm the most; but the kinds of jobs commonly available in many rural areas are also often typed as 'women's jobs,' including skilled and unskilled health and social service jobs, bank clerks, retail, and secretarial work, many of which are part time or temporary (Winson and Leach 2002). In part, the men are unwilling to take certain kinds of jobs precisely because they are seen as 'women's jobs' but, of course, it is the case that employers also select women for these kinds of jobs. This again relates back to farm types in that women are more likely to work off-farm in field crop farms than vegetable farms, often based on the rationale that field crop farms require mechanical skills and experience, ''which women don't have.'' Conversely, if women have been doing much of the gardening or vegetable farming to date, they are more likely to be seen as having those skills, providing a clearer rationale for their continued work on the farm. But women on organic farms, despite their organic interests and orientations, can get caught in the same web as conventional farming women, restricting their involvement in day to day production and, with that restriction, a potentially declining influence over farm decisions.

Conclusion

The findings in this study confirm the need to clearly differentiate actual farmer orientations and practices when seeking to link alternative farming to gender relations. On the whole, the evidence supports the argument that an alternative orientation to organic

farming has the potential to alter gender relations in agriculture, both by creating a labor process context in which women can more readily participate in farm production and management (Clement and Myles 1994) and by introducing and promoting alternative ways of thinking that are more consistent with gender equality. However, whether this transformative potential is realized fully over time is another matter.

The fact that most organic farms are conventional in their gender relations, including many farms that we've classified as alternative farms by our measures, is cause enough for caution in predicting major changes through the development of organic farming. Moreover, if there is a growing ideological split within the organic farming community that is being shaped by the move of conventionally-oriented field crop farmers into organic farming, then the promise of organic farming may fall short indeed (Guthman 2004b; Hall and Mogyorody 2001). Although field crop farmers constitute the largest share of farmers moving from conventional to organic farming in Canada (Macey 2001), there is also a steady stream of ''new farmers'' mainly in the livestock and vegetable categories of farming, some of whom are urban people who have never farmed before. Many of them represent a pool of alternative orientations, both with respect to agriculture and to gender relations. Moreover, as our case studies and other field site observations show, conventional farmers moving into organic farming, whether field crop farmers or not, are often open to new ideas and changes in the way they have been operating, precisely because many see the conventional system as having ''failed them.'' As Guthman (2004b) also points out, the conventionalization of organic farming has prompted increasing efforts from alternative-oriented farmers to emphasize the social justice aspects of organic farming (p. 173).

It would be overstating the evidence to suggest that the organic movement is moving in a clear single direction towards conventional farming and therefore undermining any potential for changes in gender relations. While this is a hopeful finding in some respects, the results in this study still suggest that the gender potential of organic farming may not be realized unless there is a more concerted effort by committed alternative organic farmers and consumers to work to preserve organic farming, not only as an alternative agricultural movement, but also as a social movement concerned with gender equality. With respect to the latter point, we agree with Allison Meares (1997) and others (Allen and Sachs 1992; Guthman 2004b) that alternative farming will not produce transformed gender relations without specific political and ideological attention to promoting gender

neutral practices and ideas within organic farm organizations and farms.

As we found in our case studies, even among the more dedicated alternative organic farmers, gender relations are often not on the radar screens as important issues. The fact that there is no relationship between gender equity and years in the movement also supports the point that the existence of an alternative organic orientation on a farm does not translate necessarily into equal gender relations. Indeed, we acknowledge, as Guthman (2004b) and others have, that there are some very conservative patriarchal viewpoints on gender and the family among elements of the organic farming community that have little to do with conventionalization (Conford 2001; Kaltoft 1999). These and other contradictions within the organic farming community speak to the challenges of realizing widespread equality for women simply through a shift to organic farming, whether it takes an alternative or a conventional form.

Our central point is that women cannot make significant progress on this front unless there are changes taking place at the points of production that open spaces for female involvement and power sharing. Smaller-scale labor-intensive farming will not in itself lead to gender equality on the farm, but from a labor process perspective which sees power as being grounded substantially in control over the production process (Burawoy 1985; Clement and Myles 2004), it is not enough for women to be more active and visible in farm markets or organic organizations (Trauger 2004). Although some of the labor intensive work taken on by women, such as hand-weeding, may still be less valued as menial, expanded female involvement in the fields can help to reduce the separation between the household and the farm (Meares 1997). Along with enhancing the space within which women can claim an interest and right to become more involved in other aspects of the operation and in decision-making, women can begin to make claims on the importance of linking household and farm production matters.

As our results suggest, this process of revaluing family labor appears more likely in some types of organic farms than others, in particular, where the demands of the organic operation cannot be resolved as easily through mechanical or some other commercial means (e.g., vegetable and livestock farms vs. cash crop farms). However, the evidence also shows that there are important ideological differences between farmers within these three types that are crucial in understanding both the organization of production and the gender relations within that organization. Noting the contributions of organic

and environmental ideologies helps us to recognize the critical role of farmer agency in the organization of production and gender relations, but we also cannot ignore the significant economic and ideological pressures on all organic farmers to conventionalize production (Guthman 2004b). This latter point underscores the importance of political struggles over the meaning of organic farming and the commodification of food more generally, as key components of any project seeking to enhance gender equity through the growth of alternative farming (Campbell and Liepins 2001; Clunies-Ross and Cox 1994; Guthman 2004b; Hall 2003).

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