

# Female-led farms in Scotland

Lee-Ann Sutherland, Jon Hopkins, Kirsty Holstead, Luiza Toma,  
Andrew Barnes and Keith Matthews



Women make an important contribution to farming in Scotland, but little is known about the farms they run. The aim of this briefing is to increase understanding of the roles that women play on farms by presenting findings of the analysis of a structural survey of Scottish farming undertaken in 2013. We compare farm business characteristics and household demographics of female respondents who identified themselves as “the main decision-maker” with those of male respondents who identified themselves as the main decision-maker.



## Key Points

At aggregate level, the characteristics of the farms that men and women run are somewhat different:

- The farms that have men as the primary decision maker are larger than the farms which have women as the primary decision-maker.
- Female farmers reported being less dependent on farming for income, were less likely to receive subsidies or to have employees.

Men and women who run farms also have different characteristics and influences on decision-making:

- Female decision makers tend to be more educated, and are more likely to work part-time on the farm.
- Female decision makers are less likely to have inherited the farm that they run from a previous generation.
- Women are less likely to run their farms for profit.
- The factors which affect the farm management of female-led commercial farms are similar to those which affect male-led commercial farms. However, female farmers were less likely to be affected by changes in input and commodity prices, and changes in technology. Women were more likely to be affected by changes in family circumstances and access to off-farm employment.
- Female farm decision makers are more likely to involve the household with decision making

In general, gender was not statistically significantly associated with farm changes that have been made since 2005 or future changes which farmers intend to make by 2020 (i.e. women are no more or less likely to make changes to their holdings than men).

- However, in the case of future land size and forestry cover changes were there significant differences: women are less likely to plan to change the size of their farm in the future, but more likely to increase the amount of forestry they have on their land.



## What are the implications for policy?

Findings from this research are intended to provide background support to broader Scottish Government initiatives to understand and enable the contribution of women in Scotland's agricultural sector. Public policy in Scotland is increasingly focused on gender equality to reduce and remove the barriers faced by women and men in Scotland across a range of social and economic spheres. This analysis is intended to complement the 'Women in Farming and the Agricultural Sector' research currently underway. The research is being conducted by Queen's University Belfast and the James Hutton Institute, Aberdeen. The survey for agricultural students and alumni is available [here](#). Findings will be available in Spring 2017.

## What did we do?

The data for this information note were generated from a spatially and farming systems representative telephone survey undertaken in a collaboration between the James Hutton Institute and Scotland's Rural College, which surveyed a sample of 10,000 Scottish land holdings in 2013, leading to 2,416 responses. Of these, 19% (n = 465) were women.

All farmers included in the analysis in this briefing note identified themselves as the main decision makers on the holding. The 295 women who indicated that they were the primary decision-maker are the primary focus of this note.

We asked the survey participants questions about themselves and the farms they run. We discuss the most important statistically significant differences below. As there is a disproportionate number of women who run farms with the aim of 'breaking even' or who 'expect to make loss' (here termed 'not-for-profit' farms), which tend to be much smaller and involve less labour than commercial farms, the briefing first compares profit and not-for-profit between the two genders, and then proceeds to focus on profit-oriented farmers. Not-for-profit farms will be the subject of a subsequent briefing note.

We used appropriate tests (Chi square, Fisher's exact test, Mann-Whitney U test) to assess where male and female farmers significantly differed in terms of:

- farm and farmer characteristics, and
- the factors that affect farming

Most of the information in this research note is from the 2013 survey; however information on farm size of each holding was derived from data in the 2013 June Agricultural Census data and analysis within ArcGIS.

## What did we find?

**Profit orientation:** Farms with women as the main decision-maker are much less likely to be run for profit.

**Table 1: Break down of respondents**

Cohort	n
Female – farming for profit	169
Male – farming for profit	1,503
Female – not farming for profit	126
Male – not farming for profit	233

**Farm size:** Farms which have women as the main decision maker are significantly smaller than those with male decision makers.

**Table 2: Median hectares of farm sizes**

	Female, not for profit	Female for profit	Male, not for profit	Male, for profit
Farm size	4.7	<b>74.5</b>	5.9	<b>118.9</b>

**Farm heritage:** Women were less likely to have inherited their business or holding (57% F-P compared to 70% of M-P). Consistent with this, male farmers tended to be involved with the holding for a longer amount of time than women: 80% of M-P, compared to 70% of F-P had been involved in the farm enterprise for more than 20 years.

**Table 3: Differences in time spent farming (%)**

	Female not for profit	Female for profit	Male not for profit	Male for profit
<b>&gt;20 years</b>	37.3	70.4	64.4	79.7
<b>10 - 20 years</b>	28.6	17.2	16.3	13.3
<b>5 - 10 years</b>	23.8	7.7	10.7	3.8
<b>&lt; 5 years</b>	10.3	4.7	8.6	3.2

Note: Figures show the percentage of farmers within the respective group associated with the response category. Some of differences are not statistically significant.



## For-profit farming

Table 4 shows selected response categories, for variables where there were significant differences in responses between female and male main decision makers of commercial farmers. Figures show the percentage of farmers within the respective group associated with the response category.

**Table 4: Summary of the differences between male and female 'for profit' farmers (%)**

Variable	Female For Profit	Male For Profit
<b>Education</b>		
School level	42.0	48.2
University or higher level	27.2	16.2
<b>Years involved in business/holding</b>		
More than 20 years	70.4	79.7
<b>Number of employees</b>		
None	55.6	44.4
<b>Description of role</b>		
Full time farmer	63.1	77.1
Part time farmer	29.2	15.7
<b>Proportion of income from agriculture on farm</b>		
Over 75%	46.2	55.0
<b>Proportion of income from subsidies</b>		
Zero	15.4	7.2
<b>Inherited business/holding</b>		
Yes	57.4	70.2
<b>Other</b>		
Farm size (median, ha)	74.5	118.9
Equine services on farm	5.0	2.0

**Education:** Female for-profit (F-P) farmers on average spend more time in formal education. 27% of women compared to 16% of men had a university level education or higher.

**Farmer identity:** A greater number of men saw themselves as full-time farmers. Women were more likely than to classify themselves as part-time farmers (29% F-P compared to 16% M-P).

**Income:** Women were less likely to make over 75% of their income from their farm (46% of F-P compared to 55% of M-P). M-P are more likely to have 1 or more employees than F-P farms.

**Farm Type:** F-P were more likely to have equine services on their farms (5% of F-P compared to 2% of M-P) (see Table 3).

**Subsidies:** Male run farms are more likely to receive income from subsidies. 15% of F-P compared to 7% of M-P received no income from subsidies.

**Age:** There was no significant difference in the age of male and female primary decision-makers.

## Innovation on female-led farms

**Past changes:** We asked the survey respondents about the changes they had made to their farm since 2005.

We found that among the for-profit farms, gender was not significantly associated with past changes that have taken place on farms (e.g. changes to farm size, investment in renewable energy, animal welfare, new technologies). However, although similar percentages of women and men had changed the number of livestock on their farms (62% of F-P and 60% of M-P), 69% of these women increased their units of livestock whereas 63% of the men had reduced them.

**Future changes:** We asked the survey respondents about the future changes they intended to make to their farms by 2020.

We found that among the for profit farms, gender was generally not significantly associated with future changes that farmers intend to make on their farms.

However, in two cases (farm size and forestry) there were significant associations between gender and future land use change.

First, women were less likely to plan to change their farm size. 25% of F-P and 37% of M-P intended to make this change. In both cases just over a two thirds of those planning to make a change to farm size were planning to increase it.

Second, with respect to forestry, 20% of women and 12% of men intended to change the amount of forestry they have on their farm land by 2020. 85% of both these women and men intend to increase their forest cover.

# What influences women's farm management?

The number of people involved in decision-making on Female-for-Profit (F-P) and Male-for-Profit (M-P) farms differs. Comparing F-P and M-P in Table 5 we see that fewer women than men make the decisions on their farms alone. 40% of F-P identified themselves as the sole decision makers on their farms, compared to 58% of M-P. Similarly, women are more likely to involve the household in decisions making (48% of F-P compared to 30% of M-P).

**Table 5: Summary of parties involved in decision making in both and female profit orientated farms.**

Decision made by	Female for Profit %	Male for Profit %
One person	40.2	58.0
Household	47.9	29.7

Note: Figures show the percentage of farmers within the respective group associated with the response category. These finds are statistically significant.

The factors which affect the farm management of F-P farms were similar to those which influence M-P farms, including climate change, access to information and joining a quality assurance program.

Table 6 shows that fewer F-P farms reported being impacted upon by changes in commodity and input prices than M-P. Similarly, changes in technology impact more M-P farms than their female counterparts.

Changes to the family circle and access to off-farm employment affected F-P farms more than M-P farms. 30% of F-P reported that farm management had been affected by family changes compared to 23% of M-P.

**Table 6: Summary of the proportion of male and female commercial farmers whose farm management has been affected by the factors shown.**

	Female for Profit farms (%)	Male for Profit Farms (%)	Difference (%)
Access to off-farm employment	20.1	14.4	5.7
Changes in family circumstances	29.6	23.2	6.4
Changes in technology	50.3	60.3	-10.1
Changes in input prices	66.9	77.4	-10.6
Changes in output (commodity) prices	63.3	73.1	-9.7

Percentages showing whose management was affected. The 'Difference' column shows the difference in percentage points between the two groups who were affected.

## Further information

Data analysis used R (<https://www.R-project.org/>) including functions from the packages 'foreign' (<http://CRAN.R-project.org/package=foreign>) and 'lrs' (<http://ua.edu.au/ccs/teaching/lrs/>). Some data derived from analysis using ESRI ArcGIS (Copyright © 1995-2013 Esri) of Agricultural Parish Boundaries (Scotland) and Ordnance Survey Boundary-Line™ data, and information on areas in [http://www.legislation.gov.uk/ssi/2010/29/pdfs/ssi\\_20100029\\_en.pdf](http://www.legislation.gov.uk/ssi/2010/29/pdfs/ssi_20100029_en.pdf) and <http://www.gov.scot/Topics/farmingrural/Rural/crofting-policy/new-crofting-areas> June Agricultural Census 2013 data tables provided by Agriculture Statistics Unit of the Rural and Environment Science and Analytical Division in Scottish Government.

## Contact

Lee-Ann Sutherland [Lee-Ann.Sutherland@hutton.ac.uk](mailto:Lee-Ann.Sutherland@hutton.ac.uk):01224 395285



**The James Hutton Institute**  
**Social, Economic & Geographical Sciences**  
 The James Hutton Institute  
 Craigiebuckler  
 Aberdeen AB15 8QH



This research is funded by Scottish Government's Rural and Environmental Science and Analytical Services Division (RESAS) under Theme 2: Productive and sustainable land management and rural economies. The views expressed are those of the authors and do not necessarily reflect those of the Scottish Government.