

## Appendix 1. Results from the interviews with farmers.

Table A1.1. Summarised results from the field management questionnaire.

Field variable	n	Mean org	SD org	Mean conv	SD conv	Test used for comparison	Test statistic	P value	Notes
Field size	89 pairs	7.36	4.43	10.65	8.08	Paired t-test	3.32	<0.001	
Duration of rotation		7.21	8.38	15.55	14.28	Paired t-test	-4.49	<0.0001	
Sowing date (days after 1st sowing)						Wilcoxon's Matched pairs			Numbers given are days since first planting data. Organic farmers always sowed later than conventional farmers, low significances are in part due to low numbers of records.
1. spring '00	28	41	18	28	11		2.85	<0.01	
2. first winter '01	19	34	14	27	20		2.17	<0.01	
3. second winter '02	8	75	67	21	18		1.96	<0.05	
<b>Organic farmers only</b>									
Age organic – based on registration date	89	8.13	8.81						49% <5 years organic 6% >35 yrs organic (does not include one farm that has always been managed organically, but registered more recently). See fig.1.
Field variable	n	No. org		No. conv		Test used for comparison	Test statistic	P value	Notes
Rotation types	178					Chi square			
1. cereal rotation + set aside, veg or break crop		9		72			57.4	<0.0001	
2. cereal/ley		37		6			22.3	<0.0001	
3. cereal/veg or break/ley		35		4			24.6	<0.0001	
4. cereals only		0		4			4	<0.05	
5. no rotation		8		5			2.27	Non sig.	
Continuity of cropping	176					Chi square			
1. continuous		0		16			13.23	<0.001	Numbers of organic farms with continuous cropping were lower than expected.
2. discontinuous		88		72					
Grass in rotation	177					Chi square			
1. yes		82		11			54.2	<0.0001	Numbers of organic farms with grass in the rotation were higher than expected
2. no		7		77			4.2	Non sig.	

Field variable	n	No. org		No. conv		Test used for comparison	Test statistic	P value	Notes
Target field & boundaries in agri-environment scheme	178	28		26		Chi square	0.07	Non sig.	No difference between organic and conventional in the likelihood of target fields being in agri-environment schemes.
Hedge management on field in cropping year 1. yes 2. no	175	43 45		64 23		Chi square	2.7 7.11	Non sig <0.01	Numbers of conventional fields with managed boundaries during the cropping year were higher than expected
Consistency of field management over last 10 years 1. consistent 2. inconsistent	168	36 53		67 12		Chi square	13.48 21.36	<0.001 <0.0001	Numbers of organic fields with inconsistent management were higher than expected. 50 of the organic farms with inconsistent management over the last 10 years converted to organic during that period.
Duration of arable management 1. <20 years 2. >20 years	163	39 45		17 62		Chi square	8.64 2.7	<0.01 Non sig.	More organic farms than expected have been arable for less than 20 years. 45% of all arable fields (with a marginally greater proportion of conventional farms) have been arable for >40 years.
<b>Conventional farmers only</b>									
Fertiliser use	89								All farmers except one applied fertilisers. Organic farmers did not.
Herbicide use	88								95% of farmers used a broadleaf herbicide 81% used a graminicides, those who didn't were largely spring cereal growers
Timing of herbicides (Timing of herbicides – continued)	58								All applications for spring cereals were in the spring 57% of winter wheat farmers applied herbicides in autumn/winter 30% made applications in both autumn/winter and spring.
Molluscicides	86								15% reported using molluscicides
Insecticides	85								34% reported using insecticides
Fungicides	64								67% reported using fungicides

Table A1.2. Summarised results from the farm management questionnaire

Field variable	n	Mean org	SD org	Mean conv	SD conv	Test used for comparison	Test statistic	P value	Notes
Farm size	89 pairs	246Ha	250	271Ha	280	Paired t-test	0.048	Non sig.	Farm size ranged between 30 and 1457Ha. 73% of farms were contiguous. No differences between systems as to whether farms were contiguous or not.
% arable land	158	58	28	70	24	Mann Whitney U	-2.4	<0.01	There is significantly less arable land on organic farms.
% permanent pasture	159	22	21	18	17	Mann Whitney U	-1.2	Non sig.	Proportions of permanent pasture varied between 20-80%.
Area of woodland on farm Mean (Ha)	156	10.29	15.4	9.44	18.3	Paired t-test	0.32	Non sig.	Most farms indicated no change in woodland area over the past 40 years. There was a gradual increase in woodland on farms over the last 40 year from 9% indicating increases in the '60's to 46% in the '90's. It is possible that agri-environment schemes may be partly responsible for increases with 64% of farms showing increases in the '90's in agri-env schemes at the time of survey.
Number of ponds	159	2.41	2.95	3.08	3.13	Paired t-test	-1.79	Non sig.	Most farms indicated no change in pond number over the past 40 years. Farms showing decreases in pond numbers stayed at around 6% from the '60's to '80's, going down to 3% in the '90's. Much larger numbers of farms showed increases in ponds in the '90's (26%) than in the previous 30 years. Around 75% of farms showing increases in the '90's were in agri-env. schemes at the time of survey.
Number of non-crop habitats	156	1.89	0.98	1.91	0.93	Paired t-test	-0.17	Non sig.	Farmers listed 19 different types of non-crop habitat ;streams, rivers, springs, ditches, scrub, old buildings, wetland, field headlands, moorland, game cover, beetlebanks, bridleways, green lanes, shelter belts, sandbanks, parkland, ancient woodland, meadows

Field variable	n	No. org		No. conv		Test used for comparison	Test statistic	P value	Notes
Farm ownership						Chi square			
1. owner	83	34		49			0.44	Non sig.	Over 50% of farmers were owners, no significant differences between farm types.
2. tenant	43	23		20			1.51	Non sig.	
3. owner & tenant	14	8		6			1.16	Non sig.	
4. shared farm	5	1		4			0.83	Non sig.	
5. contractor	2	1		1					
6. manager	12	7		5			1.4	Non sig.	
Agri-environment schemes on farms	158					Chi square			
1. In schemes		46		37			3.95	<0.05	The proportion of organic farms in schemes was higher than expected. 77% of farms in schemes were in Countryside Stewardship. Two pairs of farms were in ESA's, 24% of conventional and 13% of organic farms in schemes were in ESA . A small proportion of farms were in the Farm woodland scheme.
2. Not in schemes		26		49			3.44	Non sig.	
Use of set-aside options	159					Chi square			
1. permanent		11		10			0.7	Non sig.	The number of organic farms with no set-aside is higher than expected.
2. rotational		41		49			0	Non sig.	
3. both		8		21			3.48	Non sig.	
4. none		14		5			5.27	<0.05	
Use of natural regeneration as a set-aside option	134					Chi square			
1. yes		23		55			73.5	<0.0001	No. of farms used in the analysis are in proportion to the total no of farms. Natural regeneration is significantly less likely to be used as an option by organic farmers.
2. no		37		19			10.4	<0.001	
Fallow land - numbers of farms with;	156					Chi square	0.65	Non sig.	
1. some		20		21					Both organic and conventional farms left a mean of 20% land fallow. More conventional farms left land fallow but this was not significant.
2. a given %		20		38					
3. none		28		29					

Field variable	n	No. org		No. conv		Test used for comparison	Test statistic	P value	Notes
Management of permanent pasture	146					Chi square			
1. grazing		18		14			0.12	Non sig.	
2. grazing & silage		16		15			0	Non sig.	
3. grazing & hay		18		21			0.92	Non sig.	
4. grazing, hay & silage		15		17			0.51	Non sig.	
5. hay		6		1			2.30	Non sig.	
6. other		4		1			0.83	Non sig.	
Leys in system	158					Chi square			
1. yes		70		25			15.28	<0.0001	Information on the management of leys revealed no significant differences between organic and conventional farmers with 50% of both types of farmer grazing leys, and the others making silage or hay in a range of combinations with and without grazing.
2. no		3		60			61.40	<0.0001	
Livestock on farm	158					Chi square			
1. yes		66		60			3.94	<0.05	Numbers of organic farms with livestock were higher than expected. A wider variety of livestock was found on organic farms including 20% farms with poultry, organic farms also included pigs, goats and deer. A few conventional farms had pigs and horses.
2. no		5		27					
3. beef		43		35			0.11	Non sig.	
4. sheep		40		17			7.04	<0.01	
5. dairy		23		23			0.08	Non sig.	
Livestock used on arable land	158					Chi square			
1. yes		56		35			9.98	<0.01	More organic farmers than expected used their livestock on the arable land.
2. no		15		52					
Changes in hedge management over past 40 years.	159					Chi square			
1. yes		50		68			0.14	Non sig.	Chi square tests between organic and conventional farms in terms of numbers of hedges increasing and decreasing in the '60's and '90's show no significant differences between them. However overall decreases went from 40% in the '60's to 3% in the '90's and increases went from 3% to 42% across the same period. On average 47% of farms with increases in the '90's were in agri-environment schemes. 65% of farms showing increases pre-'90's were in agri-environment schemes.
2. no		21		20					

Field variable	n	No. org		No. conv		Test used for comparison	Test statistic	P value	Notes
Frequency of hedge cutting 1. infrequent 2. frequent	159	5 68		38 48		Chi square	21.03 7.82	<0.0001 <0.01	Organic hedges were cut less often than expected
Hedge laying 1. yes	159	14		1		Chi square	13.12	<0.01	More organic farms than expected lay hedges.
Management for wildlife 1. yes 2. no	159	56 16		62 25		Chi square	0.31	Non sig.	77% of organic and 71% of conventional farmers managed or neglected to manage some part of their farm for the benefit of wildlife
<b>Organic farmers only</b>									
Had farms ever been managed non-organically? 1. yes 2. no	73	69 4							Two other farms reported very low useage of inputs pre-conversion.
Is the whole farm organic? 1. yes 2. no, but it will be 3. no, and it never will be	73	48 15 10							Half of the farms in category 3 comprised of more than one unit.