Appendix A: Crop yields and gross margins at Hunts Mill and the Reference Farms

Figure A1. Yields of key vegetable crops compared with 'typical organic values' . **HM**: Average of crops grown at Hunts Mill; **RF av**: simple average of all the reference farm crops; **RF wt av**: average of the reference farm crops weighted according to the area grown; **Typical org**: *Organic Farm Management Handbook 1999* or *2004*; **Typical con**: *SAC Farm Management Handbook 1999* or MAFF 10 year average figures published in 2000. The number of crops making up each average is shown above the bars. No data is presented for cabbages or lettuces because the many types grown makes averages meaningless.

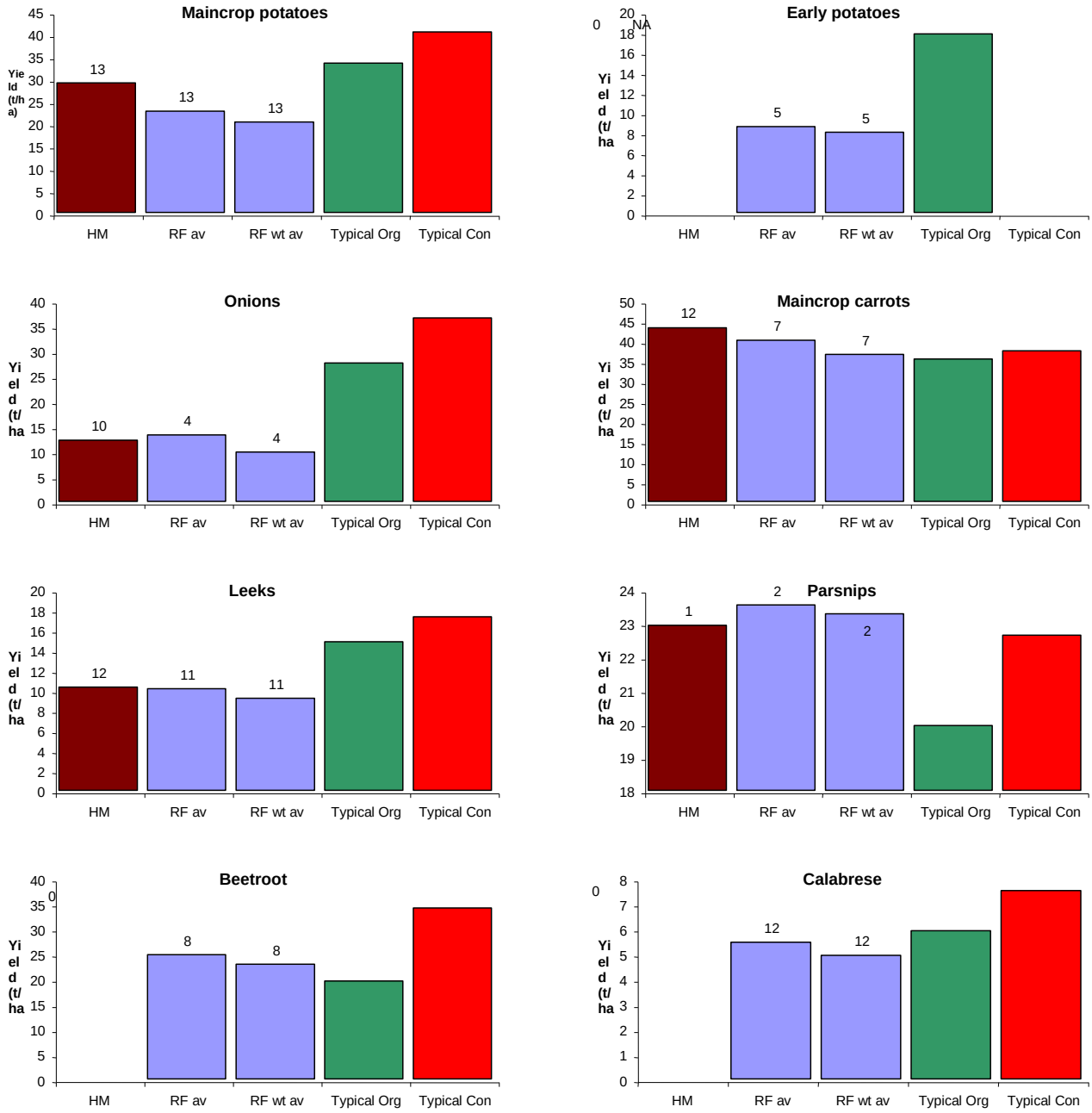


Figure A2. Gross margins of key vegetable crops compared with typical 'standard' values. **HM**: Average of crops grown at Hunts Mill; **RF av**: simple average of all the reference farm crops; **RF wt av**: average of the reference farm crops weighted according to the area grown; **Typical org**: *Organic Farm Management Handbook 1999* or *2004*; **Typical con**: *SAC Farm Management Handbook 1999* or MAFF 10 year average figures published in 2000. The number of crops making up each average is shown above the bars. No data is presented for cabbages or lettuces because the many types grown makes averages meaningless.

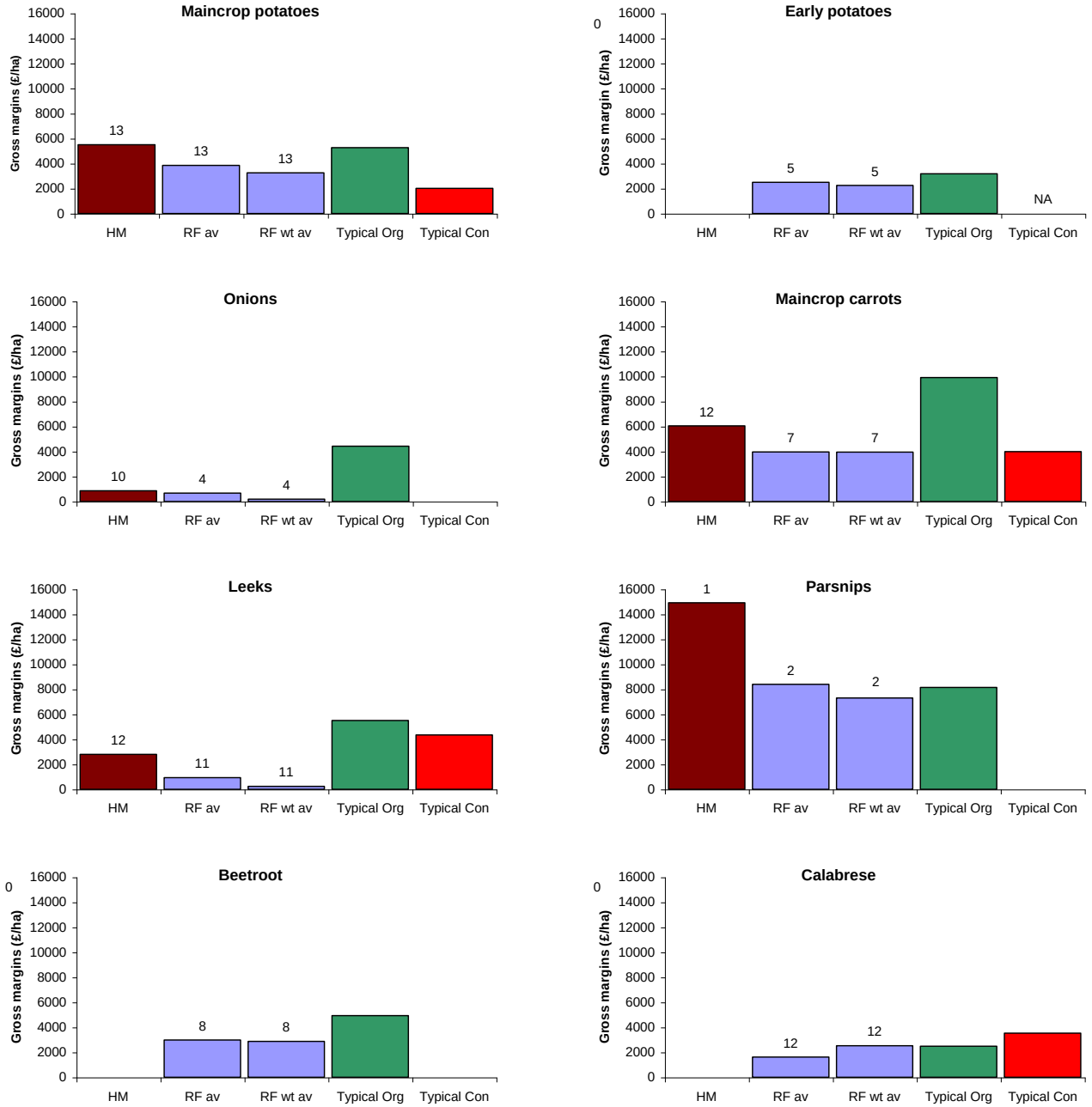
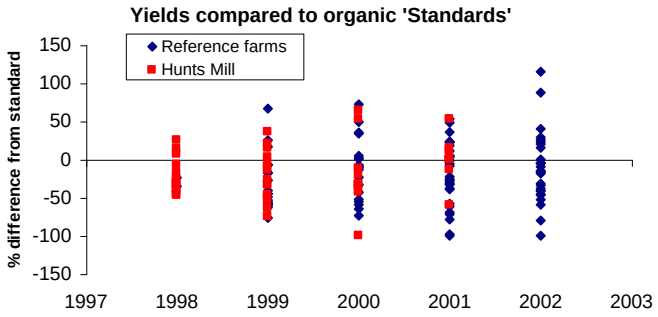
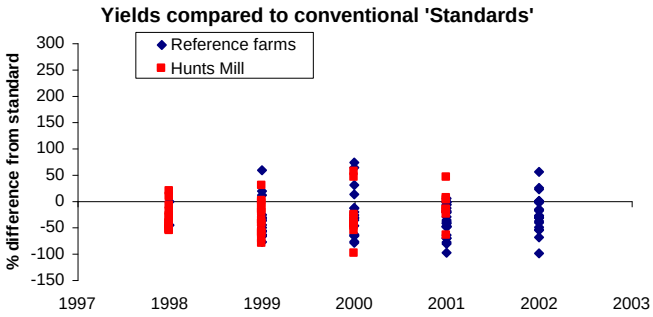
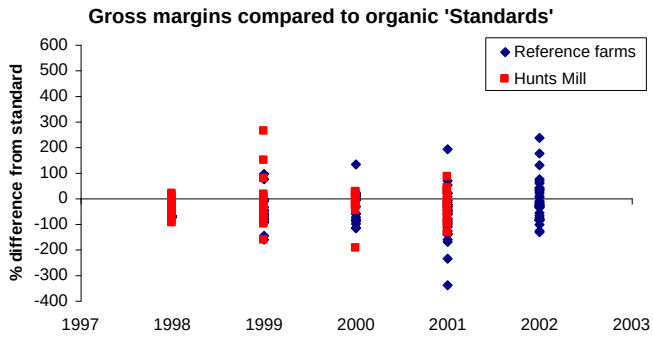
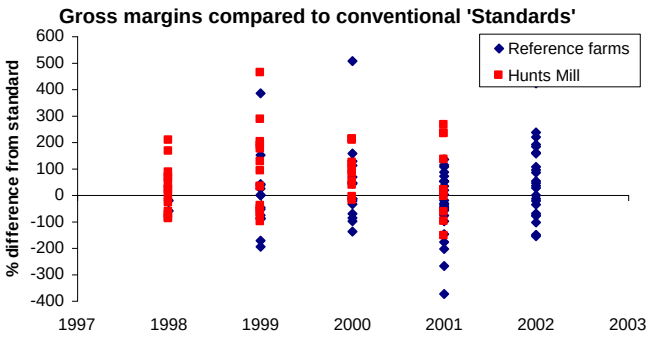


Figure A3. Individual yields and gross margins of all vegetable crops grown at Hunts Mill (red) and on the reference farms (blue) expressed as percentages above or below typical standard values for organic crops (*Organic Farm Management Handbook 1999* or *2004)* and conventional crops (*SAC Farm Management Handbook 1999* or MAFF 10 year average figures published in 2000). NB Monitoring work at Hunts Mill in 2002 did not form part of this project.









Appendix B1: Gross margin analysis on reference farms. 1) Costs of nine key vegetable crops

Crop	Potatoes	Cabbage	Onions	Carrots	Leeks	Beetroot	Calabrese	Cauliflower	Sweetcorn
Crops (n)	13	12	4	7	11	8	14	18	4
Av. year	2000.2	2000.7	2000.5	1999.9	2000.9	2000.5	2000.6	2001.1	2001.5
Av. area (ha)	13.2	5.1	12.2	2.2	4.8	5.7	13.9	6.5	0.3
Output unit	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	dozen	cobs
Marketable yield (t, unit)	24	26	13	35	11	24	5	1023	14871
Price (£/t, unit)	248	377	277	293	896	237	938	4.92	0.19
Total Output (£/ha)	**6295**	**7129**	**3490**	**11296**	**8812**	**5437**	**5045**	**5304**	**3718**
Seeds/Transplants	901	949	1070	628	1880	480	589	710	408
Fertilisers (FYM)	79	89	18	9	105	35	91	88	192
Crop protection fleece	0	228	34	5	4	12	178	146	0
spray/pest monitor	156	132	1	137	19	33	110	70	0
trace elements	0	1	0	0	2	5	4	5	0
Casual labour handling fleece	0	0	0	102	0	0	52	33	0
hand planting	35	167	273	0	258	0	116	113	65
hand weeding	92	310	500	977	446	628	164	169	105
hand harvest/grade	887	963	443	3439	3060	853	931	897	373
Packaging, Storage	249	179	98	378	290	293	193	166	0
Transport	158	287	179	437	414	381	139	185	148
Commission, Levies	8	147	92	643	497	22	46	25	0
Other	162	14	82	471	50	202	4	47	0
TOTAL Variable Costs	2728	3467	2790	7227	7025	2942	2616	2655	1291
Gross Margin (£/ha)	3567	3662	700	4070	1788	2494	2429	2649	2427
Cultivations	189	154	47	150	166	145	133	122	114
Planting/drilling	105	438	278	53	331	46	307	258	348
Mech. weeding	105	59	62	236	348	527	83	53	60
Fertilising (FYM)	41	27	10	2	45	25	47	41	53
Spray, P&D control	129	19	0	20	7	3	10	12	0
Irrigation	114	37	124	114	199	126	135	106	203
Harvesting	291	23	0	188	5	272	101	32	0
Other	20	0	44	17	5	30	10	21	0
TOTAL allocated Fixed Costs	994	757	565	779	1106	1173	827	646	777
Net Margin (£/ha)	2563	3300	397	3291	1361	1321	1473	1969	1650
Crop protection	156	361	35	143	26	49	292	221	0
Casual labour	1015	1441	1215	4518	3763	1481	1263	1213	543
Pack & Transport	407	466	277	815	704	674	332	351	148
Unit costs (pence/kg or unit)									
Output unit	kg	kg	kg	kg	kg	kg	kg	dozen	cobs
Price (pence/kg or unit)	25	38	28	29	90	24	94	492	19
Unit costs pence/unit (variable)	11	13	22	21	66	12	48	260	9
% of price	46%	36%	80%	71%	74%	52%	51%	53%	46%
Unit costs pence/unit (variable, allocated fixe	15	16	27	23	76	17	63	323	14
% of price	62%	43%	97%	79%	85%	73%	67%	66%	74%

Appendix B2: Gross margin analysis on reference farms. 2) Breakdown of costs (%)

Crop	Potatoes	Cabbage	Onions	Carrots	Leeks	Beetroot	Calabrese	Cauliflower	Sweetcorn
Crops (n)	13	12	4	7	11	8	14	18	4
Av. year	2000.2	2000.7	2000.5	1999.9	2000.9	2000.5	2000.6	2001.1	2001.5
Av. area (ha)	13.2	5.1	12.2	2.2	4.8	5.7	13.9	6.5	0.3
Output unit	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	dozen	cobs
Total Output (£/ha)									
Seeds/Transplants	33%	27%	38%	9%	27%	16%	23%	27%	32%
Fertilisers (FYM)	3%	3%	1%	0%	1%	1%	3%	3%	15%
Crop protection fleece	0%	7%	1%	0%	0%	0%	7%	6%	0%
spray/pest monitor	6%	4%	0%	2%	0%	1%	4%	3%	0%
trace elements	0%	0%	0%	0%	0%	0%	0%	0%	0%
Casual labour handling fleece	0%	0%	0%	1%	0%	0%	2%	1%	0%
hand planting	1%	5%	10%	0%	4%	0%	4%	4%	5%
hand weeding	3%	9%	18%	14%	6%	21%	6%	6%	8%
hand harvest/grade	33%	28%	16%	48%	44%	29%	36%	34%	29%
Packaging, Storage	9%	5%	4%	5%	4%	10%	7%	6%	0%
Transport	6%	8%	6%	6%	6%	13%	5%	7%	11%
Commission, Levies	0%	4%	3%	9%	7%	1%	2%	1%	0%
Other	6%	0%	3%	7%	1%	7%	0%	2%	0%
TOTAL Variable Costs	100%	100%	100%	100%	100%	100%	100%	100%	100%
Gross Margin (£/ha)									
Cultivations	19%	20%	8%	19%	15%	12%	16%	19%	15%
Planting/drilling	11%	58%	49%	7%	30%	4%	37%	40%	45%
Mech. weeding	11%	8%	11%	30%	31%	45%	10%	8%	8%
Fertilising (FYM)	4%	4%	2%	0%	4%	2%	6%	6%	7%
Spray, P&D control	13%	2%	0%	3%	1%	0%	1%	2%	0%
Irrigation	12%	5%	22%	15%	18%	11%	16%	16%	26%
Harvesting	29%	3%	0%	24%	0%	23%	12%	5%	0%
Other	2%	0%	8%	2%	0%	3%	1%	3%	0%
TOTAL allocated Fixed Costs	100%	100%	100%	100%	100%	100%	100%	100%	100%
Net Margin (£/ha)									
Crop protection	6%	10%	1%	2%	0%	2%	11%	8%	0%
Casual labour	37%	42%	44%	63%	54%	50%	48%	46%	42%
Pack & Transport	15%	13%	10%	11%	10%	23%	13%	13%	11%

Appendix B3: Gross margin analysis on reference farms. 3) Analysis of the three farm type scenarios arable/veg, livestock/veg and intensive veg

Gross margin analysis of 10 reference farms during 1998-2002

		Scenario			
Crop	Data	**arable**	**livestock**	**veg**	Grand Total
Beetroot	Count of Crop	8			8
	Average of GM (£/ha)	2494			2494
Broad Beans	Count of Crop			1	1
	Average of GM (£/ha)			8307	8307
Broccoli	Count of Crop	11		3	14
	Average of GM (£/ha)	1776		4824	2429
Broccoli (purple sprouti	Count of Crop	3			3
	Average of GM (£/ha)	1669			1669
Brussels Sprouts	Count of Crop	2			2
	Average of GM (£/ha)	2580			2580
Cabbage	Count of Crop			1	1
	Average of GM (£/ha)			3161	3161
Cabbage (Dutch white)	Count of Crop	1		3	4
	Average of GM (£/ha)	6025		649	1993
Cabbage (Savoy)	Count of Crop	1		1	2
	Average of GM (£/ha)	-1200		4767	1784
Cabbage (Spring Gree	Count of Crop	3			3
	Average of GM (£/ha)	2527			2527
Cabbage (summer)	Count of Crop	6		2	8
	Average of GM (£/ha)	3153		8784	4561
Carrots	Count of Crop	3		4	7
	Average of GM (£/ha)	3721		4332	4070
Carrots (bunch)	Count of Crop	3			3
	Average of GM (£/ha)	3288			3288
Cauliflower	Count of Crop	2	1	1	4
	Average of GM (£/ha)	4921	233	1711	2947
Cauliflower (over-winte	Count of Crop	2	2		4
	Average of GM (£/ha)	1931	3183		2557
Cauliflower (summer)	Count of Crop	4		3	7
	Average of GM (£/ha)	1009		3548	2097
Cauliflower (winter)	Count of Crop	1	2		3
	Average of GM (£/ha)	3232	3876		3661
Celeriac	Count of Crop	4			4
	Average of GM (£/ha)	6744			6744
Celery	Count of Crop	1		2	3
	Average of GM (£/ha)	3517		10143	7934
Chicory	Count of Crop	4			4
	Average of GM (£/ha)	2343			2343
Courgettes	Count of Crop	4			4
	Average of GM (£/ha)	1356			1356
Leeks	Count of Crop	9		2	11
	Average of GM (£/ha)	61		9559	1788
Lettuce	Count of Crop	1	1	3	5
	Average of GM (£/ha)	2801	-2632	9798	5913
Onions	Count of Crop	3		1	4
	Average of GM (£/ha)	370		1691	700
Onions (spring)	Count of Crop	1			1
	Average of GM (£/ha)	-5723			-5723
Parsnips	Count of Crop	2			2
	Average of GM (£/ha)	5898			5898
Potatoes	Count of Crop	7		6	13
	Average of GM (£/ha)	2322		5020	3567
Potatoes (early)	Count of Crop		6		6
	Average of GM (£/ha)		2543		2543
Runner Beans	Count of Crop	1		1	2
	Average of GM (£/ha)	-5679		25450	9885
Sweetcorn	Count of Crop	1		3	4
	Average of GM (£/ha)	-599		3436	2427
Total Count of Crop		**88**	**12**	**37**	**137**
Total Average of GM (£/ha)		**2145**	**2248**	**5845**	**3153**

Appendix C: Summary of reference farm gross margins

Figure C 1. Distribution of reference farm vegetable gross margins by area during the course of the project

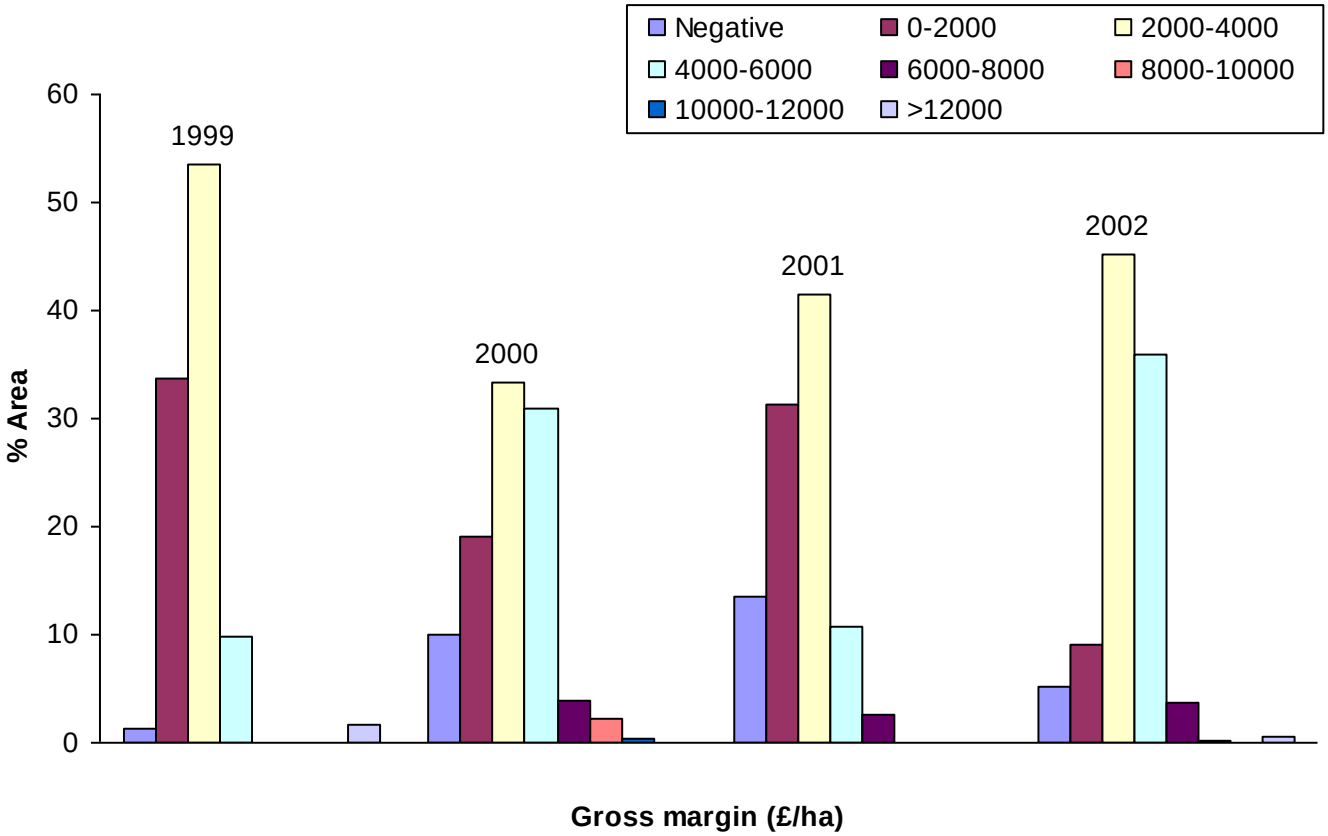


Table C1. Averages of reference farm vegetable gross margins during the course of the project.

Year	Gross margin (£/ha)	Total area (ha)	No of crops grown
1999/2000	2702	119	23
2000/2001	3084	228	27
2001/2002	2110	242	42
2002/2003	3245	240	42

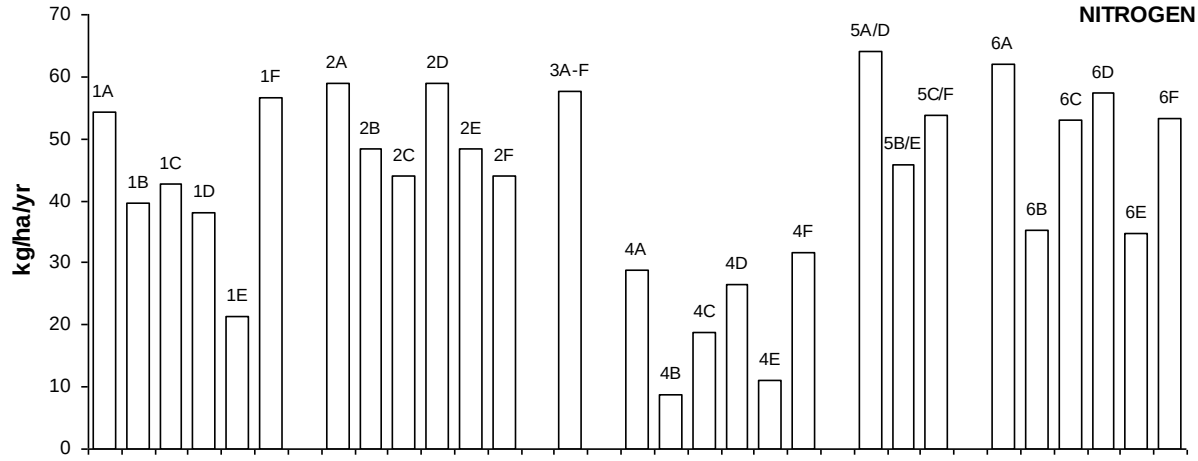
Appendix D: Interpretation of soil analysis at Hunts Mill and on the Reference Farms

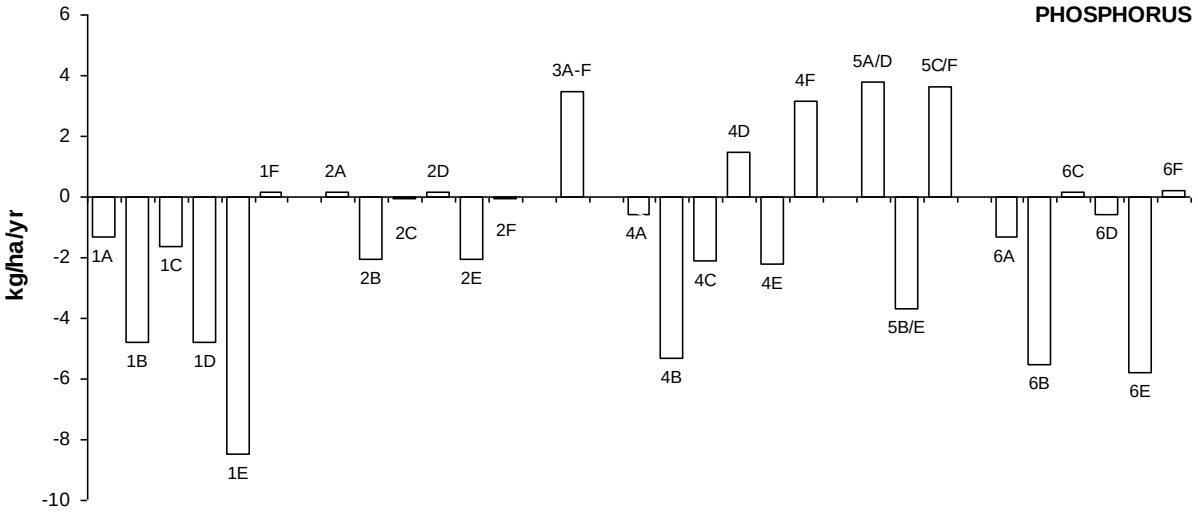
Data relating to soil samples taken in spring 2003. The status of organic matter, P and K is based on the threshold values used by Elm Farm Research Centre that are appropriate for the soil type. The figures in brackets refer to the percentage of fields in each category on each farm.

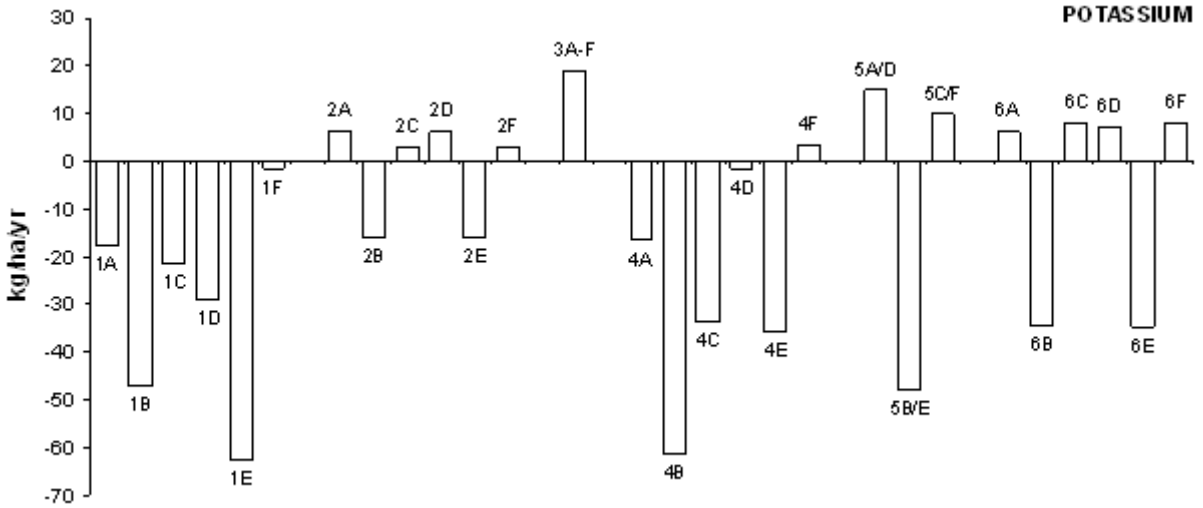
Farm	Location	Soil type	Organic matter	Available P	Available K
Hunts Mill	Warks.	Sandy loam	Low (100)	Low (100)	Low (100)
1	S. Lincs.	Silty loam	OK (13) Low (87)	OK (100) Low (none)	OK (none) Low (100)
2	S. Lincs.	Silty loam	OK (50) Low (50)	OK (100) Low (none)	Good (100) Low (none)
4	Warks.	Clay loam	OK (20) Low (80)	OK (20) Low (80)	Good (20) Low (80)
5	N. Lincs.	Sandy loam/ peaty	Good (100) Low (none)	OK (9) Low (91)	Good (64) Low (36)
6	Cornwall	Loam	OK (90) Low (10)	OK (none) Low (100)	Good (40) Low (60)
7	Devon	Clay loam	OK (39) Low (61)	OK (8) Low (92)	Good (8) Low (92)
8	Notts.	Sandy	OK (none) Low (100)	OK (38) Low (62)	OK (63) Low (37)
9	Lancs.	Loam/peat	Good (91) Low (9)	OK (33) Low (67)	Good (92) Low (8)
10	Beds.	Sandy	OK (none) Low (100)	OK (100) Low (none)	Good (100) Low (none)

Appendix E: Nutrient budgets for each unique strip at Hunts Mill

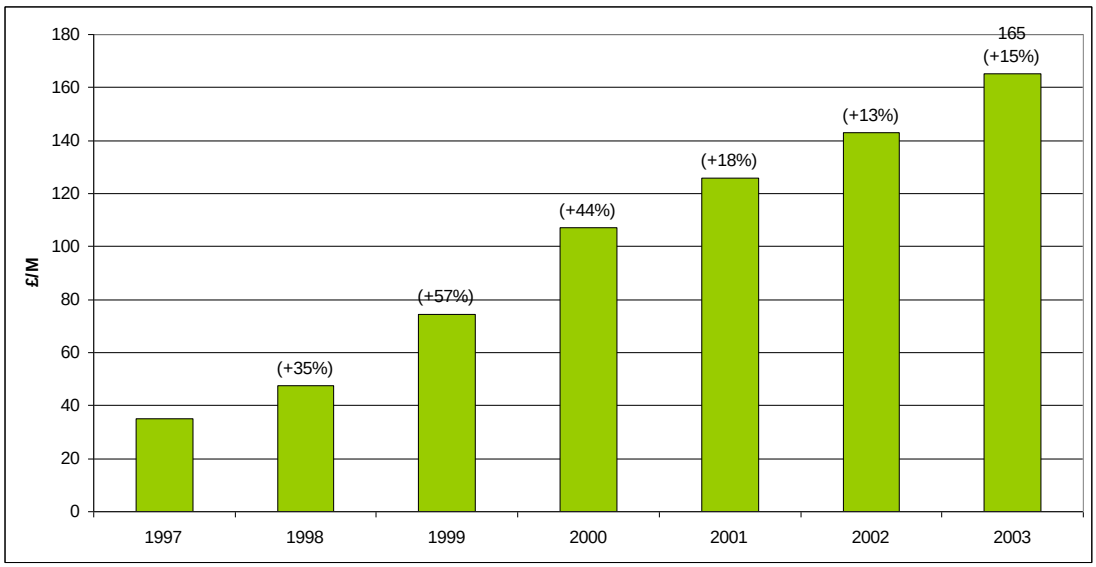
The graphs show the balances for each element (in kg/ha/yr) for the first completed crop sequence.

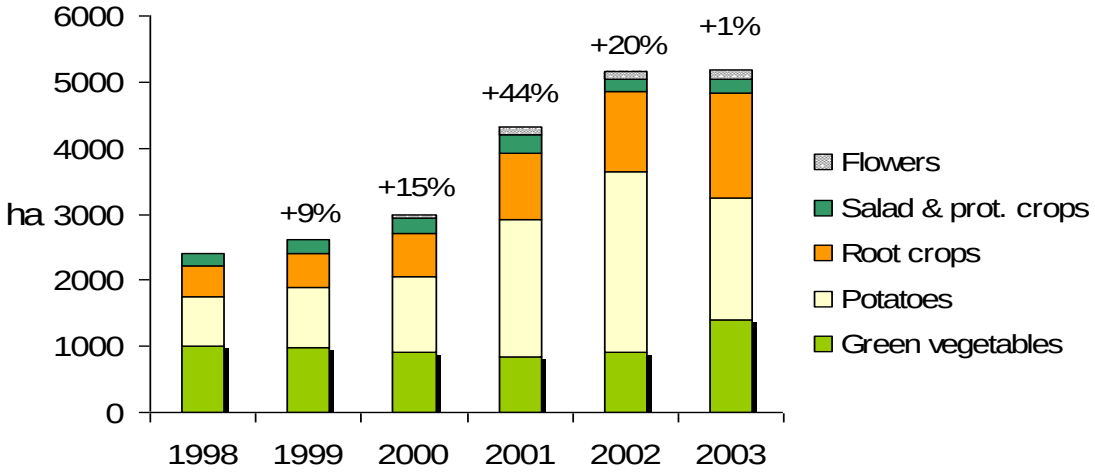






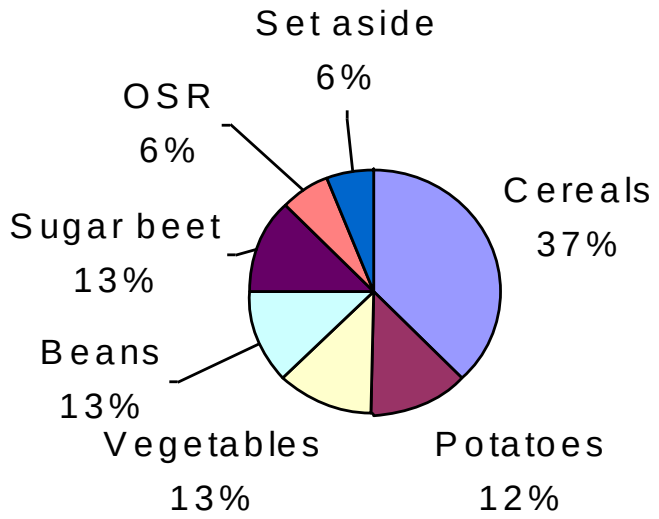
Appendix F: Development of the organic vegetable market 1997-2003 (£/M retail value) and development of the UK supply base 1998-2003 (hectares of vegetables).



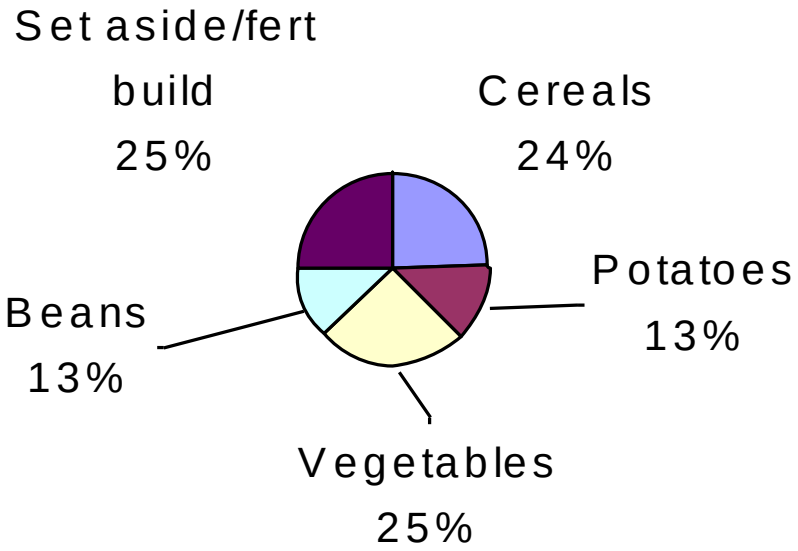


Appendix G: Land use changes on the arable/vegetable reference farms comparison of pre and post conversion breakdown of land use

Pre -conversion



Post- conversion



Appendix H: Arable horticultural model

FARM TYPE: **Stockless arable hort (200 ha)** **Version:** **1** **2004**

SCENARIO RESULTS SUMMARY								*Ann. av.*	*Variance (-ve=loss)*	
MANAGEMENT	***Conv.***	***1***	***2***	***3***	***4***	***5***	***Organic***	***Trans.***	***Org-Con***	***Tr.-Con***
GROSS MARGIN	*(£/ha excluding support payments and quota leasing)*									
Staged conversion										
Baseline	930	860	729	914	1168	1251	1251	985	321	55
of which organic premium	0	6	6	855	1340	1350	1350	711	1350	711
Baseline - 25% of premium	930	859	727	700	833	914	914	807	-16	-123
Baseline - 50% of premium	930	857	726	486	499	576	576	629	-353	-301
Baseline - 100% of premium	930	854	723	59	-171	-98	-98	273	-1028	-657
Crash conversion										
Baseline	930	-29	-29	1251	1251	1251	1251	739	321	-191
of which organic premium	0	25	25	1350	1350	1350	1350	820	1350	820
Baseline - 25% of premium	930	-35	-35	914	914	914	914	534	-16	-396
Baseline - 50% of premium	930	-42	-42	576	576	576	576	329	-353	-601
Baseline - 100% of premium	930	-54	-54	-98	-98	-98	-98	-81	-1028	-1011
NET MARGIN	*(£/ha including support payments, quota leasing and changes in allocateable fixed costs)*									
Staged conversion	Organic = conventional net margin at			79%	of current premium (=		1070	£/ha)		
Baseline	1084	1044	931	1121	1307	1392	1363	1159	279	75
Baseline - 25% of premium	1084	1042	929	907	973	1055	1026	981	-58	-102
Baseline - 50% of premium	1084	1041	928	694	638	717	688	803	-395	-280
Baseline - 100% of premium	1084	1038	925	266	-32	43	13	448	-1070	-636
Crash conversion										
Baseline	1084	275	283	1364	1363	1363	1363	930	279	-154
Baseline - 25% of premium	1084	269	277	1026	1026	1026	1026	725	-58	-359
Baseline - 50% of premium	1084	262	270	689	688	688	688	520	-395	-564
Baseline - 100% of premium	1084	250	258	14	13	13	13	110	-1070	-974

NOTES

Management status

conventional	All land (no stock) managed conventionally and not subject to agri-environment scheme constraints.
transitional	Years 1-5 of conversion, may include land managed conventionally or organically.
organic	Typically year 10: all land managed/certified organic.

Rotations

conventional	Wheat x 2, potatoes, vegetables, beans, cereals, sugarbeet, oilseed rape/set-aside
organic	Red clover ley, wheat, beans, carrots/onions, red clover ley, potatoes, calabrese, barley u/sown.
transitional	Ley or spring barley u/sown as entry crop 20% yield penalty assumed due to rotational and other factors
	Set-aside claimed while some land still conventional

Scenarios

staged	Gradual conversion with no stock. Red clover mix cut and mulched as green manure.
crash	Single-step conversion with no stock. Red clover mix cut and mulched as green manure.
baseline	Average enterprise performance (see gross margin tables), includes organic aid scheme.

Appendix I: Intensive horticultural model

FARM TYPE: **Stockless arable (20 ha)** **Version: 1** **2004** **Intensive hort**

SCENARIO RESULTS SUMMARY

MANAGEMENT	*Conv.*	*1*	*2*	*3*	*4*	*5*	*Organic*	*Ann. av. Trans.*	*Variance (-ve=loss) Org-Con*	*Tr.-Con*
GROSS MARGIN	*(£/ha excluding support payments and quota leasing)*									
Staged conversion										
Baseline	3247	2716	1841	2366	2999	4278	4278	2840	1031	-407
of which organic premium	0	6	6	1518	3427	5069	5069	2005	5069	2005
Baseline - 25% of premium	3247	2715	1839	1987	2142	3010	3010	2339	-237	-908
Baseline - 50% of premium	3247	2713	1838	1607	1286	1743	1743	1837	-1504	-1410
Baseline - 100% of premium	3247	2710	1834	848	-428	-791	-791	835	-4038	-2412
Crash conversion										
Baseline	3247	103	-80	4343	4343	4343	4343	2611	1096	-636
of which organic premium	0	51	0	5069	5069	5069	5069	3052	5069	3052
Baseline - 25% of premium	3247	91	-80	3076	3076	3076	3076	1848	-171	-1399
Baseline - 50% of premium	3247	78	-80	1809	1809	1809	1809	1085	-1438	-2162
Baseline - 100% of premium	3247	52	-80	-726	-726	-726	-726	-441	-3973	-3688
NET MARGIN	*(£/ha including support payments, quota leasing and changes in allocateable fixed costs)*									
Staged conversion	Organic = conventional net margin at			81% of current premium (=			4090 £/ha)			
Baseline	3247	2606	1846	2372	3006	4255	4226	2817	979	-430
Baseline - 25% of premium	3247	2605	1844	1993	2149	2988	2958	2316	-289	-931
Baseline - 50% of premium	3247	2603	1843	1613	1292	1720	1691	1814	-1556	-1433
Baseline - 100% of premium	3247	2600	1839	854	-421	-814	-843	812	-4090	-2435
Crash conversion										
Baseline	3247	98	-5	4296	4291	4291	4291	2594	1044	-652
Baseline - 25% of premium	3247	86	-5	3029	3024	3024	3024	1832	-223	-1415
Baseline - 50% of premium	3247	73	-5	1762	1757	1757	1757	1069	-1490	-2178
Baseline - 100% of premium	3247	47	-5	-773	-778	-778	-778	-457	-4025	-3704

NOTES

Management status

conventional	All land (no stock) managed conventionally and not subject to agri-environment scheme constraints.
transitional	Years 1-5 of conversion, may include land managed conventionally or organically.
organic	Typically year 10: all land managed/certified organic.

Rotations

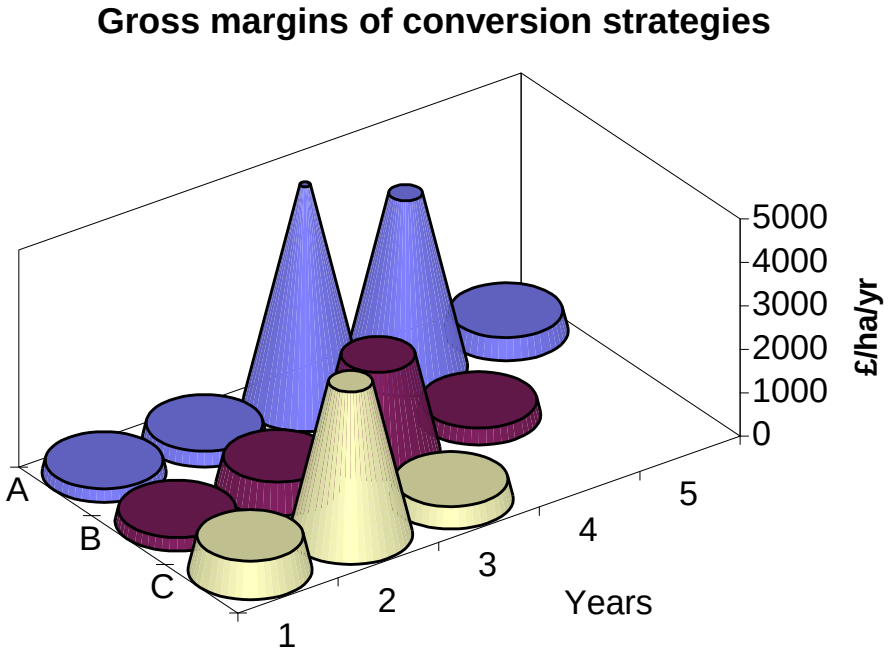
conventional	Barley, lettuce, potatoes, cauliflower, leeks, lettuce, calabrese, carrots
organic	Red clover ley, potatoes, leeks, carrots, red clover ley, calabrese, lettuce, cauliflower
transitional	Sbarley u/sown, ley or 2-year ley followed by potatoes, calabrese, leeks or lettuce
	In crash conversion scenario, all land to fertility building for two years

Scenarios

staged	Gradual conversion with no stock. Red clover mix cut and mulched as green manure.
crash	Single-step conversion with no stock. Red clover mix cut and mulched as green manure.
baseline	Average enterprise performance (see lowland gross margin tables), includes organic aid scheme.
environmental (ESA)	Arable stewardship (over wintered stubbles £55/ha, undersown spring cereals £180/ha) Alternatively Cotswold ESA Tier 1: £15/ha arable land; reversion of arable land to extensive permanent grassland (Tier 2) would attract £290/ha, but would involve stock introductions and rotational changes.

Appendix J: Economic performance of the contrasting cropping strategies and vegetable crops at Wellesbourne, Hunts Mill

Strategy	Length	Fertility	Areas	Output	Gross M.	Net M.
A	5-year	30 months	1 & 4	£4,492	£2,106	£1,744
B	4-year	18 months	2 & 5	£2,978	£878	£514
C	3-year 1st	6 months	6	£4,145	£1,590	£1,165
	3-year 2nd	6 months	6	£6,798	£3,266	£2,721
	3-year 1st+2nd	6 months	6	£5,471	£2,428	£1,943
	5-year arable	24 months	3	£1,955	£1,288	£866
	Farm gross margin			£3,871	£1,525	£1,141



Warwick HRI, Wellesbourne - Hunts Mill

Trend: Slope (m)[1a] % of R. | Risk: Std. D. %cv coeffic | Benchmarking (% of Av.[1]): with Organic averages[2], Organic reference farms[3] and Conventional averages[4]

Mkt. yields (t/ha)	1998/99	1999/00	2000/01	2001/02	Av.[1]	Trend	%	Sdevi	%	Org Std[2]	%	Ref. Farm	%	Con Std.[4]	%
Potatoes	22.5	37.3	23.6	34.4	29	2.2	8%	8	25%	34	87%	24	123%	41	72%
Cabbage (doz)	1326	2395	1361	850	1483	-246	-17%	651	44%	2750	54%	2109	70%	3122	48%
Onions	18.1	11.5	8.2	nd	13	-5	-40%	5	40%	28	45%	13	97%	36	35%
Carrots	33.8	37.5	56.6	47.2	44	6	14%	10	23%	36	122%	35	125%	37	118%
Leeks	11.6	9.7	11.0	9.6	10	-0.5	-5%	1	10%	15	70%	11	95%	18	58%
Parsnips	nd	nd	nd	23.0	23					20	115%	21	110%	23	100%
Spring barley	2.5	1.9	1.6	1.8	2.0	-0.2	-12%	0.4	20%	3.5	56%			5.1	39%
Spring wheat	3.0	nd	nd	nd	3.0					3.7	81%			7.7	39%
%-average (veg only)							-8%		29%		82%		103%		72%

Prices (£/t)	1998/99	1999/00	2000/01	2001/02	Av.	Trend	%	Sdevi	%	Org Std[2]	%	Ref. Farm	%	Con Std.[4]	%
Potatoes	359	262	324	315	315	-7.0	-2%	40	13%	255	124%	248	127%	85	371%
Cabbage (doz)	4.52	6.00	5.00	4.80	5.08	0.0	0%	1	13%	4.59	111%	4.32	118%	1.47	346%
Onions	382	450	425	nd	419	21.5	5%	34	8%	319	131%	277	151%		
Carrots	400	400	435	378	403	-3.1	-1%	24	6%	383	105%	293	138%	190	212%
Leeks	1063	950	1200	985	1050	1.6	0%	111	11%	850	123%	896	117%	630	167%
Parsnips	nd	nd	nd	906	906					553	164%	610	149%		
Spring barley	155	175	170	154	164	-0.8	0%	11	6%	155	105%			72	227%
Spring wheat	170	nd	nd	nd	170					180	94%			75	227%
%-average (veg only)							0%		10%		126%		133%		274%

Output (£/ha)	1998/99	1999/00	2000/01	2001/02	Av.	Trend	%	Sdevi	%	Org Std[2]	%	Ref. Farm	%	Con Std.[4]	%
Potatoes	8072	9773	7650	10849	9086	621	7%	1491	16%	8670	105%	6295	144%	3485	261%
Cabbage (doz)	5995	14373	6806	4080	7814	-1331	-17%	4520	58%	12623	62%	9111	86%	4589	170%
Onions	6929	5163	3479	nd	5190	-1725	-33%	1726	33%	8925	58%	3601	144%		
Carrots	13521	15008	24641	17842	17753	2259	13%	4929	28%	13770	129%	10255	173%	7030	253%
Leeks	12373	9191	13218	9431	11053	-480	-4%	2043	18%	12750	87%	9856	112%	11340	97%
Parsnips	nd	nd	nd	20838	20838					11050	189%	12810	163%		
Spring barley	704	580	506	524	578	-62	-11%	90	15%	784	74%			636	91%
Spring wheat	822	nd	nd	nd	822					908	91%			728	113%
%-average (veg only)							-7%		31%		105%		137%		195%

Variable costs (£/ha	1998/99	1999/00	2000/01	2001/02	Av.	Trend	%	Sdevi	%	Org Std[2]	%	Ref. Farm	%	Con Std.[4]	%
Potatoes	3016	4349	3067	3965	3599	156	4%	663	18%	3413	105%	2728	132%	1474	244%
Cabbage (doz)	4064	4917	3632	3381	3998	-333	-8%	674	17%	7370	54%	5454	73%	1651	242%
Onions	4760	4969	4060	nd	4596	-350	-8%	476	10%	4509	102%	2790	165%		
Carrots	10039	9955	12394	10881	10817	496	5%	1131	10%	3870	280%	7227	150%	3201	338%
Leeks	8555	8088	8286	7432	8090	-317	-4%	479	6%	7244	112%	7025	115%	6995	116%
Parsnips	nd	nd	nd	5913	5913					2901	204%	6268	94%		
Spring barley	75	53	89	71	72	3	3%	15	21%	100	72%			162	44%
Spring wheat	150	nd	nd	nd	150					115	130%			212	71%
%-average (veg only)							-2%		12%		143%		122%		235%

Gross margins (£/ha	1998/99	1999/00	2000/01	2001/02	Av.	Trend	%	Sdevi	%	Org Std[2]	%	Ref. Farm	%	Con Std.[4]	%
Potatoes	5056	5424	4583	6884	5487	464	8%	993	18%	5257	104%	3567	154%	2011	273%
Cabbage (doz)	1931	9456	3175	700	3815	-998	-26%	3894	102%	5253	73%	3657	104%	2938	130%
Onions	2169	194	-581	nd	594	-1375	-232%	1418	239%	4416	13%	811	73%		
Carrots	3482	5053	12247	6961	6936	1763	25%	3816	55%	9900	70%	3028	229%	3829	181%
Leeks	3818	1104	4932	1999	2963	-163	-5%	1731	58%	5506	54%	2831	105%	4345	68%
Parsnips	nd	nd	nd	14925	14925					8149	183%	6542	228%		
Spring barley	629	528	416	453	506	-64	-13%	94	19%	684	74%			474	107%
Spring wheat	672	nd	nd	nd	672					793	85%			516	130%
%-average (veg only)							-46%		94%		83%		149%		163%

Allocated fixed cost	1998/99	1999/00	2000/01	2001/02	Av.	Trend	%	Sdevi	%	Ref. Farm	%
Potatoes	583	543	913	592	658	40	6%	171	26%	994	66%
Cabbage (doz)	690	407	512	664	568	3	0%	133	23%	583	97%
Onions	525	802	584	nd	637	29	-5%	146	23%	565	113%
Carrots	354	366	389	552	415	62	15%	92	22%	779	53%
Leeks	803	570	630	718	680	-19	-3%	102	15%	1033	66%
Parsnips	nd	nd	nd	471	471					3120	15%
Spring barley	309	303	291	279	295	-10	-3%	13	4%		
Spring wheat	440	nd	nd	nd	440						
%-average (veg only)							3%		22%		68%

Net margins (£/ha)	1998/99	1999/00	2000/01	2001/02	Av.	Trend	%	Sdevi	%	Ref. Farm	%
Potatoes	4473	4881	3670	6292	4829	425	9%	1098	23%	2573	188%
Cabbage (doz)	1241	9049	2662	35	3247	-1000	-31%	4014	124%	3074	106%
Onions	1644	-608	-1165	nd	-43	-1405		1488		246	-18%
Carrots	3128	4687	11858	6409	6520	1702	26%	3803	58%	2249	290%
Leeks	3015	534	4302	1281	2283	-143	-6%	1700	74%	1798	127%
Parsnips	nd	nd	nd	14454	14454					3423	422%
Spring barley	320	225	125	174	211	-54	-26%	83.4	40%		
Spring wheat	232	nd	nd	nd	232						
%-average (veg only)							-1%		70%		186%

[1] *Average of 1998/99 to 2001/02 cropping seasons.*

[1a] *For trend analysis the linear regression slope (m) during the 4-years is calculated (LINEST function).*

[1b] *% change of slope from the 4-year average. (Inflation during 1998-2001 was about 2% annually in the UK.)*

[2] *Lampkin & Measures (1999) Organic farm management handbook (wholesale, 15% commission incl. in price)*

[3] *Average of 1998 - 2002 cropping seasons on reference farms.*

[4] *SAC (1999/2000) Farm management handbook values*

nd = no data / not grown

Appendix K: Organic and conventional gross margin comparisons [1]

	Calabrese		Carrots		Leeks	
	Organic	Conv.	Organic	Conv.	Organic	Conv.
Yield (kg)	5000	7600	36000	48000	12000	17500
Price (p/kg)	9	5	3	2.2	8	7.5
Output	4500	3800	10800	10608	9600	13125
V costs (£/ha)						
Seed	1250	556	1260	554	1800	520
Fertiliser	50	108	50	92	50	143
Crop Prot.	60	81		529		458
Mech. weed	36		201		132	
Casual labour	1311	1392	1277	327	5644	5058
Packaging	150					
Transport			1075	1056	364	
Other	25		25		25	
Total v costs	2882	2137	3888	2558	8015	6179
Gross margin	**1618**	**1663**	**6912**	**5589**	**1585**	**4001**
V costs p/kg	**58**	**28**	**11**	**5**	**67**	**35**

[1] *Source: Organic Farm Management Handbook (2004), SAC Farm Management handbook (2003/04)*

Appendix L: Key dissemination activities conducted during the project

Events and shows organised and attended:

- April 1997: Presentation to OAS's 'Organic Horticultural Group', Hardwick, Berkshire.
- July 1997: Poster displays explaining conversion project at Organic Food and Farming Centre, Royal Show, Stoneleigh, Warwickshire.
- July 1997: Poster displays and talk at SA seminar on 'Converting to Organic Field Vegetable Production', Norfolk.
- September 1997: Stand at Vegetable Focus outlining the project, HRI Kirton, Lincolnshire.
- November 1997: Poster display at 'Organic Farming into Practice', RASE, Warwickshire.
- March 1998: Presentation of project to EFRC, Hamstead Marshall, Berkshire.
- March 1998: Presentation at HDRA/EFRC/SA event 'Conversion to Organic Vegetable Production', Herefordshire.
- July 1998: Poster displays explaining conversion project at Organic Food and Farming Centre, Royal Show, Stoneleigh, Warwickshire.
- July 1998: Presentation at British Organic Farmer's 'Conversion to Field-scale Organic Vegetables' event, Norfolk.
- August 1998: Poster display at SA event 'Conversion to Organic Field Vegetables', Norfolk.
- October 1998: Poster display outlining the project at Vegex Show, Boston, Lincolnshire. .
- November 1998: Presentation on the conversion project at SA Conversion Seminar, Leicestershire.
- January 1999: Presentation and poster display to SA 11th National Conference on Organic Farming, Cirencester.
- February 1999: Presentation of project to Waitrose suppliers, Waitrose Potato Day, Ryton Organic Gardens.
- June 1999: Presentation on the conversion project to ADAS horticultural advisors and tour around Hunts Mill, HRI Wellesbourne.
- July 1999: Horticultural Advisors from EFRC OAS training day at Ryton and field tour around Hunts Mill.
- July 1999: 'Conversion to Field Vegetable Production' seminar at HRI Wellesbourne aimed at growers (60 attended). In collaboration with HRI Wellesbourne, EFRC and SA.
- July 1999: Poster displays explaining conversion project at Organic Food and Farming Centre, Royal Show, Stoneleigh, Warwickshire.

- July 1999: OAS Arable Farmers Group meeting on introducing field scale vegetables, held on one of the reference farms, Cambridgeshire. Poster display.
- August 1999: Meeting with Horticultural Development Council (HDC). Discussions on dissemination to HDC members.
- September 1999: Seminar presenting the conversion project including field walk at Hunts Mill for staff at HRI Wellesbourne.
- October 1999: Reference farmers participating in the project were invited to a seminar at Ryton Organic Gardens and a field walk at Hunts Mill.
- October 1999: Poster on the conversion project was presented at the Vegex International Conference, Warwickshire.
- November 1999: Talk outlining the project and results to date at a SA seminar "Planning the Organic Conversion".
- January 2000: Display on the conversion project at the Hortex exhibition in Telford, Shropshire.
- March 2000: Posters including information about the conversion project presented at the European Weed Research Society Conference, Elspeet, The Netherlands.
- May 2000: Poster display in association with a reference farm at Lancashire Growers Show.
- June 2000: Reference farmers day held at a Lincolnshire reference farm, discussion and dissemination of information from the project to the network of reference farmers.
- June 2000: Conversion open day organised by HDRA at a Lincolnshire reference farm mainly attended by potential converters and organic growers.
- July 2000: Poster displays explaining the conversion project at Organic Food and Farming Centre, Royal Show, Stoneleigh, Warwickshire.
- July 2000: Presentation on the conversion project to a SA seminar 'Conversion to field scale vegetables', Devon.
- September 2000: 'Conversion to organic field scale vegetables', seminar and open day held at HRI – Wellesbourne with a field walk at the Hunts Mill site. The day was attended by Elliot Morley (Minister for Fisheries and Countryside) and growers interested in conversion. In collaboration with HRI Wellesbourne, and the SA.
- September 2000: Poster on the conversion project was presented at the Vegex International Conference, Lincolnshire.Conversion" in Somerset, mainly attended by growers.
- January 2001:Soil Association 12th National Conference on Organic Food and Farming, Royal Agricultural College, Cirencester. HDRA conversion team participated in the conversion advice seminar.

- January 2001: A display was presented on the conversion project at the HortEx exhibition in Telford.
- January 2001: Phil Sumption gave a talk to the National Association of Seed Potato Merchants Field Day at HDRA on 'Organic Potato Production – The challenges, strategies and opportunities for converting growers' presenting results from the conversion project.
- September 2001: Farming for Fertility. An event held at HRI Wellesbourne, which included a tour of the Hunts Mill Site
- June 2002: Organic Early Potato Production. Higher Farm, Beeson, Devon. A report of this event is available to download at: www.hdra.org.uk/pdfs/Beesands%20report.pdf
- June 2002: Conversion to Organic Field Vegetable Production - a case study, Huntapac Produce, Tarleton, Lancashire.
- September 2001: A display was presented on the conversion project at the Organic Open Day at HRI Kirton, Lincolnshire. Talks were given by Francis Rayns and Chris Firth.
- October 2001: Phil Sumption, Chris Firth and Mark Hesketh held a meeting with Dutch researchers from Wageningen to exchange information on the economics of organic vegetable production and presented results from the reference farms.
- November 2001: The conversion team met and disseminated preliminary results from the project to organic advisors from Abacus Associates.
- December 2001: Phil Sumption and Becky Turner gave presentations on weed management including findings from the conversion project to the Weed control for organic vegetables & organic vegetable variety trials open day for NIAB at HDRA

- January 2002: Chris Firth and Phil Sumption attended the Soil Association's 13th National Conference on Organic Food and Farming, Harrogate.
- February 2002: Mark Hesketh gave a talk on the project to a group of MSc students from IACR Long Ashton/Bristol University.
- March 2002: The conversion team attended the UK Organic Research 2002 Conference - Research in Context, 26-28 March 2002, Organic Centre Wales, Aberystwyth.

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Leaflets:

Two leaflets were produced (in 1997 and 2001) which described the project and included some initial findings. These were widely distributed at the events listed above and on many other occasions.

Other activities:

The results from the conversion project are being disseminated in collaboration with the OAS at EFRC, and used by their advisors. Phil Sumption has been trained as an advisor with EFRC to work under contract to the OAS for OCIS work. The findings have been incorporated into the latest OFMH (Lampkin & Measures, 2002). The HDRA research website (www.hdra.org.uk/research) has been extended and updated with project details. The conversion pages at www.hdra.org.uk/research/iresconv.htm now include executive summaries of past reports, articles and papers written by the project team, the latest project leaflet and useful links to further sources of information relating to conversion.

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