

Profitability of organic farming systems – Mr. James McDonnell, Teagasc

Introduction:

Organic farming in Ireland has enjoyed renewed interest in recent years. The numbers joining this system of farming has grown but in spite of this there is just over 1% of Irish land being farmed organically. The EU average of 5% shows us to be way behind. It could be argued that with our ability to grow grass and our temperate climate, Ireland could potentially be a major organic producer.

The markets for organic food have grown strongly and steadily across all international markets in recent years. There are a number of reasons for this growth; among them are conscientious consumers worried about health, food miles and carbon footprints. Another driver of this increase is the government policy to increase organic food production to 5% of all food production by 2012. Grant schemes and subsidies are available to those producers who farm organically. However, farming just to claim a subsidy or to incur a loss is pointless. Therefore, the purpose of today's paper is to show how organic farming systems (Cattle, Dairy and Tillage) compare with their conventional counterparts. The majority of organic farming practised in Ireland today is in drystock production. The remaining small proportion comprise of tillage and dairy production.

Two sources of financial figures are used in this paper in order to compare organic systems and conventional cattle systems. These sources are the National Farm Survey 2007(NFS 2007) and E- Profit Monitor (EPM) results.

The NFS is designed to collect and analyse information related to farming activities. The data is collected from a random sample of farms, selected by the CSO throughout the country.

The EPM is a management accountancy tool developed by Teagasc which analyses farm businesses in order to measure efficiency levels and improve farming profits. The Teagasc e-Profit Monitor is an internet based system which allows farmers and their advisers to enter physical and financial data on their farm enterprises online. It is available through the Teagasc client site on www.client.teagasc.ie

If Teagasc is to give good advice and help farmers make sound decisions as to what direction their business should take in the future, then we need to establish how farms are currently performing.

This service is available only to Teagasc clients. Although Teagasc Advisers promote the merit of completing an EPM each year, completion is voluntary and as a result uptake of this service is very low for a variety of reasons. The data collected from the NFS is statistically sound as the sample size involved in the survey is large. However, data collected from EMP results may be skewed, as generally it is the more efficient farmers who complete profit monitors, thereby resulting in slightly more efficient than average figures being represented.

Organic Cattle Production

In Ireland in 2007 there were over 87,000 farms involved in the cattle production system. There are a number of different cattle production systems in operation in Ireland today. For the purposes of this comparison, the NFS & Teagasc systems of categorisation of drystock farms are used. These can be broadly divided into two main categories: cattle rearing systems and non breeding / other systems. It must be emphasised that the figures from the NFS are completely random whereas the EPM figures are collected from Teagasc clients.

**Table 1: Cattle rearing systems 2007 – per hectare analysis
Profit Monitor (189 Farms) and NFS (240 farms)**

	Top 1/3	Average	Bottom 1/3	NFS
Physical				
Farm Size ha	53	53	51	27.8
Stocking Rate LU/ha	2.03	1.75	1.53	1.06
Financial €/ha				
Gross Output Value	1205	882	614	459
Variable Costs	581	515	503	277
Gross Margin	624	368	111	182
Fixed Costs	527	465	434	364
Net Profit excl. Premia	97	-98	-323	-182
Total Premia*	675	622	582	459
Premia Retained	114%	84%	45%	60%

(* Includes Single Farm Payment, REPS & CAS)

Table 1 looks at cattle rearing systems i.e. suckler progeny sold as weanlings/ stores or sold as beef. The farms are ranked into three groups in the EPM data by gross margin. When we study the table above the facts are clear. The average drystock farmer involved in a beef rearing system is spending a portion of their premia to keep the farming systems afloat. All premia payments except the Organic Farming Scheme payment are decoupled from production, so strictly speaking we should be trying to farm in a manner which results in some level of profit. As the NFS is a completely random selection of participants it is an accurate method of analysing profit levels on farms. The NFS tells us that only 60% of premia was retained as farm income on cattle rearing farms in Ireland in 2007. What is alarming about Table 1 is that although Teagasc would contend that all

farms that completed EPM's would be considered good farms nationally, the variation in both levels of performance and profit is huge with a difference of €420/Ha between the top and bottom 1/3. Stocking rates and farm size are much lower on the NFS and are closer to the national average farms size of 32.3ha.

Table 2 below looks at the performance on non-breeding /other farms. These farms purchased weanlings or stores and brought them on to either forward store or finish. The EPM results are again ranked by gross margin excluding premia into three groups with the NFS data shown alongside.

**Table 2: Non-breeding/other farms 2007 – per hectare analysis
Profit Monitor (48 Farms) NFS (284 Farms)**

	Top 1/3	Average	Bottom 1/3	NFS
Physical				
Farm Size ha	64	59	58	30.1
Stocking Rate LU/ha	1.79	1.53	1.42	1.29
Financial €/ha				
Gross Output Value	1353	806	465	610
Variable Costs	628	481	460	353
Gross Margin	725	326	5	257
Fixed Costs	526	388	307	429
Net Profit excl. Premia	199	-62	-302	-172
Total Premia*	789	680	728	557
Premia Retained	125%	91%	59%	69%

(* Includes Single Farm Payment, REPS & CAS)

The same trends are shown in Table 2 with premia again supporting the farming enterprise for the majority of farmers in this category. Stocking rates are lower on the farms participating in the EPM; however, stocking rates in the farms participating in the NFS are higher than cattle rearing systems.

So far we can see that the majority of drystock farms running a cattle system are supporting the farm enterprise with premia income. Where does this leave organic drystock farmers?

Table 3: Selected financial data for organic and conventional cattle rearing farms –NFS 2007

	Organic	Conventional
Physical		
Farm Size ha	34.6	27.8
Stocking Rate LU/ha	0.5	1.05
Financial €/ha		
Gross Output Value	156	458
Variable Costs	101	278
Gross Margin	55	180
Fixed Costs	139	364
Net Profit excl. Premia	-84	-184
Total Premia*	517	459
Premia Retained	84%	60%

(* Includes Single Farm Payment, REPS & CAS)

The above data was collected by the NFS, however it must be noted that although the farmers participating in the NFS are randomly selected, the data sourced on organic farms were hand picked and were in fact the demonstration farms in 2007. These farms were selected due to experience and level of performance and are probably the more efficient sample than a random sample.

As we can see from Table 3, Organic farmers have much lower costs. However, the output is also much lower with stocking rates on average at the minimum required 0.5 L.U per ha. This lower value could stem from the fact that Organic weanlings are not always commanding premium at the marketplace due to a lack of weanling to finishers in organic farming. This hopefully will rectify itself as the critical mass of organic numbers increase over time. The bottom line is simple: organic farmers are using less premia to support the enterprise in cattle rearing systems than conventional farmers. Is this good enough? No: all farms should be making some profit. Otherwise farming becomes an expensive hobby. Organics should be profitable also. At this stage we have some results from EPM's in 2008 and are outlined in the table below. It must be noted that EPM numbers are low and as numbers increase figures will become more solid. Therefore, in this case I'm presenting the range compared with NFS 2007 data. I'm also setting a target that should be achievable for the typical beef farmer.

Table 4: Drystock farms EPM results 2008 – per hectare analysis

	Target	Range		NFS 2007
Physical				
Farm Size ha	40	19.7 - 84		34.6
Stocking Rate LU/ha	1.3	0.77-1.26		0.5
Financial €/ha				
Gross Output Value	776	346-684		156
Variable Costs	465	112-264		101
Gross Margin	311	233-420		55
Fixed Costs	200	162-289		139
Net Profit excl. Premia	111	71-131		-84
Total Premia*	>325	324-553		517

(* Includes Single Farm Payment, REPS & CAS)

Table 4 shows farm profits on EPM completed for 2008 are higher than 2007 NFS results. This, in my view, is due to the following factors:

1. Stocking rates on EPM farms are much higher than NFS
2. The price of Organic beef in 2008 was about 10% higher than 2007

In this table I have set down some targets that I believe are achievable for both existing operators and for new entrants to organics.

Organic Dairy Production

Organic Dairy farmers are few in Ireland. However, recently there have been enquiries from commercial farmers considering making the switch to organic production. The predominant system of organic dairy farming carried out is a winter milk type system with at least 40% of the herd calving in the autumn. Market demand is what is influencing this system of production.

Table 5 below compares organic and conventional winter milk production results for 2008 EPM. The Median figure from organic EPM results is used due to the fact that the number of EPM's completed to date is low. This figure seems to be a reasonably accurate reflection of the real situation in the field.

Table 5: Winter Milk Conventional & Organic EPM results 2008 – per hectare analysis

Winter Milk	Average c/l	Top 10% c/l	Bottom 10% c/l	Organic Milk Median c/l
GO	37.36	38.48	34.57	43.22
Stocking rate (LU/ha)	2.16	2.21	1.95	1.48
Herd size (No. Cows)	113	108	125	49
Yield (litres/cow)	5819	5980	5650	4818
Fat %	3.88	3.90	3.83	3.9
Pr%	3.37	3.43	3.31	3.39
Feed	5.28	4.11	7.15	7.71
Fert	1.82	1.64	1.80	0.0
Vet	1.04	0.69	1.10	0.71
AI	0.51	0.46	0.47	0.55
Contractor	1.50	0.96	2.01	2.65
OVC	1.92	1.31	2.41	2.61
TVC	12.08	9.17	14.95	14.23
GM	25.28	29.31	19.62	28.99
Labour	1.79	0.61	1.39	0.7
Machinery	1.97	1.04	3.67	1.79
Car	1.38	0.96	2.11	1.41
leases	1.02	0.67	1.57	1.71
OFC	3.31	1.73	5.25	4.84
TFC	11.71	6.74	16.77	9.99
NM/litre	13.57	22.57	2.85	19
NM/cow	€790	€1,350	€161	€958
NM/ha	€1,708	€2,987	€315	€1418

There is one important message to be taken from this table. The performance on organic farms when studied in relation to net margin per cow or per litre is as good as the best conventional farms. However, when we look at the figures on a per hectare basis they are less than the average. Stocking rates are the key difference; the best land in the world will not carry organic cows at the stocking rates achievable in conventional milk production.

The average winter milk farmer in Ireland is stocked higher than their spring milk colleagues. There is an opportunity for conventional spring milk producers to switch to organic production and gain 10,000 gallons of quota to grow their business. I'm not ruling out organic dairying: stocking rate is a limiting factor but it is often the case that profits are higher on lower stocked farms because there is a greater margin for error. It may even become more profitable than conventional systems as milk prices are falling on the world market at present.

Organic Tillage production

Irish organic farmer experience has found that certain crops are more successful in an organic environment than others. This has primarily been due to difficulties with weed management, which the advent of computer-guided hoes may well significantly improve. However, crops that are poor weed competitors, such as spring barley and many legume crops, e.g., peas and lupins, are avoided by experienced farmers unless fields are particularly weed free. Crops that are good weed competitors e.g. triticale, winter wheat and winter oats, can be kept as weed free as non organic crops.

Yields of organic arable crops, particularly cereals, are generally lower than non-organic production. This is primarily due to using legumes to supply N rather than synthetic N fertilisers. However, as for non-organic agriculture, yields are quite variable, both from year to year and farm to farm. At present there is only limited data in Ireland on organic cereal yields. Generally yields are 50 - 80% of conventional crops but yields achieved depend on crop, position in rotation, land type, fertility levels, previous crop, etc.

Organic farming is a system of farming that must be sustainable. In order to maintain yields, nutrients need to be put back into the soil. Nitrogen is the main limiting element. This is achieved by a grass/red clover break for two years. Phosphorus and Potassium are best returned in the form of slurry or farm yard manure. It should then be possible to grow four or five cereal crops successfully. It is important to factor in this fertility building phase in designing a rotation and when looking at the financial returns.

Table 5: Organic Cereals Cost and Returns 2009

Description	Production Levels	
	4.0(1.6)	5(2)
Yield - tonnes/hectare (t/ac)	4.0(1.6)	5(2)
Output at €350 per tonne net,(excl straw)	1400	1750
Material Inputs €		
Seed (220kg @ €930/tonne)	205	205
Lime	20	20
Machinery hire		
Plough, Till and Sow	150	150
In crop cultivation	88	88
Harvesting	130	130
Transport (€5 per tonne)	22.5	25

Organic Scheme payment up to 55 ha *	106	106
Gross Margin per ha (excl SFP)	900.5	1238

Sensitivity analysis - Effect on gross margin € per Hectare		
Selling price + or - €50 per ton	200	250
Seed costs + or - €100 per ton	22	22

Presented on table 5 are the expected costs and returns from growing organic grain this year. Many crops are grown without any weed control. Where ground is clean and rotation is well designed the cost included may be omitted.

The returns from a stockless system are reduced in two ways. The first is the cost of sowing and managing a red clover based sward. The second is that there is no crop for sale while this crop is in place. The most profitable method of growing organic cereals for sale is when the cereal enterprise is part of a mixed farming situation where a symbiotic relationship occurs.

In 2008 many conventional farmers struggled to break even. Therefore, organic tillage at current prices is a very attractive option.

Growing organic crops is an area that should be discussed with a specialist Teagasc organic adviser due to all the different variables that can impact on yield and returns of an organic crop rotation.

Conclusion.

I stated at the outset that organics has enjoyed renewed interest in recent times. The majority of the farmers I meet, that are interested in organic farming are financially driven. It is important that the message on financial returns from organic farming is clear. In cattle production systems when we look at the figures, the majority of cattle farmers are making a positive gross margin but are spending some of the premia cheque to cover fixed costs. In the organic situation costs are generally lower but so is gross output. The net margin delivered on organic beef farms is on average higher than the average beef farmer. The targets I have set on the paper that I believe are achievable on the majority of organic beef farms and should be profitable enterprises.

When the financial analysis is completed on organic dairy farms, it must be noted that when measured in net margin achieved per litre or per cow the results are as good as the best dairy farmers in the country, however the key issue is stocking rate. Only dairy farmers stocked up to about 1.7 livestock units per hectare will increase net margin. Farms stocked higher than this will loose out unless the milk price gap widens significantly.

In the tillage sector my colleagues produce crop budgets each year, last year the budgets went out the window as harvest returns disastrous due to the weather. The organic tillage budget produced in the paper shows excellent returns for organic tillage crops. The cost of imports and lack of supply is keeping the price up, the weakening of sterling may have an effect later on, however even if organic grain prices drop significantly, the returns are

mush better than conventional tillage. This is an option Irish tillage farmers should be exploring.

References

Connolly, L.; Kinsella, A.; Quinlan, G. and Moran, B., 2007. "National Farm Survey Report 2007, *Teagasc*, pp101.