Agriculture and Food Development Authority

ASA/Teagasc Dairy Expansion Event

22nd May - Joe Leonard, Stamullen, Co. Meath

29th May - Denis and Eddie O'Donnell, Golden, Co. Tipperary

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Agriculture and Food Development Authority

ASA
agricultural science association

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Foreword

Milk Quota abolition in 2015 will make large scale dairy expansion a realistic proposition for many existing dairy farmers for the first time. Expansion of existing dairy farms and conversion of non dairy farms into dairy is a significant and capital intensive exercise in most cases. Investment appraisal, risk assessment and cash flow planning should all be considered when planning investment in dairy or any other enterprise.

I'd like to thank Teagasc for co-hosting the 2014 Dairy Expansion workshops with ASA and also thank my colleagues in Bank of Ireland for supporting and contributing to the workshops.

Most importantly, I'd like to sincerely thank both host farmers, Joe Leonard and Denis/ Eddie O'Donnell for their hospitality and sharing of their growth experiences which I know we will find enlightening.

Seán Farrell, (ASA President)

Teagasc is delighted to collaborate with the Agricultural Science Aassociation (ASA) in providing these two 'Dairy Expansion' events for ASA members.

The coming years to the end of the decade will be very exciting for the Irish dairy industry as many dairy farmers will be able to grow their dairy businesses for the first time in over 30 years. But expansion will not be the right move for all dairy farmers. For some, improving on farm efficiency will be a necessary first step before expansion (increased herd size) is contemplated.

In addition, while being a technically efficient dairy farmer will be absolutely necessary in the future, it will not be enough. Dairy farmers will also be required to think strategically and plan financially. You can think of the old saying that 'a chain is only as strong as its weakest link'. As well as being a top class 'day-to-day' or operations manager, the dairy farmer will also be required to think and plan both strategically and financially. This will include the ability to assess on-farm investment options, prepare annual and multi-annual cash flows and identify and manage risks.

Finally, I would like to also thank both host farmers, Joe Leonard and Denis / Eddie O'Donnell, for hosting these events.

Tom O'Dwyer, Head of Dairy Knowledge Transfer Teagasc

Joe Leonard, Stamullen, Co Meath

	2006	2013	Present	2020
Grassland (ha)	163	183	183	229
Of which owned (ha)	108	108	108	108
Milking platform	104	104	104	150
Stock numbers				
Dairy cows	192	282	300(+ 60 leased)	500
0-1 y.o. replacements	60	140	140	100
1-2 y.o. replacements	48	120	175	100
Beef LU	110	10	10	10
Genetic merit				
Herd EBI	€106[1]	€183	€187	
Milk SI/Fertility SI	€40 / €57	€52 / €101	€55 / €102	
0-1 y.o. replacements EBI	€107	€214	€219	
1-2 y.o. replacements EBI	€119	€206	€213	
Milk sales ('000 litres)	735	1,200		2,500
Fat (%)	3.89	4.57		4.70
Protein (%)	3.41	3.64		3.75
Milk yield (kg MS/cow)	312	395		430
Farm stocking rate (LU/ha)	2.14	2.31		2.67
Milking platform SR (LU/ha)	2.14	2.71		3.33
Meal fed (kg/cow)	300	500		500
Milk solids(kg/ha)	668	912		1150
Grass used (T DM/ha)	8.3	9.7		11.9
Co-op price (c/l)	26.0	42.0		36.45[2]
Variable costs (c/l)	7.14	13.26		14.00
Common fixed costs (c/l)	4.01	5.00		5.00
Common dairy profit (c/l)	15.93	22.14		17.45
Common dairy profit (€/ha)	1,414	2,386		2,300

Joe farms 180 ha of grassland of which 108 ha are owned. Expansion has seen dairy herd size rise from 200 cows in 2005 to the current 300 cows. A partnership agreement with a neighbouring farmer will see the size of the milking platform increase from 104 ha to 150 ha in 2015. Between the two parties approximately 175 yearling replacement heifers will be bred this year potentially increasing the size of the dairy herd milked next year to 500 cows.

The grass-based milk production system in operation on the farm resulted in a milk yield averaging 395 kg milk solids per cow (912 kg per hectare) in 2013.
The low-cost philosophy exhibited by the Leonards extends to their approach to facilities as well. The 40 unit milking parlour was built by Joe and his father Peter in the winter of 2009/2010. The 6 million litre lined lagoon was constructed in 2008 while the 500-place topless cubicle unit was constructed in 2009 on the site of an existing wintering pad. In 2012, a tunnel was constructed to link the two sections of the milking platform together.

[1] Sept 2009 EBI proof

[2] Base milk price 30 c/litre with bonuses for higher % fat and protein

Denis and Eddie O'Donnell, Golden, Co. Tipperary

	2006	2013	Present	2020
Grassland (ha)	93	130	165	180
Of which owned (ha)	47	67	67	67
Milking platform	40	82	98	120
Stock numbers				
Dairy cows	85	242	265	400
0-1 y.o. replacements	24	115	126	100
1-2 y.o. replacements	34	86	113	100
Beef LU	60	7	10	10
Genetic merit				
Herd EBI	€87	€163	€168	
Milk SI/Fertility SI	€49 / €30	€56 / €76	€60 / €78	
0-1 y.o. replacements EBI	€114	€199	€215	
1-2 y.o. replacements EBI	€115	€191	€195	
Milk sales ('000 litres)	535	1,235		2,100
Fat (%)	3.83	4.39		4.65
Protein (%)	3.35	3.71		3.85
Milk yield (kg MS/cow)	466	426		460
Farm stocking rate (LU/ha)	2.00	2.84		2.75
Milking platform SR (LU/ha)	2.10	2.84		3.33
Meal fed (kg/cow)	450	550		500
Milk solids(kg/ha)	930	1258		1500
Grass used (T DM/ha)	9.5	12.9		13.6
Co-op price (c/l)	26.1	42.9		35
Variable costs (c/l)	6.55	10.04		11
Common fixed costs (c/l)	4.93	3.88		4.5
Common dairy profit (c/l)	16.42	30.16		19.5
Common dairy profit (€/ha)	2,064	4,544		3,450

The O'Donnells farm 165 ha of grassland of which 67 ha are owned. In 2006 they milked 85 cows a stocking rate of 2.0 LU/ha. The opportunity arose to milk on a second unit. This along with further intensification of stocking rate means that this year 265 cows will be milked between the two farms. This second unit is located approximately 10 km away from the home farm with hired staff employed to milk there.

Further stocking rate intensification of the two milking sites is planned and by 2016 it is hoped to increase stocking rate on the home farm to 3.5 LU/ha and to 2.5 LU/ha on the leased farm. In 2013, 15 tonnes of grass dry matter was grown per hectare on the home farm. The further increase in stocking rate will be supported by an increase in the amount of grass grown and utilised at both sites.

Dairy expansion appraisal worksheet

Dairy expansion proposed			
Herd size increase (cow no)	A		
Farm size increase (ha)	B		
MS/ cow (kg)	C		
Milk price (C/L)	D		
Common costs (C/l) (Total cost- land, labour, debt & depreciation)	E		

Capital Required			
1) Pasture renewal &soil fertility	F		
2) Grazing infrastructure (water, fencing and roadways)	G		
3) Milking facilities	H		
4) Wintering facilities & slurry storage	I		
5) Other	J		
Total depreciating assets	K		F+G+H+I+J
Stock (cows and young stock)	L		
Total capital	M		K+L
Source of capital			
Equity (cash and sale of assets)	N		
Borrowed capital	O		M - N
Interest rate	P		

Marginal output			
MS production (kg)	Q		A * C
MS receipts (€)	R		Q X D X 14
Other receipts (€/kg MS)	S		R X .10
Total receipts (€/kg MS)	T		R + S
Marginal costs (€/kg MS)	U		Q X E X 14
Gross margin (€)	V		T - U

Land Rent or opportunity cost	W		
Depreciation (5%/year)	X		K X .05
Labour cost	Y		
Interest cost	Z		O X P

Net profit before interest(€)	AA		V -(W + X +Y)
Return on Capital	AB		AA ÷ M
Return on Equity			(AA - Z) ÷ N

Possible expansion costs per extra cow

Cost category	Low (€/cow)	Average (€/cow)	High (€/cow)
Stock	-	€1,400	€1,400
Milking facilities	€1,000	€1,000	€1,500
Paddocks, Roadways	€250	€500	€500
Soil fertility / reseeding	-	€300	€300
Slurry storage	€200	€200	€1,000
Winter accommodation	€300	€350	€800
Machinery / other housing	€250	€250	€500
Total	**€2,000**	**€4,000**	**€6,000**

Profit vs Cash Flow[3]

Key take home messages

- After profit is made you still have decisions to make on how it is best distributed.
- Looking at discretionary or free cash flow will tell you how you can exert some control over this allocation.

Farmers often comment on the fact that while they see a figure labelled profit on their accounts or Teagasc Profit Monitor and it looks fairly healthy but they don't seem to have the money to match the profit. Farm businesses are run to make profit. Generally the bigger the profit the better the farm has performed. Farms need to be profitable to continue to stay in business and to ensure that the business owners get a reward for the **time, effort and money** they have invested in the business. Here is an example of how profit is calculated

Sales		900
Plus increase in livestock inventory		100
		1000
Minus		
Cash Costs	600	
Interest	100	
Depreciation	100	
		800
= Profit		**200**

The manager's job does not finish at the bottom line

The profit figure arrived at after a full year of business is often called "the bottom line". But is this really the bottom? Are there no more decisions for the owner to make once the profit is made? While the farm is generating profit it is also funnelling that profit in different direction to cover the following demands:

1. Paying tax;
2. Repaying farm debt;
3. Drawings/ living expenses for the farm owner;
4. Investing in new assets.

[3] Adapted from a paper presented by Kevin Connolly, Teagasc at the 2013 National Dairy Conference.

Paying Tax – for some people, being profitable can be a double-edged sword in that higher profits mean higher taxes. Taxes are just another expense - albeit not a tax-deductible one. Taxes should be planned for, controlled (legally!) and paid without putting pressure on business cash flow.

It is good practice to also create a standing order from the business account to a separate account to have a tax payment fund in place so when tax return time comes around the funds are there to pay it.

Repaying farm debt – paying back the original amount borrowed – also called the principal. This is different from interest which is of the cost of borrowing and which is already deducted in the calculation of profit. Both the principal & interest are combined in the loan repayment that is made at regular intervals. But while the interest is a deductible expense in the calculation of profit the principal is not deducted. Making additional payments against the loan is an option that some borrowers take up if they want to pay off debt quicker for whatever reason.

Drawings/ living expenses – This is cash required by the farm owner to meet personal commitments. These commitments include family living needs, family savings and potentially saving for retirement using pensions. Many owners operate a bank standing order from the business to a personal bank account for a fixed amount to cover weekly living expenses with the flexibility to withdraw extra when required.

Business investment – Investment here refers to new investment not replacing an asset which was already in use in the business. Any replacement of existing assets is not included here as it is already included in the calculation of profit through the depreciation charge. Examples of the type of new investment could be cash invested in new machinery, buildings/ facilities or land any of which could also be part financed by new borrowings. It also covers cash that is left in the business bank account, unspent yet but which will still be allocated in the future. For a farm in expansion mode this investment can also be seen in the build-up of breeding stock numbers on the farm which are factored in to the calculation of profit through the inventory change figure.

Following on from our previous example, next we will show how the profit made was allocated on this farm.

= Profit		**200**
Allocated to		
Tax Paid	20	
Debt Principal Paid	30	
Reinvestment	100	
Drawings	50	**200**
= Cashflow		0

So we can see that during the year the full amount of the profit has been fully used up. This allocation of profit happens every year for every business and it explains why you can't just pocket the profit at the end of the year and head for the hills. It also backs up the well-known fact that "Profit is not Cash".

In allotting the profit to these areas there are also decisions to be made as there is only so much of this profit to go around- too much earmarked for one area means less for the others. Of these areas there are certain cast-iron commitments which must be met – paying tax and paying back money owed are two definite items. After that there is some discretion in the allocation of "what's left" or the discretionary / free cash.

Calculating Discretionary or Free Cash

Having a clear idea of the Discretionary Cash (also called Free Cash Flow) would give a better indicator of how much is actually left after we have spent what is required to run the business & meet necessary obligations. This is a real cash figure that exists and that the business can decide to spend how it likes.

By revisiting our example and showing the calculation of this cash measure alongside our profit calculation so we can highlight the differences between the two.

Profit Calculation			**Discretionary / Free Cash Calculation**		
Sales		900	Sales		900
Plus increase in livestock inventory		100			
		1000			
Minus			*Minus*		
Cash Costs	600		Cash Costs	600	
Interest	100		Interest	100	
Depreciation	100				700
		800			
= Profit		**200**			
Allocated to					
Tax Paid	20		Tax	20	
Debt Principal Paid	30		Debt Principal Paid	30	
New investment	100				
Drawings	50	**200**		50	750
		0	**Discretionary or Free Cash Flow**		**150**

To arrive at the cash amount within your control then you exclude the non-cash items (livestock inventory increase and depreciation) that were used in the calculation of profit. You deduct the amount needed to cover tax and debt repayment and "what's left" is what you have freedom to distribute. You will notice that the figure for "New Investment" is excluded in the calculation of the cash figure even though this appears to have already been allocated in the build-up of livestock inventory. You also assume payment of drawings to be within your control as to the level of payment.

So in this example the discretionary cash amount of €150 can be spent whatever way the owner pleases. Some of the possibilities for this include-

- Withdraw it from the business as either necessary or additional drawings – there will be a normal drawing amount that the owner feels is necessary but perhaps if the free cash amount is large enough then the drawings amount could be increased and the owner can treat himself and his family in the sure knowledge that the business is not detrimentally affected.
- Invest it in the farm business – this could be on building up stock numbers or on fully or part funding the purchase or building of new business assets such as land, machinery or facilities. Alternatively the decision could be made to invest this in a deposit account i.e. bank the funds in the expectation of an investment in the future.
- Make accelerated debt repayments – For some reducing debt to a manageable level is seen as a priority and the option taken may be to divert a share of the free cash to paying down debt quicker and increasing the owners share of the business.

The only fool proof way of getting a handle on this free cash amount can only really be achieved by monitoring cash flow and combining this with a forward cash flow budget. These words may strike fear into the hearts of those that feel they do enough office work as it is but it is the only way of really taking full control of farm financial decision-making.

Quantifying your discretionary cash and making an informed decision on which of the above three options to spend it should give the farm business owner confidence that the decision made has a greater chance of being the correct one. This feeling of "control right to the finish" in the business is the missing link for some business owners in helping them to be confident in their ability to manage the business for maximum return.

Risks Associated with Dairy Farm Expansion

Risk	Likelihood	Impact	Score	Timescale	Cost if happened	Management Actions	Management Cost	Early Warning Signs

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