



Business, Environment Technology through  
Training Extension Research

## PHASE 2 - FARM WALK

4 September 2014

James Madigan,  
Derrynahinch,  
Ballyhale,  
Co Kilkenny



A Teagasc/Irish Farmers Journal initiative, supported by industry sponsors





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The Teagasc/Irish Farmers Journal BETTER Farm Phase 2 management team (clockwise, from top left): Adam Woods, Paul Crosson and Paul Maher, Teagasc, Darren Carty and Kieran Mailey, Irish Farmers Journal, and programme advisers Catherine Egan, Peter Lawrence and Alan Dillon.

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## Welcome note

**I**n behalf of myself, my wife Ann-Marie, and my children, Hannah and Jim, I would like to welcome you all to our farm today. We hope you enjoy the visit and that you find the day informative. I have been developing my suckler herd and farm over the last number of years and will hopefully continue to progress. My involvement in the Teagasc/*Irish Farmers Journal* BETTER farm programme has helped me to focus on key areas to improving the profitability of my farm. I would like to acknowledge the Teagasc team of Adam Woods, Austin Flavin and Peter Lawrence for their involvement and, finally, I would like to thank my father Tom, and my two brothers Mick and Tommy for all their help down through the years.

**JAMES MADIGAN**

**O**n behalf of the management team of the Teagasc/*Irish Farmers Journal* BETTER farm beef programme, I would like to welcome you to today's event. Teagasc and the *Irish Farmers Journal* have worked closely together over the last five years to make the programme a success. This would not have been possible without the commitment and drive of the participants.

James has been very open to new ideas and advice and we commend him for this and the improvements he has already put in place. With his management ability and commitment, we have no doubt that he will continue to push his business forward and we look forward to helping him achieve his potential.

**ADAM WOODS, PROGRAMME MANAGER**

### PHYSICAL SYSTEM

Measure	2011	2015 (Target)
	Suckler to beef/store	Suckler to beef
Stocking rate (LU/ha)	1.86	2.3
Land base (adj ha)	65	64

### PURCHASES

Purchases	10	8
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### LIVWEIGHT OUTPUT

Liveweight output (kg/ha)	544	862
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### FINANCIAL SYSTEM

Output value (€/ha)	1,308	1,638
Variable costs (% of output)	€490 (37%)	€737 (45%)
Gross margin (€/ha)	535	901



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## Farm overview: Increasing farm output

**J**ames Madigan farms in Derrynahinch, Ballyhale, Co Kilkenny, and is married to Ann-Marie. They have two young children, Hannah and Jim. James joined the Teagasc/*Irish Farmers Journal* BETTER farm programme in 2012 and has made great progress on the farm.

James works off-farm full-time and, therefore, labour efficiency and time management are important in the day-to-day running of his farm. James operates a split calving suckler calf-to-beef system, with all males castrated at six months of age and slaughtered as steers.

The farm extends to 64ha of grassland and is fragmented into four separate blocks that are all within 1.5km of each other. The main farm consists of 46ha and is divided by a road. A further 18ha of rented land is divided into two separate blocks. Land is relatively free-draining, with potential for early turn-out to grass and a long grazing season.

The suckler herd has increased from 52 cows in 2010 to 80 cows calving down in 2014. Cow type is focused on good maternal traits (fertility and milk yield) for breeding performance and



good weight for age in their progeny. Two Charolais stock bulls and AI Simmental sires are used for breeding.

Traditionally, autumn-born steers were sold live as 18-month-old stores and all other cattle finished. All cattle are now kept on the farm to slaughter to increase output of beef per hectare. Male progeny are slaughtered as steers at 400kg carcass weight, while heifers average 330kg carcass weight.

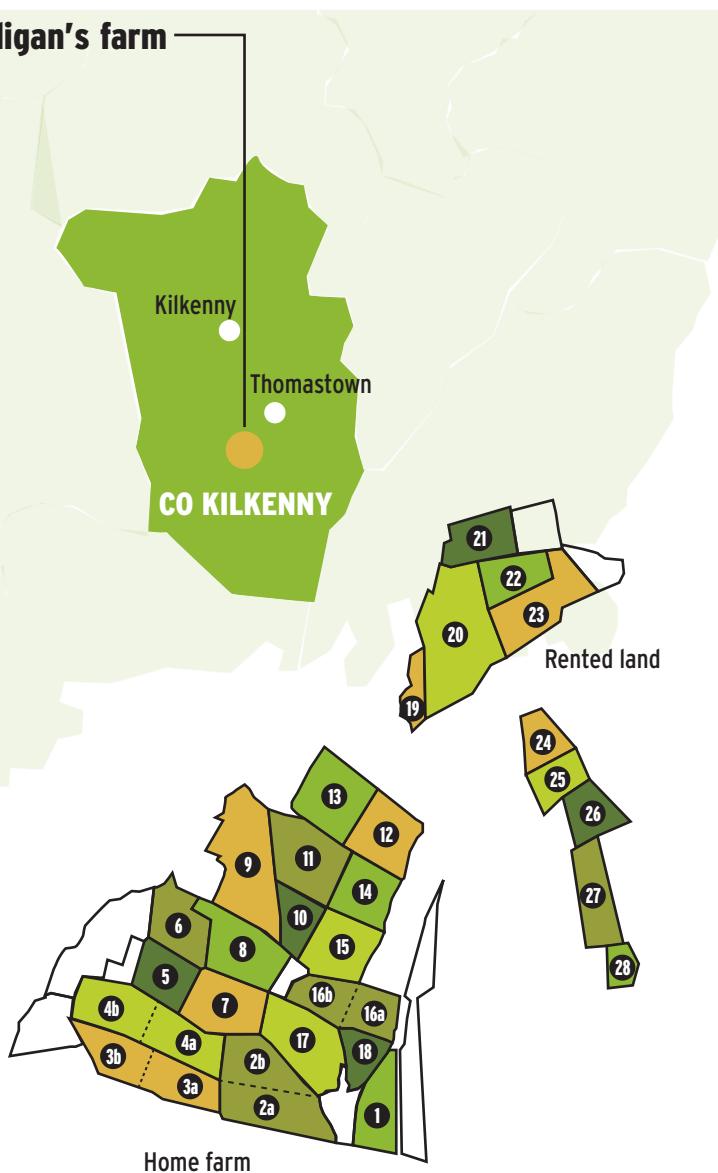
Autumn-born steers are now being finished at 24 months off grass and spring-born steers finished at 22 months out of the shed. Autumn-born heifers are finished off grass at 22 to 23 months, with spring-born heifers finished at the same age from the shed.

Expanding the suckler cow herd, finishing all progeny and improved technical efficiency have improved the farm's gross margin since the beginning of the programme. Improved grassland management through increased paddock grazing is critical to reducing production costs, increasing animal performance and increasing stocking rate. The farm has been 100% reseeded within the last seven years. James focuses on reseeding a proportion of the farm each year to optimise grass growth on the farm.

Programme adviser Peter Lawrence and local Teagasc adviser Austin Flavin work closely with James to ensure that he maintains this steady progress and meets the projected targets set out in the farm plan.



# James Madigan's farm



# Working to a plan

**A**ccurate financial and physical data are crucial in highlighting the strengths and weaknesses of a farming system and monitoring performance. As part of the BETTER farm programme, a three-year farm plan was drawn up for James and the profit monitor was a key tool in setting targets.

James has been completing profit monitors since 2010. Completing profit monitors over successive years gives a better picture of how the farm is performing, rather than focussing on one year where individual circumstances may give a distorted picture of the farm business performance, such as 2012.

The target output of beef produced on farm is 862kg/ha and to produce 375kg/LU. James produced 600kg/ha and 293kg/LU in 2013. While focussing on increasing output is important, it is also essential to keep production costs under control.

“

The gross margin has increased by 35% from 2011 to 2013



Maximising the proportion of high-quality grazed grass in the animal's diet, in conjunction with good herd health and good breeding performance, is central to reducing production costs. As the intensity of the production system increases, so will variable costs.

Total variable costs have in-

**Table 1: Profit monitor yearly comparison**

Year	Area farmed (ha)	Stocking rate LU/ha	Lwt output kg/ha	Value of output €/ha	
2011	65	1.86	544	1,025	
2012	57.4	2.17	630	1,341	
2013	64.2	2.05	600	1,399	



creased over time, due to increased fertilizer use, as there is a greater demand to grow more grass.

Additional concentrates are now being fed as more animals are being finished and there is greater vaccine use to reduce disease.

However, output value has also increased and the aim is to in-

crease output to dilute production costs. As a result, gross margin has increased by 35% from 2011 to 2013.

In 2013, gross margin was €720/ha. James is targeting a gross margin of approximately €900/ha by 2015, which is similar to the top third of suckler beef farmers completing profit monitors.

	Feed	Fert/lime	Vet	Contractor	AI	Other	Gross margin
	133	142	70	36	92	490	535
	221	175	116	9	102	631	711
	258	186	102	0	129	680	720



**T**hroughout the BETTER farm programme, emphasis has been placed on prolonging the grazing season, improving sward quality and maximising animal performance from grazed grass as a means of increasing output and reducing production costs.

Proper subdivision of grazing land is essential to successfully manage pastures and achieve desirable rotation intervals. Paddock infrastructure on the farm is good, with permanent electric fences and good positioning of water troughs allowing fields to be subdivided with wire reels and plastic stakes easily.

James also installed a road-way on the home farm, making movement of cattle easier when working on his own. There are 30 paddocks on farm that can be subdivided, depending on ground conditions, growth rate and stocking rate at different times of the year. Paddocks range in size from 1.01 to 2.9ha.

The aim is to graze out paddocks in three days and allow 18 to

21 days for regrowth. James walks his farm weekly to measure grass growth. Based on grazing days ahead during the grazing season, he makes decisions as to whether he needs to take out surplus grass as baled silage or spread extra fertilizer if facing a deficit.

Using the grass wedge to budget grass is an important tool in maintaining consistently high-quality swards to optimise animal performance and utilisation of grass by maintaining pre-grazing heights of 8cm to 10cm (1,300kg to 1,700kg DM/ha) and grazing paddocks down to 4cm.

James is a firm believer in reseeding part of the farm each year. As the farm is relatively dry and free-draining, gradual turn-out of cattle to grass from mid-February helps prolong his grazing season and reduce the expensive indoor winter period. However, in order to avail of early spring grass, James must plan on closing his paddocks in rotation from mid-October and not graze these paddocks again until the spring.

“

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# Using the autumn planner

**A**utumn is an important period on the farm as James aims to have the autumn cows settled in-calf before housing.

Therefore, he must have enough quality grass on the farm during this period to keep them out. James uses the 60:40 autumn planner to help extend autumn grazing and ensure paddocks are closed up in time to allow sufficient recovery before spring grazing.

Working to a plan eliminates the guesswork and ensures grass is rationed on a weekly basis. As grass growth declines and herd demand increases in September, it is important to have a bank of grass built up on the farm during this period.

The rotation length should be increased from 25 to 30 days in late August to 35 to 40 days in late September.

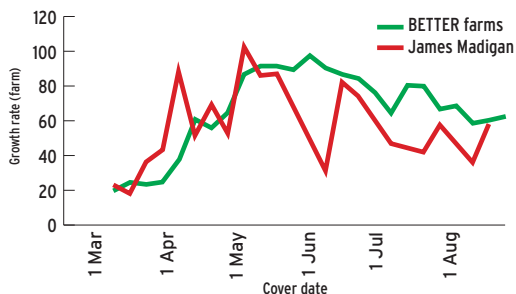
It is important that James reduces his demand on grass by housing finishing stock first in October, followed by weaned spring cows with the spring weanlings.

James aims to start closing paddocks around 10 October and will close his driest fields first so they can be grazed first the following spring. As can be seen in the table, James follows a plan to have 60% of the farm closed by the first week of November. The remaining 40% is closed by late November.



**Figure 1**

Distribution of grass growth for James Madigan and BETTER farm participants in 2014



**Table 1: Autumn grazing planner**

Week	Grazing area		Actual area grazed per week
	per day (ha)	per week (ha)	
10-17 Oct	1.6	11.2	
17-24 Oct	1.6	11.2	
24-31 Oct	1.6	11.2	
31 Oct-7 Nov	1.6	11.2	
7-14 Nov	0.9	6.4	
14-21 Nov	0.9	6.4	
21-28 Nov	0.9	6.4	
Total		64 ha	



## Foundation for grass growth

**T**he maintenance and improvement of soil fertility are very important tasks to maximise grass growth.

On good mineral soils, a soil pH of 6.3 and soil phosphorus (P) and potassium (K) at index 3 is required. Soil pH on the farm is at a good level and ranges from 6.1 to 6.8. The pH status of the soil has a significant influence on the availability and uptake of both soil nutrients in the form of either artificial fertilizers or organic manures by the plant.

Grassland soils maintained at pH 6.3 to 6.5 will release approximately 60kg to 80kg/ha more nitrogen per year than soils with pH 5.0. This represents a potential cost saving of €60 to €80/ha.

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Phosphorus is important for crop establishment and root development. It also plays an important role in the nutrition of livestock. Soils at P index 1 will produce approximately 1.5t/ha less grass dry matter compared with soils at index 3. James is investing in spreading more compound fertilizers to increase P levels over time.

Potassium increases stem strength, improves drought resistance, cold tolerance and, most importantly, increases yield.

Soil K levels are moderate, with 47% of the soils index 2, 34% of soils testing index 3 and 19% at index 4. James targets slurry spreading to silage fields and paddocks with the lowest P and K levels.

**Table 1: 2013 Grassland soil sample results**

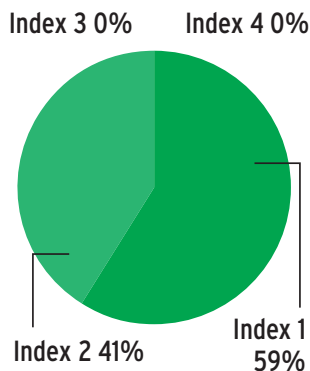
Paddocks	Area (ha)	pH	P index	K index
1	1.8	6.2	2	3
2a + 2b	4.2	6.2	1	2
3a + 3b	3.2	6.6	2	2
4a + 4b	3.9	6.6	2	2
5	1.7	6.3	1	2
6	2.1	6.6	1	3
7	2.3	6.5	1	2
8	2.5	6.4	1	3
9	4.0	6.1	1	2
10	1.2	6.7	1	3
11	2.8	6.7	1	3
12	2.1	6.4	2	3
13	2.6	6.4	2	3
14	1.9	6.5	1	2
15	2.3	6.7	2	4
16a + 16b	2.6	6.8	2	4
17	2.8	6.1	1	4
18	1.0	6.1	1	4
22+25	2.72	7.07	3	2
23	3.05	6.90	3	2
24	5.20	6.22	2	3

**Table 2: Soil pH range on farm 2014**

Soil pH range	% of the farm within range
<5.5	0%
5.5-5.9	0%
5.9-6.2	17%
6.2-6.5	38%
>6.5	45%

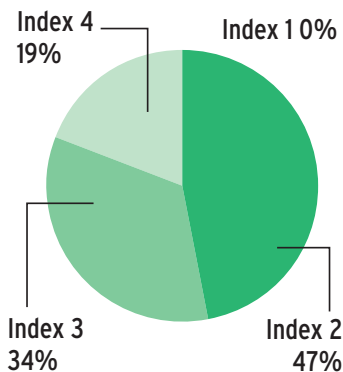
**Figure 1**

P index of farm



**Figure 2**

K index of farm







## Top animal performance

One of the main objectives on James's farm is to maximise the weight for age of all progeny in order to increase kilograms of liveweight produced per hectare. As can be seen from Tables 1 to 3, James achieves good growth rates in his cattle. This can be attributed to:

- ➔ 1. Good herd health and stock management, as calves have few setbacks from birth to selling time.
- ➔ 2. Breeding cows with good ma-

ternal traits capable of producing heavy weanlings. Milk is the driver of calf weaning weight and James is conscious of maintaining milky cows within his herd.

- ➔ 3. Using herd sires with good genetic merit and growth traits.
- ➔ 4. Crossbreeding to maximise hybrid vigour.
- ➔ 5. Good grassland management in order to provide high digestible grass at all times during the year.
- ➔ 6. Turnout of stock to grass from mid-February in order to prolong his grazing season.



**Table 1: 2014 spring-born bull and heifer calves**

	Bulls	Heifers
Average D.O.B.	15/2/2014	31/1/2014
Weight (kg) 21/8/2014	291	274
ADG from birth (kg/day)	1.33	1.16

**Table 2: 2013 spring-born steers and heifers**

Weigh date	D.O.B.	Avg weight (kg)	ADG from birth (kg/day)	ADG from last weighing (kg/day)
Steers	4/2/13			
18/7/2013		249	1.27	-
16/11/2013 (Housing)		363	1.13	1.00
1/3/2014 (Turn-out)		413	0.95	0.52
28/6/2014		535	0.97	0.99
21/8/2014		577	0.95	0.84
Heifers	31/1/13			
18/7/2013		223	1.10	-
16/11/2013 (Housing)		340	1.04	0.96
1/3/2014 (Turn-out)		380	0.87	0.38
17/5/2014		424	0.83	0.64

**Table 3: 2012 autumn-born steers and heifers**

Weigh date	D.O.B.	Avg weight (kg)	ADG from birth (kg/day)	ADG from last weighing (kg/day)
Steers	21/8/12			
1/12/2012 (housing)		144	0.98	-
16/3/2013 (turn-out)		234	0.91	0.84
5/6/2013 (weaning)		339	1.02	1.24
16/11/2013 (housing)		449	0.90	0.67
1/3/2014 (turn-out)		531	0.88	0.77
21/8/2014 (finishing)		694	0.89	0.95
Heifers	15/8/12			
1/12/2012 (housing)		138	0.89	-
16/3/2013 (turn-out)		231	0.89	0.85
5/6/2013 (weaning)		297	0.87	0.83
16/11/2013 (housing)		409	0.81	0.66
1/3/2014 (turn-out)		482	0.79	0.70
28/6/2014		623	0.85	1.10

# Breeding management

James purchases his replacement heifers from a local dairy farm at approximately 450kg liveweight. They are Simmental cross Holstein-Friesian and calve into the autumn herd. Sourcing heifers from the dairy herd gives a good foundation of milk in his herd to breed his own replacements from.

James's cows are functional, whereby they are capable of rearing excellent-quality weanlings with good weight for age. In addition, herd fertility is excellent, with 48% of the herd calved in less than 365 days and 38% of the herd calved between 366 and 390 days in the 2013/2014 breeding season. The average age of the cows within the herd is five years and 11 months. James has two Charolais stock bulls sired by CF52 and Major with excellent terminal traits.

## BREEDING PERFORMANCE

A key goal in running an efficient suckler system is good breeding management and herd fertility.

As can be seen from Figure 1, James has two defined compact calving periods on the farm. This is achieved through a strict breeding policy, whereby the bull is left with the cows for a short breeding period (12 weeks). Cows not in-calf are culled.

James splits each herd into two groups of 20 during the breeding season, giving him more bulling power to achieve his compact calv-



ing. In addition to a short breeding season, James maintains it is important to have the cows in the correct energy balance, whereby they are at the correct body condition score and on a rising plane of nutrition prior to breeding. A well-planned, compact and defined breeding season is essential from a labour efficiency point of view and this is critical for James when working off-farm.

On beef farms, output is measured as kilograms of liveweight produced per hectare. Animal fertility, mortality rate, growth rate and stocking rate are all significant factors affecting farm output. As can be seen from Table 1, James's mortality rate at calving and 28 days post-calving is well below the national average, hence he is producing over 0.90 calves per cow per year.

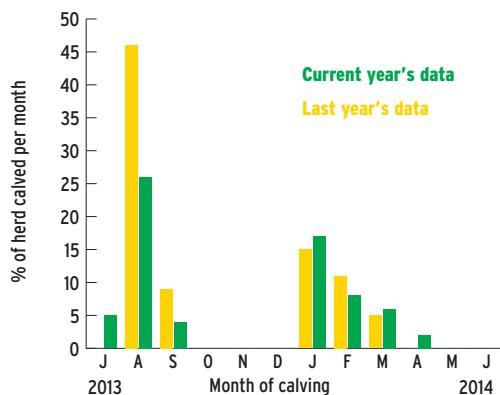
By having a focussed, compact calving period, feeding cows the correct diet pre-calving and having them at the correct body

**Table 1: Three-year calving performance statistics**

	2011-2012	2012-2013	2013-2014	Current national averages
Total no. of calvings	62	68	74	
No. of cows	40	52	58	
No. of heifers	22	16	16	
Calving interval	368	388	378	395
Mortality at birth %	0	1.4	1.3	4.7
Mortality at 28 days %	0	5.8	3.9	6.1
Females not calved in period %	3	1	1	10
Calves per cow per year	0.97	0.88	0.95	0.83
Births with known sire %	100	99	100	61
Births with difficult calving %		5.8	2.6	3.9

**Figure 1**

Current calving pattern



condition score, good herd health and supervision are key management tasks in achieving this high performance.

James is focussed on fertility within the herd and his calving interval was traditionally running at 368 days. However, after the wet year in 2012, eight of the autumn calving cows were carried over

into the spring herd and therefore James's calving interval increased to 388 days.

As James was trying to build stock numbers to increase his stocking rate by breeding from within the herd, he was forced to keep these cows in the system. Calving interval in 2014 is back to 378 days.



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# A to Z of FARM SAFETY



**A**

**Always** consider **SAFETY** on the farm.

**B**

**BULLS:** Beware of aggressive animals on your farm. Be sure to cull cross bulls, cows, rams, stags from your farm.

**C**

**CHILDREN:** Always supervise children on the farm, especially during machinery operations.

**D**

**DRAWBARS:** Never let anyone ride on the drawbar of your tractor or any other machinery. Do not allow anyone ride in an open trailer.

**E**

**ELECTRICITY** can kill. Beware of overhead power lines and buried cables.

**F**

**FORESTRY and tree felling:** Take care not to be caught under falling trees and logs. Attend a chainsaw and tree felling course.

**G**

**GAS:** Slurry gases can kill. Remove all stock from slatted sheds before agitating. Never enter a shed when slurry is being agitated. Close agitation point after each use.

**H**

**HORSES:** Some horses can be dangerous. Always wear safety equipment e.g. helmet when handling or riding horses. Be wary of being kicked by horses.

**I**

**INSPECT:** Check safety equipment on your farm regularly, e.g. machinery safety covers, PTO guards, fire extinguishers and First Aid kits.

**J**

**JAWS:** Keep away from blades of shear grabs, mowers, revolving knives and chainsaws.

**K**

**KEEP CLEAR** of machinery such as tractors, HiMacs, bulldozers when they are working. Stay in their line of vision and wear a high visibility jacket or vest.

**L**

**LIVESTOCK:** Be wary of being kicked or crushed while working in pens, yards or fields with livestock.

**M**

**MACHINERY:** Ensure safety covers and PTO guards are in place and working on all farm machinery. Avoid wearing loose clothing near machinery.

**N**

**NEVER** start a tractor when you are standing on the ground alongside it.

**O**

**OVERTURN:** Remember tractors have a high centre of gravity and can overturn easily. Drive slowly over uneven ground.

**P**

**PESTICIDES** and other toxic chemicals: Keep them out of the reach of children. Read the label and follow the manufacturer's advice on proper use, storage and disposal.

**Q**

**QUAD bikes:** Always wear a safety helmet when using a quad bike. Avoid letting children on them. Drive slowly over rough ground.

**R**

**ROOFS:** Use a roofing ladder when working on farm sheds. Stay clear of skylights.

**S**

**SAFETY:** Complete and update your Risk Assessment Document. This can be completed online at [www.farmsafely.com](http://www.farmsafely.com). Take action on risks highlighted.

**T**

**TRAINING:** Attend a Farm Safety training course NOW at your local Teagasc centre.

**U**

**UNTIDY:** Poorly maintained farmyards/farm can lead to accidents. Keep your farmyard/farm neat, tidy and well maintained.

**V**

**VISION:** Your eyesight is vital – protect it. Wear safety goggles where your eyes are in danger.

**W**

**WARNING SIGNS** should be erected to warn the public of dangers or hazards such as "Tractors Crossing", "Beware of Bull".

**X**

**XTRA:** Be extra careful when there are children or elderly people on the family farm. Restrict access to dangerous ponds, tanks, unstable heights etc.

**Y**

**YOU and YOUR FAMILY:** Take every precaution to remain safe and healthy. Assess every farm task carefully for potential dangers or risks. Organise and complete tasks with safety in mind.

**Z**

**ZOO NOTIC DISEASES** and infections which can be transmitted from animals to humans. E.g. TB, Toxoplasmosis, Weil's Disease, E.Coli ... Wear gloves when handling livestock. Always wash your hands after being in contact with animals.