# Animal Health in an expanding Dairy Industry

A report for

NUFFIELD IRELAND

Farming Scholarships

**By Shane Fitzgerald,**

**2011 Nuffield Scholar**

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# I. Executive summary

Joe O` Flaherty the CEO of Animal Health Ireland[1] explained what AHI future visions were when it was first established in January 2009.

*"Animal Health Ireland will be recognised as a world-class resource enabling Irish farmers and the agri-food industry to achieve and maintain the highest international standards of animal health, to improve the profitability and sustainability of their enterprises and to enhance the value and competitiveness of Irish products in the marketplace".*

Since its formation AHI has started to implement two different control programmes for various animal health issues, cell check-national mastitis programme and BVD. In 2011, an industry led voluntary BVD[2] eradication programme was put in place based on three years of tissue sampling followed by three years of monitoring. Monitoring of animals is to be done through either bulk milk samples or blood sampling. Following the success of the voluntary phase of the BVD programme, the BVD Implementation Group decided to introduce a national compulsory programme in 2013. Currently Johne's disease and IBR[3] are under investigation.

On my travels I expected to observe programmes similar to this in every country. However that was not to be the case. There seems to be lack of knowledge from farmers on how these health issues could affect their businesses. A lot of farmers are aware of the problems that exist but do not understand how to best deal with them. This is due to the lack of drive within the industry in these countries.

Ireland has advantages over other countries. AHI is already launched. Also we are very fortunate to have a world class centralized database in place. The AHCS[4] , along with the

[1] AHI animal health Ireland

[2] Bovine Viral Diarrhoea

[3] Infectious Bovine Rhinotracheitis

[4] Animal health computer system

specialized dairy and beef. ICBF[5] has integrated up 30 different databases into one and this has lead to less duplication, increased management information and increased genetic gain on Irish dairy farms. From an animal health perspective it also allows us to know where any particular animal in the country is at any given time and will in future be able to tell us exactly what the health status of that particular animal is.

As an industry, all sectors involved with agriculture need to work collaboratively for the greater good of the agriculture sector to bring about a more sustainable industry. Funding needs to be supplied from within all sectors of the industry. Farmers have the most to gain out of this and should be supporting AHI work financially through a contribution levy.

GD[6] is a privately owned animal health company in Holland founded by farmers for farmers in 1919. GD coordinates a large number of animal health programmes, generally on behalf of national commodity boards. This is an example of how the industry can move forward without any government involvement.

Improved relationships will lead to improved knowledge transfer within our industry

A traffic light system should be implemented for every farm. Our central database through ICBF in conjunction with AHI will allows us to do this quite easily. This will be of benefit to the farmer who is pro-active in implementing disease control strategy into his herd.

IBR and Johne's testing should be done in conjunction with the current brucellosis testing. This will allow us to monitor our health status in our herds and contain these diseases. This will also lead to less duplication and cut costs to the farmer.

We have the opportunity in Ireland at present, to implement programmes on our own farms to eradicate and contain some of the disease issues that could seriously affect our future businesses. This must be done before expansion takes place.

[5] Irish cattle breeding federation

[6] Animal health services Deventer

## II. Introduction - Background

I am a 34 year old dairy farmer from Co Cork. I live on the family farm with my wife Fiona. In 2008, I took over the running of the business from my father Jerry. Dairy farming is the only enterprise practised on the farm. At the time when I took over the family dairy herd, we were milking 120 cows. In the next two years we increased our herd size to 180 cows. With a herd expansion of 50%, we had to deal with a lot more health issues on the farm.

According to the "Food 2020 Harvest Report", Ireland is expected to increase milk production by 50% in the next ten years. I am aware that animal health issues on the farm could become a seriously limiting factor to this expansion. As a result of extra milk coming on stream, new markets will have to be found around the world to buy our export products. It is clear that an industry led approach is required to make this a sustainable enterprise in the future.

The subject I choose to study is '**Animal health in an Expanding Dairy Industry**'. Having expanded my own dairy herd, I have been affected by diseases on my farm in the past number of years. IBR, Salmonella, BVD, Liver Fluke and Rumen Fluke have all been diagnosed in my herd. This led to a big financial loss on my farm estimated at €40,000 in 2010. Coincidently at the time, I was involved in an animal health trial in Moorepark[7] through my local discussion group Dairymis, which showed that the health status of my farm was poor. My herd tested positive for IBR, BVD and high levels of Liver Fluke were also discovered, which ultimately led to salmonella. In order for me to drive my business forward, careful planning and research was needed to eradicate disease in my herd.

While putting a herd health plan together to combat these health issues, I was also keen to participate in a global comparative research to find out how other countries were combating similar animal health issues. I wanted to find out what structures Ireland as a country had in place to protect our industry from animal health issues and how we would combat further issues in the future. During my comparative studies, I was pleasantly surprised to find that Ireland has significant structures in place in comparison to other countries, our current data

[7] Moorepark Research Centre

base being our biggest advantage. But this is not enough, our industry must work together and fund the strategic plans that must be put in place in the coming years to protect our industry and our markets.

While I was concluding this project, Schmallenberg virus was diagnosed in the Republic of Ireland and in Northern Ireland. As a result of this our Russian counterparts, who were in the process of purchasing 2500 in-calf heifers from Ireland initially closed the market. An export market for Angus heifers to Kazakhstan was also closed due to this virus entering our herds. Recently the Russian market re-opened, however the Kazakhstan market remains closed. This just proves that if we as an industry don't move forward together and put structures in place to protect our markets, then disaster is just one bad news story away. Over 3 million euro a year could have been lost to the industry as a result of this closure.

# III. Objectives and Aims

## Objectives

This report will highlight the systems and planning that needs to be put in place from an animal health perspective, to secure our existing markets going into the post quota era of 2015. This will also give us an advantage over our competitors in encouraging new markets to invest and export from Ireland. The two fundamental objectives of this research are the following:

1. Maintain and increase market access through effective partnerships for livestock welfare, production, disease policy development and implementation.

2. Improve national coordination and management of animal health by strengthening communication between all sectors within our industry.

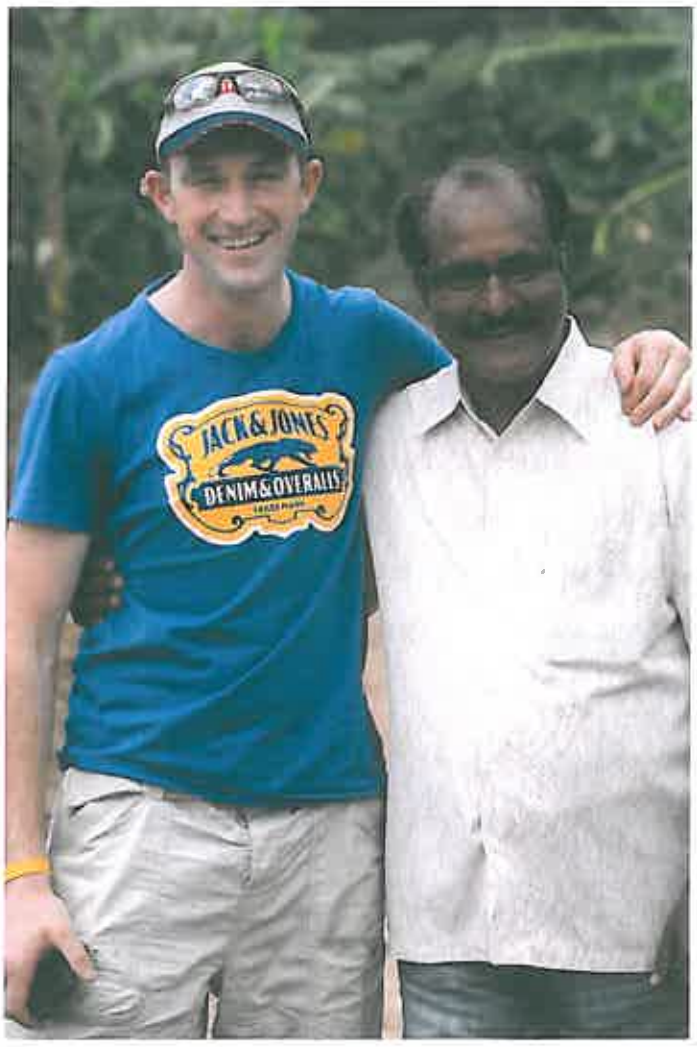
## Aims

Currently Ireland is in the midst of a deep recession. Many of our relatives and friends are emigrating to find work abroad. In 2011 Agriculture contributed 24 billion[ii] euro to the Irish economy and is now seen as an industry that will help Ireland recover from the recession. The land is where it all starts. We in Ireland have a major advantage in that we have a green image-rolling hills and beautiful countryside. However, we as a country need to promote our natural environment more. Consumers are becoming more aware of what they eat and where their food comes from. Our farming industry needs to portray a clear message highlighting that we have the safest food in the world.

My aim is to have an industry all working together to bring about this concept.

## IV. Methodology

This study has involved twenty-four months of preparation, five months of travelling abroad and many months of research and reflection. My travels involved visits to Scotland, England, Wales, Ukraine, Qatar, India, New Zealand, South Africa, Holland, Belgium, France and Australia. My aim was to accumulate first hand information from people who were successful in their chosen career. Focus was placed mainly on agricultural businesses. Successful businesses were looked at from a variety of angles: from farmers on the ground to industry leaders, members of parliament, industry commentators and international trade lobbyists.




It was a journey that was filled with revealing discussions which constantly fuelled my research. While initially my interest was to find out what farmers on the ground were doing to tackle animal health. It became apparent that if agriculture as an industry were not seen to be proactive in this area then the majority of farmers were not being proactive either. The study is exploratory in nature and although it provides concrete findings, it is by no means an all-encompassing report, but rather aims to be an introduction to further study for those who want to build on its findings.

**Figure 1: Meeting with a local banana farmer in Southern India**

## I. South Africa

Population: 50 million

Dairy farmers: 2,600

Dairy cows: 75,000

Dairying represents 14% of agriculture value in South Africa[iii]

The continent of Africa consists of a population of over 1.03[iv] billion people. Therefore South Africa is on the doorstep of a potentially huge market. Due to poverty in most of these African countries, they cannot afford to buy exports from South Africa. It is evident South Africa suffers greatly from first world isolation.

*"Its exporting market is limited. In 2010 South Africa exported 3% of their dairy production and imported 2.7 % .The Rand is extremely sensitive at the moment and this along with our location makes it extremely difficult to deal with Europe, Oceania, and America for that matter.[v]"*

*Harrington (2011)*

Nigel Lok milks eight hundred cows in Tsitsikamma. Tsitsikamma is an area between Cape Town and Port Elizabeth. He explains how he adopts modern technology to feed the cow her exact requirements based on yield and weight loss .Cows are weighed every day entering the milking parlour and are fed accordingly .With good grass management on the farm and good use of technology, Nigel found that he was able to increase his stocking rate to 4 cows/ha and therefore produce 2000 kg of milk solids / ha[8] off his farm.

*"Meeting the cow's requirements to me is of paramount importance. If you look after the cow and meet the demands that she needs, she in turn will look after you in your pocket"*

Lok (2011)

[8] Kilogramme of milk solid per hectare

Modern technology has also helped Nigel reduce reliance on his labour unit thus enabling him to spend more time on other projects. Labour is extremely cheap in South Africa. This is mainly due to the high unemployment of 26%[vi] . The native Africans are mainly found to be working on the dairy farms. Motivation and skill set for working on a dairy farm are poor. This is also another reason why Nigel believes in adapting modern technology to his farming enterprise.

From an animal health perspective SA is facing many challenges. They have encountered some foreign diseases that come from wild animals living in remote outback areas that make their way inland. Lumpy Skin Diseases, Botuhrax, Plight, Blue Bellybusk and Rift Valley Fever are some of the diseases that SA is prone to. These diseases, if not vaccinated for, lead to death of the animal in many cases and are extremely hard to contain due to the movement of wildlife within the vast country.

In the diagram below you will see the extensive Herd Health programme that Nigel Lok has in place on his farm.

| **2011 cattle programme** | |
|---|---|
| **Heifers: At birth** | 2 litres Beestings, weigh and measure , vaccinate for Dexiron 2 millilitres /animals for iron deficiency |
| **2 weeks** | Pasturella vaccination for prevention of pneumonia |
| **To communal hutch** | Coglavax 2ml, prevention of clostridium infection |
| **Start weaning** | Bovitec Pl 2ml for bovine virus diarrhoea {BVD} Coglavax booster 2ml |
| **Weaned** | Gardal 1.5ml/20kg. A fluke and worm dose. |
| **Meal 1 – Meal 2** | Bovishield FP+15 2ml. Gardal 1.5ml/20kg |
| **Meal 2 – Meal 3** | Ca strain 19 5ml . This is used for prevention of brucellosis |
| **6 months** | Botuthrax 2ml , Vaccination for Anthrax |
| | Ivomec Super 1ml/50kg for lice and worms |

| | |
|---|---|
| **7 months** | Botuthrax - 2ml Vaccination for anthrax, also done for rift valley fever virus. These two diseases are borne from Africa national wildlife parks |
| **Meal 3 - Ruspers 1** | Endex (fluke& worms) |
| **10 Months R1 to R2** | Ivomec Gold. Bovishield 15 BVD and IBR vaccine |
| **Heifers for AI** | Endex (fluke & worms) |
| **12.5 – 13 months** | Vitadex 2 ml Hormonal treatment. multimin 5 ml for minerals. |
| **Pregnancy confirm d90** | Ivomec Gold 1 ml/50kg |
| | Botuthrax 2 ml |
| **Heifers recheck PD day – 56** | Bovillis S 2 ml for BVD, Pasturella 5ml, and repivax 2ml |
| **Dry-off** | Dry cow & BCS ( body condition score ) |
| | Rotovac 2 ml prevention of rotavirus in new born calve |
| | Pasturella 5 ml |

It is accepted that because of their location new diseases are going to be an issue going forward and will have to be dealt with accordingly. There is a greater awareness in SA than most other countries to diseases such as IBR, BVD and most farmers vaccinate for them. However there is no strategy in place by the industry to eradicate or contain these diseases.

Leroux *(2011)* maintains that

> *"The government neither have the money nor the interest to invest in such a programme and I also believe the farmer does not want to invest either "*

## Conclusions

- Education is poor. No research centre and lack of agriculture colleges will hinder knowledge transfer within the industry into the future.
- Ireland could learn from the Automation that Nigel Lok has in place, especially with expansion on the horizon and this could help labour cost.
- Many foreign diseases in SA, will pose serious challenges into the future
- Modern technology with the correct type of cow can lead to a much happier and healthier cow. This will in turn lead to less stress for the farmer involved.
- Extensive herd health programme in place in Nigel Lok farm is a necessity for all efficient dairy farmers going forward into the future.

**Figure 2: meeting with Nigel Lok on his farm in October 2011**

## II. Belgium

Cattle: 2.66 million

Dairy Farmers: 9,000

Population: 10.9 million

2 different regions in Belgium: Walloonia and Flanders

Most farms in Belgium are very similar. Cows remain indoors much of the time and produce on average ten thousand litres of milk. The main breed is Holstein Friesian. The Belgian dairy farmer has a very strong market on their doorstep with a population of 11 million[vii] and is centrally located in Europe. With the abolition of quotas in 2015, one poses the question- What are the issues facing Belgium post 2015?

Jan Halewyck is a dairy consultant; he explains what the issues will be

Halewyck (2012) deems that

*"Environmental regulations such as nitrates and the cost of moving manure to neighbours farms are extremely expensive." He stressed that "farmers in Flanders cannot move manure to farmers living in Waloonia and vice a versa and this is limiting our options. Higher feed costs and a volatile milk price will hamper this expansion. Maintaining our current level of CAP is also a must"*

In relation to animal health Belgium does have a strategic plan in place to deal with IBR. It is a voluntary eradication programme with different status given on an individual basis to each farmer depending on how prevalent it is in the farmers herd. Ninety percent of farmers in Belgium are vaccinating for IBR. Most farmers are aware of the damage IBR can cause and therefore vaccinate accordingly.

## IBR situation in Belgium [viii]

- **Cattle number**: 2.66 m
- **IBR status**: positive
- **Official IBR eradication plan**: There is a voluntary IBR eradication program. Herds are classified in four different categories:
- **Status I1** : unknown status, no controlled vaccination nor serology
- **Status I2** : intensive vaccination of all animals older than 8 months, repeated vaccination every 4 to 7 months
- **Status I3** : all animals are gE negative (two serologic controls of all the animals older than 12 months with an interval of 5 to 7 months, followed by yearly control of a selected number of animals)
- **Status I4** : all animals are gB negative (two serologic controls of all the animals older than 12 months with an interval of 5 to 7 months, followed by yearly control of a selected number of animals)
- **IBR-free certification**: There are two types of IBR-free certification depending on the type of test used (gB or gE). See above the procedure to achieve IBR-free certification.
- **IBR herd/individual prevalence**: 66% of herds contain IBR carriers, 30% of animals are gB positive.
- **Vaccination**: Only IBR marker vaccines are allowed (live and inactivated).

BVD is not a big issue with farmers in Belgium; Boudry (2012) explained that

*"1.1% of the national herd has BVD, which is high (Ireland 0.75%). Although some farmers are aware of it, it is very much on an individual farm basis to take action. There is no eradication programme for BVD in Belgium"*

Benjamin Boudry is a vet working in the Walloonia region of Belgium; he suggests that it causes a lot of problems on farms.

*Boudry (2012) states*

*"BVD is one of the main reasons for high infertility in Belgium and highlights the importance of an eradication programme."*

Boudry continues

*"Neospora, Schmallenberg, Johnes and brucellosis are the main cattle diseases that cause most concern in Belgium. At the moment our industry is very lax on these diseases and need to start putting programmes in place to protect their markets. For example Russia has already stopped buying in-calf heifers from Belgium because of the Schmallenberg outbreak"*

## Conclusion

- Very dependent on subsidies and if subsidies were dropped, many Belgian farmers could go bankrupt
- Very lax strategic plans, if any, in place to deal with animal disease outbreaks
- Voluntary IBR eradication programme in place with farms marked individually depending on level of vaccination that has been carried out on the farm.
- Stringent environmental regulation will curtail expansion post 2015.

## III. United Kingdom

Population: 62.3 million people

Dairy Herd: 1.85 million cows

Dairy Farmers: 12.000 and declining by 1.6% each year

(Dairy co 2012 Data)

The United Kingdom[9] dairy industry is like many other countries at present. It's declining cow numbers and increasing yield, leads to a higher cost system.

Many parts of the UK especially get as much rainfall as Ireland (1000mm) and this gives the farmer the opportunity to grow as much pasture as possible at a sustainable stocking rate. However a very small percentage of the UK dairy farmer is grass based, like the other countries, Belgium, Holland and South Africa, the high feed costs are eroding profits to be made by the intensive indoor system.

Rhys William farms in partnership with David Wynne Finch on the North West coast of Wales are milking 1,200 cows on 650 ha of grass land. Rhys is milking his cows once a day; this is because he has a long, narrow and hilly grazing block. His cows walk to the furthest away field could be up to eight kilometres long. This was taking too much energy from the cows, hence his decision to milk OAD[10].

*"The workload associated with milking a large number of cows twice a day is inconvenient, inflexible, and adds greatly to the capital cost of the milking facilities needed. The limitation imposed on daily intake per cow by grazing, even when pasture supply is plentiful, and magnified during pasture deficits and thin cows"*

*Williams (2011)*

[9] United kingdom

[10] Once a day

Devon farmer Phil Darke demonstrated the potential that is in the South West coast of England. There are big parcels of dry land in this area which are underutilised. Phil explained the key to attaining these tracts of land is all about building relationships with neighbours. There is huge potential for low cost grazing system .TB is the biggest animal health issue here. It is widespread in the area.

*"TB is costing me a lot of money every year , last year alone I lost 15 cows to TB and no compensation, if a farmer is locked up with TB he can sell stock to another farmer who is currently locked up as well . This is just wrong, the government are afraid to put a plan in place to cull badgers as the animal right groups will be down on top of them"*

*Darke (2011)*

In the last ten years alone in Ireland, Tuberculosis has decreased by fifty percent [ix] by having a wildlife control programme in place, whilst at the same time in the UK, TB[11] has increased by fifty four percent[x] . This lack of control is costing the UK Government and farmers millions every year[xi] .

## UK Conclusions

- Massive potential from more grass based dairy farms in the UK ,but lack of education of the dairy farmer and the lack of a centre of excellence is hindering that prospect

- Lack of strategic planning as regards to animal health issues such as BVD, IBR, Johnes and TB could affect growth and potential markets into the future.

- Poor education and communication with the general public is not helping when it comes to animal health scares or disease issues

- OAD milking in very large herds on difficult terrain can take huge amounts of stress off both the animal and the farmer.

[11] Tuberculosis

## IV. Holland

Population: 16.5 million

Dairy Farmers: 19,250

Dairy cow numbers = 1.47 million

Agriculture goods represent 17.5 % of Holland total exports

(CBS 2011)

Holland is a small but highly populated country. It is only half the size of Ireland yet has about four times the population. As a result of this, land is extremely precious in Holland because of demand and therefore could cost up to eighty thousand Euros per hectare to purchase land. Agriculture supplies 10% of the labour force in Holland[xii]. The Dutch rank second worldwide in value of agriculture and exports behind the United States with exports earning seventy billion annually.[xiii]

Dairy farming in Holland is mostly indoor, and highly intensive. Production is the key driver. High feed costs were offset by good milk prices in 2011, but at present in 2012 spiralling feed prices and dropping milk prices are putting pressure on dairy farmers.

According to *Holtrop (2012)*[xiv]

*"Friesland Campina has dropped it milk price from 36 to 32 cents/litre since the start of 2012 and in the same period feed prices have increased by 30%. This is putting a lot of financial burden on the dairy industry at present"*

Willem Van Der Horst is farming in Stichse Vicht. Willem is milking 160 cows on 100 ha [12] of land. Willem is bucking the trend of the standard dairy farmer in Holland. His aim is to keep his cows on pasture day and night on marginal ground to keep his costs low. Willem has also converted to organic dairy farming. His change of mindset was down to a trip to the United Kingdom a year earlier where he saw some organic farms up and running.

[12] Hectares

*"I feel the current environment in which the Dutch dairy system is working on is unsustainable, costs are too high and we are totally dependent on a strong milk price. I feel that if i can get paid a higher premium for my milk by going organic and at the same time have a lower cost structure by putting my cows out on pasture , this will then give me a big advantage over the commercial dairy farmer in times of high volatility"*

Van der Horst (2011)

Animal health is a big issue with Willem. All his cows are blood tested for IBR, BVD and Johnes disease. For Willem having a healthy, robust cow is one of the key drivers of this system.

*"There is a very mixed reaction to animal disease issues in Holland, they are people like myself who believe in eradication , they are also people who vaccinate but don't fully understand what they are vaccinating for , and then they are farmers who just don't want to know about these disease issues and turn a blind eye to it. For me it is very simple I need a cow that will stay in my herd and I will give her every opportunity to do that"*

Van der Horst (2011)

Franz Keurentjes is a director on the board of one of the biggest co-ops in the world, which is Friesland Campina. He is also a dairy farmer near Groningen in North Holland

When I met Franz in June 2011 he was considering leaving his cows back out to pasture in the foreseeable years ahead. This is down to the direction that Friesland Campina is taking going forward. FC[13] has a sustainability programme which he hopes will keep FC as one of leading processors and exporters of dairy produce in the world.

*"I see the connection between the consumer and the producer as key to opening markets going forward into the future. Public perception will decide who will be successful and who will fail. The public expects an extremely high standard of food safety"*

Keurentjes (2011)

[13] Friesland campina

Some of the measures that are being considered for the programme are,

**1.** To provide practical and technical support for dairy farmers.

**2.** Courses on food safety, energy saving and animal health.

**3.** Encourage more interaction between vets and farmers

Also part of the programme is to encourage dairy farmers to leave cows out to grass for six hours a day for one hundred and twenty days a year. A small premium shall be paid to farmers who will practice these measures but he could see these increasing in the future. He explained the reason for this incentive is to promote a happier, healthier cow to show the public that some of the products they are consuming are coming from pasture based milk.

## Conclusions

- Second largest exporter in the world of agriculture produce
- Excellent road and shipping network along with a densely populated country means cheap and easy access to its current markets
- Extremely vulnerable to high feed cost and a volatile milk price
- More emphasis being put on a sustainability programme by Friesland Campina because it is what the market is looking for.
- Awareness of animal health issues is increasing in Holland; it is led by companies such as GD (Animal health services Deventer) within the industry.

## V. New Zealand

Population: 4.5 million

Dairy Cows: 4.25 Million

95% of Dairy produce is exported

Dairying is 25% of New Zealand export earnings

*(www.stats.govt.nz/browse)*

New Zealand[14] is a massive player as regards milk production and exports. In 1984 when quotas were introduced to the EU, Ireland and New Zealand were on a level standing as regards herd size, herd population, milk produced and milk being exported. The introduction of milk quotas means that today Ireland has remained static, however New Zealand has grown by more than four times the size and is now a massive player on the International market producing over 17 billion litres per year.

In March of 2011 I met up with Emlyn Francis. Emlyn is dairy farming in Hammer Springs which is about two hours from Christchurch. He is milking fifteen hundred cows on 630 ha of irrigated pasture.

I was very keen to know exactly what the large herds is being vaccinated against. BVD is estimated to be present in up to sixty five percent of New Zealand cattle and dairy herds. Losses are estimated to be costing the industry one hundred and fifty million dollars[xv] per year and approximately two hundred and twenty dollars per cow.

Francis (2011) verifies.

*" Awareness of the disease is growing in NZ and movements are being made to put in place a voluntary BVD scheme that would encourage farmers to test their herd for BVD"*

[14] New Zealand

Emlyn is just now becoming aware of the issues that BVD and Johne's disease can cause in his herd. Last year out of four hundred and thirty calves tested, six calves were found to be persistent infected (PI). This comes in at 1.4% which is extremely high compared to Ireland at 0.75%. He aims to milk sample the bottom 10% yielding cow this year to find the carriers in his herd.

Emlyn also lost twenty cows in 2011 to Johnes disease. Very little is known about this in New Zealand and very little is being done about it.

Francis (2011) insists

*"There is minimal noise being made about Johnes disease and a lot more focus on BVD and TB"*

One of the biggest issues going forward will be the cost of implementing eradication into large scale dairy herds in New Zealand,

*"There is no ambition at present for the New Zealand dairy industry to implement compulsory control strategies for health issues such as IBR, BVD and Johnes disease, because it would cost the farmer too much money for something he does not know enough about"*

Francis (2011)

## Conclusions

- Dairy Farming is the life and soul of rural communities in New Zealand with unemployment in a rural city like Invercargill less than 5% due to Agriculture
- New Zealand exporting 17 billion litres per year and looking to grow this through the opening of new markets especially China
- Environmental regulations and animal health disease risks could jeopardise their markets into the future

- Lack of industry drive within the New Zealand dairy industry to put in place eradication programmes for certain health issues. TB is the main disease of concern at present due to the huge export markets that New Zealand has.

**Figure 3; overlooking the Vee in Co. Waterford**

## Key elements that may enhance the development of Irelands Animal Health Status.

### I. Introduction

Ireland is a small country with a population of 4.5 million. We have fifteen thousand dairy farmers in Ireland milking just over 1.027 million cows. The "Food Harvest 2020 Report" expects milk production to increase by 50% by the year 2020. As an exporting nation (eighty five percent of all agricultural products are exported), strategies need to be put in place to:

1. Maintain and increase market access through effective partnerships for livestock welfare, production, disease policy development and implementation.

2. Improve national coordination and management of animal health by strengthening communication between all sectors of our industry.

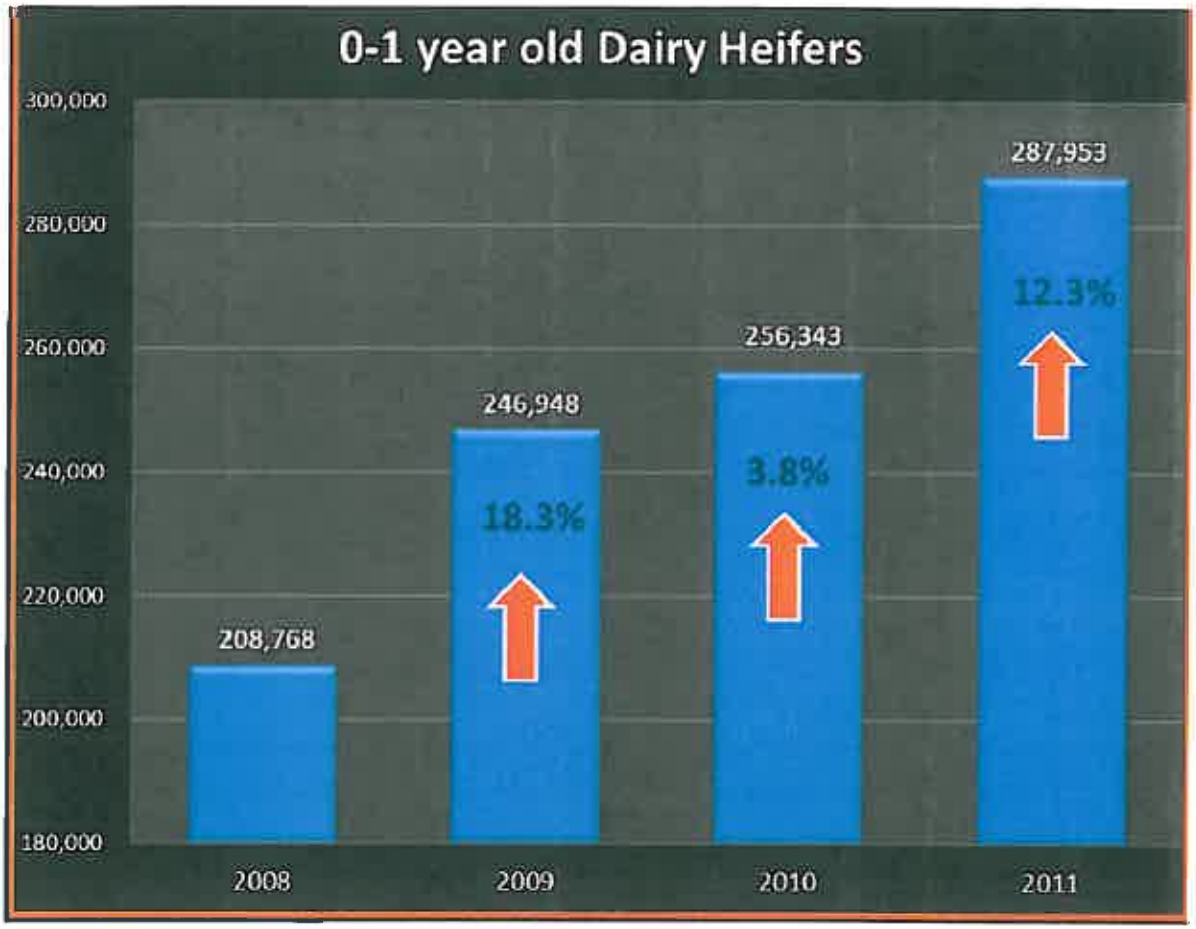



**Figure 4: Increase in 0-1 dairy heifers since 2008.**

DR David Graham [xvi]is programme manager for Bio-secure diseases with AHI. He explains that

*"Ireland is entering a golden era in relation to agriculture and the opportunity for change is now "*.

One poses the question- What is so different now to the opportunities that were there in the past?

Milk quotas will be eliminated in 2015, and the opportunity to expand for the first time since 1984 is very exciting. Dr Graham believes that many challenges lie ahead for the industry and in particular animal health issues.

*"Now is time to tackle the diseases at farm level and also to put control programmes in place at national level to protect our existing markets and show that Ireland as an industry must move forward together, it will be much easier to do this before expansion takes place* "Graham (2012)


**Figure 5: Meeting Dr Lorna Citer of Animal health Australia in September 2012**

Dr Lorna Citer[xvii] of AHA described how difficult it is for a country the size of Australia, with a limited database to co-ordinate such programmes.

*"At present the Johne's disease programme is the only national disease programme out there, every other programme is farmer driven and farmers only want to look after local interest and not have a government led approach."*

## II. Key Elements

As an industry, we need to support each other. In the past different segments of our industry were looking after their own interests and steering in their own direction. This requires change if we want to grow our business into the future. Relationships need to be developed and grow together for the best interest of our industry.

The basic structures are all in place,

1. AHI is established since 2009.Since its formation AHI has started to implement two different control programmes for various animal health issues, cell check-national mastitis programme and BVD. In 2011, an industry led voluntary BVD[15] eradication programme was put in place based on three years of tissue sampling followed by three years of monitoring. Monitoring of animals is to be done through either bulk milk samples or blood sampling. Following the success of the voluntary phase of the BVD programme, the BVD Implementation Group decided to introduce a national compulsory programme in 2013. Currently Johne's disease and IBR[16] are under investigation. This shows what can be done in a short space of time when it is industry driven.

2. Ireland has an elaborate database, AHCS, where animals in the country can be easily assessable. Ireland has advantages over other countries. The specialized dairy and beef database ICBF has integrated up 30 different databases into one and this has lead to less duplication, increased management information and increased genetic gain on Irish dairy farms. From an animal health perspective it also allows us to know where any particular animal in the country is at any given time and can tell us exactly what the health status of that particular animal is be it in the mart, factory or on a computer.

   As Joe O Flaherty reiterated

   *"If we did not have a centralized database, then it would not be possible to implement the compulsory BVD control programme".*

[15] Bovine Viral Diarrhoea

[16] Infectious Bovine Rhinotracheitis

Dr Lorna Citer of Animal health Australia outlined how Australia is presently trying to update its database. At present they are trying to bring their selling system into the 21st century by encouraging farmers to sell online. They hope to computerise their mart system so that farmers know exactly where animals originate from. Lorna also clarified that the only database that exists in Australia is for cattle only and is controlled by meat and livestock Australia.

*"It is a slow cumbersome system, that is extremely difficult to access due to political issues and even at that we are dependent on farmers to put in the correct information which does not happen all the time "*

Citer (2012)

Currently Australia is trying to implement a better system for cattle identification from birth to slaughter. Penalties will be issued to farmers that don't fill relevant documentation on animal movements.

3. XL Vets is an organisation, which comprises of 18 progressive veterinary practices in Ireland. XL Vets is attempting to redefine the traditional vet farmer relationship. The objective is clearly to identify the vet as a source of value rather than a source of cost.

   Geoff Dooley[xviii], a consultant for XL vets explained

   *"It is about improving the Knowledge transfer between the vet and the farmer, so that the information is more practical, relevant and implementable to the farmer"*

Other veterinary practises are doing something very similar to XL Vets. This can only lead to improved knowledge transfer and improved relationships between the veterinary practices and the farmer into the future.

4. Communication on the ground between organisations in our industry and the farmers can be easily achieved. The IFA[17], Teagasc, our co-ops and the Irish Farmers Journal

[17] Irish farmers association

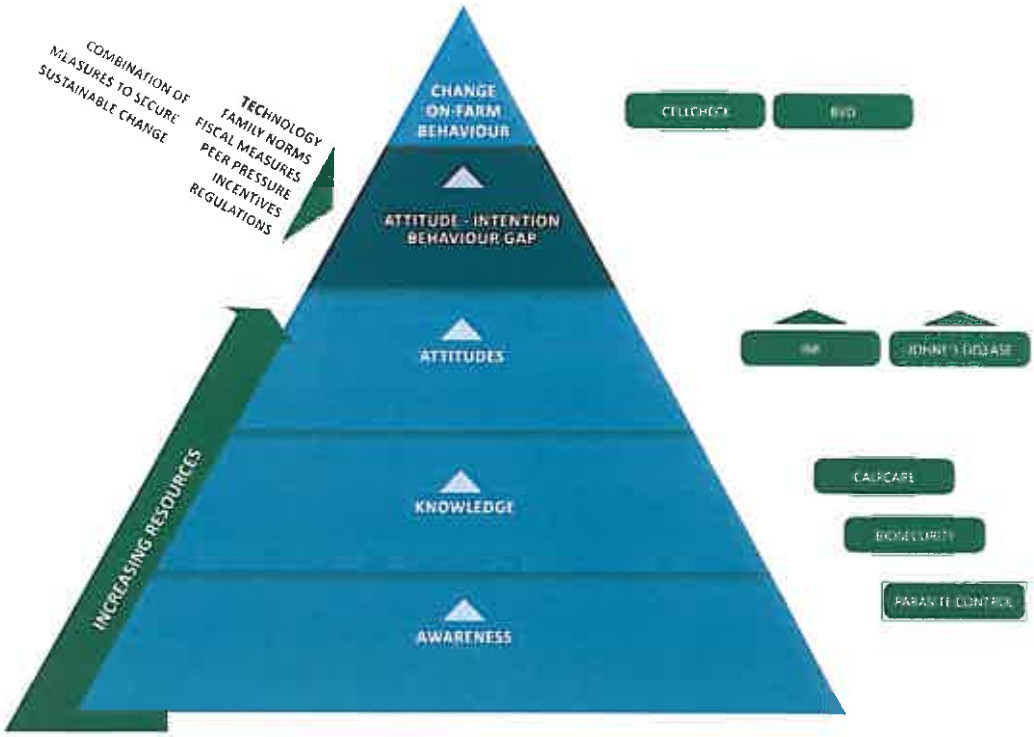
have excellent access to the majority of our farmers down through the years and would continue to publish and promote these control programmes as they come on stream. A growing network of discussions groups has been established over the last number of years and continues to do so. More focus, at these meetings, needs to be given to animal health and the implications of ignoring the issue on your farm. Vets should be invited by farmers to attend these meetings to give advice and support on how to deal with these animal health issues. Farmers need to be encouraged to enter these programmes and buy into the philosophy that this is good for them and their industry.

5. Teagasc is a unique organisation that supports agriculture in Ireland. Teagasc advisers are in contact with over 80,000 farmers each year. Approximately 45,000 avail of their intensive farm consultancy service. The best technologies and the latest research available is demonstrated to farmers using a variety of methods such as discussion groups, individual consultations, farm management newsletters, media articles and through educational training programmes. The trials and research that are been carried out in research facilities such as Moorepark; Johnstown castle, and Oak park, gives farmers in this country a major advantage over other countries. This needs to be continued into the future for the viability of our business.

## Obstacles to achieving our goals into the future

Some of the key elements are implemented, but where do the difficulties lie within the elements that are not yet implemented.

**Figure 6: AHI programmes, resource requirements and behavioural change.**




## I. Relationships

George Lane[xix] is a vet who works for the department of agriculture in Co. Cork, in the south of Ireland. George highlighted

*"Since I started working for the department 12 years ago, not once have I been asked to attend a farm discussion meeting on how best to control and prevent spread of diseases*
Lane (2012)

This shows the level of mistrust that is out there between the farmer and the rest of the industry, this has to be rectified. George also stated that vets need to take some of the blame for this as well:

*"Just because you need the highest points in your leaving certificate in school to become a vet, does not actually mean that you are a good communicator when it comes to offering herd health advice to the farmer and this is one of the biggest challenges in the farmer – vet relationship "*

Farmers and vets need to work more closely together. Dr David Graham of AHI explained

"*Farmers will need to pay for good veterinary advice in the form of herd health plans in conjunction with his vet in future and no longer accept fire brigade action"*

Farmers are very practical and will listen to good advice when it is being offered in the correct manner.

Dr Evan Seargent[xx] explained how Animal health Australia and abattoirs are currently trying to implement a system that will relay data back to the farmer on the health status of sheep that have been slaughtered.

*"The abattoirs will give feedback on about twenty conditions in relation to the health of the animal back to AHA"*

Dr lorna Citer explained how that at present this is only done on sheep.

*"We are trying at present to get the abattoirs to relay this information back to farmer as we believe there is an inherent cost on both the producer and the abattoir to a sheep having liver fluke for example"*

Citer 2012

Dr Citer believes that this would also help build relationships and trust between two members of our industry that are always at loggerheads with each other.

George Lane feels that there is an amount of information being lost from the factory slaughter houses in Ireland also.

*"Farmers are paying a veterinary levy every time one of their animals is slaughtered. Despite the animal being fully inspected, No report is being sent to the farmer in relation to the health status of that animal prior to slaughter"*

George went on to state that

*"Not alone is this information being lost to the farmer but it is also being lost to the industry in term of monitoring these animals and the farms they come from, from a disease surveillance and bio-security aspect.*

*Lane 2012*

## II. Industry driven

We as an industry need to drive forward together. Herd health plans must be implemented on our farms. We must find out where our weaknesses lie within our industry and how this could affect our current and potential markets going forward.

AHI is a unique model for several reasons. AHI is 50% industry funded. It is a private/public partnership. Funding from industry is matched by DAFM [18]funding. It is an industry-led, not-for-profit partnership between livestock producers, processors, animal health advisers and government. Its remit includes diseases and conditions of livestock which are endemic in Ireland, but which are not currently subject to regulation and coordinated programmes of control. AHI will not become involved in the direct provision of on-farm animal health services, which will continue to be supplied by existing providers. Neither will it sponsor or promote the services provided to livestock farmers by any individual commercial entity.

Professor Simon More[xxi] who is director of Cverea[19] based in university college of Dublin and who has been writing about an industry driven approach since 2004 explained;

*"Ireland is an island of opportunity, surrounded by a sea of infection and to keep the infection out and make our industry more viable into the future, it must be industry driven, pay for it ourselves and move away from government control"*

[18] Department of agriculture, food and marine

[19] Centre for veterinary epidemiology and risk analysis

Our government does not have the funds to back AHI and the industry any more than it is already doing so. There has to be an onus on farmers to support AHI funding into the future. Farmers have the most to gain and we need to take the reins from the government. The government can be a guide in the background but we as an industry need to step up.

In 2013 AHI will implement the compulsory phase of the BVD eradication programme. It is three years of tissue tagging followed by three years of monitoring. This disease is estimated to be costing Irish farmers 102 million euro's[xxii] each year. Farmers are paying for the cost and the testing of the tissue tags. This is an example of how our industry can come together and implement an eradication programme that will save farmers millions of euro's each year.

Dr Evan Seargent of Aus Vet explained to me about how a group of farmers came together in the state of New South Wales in the mid 1980's and eradicated foot rot from sheep. The problem was endemic and it was the farmers working together with their local enterprise board that eventually got to the core of the issue. The enterprise board employed staff to work with farmers on how best to eradicate foot rot. Evan explained

*"The government were not prepared to get involved unless there was some farmer not willing to co-operate with the eradication programme. Then they were prepared to wave the big stick to get this farmer to co-operate fully with the programme"*

Evan point being that this was an industry led programme driven by the farmers with the government only intervening if necessary.

Dr Lorna Citer stated

*"If you want to do something about an issue then it has to done collectively"*

This example has been used for regional bio security plans currently being drawn up at present for the national Johne's programme in Australia.

Ireland is unique in that in the past our government has taken the reins on animal health issues and this has led to a very fragmented system. With the founding of AHI in 2009 the industry has taken the first step to regaining control of how we as an industry move forward.

## The Netherlands.

Efforts towards improved animal health status in the Netherlands are led by GD (Animal Health Services Deventer), an organisation founded in 1919 for, and by, Dutch farmers. Now a private company, GD employs more than 180 people. GD coordinates a large number of animal health programmes, generally on behalf of national commodity boards. The Netherlands is leading international efforts in voluntary animal health programmes, particularly with Johne's disease in cattle.

**Australia.** In Australia, Animal Health Australia (AHA)[20], a not-for-profit public company established by the Australian state and territory governments and major national livestock industry organisations manage animal health matters. AHA manages a suite of national programs[21] that position Australia as a world leader in terms of its animal health status and systems. Further, industry is a key driver of change and innovation. Countdown Downunder[22] (improving milk quality) and In Calf (improving fertility) were each developed and are managed by Dairy Australia[23]

## Lessons from international success

Those countries leading international efforts in animal health, particularly those in northern Europe (the Netherlands and Scandinavian countries) and Australia share a range of factors that have been instrumental in their efforts towards improved animal health, including:

- Proactive planning

20 The mission of AHA is to ensure that the national animal health system delivers a competitive advantage and preferred market access for Australia's livestock industries (http://www.animalhealthaustralia.com.au/corporate/company-profile.cfm)

21 Including Animal Disease Surveillance, Emergency Animal Disease Preparedness, Johne's disease and Animal Health Services

22 Countdown Down under was established in 1998, in response to EU milk quality requirements (www.countdown.com.au). In 2004, 5.4% of Australian farms exceeded 400,000 cells/ml, in comparison to 222 The mission of AHA is to ensure that the national animal health system delivers a competitive advantage and preferred market access for Australia's livestock industries (http://www.animalhealthaustralia.com.au/corporate/company-profile.cfm)

0.7% in Ireland during 2005 (all milk recorded herds, based on monthly results)

23 Dairy Australia is a public company, limited by guarantee. Dairy Australia seeks to 'deliver world's best service, to achieve the Australian dairy industry's vision of growing an internationally competitive, innovative and sustainable dairy industry.' This company provides technical expertise and essential services across the whole dairy value chain, from pre-farm and farm activities, through manufacturing to the end products. (www.dairyaustralia.com.au)

- Industry-government partnerships
- Industry funding
- A focus on continuous improvement
- Cohesive and integrated industry structures
- National coordination
- Coordination of technical efforts
- Excellence in technical support
- Planned, focused research
- Information for improved decision-making
- Publishing of data to support animal health claims

## The Beneficiaries of Improvements in Animal Health

Animal health is also a critical contributor to both international competitiveness and on-farm profitability. Among the potential adverse impacts from animal diseases and sub-optimal health, include:

- Adverse effects on food safety and human health, with consequent economic costs including increased health service demands,
- Major national socio-economic consequences, through very serious international trade losses, national market disruption and very serious production losses in the livestock industries,
- Less significant national/regional socio-economic consequences, and consequences that mainly affect the industry alone, such as production loss diseases

There is substantial 'public good' associated with the control of animal diseases that also have serious effects on human health. Conversely, there is little 'public good', but substantial 'private good', associated with the control of animal diseases, which have consequences that mainly affect the industry alone.

Ireland is in a strong position at present. We have the opportunity to put programmes in place on our own farms to eradicate and contain some of the disease issues that will seriously affect our business into the future before expansion takes place post 2015.

## Bio Security

### I. Introduction

Having eradication and containment plans in place for IBR, BVD, Johnes disease, TB, Brucellosis etc is commendable, but how do we go about preventing them from re-entering our animal herd. Bio-Security is a huge challenge going forward. Over the last twenty years we have eradicated brucellosis and the warble fly. We have contained and considerably dropped the instance of TB in the country significantly. While at the same time, our counterparts in the UK experienced the increase of TB by fifty percent.

### II. Challenges

Ireland is a country with two jurisdictions; Northern Ireland and the Republic of Ireland. On animal health issues we need an all Ireland approach for the wider good of the industry. There is no point in one farmer bringing in a BVD eradication programme into his herd, if his next door neighbour declines. The same applies for the north and south of Ireland.

One of the most positive developments to take place over the past nine months has been the establishment of Animal Health & Welfare Northern Ireland (AHWNI), a body with a similar remit to that of Animal Health Ireland, which, like AHI, is to be funded through a combination of State and private sector investment. The initial focus of AHWNI will be on the development of programmes for BVD and Johne's disease, creating the possibility for all-island programmes to eradicate BVD and control Johne's disease. AHI and AHWNI are working together on a Memorandum of Understanding to underpin the effective sharing of resources between the two organisations, allowing progress on disease control to be accelerated in both jurisdictions in a highly cost-effective manner.

*"We need to share our resources with our Northern Ireland counterparts in terms of our technical knowledge, while accepting that the precise details of implementation may be slightly different in the two jurisdictions, for example because of differing political or administrative structures."*

O Flaherty (2012)

## III. Trade of livestock

Ireland is an exporting nation. Because of this we cannot close our borders to animals that are coming into our country. We must then expect the imported animals, to meet the same criteria that we expect of our own animals being exported. Table 1 below shows the amount of exports from Ireland in 2011 and 2012.

6,680 cattle were imported into Ireland in 2011 but 2,968 of these were animals imported from the North for direct slaughter. The remaining 3,712 cattle compares with total annual imports of cattle and calves at about 1,000 in 2009 and 850 in 2010.

**Irish Live Cattle Exports, Jan to 8 December (head)**

| | 2011 | 2012 | Change – head | % Ch |
|---|---|---|---|---|
| **Total** | 211,246 | 155,391 | -55,855 | -26.4 |
| **Total Continental EU** | 142,924 | 79,721 | -63,203 | -44.2 |
| **Total - Non-EU** | 3,336 | 4,507 | 1,171 | 35.1 |
| **Total – UK** | 64,986 | 71,163 | 6,177 | 9.5 |

Source: DAFF

At present we cannot look for animals being imported to Ireland to have being tested for BVD. This would be in breach of EU law. But in 2013 when the compulsory part of our BVD programme is up and running, we as a country are perfectly in our right to look for guarantee's that animals being imported to Ireland are BVD free.

Joe explained

*"We need to be very even handed on people who bring animals into Ireland, We first need to raise the bar ourselves and improve our own health standards and then demand the same standards of those animals coming into Ireland."*

*"In Europe at present there are nine different regions that have IBR control programmes in place and because of this they can now look for additional guarantees for animals coming into that country"*

O Flaherty (2012)

We are fortunate that Ireland is a small country, as we can keep control of the issues that matter in relation to animal health. However, there is also a down side. A considerable amount of trading takes place around the country in our marts and also through private sales.

*"It is people who trade in cattle actually buy in the disease, do not compromise on bio-security"*

*Citer (2012)*

Ireland at the moment is Schmallenberg free, because of this the Russians want to buy two thousand five hundred in-calve heifers. Russia closed their markets in the countries that contracted Schmallenberg disease. Russia will do the same to us if we drop our guard. [24]

Irish farmers are planning for expansion. Stocking rate density around the milking platform will increase with the abolition of quotas in 2015. This will lead to more use of contract rearing of younger stock. Already 1.2 million animals pass through our marts every year. This means that even before contract rearing begins, animals are a being moved on a regular basic. We need to have every farmer on the same wavelength by 2015. Farmers who are being proactive in terms of dealing with these disease issues should be acknowledged.

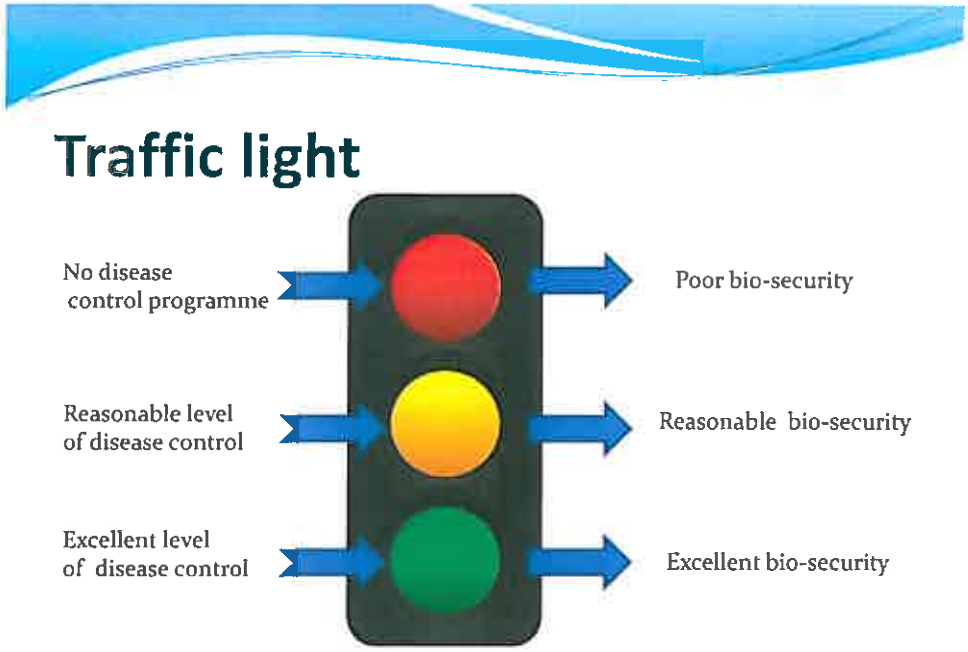
[24] Read last paragraph of introduction

## IV. Traffic Light System

One poses the question, how do you go about this?

John O Brien[xxiii] is a dairy farmer in Barryroe Co Cork and is chairman of Barryroe co-op. Barryroe is one of 5 co-ops in West Cork that supply Carbery Group. John explained how Carbery is implementing a Johne's disease programme at present and how this will be monitored.

*"Carbery group is using a traffic light system for their voluntary Johne's disease eradication programme based on AHI recommendation. This is to commence in January 2013. Farmers who have a problem with Johne's or their status is unknown, will be marked red until an improvement is seen or implements a Johne's test programme to their herd. If there is an improvement in the health status of their herd they will move out of the red and be promoted up to amber. Depending then how pro-active they are they could either move up to green or else back to red"*




There is no reason why this system cannot be implemented in Ireland for every farm. We already have the database in place to implement this. AHI will provide the knowledge and expertise on how best to improve herd health on farms in Ireland. If farmers could sit down

with their vet and put a herd health plan in place, control and monitor that herd health plan, then a farmer would move from red to green very quickly. The control of this would all be done through the current database we presently have and all vaccines preformed by the farmer would be certified by the farmers vet and again put through the database. The database then would automatically update the health status of that particular herd.

If a farmer moves from the red light to green, it is his responsibility to maintain that status. He should only be allowed to purchase from farmers who are in the green light status also. If the particular farmer purchases animals from an amber light farmer he will automatically lose his green light status and drop back down to amber.

As I mentioned earlier in my report Ireland has movement of 1.2 million cattle through our marts every year. Again through the current database system every animal health status would be shown on the mart board and this would encourage farmers to buy off of farmers that have a high health status. It would also encourage farmers to implement disease control programmes into their herds due to the fact that if they have a health status that is red then people will be extremely slow to purchase stock from them. This will give the farmer who is proactive in implementing these disease control strategies, a premium for stock he is selling over the farmer who is not proactive.

*"On top of this every herd will be given a bio-security score and this will be monitored in relation to movements of animals in and out of herds. You should never trade with a farmer who has a lower score than you. Also good farm practise is expected and this should be done in conjunction with your vet"*

(O Brien 2012) continues

*"The reason that Carbery have gone down this road is because we are exporters of high value added products such as Dubliner cheese, whey powders for sports nutritional drinks and baby food. Some markets are now looking for Johne's free milk and we want to put ourselves in position to provide that market and also protect our existing ones"*

Looking to the future and the implementation of the traffic light system in herd for various diseases, it is a system that could be easily implemented. It is easy to understand and all it would entail is for farmers to sit down with their vet and put a herd health plan in place. The technology and expertise is already in place for the rest to happen.

## V. Surveillance

Australia has surveillance teams in place for 53 different diseases.

*"We have a rapid response team who come in first to a control centre with specialized infrastructure and equipment and they run the operation from here. They will stay here until the threat is over"*

Seargent (2012)

At present CVERA is acting as our surveillance unit for brucellosis and tuberculosis. Our government run a surveillance unit for bluetongue disease. Professor Simon More explained that he was confident that the last case of brucellosis was seen and tuberculosis has dropped significantly in the last 10 years. He stated

*"We have five people working here with a lot of international players; we support key national decisions and provide research to support AHI. But our biggest issue going forward is that we are constrained by resources, money is not available from the government and there is only so much we can do on limited resources"*

More 2012

George lane would argue that in Ireland surveillance is not an issue.

*"There is already appropriate surveillance in place; any time a disease issue breaks out we can always go back over the blood samples that have been taken for brucellosis and test these for other disease issues"*

George also outlined that we have excellent traceability and this is a huge plus in times of a disease outbreak or a food scare.

# Conclusions

**The key conclusions of this report are:**

1 We have the opportunity in Ireland to put programmes in place on our own farms to eradicate and contain some of the disease issues that will seriously affect our business into the future. This must be done before expansion takes place post 2015. It is much easier and cost efficient to implement when you are milking 100 cows than when you are milking 200 cows. Unlike New Zealand where it would be much more expensive to implement eradication programmes into their herd because of the sheer size of their dairy herds.

2 Our world class centralized database gives us huge advantages over other countries in implementing any eradication and containment programme into the future. It allows us to monitor online the movement of any particular animal at any given time. Not alone will this help us from a bio-security issue but also from disease implementation, shown with the introduction of the BVD eradication scheme where this information is displayed on the mart monitor when an animal is being sold. This system is the difference between implementing voluntarily or a compulsory disease programme.

3 The implementation of these disease control programmes must be industry driven. Ireland is unique that any eradication programme in the past has been government driven. Animal Health Services "Deventer" in Holland, Meat and Livestock Australia and Animal Health Australia are examples of how industry is the driving force behind these companies With the formation of AHI in 2009, Ireland has taken the first step in that direction.

4 Relationships between all parties concerned that continue to strengthen are of paramount importance to the implementation of these control strategies in Ireland. Improved relationships within our industry into the future will also lead to

improved knowledge transfer. An example of this is where the abattoirs in Australia are relaying health information of the slaughtered sheep back to the farmer.

5 We as farmers need to contribute yearly to the funding of AHI as we have the most to gain from the work AHI is carrying out. When BVD is eradicated farmers will save 102 million euro annually. A case of mastitis can cost up to 520 euro and milk fever up to 230 euro per cow. We have the most to gain and need to provide funding accordingly.

6 In Ireland we are extremely fortunate to have established world class research units. Research centres such Moorepark, Johnstown Castle, Oak Park, and Grange, just to mention a few, are excellent in research and knowledge transfer in different kinds of agriculture enterprises. All of these research centres come under the umbrella name of Teagasc

7 Farmers need to be extremely cautious when expanding. There is a serious risk of a disease explosion if the right procedures are not in place. In the last two years of my travels, surprisingly I merely observed two farmers that had herd health programmes in place. Complacency is a recipe for disaster.

## Recommendations

1. As farmers we certainly have the most to gain from the work AHI is doing and the control strategies that they are implementing. Therefore there needs to be an onus on the farmers to contribute financially to the funding of AHI. This should be done through a levy contribution each year on every ear tag sold similar to the ICBF model. For example there are 2 million animals born every year in Ireland. A levy of 10 cents on every ear tag purchased would generate 2 hundred thousand euro in funding for AHI. Not alone would this give farmers a sense of ownership and involvement with AHI, but would also help fund the implementation of new disease control programmes much sooner. This would be vital for protecting our existing markets and encouraging new markets to invest in Ireland into the future.

2. AHI should have full control of any eradication or containment programme that is being implemented. Responsibility needs to taken away from our government and needs to be industry driven.

3. Farmers need to be prepared to pay for herd health plans and this should be done in conjunction with our vets. Fire brigade action should no longer be tolerable. This requires meeting with the vet every year and putting a Health Plan together for the year ahead.
4. Communication between our vets and the farmer must improve. Discussion groups should regularly invite vets to their meetings. This would give the vet a platform to explain the most up to date information and knowledge on these diseases, that cost us so much on our farms each year.

5. Our vets that are practising on dairy and beef farms should be required to participate in a professional development courses every 3 years, so that they can evolve with the changes that are happening within our industry. This will inform them on the most up to date information regarding animal health disease issues, how to tackle these issues and also how to prevent these diseases from entering the farmers herd.

6. IBR and Johne's testing should be completed in tandem with brucellosis testing. This will allow us to monitor our health status in our herds. Also it will lead to less duplication of testing and save on additional cost to the farmer

7. A traffic light system should be implemented for every farm. Our central database through ICBF in conjunction with AHI will allows us to do this quite effeciently. This will be of benefit to the farmer who is pro-active in implementing a disease control strategy into his herd. This will also give every farm a base from where to start with regard to their animal health status and improve bio-security within our herds.

## Acknowledgements

I am eternally grateful to Nuffield Ireland and The Peter Daly Trust for facilitating my journey and experiences gained over the last two years. I am also grateful for the opportunity to meet and share travels with some great people who are part of the Nuffield international family.

My thanks to the many hosts and interviewees, who gave up their time and knowledge to assist and guide me, not only in my area of interest but also in gaining a broader understanding of how the world works across a vast range of issues,

To my parents Jerry and Noreen, a big thank you for all that they have done for me in the past and also for their support of my travelling in the last two years. Also to my farm manager Shane Mulkerins who looked after the farm while I was on my travels.

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# Appendices

http://www.animalhealthireland.ie/page.php?id=127

**Click on link to see AHI strategic plan 2012-2014**

# Overview

## India

India has a population of 1.4 billion. It is indeed a busy place, littered people, bikes and cars. There is a high level of pollution. However, it's an interesting place with extremely fertile ground. Incredibly they are able to produce enough food to feed their population. They do not import from other countries, at the moment. However, this may change in the future, due to their ever expanding population. Multinational companies are well established in India, due to cheap labour. Workers receive €1.50 an hour in rural areas and €3 an hour in the cities.

Farms are diminutive. Each farm will have an average 2 acres. Farmers have to drill 400 metres underground in order to retrieve ground water. The water table is dropping considerably by 3 to 4 feet every year, especially in intensely farmed areas like the Punjab region in the north west of India. The farmers are not obliged to pay tax; however their profits erode, as their produce is handled by 10 different groups of people, before it gets to the market. .

Our visit to India has educated us in how an economy can emerge and grow rapidly with the utilisation of a massive population and an abundant natural resource base. India is in the process of changing from being a resource driven economy to being demand driven. We were surprised with the production potential that is yet to be realized through improvements in yields and efficiencies as well as the full utilisation of the land resource base. India is a long way from realizing its full agricultural production potential.

**Strengths**

- The large population creates commitment from government to secure food supplies; this leads to strong support for research facilities, farming technology, agricultural education and production subsidies.

- Farmers in India have power to influence government policy through their numbers; over 70% of the population is involved in agriculture. The urban population has close

links with farmers because they are only a few generations removed from farming. They also see starvation on the streets on a daily basis and this probably has an influence on how they view agriculture.

- The geographical and climatic diversity of India enables food security.

- Low labour costs increases the profit margins for agricultural industries.

- An English speaking population assists trade relations. Further overseas education of the affluent youth consolidates India in world trade.

- India has secure energy sources through nuclear power and the large coal reserve. Nuclear capability ensures national security.

- With 50% of the population under the age of 25 India will be a diverse place in the future.

**Weaknesses**

- Population density reduces farm size and agribusiness efficiency.

- Unmitigated use of ground water may lead to depletion of resources and subsequent loss of production ability.

- The large farming population is driving unsustainable agricultural and environmental policies.

- From a western point of view, there is a lack of infrastructure. Although it is improving rapidly and will continue to do so while the economy stays strong.

- Low water quality caused from a large population living with poor infrastructure and unrealistic environmental policies.

- There seems to be an unsystematic approach to infrastructure planning. This is hindered by conflict between states.

- High land values result in a non-commercial return on investment in agricultural land.

- Animal disease status restricts livestock export potential.

- Religious beliefs restrict ability to control disease and utilise livestock resources.

- The export of India's well educated youth leads to a loss of intellectual capital.

**Opportunities**

- Co-operative farming and supply chain systems developing across a wide range of commodities.

- Growing domestic market supported through increasing levels of private wealth and government assistance.

- The mechanisation of all farming and processing facilities is decreasing the reliance on human labour and increasing yields.

- Indians have an ability to learn and adapt western science and technology to their farming systems.

- Advancement of post harvest processing, cold chain management and distribution networks will continue to reduce segment leakage and secure food supply.

- There is opportunity for foreign investment from major companies involved in the global food chain, as well as Indian investments in other countries to secure supply.

- 20 million people are born every year in India

**Threats**

- India's hostile neighbours increase security costs.
- Government interference in the market place from subsidies and market support systems.
- Erosion of ground water supplies due to subsidised power and lack of water management policies.
- Wasting of fertilizers, water and electricity because of government subsidies.
- High inflation.
- Lack of foreign investment in agriculture.

## Qatar

The independent Sovereign Nation of Qatar is located on a peninsula in the Midwestern region of the Arabian Gulf. Sharing land and water borders with Saudi Arabia, it also shares maritime borders with Bahrain, Iran and the United Arab Emirates.

Since becoming Independent in 1971, its population has risen from 240,000 to 1.4 million. Of the 1.4 million, 300,000 are of Qatari blood with the remaining 1.1 million coming into the sovereign state from other Arab countries, Africa, Asia and Europe.

Our trip was focused around two sovereign companies- Hassad Food Group and Mawashi Meat and Trading Livestock. Hassad Food Group gave an insight into an immense strategy that few of us had rarely experienced before. Mawashi allowed us to experience the operational and slaughtering of the live sheep that Australia export to this region.

The Hassad Group was founded in 2009, under the umbrella of the Qatar Investment Fund. It was established with the sole agenda of providing food security to the Qatari people. Due to rapid expansion, this company is travelling the world seeking to invest strategically in land and huge capital development projects to ensure continual supply of food into Qatar. To date they have purchased 290,000 hectares of land in Australia and their vision is to become Australia's largest sheep producer/exporter. We travelled to Hassad's farm, which is approx thirty minutes from Doha. They were irrigating land to produce fodder/hay and some crops in the middle of the dessert.

Hassad outlined some of the projects that are currently being negotiated and developed through this company, i.e. purchasing land in Sudan is on the agenda. (to us it looked like brown desert) Pending negotiations with the Sudanese government, they hope to develop the land. This will require extracting water from the White Nile, and after 12-18 months 1000 pivots will be in operation. This development will be in excess of 100 million dollars. They also hope to invest in other countries such as Kazakhstan, Canada and South America. The biggest limitation in the acquisition and development of land, is that a number of countries have strong laws against foreigners purchasing land

Subsequently we spent time with the Mawashi Livestock Trading Group, another sovereign company. This company demonstrated the way in which Australian live exports are processed after their long boat journey from Australia.
The strong relationships that MLA (Meat & Livestock Australia) have developed with Mawashi group was impressive. MLA members spend a lot of time travelling to the Middle East and working with the executives and workers of the processing plant to educate them on how to handle and slaughter Sheep. Furthermore, Mawashi will be implementing the Aust Govt ESCAS (Export Supply Chain Assurance System - this was brought in after the June 2011 Indonesian issue).

**Strengths**

- Qatar's geographical location as an island state in the Arabian Sea with a land link to Saudi Arabia.

- Relatively moderate political and religious society for the region attracts foreign business trade and a large amount of social tourism.

- Large gas reserves provide inexpensive energy for its population and supports petro chemical production such as ammonia nitrate, urea, and aluminium smelting.

- Qatar's close cultural links to Saudi Arabia provide income from the export of Saudi crude, as well as tourism and investment.

- Qatar has a large sovereign wealth fund that is available for off shore investment, this could be used to secure food supplies and further strengthen the country's position in the future.

- The ability to increase the Island landmass by using irrigation in the dessert is innovative.

- There is a large supply of cheap imported labour and strong labour laws in favour of the employer, increasing the profitability of business.

**Weaknesses**

- Qatar is an import dependant country for food security.

- There appears to be social inequality for migrant workers in low paid employment.

- A poor work ethic is apparent in Qatar's, hence leaving them heavily reliant on imported labour.

- Qatar has a tropical climate with extremely high temperatures and humidity. It is only the abundance of affordable energy sources that make habitation possible.

- The chilled supply chain has some evident gaps that impact on food safety and customer trust and satisfaction.

**Opportunities**

- Modernisation of the food supply chain; refrigeration, marketing and food service industries. Cultural shift away from home butchering will increase chilled and frozen meat sales.

- Hypermarket development is occurring and increases shelf space for new imported products.

- Capital and intention exists to fund local food production, particularly closed systems such as hydroponic vegetables, aquaculture and poultry that will employ people locally. This is an opportunity for Australia to grow existing trade relationships in skills as well as products.

**Threats**

- The lack of hygiene and cold chain in selling centres impacts on food consistency and customer satisfaction.

- There is a lack of food appreciation which leads onto poor appreciation for agriculture from Qatar's natives.

## Ukraine

45 million people reside in over 24 regions in the Ukraine.

The Ukraine is still adjusting to global economy that has developed from the massive advances of the industrial revolution in the last half of the 20th century. It is a country that has an abundance of agricultural resources, however, still struggling to gain confidence after post soviet corruption.

Our Guide Dave Fullwood, 2005 scholar from Australia, guided us through a maze of meetings, back roads, farms and culinary delights that like the previous 2 countries will be remembered for a life time.

They farm about 40 million hectares and experience a climate of minus 30 degrees Celsius to plus 30 degrees Celsius.

After the collapse of communism, collective farming lands were divided up between the farmers and currently have no freehold to land ownership. Rents can be paid for in exchange for grain from harvest or with cash.

Ukrainian agribusiness has a unique set of circumstances that need to be appreciated by prospective farmers. Sound local knowledge and community respect are vital for successful business.

**Strengths**

- Land is ideally suited to cropping with large amounts of arable land available.
- Fertile soils varying in type and depth across the country enable a large range of crops to be grown.
- Reliable seasonal rainfalls with areas of spring melt maintain a good moisture profile.
- Average minimum wage of US$100 a month reduces labour inputs in agribusinesses.

- High rates of return achieved (50 %+), however these are eroded by high inflation and interest rates.

- No income tax system but a Value Added Tax (*VAT*) of 20% on all sales.

- A massive amount of surface water available for irrigation with some infrastructure developed in the south by the former USSR rule.

- Inland river system facilitates economical movement of produce through the nation and to a major international port.

**Weaknesses**

- Deteriorating overland transport infrastructure.

- Economic insecurities resulting in the devaluation of the Ukrainian currency.

- Government interference in the market place distorts prices and free trade.

- Labour skill set is developing but variable.

- A shortage of effective middle management in agricultural sectors results in a reliance on expatriate managers.

- Lack of a livestock industry reduces agricultural diversification and increases risk.

**Opportunities**

- Freehold land ownership may be possible in the future.

- Cheap grain available for livestock industries.

- Attraction for foreign investment to stimulate the development of the country's vast agricultural resources and take advantage of its low currency exchange.

- Development of massive irrigation systems around the country's vast water resources and existing water infrastructure built in communist times.

- Value adding to agricultural commodities utilising a cheap but compliant labour force and strong commodity supply.

- Generational change to bring vitality to agricultural modernisation, business growth and a change from the communist legacy.

- The gradual development of a professional business orientated agricultural sector facilitating strong investment opportunities and development.

- Massive increase in production through improving yields with the adoption of modern farming practices and machinery.

**Threats**

- Foreign investment is hampered by mistrust, limiting the formation of sound business relationships.

- Regional alliances and reliance can have a negative effect on trade.

- Limitations in the growth of the middle class lead domestic economy that could boost the country's GDP and standard of living.

- Non-alignment with a trading block will continue to leave the Ukraine trade exposed.

## Highlights

The adventure we have had in the Ukraine can only be described as unforgettable, be it the tradition of toasting with vodka, beef stroganoff, cabbage soup, cold showers, chaotic drivers, Marsha our translator, the rich and poor, scenery, expanse of arable land, and most of all Chernobyl.

**CHERNOBYL....26TH APRIL...1986...**[xxiv]

As I walked through a pathway of undergrowth, it represented to me the haste and misrepresentation of the truth to the people who lived at Chernobyl in 1986 and the 200 surrounding townships. The townships which were abandoned 2 days after Chernobyl explosion have not had inhabitants since and were hidden by the growth and slowly being reclaimed by the forest. Back to the 28th of April 1986...residents had happily continued their lives, they were unaware of any danger, there was some talk about an accident at the nuclear power plant, but life continued for them....until they were informed that they had 2 hours to evacuate, and they fled in haste....never to return.

A child's tin truck that was laying in the front yard, the photos of the family scattered on the floor in the abandoned house....the cooking utensils still in pots as they left in haste.

How did Chernobyl occur? These were the questions we asked as we entered the exclusion zone of the Chernobyl power plant.

There is huge debate about how the accident occurred. Scientists' blame the engineers who designed the plant. The engineers blame the scientists for doing experiments that caused the reaction and explosion. It's impossible to retrieve actual data about how many died.

- In 26th April 1986, a catastrophic power surge occurred in the plant at reactor 4. This led to an explosion of the core, spewing massive quantities of radioactive fuel and core material into the atmosphere.

- As the plant was administered by Moscow as part of the USSR, It was reported to Gorbachev that an accident had occurred which was under control. He claims he was never advised, that it was the reactor that exploded.

- Sweden was the first to alert Europe that there had been a nuclear accident "somewhere" as they monitored unusually high radiation levels in their country and in the atmosphere.

- 2 days after the explosion it was finally admitted that there had been an explosion. A radiation level at this time for the people of the city of Pripyat was 50 to 500 times above the acceptable level. When this township was evacuated it was reported that the buses made a 30 mile convoy

- If desperate measures of containment of the heat from the damaged reactor had not been undertaken and other reactors had exploded, it is estimated that up to HALF OF EUROPE would have been decimated

Once USSR had taken responsibility, they appeared to have taken immediate and extraordinary steps to save Europe. The damaged reactor was so hot it had spewing radiation out into the atmosphere. They estimate that Belarus suffered 60% of the radiation fallout. Helicopter pilots were sent over the reactor dropping water into the damaged reactor to try and cool it down. All of those 600 pilots died from radiation poisoning. They brought thousands of miners in from Siberia to tunnel under the nuclear power plant to get under the damaged reactor to put in place a cooling mechanism (as the heat from the damaged reactor was melting the sand between reactors and this was going to be the catalyst for the other reactors exploding.

These miners were not informed of the danger and had no masks or protection gear as they tunnelled underneath. All they were told was that they were needed for "national honour" to do this job, possibly the most shocking story of human sacrifice was the reservists who were called in to shovel the radioactive fuel and core off the rooftop of the remaining building. We saw disturbing movie footage of them being kitted up with very basic gear and then the fear in their faces as they had to run on top of the roof and shovel the radioactive material back into the damaged centre. 500,000 people were called in to assist with the containment and cleanup of this disaster. There are no records to show whether they are still alive. Many argue of the actual figure of how many people inadvertently were killed by this disaster.

The cost of Chernobyl was $18billion Rubles (at the time equivalent to $18B USD) to the USSR and ultimately bankrupted the USSR so that they disbanded the union in 1991; hence this is when Ukraine gained independence.

**Chernobyl: Global focus group September 2012, pictured outside reactor number 4 that blew up on the 26th April 1986**

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