NUFFIELD FARMING SCHOLARSHIPS TRUST

Nuffield Farming Scholarships offer a unique opportunity to stand back from your daily life to study a subject of interest to you. Academic qualifications are not necessary, but you will need to persuade our Selection Committee that you have the qualities to make the best of an opportunity that is given to only a few.

OUR MISSION

Leading positive change in agriculture
Inspiring passion and potential in people
- Building knowledge through global experience
- Sharing brilliant ideas
- Making things happen
- Developing tomorrow’s leaders
- Inspiring commitment

Awards are open to people working in farming, growing forestry or other countryside and ancillary industries or are in a position to influence those who do and are resident in the UK. You must have spent at least two years working in the industry in the UK. The age range for applicants is 22 to 45 years.

Pre and post graduate students are not eligible for an award to support their studies

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Closing date for completed applications is 31st July each year.

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Alan & Anne Beckett
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Alan Wilkinson - HSBC

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Frank Parkinson Agricultural Trust
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THE TRUST WISHES TO THANK THE FOLLOWING INDIVIDUALS AND ORGANISATIONS WHO GENEROUSLY SUPPORT THE AWARDS AND ACTIVITIES OF THE TRUST

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Yorkshire Agricultural Society
Young Farmers Clubs of Ulster
Young Nuffield (Bob Matson)
Time flies when you are having fun, so goes the old adage. Time has certainly flown since Steven Bullock handed over a car full of papers at the Solihull Conference in late 2001 and wished me good fortune as his successor.

Earlier this year I decided, with regret, to resign my position as Director of the Trust, stepping down on 31st December 2012. I believe that I am leaving the Trust well positioned for an exciting future. More potential award Sponsors than ever before are coming forward, applications for awards from excellent candidates are increasing and our very positive external profile continues to attract interest from the wider industry. The Contemporary Scholars Conference (CSC), which has developed over the past six years, has added an important international dimension and network to Scholars’ studies.

Our new website, www.nuffieldscholar.org, launched earlier this year, has been well received and will see all award applications submitted electronically from now on and truly take Nuffield into the digital age. The next step is to take Conference and event bookings online, easing a considerable administrative burden.

This year’s revised calendar for applications and candidate selection has been an exciting development that should allow more time for pre study planning and enhance a new Scholar’s Nuffield experience through the opportunity to participate in a Nuffield conference before commencing their studies. Initial concerns at running a second round of applications less than six months from the 2012 Selections were proved unfounded with a pleasing increase in applications received at the new 31st July closing date. We look forward to Peter Kendall, President NFU of England & Wales, joining delegates at the November 2012 Conference to present awards to our new Scholars.

As an international organisation, Nuffield countries around the world are developing their programmes and more countries are applying to join the international Nuffield ‘family’.

The 2012 Contemporary Scholars’ Conference (CSC) was jointly hosted in the UK and Netherlands where we were ably hosted by the new organisation that has taken their first steps to establish a Nuffield organisation in Holland. Scholars in France have elected a fresh team to lead Nuffield France forward. It is exciting to see the Nuffield organisations in Canada, Ireland and New Zealand creating strategies for the development of their programmes which will ultimately enable them to secure new funding streams. Scholars and delegates attending the 2011 International Conference in Australia were shown the very best that South and Western Australia could offer in a two centre programme. Those able to arrive early enjoyed a true outback experience in the Flinders Ranges. Pre and post conference technical tours included a unique marine stewardship programme off the Eyre Peninsula, intensive glasshouse production, vineyards, and the vast grain and livestock producing farmlands. The 2014 International Conference will be held in Eastern Canada, with a proposal from our own UK organisation accepted as hosts for the International Conference in 2017.

The International Nuffield business meeting held in Adelaide signed off proposals for a new, incorporated organisation, Nuffield International, which formalises the structure and management of the relationship between the individual Nuffield nations. Management of CSC and international matters becomes the responsibility of an international Trustee Board comprising the Chairs of the participating Nuffield countries and provides a framework
to receive applications from new countries wishing to join the Nuffield family. In achieving this we are indebted to the hard work and inspirational leadership of Peter Nixon, who has now been succeeded as International Chairman by Stuart Wright of New Zealand.

It would have been impossible to manage the Trust’s activities and affairs without the support of so many Scholars, Sponsors and industry contacts, all of whom it is a privilege to count as friends. While it would be impossible to thank everyone individually, I would be remiss if many of those who have been most active were not formally and publicly acknowledged.

My two predecessors, both sadly now departed, John Stewart and Stephen Bullock were truly inspirational figures offering good counsel and discreet support. I am delighted that Gill Bullock continues to maintain a close interest in the activities of the Trust, sponsoring the Bullock Award and accepting a commission to write a history of the Trust. Through most of my time as Director, Julie Mate managed the PR brief for the Trust, with much of that work going unrecognised and unrewarded; we owe her an immense debt of gratitude.

Our new Public Relations contractors, Pinstone Communications, assumed responsibility for PR following the October 2011 Conference. Immediately given a brief by Trustees to review and develop the Nuffield brand, assist in the development of a new website and raise awareness of the revised application deadline, their first year has been a huge challenge. Philip Hughes as Chair of Communications has very ably managed the integration of Pinstone into the Nuffield ‘team’.

This report has already alluded to your Trustees’ decision to review and develop the Nuffield brand. During the past year, Trustees agreed to draw down on accumulated reserves to invest in a vision exercise, the website and to review and invest in PR, resulting in a planned deficit for the year. The Annual Accounts are a separate document, available on request from the Director’s office. Trustees are indebted to David Turner and his colleague, Vicky Winter, for serving as Independent Examiners to the Trust.

The Nuffield Conferences take a huge amount of planning and preparation, it has been immensely enjoyable to work with Sean Beer, and latterly Charley Walker and Peter Gresty to brief and train Scholars for their presentations. Recent Scholars will join me in thanking Simon Theilwell of Harper Adams for his inspiration and confidence building at our Presentation Skills sessions. David Homer has been a tower of strength as our sound man at Conferences, finding the right volume and balance to suit every speaker’s style.

Our 2011 Scholar cohort have, as a group, submitted some of the best reports ever written by Scholars on completing their studies. This Year Book includes brief summaries of 2011 Scholars’ reports. Without doubt you will be stimulated to read their full, detailed reports, published online at www.nuffieldinternational.org/reports. Scholars are indebted to Anne Beckett who has truly made the role of reports editor her own, giving untold hours to help Scholars produce exceptionally well presented legacies of their Nuffield studies.

Without doubt, the real backbone and support for my work has come from the home team, in the Nuffield office and my own family. After almost ten years Jo Miller stood down in late 2011 as my office manager to concentrate on her farming interests. We welcomed Carolyn Frostwick who joined Shirley Connon to make a highly effective office team. On your behalf, I offer them our sincere thanks for their dedication and commitment to Nuffield. However, the real strength and support has come from my family, especially my wife Della who I thank from the bottom of my heart for giving up so much to enable me to be your Director.

As I prepare to hand over to my successor, it is worth remembering that in his final Director’s report in 2001, Steven Bullock remarked on the many changes he had seen, stating that while ‘it is only right that the Awards should reflect the times, it is also vital that the core values that make Nuffield unique are cherished’. I have been privileged to see and lead many changes and developments, through all of which I believe that we have been good custodians of the core values of the awards.

In September, Trustees announced the appointment of Colonel Mike Vacher OBE, who will take up his appointment as Director of the Trust in January 2013. Mike brings to the management of the Trust an enormous breadth of international military experience and more recent administrative skills as Bursar to two leading independent schools.

My very best wishes to Mike Vacher as he takes up his role. May he and his successive Boards of Trustees continue to actively develop this wonderful awards programme, without losing sight of the essential core values. It has been a privilege to serve as your Director of the Trust. I will remain immensely grateful to John Alvis and his fellow Trustees for appointing me to this role. This has been one of the best jobs in British agriculture, with the enthusiasm, support and passion of the Scholars and alumni I have worked with being the ultimate reward during my time as Director.

John Stones
The past twelve months have been extremely busy for the board of trustees and our Director John Stones with a number of major and minor changes to the Trust.

September 2011 saw the tri-annual International Conference in Australia which was very inspirational and has led to a number of the changes we have made this year. The next conference is in Canada in 2014; the UK will host the conference in 2017 when the Trust will need lots of volunteer help from Scholars.

A number of board members, Scholars and sponsors met with Sean Moore from the Cambridge Strategy Centre in late September to create a vision with underlying values for the future of the trust.

**Vision**
Leading positive change in agriculture
Inspiring passion and potential in people

**Values**
Building knowledge through global experience
Sharing brilliant ideas
Making things happen
Developing tomorrow’s leaders
Inspiring commitment

This will enhance and reinforce the Nuffield brand for the future and hopefully enable a wider audience to understand what Nuffield stands for.

The 2011 annual conference was held at Belton Woods in Lincolnshire. I would like to thank Andrew Scoley and his team for a successful conference. The board appointed a new PR team, Pinstone, headed by Catherine Linch and assisted by Helen Harcombe; many thanks to them for their hard work this year.

With some help from Pinstone we finally managed to find a web builder (Orphans) for our new website. I feel this is fresh and exciting and will allow Scholars to use up-to-date forms of social media, making the site far more interactive. One of the main advantages is that all this year’s applications could be completed online and, along with a number of back room features, it will make things a lot smoother for the Director.

At the annual conference, and as a result of what we saw at the international conference, the board was asked to look at a number of possible changes to the way things have been done in the UK. This resulted in a new look Nuffield year to allow what we hope is a more balanced year. The closing date for applications is now 31st July. This means that the Scholar selections take place in October for the following year’s cohort. This will allow the newly selected Scholars to attend our annual conference which will be at the end of November when they will be presented with their tie or brooch by their sponsor, giving them and their families a much better introduction to the Nuffield family.

For the 2012 year group the selectors, who I would like to thank for all the hard work they put into reading, shortlisting and interviewing, selected twenty Scholars. The Contemporary Scholars Conference this year was a joint hosting between the Netherlands and the UK. This year’s UK Scholars were also joined by the two Arden Scholars, Nik Johnson and Mark Tucker, who were at the end of their studies. They presented the findings of their studies at a conference in April at Harper Adams, entitled “Fertilisers for the Future” and were supported by 2010 Scholar Jo Franklin and 2004 Scholar Clive Blacker. I would like to
extend my thanks to the family of the late Frank Arden, supported by the Crown Estates and the Frank Parkinson Trust, for a very informative conference.

Nuffield would not be able to function without the support of our many sponsors old and new. I would like to welcome three new award Sponsors. Firstly, a poultry meat award sponsored by three companies, Aviagen, Cobb and Hubbard; what a great opportunity to see three competitors coming together for the common good of the industry. Our second new sponsor is the HGCA with an emphasis on the arable side of agriculture. Completing this list is David Allen, a remarkable entrepreneur with Farming interests who has kindly offered to sponsor an award.

The reports that Scholars produce have again been edited and put online by Ann Beckett and we all extend our thanks to Ann for this valuable work. My thanks also to the board for all the hard work put in this year. Special thanks to Philip Hughes for chairing the Communication group, Ian Tremain for chairing the Fund raising group and huge thanks to my vice chair Wallace Hendrie for looking after the Finance group.

Nuffield would not function without a Director and the team behind him. John Stones and his wife Della, with help from Shirley and Carolyn, have been working hard to keep the trustees on track. Now after more than ten years as the Nuffield Director, John has resigned his position and will stand down at the end of the year. This will mark the end of an era for the Trust. Having looked after over well over 200 Scholars from the UK and assisted a number from other countries, John has played a massive part in helping to shape those individuals and in turn UK agriculture. I am sure you will all join me in wishing him and Della all the best for the future.

May I thank you all for your continued support and I look forward to another successful year.

Stephen Watkins

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The Worshipful Company of Butchers are pleased to support

The Nuffield Farming Scholarship Trust

The Worshipful Company of Butchers has been associated with the meat trade for over 1000 years and is pleased that currently over 90 percent of its members have some connection with the industry. The three great tenets of the company are charity, education and fellowship.

The Company was delighted to sponsor a Nuffield scholar for the first time in 2012.

For further information, please contact:

Commodore Anthony Morrow CVO

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COUNTY AND REGIONAL GROUP REPORTS

NORTHERN
The ranks of the Northern group have been swelled this year by the addition of 2012 Scholars Kate Morgan from Driffield who is investigating high welfare systems and Robert Craig from Cumbria who is looking at solutions to combat food chain dysfunctionality. We congratulate them on their success and look forward to hearing more about their topics in due course.

The group has met on several occasions this year. Ian Pye, 2011 Scholar, hosted us at Old Holly Farm near Garstang for an evening of lively presentations and discussion last October. An impressive show of northern scholars also attended the annual conference at Belton to hear excellent and entertaining presentations by returning scholars, Kevin Beaty and Malcolm Fewster.

Once again, we are very grateful for the generosity and hospitality of the Yorkshire Agricultural Society who kindly agreed to host an evening reception and meeting for northern scholars in June. Over thirty potential and existing scholars gathered at the impressive Regional Agricultural Centre on the Great Yorkshire Showground in Harrogate to hear from scholars Peter Gresty and Malcolm Fewster speak on their contrasting subjects of carrots and pastoral dairy production. Something for everyone!

During the meeting, we discussed how the northern group could move forward in the future. There was unanimous support for a similar event in March 2013 to attract applicants and then a farm walk in June. Some ideas were tabled on the night but more suggestions are always welcome, particularly from would-be hosts. Please contact Nick, Stephen or Chloe if you have any thoughts.

Chloe Palmer

SCOTLAND
The Highland Show was once again a great event for Nuffield Scholars to get together and we were delighted to have such a large turn out at the Tesco stand this June. We were fortunate enough to meet with Heather Wildman and Caroline Millar who have recently been offered a scholarship and learn of their travel and study plans.

As ever the best publicity for Nuffield comes from Scholars themselves and we are grateful to everyone who have helped promote the benefits of gaining an award and also in helping encourage potential scholars to give applying some thought. We are pleased that the Royal Highland Agricultural Societies and The MacRobert Trust have continued their support in sponsoring awards specifically for Scotland.

We are planning a visit for Scholars in Scotland to take place this autumn.

Sarah Mackie

SOUTH WEST
As ever it’s been a busy year for the South West Region. In January we held a very successful briefing and mock interview day for potential scholars and were delighted that Jack Clayton and Edward Green were awarded scholarships. We wish them both a truly life changing experience and look forward to hearing about their studies and recommendation at next spring’s meeting.

During March, 30 plus scholars and friends enjoyed a fascinating day at Tregothan Estate kindly hosted by The Hon Evelyn Boscawen and wonderfully organised by Jonathon Jones. We were treated to lunch and wonderful...
cups of tea from the Estate’s own tea garden. The afternoon kicked off with an introduction to the estate, followed by papers from our returning scholars, which in true Nuffield style led to a lively Q&A session. All the papers were of an excellent and thought-provoking nature and I would urge those of you who have not read the reports to do so.

Following the formal part of the day Jonathon explained about the origins of the tea garden that led in to a guided tour with Mr Boscawen and Jonathon. We were truly spoilt as both men’s passion and depth of knowledge of the plants, their origins and history was evident to all. The tour culminated in a visit to the tea garden, the first in the UK, and a lesson in how to pick the leaves to ensure the quality of the tea when drunk.

Mr Boscawen and Jonathon in the tea garden

Those who were lucky enough to be present will know my attempt to describe the afternoon falls short of doing justice to what is a truly beautiful setting, overseen with great passion and knowledge. For those who don’t know the Estate I suggest a look at the website and a visit when next in Cornwall. www.tregothnan.co.uk

At the end of May Nuffield was again present at the Bath and West Show, courtesy of the Orchard and Cider Growers Committee with particular thanks to Rupert Best. Again our stand was next to the Worshipful Company of Fruitiers who are great advocates of Nuffield and continue to provide scholarships. On the Wednesday evening we held our first reception, sponsored by Thatcher Cider and Lye Cross Farm, which we hope will become a continuing tradition. Whilst numbers could have been greater, this was made up by the range of bodies represented from the NFU, CLA, Bath and West Show Society and others. Next year I hope to see many more scholars as this is our opportunity to win friends and influence other bodies as to what Nuffield can and does do for the industry and why it is important they support us by putting forward first class applicants. It would be nice to see something similar at the Devon County and Royal Cornwall - who wants to pick up the challenge?

Later in the year, either October or November, depending on when the grain maize harvest, we will be visiting Alistair House. This promises to be another visit with a difference, as we will see his grain maize harvesting and drying operation. Details to follow.

The spring meeting is as yet unfixed but is likely to back in the eastern end of the region as we try to move the visits round to allow all scholars an opportunity to attend.

A year ago I reported on the setting up of the county champion network. This is starting to show its worth if only by the number of applicants. We have in place a system now which will see the chair and secretary serve two year terms retiring on alternate years, with replacements chosen in good time to allow for a smooth handover (or at least that’s the plan). There’s always more to do if we are to keep Nuffield relevant and a “must have personal development program” in this ever increasing competitive world and the south west looks forward to continuing to play its part.

This will be my last report as I stand down later this year, so it remains for me to thank everyone who has supported me over my term, all those who have come to visit, provided sponsorship and hospitality, helped at mock interviews and supplied ideas, with particular thanks to Nick, Alistair and Chris, whose help has been truly indispensable.

Andrew Dyke

WALES

In June 2012, 18 Welsh Nuffield Scholars and partners met for dinner in Newport, Pembrokeshire. Following the meal Catherine Nakielny NSch gave an interesting and informative talk on her recent Nuffield study and travels. Catherine explained how improving the efficiency of sheep production is the best option to reduce their carbon footprint.

The following morning we were joined by three prospective Scholars on a field trip to Neil and Linda Perkins and Neil’s father Roger, at Dinas Island Farm. In a wonderful location affording panoramic views of the Pembrokeshire coastline, Neil breeds Lleyn Sheep, and contract rears dairy heifers along with running a camp site and holiday lets. Following explanation of the farm’s history, Neil gave the group a farm tour where he described his grass management and low cost production system. Neil has embraced EID recording, having had a system in place long before it became a compulsory requirement.

The group went on to visit one of Will Prichard’s three dairy units. At Escalwen farm Will introduced Dave, his farm manager and they took the group on a tour of the farm’s dairy pastures explaining the importance of good pasture management and introducing the group to 500 mixed breed dairy cows.
Dave explained how the weather had a direct impact on the milk yields and Will explained some of the complications they face due to the TB restrictions in the area. With yet more stunning views, the group were able to see almost the entire Pembroke coastline from the highest point on the farm. On a tour of the milking parlours, Will explained how embracing technology had improved farm efficiency and added extra security and peace of mind to the farm management. At the home farm the 44/88 swing over milking parlour was at the time of installation the largest in Europe!

Everyone agreed that the Pembrokeshire field trip had been both interesting and enjoyable, and were grateful to Neil and Will for giving up their time to show us two very different farming enterprises.

Tony Davies

**DAIRY**

Our annual Nuffield Dairy Study Group descended on Northern Ireland for three days of fascinating business visits and over-indulgence on local hospitality. Around twenty-five past and potential Nuffield Scholars from the UK and the Republic of Ireland came to see and learn from the province’s dairy industry.

As a preamble we began with an evening tour of the Titanic Quarter. Our enthusiastic guide told us about the history and importance of ship building to Belfast. We were taken back to the world of 1912 and Titanic’s launch; walking through Thompson dry dock and pump houses, entering the original office buildings of Harland and Wolfe, seeing the original desk of the architect who designed the Titanic, and who went down with the vessel.

Our tour began with a visit to Hillsborough research centre. It was good to see the partnership between government and farmer funded research work with a strong practical dairy foundation. There was a significant focus on renewables, in particular farm scale anaerobic digestion and biomass plants. We learnt a significant number of planning applications for AD plants have already submitted in Northern Ireland, so this work is invaluable in assessing the viability and impact of growing crops for energy generation.

In the afternoon we were the guests of 2009 Nuffield Scholar Gregg Somerville and his family from Dromora. Here we saw the challenges of managing an efficient grass-based operation in a cold, wet spring, and in the face of a very uncertain milk price. We learnt about management issues associated with Ireland’s fragmented land ownership and the issues of growing a business with the lack of long-term security inherent in the conacre land rental system. We appreciated their strong family values and their pride in developing the land and their business.

In the evening we were privileged to be shown round the Stormont parliament building by John McAllister the deputy leader of the Ulster Unionist Party. John has a strong dairy farming background and gave us a flavour of the history of this hugely impressive building. He provided a fascinating insight into the challenges faced by Northern Ireland and the pivotal decisions and events that have brought the province along its process of reconciliation. We were all hugely appreciative of the reception and hospitality we received.

On our second morning Will and Gareth Taylor welcomed us to Kircubbin on the Ards Penninsula. Here we saw the issues faced by a top-end high-yielding outfit in striking a balance between milk output and profitable grass utilisation. We also got to see and sample, what is clearly a dynamic Glastry Farm ice-cream business. It was great to see the skill and passion in driving such a successful value-adding enterprise, and to learn from their experiences.

We discussed the potential challenges to co-operative marketing in Northern Ireland and the vision for the dairy industry towards 2020. We had an opportunity to compare and contrast attitudes and experiences from within Northern Ireland, the Republic of Ireland and the UK, particularly regarding how constructive and coherent each country was in leading development of their dairy industries.

The afternoon took us to Brian McCracken at Newtownards. Here we saw first-hand a top grass-based spring-calving system, with efficiency and attention to detail that would compete with anyone anywhere in the world. Even with a challenging farm infrastructure he has developed a strong and highly profitable family business. Brian acknowledged the strength and support of his discussion group in helping take his business forward, providing the opportunity to bounce around ideas with like-minded positive people.

We moved on to the nearby Mash Direct operation. Martin Hamilton and his team struck us with their passion, enthusiasm and team work. They described how they have taken the family business from a commodity root vegetable producer to being a brand-driven food production company dealing with most of the multiple retailers. Their farming commitment extends to growing over 1000 acres of crop, their processing thrived on its innovation and flexibility, and it was tremendous to see their marketing resolve in developing their own brand.

In the evening we had a dinner in Belfast with guest speaker Sinclair Mayne the Departmental Scientific Adviser. This evening brought discussion about many of the scientific and political issues that are impacting on all UK livestock producers and the need for strong leadership within the agricultural community was highlighted.
On our final day we visited Crossnacreevy Plant testing centre to see the work they are doing to evaluate potential new grass and clover varieties. It was extremely interesting to see their processes ensuring the integrity and superior quality of varieties being marketed to farmers.

We would like to extend a huge thanks to all those who made our trip an amazing success. Our resident Nuffield scholars and organisers, Greg and in particular Jason Rankin deserve fulsome praise for their foresight and attention to detail. Special thanks go to all those who hosted our visits; for sharing their time and knowledge, for their openness and honesty, and in particular for their incredible hospitality.

We left with a much greater appreciation of dairy farming in Northern Ireland, an understanding of the challenges and pressures and what can be achieved with the right drive, focus and application.

The Nuffield dairy tour is always a great chance to catch up with old friends and to encourage fresh faces. The positivity sends us away re-energised and motivated to drive our businesses and industry forward. Tom Rawson is organising next year’s tour and the plan is to head to South Wales.

Nuffield is always looking for new open-minded candidates who want to travel the world and to challenge themselves and their industry. If you feel you fit that bill please visit www.nuffieldscholar.org.

Jim Baird

BUSINESS GROUP
The Nuffield Business Group met in March to stage a gruelling 26 hours of knowledge transfer, warmly hosted by Alan and Anne Beckett and facilitated by Matt Swain.

The theme was ‘motivation’, and the group consensus yielded some practical insights. The format uses a mix of workshops, visits, and live skypes to get to the heart of a matter and the relaxed atmosphere seems to provide some extraordinary insights.

This was the eighth year and confidence continues to grow with all delegates presenting their experiences from the previous year with peers acting as critical friends and thanks go to all for their candid approach.

Memorable moments of honesty and also unstoppable laughter when Matt – unaware that more than a business relationship had occurred between two delegates – asked innocently ‘and what positions do you take?’

The group will meet next March – probably south Essex details to be advised.

Matt Swain

COMMUNICATIONS & MEDIA GROUP
The learning experience you get with a Scholarship doesn’t just stop when you have completed your studies. One of the unique features of a Nuffield Scholarship is that it carries on thereafter – literally for life, says Scholar, Julie Mate.

The Media and Communications Group, met in early September to find out about ‘Growing your profile through broadcast and digital media’.

And, where better to learn about a successful, high impact TV campaign than from the pioneering Yeo Valley whose rap video and associated TV commercial became a social media sensation, branding the Somerset dairy company one of the trendiest and coolest in the world.

“What we wanted to do was make Yeo Valley Organic popular for everybody and particularly the family,” says Ben Cull, Head of Marketing at Yeo Valley. “We wanted a vehicle that would tell the ‘in harmony’ message of sustainability on our farms. We also wanted to make people pronounce Yeo Valley correctly and get everybody talking about it. So that’s how we came up with the idea of the rap and rapping farmers.

‘An opportunity in TV advertising and partnering ourselves with ITV’s primetime TV programme, The X Factor, was spotted and through this we were able to show exclusive extracts of the video during the programme’s commercial breaks. The rest, as they say, is history.’

The advert sees actors and models dressed in flat caps and wellies frolicking on a Yeo farm with its ‘yummy yoghurts’, and features lyrics such as ‘rollin’ with my Massey on a summer’s day’.

The commercial gained instant popularity and the music video went viral within days of the first showing in October 2010. The video became such a hit on the social media scene that thousands of fans were calling for the song to be the 2010’s Christmas No 1. The rap subsequently became the number one music download in the UK, secured the ‘most viewed’ status on Facebook and YouTube - and is still being tweeted about today.

The Yeo team were as surprised as anyone by the extraordinary success of the commercial. “The fact that some two million people have watched it on YouTube is just mind blowing,” says Ben Cull. “People are now saying that it is the best thing since the Wurzels to come out of the West Country.

“It is difficult to say how much the video’s success has benefited our yoghurt sales, but what it has done is give us permission as a dairy company to sell our brand without giving it away. Previously, particularly under recession conditions, the plan would be one including deep cut promotions and reduced headline prices.”
While Yeo has seen its growth triple over the past decade, it is still careful with every penny, Ben insists.

“Yeo is a private family business, so we have to make our money work harder. The only way you can do that is to take more risks and be entrepreneurial.”

The budget for the Yeo rap was comparatively small measured up to the spend made by major dairy companies, but was massively brave for the family-owned company. Thankfully it turned out extremely well - and has also turned out to be a boost to the farming industry, by helping to change the stereotypical view of farmers as ‘straw-chewing characters’.

How do you follow the success of the Yeo rap?

Fortunately the Yeo team have it sorted with the release of the second Yeo music video scheduled to be released, as before, in association with The X Factor programme this October.

The Nuffield Study Group was privileged to be shown a sneak preview of the new video and became its first critique. Suffice to say, the group’s consensus is that you won’t be disappointed!

Adding further insights into broadcast media at the Nuffield Study Group meeting, Martin Thatcher of Thatchers Cider, Somerset, provided a hands-on report on the production of his first 30-second TV commercial.

Opting for animation, he worked closely with the film production company on the content and overall feel of the commercial. It resulted in a gentle and high visual quality production which was able to tick all of the company’s core value boxes, whilst also giving a real sense of heritage and place to the long-established family business.

Teamed up with a significant poster campaign in 2011, the TV commercial went out over the summer months in selected regions and was highly successful, leading to a significant 32% increase in consumer awareness in some areas.

Together the combined TV and poster presence contributed to a substantial increase in retail sales over the period, including over a 100% increase in the sale of their biggest selling product line, Gold, for the year.

On the back of this year’s successful campaign, Martin is looking to place more TV commercials in 2012 – particularly in the regions where the placement costs only £100 per slot – and to explore other TV opportunities, including with Sky and Sky Sport.

Other presenters at the study group meeting were Footprint TV’s Scott Jones, who provided a practical guide to film making - from story ideas to the cost of hiring equipment, from editing software to TV placement. Partaking scholars also shared their own video making experiences and their final published productions for posting on their business or retail websites.

ORGANIC GROUP

Organic production in all it’s forms continues to be an attractive subject to many applicants for scholarships and every year a number of scholarships are awarded for the study of subjects either directly or closely related to organic production. The number of scholars who continue to make a living out of organic production remains fairly small and geographically widespread.

A planned meeting in June 2012 was postponed because of a clash with the Queen’s Jubilee. This meeting will now be held on the 5th and 6th October and will be hosted by Stephen (2011 scholar) and Lynn Briggs Briggs at Peterborough. This will be an opportunity for scholars, potential scholars and friends to visit the UK’s largest Agro forestry project and other interesting businesses. Contact w.waterfield@fcgagric.com or Stephen.briggs@bacusorganic.co.uk

A meeting is planned for 8th & 9th March 2013 to be hosted by Rob Richmond a 2011 scholar at Cheltenham.

William Waterfield and Neil Rowe
POULTRY GROUP

The Nuffield Poultry Study Group continues to be a busy group, but sadly mourn the loss of two Scholars in 2012. Harold Cowburn NSch, a 1974 BEMB Trust Scholar who studied “Egg Production and Marketing in the USA” and Clive Frampton, a 1985 BEMB Trust Scholar who studied “The Egg Products Industry in the USA”. Both were highly regarded within their industries and were very enthusiastic and active members within Nuffield and will be sadly missed.

We continue to organise 3 events annually and run a programme of identifying and supporting potential and new Scholars.

International Study Tour – Argentina 2011

The 2011 International Study Tour took the Nuffield Poultry Group to Argentina to enable us to gain an understanding of the Argentine poultry and egg markets and learn about a fascinating country.

The tour was organised by Andrew Hignett and Nuffield Chairman, Stephen Watkins joined the tour. The conclusions gained by the group were:

• Argentina is a vast country covering 2.8 million Km2 with a population of 40.1 million. 12.8 million live in Buenos Aires, the world’s the 13th largest city, where the average income per capita is higher than that of the UK.

• Argentina has the 22nd largest economy in the world and it grew by an average of 7.1% between 2002 and 2010, although businesses have the potential to be hampered by annual inflation of 25% and high export taxes (soya 35%, wheat 23%, maize 20%).

• Argentina could potentially be one of the world’s major food producers due to acres of agricultural land with underground water reserves. The rotation of soya and wheat avoids the need for high fertiliser input. Argentina currently produces enough food to feed 430 million people, with agricultural exports accounting for over 50% of the country’s income.

• The poultry meat industry has grown by 117% in the last seven years to produce 573 million broilers per year. In 2010 it exported 430000 tonnes of chicken meat aided by a 0% export tax.

• The national laying flock has more than doubled in less than a decade to 35 million birds. Argentina is 100% self-sufficient in poultry meat and eggs, with a consumption of 210 eggs/capita/annum and exports 60,000 tonnes of egg products aided by a 5% export tax.

• Soya, wheat and maize are grown alongside poultry units, enabling cheaper feed costs compared with the UK.

• Argentina is officially classified as free of Avian Influenza and Newcastle disease, which aids poultry exports.

The vast size of the country enables many new poultry enterprises to be built in isolated areas providing excellent levels of biosecurity to satisfy overseas customers.

• Legislation on animal welfare is much less than in the UK/EU and animal welfare is not so important to the majority of Argentine consumers, even though buying choices are not influenced by household incomes. Welfare standards will change as businesses fulfil export contracts from areas of the world where bird welfare is an important issue.

• The businesses we visited were impressive in size, scale and attention to detail. Innovative techniques were used to produce bespoke poultry products for customers across the globe. They had a strong desire to meet and surpass the demands of their customers as consumer trends change and evolve.

Full copies of the Report are available from Helen Houghton on request.

International Study Tour – Turkey 2012

Our next International Study Tour is from 13th to 19th October to Turkey, being organised by Mark Williams. The tour will start with visits to poultry meat premises, followed by briefings from the Embassy and National trade organisations. From there the group will travel south to the main egg production area.

Visit to Framptons Ltd

In December 2011, members of the Nuffield Poultry Group visited Framptons to tour their extensive egg processing facilities. Clive Frampton was presented with a collage of pictures of many of the Nuffield visits over the years and also with a silver salver from his friends and colleagues of the International Egg Commission – the world body of which he was a past President.

London Dinner – Farmers Club

Ann McIntosh MP, Chair of the EFRA Select Committee was our guest at the Poultry Group Dinner in London in April 2012. Organised by Mark Williams, the evening provided an opportunity to thank our guest for the help and support given to the egg industry following its massive investment in the colony system for layers. This was against a background of major non-compliance in other EU countries. It was also an opportunity to emphasise the track record of innovation and entrepreneurship in the UK poultry industry and the role of government in supporting and allowing the freedom for this to continue into the future.

AGM and Spring Study weekend

This year’s AGM and Spring Study Weekend was hosted and organised by Julian and Nichola Madeley in Aberystwyth, Wales. Current and prospective Dairy and Poultry scholars joined together to experience “Excellence and Entrepreneurs in Wales”
The group enjoyed a fascinating visit to Rachel’s Dairy where they discovered the history of the business and its future plans. Scholars enjoyed a tour of the National Library of Wales and the Institute of Biological Environmental and Rural Sciences learning about research projects ranging from reduction in methane production in ruminants, high tech measurements of phenotypic traits in crops, to genetic improvement of elephant grass for biofuel production.

Returning Scholar Helen Houghton presented her findings at the Group AGM.

New Chairman, Vice Chairman and Secretary

After 3 years of dedicated service to the Poultry Study Group Chairman Steve Pritchard, Vice Chairman Julian Madeley and Secretary Sue Reynolds retired from their posts. The Group thanked all for their efforts in taking the Poultry Study Group forward. The Group elected Mark Williams as Chairman, Sue Reynolds as Vice-Chair, Mark Williams was re-elected as Treasurer and Helen Houghton as Secretary for the next 3 years.

Potential and New Nuffield Scholars

We continue to be active in recruiting and supporting new Nuffield Scholars within our Sector, with both new and potential Scholars again being invited to take part in the Spring Study weekend.

One of the key agenda items at the AGM was to review and update the list of potential Poultry Scholars, with individual Group members being tasked to personally contact, encourage and support Scholarship candidates.

Nuffield Poultry Meat Scholarship 2012

In May, a new, bi-annual Nuffield Poultry Meat Scholarship was launched at the Pig and Poultry Fair 2012. The new Scholarship will be sponsored by the UK’s Broiler genetics companies Aviagen, Cobb and Hubbard and was the result of Harry Irwin’s hard work and excellent negotiating skills.

Events in 2013

The Poultry Group aims to continue its programme of three events per year; the London Dinner; the Spring Study Weekend in May, to be hosted by Lorna and Nick Chippindale in Harrogate; and a further International Study Tour in the Autumn.

The Nuffield Poultry Study Group on Tour in Argentina

Helen Houghton
Ian is a farmer whose Nuffield experience has, in the last ten years, fuelled his passion to educate and communicate the role of farming to the widest possible audience. His scholarship showed him what opening the gates of farming to the wider public could achieve. From this was born the concept of Open Farm Sunday, which Ian pioneered and then pursued to the extent that it is now a major part of Britain’s agricultural calendar.

Although his family had been farming for many years, Ian started his working life as a city trader for Glencore and it was there he recognised that agriculture sold itself short and was poorly understood by British adults, children and the media.

Ian used his Nuffield Scholarship to look at how farmers in America, Canada and Denmark communicated, connected and educated consumers about agriculture. The lessons from this best practice inspired and energised him into taking action in the UK.

He has been driven ever since by the belief that educating children as well as their parents about farming and food production demonstrates the crucial role British agriculture makes towards feeding the nation. Ian feels that this improved understanding of the industry will inspire people to fully support home-farmed produce.

Ian was so determined to improve the profile of farming that he readjusted his own farm business near Harpenden to give him the time and space to pursue a number of initiatives. The most significant of these was his ingenious idea to launch Open Farm Sunday (OFS) by encouraging UK farmers to invite families on to their farms on one particular weekend in June each year. Since OFS was founded in 2006, it has been run by LEAF and more than one million people, including urban dwellers, have visited British farms and enjoyed learning more about countryside issues.

As well as campaigning, Ian has built a strong, diverse farm business, which is focussed on growing combinable crops but also includes property letting. He runs five farms on an owner occupier, tenanted, contracted and share farming basis over almost 2000 acres. One fifth of the farming is organic.

Ian’s dedication and passion for bringing farming closer to the consumer has manifested itself in his commitment as a LEAF demonstration farm, as a Trustee of FACE (Farming and Countryside Education), in his work with the Hertfordshire Agricultural Society and as a Farmers Weekly columnist. He believes the industry must embrace further change if agricultural literacy is to be developed within the school curriculum and he is keen to lobby further. Most recently Ian has focussed on speaking at career fairs to highlight the wide range of employment opportunities that farming offers.

The judges concluded that Ian was an excellent communicator and his leadership had directly led to benefits for everyone in agriculture. His was a shining example of how a Nuffield Scholarship can have a lasting and practical impact, not just on one individual but on a whole industry. The judges were unanimous in awarding Ian Pigott the 2011 Steven and Gill Bullock Award.
The main objective of the Frank Parkinson Agricultural Trust is to contribute to the improvement and welfare of British Agriculture.

The Trust is pleased to provide support for the work of the Nuffield Farming Scholarships Trust.

Secretary to the Frank Parkinson Agricultural Trust
Miss Janet Smith
11 Alder Drive
Pudsey
LEEDS LS28 8RD
janet.pudsey@live.co.uk
2012 NUFFIELD FARMING SCHOLARSHIP AWARDS

ROBERT BURTONSHAW
Leamington Spa Warwicks
rob@farmservicesltd.co.uk
Land drainage and its role in the future of farming
Sponsored by the John Oldacre Foundation

EDWARD GREEN
Shepton Mallet Somerset
edbanksfarm@gmail.com
How can beef adapt to a change in global food culture
Sponsored by The Worshipful Company of Butchers

JACK CLAYTON
Westbury Wiltshire
jsgamefarm@hotmail.com
Modernising the Game industry
Sponsored by Alan & Anne Beckett

CHARLES HARRISON
Rudgwick West Sussex
charlieha@tiscali.co.uk
Practical opportunities to control Johnes Disease in dairy cattle
Sponsored by The Dartington Cattle Breeding Trust

ROBERT CRAIG
Carlisle Cumbria
jackierobert@cumrew.freeserve.co.uk
Solutions to combat food chain dysfunctionality
Sponsored by Harold Cowburn (deceased)

GARETH DAVIES
Swansea Wales
garethgrassland@btinternet.com
The role of quality grazed grass in lowering the cost of production on UK farms
Sponsored by The Royal Welsh Agricultural Society

ROBERT HODGKINS
Washington West Sussex
Robert_hodgkins@hotmail.com
Using genomic selection technology to advance the development of an ovine maternal breeding line
Sponsored by The South of England Agricultural Society

AMY JACKSON
Witney Oxfordshire
amy@oxtale.co.uk
Removing the barriers from large scale dairy farming
Sponsored by The Trehane Trust

JOE DELVES
Heathfield East Sussex
joedelves@googlemail.com
How to best save the British dairy industry
Sponsored by Jill Willows

KATY LEE
Bruxelles Belgium
Kate.elizabeth.lee@hotmail.co.uk
New and emerging technologies
Sponsored by The Young Nuffield (Bob Matson) Award

Sponsored by the John Oldacre Foundation

Sponsored by The Worshipful Company of Butchers

Sponsored by Alan & Anne Beckett

Sponsored by The Dartington Cattle Breeding Trust

Sponsored by The South of England Agricultural Society

Sponsored by The Trehane Trust

Sponsored by Jill Willows

Sponsored by The Young Nuffield (Bob Matson) Award
2012 NUFFIELD FARMING SCHOLARSHIP AWARDS

TIMOTHY MCCLELLAND
Craigavon Northern Ireland
tim@clareglen.fsbusiness.co.uk
Opportunities in family farm business
Sponsored by The Thomas Henry Foundation

JAMES SZABO
Brigg North Lincolnshire
james@agritech.co.uk
Automation in agriculture
Sponsored by The NFU Mutual Charitable Trust

CAROLINE MILLAR
Auchterhouse Dundee
caroline@thehideawayexperience.co.uk
Effective collaboration between rural businesses
Sponsored by The Royal Highland & Agricultural Society

MATT WARE
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Influencing agricultural policy: a global perspective
Sponsored by The NFU Mutual Charitable Trust

JOHN MILLINGTON
Sandon Staffordshire
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Communication for staff and managers on secondary dairy units
Sponsored by The John Oldacre Foundation

HEATHER WILDMAN
New Cumnock Ayrshire
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Communication: motivating and influencing change
Sponsored by The MacRobert Trust

KATE MORGAN
Driffield East Yorkshire
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High welfare systems – can they meet world food demand?
Sponsored by BPEX

ELIN WYN JONES
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Diversification in the dairy industry
Sponsored by The Trehane Trust

JOANNE NASH
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Earned recognition through on farm compliance and adherence to revised welfare codes – is this the way forward?
Sponsored by The Three Counties Agricultural Society

DAVID WYNNE FINCH
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People and collaborative farming
Sponsored by The Trehane Trust
UK arable farming is currently facing many challenges from increasing costs, herbicide resistance and yields which have reached a plateau. Government research is showing that through soil erosion we are losing 0.1-0.3t/ha of top soil annually and it is the most fertile soil which is lost first. This comes at a time when climate change is being widely accepted and we are tasked with the challenge of producing more while impacting less. We have noticed differences in soil structure and fertility on our home farm, which previously had a livestock enterprise, compared with other land that we farm which has no history of livestock. These range from improved workability through to fewer weed resistance problems and have led us to question why the differences are so great. When this question was raised it became very apparent how little we actually knew about what was happening below ground level and led to my application for a Nuffield study tour scholarship.

Very often I believe that we, as farmers, have forgotten that the soil is alive and made up of billions of living soil organisms. When we begin to manage it as a living organism we suddenly treat it with much more respect than we do when thinking about it as a medium. Like other living organisms soils breathe and require feeding. To provide adequate nutrition they require a living root system growing to excrete sugars through the root system to the soil biota. If the soils do not have enough nutrition then the soil biology either becomes dormant or dies, and the same happens if there is not enough oxygen or too much water in the soil profile.

We now begin to understand that the soil is very complex and it is with sadness that I don’t feel that the current Fertiliser Advisory System (FACTS) goes into enough detail to maximise efficiency and productivity; instead focusing on the major inputs of N, P, K and pH which, when applied in the wrong form, can be less than 10% efficient. The uptake of the Albrecht system of soil analysis is being slowly adopted around the world and this test gives a much more detailed analysis of what is happening within the soil and a greater understanding of which fertilisers will work on that soil type. A dairy farmer from South Australia has adopted this technique wholeheartedly with extremely impressive results that has enabled him to survive and thrive during a seven-year drought.

Farmers need to understand the importance of organic matter on soil fertility. It is critical for the functioning of soil on all levels: physical, chemical and biological. Organic matter stores water, provides nitrogen and resists compaction. Between 1980 and 1995 18% of organic matter in arable soils was lost. Organic matter is carbon so when losing organic matter we are losing carbon. When deciding to sell organic matter it needs to be a conscious decision that it is not just the chemical components of P and K that are leaving the field.

Cover crops have a very important role to play in improving the condition of our soils because they can reduce leaching and increase organic matter levels. More importantly in agriculture we only have one free energy source, the sun. Via photosynthesis we convert this ‘free energy’ into organic matter and help store carbon within the soil. The more energy we intercept the more likely we are to create a sustainable farming system.

Around the world I saw many farmers who were direct drilling and in Argentina I met one of the pioneers of no-till in South America. He is farming on a soil with 35% clay and his crops were immaculately produced with no visible compaction. He is also receiving over 1000mm of rainfall annually. I see a gradual growth in the role of conservation agriculture in the UK.

Tom Bradshaw

tom@proagri.co.uk
Alan and Anne Beckett Award

The Alan and Anne Beckett Award is for an entrepreneur or innovator who is a hands-on operator in the agricultural, horticultural or allied rural industries. It is a privately-funded UK Nuffield Farming Scholarship and has been running since 1996. Today the Beckett Scholars are collectively active in virtually every field in the wider agricultural scene with several diversified enterprises thrown in for good measure.

Alan himself was awarded a Nuffield Scholarship in 1957 and Anne created an Hon. Scholar in 2007.

email: alannebeckett@blueyonder.co.uk

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For more information contact Mark Fairbairn, Membership Secretary on 020 7925 7102.
Email: membership@thefarmersclub.com or visit www.thefarmersclub.com
So you want a bigger farm – that’s easily solved, walk outside, first look up and then look down – now crop these extra dimensions! The trouble is most farmers only think two dimensionally, rarely considering what exists 2m above and 1m below the surface, or the potential there is to utilise this space for crop production.

There is great potential for better exploitation of sun, air, water and soil nutrients by combining trees and crops to create agroforestry, a system which makes much better use of these resources in space and time. Tree roots access nutrients and water deeper in the soil profile that would not normally be available to most farmed crops and tree branches can make better use of sunlight above an understory alley crop. Through leaf litter incorporation into topsoil, these nutrients are subsequently made available to arable alley crops, improving nutrient cycling. The secret is to combine complementary components.

My Nuffield scholarship aim was to explore “The adoption of commercial agroforestry and its applicability to UK & temperate farming systems” in different countries to see what systems and approaches were appropriate for UK farmers. I found agroforestry working practically and profitably on farms in Canada, the USA, China and in more than 18 EU member states. In China there is more than 3 million hectares of agroforestry combining wheat and trees.

Agroforestry has a long history with its use noted in 206 BC to AD 220 in China and in the 19th century in Europe. Modern agroforestry systems are compatible with present-day agricultural techniques at tree densities c.100 trees/ha. Promotion of agroforestry use on farmland could enable the UK to realise its target of 16% tree cover to be met.

Profitability can be equal to or greater than monoculture, especially when high value timber trees are included. Annual alley crops maintain annual farm income, while trees provide capital for the future. Trees, as part of an agroforestry system, represent a long-term asset for landowners.

Productivity can be as or more productive than monoculture systems, with increases of up to 30% in biomass and 60% in final products achievable. A Land Equivalent Ratio (LER) of 1.40 (i.e. overall productivity is increased by 40% compared to a monoculture on the same land area) is achievable on-farm, with the LER remaining stable under different climate change scenarios.

Nutrient utilisation is more efficient in agroforestry systems, with farmland nitrogen losses reduced by 50% in agroforestry compared to monoculture (trees taking up any N not utilised by alley crops) and increased soil mychorizal associations, which result in greater phosphate capture.
and a reduced requirement for phosphate fertilisers. Agroforestry systems typically have more earthworms, with 60-70 earthworms per m³ of soil under agroforestry compared to 20 earthworms per m³ of soil under monoculture arable systems. Catchments can be better protected by adopting agroforestry, offering up to 48% reduction in sediment loss.

Agroforestry systems modify local microclimatic conditions (temperature, air, water vapour content, evaporation and wind speed) and provide benefits to crops which are grown with the trees by reducing soil degradation and enhancing biodiversity, pest and disease control.

Farmers can use agroforestry to increase the relative humidity of the air above the fields by 7-12%, reduce crop air temperature by 1 to 2°C Celsius and reduce crop thermal stress during critical growing periods. Locally, agroforestry can reduce wind speed by 30 – 50%, reducing evapotranspiration from alley crops by 30% resulting in improved water use and a reduced irrigation requirement for high value alley crops.

North-South tree row orientation is best suited to the UK. The best bio-physical option is to plant 80-120 trees/hectare (130 to 200 for poplar), whereas the best economic option is to plant a lower density around 60 to 90 trees/hectare (100 to 130 for poplar) with tree rows spaced 24, 36 or 48m apart to minimise shading of alley crops and allow access for farm machinery. The best combinations of tree alley crop are short season grain crops i.e. cereals combined with long season tree crops i.e. later leafing trees.

Agroforestry changes the way trees root, producing deeper and stronger tree rooting systems, which are better able to withstand drought and storm damage. Over 75% of the tree roots are distributed under the cultivated layer of 40 to 100 centimetres, with only 12% of roots in the 0 to 40 cm range. Most alley crops have 80% to 95% of their roots distributed in the 0 to 40 cm range therefore, competition for water and nutrients between trees and crops is minimized in agroforestry systems.

Agroforestry is very relevant to UK agriculture. After visiting three continents, I have identified the key technical issues for successful agroforestry. Policy blockages and CAP regulations are currently the main reasons restraining adoption in the UK. These need to be addressed in the CAP reforms by improving farmer and policy maker knowledge and understanding of the benefits of agroforestry. Under current EU regulations – Article 44 Measure 222 which provides for agroforestry, has been available to member states but the UK did not adopt it. The UK does not currently have an agroforestry policy and there is a disconnect between Defra and the Forestry Commission, with neither party taking ownership. In other EU member states agroforestry is eligible for Pillar I support.

Agroforestry is ‘climate smart’ agriculture and provides one of the very few options that has the potential to help reduce greenhouse gas emissions, help protect natural resources whilst at the same time producing more food and biomass. Government should provide appropriate business, technical and research support to enable UK farmers to be confident about adopting agroforestry practices on their farms and facilitate improved knowledge transfer on agroforestry systems between EU member states.

Farmers and landowners should consider planting 10- 20% of cropped land into agroforestry to increase productive output and long-term farm profitability. On rented land, shared output and income arrangements should be considered.

Agroforestry can make the farm bigger and more productive. So start cropping the third dimension - above and below ground.

I thank everyone who has supported by study and particularly the generous sponsorship from the NFU Mutual Charitable Trust.

Stephen Briggs
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Wheat and poplar tree agroforestry system
My story starts in the county I was born and grew up in, North Staffordshire, surrounded by livestock farms and permanent pasture and where ploughs and combines were virtually unheard of. Soils were rich, dark and friable, with a woody, aromatic smell and teeming with life. I thought this was normal.

Fast forward to my early 40’s and I’ve moved to Hertfordshire, married Helen and have two lovely children, Will and Imogen. I am now surrounded by ploughed land, where the soils are pale and stony, setting hard in the summer, turning to sludge when it rains. The soil smells sour and has no structure and I know, instinctively, something is missing.

Fortunately, through my consultancy and estate management business, I am involved in one of the few farm businesses in the region that has both cattle and arable enterprises, albeit on different parts of the farm. It’s a mixed farm that is not mixed! When I started here, the cattle were predominantly autumn calving Simmental-Holstein cross cows, heavily overstocked on a set-stocked system. We made vast heaps of silage, ran seriously short of grass by mid-June and were housing cattle by late September because there was nothing left for them to eat outside! It was an unsustainable system.

I knew I had to find a better way of managing the grassland, a mixture of no-input HLS land, low-input ELS land and ‘normal’ NVZ land. It was as I was mentally wrestling with the problem in spring 2010 that I came across a Nuffield Scholar’s blog in which he mentioned mob grazing. Immediately, I felt this was the answer to my grass shortage and I spent three solid weeks searching the internet for information. I was voracious in my consumption of knowledge about this revolutionary practice and read and re-read everything I could find.

Inspired, I dug out some electric fence and started rationing the cows. It was a steep learning curve and again, having made too much silage and having grazed too hard, I ran out of grass by mid-summer, but my appetite was truly whetted. Part of my research had shown how mob grazing could increase soil organic matter more quickly than pretty much any other farming practice and I began to dream of integrating cattle into the arable rotation. I just needed to know how to do it!

Cue Nuffield. I have admired the organisation from afar for many years, never believing I would be accepted into the fold. I am truly honoured and delighted to have been awarded a scholarship in late January 2011 and my thanks goes to NFST, John Oldacre Foundation and my family for giving me the opportunity to travel the world in search of answers. My gratitude will last a lifetime.

My study took me on a mental and physical journey like no other. I travelled from Saskatchewan in Canada to Mississippi in the deep south of the US to learn about mob grazing, then on to Argentina and Paraguay to study how cattle can be integrated into arable rotations.

The basic premise of mob grazing is one of high stocking densities – huge numbers of cattle bunched into tight groups – which are moved frequently with the aid of electric fences, trampling into the soil as much forage as they graze. The pasture land is then left, untouched, until it is fully recovered, giving opportunities for a whole host of plant species to establish in the sward that would otherwise be grazed out or out-competed.
Mob grazing simulates the vast herds of bison that used to sweep the American plains, the millions of wildebeest that still sweep the African savannah, or the famous European auroch herds that grazed their way across our own continent thousands of years ago. The grass plant evolved alongside such migrations, adapting and specialising to a life cycle that included short, intense periods of grazing and trampling followed by long rest periods. I realised that it is only in the last few hundred years that grasses have been managed differently and that such management is detrimental to the long-term productivity of our grasslands.

To understand exactly why mob grazing works, it is important to break down the process into its component parts. Firstly, the long recovery time between grazings allows the plant to establish a healthy root system. The roots grow deeper into the soil, bringing up hidden nutrients and making the plant more drought-hardy. Carbohydrates are also stored in the root and provide the energy vital to feed the new regrowth post-grazing. The long recovery time also leads to high volumes of above-ground forage, a mixture of leaf, seed and stem.

The high stocking density means up to 50% of the plant is trampled to the ground by the animals. Cattle turned into a fully mature pasture graze the lush tops of the plants, eating seedheads and upper leaves full of energy and protein. The tougher, lower stems are trodden onto the soil surface and these stalks act both as a mulch and as a food source for soil microorganisms, building new soil in the process.

The cattle only eat the best parts of the plant before being moved onto a new area of ground, and this is why performance doesn’t suffer – they are not forced to eat the poorer stems etc – and their dung is tight and firm, reflecting the balanced diet they are getting.

As the organic matter rises and the soil becomes more fertile, the land grows more forage and stocking rates – the total carrying capacity of the land – increase. Neil Dennis, a Canadian farmer, improved his stocking rate fourfold. As he pithily observed, he’d gained the equivalent of another three farms at no extra cost and is now harvesting and selling sunlight (in the form of beef) much more efficiently than under a set-stocked regime.

Another notable feature of mob grazing is that the permanent pastures don’t appear to become worn out. Conventional reseeding is unheard of, and both grasslands and their underlying soils are healthier than ever before. As practitioners regularly point out, it is farming in nature’s image, mimicking what has happened naturally for millions of years.

There are many hurdles stopping cattle being part of an arable rotation in the UK; the most important one being the apparent lack of financial return compared to repeatedly growing combinable and root crops. Unfortunately, a lot of the benefits of having cattle on the land are only realised in the following crops and our gross margin system of budgeting takes little account of things like easier working, more friable soils, residual nitrogen and improved water-holding capacity. My travels through Argentina demonstrated the financial value of these things, and my report highlights ways to quantify many of these hidden benefits.

Lack of skills and a lack of infrastructure – water, fencing, housing etc – are also genuine obstacles to using cattle within an arable rotation. However, one person’s obstacle is another person’s opportunity. One of my main conclusions following my study is that if I and others can offer a cattle grazing service that provides financial rewards to the landowner equivalent to more conventional break crops, then there are tens of thousands of acres of arable land across the UK that could benefit from the actions of grazing livestock.

In my mind’s eye, I see vast herds of ruminants mob-grazing their way across East Anglia, adding natural fertility to the hungry soils and making farming more sustainable. If I achieve this in my lifetime, I will know my Nuffield Scholarship has been a success.

Thank you again to all who have given me this opportunity.

Tom Chapman
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I am a fourth generation dairy farmer, farming on the most southerly tip of Devon. I left school at 16, foolishly believing I had had enough education as I had only ever wanted to be a farmer. I am married to Sue and have a daughter Bex and son Tom.

For a number of years our farm consultant had been trying to persuade me to apply for a Nuffield Scholarship; being a Scholar himself he knew the benefits that would be gained both personally and for our business. I had always felt that I would not have the capability to undertake this challenge, however at the age of 45 my mid life crisis kicked in and I made myself rise to the challenge.

The topic I chose to study is very relevant to my personal situation. As a multi generation business farming in partnership with my father, I know only too well the major issues concerning succession and the transition to the next generation. The business has to have growth to remain sustainable. The older generation need to acknowledge the younger generation’s ideas; similarly the younger generation need to realise the value of traditional ways - after all these are the foundations on which the current business was built. It is all about compromise, if it is not accepted close personal relationships will suffer.

My study tour included visiting countries that I considered to have a high number of family farms, focusing on dairy farms. I visited USA, New Zealand and Australia, as part of an eight-week tour and also The Netherlands and The European Union (EU), Brussels.

My first stop was the US State of Wisconsin where I attended the World Dairy Expo which lived up to my expectations of it being typically American in size and glamour, showcasing some outstanding cattle and innovative industry related kit. The following few days I joined in with an ABS tour of dairy farms in the area – these were typically large intensive units with cows housed all year round. My preconceptions of large US dairy units were unfounded – the animal welfare and management was exceptional, with protocols in place to cover all situations.

The rest of my time in America was spent with Professor John Baker, a US attorney from the State of Iowa University who specialises in “Family Farm Transition”. We visited a number of family farms that John had advised about succession planning.

From Iowa I flew to San Francisco to attend, the “International Farm Transition Network Annual Meeting and Conference” in Modesto, California. Subjects discussed ranged from, getting young people into agriculture, the farm transition process, and under the umbrella of business entities, sole proprietors, partnerships, and limited liability companies.

Moving on to New Zealand, travelling around both North and South Island, I again visited numerous dairy farms. The fundamental difference that I found between farmers in the UK and New Zealand was the attitude to traditional and sentimentality – in New Zealand, farming is seen as a business as opposed to a “way of life” – there are more opportunities for new entrants and farmers are prepared to take more risks financially and have the opinion that if things go wrong, to sell up and move on, whereas here the family “Crown Jewels” should not be put at risk. Succession and the next generation were not a high priority for the majority of those I met; it was a case of wanting their heirs to experience the same level of excitement in building the business up. Levels of debt appeared to be much higher and the banks were found to be very supportive and more relaxed in their lending.
Taking the hop across the big pond to Australia I was met by the vast scale and diversity of the country. Travelling through Victoria I met some very good operators who were keen to share their stories with me and were very open about their succession experiences and plans. The Aussies’ sense of tradition was very like ours and there were a number of multigenerational and sibling partnerships working successfully, the enterprises being large enough to sustain the family members.

The future of the family farm is strong throughout all the countries I visited and those of us who are currently caretaking the land and producing food for the world need to ensure that we build and grow our businesses so that they are sustainable for our successors. We need to keep our industry efficient and respected in order to encourage the younger generation to follow in our footsteps, enabling them to attain a lifestyle that rewards the risks and all the hard effort. As producers we are unable to determine our end price, so we must endeavour to control costs, utilising the economies of scale to optimise margins.

“To Stand Still Is Not an Option”

Philip Darke
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The HDC is a division of the Agriculture & Horticulture Development Board
I am the General Manager of the National Pig Association, a very small but perfectly formed organisation that represents the interests of commercial British pig producers to Government, Brussels, retailers and processors. I am also a celebrated pig geek. Having developed my passion for pigs much later in life, I have spent the last 17 years trying to catch up.

Managing a lobby group that represents around 70% of the commercial pig herd with only three staff, it is essential that we influence effectively. Whilst many would say that we already work very well, learning is a continual process and there will always be improvements to be made as pressures and challenges change. The industry in which I operate is very significant globally. Pork is the most commonly consumed meat in the world, with 104 million tonnes produced every year from 1.2 billion pigs and it is traded in large quantities. As a country that imports 60% of the pork we consume, the UK is largely at the mercy of price fluctuations on the EU market which in turn is affected by global production. There are many big and powerful players out there that we have much to learn from, and my Nuffield study therefore focussed on identifying who in global pork production has the biggest influence and the techniques that they use, to see if there are any we may be able to employ here in the UK. Not only did this teach me about pork production in the world and allow me to indulge my inner geek, it also allowed me to see how I, and others in smaller lobby organisations, can be better at what we do and influence more effectively with limited resource. In addition, I was able to gain an excellent understanding of the different cultures and drivers within the countries that I visited.

The countries I visited were chosen specifically because of their differing markets. China as an emerging and rapidly changing market, Russia as an expanding one, America as an established market, Canada as a recovering one and Germany and Lithuania within Europe as the home market and therefore perhaps the greatest influence on the UK. Each country presented such differing challenges and opportunities; from one extreme in Europe where beleaguered pig producers are suffocated by often conflicting legislation, powerful pressure groups and unhelpful Governments, to the other extreme in Russia and China where, financially supported by their Governments and unfettered by regulation, pig businesses are expanding at a rate of knots and charging towards self-sufficiency. America and Canada have their own challenges from pressure groups, but as such established and relatively cherished markets they have been less affected by outsiders and much more by infighting, although this too is changing.

Interesting too is that it is not always those you assume have the most influence in a country that actually do in practice. In America for example, it is the processors or packers and not the mighty retailers who rule the roost. In China, Communist rulers may well have overarching power, but as almost everyone in China either works for or has connections with local Government, the people have much more of a say than an outsider would think. In Lithuania, with one of the lowest numbers of pigs per hectare across the EU, the environmental lobby groups have been so successful that they anticipate no new pig units will be able to be built because of odour complaints – when very few people actually live near pig units.

There were many examples of impressive lobbying techniques across the countries that I visited – some which
will be of use to small reputable groups like ours and some, whilst rather effective, we wouldn’t touch with the proverbial barge pole! My report looks at the most common tactics in more detail but in reality the most powerful by far was the use of people, and the more the better. In every country, either farmers or the public had been used to raise an issue, build the pressure behind it and achieve action, as long as they gained enough media coverage to fan the flames of interest. The American Farm Bureau were very good at this, getting 4-5,000 farmer members a year direct access to Government leaders, and ensuring that they were properly briefed beforehand to keep them on message. Forming alliances with similar groups is another way of getting yourself heard. Eurogroup for animals, representing 40 welfare lobby groups mainly across the EU is a good example, as welfare has never been so thoroughly debated across the EU until now.

The benefit of forming long term relationships was often highlighted. Foreign companies looking to set up in Russia will not flourish if they don’t have good connections or money. Those that come in, integrate into the Russian way, learn the language and accept the culture, are much more likely to succeed, as pig genetics company PIC has shown. Being positive and coming with solutions, not problems, is one that the Canadian pork producers used to their benefit. Their approach to the 2008 financial crisis was praised by Government and consumers alike and provided struggling producers with much needed loans.

Many countries highlighted concern over the growing knowledge gap between consumers and farming which pressure groups exploit. There are plenty of positive examples where people have tried to redress the balance and educate the consumer, influencing their decision making process and allowing rational purchasing choices to be made. There were also examples of ineffective lobbying, where great effort was expended for no benefit highlighted particularly by the American farm lobby groups who fought for country of origin labelling which did nothing for their own members but almost destroyed the Canadian pig industry, so there are lessons to be learnt there too.

Conclusions and recommendations
People power is king: The more people that you can get saying the same message the quicker it will become one worth listening to. Smaller lobby groups should cascade their messages though as many people as possible, members, consumers, MP’s and MEP’s alike to amplify and give weight to what they are trying to say. Form alliances with similar organisations where possible and in different countries, identifying common areas for concerted lobbying activity.

Plug the knowledge gap: Lobby groups often use lack of knowledge to their advantage so it is vital that we provide evidence based information that is honest, easy to understand and unbiased in order to allow people to make a balanced and informed decisions. Social media, myth busting websites and video footage can and should be used to our advantage.

Take time to develop relationships with key influencers: This can be hugely effective and stand you in good stead with those you seek to influence. Choose the person or organisation wisely, learn about them, their language and culture. Give sensible advice, prove your worth and gain trust. You are much more likely to succeed if you approach people with solutions and be constructive rather than simply raising issues and expecting others to solve them for you.

Focus people!: It is easy to lose your way and get caught up fighting for something that will bring you no benefit or that you have no hope of winning and for small lobby groups, this can be disastrous. Pick your battles, understand your target audience and evaluate the expected outcome before jumping headlong into a campaign. Be aware of unintended consequences. Plan ahead as far as you can for key challenges that you know you will face over the next few years but remain flexible enough to react to new issues as they arise.

Zoe Davies
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I live on an arable farm in East Yorkshire with my wife Julie and our two young sons James and William. We farm over 800 acres, part owned, part tenanted and part contract farmed, on flat heavy land where we grow wheat, oil seed rape and vining peas for Birds Eye. I started actively farming at the age of 24 following the sudden death of my father. Before returning home I worked as a fertilizer trader for Cargill plc, after studying Agriculture at Newcastle University.

So why a Nuffield Farming Scholarship? Having farmed since 1993, an element of routine had set in, and I felt the need to push my boundaries and challenge what I do. With a commercial background, I wanted a stimulating topic that would challenge me, but would allow me the opportunity to visit and meet both farmers and businessmen alike. I wished to see the underlying principles and concepts that I could hopefully use at home in Yorkshire and that could potentially lead to future opportunities for our business. The subject matter I decided upon would therefore be ‘Institutional Investors and Global Agriculture’. There has been renewed interest from corporate investors in agriculture, particularly in land ownership, since the Global financial crisis of 2008 which brought turmoil to the financial markets and residential/commercial property market, in much of the developed world.

Why farmland for investors? There are many reasons; an increasing world population that is estimated by the UN. to be 9 billion in 2050, a trend of increasing meat consumption in developing countries like China due to higher disposable income, the loss of land due to urbanisation, degradation and climate change and the use of coarse grains for energy production. The combined effect is mounting pressure on the production capability of remaining, or potentially virgin, agricultural land.

During my study I spent time in the UK as well as Southern Russia, Argentina, Uruguay, South Island New Zealand, Australia and Singapore. I have been fortunate enough to attend conferences, talk to land agents, investors, asset managers and visit corporate farms. Liquidity of money in agriculture is a problem to investors but is best achieved when the corporate farms are listed on the stock market in vehicles such as Black Earth Farming. When it comes to corporate farming, they do not come much bigger than Black Earth Farming with 318,000 ha in Southern Russia. Professionally run farms with large fields of quality land at affordable prices. A panacea it is not, with similar problems to UK farming of labour, climate and politics, though magnified. Foreign exchange is of utmost importance in global agriculture, and Black Earth Farming attributed US $5 million of its losses to currency out of their US $41 million 2011 loss.

Though not a mainstream investment, there are a number of agricultural funds who offer direct exposure to agriculture worldwide. These tend to be for high net worth individuals or institutions, who own a proportion of the fund. Having spent time with Jim MacCarthy and his Fondomonte operation in Argentina as well as Calyx Agro who farm not only in Argentina but Uruguay, Paraguay and Brazil – what was obvious was the professionalism of these corporate farms on the ground with the use of direct drilling techniques and GM crops but also the high costs associated with the administration and accounting. The need for a ‘Big 4’ accountant and different corporate vehicles add greatly to overheads in these corporate farms, even though they may have very low direct production costs. Therein lies the paradox. Where the investor has
direct ownership, the traditional landlord/tenant model is the most common format throughout the world. The US pension fund TIAA-CREF with US$2.5 billion invested in land worldwide, was renting out wheat growing land for about 5% return on capital in Australia. This is far in excess of the UK’s rental potential of about 1% for AHA tenancies, and slightly higher figures for Farm Business Tenancies.

Around the world the Middle Eastern Sovereign Wealth Funds and the Chinese are certainly active in the land market as well as the agricultural funds. However land ownership by foreign nationals is definitely a very political issue in most countries.

For investors, land as a rule has offered good returns over the long term, especially in times of high inflation. It also offers investors the opportunity to diversify their investment portfolio from the traditional asset classes of equities, bonds and commercial property.

Investors are currently very interested in agriculture and food production. It is unlikely however to become a mainstream sink for funds as investors are wary of the lack of liquidity as well as the issues of climate and commodity market volatility.

My Nuffield journey has taken me out of my comfort zone and will certainly impact on the way I view and manage my farming business in the future. As a Yorkshire farmer, the main commercial and business lessons I learnt were:

1. The financial returns from the asset of bare land need to be identified and separated from the financial returns from actively farming.
2. The benefit of a non-executive director, assuming the correct skill set, in large-scale corporate agriculture. Likewise, the access to a trusted third party (a farmer/consultant) at UK farm level, at the very least, to carry out a reality check. This could easily be a reciprocal relationship – though absolute honesty is paramount. This shouldn’t be difficult in East Yorkshire!
3. The use of benchmarking to help analyse your business by comparing financial data.
4. Grass can look greener elsewhere, but land ownership rights, political stability and our legal system in the United Kingdom are exceptional.
5. As with most investments, agricultural investments with higher risks often offer the potential for greater rewards or losses.

Mark Falkingham
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I grew up in the suburbs and didn’t step foot on a farm until I was 23 years old. Since then I have been working on a mixed livestock farm with a small market garden about 5 miles south-east of Leeds, in the M1, A1, M62 Triangle. I have kept goats, made cheese, bred sheep and grown fruit and vegetables for our box scheme. The situation the farm finds itself in, caught between the post-industrial Leeds-Bradford conurbation and the traditionally rich farming country of the Vale of York, has fascinated me since I started there eight years ago.

Farmers on the urban fringe face an interesting set of challenges. High land prices limit expansion or entice farmers to sell up and move out. Proximity to large residential areas means vandalism is a problem, and planning decisions, in my experience, are anti-farming. Neighbours don’t enjoy the smelly, noisy reality of farming and the rest of the farming world feels a long way away.

There are, of course, huge advantages. We are within 40 minutes’ drive of 5 million people. When we opened our doors on Open Farm Sunday this year 500 people walked in. We are in a seemingly enviable position, but still the farm struggles. I wanted to know if there was anyone interested in making urban fringe farming work, what lessons we could draw from the rest of the world and how we could work together to make better use of our position.

The urban fringe has always been an area of transition, as fields are swallowed up for new retail centres, new-build housing estates and office parks, not to mention the infrastructure supporting city life, such as sewerage plants and landfill sites. Farming seems to exist in a different world; a rural activity that generally loses out to the more lucrative and urbanite-friendly consumer service industries.

It is essential that agriculture remains strong in the urban fringes. The public’s lack of understanding of agriculture is seen as one of the industry’s greatest challenges; a farmed urban fringe would expose the people in our towns and cities to agriculture and the complexities and vagaries we work with as farmers.

A Farm Belt around urban centres could act as a buffer between town and country, much as the Green Belt was conceived to be. This would maintain the positive characteristics of both town and countryside, with the added benefit that the buffer zone would be producing fresh food for the local markets, less reliant on fossil fuels for refrigerated transport. This is going to be an essential consideration as we adapt to a post-peak oil future.

As urban fringe farms are more visible and accessible to the urban population, I wondered if they might encourage more new entrants into farming. I wanted to see examples of urban fringe farms developed as distribution centres, or other models in which fringe farms formed a link between urban food outlets and the mainly rural producers.

Nuffield

In Brazil I learnt what role the government could play in supporting a thriving family-scale farming sector near cities. With separate Ministries for agri-business and ‘agrarian development’, the responsibilities are clearly defined, removing the inherent conflict between social and environmental benefits versus commercial gain, seen in our government’s approach to agriculture.

I visited a government run wholesale market that enables cheap flexible access to the state-wide market to farmers of all scales. I saw how price controls in groceries, run as private enterprises in partnership with the State, were
aiming to provide small-scale local producers with a fair return for their crops. Federal legislation requires that a minimum of 30% of food supplied through schools, universities and hospitals is sourced from family-scale farms. These policies are aimed at reducing health inequalities and specifically childhood deaths, and have been successful beyond expectations, not least in maintaining diversity in urban fringe farming.

The Sydney basin was a last minute addition to my schedule, and proved to be a fascinating stop. The urban population in Australia is growing faster than anywhere else in the developed world, and with good land being such a scarce resource, farming on the urban fringe has been a hot topic for some time. I met farmers who were working together to access the lucrative urban farmers markets, as well as third generation immigrant families running intensive two-crop hydroponic units supplying the supermarkets.

Urban zoning is gradually pricing many of these farmers out of business, whilst, paradoxically, the land taxation system would seem to encourage agricultural production. I met a farmer promoting the introduction of transferral development rights, which would enable farmers to sell the rights to develop their land, thereby acquiring large sums of cash and ensuring the land is kept in production in the decades to come.

The government’s minimum plot size is another strategy for discouraging urban development on existing agricultural land, but the pressures within the Sydney basin make for a conflicting relationship between the various parties involved.

Thanks to decades of academic research on the subject there are some fascinating statistics on the value of urban fringe production that make very persuasive reading.

China’s agricultural land is under threat of urban development probably more than anywhere else in the world. The government has a minimum area of land that must be under production at all times (the equivalent area of our Green Belt) though there are mechanisms around this. Traditionally the country’s best land is around the cities, which is presumably why they were originally settled, so the rate of urban growth is threatening to dangerously reduce the nation’s food productivity. Crop specialisation on the urban fringe, a range of yield-increasing technologies, government control of production as well as exploiting the tourism potential were some of the strategies we witnessed, and gave much food for thought.

The importance of keeping people on the land, providing work and maintaining living village communities in building agricultural policy was a useful insight, and one we have much to learn from.

Taiwan, my last stop, introduced me to groups of young people turning their backs on the city and returning to their grandparents’ farms. I visited rice and sweet potato farmers who had organised themselves into co-operatives and were doing a great job in marketing their home-grown produce over the competition of US-imports.

I saw a number of small-scale, intensely productive and profitable farms, going against our trend of expansion to survive financially.

**In conclusion**

If we, as a nation, are serious about feeding ourselves in the future, the urban fringe has an important role to play, particularly in producing the highly perishable foods for our towns and cities. However, things need to change. We as urban fringe farmers need to work together to access the urban markets, to respond to changing demands from urban consumers, to use the high-quality land available appropriately and effectively and engage with the political bodies and the media to ensure that our views are heard.

Our policy-makers need to put mechanisms in place to protect land on the urban fringe for food production as well as consider systems that would encourage food production over recreational usage.

The economic, social and environmental benefits of agricultural production must be written in to the new Local development Frameworks in order that they are recognised in future planning decision-making.

**After Nuffield**

Since starting my study, interest in urban fringe food production in the UK has increased, with the release of two relevant reports on the subject.

I have taken the decision to move to Manchester to co-ordinate a project developing commercial market gardens on the urban fringe, supplying a farmer/client owned co-op selling food to the University and a number of restaurants. My Nuffield study has given me the confidence to take this leap, and has been a wonderful foundation for what I hope is a lot more learning to come!

**Kirstin Gledinning**

kirstin.glendinning@googlemail.com
I farm in partnership with my parents on the Longleat Estate in Wiltshire, where we are tenant dairy farmers. Since my return home in 1998, the farm has grown from 300 acres with 200 cows to 600 acres with 400 cows and young stock. As the farm continues to grow in the future, I want to make sure that I am running my business, rather than my business running me.

At the start of my study I posed the question to 20 people in the UK dairy industry. What is a successful large scale dairy farmer? Is it the person who has 200 cows, 500 cows or 1000 cows? Or is it the person who makes sure they have one completely cow free day each week to spend with their family? Is it the person who takes a couple of weeks holiday a year? Is it the person who takes a leading role in the local community or becomes an industry leader? The reality is that there is no right or wrong answer; it is about achieving a balance for yourself and the people around you.

My study started with three weeks in the USA, 10 days looking at the large high input housed dairies in Wisconsin followed by 10 days looking at large grazing based dairies in Missouri. During the winter of 2011-2012 I spent 10 weeks in the southern hemisphere visiting Tasmania, Victoria, and the South Island of New Zealand. This was followed by a month in South America travelling with fellow Nuffield Scholar Paul Lambert from Tasmania. Together we visited Chile, Uruguay and Argentina. During my Nuffield Scholarship I have been away from my business for four months in total. This has been a pleasant surprise to me, and a complete shock to anyone who knows me.

Key findings

The successful large-scale dairy businesses that I visited were profitable at both high and low milk prices. Profit was a decision and not an outcome. Profit always covered personal drawings, tax and interest payments. These businesses did not just have some of their production costs under control; they had all of their costs under control. Typically a top 10% producer did not have a massive cost advantage in any one area; instead that producer was marginally better than the rest on all costs. This often added up to a significant difference. The operational and technical performance of the most successful businesses was always very good. These businesses set goals and targets for the operational and technical performance of the business that they knew were driving the profitability of the business. These businesses were employers of choice with reasonably low levels of unplanned staff turnover. They knew how to attract staff, how to retain staff and how to get the best out of staff. Managers had realised that as cow numbers grow and therefore staff numbers grow, the manager is no longer a cow manager but becomes a people manager.

The successful dairy business managers had a good work life balance. Key to achieving a good work/life balance is a simple production system. The more complex the production system, the greater the chance of the manager being tied to the business. Seasonal block calving makes this easier, particularly for the smaller to medium sized family farms. Successful businesses employed the right amount of staff, with the right attitude. Performance and skills can be influenced, however it is much harder to influence attitude. Staff were given clear responsibilities, they knew what was expected of them and what they were
trying to achieve. Staff followed clear systems, processes and protocols that were repeatable and interchangeable between different people.

The most successful businesses I visited had a well thought out strategic plan, that was implemented and regularly reviewed. All the key stakeholders in the business had to agree on the plan. They had to understand where the business currently was, where the business was going, and how it was going to get there. Strategic business plans worked well when they ran alongside the personal goals of all the key stakeholders in the business, particularly partners. The benefit of a strategic plan is that it creates a united focus. When all the key stakeholders are in perfect alignment, all going in the same direction, then the business will make rapid progress. As soon as one of the key stakeholders is off alignment, it is like throwing out an anchor and the progress the business makes is reduced.

I asked the successful business managers what they thought was their most important dairy business asset. The really modest business managers thought it was their staff. The really smart ones told me it was their partner, but most realised it was themselves. Time and time again I found it was not the cow or the production system that dictated the success of the business; instead it was the person leading the business. However, there needed to be a level of governance and scrutiny over the business leader. To make the business leader accountable for their decision-making and to quite frankly ask some awkward questions. Periodically, there is a need to keep the business manager focused, motivated and on track. Discussion groups, focus groups, benchmarking groups, consultants, accountants and boards of Governance all offered various levels of scrutiny over the business and influenced the direction of the business.

A well thought out succession plan takes away any uncertainty. Putting together a succession plan will take time and may require some outside facilitation. A succession plan does not necessarily have to be equal; it just needs to be fair. Ideally it should be put into place before the next generation joins the business. In some circumstances it may be better to sort out a succession plan early on in people’s lives. A one off payment to family members not involved in the dairy businesses may be far more useful at the age of 25, rather than a much larger payment at the age of 50.

The top businesses managers had a number of characteristics in common. Their time management was one of the key factors for their success. They were always looking and organising well in advance, often two or three months ahead. They made sure they were dealing with important jobs the majority of the time and minimising the amount of time they were dealing with urgent jobs. They were not continually fire fighting. Their farm operations were nearly always done at the optimum time and the time it had taken for them to learn from their mistakes was usually short. They did not wait for their ship to come in; instead they went looking for opportunities. They did not wait to deal with an issue or problem at the edge of the cliff. Instead they went to meet the problem or issue, to give themselves options. Possibly the most important characteristic I saw was exceptional leadership capabilities. I saw some exceptional managers leading some average teams of staff, yet producing excellent results. I also saw some exceptional teams of staff with a poor leader, producing some very average results.

**Conclusions**

As my study evolved it become apparent that the successful management of large-scale dairy businesses was not simply about good cow management. The most successful and profitable dairy businesses all had excellent technical performance from their cows, but excellent technical performance on its own was no guarantee of success or profitability. It is equally important to make sure the business is profitable, the costs are under control, the business manages staff well, the business leader has a good work/life balance, a strategic business plan in place, together with an appropriate level of Governance over the business.

I would like to take this opportunity to thank the Nuffield Farming Scholarships Trust and my sponsor, the Trehane Trust, for giving me this wonderful opportunity.

David Helliar
David.helliar@virgin.net
The Trehane Trust offers annual awards, through participation in the Nuffield Farming Scholarship programme, to individuals who want to study and research a particular aspect of the dairy industry.

The remit is broad. Applicants are invited to study areas from milk production to processing and product development. It covers all related areas such as health and environmental concerns, consumer trends and marketing, and policies affecting the dairy chain.

More than 80 Scholars have benefited from Trehane scholarships. Their studies, which have been of great benefit to the individual and to the industry, have taken them across the world to North and South America, Japan, New Zealand, Australia, Europe and Scandinavia.

Each Trehane Scholar is provided with travel and subsistence costs for eight weeks – undertaken in one block or as smaller blocks.

The closing date for 2013 applications is 14 July, 2013. Successful candidates will be normally be aged between 24 and 45 and living in the UK.

More information on the Trehane awards is available from Simon Bates, Trust Secretary, sbates@dairyuk.org, 0207 467 2648.

Previous reports and application forms can be downloaded from the Nuffield website www.nuffieldscholar.org or by contacting Mike Vacher, Nuffield Farming Scholarships Trust, Tel: 01460 234 012 or by email: director@nuffieldscholar.org
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2012 Annual Report

The MacRobert Trust is proud to work in partnership with the Nuffield Farming Scholarship Trust by providing a dedicated scholarship for Scottish farmers as part of its overall contribution towards agriculture throughout the United Kingdom.

Three scholarships are being offered initially. With two scholarships completed and a third scholar now selected and embarking on her travel and study work, the plan will be to conduct with Nuffield a joint appraisal of the success of this Scottish Farming Scholarship Award.

The aspiration is to make the award an annual facility to augment The Trust’s wider interests both in the let farms on its own estate and in education, as one of The Trust’s wider charitable purposes.
I have been immersed in farming all my life, as a child on the family dairy farm in Aberdeenshire, and as an adult growing and packing potato and root crops on the Moray Coast in the North of Scotland.

Supplying increasingly demanding supermarket customers has led me to consider where opportunities will lie in the future for farmers aspiring to climb the food chain to get closer to the consumer.

Fortunate enough to be accepted for a Nuffield scholarship, this provided me with an invaluable opportunity to temporarily and nervously step back from the business (for the first time!), allowing me to develop both personally and professionally, and hopefully then apply some of what I learn to my business and to our sector of agriculture in general.

The first stage of my journey took all the 2011 Scholars to New Zealand for the Contemporary Scholars Conference (CSC) in March that helped point the way forward.

Intent on seeking out farming businesses where provenance and brands had played a key role in their growth, my objectives were to uncover initiatives whether home grown, regional or national and to establish if these three areas influenced their success or whether purchasing decisions were in fact driven by other factors. I also hoped to discover whether commodities could increase in value through successful branding or if this could be achieved by a form of process or product innovation at farm level.

I travelled to Spain, Holland, Norway, China and USA and found a diverse range of businesses, products and methods supplying both mature and emerging marketplaces. I found creative producers everywhere regardless of scale with evidence of clever use of provenance to connect or resonate with consumers came in many forms and at all levels from the coal face through regional to national.

Refreshingly ‘farmer owned brands’ appeared prominently, particularly in USA. Many focused on regional credentials, on sustainability and the environment. Those with a regional focus were strongly associated local with freshness. Common to all my visits was the non-negotiable approach by producers and consumers to food hygiene. Seeing the long-term damage sustained when brands or sectors become associated with food safety concerns was a sobering experience.

UK farmers often lack the means or the platform to take innovation beyond the farm gate. Some may not even consider this their territory in a retailer dominated marketplace. During my travels I discovered farm businesses engaging with the customer, be it at the local farmers market, through creative brands, packaging formats or by embracing social media. In every case, they made these innovative approaches their territory.

Innovation is the hallmark of the successful small business in our industry and what is often termed ‘continuous improvement’ in other manufacturing sectors must also become the norm in the UK produce sector. Some genuine ‘why didn’t I think of that’ moments combined with a few ‘that’ll never work’ sentiments means I suspect a follow up trip may be necessary!

My own view on the opportunities and constraints for my business has been fundamentally revised following the reboot that is Nuffield!

Steven Jack
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Lincolnshire Agricultural Society
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I am a 35 year old Lincolnshire arable farmer. I derive my main income from advising, marketing and applying a various range of base P&K fertiliser products into the arable sector of the UK. In the course of my work I am bombarded with conflicting arguments around the science of Phosphorous fertilisation. Farmers, agronomists, industry and science have a wide spectrum of views, which I have been subjected to as both a farmer and a FACTS-qualified fertiliser advisor; I felt a need to take stock of the science to date.

My study began with a number of basic questions; however these developed and broadened in scope and complexity throughout my study:

- How exactly does Phosphorus get taken up by the plant?
- What processes in the soil affect uptake?
- How do we as farmers affect Phosphorus Use Efficiency?
- What is the best way to use Phosphorus in UK farming systems?
- What are the long term concerns for Phosphorus Supply in the UK/World?
- How do we better interpret soil Phosphorus tests for Phosphorus use management?

The structure of my main report has been put into two main sections. The first looks at the science behind Phosphorus Use Efficiency (PUE) by plants; and the second looks at the wider supply and recycling aspects of the mineral. In essence, this has given me the opportunity to examine the detailed science of PUE alongside the broad aspects of the commodity’s production, and the political and environmental influences on its supply now and in the future.

Phosphorus is an essential element in every living cell of all life forms on the planet. The nutrient is unsubstitutable and irreplaceable. Unlike many other essential nutrients, the global Phosphorus resource is limited, using Phosphorus for crop fertilisation depletes this reserve; although the time scale for this depletion is of some wider debate, high grade, easily assessable sources are rapidly being used. Over the next decades we will be looking at increased costs for the nutrient caused by increased mining and processing costs regardless of whether total reserve figures may increase.

The uses of mined Phosphorus fertilisers have over the past century helped facilitate the ‘green revolution’. This has fed a world population which has expanded from approximately 1.6 billion in 1900 to 7 Billion in 2012, an increase of over 400%. Meanwhile the farmed area across the world has only doubled. The population of the world continues to increase and so will the world’s requirement for food. This is exacerbated by our use of crops for non-food uses on a scale that the 20th Century did not experience.

Agriculture’s dependence on Phosphorus has resulted across many developed world farming systems in an over-application of the nutrient. This trend is being reversed in certain cases, and the UK has, for over 10 years, been failing to replace the Phosphorus removed by crops (British Survey of Fertiliser use 2010). Over-application is still happening, especially in those areas where animal wastes containing high levels of Phosphorus have been applied repeatedly to land, which during cropping does not utilise that nutrient in the same proportion. This creates the circumstances where Phosphorus levels can build and become a pollutant in water systems with the resultant costs associated with clean up, and subsequent legislation and controls.
This environmental impact must not be underestimated. The structures of entire farming systems may need to change. For example, transfer of livestock production systems to arable cropping regions where the feed for these livestock businesses is produced.

In a UK context, I have aimed to highlight my conclusions on aspects of PUE that are useful to a UK farmer.

- Farming practitioners need to recognise the importance of the careful management of all Phosphorus ‘Pools’, understanding how Phosphorus exists in the soil will lead to farming practices which complement PUE rather than hinder it.
- In understanding the sources of Phosphorus already in the soil, the soil environment is just as important as the form of Phosphorus applied. This will therefore encourage the use of different sources of Phosphorus in agriculture.
- A healthy, well-structured soil with a wide range of Phosphorus sources is more able to supply plants with the Phosphorus that they require in normal arable cropping systems.
- Farmers need to structure their management of Phosphorus over a longer time scale. Not to think about Phosphorus in a yearly context as with Nitrogen, but over a ‘rotational’ period. Also farmers must recognise that this rotational period may be up to and over 10 years depending on particular cropping systems.
- Practitioners must recognise the complexity of Phosphorus in the soil environment and appreciate the wide range of factors which have an effect upon a plant’s ability to acquire Phosphate.
- Sustainable Phosphorus use should target a Phosphorus balance where Phosphorus inputs are equal to Phosphorus outputs, while seeking to minimise Phosphorus inputs.
- There is a need for wider recognition across all stakeholders (public, industry, governments) of the value of wastes as a viable and strategically important supply of Phosphorus and other nutrients.
- RB 209 needs to develop, to provide the management tools for farmers to increase PUE, and to guard against unnecessary/unscientific regulation, while remaining simple and effective to use, as it is now.
- Where UK farming systems have today ‘good’ indices for Phosphorus, i.e. between 1 and 3, the amount of Phosphate supplied should aim to replace that removed by production over the cropping cycle to maintain or increase these indices.
- Different soils can sorb Phosphorus in differing amounts. This influences the ability of plants to access Phosphorus in the soil. A better understanding of systems used by plants to access their Phosphorus requirement is needed. This understanding should lead to a better use of all the residual sources of soil Phosphorus, such that a sustainable point of PUE can be attained across all cropping systems.
- To develop feeds that release Phosphorus to animals more efficiently; or add phytases to feed to increase Phosphorus absorption by animals to achieve a reduction of Phosphorus in manure and reduce the need for Phosphorus supplements.

UK farming needs to develop systems that assist in unlocking the residual Phosphorus already bound to soils. This will probably come largely from plant breeding of cultivars that have better scavenging systems for Phosphorus without sacrificing yield potential, but it may also come from better understanding the relationships between micro-biota and plants. These systems, however, are not the long term solution and the best we can hope for in sustainable Phosphorus fertilisation at present is the perfect Phosphorus balance where our inputs match our outputs. It is, I believe, achievable across many UK cropping systems, and could buy valuable time to develop the longer term solutions in Phosphorus security.

Regardless of upwardly revised figures for total Phosphorus reserves across the world (USGA. 2011) the long term importance of Phosphorus as a strategic commodity needs to be understood at all levels from farm through consumers to government.

The longer term solutions to Phosphorus security lie in managing the complete Phosphorus life cycle. This needs to be done firstly by recognising the scales at which Phosphorus is transported around the globe in produce and waste, and then identifying the points at which efficient recovery and recycling of Phosphorus can be achieved.

UK farming must address the impact of Phosphorus as an environmental pollutant, and to extend the management principles that have worked successfully in other areas, but duly adapted to Phosphorus, without detriment to yield potential. This, I believe, is achievable and the factors are not mutually exclusive.

The geopolitical aspects of Phosphorus use, and the threat of an extraordinary event - extreme weather for example - may restrict Phosphorus supplies at an unexpected time. Pressure from legislation on water quality will be the driving force for Phosphorus use and/or recovery over the next 10 to 20 years.

I believe that, as the costs of producing Phosphorus fertilisers increase over the same period, the viability of Phosphorus recycling systems at certain scales will increase. This will still not be enough to maintain the longer term requirement for Phosphorus by UK farming, but it should begin the trend by agriculture to source the required nutrients from other, more sustainable approaches.

Nik Johnson
As a partner in the family farming business, I run a mixed farm of 70 hectares with my parents, on the Ards Peninsula in Northern Ireland. My wife Jillian and I have two children, Alexander 13 and Carys 11, although it’s too early to tell if they will also wish to farm.

Since my return to the farm from agricultural college, I have been encouraged to participate in the financial planning and management of our business. This quickly developed to allow me to assume responsibility for the strategic direction. I realise how fortunate I have been and am well aware this is not the case for many new farming entrants. Most struggle to prise the cheque book, never mind assets such as land, from the grasp of the “grey generation”.

All too often it’s easier to avoid tackling the difficult issues, choosing to “plough that field instead” because it appears more urgent. As a result, the ostrich approach is usually the preferred option, meaning succession planning is anything but and only occurs on the death of a senior family member. In other cases, poor advice or complete lack of expert input can create huge problems and financial burdens for the next generation of agricultural family businesses.

Farming in an area where owner occupied family farms dominate, I have seen many examples of poor succession planning and my study sought to find solutions to assist with this complex problem. Intrinsically linked to this, is the ability of the new generation to have sufficient management training or experience to prepare them for the task.

My study took me to New Zealand, Australia and China as well as considering the situation in Finland, Ireland and the UK.

I identified that “agreement of the desires, aspirations and goals of the family are a prerequisite to establishing a course of action”. Currently many parents assume a particular path will be followed without necessarily consulting the “chosen one”, or anyone else for that matter. Some parents are hugely disappointed to find their child actually has no desire to follow their footsteps, preferring instead to choose a completely different career. Alternatively, a son or daughter who has worked on the farm for many years may expect to inherit the lot, only to find they get nothing or Mum and Dad thought they should “buy” their siblings out. Through open and frank discussion involving all family members, and in-laws if necessary, the subject will lose its taboo status and the expectation of all parties can be successfully managed. As an industry we need to remove the secrecy around succession planning and develop a culture of openness and unambiguous communication between all parties.

Few families possess the necessary skills but they should not feel uncomfortable about engaging suitably trained facilitators to help them work through the process. I observed such facilitators helping families and also met people who had completed their plan. Perhaps surprisingly, the legal profession was frequently cited as a barrier to successful generational change, the belief being that they were more interested in serving their own needs rather than those of their clients.

It became apparent during my study that if there was a history of successful succession planning within a family, this was likely to continue. Equally, if the process had been poorly managed then this was also likely to be repeated. The challenge is to try and break this cycle.

All parties involved need to be realistic about their hopes and expectations. The painful reality may be that the
business is simply not large enough to permit the parents to retire with dignity and allow an offspring to take over the farm. Though hard to accept, one logical outcome may be the need to sell the farm.

Another barrier to involving the next generation in the business and particularly transferring assets to them is the thorny issue of marital breakdown. Parents are fearful of seeing a significant chunk of the farming assets lost by way of a financial settlement to the exiting son/daughter in law. In both Australia and New Zealand mechanisms have developed to mitigate against such a risk. Legal structures seek to separate assets from risk, protecting the core assets of the family farm.

One striking conclusion from my study was that in the most successfully managed transitions from one generation to the next, the primary aim of the parents was to ensure good personal relationships between all family members. It wasn’t about only securing the future of the business, which was often secondary. In my experience, the primary driver behind the process of succession among UK farmers, is to pay as little tax as possible when assets move down the generations. I therefore concluded that while important, tax avoidance should not be the main factor in determining the process.

The second aspect of my study considered the need to have sufficient, appropriate management training for the next generation. The businesses I visited had followed very different paths to ensure successors had the necessary strategic planning ability and management skills to drive the organisation forward. The training gained was hugely variable and reflected the circumstances of the individuals concerned. Some people had a number of years experience working outside the farm, in the financial sector for example, before returning to the family business. Others had completed management training on a part time basis alongside running the farm. Increasingly in New Zealand an agricultural management degree is the norm for new farming entrants. A smaller number will then proceed to higher level training through the Kellogg Programme for example.

It is of course possible to buy in the necessary skills to plug the gaps and there are a number of ways to achieve this. The use of consultants is more suited to smaller family farm businesses to provide practical management advice as well as financial control. This is relatively common in the UK, however not widespread in Northern Ireland. I observed how the establishment of a Board of Directors provided the framework to develop a business, particularly where non-executive appointees added to the skill set. Additional structures can also be put in place to better motivate staff and more importantly develop a culture of ownership, which can assist the decision-making ability of the Board.

I have concluded there is a great opportunity in the UK to develop a network of adequately trained specialists to facilitate farming families through the process of generational change. This will help underpin the agricultural industry through management of risk, maintaining efficiency as we address the challenges of the future.

My Nuffield study had provided me with the opportunity to meet many inspirational and innovative people. This has re-invigorated my enthusiasm and provided me with a number of ways to further develop my business. On the back of my existing mentoring and training experience, I can see huge potential to get involved in the arena of assisting farming families secure their future, through successfully managing generational change.

John Martin
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The Thomas Henry Foundation was created under the terms of the will dated 28th May 1847 of Thomas Henry, Downpatrick, Northern Ireland. The principal objective of the foundation is the advancement and promotion of Agricultural Science through the provision of Bursaries and Scholarships to suitable candidates from Northern Ireland.

The Foundation also provides financial assistance which enables representatives from Northern Ireland to attend conferences of the Royal Agricultural Society of the British Commonwealth held in different parts of the world. The Foundation also awards an annual bursary to support a student at Greenmount Agricultural College in County Antrim.

If you live in Northern Ireland and are interested in applying for a Nuffield Farming Scholarship funded by the Thomas Henry Foundation application forms can be obtained from the address below.

Application forms can be obtained at www.nuffieldscholar.org

More information from Colonel Mike Vacher OBE
Southill Farmhouse, Staple Fitzpaine, Taunton, Somerset TA3 5SH
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The voice of British farming
NFU, Agriculture House, Stoneleigh Park, Warwickshire, CV8 2TZ
I am a fourth generation farmer from North Hampshire, married with two children. I have recently become Managing Director of our family business, Kingsclere Estates Ltd, farming 1000 ha of in house arable land plus commercial and residential property rentals and events including a wedding venue.

I took on the Nuffield scholarship because I wanted to find a direction for our business. I began with the opinion that we would probably have to sell our business at the end of my tenure as there are so many family members involved. I wanted to look at how the land could be managed to increase its value so that when we did sell it would be worth a fortune. As the study progressed I have questioned this opinion and realised that it is possible to keep the business going down the generations, but we need a clear business plan that everyone buys into.

I travelled to Brazil where there is a lot of investor activity, the US where the land market is fairly mature and East Africa where I thought the market was going to be less established. My questions revolved around what could be done to make land, and the businesses land supports more valuable than their neighbours and focused on both the internal management and external macro features. I examined a whole range of farming situations to find some commonalities. Sustainability seemed to be a recurring theme, and one that I have focused my report on. In particular, I have considered Economic Sustainability because of the three streams of sustainable development (social, environmental and economic). This seems to be the least discussed, yet ultimately the most needed as social and environmental considerations only seem to come into affect once a sustainable profit has been achieved.

In Brazil many companies had a formal mission statement and had established clear principles for their business. This was in line with the direction I wanted to take at home. A good starting point was to work out what is important to me and our business, then put these principals at the centre of the decision making process. Becoming a more sustainable business is the direction in which we want to take our business. I see sustainability as recognising the cycles we are involved in and working to positively influence them. My travels helped me reflect and opened my eyes to different practices, enabling me to identify some key area’s that would help guide us down the sustainable path. These are:

- Local trade
- Quality leads the way to profit
- Pride of place
- Looking after our people
- Making the most of what we have before considering expansion of our land mass.

The report goes on to describe the experiences that led me to conclude that these areas of focus were correct for our business. I found I need to:

- Get involved with the supply chain with a view to trading more locally
- Use Key Performance indicators to measure quality
- Encourage transparency and openness
- Pursue privately funded conservation, and understand more about our area in order to regain some pride about where we operate our business;
- Talk to our people and find out what they want and work out how to deliver it,
• Measure and increase calorific margin, understand my soils and deal with the limiting factors, Use environmentally responsible inputs in a bid to make the most of what we already have.

I realised that while these were all fine aspirations it would be hard to perform a transition without having a reliable source of surplus money and energy and wanting to understand more about this I found the answers lie in an understanding of economics. Webster defines economics as “The Science of Producing And Distributing Wealth.” Our economic problems stem from an unbalanced distribution of wealth within the economy and that all new wealth comes from the soil. A concept brought home to me after reading around the subject of raw material economics. This described the requirements of balancing the value of raw materials against the value of finished goods, producing economic stability. Vickers, once a Governor of the Bank of England wrote in his Economic Tribulation “The world has never possessed a true and honest measure of Value” ... and that this was “The principal irritant and restriction standing in the way of the world’s economic progress, the happiness of the peoples and the achievement of a lasting peace.” My conclusion was that the only way to create a sustainable economic system, one that supports the population of this country and its environmental wellbeing, is through price stabilisation and realignment of values within our economy. My scholarship also revealed other insights, namely:

• All money is a claim on human labour
• Modern industrialised agriculture is purely about converting fossil fuel into food
• Sustainability is a very human focused activity; it is about understanding and respecting the earth’s various cycles, and their interdependence between one another, then working so that we can continue to access the resources to create the surplus energy we need in which to thrive within this system.
• We exist in an economic system that needs to sustainably produce perpetual growth in a world where the resources required for this growth have been consumed at a rate faster than their natural cycles allow for.

Finally, the six conclusions from my study are:

1. Principal lead organisations will continue to thrive and provide the answer sustainable business.
2. There are many examples in global agriculture that give us the answers to sustainable production.
3. A shift in our paradigm from the industrial revolution to the 21st Century is underway in some quarters.
4. Without economic sustainability social and environmental sustainability is not possible.
5. A realignment of values is needed bringing raw materials back in line with value of finished goods and services to provide economic sustainability.
6. Free trade might be the an option for providing sustainable economic conditions but only if there are standard social, economic and environmental regulations across the markets, otherwise free trade will exploit markets where these conditions do not exist.

Free trade might be the an option for providing sustainable economic conditions but only if there are standard social, economic and environmental regulations across the markets, otherwise free trade will exploit markets where these conditions do not exist.

Tim May
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On my Nuffield Farming Scholarship I wanted to look at how businesses develop and grow from small (local) to large (national) status via a strong brand identity. I wanted to understand how these businesses firstly created their strong brand identity and how they went on to market themselves.

I wanted to look at business of all sizes, across various sectors and not just within agriculture. I believe that the routes taken to get a product to market successfully can be adopted by all sectors. With this in mind I visited a wide range of businesses, from a small sausage maker, selling product to farmers’ markets, to an international airline turning over $4.6 billion.

I wanted to determine if there was a formula, and if not could one be created, which would help producers from all sectors get the most out of their market place. I wanted to understand if size determined how you would approach marketing initiatives.

I travelled to Australia, New Zealand, Canada and America thinking that we could learn successful marketing techniques from these countries. Not only do they have brands of all sizes dominating supermarket shelves, but their consumers have a similar shopping value and relationship to food as do the consumers in the UK. These consumers are becoming more educated and knowledgeable on food production and at the very least want to know where their food is from and how it is produced.

Companies who do not acknowledge their customers in this digital age do so at their peril.

I believe this gives our industry huge opportunity to supply niche markets and be different to other large scale producers who find it difficult to cater for niche markets and offer that instant flexibility.

Whilst travelling it soon became apparent that the marketing initiatives used by businesses were the same, no matter how big a company they were. But it was the size of their budget that dictated how they would get their message across.

All companies producing any product need to evaluate the 4 Ps of marketing (Product, Place, Price and Promotion) to determine if they have a product which people are willing to buy. This process might lead them to producing a straight, faceless commodity, but it might also lead them to trying to market under their own initiative, brand or name.

If this is the case then the 4 Ps play an even more important role. Extensive consumer research needs to determine your primary target audience, their demographic and spending power, and how best to get your product to them.

You must scrutinise the cost of logistics, getting sales, and the cost of getting paid. These factors amongst others will play a large part in the success of your business. You must evaluate how best to promote your product and the associated costs.

Finally, a strong loyalty needs to be created to your product or brand. This will make it as price inelastic as possible, thus ensuring longevity for your business.

I hope that my report helps to explain these issues and gives some great examples of people operating, profitably and sustainably in their marketplace.

Alec Mercer
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THE WORSHIPFUL COMPANY OF FARMERS

ADVANCED COURSE IN AGRICULTURAL BUSINESS MANAGEMENT
A three week course at the Royal Agricultural College, Cirencester
Course Director: Professor John Alliston

Held in the late winter each year, this fully residential course seeks to develop understanding of the business environment and to improve the capacity of people to operate effectively. Interacting with influential business leaders, conducting case studies and learning from the experience of others in the group, delegates will cover a wide range of themes including the management of risk, change and commerce. It will look at personal development, time management and the role of the media.

THE WORSHIPFUL COMPANY OF FARMERS CHALLENGE OF RURAL LEADERSHIP COURSE
A two week course provided by Duchy College at Dartington Hall, Totnes, Cornwall
Course Director: Dr Richard Soffe

This two week residential course is run each winter for the Company by the Rural Business School of Duchy College in Cornwall. The background to the course is the range of challenges - political, financial and environmental - facing rural industries. The objective of the course is to allow delegates to develop an understanding and awareness of strategic issues likely to affect their business, become a better motivator and communicator and gain a greater insight into rural issues.

APPLICATIONS

Applications for the 62nd Advanced Course in Agricultural Business Management and the 17th Challenge of Rural Leadership, both to be held in January 2013.

Interviews will be held at The Farmers and Fletchers Hall in London at least 3 months prior to the course.

Details can be found on www.farmerslivery.org.uk/farmers/ourcourses
I farm a 400 acre upland sheep farm in partnership with my parents in the heart of Carmarthenshire, West Wales. From the top of our farm we are able to see both the fertile Towy valley renowned for its dairy farming and the start of the Brecon Beacons National Park where sheep predominate. I have always been committed to agriculture and began my journey with a degree and then PhD at Aberystwyth University. Following a five year period with a Sheep Breeding company I returned to the family farm where I now also run my own sheep consultancy business.

Although I didn’t know it at the time my voyage towards a Nuffield Scholarship began in 2008 with the reading of the Welsh Assembly Government’s consultation document on the new agri-environmental scheme ‘Glastir’. This scheme is largely unwelcomed by the Welsh agricultural sector with the industry concerned about the implementation of the scheme, its effect on the Welsh countryside and inherent relationship with agriculture. Of concern to myself however was the language surrounding greenhouse gas production by agriculture and requirements on the sector to reduce the carbon footprint of its farming practices. At the same time there were many headlines in the press about the damaging effect of livestock on the environment and how cutting livestock numbers was required to prevent ‘global warming’.

I have always believed that sustainable farming can deliver both financial and environmental benefits and three years later a Nuffield Scholarship was the ideal opportunity to see how other countries were addressing these challenges and how the UK sheep sector could be shaped by future challenges.

My travels took me to three countries that I felt would be facing similar challenges within their farming sectors: Ireland, New Zealand and Australia. That these countries had not faced food shortages for the last 50+ years and had modern consumer led economies I am sure contributes to the attitude of many, that farming should face increasing pressure to reduce its emissions.

<table>
<thead>
<tr>
<th>Country</th>
<th>Contribution by agriculture to national greenhouse gas emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>9%</td>
</tr>
<tr>
<td>Australia</td>
<td>17%</td>
</tr>
<tr>
<td>Ireland</td>
<td>29%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>48%</td>
</tr>
</tbody>
</table>

Personally I feel that whilst, as an industry, we should do what we can to improve our ‘sustainability’ there is a moral argument that food production should focus upon ‘making more from less’ rather than cutting emissions regardless of its effect on food production. This focus upon efficiency of production is a vital part of the debate.

Whilst travelling in Ireland, New Zealand and Australia I was interested in visiting different organisations representing both the sheep and dairy sectors as well as looking at the most up-to-date research being carried out. This led me to Farming Unions, research organisations, conferences, breeding companies and of course I managed to fit in a few visits to farms to see how some of the technology to improve efficiency of production is being used in practice.

As well as looking at the role of increasing production efficiency on reducing emissions there is also a large amount of work being carried out looking at reducing absolute emission levels. This is the focus of international collaboration and areas of work include vaccines to reduce...
methane production and the introduction of novel food additives such as garlic and tannins. The addition of nitrogen inhibitors to fertiliser and even the winter housing of dairy cattle in New Zealand are being looked at to reduce the production of Nitrous Oxide.

“Our role is to find ways for New Zealand to meet its international greenhouse gas emission obligations without reducing agricultural output” NZAGRC, New Zealand

In Australia, a large amount of focus is on improving soil carbon levels and addressing issues surrounding climate variability such as drought. There is also a lot of work being carried out as part of the ‘Carbon Farming Initiative’. This allows farmers to earn carbon credits by storing carbon or reducing greenhouse gas emissions on the land. The credits can then be sold to offset emissions from other sectors. At the moment there are a limited number of options available and in practise uptake is likely to be limited particularly when one of the most practical options of tree planting is associated with a liability should any trees planted as part of the scheme be destroyed, for example, through natural wildfires. I was however interested to hear that some parts of Australia have large populations of feral camels and one of the options as part of the Carbon Farming Initiative was the culling of these camels.

“Tackling greenhouse gas (GHG) emissions is considered to be one of the most serious national and international challenges of our time” CSIRO, Australia

In all countries visited technological advances were seen as an important part of the solution and figures were often quoted that demonstrated the reductions in emissions that had already been achieved through advances in animal performance and farm management practices. Between 1990 and 2006 Irish milk production has seen a 12.4% reduction in the amount of methane produced per kg of milk whilst over a similar period New Zealand has seen a 64% increase in the kg of lamb sold per ewe. Evidence for the role of such efficiencies is growing and increasing international concerns over food security means that the agricultural industry is ideally placed to offer both environmentally and financially sustainable solutions providing we can capitalise on the science that is increasingly available to the farming sector and to suitably engage with the consumers to whom we supply our products.

“Achieving the apparently contradictory and intertwined objectives of combating climate change and achieving food security is accepted to be one of the most important policy challenges for the world at the start of the 21st century” Teagasc, Ireland

Conclusions

- Governments, NGOs and lobby organisations are sufficiently invested that they are unlikely to reduce pressure on agriculture to reduce greenhouse gas emissions
- Economic difficulties and the need to increase export revenue from agricultural products may however lessen the pressure in the short term
- Increasing efficiency of food production and ‘making more from less’ is an avenue that the sector can promote and is a concept that we can use to engage consumers
- We need to avoid ‘carbon leakage’ which replaces sustainable agricultural production with importation of less carbon efficient food
- An international collaborative approach is vital to maximise the development of knowledge and expertise in this area of research
- Technological advances will provide solutions for reducing emission intensity in the long term and all sectors of agriculture should embrace scientific developments wherever possible.

Catherine Nakielny
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THE ROYAL WELSH AGRICULTURAL SOCIETY

proudly supports

the Nuffield Farming Scholarship Trust

The RWAS was established in 1904 and one of its primary objectives is to promote sustainable agriculture, horticulture, forestry, conservation and the environment in Wales. In support of its charitable objectives, it funds, annually, several student awards, bursaries and scholarships including the Nuffield Farming Award for Wales.

Currently the Society has 17,000 members and stages the Royal Welsh Spring Festival in May, the Royal Welsh Show in July and the Royal Welsh Winter Fair in November/December.

For further details please contact:

Royal Welsh Agricultural Society, Llanelwedd, Builth Wells, Powys LD2 3SY
Tel: 01982 553683  Fax: 01982 553563  e-mail: info@rwas.co.uk

www.rwas.co.uk
The BEMB Research and Education Trust was formed in 1971 from the residual funds of the former British Egg Marketing Board. Its remit was the “improvement and advancement of that branch of agriculture which is concerned with the production of hen or duck eggs in the United Kingdom”

The Trustees have furthered those objectives by sponsoring PhD Students, supporting other appropriate scientific research work and, in particular, funding a Nuffield Scholar each year since 1974 to study a subject related to egg production or marketing.

These same Scholars have formed themselves into the Nuffield Poultry Group and it is estimated that 80% of the egg production industry of the UK is represented within its ranks. The Group itself meets at least three times a year and organises its own study tours in different parts of the world for its Scholar members.

The BEMB Trustees consider their financing of Nuffield Farming Scholarships constitutes an excellent use of the original Egg Marketing Board residual funds.

Secretary: Alan M Beckett MBE NSch

www.bembtrust.org.uk    email:beckett@bembtrust.org.uk
Firstly it has been a great privilege to be awarded a Nuffield Scholarship. I have been involved with agriculture all my life here in the UK. Having attended the University of Newcastle upon Tyne I returned home to Lancashire and farm in partnership with my brother. We have taken the farm from a mixed livestock and cropping unit and evolved the business in to an organic dairy herd, whilst also diversifying into retail, tourism and added value. The farm business also has a strong ethos on education and educating the general public about generic agriculture, its methods and practices and works around and with nature. This work has brought me into contact with numerous agencies and working groups that in parallel, influence and support UK farming such as regional development agencies, Dairy Co, DEFRA task forces and the NFU (National Farmers Union).

The work with the NFU both locally and nationally for the dairy sector brought me into contact with what the European Commission is considering for the EU dairy sector going forward. The EU, as a general rule, would like to see the agricultural sector more market focused and less reliant on intervention. With decoupled direct payments to active farmers, the proposed ending of milk quotas in 2015 announced in the EU MTR (mid term review,) and the introduction of a policy for a ‘soft landing’ for the dairy sector whereby quotas in member states have gradually increased year on year to mitigate the effect once the quota has been removed; coupled with a growing linkage between EU and world dairy product prices suggests the EU dairy sector will see further change.

Price volatility in the rest of world price for butter and SMP (skimmed milk powder) has been 3.47 & 2.24 times greater respectively than that for the EU products over the past 20 years, and with the EU Commission influencing a move to a more globally influenced dairy market it seems logical to assume that the EU dairy sector will become exposed to this volatility itself. Extreme volatility in a sector such as dairy can cause several problems:

- Low prices could cause financial problems and ultimately threaten solvency
- Extremely high prices result in product substitution which can be difficult/impossible to reverse
- Producers/buyers/the supply chain prefer stability for planning and building sector relationships
- Extreme volatility can inhibit innovation and R&D

How can a relatively small dairy farmer such as myself who has focused the home business on profitability mitigate the effect of this volatility and can the UK dairy industry do anything to as a whole to manage price risk in the future?

To further compound the problems of volatility it rapidly became evident from my travels that market signals to the dairy sector have been to encourage expand and increase production thus further distorting supply/demand balance. The way expansion has been driven on farm has been done by both physical growth in dairy numbers, with land and farms that had not seen dairy cows for several generations coming back into dairy production, but also by technological efficiencies being sought and achieved, whether it be the grazing units in Ireland that are using computer software to maximize the use of grass, ultra high welfare dairy units in Holland that seek to reduce labour via robots and systems management or dairy farms in the USA that are looking to lower feed costs but maintain outputs by again looking at grass utilization.

The European Commission is well aware volatility will
become more of an issue in the dairy sector, but are unwilling to introduce 'heavy policies'. Farming unions across Europe are coming to terms with the fact that lobbying the Commission and respective Governments is not a long-term solution for managing price volatility. The American Dairy sector has been exposed to this volatility for nearly two decades and out of this has developed a risk management strategy that has evolved to help producers manage risk using the futures markets.

Conclusions of using dairy futures successfully are as follows:

- Volatility is key to uptake - every year volatility affects producers - uptake increases.
- Use of contracts, legislation and minimum price guarantees have only partial effect and cannot control the overall market, leaving both producers and dairies alike exposed.
- The use of futures has to be Market led - end buyers (ingredients manufacturers) have to want the market and suffer the effects of volatility themselves to encourage and prompt involvement.
- Hedge fund use for the dairy sector has to be viewed as a way of price insurance rather than 'get rich quick' tool - hence risk management.
- Knowledge of a producer’s own production system and cost structure ‘on farm’ is critical before considering the use of hedge funds - such information is needed to establish price exposure risk/level. A bigger risk is not having a sustainable dairy in the first instance, risk management tools are not a ‘bail out’ method for producers’ businesses.
- The size, structures and complexities of contracts were off-putting and dairies had to be involved to pool producers wanting to hedge so that they were accessible. Many producers use a brokerage service/

price risk manager, such as DairyVisor.

- US Dairy trading markets are only generally interested in reliable macro market information; to which strategy is based - this is paid for, and from market intelligence specialising in the dairy sector, such as Blimlings and Associates. Traders are happy to trade - they just want to see a margin!

- The European dairy sector is sceptical as to use of hedge funds for the dairy sector due to lack of demand and knowledge. Markets, traders and banks that deal with other sectors are also poorly informed about the use of hedge funds for dairy - eg. what it can offer and knowledge of product (how is it traded when it’s liquid?, SMP etc and use in ingredients). Education of traders, producers, processors and banks is a cornerstone to the development of a credible European and UK dairy futures market as it was and is in the US.

- Bank information and involvement is important and needed for supporting farmers.

Most dairy farms already use hedge funds by default if buying in feeds/inputs. Over time dairies using risk management tools for milk sales have started to link to inputs; X input and Y output equals desired margin - this takes time, five years is common for a producer to gain sufficient confidence and understanding, but those that have used this strategy successfully over that time have built sustainable and replicable business models.

Ian Pye
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I've been working in the forestry and timber industries for twelve years with an involvement in all areas from small under-managed farm woodland to investment analyses for saw-milling and working with architects to source locally grown timber. Markets for wood as fuel and as construction timber are growing whilst forestry is seen as an increasingly important landscape, leisure and income generating resource; yet timber prices fluctuate between low and very low. However, the higher value engineered wood products markets are dominated by imports from large European plants whilst English sawmills continue to produce lower value products such as fencing, pallets and carcassing timber. I wanted to find out if small-scale producers of added-value products existed and if they did, how did they invest, how did they market themselves and if increased profit margins trickled down to better prices for raw timber?

As broadleaves make up the majority of English woodland I was particularly interested in hardwood timber products and as we grow Douglas fir very well I was interested in this sought after softwood species. At the demand end of the supply chain my particular interest was in the production of engineered timber where wood is sawn, the defects cut out and then rejoined through various glueing technologies to produce a stable timber product. These engineered products such as finger-jointed timber and glue-laminated timber are in increasing demand due to their stability and ease of working.

I selected the western seaboard of the U.S. and New Zealand as the main areas for investigation. Each has a similar climate with a mix of conifer and broadleaf forestry, issues between timber production and conservation forestry and a society similar in affluence and demographic to England where markets can be compared. I also spent time in India at a UN. F.A.O. sponsored conference on timber production and marketing that was followed by visits to some aged but highly productive and profitable processing plants. My travels took me through the complete supply chain in the U.S. and New Zealand. Forestry is perceived as large areas of uninterrupted old-growth fir in the U.S. and plantation forestry in New Zealand. However, both countries are also producing timber from small farm woodland that is very similar to our own. Much research is being undertaken to bring species like Alder, Poplar and Southern Beech, once considered unprofitable timbers, back into the supply chain. Their properties are being researched and prototypes of flooring and structural timber tested.

Outside the forest gate I was not surprised to find few small sawmills left, after all we have lost most of our small mills in England in the face of competition from larger automated mills. However, I was surprised to find many of the mills I visited had diversified to higher-value secondary production then moved out of sawmilling altogether. Why saw roundwood to sawn timber for pennies so someone else can take it and add further value when you can buy timber from the large automated mills and create a value added product instead? I visited small ex-mills who now produced glue-laminated timber, structural dimension timber lathing and end products such as flooring, wine barrels and bikes using home-made, low technology and second-hand equipment.

To be able to compete with global manufacturers and to avoid a banking system reluctant to lend, investment had to minimised in all the businesses I visited. Specialist consultancies exist in the U.S. to advise on small scale
timber processing whilst most capital investment is undertaken through self-build of low technology equipment. I have always believed forest owners would make the best investors in timber processing and found evidence in both the U.S. and New Zealand where this occurred so that long-term returns could be increased from the current growing timber.

I was especially interested in marketing as, in England, we have a problem selling the concept of local timber, let alone the products. In Oregon, a marketing co-operative I visited had failed to understand why and found that most timber products are sold through brokers who specialising in making the marketing bridge between mill and end user. There seem to be valuable lessons to be learnt here in that the forest owner sawmiller and the architect speak different languages and although brokers are seen as taking a larger slice of the profit than is fair, they are an invaluable part of the supply chain.

There was no timber nirvana on my travels. Problems exist in all the countries I visited, especially in selling small volumes in markets for highly engineered timber products. However, the key constraint we face in England is producing the engineered products the markets require from local timber resources. This is being addressed through low-investment technology, innovation and trust in those brokering timber through the supply chain.

For myself I have brought home not only a great deal of technical knowledge but a large new network of contacts working on similar problems not just in forestry and timber but also in the agricultural sector. Meeting, working with and debating with other Scholars from an agricultural background has revealed the many similarities that exist between our sectors and has been hugely inspirational.

Finally, I have returned from my travels and have been able to start work on a forest estate putting into practice some of the technology and practices I saw whilst travelling.

Jez Ralph
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I was brought up on a family dairy farm in North Yorkshire, before studying for a degree in Animal Science at Edinburgh University. Upon leaving Edinburgh, I started a career in farm management.

Over the last twenty years I have looked at issues such as mastitis, infertility and lameness in the dairy industry, all with a list of drugs, vaccines and chemicals used to cure the symptoms – and have come to the conclusion that they are all related to the overall health of the cow.

In some incidents mineral supplementation of the animal was enough, but in others this did not achieve the same results, so I started my quest for the answer.

Deciding that the answer probably lay in the worn-out soils with which I was working, I applied for a Nuffield Scholarship looking at the agronomic importance of soil carbon.

From reading the literature quoted, it was becoming apparent that fertility of the soil was related to soil organic matter. Having subscribed to Acres USA magazine for the past eight years, the USA seemed to be the obvious starting point. Yes, the home of genetic modification, intensive agriculture, concentrated animal feeding operations and corporate dominated processing does actually have a large eco-agriculture movement. This movement owes its strength to the foresight of Charles Walters, in publishing the magazine and enabling a network of like-minded people to become established, along with highlighting the work of William Albrecht, as an alternative view on soil fertility.

Australia was my other destination; farmers here are working in a climate, which involves thin soils and a regular lack of moisture, combined with a lack of government subsidy. This scenario has driven farmers and researchers to look at ways to build soils that are more resilient to moisture deficits, using methods that fit within their budgets.

My travels concluded with attending a Regen-ag workshop in Sussex, and the Acres USA conference in Columbus, Ohio.

For the last fifty years, soil fertility has been regarded as the result of a simple chemical test. Based on these results, simple inorganic fertilizers have been applied to our soils. The result has been the production of large amounts of cheap food – only with the use of rescue chemistry to keep disease at bay.

Animal production systems based on this cheap grain and fertilizer fuelled forage, have necessitated the use of vaccines and antibiotics to keep control of disease. The same has been seen in the human population.

Through all of this the cause of disease is blamed on the pathogen, rather than the presence of hidden hungers in soil, plant, animal, and man.

The 20th century was the age of the chemist, producing large amounts of food and keeping the rages of disease under control. However, the chemist is struggling to stay ahead of nature with the advent of superbugs, so the 21st century has to be the age of the biologist. By harnessing the power of biology we can maintain our food supply, whilst keeping disease under control through the elimination of hidden hungers.

From my studies I have determined that the fertility of a soil is its ability to hold and recycle nutrients and water in a plant available form. To do this, a soil needs to be biologically active and fed a range of food stuffs – a

THE IMPORTANCE OF SOIL CARBON WITH REGARD TO SOIL FERTILITY AND YIELD POTENTIAL
A CENTRAL REGION FARMS TRUST AWARD

ROBERT RICHMOND
combination of rapidly digestible green plant material/animal slurries and slower digestible crop residues and farm yard manure. The biology in the soil is responsible for breaking down this material, releasing the nutrients from it, and building humus.

Humus is the stable carbon compounds found in soils, which have a great influence on the fertility of the soil. As humus levels increase, the structure of the soil becomes lighter and more friable, the soil has a greater ability to hold nutrients, along with a greater amount of buffering capacity, reducing negative impacts of nutrients present in excess, and massively improved water management.

High humus soils are capable of absorbing much more rainfall, so reducing run off and erosion. Excess water percolates through the soil and has nutrients removed before entering ground water. This results in clean water entering watercourses and a reduction in the risk of flooding. More water is retained within the soil for future plant use, so drought proofing soils.

Spreading compost at rates as low as 1 tonne/ha is a great way to add some humus to the soil, at the same time as a large range of microbes to the soil. These microbes are added complete with a home and a food source, so giving them a good chance of becoming established in the soil and are essential to rebuilding soil carbon levels.

The best way to rebuild soil carbon levels is by the rotational grazing of bio diverse pastures. The stable environment under the ley allows the biology to establish in the soil, whilst the ability of the plants to exude large amounts of sugars through their roots (up to 70% of what they produce). This provides a ready food source for the microbes, resulting in the ability to increase soil carbon levels by 1% every three years (20 t carbon/ha/yr).

As this biology begins to work, the level of soil carbon (humus) begins to increase. The biology also begins to cycle and mobilise a full range of minerals and trace elements in the soil, which are then held in a plant available form. The result is a growing crop which is achieving its full physiological potential, so producing complete carbohydrates, complete proteins, and high levels of oils, rather than sugars, non protein nitrogen, and minimum oil levels.

This improved forage is digested more efficiently by the ruminant, with the potential to reduce methane output by up to twenty percent, when compared to an animal on the poor quality forage. Output per unit of dry matter intake is potentially higher, so increasing the efficiency further. With nitrogen being present as protein, rather than non-protein nitrogen – it is used more efficiently by the animal. The inclusion of tannin rich plants in the mixture, means that excess nitrogen is bound by the tannin in the rumen and passes through the animal into the dung, where it is slowly released over twenty years – this reduces emissions of nitrous oxide from urea in the animals’ urine (lower urea levels).

In conclusion, there is a need to recognise that soil fertility is related to a soil’s ability to hold nutrients and water. That in order to achieve this, it is important to manage and feed the soil microbes. The best way of doing this is with the grazing ruminant, which has many environmental benefits in terms of greenhouse gas emissions.

My quest now is to tweak the grazing management on the farm to achieve these goals.

Robert Richmond
farmer.joe@btinternet.com
Background
I manage a family farming business in Hampshire where we specialise in arable crop production and offer contract farming services. We now operate over 1700 ha and care for land owned by seven landowners, as well as the 350 ha we managed to buy in 2006. My passion is for growing crops as well as I can. We have concentrated on growing high value, quality crops wherever possible. We are more committed than we have ever been to agriculture and my main ambition is to secure that commitment with a sustainable and “bulletproof” business. One that will be able to withstand the shocks of unpredictable weather events, volatile markets, and outside shocks, such as the Global Financial Crisis, which we are certain to encounter in the future.

Our family farming business produces around 10,000 tonnes of combinable crops annually. I have spent much time, effort and resource in striving to improve the quality of our crops, lower costs, boost production and achieve consistently good results, both physical and financial. We have embraced, science, technology and the best new thinking on cultivation and nutrition techniques. I have ensured that I was up to date and as well informed as I could be on new technical developments; we have invested in training our workforce, securing access to the best agronomic and economic advice. We are efficient and proficient growers, so why were we not able to produce the sort of profits that I felt this activity deserved? Businesses in other sectors outside agriculture would not put up with accepting this sort of return, so why should we? Nor would they accept the amount of risk we take on a daily basis. All this had to change, and the opportunity that a Nuffield Farming Scholarship gave me to investigate ways in which to do this was an extraordinary chance that I could not wait to grasp.

The Study
Adding value to farm produce is a phrase that is bandied about all the time, but to do this with what is essentially a commodity needs careful examination. The area in which I feel there is still a great deal of potential from which to eliminate inefficiency and provide better value is through closer links with the rest of the grain supply chain. For too long farmers, especially arable producers have equated marketing with selling. I wanted to investigate examples of best practice, learn what the difficulties were in dealing with it, and also where the future development of these relations would lie.

I focused my study on countries where export focus was paramount; where growers knew that they had to grow something that could be of value to their customer and that they could reliably continue to produce year after year for that demanding customer, despite the natural seasonal production variation.

The three main areas my study concentrated on were

1. Logistics. Starting with growing for the most accessible markets and for which you can most reliably achieve customers’ specification is the first step to increasing efficiency. Getting the right commodity to the right place in the right state at the right time should be the first consideration. This is the first place where cost occurs as the chain begins. Savings at this point are easily quantified, but may challenge existing trading cultures.

My experiences in Australia drove this home. In Western Australia especially, where 95% of production must be exported through four deep water ports, the challenge...
of grading, blending and loading up to 12 million tonnes of wheat to export customers’ requirements, necessitate a joined up approach to logistics. Sampling is another crucial area within the logistics category. Being clear as to how what has been delivered matches up to a required specification, can be the starting point of a clean supply chain. If there is ever doubt at any point within the chain, the chance for things to go wrong dramatically increases. The effect of this is cost to the chain, which inevitably leads to loss of value to participants, which in turn leads to mistrust between partners.

2 Price Discovery. Transparency of price is crucial to speed up the logistic process. All parties within the chain need to be able to nail down their price so that the nearest route to the next stage can be achieved. If an open and discoverable pricing mechanism is not available, then this acts immediately as a bottleneck within a chain, as parties struggle to find their required price point. Delays here create disconnection within the chain and can lead to mistrust. This is an area where most could be done to alleviate the other difficulties that pass throughout the grain chain because they are usually generated from this category. In most cases participants in the chain agree on the majority of things associated with the processes they each go through. They will never agree fully on price and if they do today, then they will not tomorrow. The lack of transparent markets for quality bands for cereals in the UK became very clear on my travels. The Australian model of online price declaration from all interested buyers enables a grower can see exactly the price offered. Every day on a grower can decide how to price the quality he has grown exactly to a buyer’s specification. The prices are published for all to see, the grain quality has been established at intake, so conflict is removed. The quality is not questioned, so the price remains rock solid. This system breeds the trust that can disappear when clarity is not necessarily a given.

3 Relationships. This category is of course interlinked with both the above and is the ultimate key to real benefits for all parties. The relationship can only exist if it brings mutual benefit to all participants. The challenge in this area is balancing the risks and rewards, not necessarily evenly, but fairly amongst participants. This is the area that probably creates most tension. A formula that appropriately rewards each part of the chain for the different risks, level of investment and commitment that each take is a difficult task, especially taking volatile market conditions into consideration. Trust, its establishment and maintenance, is where investment must be made by growers, processors, merchants and retailers. The relationship between the Miller Coors Brewing Company and its malting barley growers in Idaho, USA was a prime example of this at work. The benefits to both parties were obvious, and rewards to growers and buyers appeared too commensurate. The key to this arrangement was that price as an area of conflict has been removed. The growers received exactly the same price for their barley, as if they grew for anyone else, but they did get to grow the highest yielding variety of malting barley. This variety had been bred and developed by Miller Coors through a long-standing research and development program and was owned exclusively by Miller Coors. This variety fulfilled the quality requirements for their brewing process, they also ensured the best growers to grow it, as everyone who would grow malting barley wanted to grow this variety. A matrix for growers was used to measure the growers’ performance, and if growers slipped into the bottom 10% for a couple of seasons in a row, they may well find their contract tonnage would decline and even, if performance were to continue to slide, be reallocated to a more reliably consistent member. Everyone knew what they stood to gain in this model and what was expected of them, and this was one of the top examples of best practice from my travels.

Recommendations

Collaboration and transparency between willing partners is the only way to build trust. A more open dialogue between growers and processors, manufacturers and retailers is essential. The risks and rewards that each party takes must be acknowledged by other partners and the different partners must accept that they are linked all the way forward and all the way back in the chain, whatever their position. An initiative like the HGCA’s “Meet the Processor” is a great step in the right direction, but links only one step. I would really like to see this extended back to plant breeders and the circle completed with retailers.

We must find a way to separate the distinct activities of “marketing” and “selling”, especially in the farmer’s mind. I would include “pricing” within this too.

Sustainability should be built into relationships between partners in the grain chain. By this, I mean that each party must see the next stage down as their customer, and take responsibility for doing their part as well as they can. Growers should see themselves as having customers, not buyers, and act as any other business does towards them. There is a lot of work to be done here.

The Nuffield experience has given me a fantastic chance to begin looking into this topic and has really opened up the true complexities. I believe that there is a great deal of value to unlock within the chain and not just to growers. As long as the advantages that accrue can be shared fairly and with a long-term view, then we can look forward to mining them out in the future.

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South of England Agricultural Society

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About me.
Having grown up on a mixed family farm outside Kelso in the Scottish Borders, I was privileged to be surrounded by the essential activities of growing and cooking healthy and delicious food. I have spent much of my career helping food producers and the supply chain reduce their impact on the environment to benefit their business, first with the Marine Stewardship Council and now in my current role with Soil Association Scotland.

My study.
The Nuffield Farming Scholarship has given me an amazing opportunity to travel the world to look at ways in which other countries are helping to mainstream sustainable food. I visited The Netherlands, Canada, America, China, Sweden and Denmark and in each country I found remarkable farmers, distributors, NGOs, caterers, restaurants and retailers who have found ways to increase access to local, sustainable food and use this as a means to make a living. In the political, economic, social and environmental constraints of the UK, and beyond, our food system is extremely complicated. Defining what makes a food system sustainable is difficult and controversial. For my study, I focused on a few areas that I believe can help transition our food system to a more sustainable footing, though I explored other aspects along the way too.

I looked at the adoption of food policies by national and local governments and I considered how certification can encourage a market for trusted and sustainably produced food – especially in the foodservice market. Additionally, I found some innovative small businesses and social enterprises, which are improving access to sustainable local food by addressing distribution problems that tie up valuable time for small producers and creating access to a wider variety of sustainable food for more people.

Scaling up using national and local food policies. In Toronto, I was impressed with the professional and transparent Toronto Food Policy Council, which has a remit to increase food security and health across the city.

- A committee of 18 people from farmers and food industry reps to community groups, environment and health professionals meet monthly to shape and develop policies and define and deliver an action plan. Food is central, a cross cutting issue that affects health, local economy, city planning, food access and inequalities in the city and surrounding area.

In Denmark, ambitions run high. The government wants Denmark to be the environmental capital of the world by 2015. Targets have been set for sustainable food consumption, along with cutting edge legislation to improve sustainability of production, driven by concern for contamination of their pristine groundwater supplies.

- The Danish government is leading the way on legislation to minimise the use of pesticides and herbicides by taxing the most harmful chemicals.
- To motivate the market for organic food and farming the Danish government has set a target of 60% of the money spent on public sector procurement to be on organic produce. In Copenhagen, an inspirational organisation designed to provide the best food for kindergarten, school and elderly care homes has already reached 75% organic in terms of ingredient spend, and resulted in 5 new distributors to supply the growing market.
Does certification have a role to play in supporting local food production?
The food-buying public already consider that local means sustainable, but this is not necessarily the case in terms of environmental and social sustainability.
- In Canada, I came across an innovative certification system, Local Food Plus, which is a light touch certification programme for farmers that are meeting transparent criteria for environmentally and socially sustainable farming.
- It is clearly linked with the foodservice market, and has facilitated a supply chain to allow smaller producers to feature on the menus of big institutions, led by the University of Toronto. It is now developing in other provinces, subject to funding.
- Organic Denmark runs a foodservice certification scheme on behalf of the Danish Government's Food and Environment department. This has set high targets in terms of ingredient spend on organics in workplace restaurants, tourist attractions and public canteens.
- Rough estimates show organic produce in foodservice is growing at well over 30% per year in value, demonstrating strong direction and aspirational targets can achieve quick results in terms of stimulating a market.

Enabling distribution.
For small scale producers, distributing their products to a market is often one of the biggest challenges they face. Around the world I encountered several innovative systems of distribution, which also increase access to sustainable food for consumers.
- Landmarkt in the Netherlands is a new retail concept specialising in fresh, local produce through direct producer relations, whilst offering the choice of a regular supermarket. Two vans and their drivers are employed to collect produce from 35 local producers in the 40 km radius of their flagship store.
- Scotland's Food and Drink Hub are making it their business to provide distribution solutions and enable growth of micro, small and medium sized producers across the country.
- New York Wholesale Farmers' Market (2 - 6am, The Bronx) allows farmers to sell high volumes of fresh, local produce to shops and restaurants. Grow NYC runs the Youthmarkets programme, which buys bulk from the wholesale market. Youthmarkets improve access to fresh local food, and introduce training opportunities to communities limited in both.

Some early conclusions, recommendations and actions.
Scotland has a strong National Food Policy, Recipe for Success. It has far reaching aims, but it is lacking in clear and transparent engagement from the wide variety of stakeholders required for effective progression.
- Recommendation: Set up a Scottish Food Policy Council to oversee development and drive delivery of the national food policy, to include the interests of the farming community.
- Action: Having spoken to the Scottish Government about this, I am happy to help support the development of a stakeholder group, along with many others.
- Recommendation: City/Community Food Policy Councils would elevate the status of food and its associated social, cultural, economic and environmental issues within our cities and town, and support shorter supply chains, allowing more producers to engage with more direct market opportunities.
- Action: Since I visited Toronto, I have been sharing what I have learnt and through a partnership in Edinburgh, hope to help encourage this city to adopt a Food Policy Council.
- Recommendation: Targets for sustainable production can stimulate the market, as identified in Denmark. Governments should consider adopting clear targets into national and local food policies.
- Action: A good start in Scotland has seen Soil Association Scotland awarded funding from Scottish Government to expand the Food for Life Catering Mark in public and private catering, which encourages fresh, seasonal, local and organic ingredients through a step wise certification (bronze, silver and gold tiers).

‘Local’ is in danger of losing its meaning, like the words ‘sustainable’ and ‘natural’, which are overused and not clearly defined. Organic certification provides a clear, legally defined marketing term - perhaps local should be better defined too.
- Recommendation: Consider certification for local products that ensures a minimum level of environmental and social sustainability at a low cost to farmers and growers.
- Action: I am keeping in touch with Local Food Plus and seeking wider opinions on the value of introducing such a programme in the UK.

Making local food accessible through an independent supply chain is a challenge, but it opens up choice for both producers and consumers.
- Recommendation: Retailers could consider investing in logistics to support direct supply relationships with local producers.
• Recommendation: Fresh, sustainable food can be difficult to access in cities, but it is possible to facilitate this – through wholesalers, markets or hubs - bringing choice to businesses and communities whilst supporting sustainable local supply chains.

• Action: Through my role as Director of Soil Association Scotland, I lead delivery of our Food for Life programme in Scotland to increase opportunities for farmers and growers to supply new markets and encourage collaborative working.

Finally, thank you to the Nuffield Farming Scholarship Trust and to RHASS for a fantastic opportunity to expand my horizons and knowledge. I have particularly enjoyed meeting fun and inspirational people involved in our industry from all around the world, all of whom have taught me something valuable.

Laura Stewart
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Manufactured nitrogen fertilizer has become a staple input in modern, intensive agricultural systems. Approximately half of the world’s food production can be directly attributed to the use of it, thus making it an essential input if agriculture is to support demands for both feeding and fuelling the world. First manufactured over 100 years ago, approximately 150m tonnes per annum of nitrogen is now consumed by agriculture. This is approximately the same amount of nitrogen that is fixed through natural biological processes and lightning. Effectively the loading of reactive nitrogen into the environment has doubled as agriculture has attempted to support the growing population.

With such a loading into the global nitrogen cycle come the challenges of the consequential environmental impact. This impact is due to the losses of the reactive nitrogen into the wider environment, namely rivers, lakes, oceans and the atmosphere. Estimates for this loss vary but typically, on a global average, only 30-40% of it goes into the crop.

This environmental impact manifests itself in three distinct ways. Firstly there is eutrophication of water bodies whereby algal blooms effectively ‘suffocate’ the aquatic life leaving at worst ‘dead zones’. Notable examples of these are The Black Sea, The Gulf of Mexico, The Mississippi River Delta and Lough Neagh. Secondly ammonia loss following the use of nitrogen fertilizer, especially urea, leads to acid rain resulting in damage to natural habitats and finally there is the contribution that applied nitrogen makes to Green House Gas (GHG) emissions.

These emissions can be attributed to two areas, the manufacturing process and that following its application. The GHG’s associated with manufacturing relate to either or both of nitric acid production and energy consumption. The largest hotspot in production is during nitric acid production for ammonium nitrate manufacture, however, modern plants are now equipped with ‘abatement’ technology that removes up to 90% of this nitrous oxide. With regard to the emission following application IPCC rules state that 1% of the applied nitrogen is emitted as the GHG nitrous oxide. This is now the area of focus to understand the accuracy of this figure and subsequently practises that can mitigate against this emission. It should be noted that this emission is not exclusive to manufactured nitrogen, it is appropriate for any form of reactive nitrogen applied e.g. manures, slurry, digestate.

The original Arden study working title, ‘Life without manufactured nitrogen fertilizer’ really stems from the fact that current manufacture is based on fossil fuels, predominantly natural gas and coal, which by definition are non renewable thus making it unsustainable. In considering this it is important to bring some perspective to the argument. The best estimates calculate that world nitrogen fertilizer manufacture consumes approximately 1.1% of global energy so from an energy point of view there are some much bigger wins to be made in other high energy consuming sectors.

If viewed in terms of the timeline for fossil fuels and, more critically, natural gas supplies, then with the recent findings of large banks of shale gas in the USA and China, then exhaustion of the feedstock is some years away. As Peter Odell states (Professor Emeritus of International Energy Studies, Erasmus University of Rotterdam): “The oft-heard notion that we are “about to run out of fossil fuels” is quite simply a myth”. “We may confidently predict that renewables will, by 2050, still contribute less than 20% of total global energy supply”. Vaclav Smil voices a similar opinion and does not consider nitrogen or phosphate to be
first tier concerns over the next 50 years. We can therefore forecast that manufacture of nitrogen from an energy consuming perspective is not under short, or medium term threat, however, it still remains the case that the feedstock’s are non renewable.

If we assume that in the long term there has to be a switch away from the current feedstock then what alternatives are there? Over recent years there have been many examples of alternative energy sources to use to produce a manufactured fertilizer. Innovation will continue in this area with potential for very local farm units of production via wind turbines, biomass, and geothermal. The examples / pilot plants that are in existence currently tend to produce anhydrous ammonia as the fertilizer, which has its own issues in terms of operator safety and crop efficacy. There is also the long term potential for nuclear energy to play its part in fertilizer manufacture!

Finding alternative methods of production does not resolve the issue of continuing to load reactive nitrogen into the global nitrogen cycle. If this trend is to be reversed then a real focus is needed on nutrient recycling. There is evidence of this beginning to happen as biodigestion units are established with the digestate residue potentially replacing 5-6% of the nitrogen fertilizer market. Some farming businesses are looking towards reintroducing livestock onto the farm, turning feed into fertilizer (i.e. manure). Bed and Breakfast pigs being one such example.

If the livestock feed has come from a crop such as Soya, Lucerne, Clover etc, then inert atmospheric nitrogen has been converted to reactive nitrogen by these plants, again loading ‘new’ nitrogen into the nitrogen cycle. The most effective farming system will be a closed ‘circular’ one that has recycling at its centre with a zero ‘farm gate’ nutrient balance. Other than livestock there are additional areas of focus for improving farm nutrient use efficiency through the use of green manure crops, and the reintroduction of crops such as the pulses into the rotation.

Of course, this approach to soil fertility is exactly what was practised during ‘life before manufactured nitrogen’. Every farm should make it a priority to have an Integrated Soil Fertility Management Plan to reduce its reliance on manufactured fertilizer, making it a more resilient business if either economic or environmental pressures curtail the use of manufactured fertilizer.

In view of the long term availability of nitrogen fertilizer, many novel breakthroughs may come prior to fossil fuel exhaustion. There is currently a ‘race’ between academic institutes funded by charitable organisations such as the ‘Bill & Melinda Gates Foundation’. Two such institutes are the University of Alberta with the ‘Good Lab’ and Professor Giles Oldroyd at the John Innes Centre who are both looking to use transgenics (Genetic Management) to create nitrogen fixing cereals. Whilst the end result is similar, they are researching two different approaches. The ‘Good Lab’ is seeking to get one of the plant organelles (e.g. mitochondria or chloroplast) to be the new nitrogen fertilizer factory, whilst Prof Giles Oldroyd is looking to create the same symbiotic relationship that exists between legumes and Rhizobium to make cereal roots ‘nodulate’. Some still consider this Biological Nitrogen Fixation to be a ‘pipedream’, but now that there is the potential to map a genome the size of the human in a day, such a dream could be a reality in a decade or two!

Having used this Arden study to consider nitrogen fertilizer and its future from a different perspective, I am left with the feeling that the underlying issue that will actually determine the way in which we use nitrogen is its environmental impact. Technology can and will deliver either new methods of manufacture based on renewable energy (but it will come at a cost), or Biological Nitrogen Fixation / genetic modification to improve Nitrogen Use Efficiency will become a reality. However it settles out 9 billion people on this planet, plus many animals in the form of livestock and pets means a lot of reactive nitrogen in the global nitrogen cycle which must be recycled as efficiently as possible within those people and animals otherwise it is lost and creates impact wherever it has come from.

Mark Tucker
Executive Summary
Top fruits now represent 45% of the 122Ha family farm that I run in North West Herefordshire. My study seeks solutions to ensure they continue to complement the poultry and arable operations for a robust future in my business and those of other UK fruit growers.

I visited New Zealand, China, Australia, Chile, Argentina, Brazil, Germany, Belgium and Holland.

Global Perspectives in the Top Fruit Industry
By 2020 world apple production is estimated to have increased by 400,000 tonnes/annum, despite the challenges from climate change. This represents an annual 100,000 tonne deficit against forecast demand with increases seen mainly in Asian countries.

Other top fruit markets will remain static with the exception of cherries which have a brighter outlook with twelve month global supply now virtually guaranteed, although trading will become less opportunistic and must become more organised.

Cost conundrums – Global costs of growing fruit
A decade of chasing export markets has already led to a 20% erosion of margins globally. Labour supply and costs are universally problematic and mechanical solutions to harvesting, pruning and thinning are becoming essential. Further unique solutions are required to even offset cost increases in areas outside of grower’s control, such as energy and water supply. Precision technology, rootstock/varietal development and new planting systems have become areas of huge focus globally. Attention is also shifting to greater costs further up the supply chain.

Vertical Integration - Climbing the supply chain
In Chile 98% of top fruit is sold direct by the growers and all the New Zealand growers that I met had financial involvement and in many cases full control of the packing or processing and sales of their top grade fruit. Globally, I observed large consolidation and integration of farming business was occurring to ensure survival. Other businesses were growing value in their products where they were unable to expand their area.

Marketing – Local vs Global?
Competition is intense amongst those countries chasing the “Asian prize” but in local developed markets, consumers have become disengaged from top fruit products and expect year round availability. Inconsistency in quality and the demise of powerhouse global marketing organisations has thrown worldwide marketing of fruit into disarray.

Biological Farming solutions
The Australians have developed a “fusion farming” method with particular emphasis upon mineral, microbial and pest and disease management. This provides sustainable alternatives and re-establishes the link between crop nutrition and human health which is particularly relevant given a disturbing rise in type B malnutrition in the developed world.

Research in New Zealand is revealing the importance of soil carbon for biological farming in orchards and sequestration of it into the soil could give global agriculture a unique opportunity to redress future climate issues.
Conclusion & recommendations
1. Hard decisions will need to be made on retaining existing orchards and to continue in the top fruit industry, new planting systems and varieties will have to be adopted for apples and diversification into other crops such as cherries will be essential.

2. Top fruit growers are unlikely to survive if they have not already integrated their business or chosen a specialist production area such as cider apples. I recommend that all growers review their business to look at consolidation and more direct market control options.

3. All growers must re-engage consumers and redefine high quality Top Fruit. A new emphasis should be placed upon what we can do for our customers and I recommend that all growers plan to grow their fruit for a very specific market.

4. There is huge scope to explore biological farming methods in orchards and all growers should at the very least consider some simple trials.

5. Growers can only hope to mitigate future cost increases by continuing to update and innovate within their top fruit management practices.

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