



Australian Nuffield Farming Scholars Association

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Report of Study Tour to the United Kingdom and Europe

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1990 South Australian
Nuffield Scholar

Subject: Soil and Plant Health

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Objectives

- To study the techniques and equipment used for testing soil and plant nutrient levels. The standard of nutrient levels used for maximum production and methods used to correct deficiencies.
- Plant varieties rights and commercialisation of publicly bred varieties.
- Marketing and promotion of new pasture and crop species.
- Computer software with capacity to handle intensive farm data.

Acknowledgments

The requirements of the Nuffield scholarship to spend 4 months away from family, farm and friends, places extra pressure on many people. I had great support from my wife Robyn and our three sons Justin, Damien and Ryan who were in turn supported by our many friends at Keith.

Our farm manager Chris and wife Suz, relished the increased work load and responsibility. My brother Ashley who supported and assisted in many ways and my mother for her support and "concern". The Australian Nuffield Farming Scholars Association for the opportunity of a lifetime.

Many thank also to:

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- Director Steven Bullock & network of past scholars.
- Helen and Peter Roberts and family of Whitwell, who provided a flat and friendship.
- Host family Peter and Beverly Gilbert.
- Qantas.
- S.A. State Bank
- Milk Marketing Board of the UK for provision of a car.
- The Worshipful Company of Farmers and secretary Michail Cheveley.
- South Australian Seedgrowers Co-op General
- Manager, Max Joengelblood, for many contacts across Europe.

The invitation to attend the Worshipful Company of Farmers Advanced Course in Farm Management, was readily accepted. It gave me the opportunity to become friends with 19 people from the UK, Germany and France and each of them supported me in some way during my scholarship.

The opportunity to spend six weeks with overseas scholars Ian Swannack - Zimbabwe, Phil Luscombe -New Zealand, Emmanuel Popot - France, Peter Nixon - Western Australia, (Eugenii Perov from the USSR also participated), at the commencement of the Scholarship, set the scene for education, fellowship and fun, the ingredients that made my scholarship so special.

Wye College

The Worshipful Company of Farmers 40th Advanced Course in Agricultural Business Management, from 15th January to 2nd February, was held at the Centre for European Agriculture Studies, Wye College.

The objectives of the course considered the unprecedented re-orientation of British Agriculture through targeted support for non Agricultural land, declining real farm income, internal and external pressures on the Common Agricultural Policy, the single European market, increasing public awareness of environmental, nutritional and animal welfare issues, green belt, rural developments and opportunities for leisure related businesses.

The course aimed to assist that change by enhancing the following qualities.

1. The perception of opportunities, problems and the need for decisions.
2. The definition of alternative courses of action in order to exploit opportunities or to solve problems.
3. The evaluation of the alternatives in terms of their contribution to the objectives of the business.
4. The choice and implementation of one of these alternatives.
5. The monitoring of progress and the modification of plans where necessary.

This was achieved by intensely studying six major areas:

- A. Agricultural Business Planning - techniques of analysis, evaluation, setting objectives and developing alternatives.
- B. Management, Accounting, Finance - collection and use of relevant data for effective decision making.
- C. Human Resource Management - primarily concerned with communication, motivation and leadership.
- D. The Marketing of Agriculture Products - internal and external factors affecting market strategies.
- E. Agriculture Policy and Politics - examined the forces underlying developments at U.K., EEC, and global level and their relationship with GATT and the CAP.
- F. The Managerial Environment - covered the social and economic environment and the impact of the "green" revolution.

The full live-in course of three weeks was attended by representatives from Germany (1), France (1), UK (17), and Australia (1). Four sessions per day commenced at 9.00am and generally finished at 6.00pm. Case studies occupied any spare time with a guest speaker after dinner. Each of the Lecturers were of a very high standard, being able to convey their subject very clearly. Many of the topics covered were parallel with the study topics of my Nuffield tour and the spread of members on the course gave great contacts of a personal and study nature, throughout the UK and Europe.

Europe - Agriculture Policy & Politics

It is important that non members of the European Economic Community (EEC) and the Common Agriculture Policy (CAP) understand the reasons for its creation and maintenance. Established in the early 1950's, the EEC encompasses 12 countries totalling 350 million people, with the goal that Europe would not go hungry again.

Its success in that area is total, but it has gone much further than that in bringing political stability to Western Europe - a traditional "trouble spot" in history.

The barriers within the EECs 12 nations will be dismantled in January 1993. There will not be a single currency at that time, but the ECU (European Currency Unit), will have greater importance and acceptance. In effect, the new Europe of '92 allows full and free movement of people, goods and capital within member countries.

The potential gains from removing barriers:

- Savings from the abolition of administrative formalities and border controls - ECU 24 million.
- Savings from opening public procurement market - ECU 17.5 million.
- Labour market - 2 to 5 million new jobs.
- Savings from increasing the scale of production of manufactured goods - 2% GDP.

In 1988, the Expansion of the EEC was talked about "in committee", but by late 1989, with the demise of the Berlin Wall, events were changing rapidly. They are continuing to change rapidly with countries further east liberalising.

The community already have consumed East Germany and with Turkey (50 million population), Austria (8), Norway (4), Sweden (8), Hungary (11), Poland (37), Czechoslovakia (16), Yugoslavia (23), Romania (24), Bulgaria (9) and Albania (3) either considering, or already applying to join. This would give the EEC a staggering 540 million population, with an economy to match.

I am unconvinced that farmers in the non supportive market place i.e. "Cairns Group", should have any increased fear of the EEC. There is greater pressure from within to reform and ease the huge burden on the tax payer. This is happening now, as in 1988 agriculture consumed 73% of the EEC budget, whereas by the end of 1990's, that figure will be 56%. There is also a real chance that the "Social Service" component of the agriculture subsidies, will be isolated to allow primary produce to compete fairly on a world market.

Simple Facts

Real farm incomes throughout the developed world are falling. This puts greater pressure on existing resources to produce either more or the same cheaper. Consequently, our resources are being over-mined and over-pumped. Inevitably, environmental groups are having greater influence on our management decisions and future. In Europe, in particular, where the tax payer has had a long association with farming subsidies, the conservationist claim a right to demand certain reforms. These reforms can be tied into methods of reducing the agricultural surpluses, e.g. by extensifications, where 20% less production off the same area is the target. The aesthetic value of the countryside is high on the agenda.

It is significant that at the formation of the CAP conservation was not on the charter and first showed up in 1985 when the CAP allowed member States to care for the environment via support. Since 1988 it has been an EEC official policy to become involved in conservation and by 1992 the major part of the Agricultural Budget will be spent in supporting environmentally friendly change.

To totally summarise the advanced course in farm management would be quite exhaustive.

The course introduced me to leading agriculturalists in three countries, all of whom extended friendship and knowledge during the remainder of the scholarship. In addition, it also addressed many of the objectives of my study. I extended my appreciation for being invited to attend and acknowledge the support given by lecturers, staff and students of the course.

Orientation - Six Weeks

The UK Farming Scholarship Trust, through Steven Bullock, organised the traditional six week orientation tour. To be thrust into close quarters with five other scholars of different nationalities and backgrounds, with only agriculture as a common denominator, is a challenging experience. By the final day, however, we had a common bond of friendship and respect, unique, I suspect, to every Nuffield group before us.

Peter Nixon, from Western Australia, farms 2500 acres at Moora, devoted to merinos and cereals. A Gypsum mine provides ample diversification and he is heavily involved in community affair, being current Deputy Shire Chairman. Peter provided much stability to the group and enjoyed his study of soil management and conservation techniques.

Phillip Luscombe, Taranaki, New Zealand, works in partnership with his brother, milking 450 cows off 330 acres. Phillip is a very academic type and had many opportunities to exchange dairying knowledge. In many respects the climate and systems used in Europe and NZ are quite parallel, making his study very beneficial.

Emmanuel Popot, Chartres France, works with his father on 280 Ha south west of Paris in the rich Paris basin region. Language was an initial obstacle, but once that was overcome he demonstrated to be a typical Frenchman, encompassing his driving skills, casual attitude and an intense interest in politics. His initial study topic of fresh product marketing was changed during his tour.

Ian Swannack, Zvishavane Zimbabwe, operates 25,000 acres and 1500 cattle with his father and 25 permanent natives. He studied beef production and marketing, in the UK, Europe, NZ and Australia. Being of a very sober nature, Ian showed scars of the civil war, but was proud and protective of the political stability they now enjoy. Zimbabwe battle with technological advance because they refuse to entertain a foreign debt and being totally land locked makes trade very difficult. The 1992 Nuffield World Convention in that country is being taken very seriously and will be an event not to miss.

Eugenii Perov - the first Russian to attend the program - how fortunate we were to be involved with this scholar. A journalist by trade and always a non communist, he wore the title of Deputy Director General on Zagorsk Farms - International Relation. He added great interest, wisdom and humour to our group.

A briefing in London, Wye College and Brussels, all encompassed the issues lectured at the Worshipful Company course. A visit to Paris to see the largest agriculture show in the world where there are no side shows or sample bags and a journey on the TGV train to Bourg en Bresse 280 kph are memories. French farmers work intensively on small areas, with great

government support in a very social democratic environment. The farmers lobby government intensively to gain many concessions. This has resulted in an extensive agriculture research and extension organisation, providing finance and management at very low cost recovery to industry. The French farmer is very volatile and will not readily accept all the changes envisaged in Europe 1992 onwards.

Two weeks in central UK focused on the huge diversity available to UK farmers. A population of 60 million in an area equivalent to Victoria, creates obvious opportunities to direct market and capitalise on tourism. "Beckett's Farm Store", near Birmingham, has a population of 3 million within a 1 hour drive and boasts 4500 customers per day.

Successful ventures visited include:

- Apple cider processing, specialising in historic varieties.
- Pick your own vegetables and fruit.
- Renovating farm barns for office accommodation lease.
- Professional conservation farming.
- Sheep dairying, direct marketing the cheese and ice-cream produced.
- Intensifying pig production by huge investment in computerised feeding.
- "Total approach" farming: farm shop, growing and packing, battery and free range eggs, public viewing bakery and cake icing, providing weighed and cut to order steak for restaurants.
- Farming successfully within a National Park using tourists as income.
- Increasing acceptance of "bed and breakfast" and farm restaurants.
- Wholesale distribution of farm and frozen products.
- Composting animal waste.

A disturbing trend of the cost/price squeeze, is diversity out of necessity and not choice. Accordingly, much time is dedicated to promoting these opportunities and in most cases the very best form of diversification, that is, doing what you do best, but doing it better, is overlooked.

Commercialisation and Plant Variety Rights

United Kingdom

The UK set up the National Seed Development Organisation (NSDO) several years ago to commercialise Public Bred Varieties. In recent years, full commercialisation and not an "ideal", has been in effect. The NSDO is now privately owned by Unilever, the largest European food company and competes with all other Seed Companies to release and control new varieties.

The National Institute of Agriculture Botany (NIAB), is the one recognised tasting Authority. NIAB works on 100% cost recovery. An initial deposit of A\$6600 gets a variety into the trials with a minimum 4 year period. At the end of almost 5 years and A\$370,000, the data is analysed and compared with similar varieties. If it is in the top of the bottom 50%, it will be inscribed on the National List.

Breeding institutions receive little funds from Industry levies as they do in Australia, so all work to maintain 100% recovery, is funded through private enterprise.

A typical system would be a private company committing A\$220,000 a year to white clover, from breeding through to inscription. When the variety is accepted, it is owned jointly by the breeder and commercial partner. The multiplication and seed production is under contract and the royalty added to the retail seed. When the commercial partner has recouped their initial investment via these royalties, profit margins not included, the breeder then shares in future profits, using a pre-determined formula.

This is a true market led system, with the commercial partner seeking a competent breeder and that breeder having to perform to ensure continuity of employment.

Requirements for the National List

- Prove it is distinct, uniform, sound and has agronomic merit.
- Apply to the Ministry substantiating its benefits to industry (data from trials).
- Provide 2kg seed for official trials - 3 years for major species.

The recommended list has no legal standing, but greatly enhances marketing.

There has been a rationalisation of seed houses in Europe in recent years. The big chemical companies have invested heavily in this field, believing there is a future in plant breeding for a chemically softer future. Some scepticism greets this development, as often the takeover group do not pursue the objectives of the original company.

Molecular engineering, germ plasm transfer and protoplasm culture, are all now familiar terms in bio-technology and plant breeding. They simply mean that plant change and improvement can occur at a vastly quicker rate than before. Plant plasm can be stored in solution indefinitely and to be able to "order" the type of plant required and have it "manufactured" is a virtual reality.

Future demands on plant breeding will be to:

- Increase yields.
- Develop a wider range of crops for the environment.
- Produce varieties with a higher conversion ratio of crop inputs.
- Improved pest and disease resistance.
- Crops with a wider end use - e.g. developing a biodegradable plastic using carbohydrate 4:1 sugar beets and natural sugars.

Plant Variety Rights are well established, but have not solved the problem of farm to farm trading with cereals. The one solution proffered, is to levy the seed cleaners - the reaction has not been positive.

Finger printing of all varieties is perceived as the only solution.

France

INRA, the French equivalent of Department of Agriculture, work very closely with private companies to ensure minimum duplication. In keeping with support given to agriculture, there are many Institutions trialling and

breeding. They claim, through their trialling history, there has been no significant increase in foliage production over 20 years. Their breeding has taken them into niche markets e.g. breeding lucerne for non ruminants like pigs and poultry, that eliminate the 2% sapanins (acid) that lucerne dry matter now contains.

Longevity of lucerne plants is being addressed by breeding varieties that re-root from prostrate runners, so as the mother root dies from disease, the runners survive. Nutritive value, nitrogen fixation and high root mass to leaf mass are areas of great advancement in recent years.

In keeping with the French social democratic system, all commercialisation is channelled through an INRA sister organisation, AGRIOBENTION, who take the first generation seed, multiply under contract, market, returning 30% of certified seed price back to INRA for continued research. These figures are difficult to substantiate, as there is a web of semi-government organisations involved with no great emphasis on cost recover.

Farmer to farmer seed sales are legally forbidden and yet condoned by most officials.

France produces 6000 tonnes of lucerne seed of which 50% is exported. The certification scheme is intriguing, there are no field inspections and growers are "judged" to sell seed on the "A" list, which is for domestic sales, and the "B" list for export. The control over seed 2 to 3 years post release is difficult.

After being involved in the OECD equivalence debate, where the EEC claimed Australia's certification standards were inadequate, I came away from France a bewildered Scholar!!

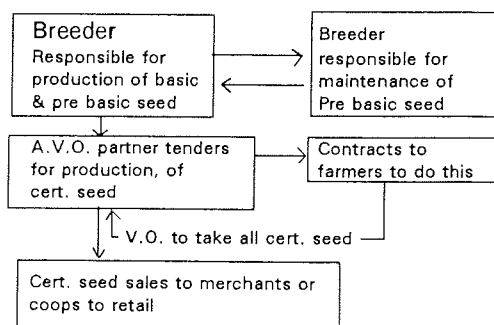
Germany

Nothing is simple in Germany to a non German.

Commercialisation of Public varieties is handed by V.O. which is Vermehrer Organisation, or multiplier. This V.O. is a company consisting of merchants and farming cooperatives, similar to SIA (Seed Industry of Australia). The activities of the V.O. are controlled by the State Seed control of certification authority.

There is also a NIAB equivalent, called BSA, which is the federal administration responsible for the control and registration of a variety.

Per 100kg seed (example only)



The total funding of public breeding is by the levy raised from this seed.

Producer receives		56.00
LESS	Cleaning	3.5
	Admin	0.2
	Ins.	0.2
	Stitching	0.2
	Sealing	0.2
	Cert. seed test	0.27
		4.57
	To Producer	51.43
Consumer Pays		
	Base	56.00
	V.S. (fixed)	5.5
	Breeder royalty	9.5
	Public Relations	0.2
	Merchant (margin)	5.1
	Bags	2.5
	VAT	7%
	To the Consumer	\$90.00 per 100kg

This system, whilst being fair, is quite clumsy and now many breeders are avoiding the V.C. and writing private contracts mainly with farm cooperatives. 80% of plant breeders in Germany work for private companies and that is increasing. Commercialisation of public varieties is a virtual non issue.

Marketing and Promotion of Pasture Seed

The attitude to promotion in Europe is far more aggressive than in Australia. The reasons are quite simply that there are few public bred, non commercialised varieties on the market, i.e. there is a true market led incentive to promote.

Whilst varieties are being accepted on the NIAB recommended list, they are being trialled by the private company partner to identify their market niche. Once this is, aggressive promotion follows. The public breeding partner acknowledges a vested interest with active support.

Media promotion aside, field days are the most effective. The National Agriculture Centre at Stoneleigh covers 300 acres and over half is devoted to comparative pasture trials. This is a continuous public display, culminating in the Kemira Grasslands Convention, spanning two days and 250 acres of forage demonstrations. Private companies maintain permanent sites with species and cultivars on display.

A typical agriculture company is one which includes Agronomic, Chemical and Pasture mix advice and have their own trials across a variety of sites, combining experimentation of all the afore mentioned for their clients' benefit.

A domestic attitude prevails to media marketing of agriculture produce with glossy brochures, letter drops, specials, competitions and give-away gimmicks all being used. Active farm canvassing is prevalent with a high density of companies serving rural needs. Great use is made of sponsored field days and demonstrations as a principal means of promotion.

Soil and Plant Health

The policy to intensify agricultural production using subsidised income and inputs, created a boom in artificial fertiliser use, especially nitrogen. Crop yields in Europe per hectare have doubled this decade at a great cost to soil structure. Macro nutrients have been cheap and widely used and their cost effectiveness has not been questioned until recently. This has meant that micro nutrient research has been largely neglected. In non cereal crops, however, micro nutrients such as boron, magnesium, manganese and copper get a lot of attention. All the latest equipment available is used to analyse, the most important one being the "Inductively Coupled Plasms" or ICP. A few of the many private companies servicing agricultural needs provide tissue testing and analytical advice.

One excellent private enterprise is the Micro Nutrient Bureau, which publishes a quarterly production on micro nutrient news and information, providing selective information on all micro nutrients in agriculture from tests and research world wide. It is, in effect, a clearing house of World Wide information in this field.

Intensive production has placed soil structure under great pressure and the power harrow is now one of the most widely used machines, forcing a fine tilth seed bed. The prohibition of stubble burning and the alarming increase in Nitrate Sensitive Areas (NSA's), is forcing a change in crop husbandry. After a lapse of ten years, research is regenerating interest in natural nitrogen, e.g. legume based pastures and break crops. This move is being aided by a changing policy to extend production, as opposed to intensive, creating an environment for quickly improving soil structure.

Computer Software

The largest market for computer software in Europe is in the intensive industries of Dairying and Figgeries. Herd recording is almost mandatory. Most of these programmes are tailor made for the industry and based on spreadsheets.

Surprisingly, however, financial systems are not widely used.

With modern technology, transfer of information is very rapid and so it is with computer programmes. All software inspected on my tour had a comparable programme available in Australia, in many cases the local product is superior.

Nuffield Innovation

1990 heralded the introduction of a Russian participant. Eugenii Perov is a man of the world in terms of the performing and visual arts and history, but was quite bewildered by western society. Everyday events and objects we take for granted, were a source of wonderment to Eugenii. After spending 6 weeks with this scholar, I accepted his invitation to visit him in Russia.

He is trying to do something special and never having been a communist, allows his creativity to be productive. His aim is to establish an International Farming Centre at Zagorsk, where Western farming advisers and investors

can be assisted with contracts and opportunities for joint ventures. I hope, for his sake, his dream becomes reality.

After 79 years of communism, the effort required to turn the country into a market led economy, is enormous. Three generations of non productive mentality has to be reversed.

Shop shelves ARE empty, people ARE hungry and the general condition of the country shows a lack of investment and care. The Western world has to get involved and cash aide will be a part of that involvement, however, the most significant aid we can give will be by way of practical assistance, leadership and joint ventures.

Eastern Europe is changing quickly and Australia must be involved through private enterprise, not Governments - there is a well founded mistrust of "officials".

Conclusion

The preceding notes form, in part, my impressions and deductions gained whilst in pursuit of my Scholarship topics.

Like all scholars before me, the compilation of notes and collection of reference material is extensive. All of this material and any comments I may be able to add, is available to anyone interested.

Brendon Smart
South Australian Nuffield Scholar 1990

Supporters

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