Nuffield Global Focus Tour Report

Regions visited

Victoria (Australia), California, Mexico, Toronto, Washington DC, Brazil, England

Common themes

Agriculture in each country is faced with similar issues, each with national variations. "Sustainability" is interpreted and managed differently in each country.

1. Food security, fuel security and climate change are increasingly on the political radar. However government responses and priorities vary.
2. Water security; urban/industry/agriculture have competing demands.
3. Increased input costs; fuel, fertiliser, chemicals, seed.
4. Higher grain prices due to diminished world stocks & mandated ethanol targets.
5. Land values driven by proximity to urban centres.
6. Aging rural population, difficulty attracting younger generations onto the land.
7. Plenty of opportunities for those that can harness them, but they often require significant capital investment and lengthy lead times to reach full production.

Highlights

California: Red Rock Ranch

- Salinity and rising water table were constraining production on irrigation land.
- Constructed network of tile drains to remove saline water.
- Wheat yield increased from 2.5t/ha to 7.5t/ha.
- Extracted saline water used to grow brine shrimp for pet food industry.
- Magnesium Chloride, Calcium Chloride and Sodium Sulphate removed from brine shrimp water and sold for commercial use.
- Resultant "soft" water subsequently used for irrigation.

Ontario: Stantons Dairy Farm

- Nutrient management and urban interface issues.
- Supply managed industry with quota cost of $30,000/milker (approx').
- Milking 750 head with capacity to grow to 2,000 head.
- All effluent and wastewater run through a bio-digester.
- Power generated from methane captured from bio-digester.
- Solids used as an alternative to peat moss by the nursery industry.

- Collaborative research with Guelph University trialling the growth of algae on water ponds for bio-diesel production.

England: Elean Straw Fired Power Station

- 200,000 tonnes of straw burnt each year (2% of the UK's surplus straw), supplying 38 MW to the grid (80,000 homes), using 3 MW to power the station.
- Second grade straw < 25% moisture, 95% wheaten straw, barley straw too valuable as stock feed, some canola straw but different combustion rates.
- By-products: "fly ash" turned into fertiliser, which is high in potassium and phosphate, and "wet ash" used as an ingredient in building blocks.
- UK Government's mandated renewable energy targets has resulted in Renewable Operating Certificates (ROCs) for electricity generated from Elean trading at three times that of electricity conventionally generated.

Regional overview

Victoria

1. Climate change: perception has become "reality", governments are responding to societal concerns, agriculture should be pro-active in providing solutions or risk being excluded from Emissions Trading Scheme negotiations.
2. Water use: despite ongoing constraints with drought and regulatory cuts to water allocations, entrepreneurial use of water has ensured continued profitability in the dairy industry.
3. GMO's: have a role in Australian agricultural production systems, market response varies, research shows greater consumer preparedness to purchase GMO products if product is one degree removed i.e. consuming milk from cattle fed GMO corn more acceptable than directly consuming GMO corn.
4. Market support mechanisms: international perceptions of the extent and effect vary greatly between Contemporary Nuffield Scholars from participating countries: Australia, Canada, Ireland, New Zealand and United Kingdom.

California

1. 7th largest economy in the world, largest agricultural producer in the States, freights the majority of its produce east of the Mississippi River where two thirds of the population live.

2. Extractive water use with recurring diminished snow falls leading to reduced aquifer recharge. Convoluted water entitlements; historical, Federal and State. Limited forward planning, increasingly constrained by environmental groups.
3. Farm profitability built on cheap labour (AUD$13/hr), which is vulnerable to legislative change as has occurred in Arizona where the onus of proof to legitimate the status of labour has been forced back on the employer, with devastating effects. Estimated 12 million undocumented immigrants in USA.
4. High land prices given close proximity to cities, 70% of farms are within 2 miles of an urban centre, leading to increased land use competition.
5. Integrity of chemical certification and organic systems questionable with both co-existing next to each other with no buffer zones and limited residue testing.
6. Limited evidence of co-operative/community based initiatives, every man for himself, the market will prevail and the biggest operator will win out.

Mexico

1. 13th largest economy in the world, underpinned by oil exports. Estimated to be 6th by 2050. Constitutional requirement that only the State can refine oil and sell petrol. Agriculture produces 3.9% of GDP, employs 18% of workforce.
2. Cheap labour: 160 pesos/day ($17AUD) machinery operator, 100 pesos/day ($11AUD) farm labourer. Diesel 74c AU/litre.
3. Land prices comparable to western world, driven by proximity to urban areas.
4. People become consumers once they earn more than $5/day.
5. CIMMYT: maize, wheat and rice research for developing countries. Originally established in 1943 by Mexican Government and Rockefeller Foundation. Donors today include GRDC and the Bill and Melinda Gates Foundation.
6. Gates Foundation previously only funded health programmes but now realise that agriculture is a key driver to a significant range of associated socio-economic outcomes. AUD$29m grant to US university for Ug99 rust research.
7. 90% of Australia's wheat varieties are derived from CIMMYT research.
8. Major wheat issues: 1. "super" stripe rust Ug99, which is spreading rapidly with no known control and 2. developing drought resistant wheat varieties.

Ontario

1. Dairy and Poultry industries "supply managed" to produce only for domestic consumption. Producers paid the industry average cost of production plus margin. WTO negotiations will result in eventual dismantling of scheme.
2. All farms must have nutrient management plan, regulated to minimise runoff into watercourses. One third of nutrients in Great Lakes from agriculture, 1/3 from urban runoff and waste, balance airborne from mid-west US and Quebec
3. Food industry producing as much waste with water and carbon as agriculture.
4. Mandated ethanol targets. Increase in biomass production in next 10 years based on switch grass (perennial). Also experimenting with willow trees.
5. National Farm Stewardship Program. Seeks to encourage BMP by improving the quality of soil, water, air and biodiversity. Incentives are only available upon completion of an Environmental Farm Plan and must be applied against a list of annually updated, peer reviewed BMP categories and practices.
6. Focus on regulatory modernisation to expedite decision-making and approval process as constraining investment and development in Ontario.

Washington DC

1. Presidential campaign over shadowing most issues. 55,000 registered lobbyists in Washington pursuing numerous agendas.
2. Farm Bill: gridlocked between both Houses and President. Proposed Bill currently AUD$18.3bn over baseline budget, to be funded by tax increases with limited reduction in farm subsidies. President will veto in current form.
3. Historically subsidies AUD$5.4bn for production and AUD$10.8bn in loan and price programmes. Subsidies cut out when net farm income > AUD$2.2m.
4. DOHA: President and Administration support current round of negotiations. Presidential candidates, publically, all more inclined to protectionist policies. Dairy and sugar "sensitive" products in US WTO negotiations.
5. Domestic demand flat. 25% of agricultural production exported, potential growth area. Presently exporting 30% NAFTA, 27% EU and 43% Asia.
6. Cow herd diminishing. Exporting beef to higher value markets whilst importing cheaper beef for domestic market from countries such as Australia.
7. Wheat stocks historically low. Looking to GM varieties to increase production as area planted decreases. Soy and corn production moving 16 km south pa.

8. Middle class outside the US projected to double by 2020 to 1bn households. Significant impact on food demand and prices given historically low stocks.
9. Biosecurity regulation seen as the new trade barrier. Korean free trade agreement negotiations will not progress until market for US beef is reopened.

Brazil

1. An agricultural sleeping giant constrained by poor infrastructure, high domestic interest rates, increased input costs (fertiliser imported from Russia and Chile), onerous labour legislation and convoluted regulatory environment.
2. Agriculture 24% GDP AUD$322bn pa. Farm exports 36% AUD$63bn pa.
3. World export ranking. Number one - sugar, coffee, orange juice, ethanol, tobacco, soybeans, beef and poultry. Third - Maize, fourth - pork.
4. Area 623m ha: Australia 447m ha. 249m ha developed: 172m ha grazing, 77m ha cropping/plantations. 60m ha yet to be developed (excluding the Amazon).
5. Abundant water (13% of world's fresh water), warm weather 18-34% (Rockhampton latitude), up to 3 crops in one year e.g. 5t/ha soybean, 45t/ha maize for silage, 120t/ha tomatoes.
6. Soils structurally sound, free draining but low pH (2.0) requiring lime applications for up to 5 years at 2t/ha pa to raise pH to 6+.
7. 10% increase in Brazilian household income will result in the need to double food production as increased affluence leads to changes in consumer demand.
8. Beef export volumes twice Australia's. Reluctance to address traceability in beef herd resulted in exports only to countries not concerned with traceability.
9. Ethanol production: 1925 first ethanol tested vehicle, 1973 first fully powered vehicle, 2007 78% cars flex fuel, 25% ethanol (3.5bn litres) exported 06/07.

England

1. Farmers manage 75% of UK land, most own family block & lease further land
2. Wheat yields: average 10 t/ha, poor year 8 t/ha, and good year 12 t/ha.
3. Increasing tension in EU between food and fuel security. German dairy farmers reduced milking to grow maize, knock-on effect for food security.

4. Increased disease outbreak. Last Foot & Mouth outbreak cost AUD$240m, controlling Blue Tongue by vaccination, TB costing industry AUD$240M pa.
5. Set aside environmental incentive programme expired. High grain prices resulting in land being returned to cropping. Environmentalists complained when farmers originally paid, now complaining that land reverting to crops.
6. Single farm payment subsidy to reduce to nil by 2012/13.

Source: Confederação da Agricultura e Pecuária do Brazil (CNA) – March 2008