



Australian Government

ISSUES PAPER TO INFORM DEVELOPMENT OF A NATIONAL FOOD PLAN

SUBMISSION COVER SHEET
(not for publication)

Closing date for submissions: 5pm Friday 2 September 2011 Eastern Standard Time (EST)

Please complete and submit this form with your submission to:

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Gene Ethics comments National Food Plan Friday September 2, 2011

The present consultation processes should be the beginning, not the end, of developing, refining and implementing National Food Plans for the long term future. Resources should be allocated to ongoing processes and activities for community participation in shaping our food future. We all rely on food so access to a balanced, healthy diet is a basic human right.

Transfer the processes to develop and implement ongoing National Food Planning processes out of the Department of Agriculture, Fisheries and Forestry and into Prime Minister and Cabinet. Food policy is a matter of such high priority that it needs a more expansive and less constrained advocacy than DAFF can bring to it. Apply the federal government commitment to openness and community participation to continuous food planning processes.

We thank Agriculture Minister Ludwig for an extension to the National Food Plan comment deadline. However, we are greatly disappointed that the Minister has broken Gillard government promises of transparency, fairness and public participation in development of the National Food Plan and has made no commitment to a continuing process.

The discussion paper neglects public processes in food policy issues, saying only: 'The government ... intends drawing upon ideas and suggestions to develop policy options for a national food plan, but not formally responding to specific submissions or issues.' This one-way process stifles debate, cherry-picks pat answers and will not deliver robust policies.

Gene Ethics sought open public forums to discuss the sustainable farming and food production systems based on healthy soils that are needed to permanently feed, house and clothe everyone well. The invitation-only roundtable meetings run by CoxInall for 350 participants were mainly food industry and infrastructure representatives. Few public interest representatives were included and requests to participate, from a wide variety of public interest advocacy groups including Gene Ethics, were refused.

With oil and phosphate reserves diminished, soil and water resources depleting and the global climate changing, we must quickly begin the transition from chemical and GM-based industrial agriculture to ecological farming systems. Yet the National Food Policy Advisory Working Group, answering to the Minister, is composed of entrenched and powerful commercial interests which will not articulate the community's visionary plans for our food production and supply systems needed to feed our grandchildren and their children.

Food is the world's biggest industry and its captains are steering us into trouble for short-term profits. DAFF says: "A National Food Policy Working Group has been established as a forum for active communication between the food industry and government to foster a common understanding of the industry's priorities, challenges and future outlook across the supply chain. ... Members of the National Food Policy Working Group are: * Michael Luscombe - Managing Director and CEO Woolworths; * Michael Byrne - CEO Linfox Logistics; * Dr Alastair Robertson - Deputy Chief Executive of CSIRO; * Terry O'Brien - Managing Director Simplot Australia; * Simone Tully - Owner of OBE Organics; * Jock Laurie - President National Farmers' Federation; * Janine Allis - CEO Boost Juice; * Kate Carnell - CEO Australian Food and Grocery Council; * Malcolm Jackman - CEO Elders Ltd; * Nick Stace - CEO Choice (Australian Consumers Association); * Alison Watkins - Managing Director and CEO Graincorp; * Jeff Lawrence - ACTU Secretary; * Dr Peter Williams - Associate Professor of Nutrition and Dietetics at University of Wollongong."

These people mostly represent vested interests that will not propose or support the necessary transition to more sustainable futures that food security and sovereignty require. The public and public interest advocates are marginalised and this will not produce a good plan nor win public allegiance for its implementation.

Questions for consultation

Chapter 1 Overarching questions

The terms 'food supply' and 'food industry' should refer to all parts of the food supply chain, including everything **from seed to spoon** rather than 'paddock to plate'. The increasing monopoly ownership and control of all parts of our food supply are not in the public interest, especially the supply of patented productive organisms - seeds, animals and micro-organisms - that are the basis of our food supply and all life on earth.

1. What is the most important thing you think a national food plan should try to achieve?

A smooth transition from industrial agriculture to viable, secure, sustainable and sovereign food production and supply systems based on agro-ecological principles that can permanently guarantee every Australian a nutritious, balanced diet of fresh and minimally processed foods.

2. What do you think the vision and objectives for a national food plan should be?

Vision:

Secure, sustainable and sovereign food production and supply systems based on agro-ecological principles (nurturant; equitable; humane; ecologically, socially and economically sustainable) that permanently guarantee every Australian food producer and processor a fair income and a nutritious, balanced diet of fresh and minimally processed foods for all.

Objectives:

- enable the community to fully participate in setting the priorities for future food systems;
- engage every sector of society in some local aspect of food production (school kitchen and community gardens; farmers markets; land management; food swaps; etc.);
- nurture, populate and upskill communities, especially rural and regional areas;
- add real value to all primary products to support Australian industry;
- end the distorting, destructive emphasis on raw commodity production, mainly for export;

- reduce food waste and ensure that everyone has access to an affordable, healthy, adequate and culturally appropriate diet to meet their right to be fed;
- adapt to global climate change and reduce the effects of other environmental degradation;
- reverse soil and water depletion and the loss of arable land to urban, mining and other adverse impacts;
- end our dependence on scarce, limited and depleting inputs such as oil and phosphates;
- repair the damage that industrial agriculture has already done to land and water;
- reality test the success or failure of government and industry backed novel food production methods such as genetic manipulation which have not delivered on their inflated and unrealistic promises, yet distort Research and Development priorities at the expense of more promising options;
- create a sovereign food system that in times of crisis could feed all Australians without dependence on imports.

3. What do you see as the major risks to Australia's food supply in the coming years and decades?

Failure to develop policy and action plans on:

- foreign and corporate monopoly ownership and control of seed, land, water, minerals and other productive and infrastructure resources;
- loss of food processing facilities and capacity to overseas owners and locations;
- adding real value to primary production rather than exporting raw commodities and live animals;
- the depletion and dissolution of soil and water resources;
- dependence on increasingly scarce and expensive inputs such as oil and phosphates;
- failure to adapt quickly to global climate and other negative environmental changes;
- nurturing, populating and upskilling rural communities;
- engaging every sector of society in local aspects of food production;
- adjusting R&D priorities to a systems focus, by reality testing the technology focus and not trying to pick technological winners as the Productivity Commission recommends.

How could they be avoided or managed more effectively?

Continuously engage the public with food issues as the top priority. Encourage government intervention and regulation to solve obvious market failures. End our engagement with the DOHA round of trade negotiations and stop selling out local interests in so-called 'free trade agreements' that disadvantage Australians in exchange for limited and delayed access to export markets. Apply the precautionary principle to biosecurity hazards such as NZ apple imports and elimination of Asian bees.

4. What does food security mean to you?

Food security is Australia having adaptable, sustainable and sovereign food production and supply systems based on agro-ecological principles that can fairly, justly and equitably provide everyone with an affordable, nutritious, balanced diet of fresh and minimally processed foods, permanently, regardless of gender, age, ethnicity, religion, income, profession or station in life, and also guarantee Australian food producers and processors a fair income which allows them to continue operating.

How would this be achieved?

Public policy should refocus away from the mantras of so-called free markets, free trade and technological innovation, which enable corporations and institutions to minimise their responsibility to serve the public good.

How would we know if/when we are food secure?

It would be measurable as improvements in:

- good responses to acute and chronic food crises resulting from disaster, social inequity, price rises, and other perturbations;
- good nutrition, improved health and reductions in acute and chronic disease, and obesity;
- reduced rates of acute and chronic dental hygiene and related health problems;
- happiness and general community wellbeing;
- successful locally-owned and managed food businesses and food institutions;
- less food waste and lower volumes of food going to landfill;

5. What are the most important benefits that Australian citizens get or should get from our food supply?

- recognition that we are not merely passive consumers to be manipulated into purchasing inferior foods but are active and empowered citizens with inalienable rights to quality food;
- affordable and available, fresh and minimally processed food options;
- excellent nutrition, improved health and reductions in acute and chronic disease;
- reduced rates of acute and chronic dental hygiene and health problems;
- happiness and general community wellbeing;
- successful locally-owned and managed food businesses and food institutions;
- less food waste and lower volumes of food going to landfill;

Why?

Food is not merely fuel.

6. What two or three actions:

- by the government sector would most benefit food citizens?

- children to be well-educated about good food and food habits;
- stop junk food advertising, especially to children, and discourage junk food availability;
- resource the engagement of all children in local food production and preparation.

- by the non-government sector would most benefit food citizens?

- educate children about good food and food habits and empower them to acquire the skills needed to make these a priority in their lives;
- create local opportunities for all children to be positively engaged in some aspect of food production and preparation;
- create a local culture of healthy food availability and support those choices.

7. What do you see as the major opportunities for Australia's food industry in the coming years and decades?

Feeding all Australians well by providing affordable diets of fresh or minimally processed high quality foods. Fostering a culture of acceptance for affordable nutritious foods to replace energy-dense but low nutrition inferior junk foods, especially those loaded with high risk fat, salt and sugar.

How could they be realised?

Introduce public policies that penalise junk and fast foods and food advertising, and favour healthy food choices.

Allocate increased public and private R&D funding to organic and other sustainable systems, rather than disproportionately funding technical innovations that merely prop up the existing industrial system.

8. What two or three actions:

- **by the government sector would most benefit businesses that make, distribute and sell food?**

Educate children to seek out and buy quality fresh and minimally processed, local, organic and healthy foods. This is fully justified by savings to the health system which is increasingly unable to meet the needs of those with chronic disease as a result of poor food and lifestyle choices.

Facilitate children to engage in food production, processing and preparation so they appreciate the benefits of good balanced diets.

- **by the non-government sectors would most benefit businesses that make, distribute and sell food?**

Also facilitate the engagement of children in creating a quality food culture to support personal and community health.

10. Which regulation or regulatory regime poses the greatest burden on the food industry along the food supply chain (production, processing/manufacturing, transport and logistics, wholesale, retail)?

Industry should think of regulation not as a burden but as a benefit, to themselves and society, as compliance with regulations earns the trust and confidence of customers.

Concentration of ownership and control, at all levels but especially in seed, grain handling, marketing and retail are a burden to us all. Monopoly profits benefit only those who unfairly take them.

What could be done to reduce this burden?

Public communication that emphasises the importance of regulation and the social contract between the food industry and its customers would benefit, not burden, all. Trust and confidence are essential and are enhanced by good regulation.

11. What two or three actions:

- **by the government sector would most benefit communities that are highly dependent on food production, processing, distribution or sale?**

Encourage migration of local and overseas people with key food skills permanently into rural communities.

Provide excellent community services in regional areas.

Level the cost of living and disincentives for regional living.

Promote multiculturalism in regional Australia.

- **by the non-government sector would most benefit communities that are highly dependent on food production, processing, distribution or sale?**

Support and encourage government measures and utilise resources provided.

Chapter 2 Current approach to food policy

12. Do you think that the development and implementation of government policies related to food are adequately coordinated?

No.

If not, please explain why and provide examples.

The three tiers of government need a unified plan for food, from seed to spoon.
Federal government food regulation – FSANZ; APVMA; OGTR – are delinked from powers to implement and enforce at the state and local government levels.
States and local government are grossly under-resourced to implement good food plans.

What mechanisms could the government consider that might address your concerns?

Facilitate full public participation and openness at all levels.
Mechanisms and processes for continuous and genuine public participation in food policy and planning at every level of government.
Fund and promote regular food forums and activities within communities – on the Landcare model.

Chapter 3 Food security

13. Have all the possible risks to Australia's food security been identified in this paper?

Applying the precautionary principle to all the risks would see us planning in a measured way to transition out of a position of vulnerability to one of invulnerability and strength.

The paper mentions most of the obvious risks but these are not explored in any depth nor with precision. The paper's problem focus and negative preoccupations makes it insufficiently solutions-oriented.

The paper should also explore opportunities that accompany risks. For instance, the general decline in agricultural research and development (R&D) mentioned should be reversed by public policy, with a new focus on sustainable systems rather than more technologies.

And reliance on phosphates should be phased out as a precautionary measure. The upbeat claims of 100 years of global reserves (when we are already in a synthetic fertilizer price and supply crunch) should be met with a transition strategy rather than complacency.

The same goes for the end of oil, coming soon or not.

If not, what other risks are you aware of?

Also needed are flexible contingency plans for as yet unforeseen risks and hazards as we can't foresee events in the long term.

Likewise, we should be ready to benefit from unforeseen opportunities as they arise.

14. What specific additional actions by:

- the government sector would most benefit our food security status?

Adopt educational policies in primary schools to assist a youthful interest in and commitment to sustainable farming and the top quality food supply, as an adjunct to heightened awareness of environmental, health and lifestyle issues.

- **the non-government sector would assist in maintaining our food security status?**

Implement government-backed educational policies in primary schools and other institutions to assist a youthful interest in and commitment to sustainable farming and the top quality food supply, as an adjunct to heightened awareness of environmental, health and lifestyle issues.

16. What specific actions would help improve food security in remote Indigenous and low socioeconomic populations?

Programs of self-reliance and pride for the local production of fresh fruits and vegetables to augment the foods available from the natural environment. Start with the children and elders.

Chapter 4 Diet, nutrition, food safety and the consumer

17. Do you see a role for the food industry in supporting population health and nutrition outcomes?

Yes, through the provision of fresh and minimally processed foods and good labelling. Also promotions in keeping with public health messages.

Junk and fast foods high in sugar, salt, fat and highly refined and processed ingredients should never qualify for any preventative health labeling, or promotion in a broader health context.

Truthful, transparent and accurate information must be on all food labels. Food labels must not include promotional or advertising material, such as questionable high-level health claims, claims of enhanced functionality for specific diseases, or claims of nutrient enhancement to synthetically redress the negative impacts of processing on food quality and nutritional value.

If so, what do you believe that role is and what support might industry need in fulfilling this role?

Incentives might be provided for junk food vendors to improve the nutritional profiles of their products, to minimum standards set by government, community advocates and the community working together. The good health of future generations depends on it.

18. Some food industry sectors have developed tools to demonstrate desirable product attributes to consumers, for example through organic or environmental certification.

These positive initiatives deserve further encouragement. For instance, they should be supported with a fairer allocation of R&D, promotional and marketing resources than they now receive.

Do you know of any examples of food supply markets that are not adjusting to evolving consumer demands (that is, potential market failures)?

Junk food is a public health hazard and vendors provide only a gloss of meeting community expectations of fresher and more nutritious balanced diets.

What are they and how could they be encouraged to adjust (that is, not fail)?

As they are price and competition-driven enterprises, they have little incentive to improve the quality of their menus by removing salt, fat and sugar, using higher quality ingredients and treating their workforces better.

Blanket advertising distorts the public perception of these products and should, like plain package cigarette advertising, be more strongly regulated to ameliorate the worst excesses of this industry.

19. How do citizen perceptions of food production (across the food supply chain) affect food-related businesses and regional communities?

Childhood education and family practical exposure to food production and processing is an antidote to the fast food nation and the culture it breeds.

A national program of home and school-based food-related activities should be part of the plan.

What research has been done on this?

Don't know.

20. Are you confident in the food you eat?

Generally, yes, as we buy fresh and minimally processed organic foods whenever possible.

If not, what aspects concern you?

I am concerned about the products of novel food processes and technologies, approved under Food Standard 1.5.

The science behind these decisions is disputed by experts and some novel foods are unsafe for experimental animals to eat, which leads us to conclude they may also harm humans.

Do you believe food in Australia is safe?

In the narrowest of phyto-sanitary senses most are probably safe to eat.

If not, please outline which aspects of food in Australia you believe are not safe and what needs to be done to ensure all food in Australia is safe?

Novel foods with limited or zero history of safe use in the human food supply (those requiring pre-market assessment under the provisions of Food Standard 1.5) are inadequately assessed and regulated.

They may have long term health impacts.

30. What are the top citizen priorities in product innovation over the next 5, 10 or 20 years?

Fresh, minimal processing and additives, organic and eco-friendly, sustainable, affordable, local, environment and health-friendly, profitable for farmers and suppliers, nutritious, part of a balanced diet, secure supply, Australian owned and operated,

31. What could government do, consistent with a market-based policy approach, to help the Australian food industry take a long-term strategic view to exploit growth opportunities?

First get off you 'market-based' mantra and start acting in the public interest as you should do. The global financial and rural economic crises expose the flaws in purely market-based approaches. It's

long past time that the government reviewed and modified its commitment to so-called 'free-market' economics which do not serve community interests.

32. How could the food industry make the most of emerging market opportunities, including niche markets such as food tourism?

We want government to focus first and foremost on the abundant opportunities to make Australia more food secure within its own borders.

Could the Australian Government play a role in this area?

That's not your core business.

33. How could the food industry research and development agenda be improved to ensure more involvement from industry and more effective identification of its needs and the needs of consumers?

Engage with its customers and other constituents, including food, health professionals and public interest advocates, in a participatory, collaborative and continuous program of dialogues.

34. What should a successful, innovative Australian processed food industry look like in the short, medium and longer term?

It should aim to supply products that are nutritious and healthy by using ingredients that are minimally processed, organic and that minimise the range and quantity of preservatives, colourings, flavours, processing aids and additives. Michael Pollan's rule of thumb that if a processed food contains more than 6 ingredients, it is probably over-processed and not conducive to good health.

35. What are the key areas for research and development investment that would produce the necessary productivity gains for the food industry?

Productivity is not the only measure or value that should be pursued. For instance, bringing a more diverse range of well-adapted food plants into Australian agriculture from around the world may open new opportunities for expansion.

36. How could the tension between new technology adoption (such as biotechnology or nanotechnology) and public concerns about possible associated risks best be managed?

The assumptions embedded in this question first need critical analysis.

1. The tension 'between new technology adoption and public concerns' is based on substantial scientific evidence. The public are entitled to be sceptical.
2. Public concern is not only 'about possible associated risks', but also concerns such issues as the ownership and control of patented seed, weak regulation, corporate disinformation and the distortion of R&D budgets, etc.
3. 'Management' is not a suitable government antidote to well-informed and critical public aversion to new technologies and their products.

Government is spending nearly \$38.2 million of taxpayer funds on the national Enabling Technologies Strategy to promote the products of genetic manipulation and nanotechnology, including public acceptance. State governments and CSIRO are also committed to public private partnerships which amount to public funding and expertise for private gain.

The problem is that government picks what it thinks will be technological winners, backs them with substantial resources and keeps doing so. No mechanisms, such as critical public participation in priority setting and review are built into the system. So there is little reality testing of the success of the science and technology products that government supports.

Governments can't see that their own commitments and conflicts of interest jaundice their objectivity. It is up to them to change, not to change adverse public opinion and rejection of their favoured technologies. For instance, the West Australian Government recently allowed Monsanto to acquire 19.9% of WA public plant breeder, InterGrain, for \$10.5 million. Intergrain produces 40% of Australia's wheat seed, bred over decades by Australian farmers and governments. This deal would allow Monsanto insert its GM traits into the best Australian wheat and claim ownership of those GM varieties. The Office of the Victorian Premier and the Queensland Governments are both members of the Biotechnology Industry Organisation, a US-based organisation that promotes its corporate members' GM products around the world. The Victorian Government aspires to be the largest hub of GM research and development in the Asia Pacific region and signed a public private partnership (PPP) with Dow AgroSciences at the BIO trade show in Atlanta Georgia, in 2009. The Queensland trade commissioner to the USA makes a priority of biotechnology promotion.

Again, the discussion paper says: 'While technological innovation in its many forms is critical for improving productivity from paddock to plate,' (this is a very big assumption that is not supported by most evidence) 'there is some consumer concern about use of some new technologies (such as genetic modification and nanotechnology) in food production and food products.' While industry may want to spend its resources modifying this negative public perception of GM and naotechnology products and promoting public acceptance, we do not consider that the government has a legitimate role in public relations activities that seek to assuage public concern in the face of disquieting evidence. Governments should desist.

Government is also backing winners when it claims: "New 'plant varieties for high inputs' - geared toward more efficient use of water, herbicides, fungicides, pesticides and land surface area are also being developed within Australia." It's overdue to reality test the successes and failures of these expensive and time consuming endeavours, and defund those that have not produced any discernibly useful results in the past decade.

It is foolish and patronising when government narrowly defines and mischaracterizes important problems without consulting its critics. For example, the paper claims: "Consumers are concerned about use of technologies... for example, possible allergens and whether the use of antibiotic resistance marker genes in genetically modified foods may lead to microbial resistance to antibiotics, with potential human health implications. They are also fearful that as a result of genetic engineering accidental toxins or other harmful compounds may be introduced into food products." These are part of the picture but as mentioned before, community concerns about the safety of novel foods is only a part of public rejection of the products of genetic manipulation and nanotechnology which have limited history of safe use in the food supply.

While: "FSANZ considers the scientific evidence in assessing the safety of foods made with technologies such as genetic modification. FSANZ also provides information on these issues on its website." But FSANZ says its assessments are 'science-based' and 'case-by-case'. It does not use the scientific method and since there are no objective criteria set down in its regulations, FSANZ accepts a grab bag of ad hoc evidence in support of the applications it approves. The range of values that FSANZ assessors consider acceptable when determining the 'substantial equivalence' of novel and traditional foods are also made on a case-by-case basis.

The food industry and the community will benefit from keeping genetically manipulated (GM) crops and nanotechnology out of production processes.

The demand for Australia's GM-free canola is so strong in Europe that Co-operative Bulk Handlers (CBH) says Europeans will buy 90% of WA's non-GM canola production at a 5% premium over GM canola this year. "When you're growing GM, at the moment you need to compete against Canada, but when you've got non-GM you get a free kick into Europe and some markets in Japan. There's a massive advantage to be growing non-GM this year, because Europe has been so aggressively buying up all the non-GM tonnage."

The GM canola market is so weak now that several grain buyers will not buy GM canola at all while others will accept it only at a discount of up to \$50/tonne less than non-GM canola prices. CBH says the discount is likely to persist for at least five years and the 49,000 tonnes of GM canola produced in WA in 2010 remains in silos, unsold.

In stark contrast, in GM-free South Australia Kangaroo Island Pure Grain is just one company benefiting from strong local and international demand for its non-GM canola and non-GM canola honey for which its growers are also earning substantial premiums.

Farmer protection laws are needed to automatically compensate farmers or supply chain managers contaminated by GM, instead of them having to go to court. A fund collected from the sale of GM seed should be established so that the owners and licensees of GM crops pay for any GM contamination and damage. Farmer protection laws would ensure that growers like Steve Marsh, a WA organic grower decertified after GM canola blew onto his land, were automatically compensated from an independently administered pool of funds.

GM crops are not a global industry. The industry-backed service ISAAA (www.isaaa.org) reports that last year 50% of all GM crops were grown in the USA alone and over 90% in North and South America. 170 countries and 60 dependent territories have said 'no' to GM and remain GM-free.

GM crops have stalled too. The same four crops launched in 1996 - soy, corn, canola and cotton - are still the only broad-acre GM plants grown commercially (with the exception of GM herbicide tolerant sugarbeet, now entering US agriculture). The two traits launched in 1996 are still those available - Roundup tolerance so GM crops can still grow when sprayed with the potent weed-killer; and plants that make their own Bt insect toxins, to kill the caterpillars of some insects when they eat the plant. North American growers are now experiencing the impacts of herbicide resistant weeds and pesticide resistant insects. Yet they are locked into GM varieties because the monopolised seed companies have not retained or developed new conventional crop options.

GM seed patent owners have the burden of proof to convincingly show the safety and efficacy of their products. Scientific American and Nature Biotechnology report that GM companies withhold seed from independent research and adverse findings are censored. Even so, published papers show that some GM soybean, corn and canola harm experimental animals and may pose health risks to people.

For instance, ANU toxicologists found CSIRO's GM field peas, containing a gene from a bean, provoked immune and inflammatory responses in mice. French researchers found rats fed GM maize showed significant liver and kidney damage. And scientists at the Rowett Institute, Scotland, found intestinal and immune system damage to rats fed GM potatoes. Now Canadian gynaecologists have also found Bt insect toxins from GM plants in the blood of pregnant women and their fetuses (Aris and Lablanc, *Reproductive Toxicology*, 2011), which requires further investigation.

Despite the expenditure of \$45 billion of public and private money over the past 30 years, GM crops can't deliver on their promises of plentiful food and fibre, drought and salt tolerant crops, and more nutritious and longer shelf life foods. But their empty claims take research away from sustainable farming and food production systems based on healthy soils. These are needed to feed, house and clothe everyone well, in perpetuity. With oil and phosphate reserves diminished and global climate

changing, we must begin the transition from GM and chemical-based industrial agriculture to ecological farming systems.

37. What could government do to accelerate food and nutrition research and development to successful commercialisation outcomes?

We don't need the latest finding or fad introduced into the food supply quickly. Plenty is already known, for example, about the negative health impacts of excess refined sugars, salt and fat in the diet, yet government has done little to ameliorate their impacts. Let's work with what we already know and can be sure of before moving on to claimed evidence that food processors may want to use without good justification.

43. What could be done to use growing student interest in environmental issues to meet the skills needs of the food industry? (For example, the decline in supply of agricultural science graduates has corresponded with growth in environmental science graduates-there are crossovers and shared interests for these study pathways).

Broaden the scope of the environmental science courses to include modified environments such as farms, in addition to the natural environment.

Recast farm management as soil, land, water, and living organism management and provide incentives, rewards and gender neutral career paths.

Provide assurances of liveable farm incomes that will not necessitate working off farm to remain economically viable.

44. What could food businesses do that would enable them to function effectively with a less abundant supply of labour? Are there any barriers to making these changes?

Smarter systems, not more technology and inputs!

Remedy the shortage of labour by providing the social infrastructure context for migration into rural communities, on the model of the Southern European migrations of the '50s and '60s.

Chapter 6 Sustainable food industry

45. What else could governments or non-government groups do to promote economic and social sustainability of food production, processing, or distribution (including resilience to economic or other shocks)?

Don't rely exclusively on market mechanisms. Public policy, rewards and incentives, need to be embraced as legitimate mechanisms where the basic viability of the nation is at stake.

46. What region-specific issues should be taken into account in a national food plan?

Competition with mining and urban sprawl.

Rising sea levels and falling water tables.

Increasingly frequent extreme weather and other destructive natural events.

Abundant, affordable, fresh, minimally processed foods for remote indigenous and other communities, to be solved by training and mobilising local resources for local food production and security.

47. Who will be farming in 2030 (and 2050)?

Our farmers and farming communities will be a new generation of young active and innovative women and men who are trained in systems for sustainable, low-input land management for food and fibre production.

They will be highly trained in agro-ecological and organic systems that nurture productive soils and optimum water management, also minimising inputs of declining external resources.

What will farmers' relationship to the land be (ownership, management, leasing) and what are the implications of this for social sustainability of farming communities?

Whatever land tenure systems emerge (presumably a mix) keeping young people actively engaged with rural land, water, vegetation and wildlife management as well as farming will be essential for the productivity and sustainability of the whole system.

Farmers will be rewarded by our society for being sustainable land and vegetation managers as well as food and fibre producers.

Their work will be valued as essential for secure and sovereign food supplies to sustain healthy urban and rural communities.

48. What (if any) contribution could action on food waste make to improving the sustainability of Australian food supply chains?

Further support and expansion of the Food Bank type of operations such as Second Bite and Fair Share, organisations that recover both cooked and fresh foods about to be disposed of due to oversupply and/or with minor blemishes.

These organisation divert tonnes of food from landfill each year and distribute to hundreds of charities. There are positive benefits for both the environmental (reduced landfill & greenhouse gas generation) and social (feeding people who may not be able to afford to feed themselves and their families) systems.

What are the best opportunities to reduce Australia's generation and landfill disposal of food?

Distribute compost bins and worms free to all households through local councils.

Provide local training and advice to all citizens in compost and vermiculture management.

As appropriate, provide equipment and training to institutions: high rise and apartment buildings, schools, etc. Especially engage children in recycling food waste.

Where food is beyond human consumption then it should be diverted from landfill to compost facilities, where the food organics are mixed with garden organics, mulch and other organics and composted for used in market and landscape gardens.

Need to ensure that the composter is operating to EPA standards and the end product is pasteurised but in Australia to date this has primarily been aerobic composting.

Advanced organic recycling facilities able to recycle food organics using predominantly a slow compost anaerobic process that can also generate electricity, popular in Europe and the USA, currently technologies being promoted within Australia.

Are these subject to market failures (that is, the private sector does not have commercial incentives to better manage food waste)?

The compost options have commercial incentive issues as they are run as a business and need to charge a per tonne gate fee and charge for the compost end product.