Waikato 'Growing for good' Workshop, 17 February 2005

Key Take-home Messages

This section lists the key take-home messages from the Waikato workshop only.

The Importance of Farming to New Zealand's Wealth

• No key take-home messages

Effects of Intensification on Natural Capital

- Farmers are aware of environmental issues and want to solve them. 'How' is the challenge?
- Farmers need to be more pro active e.g. sheep and beef to regain "clean green" image
- Shouldn't be limited by property size (e.g. not just big farms, but lifestylers need to realise the impact they are having too)
- Farmers need information about local areas e.g. what is happening, why, how help move forward. Help to educate their own staff
- Practical on-farm indicators research required to develop a sustainability indicator

Understanding the Impact of Economic and Social Drivers

- Identifying indicators for all drivers
- Not an individual farmer problem farmer / farm is part of a greater whole drivers outside the farm – outcomes impact off farm

Drivers – Economic

- Costs Land, Products, Advice, Compliance = Key driver in intensification?
- Acknowledge \$ and social pressure on land users from markets, supermarkets]
- We're killing the structures that produced responsible farm owners (young people can't get sharemilking jobs and progress to farm ownership)

Drivers – Social

- Social change land owners, market driven, customers / consumers
- Blame v self responsibility

Incentives To Change

- Farmers need to understand the economic implications of changes, plus flow on benefits to the environment 'win, win'. Healthier environment = healthier farming
- We need to let farmers know it is ok to come out of the green closet in regards to sustainability
- More incentives (money / social) needed to promote more change and compliance
- More economic info on pros/cons of various change options
- Give farmers an incentive to farm sustainably
- Optimum production rather than increased production.

Performance of Research on Delivering Needs

- More research into new systems can't just fix one part of the problem
- More research need a stronger dialogue between research and farming 2 ways
- Need for good research (research that is from independent sources)
- Need better understanding of our soils land changes effects exotic tree farming
- Need properly funded research: air/water/soil/fire (the fundamentals of life)

• Research must be independent

Understanding Redesign

- In a sustainable farming situation not everything is perfect but it can be dealt with over time
- Farmers need to reduce the connectivity between soils and water e.g. reduce leaching, wetlands, fence stock out, riparian planting
- 'One bite at a time' small steps to change. Give direction
- 'The answer lies in the soil'
- Incentive to redesign What? Where? Who?
- Concept change from feeding pasture to feed soil

Education Models for Farmers

- We need a co-ordinated communication system extension system (a way of transferring knowledge to those who need it)
- Education not regulation
- Education Key Driver
- Education move from policy to practical young farmers tertiary ed
- Education needed can leverage through collective grouping how does a community list support locally?
- Correct messages needed based on science/technology and perceptions of public/community
- Need to define problem / issue correct message locally specific
- Extension, getting message out is key

Team New Zealand

Education and Communication

- Communication is fundamental for everyone
- Total integration of land users (i.e. not only farmers, and not only rural). Biodiversity/society community/people can be done thru education
- Cost to farmers if they have to pay for environmental costs does not equal what consumers are willing to pay how can consumers have information on those trade offs when they shop?

Working Together

- Not just a farmer problem, but whole of society needs to work together
- Collective responsibility: Urban +/- rural NZ 'INC'. Pride in rural heritage GOOD NEWS messages. Bad news travel fast: RISK
- Unite rural and urban people
- Need for accountability across the board (farmers, industry, regulators and consumers)
- Community action need to engage locals to combine skills need the will to do something

Question of Strategy

- Land treated as a commodity, but it's not! District and regional plans need to recognise suitability of land use for subdivision of new land (for example)
- We need an agreed definition of sustainability (including long term)
- We need a government-led conversation OR we need to have conversation and government's involvement = need their action and industry action etc
- We need a good plan on how to achieve sustainability
- Give some thought for the next generation
- Awareness of internal trends: a) Industry leadership b) Regional / national concerns combined

- Triple bottom line sustainability and one well-defined message for farmers / people and be lead by industry
- Clear defined vision and strategy with timelines and targets. This vision is a collective approach across all sectors: agriculture /horticulture and urban
- Cultural change in NZ. Internally driven rather than imposed from offshore. Becomes a 'core value.' Quality vs quantity
- How do we send the right signals for change? Farmers and consumers this is critical but no solutions. More emphasis needed on environmental indicators with economic costs and values attached e.g. cost to have Waikato River swimmable. Once have that info as a community need to make those decisions on trade offs as a countrywide initiative (or global).

Leadership

- A little 'big brother'/regulator to deal with the farmers that are causing real damage
- Balance needed between regulation and education
- To get required rate of change the industries need to take ownership rather than just dumping on the farmer e.g. Clean Streams Accord doesn't do anything to modify industry behaviour
- Integrated catchment models rather than individual farmer use community build on existing
 programmes this will require a paradigm shift to deal with the tension between private property
 and the community
- Direction from bottom up. Needs an adjustment of the power structure and decision making processes
- Broadly accepted leadership (to develop vision): must be independent, demonstrate action, be proactive, knowledge-rich, inspirational
- Regulation wanted by consumers but don't want to pay extra and it's impossible to monitor and police all these issues.

Waikato Small Group Discussion Notes

This section lists all points of discussion recorded from the Waikato workshop small group discussions. The questions used to prompt small group discussion are listed under each of the seven key themes.

The Importance of Farming to New Zealand's Wealth

The PCE talks about the risks of losing important overseas markets if issues like environmental impact of farming become important to those markets.

- 1. How much risk do you think there really is? (high, medium, low)
- 2. What kinds of things do you think would make that risk higher?
- 3. How immediate do you think that risk is?
- 4. Do you think farmers and the farming industry have a good understanding of this risk and the impact it might have on their farm income?
- 5. What are some of the ways farmers and the farming industry can improve their understanding about the risk of losing important overseas markets?

How much risk do you think there really is? (high, medium, low)

- POV #1 Internal and external risks from environmental impacts high
- POV #2 Moderate to high externally but NZ ahead (NZ competitive advantage)

- POV #3 Medium high risk
- Biggest risks in Europe / Nth America but also opportunities there
- Overseas more interested human capital issues in trade partnerships
- Risks ongoing for farming domestically lose license to operate
- NZ competitive edge is can grow grass, with less inputs than overseas, but this is changing
- CURRENTLY environment standards are NOT required by overseas buyers (dairy)
- NZ primary produce very small proportion of overseas market (except dairy)
- Sustainability is not just about market access and animal welfare NZ issues compared with overseas
- NZ wide vision (as with "nuclear free"): Does 'clean and green' stack up? Are we compromising for a distant market?

What kinds of things do you think would make that risk higher?

- Mitigating the effects new barriers invented everyday more risks become harder and harder
- Supply and demand only used as a barrier when there is a large demand
- Taxes real costs vs tariff barriers
- Environment risks low compared biosecurity risks, not on WTO agenda now but will be in future
- Global warming/emissions more of a threat
- NZ cannot afford a 'BSE' type scare
- Change can happen quickly
- Individuals not accountable

Do farmers and the farming industry have a good understanding of this risk and the impact it might have on their farm income?

Ability of natural systems to sustain environment – don't fully appreciate consequences

Moving Forward

- Comply domestically this can then satisfy overseas requirements
- Research: find out what are others doing overseas? (e.g. organic co-ops)
- 'Internal shake up' (domestic NZ) needed before external shake up and this will satisfy offshore
- Issue is wider than 'on farm' a whole system approach is needed

Effects of Intensification on Natural Capital

Research in New Zealand and overseas has demonstrated that intensification of farming can lead to pollution of surface and ground fresh water. Some farmers have responded by building bridges, fencing off waterways, and riparian planting.

- 1. Is this enough to fix the problem? If no what more needs to happen?
- 2. Can farms in New Zealand survive with less synthetic fertiliser?
- 3. How does a farmer know that his/her farm is sustainable?
- 4. What kinds of information does a farmer need to know that his/her farm is sustainable or unsustainable?
- 5. Is this information readily available to farmers at the moment? Is this enough?
- 6. How well do we understand the impact of nitrogen on our natural capital?
- 7. How well do we understand the impact of irrigation on our natural capital?

General

- Differences we have between dry stock and dairy systems, not to mean one is better that the other, but pressures on dairy will happen to sheep and beef further down the track, despite the different issues e.g. sheep dips
- Don't want to lose 'clean, green' image. But favourable climate so get good response to farming intensively (which is why we have this problem!)
- Farmers intensification to get the most out of the environment
- Difficulty to measure change in a meaningful way due to long time lags
- Did anyone ask the farmers in this study if their farm was sustainable over the next 50 years? If asked me 90% of current practice would be (looking at the production side of things, possibly also including the value chain) 10% would not be.

Is this Enough to Fix the Problem?

- Effects of Intensification: Need to define problem...Is there a problem Event or problem?: Surface water yes, Ground water?? Problem Definition (urban vs rural?) How big?
- Enough science
- By whose standards?
- Accuracy of standards/accuracy of science?
- Where is the problem?
- Downtrending due to BMPs vs intensification community requesting higher standards problem escalating at intensification and economics
- Problems with shifting targets water quality targets shift risk.

What kinds of information does a farmer need to know that his/her farm is sustainable or unsustainable?

- Farmers need information about how much is happening, where and how. At the moment all of it is finger pointing
- Farmers need practical targets: can't go back to pristine systems
- Farmers need to know where they are going what if their land is un-farmable in 20 years? Possibly land prices decrease?
- Farmers monitor things they need to know to manage farm impact off farm irrelevant? Require measurement
- How does a farmer know their farm is sustainable? (Definition?, from whose perspective?, what is today may not be tomorrow, what is the clear message to farmers? What is the message?)
- What is right and wrong? Correct message needed
- Kinds of Information required: Market signals/Targets for water quality with good science re.g. council
- Key indicators economic, social, production
- Need to engage community understanding impacts etc
- Is information readily available?:
 - Internet info available but what uptake?
 - Communication how info sourced
 - \circ Need interpretation making general info relevant to farm systems
 - Info is least limiting but needs consistency
- Do farmers have enough information to answer that question? Farmers get changing messages. Farmers may think they are sustainable, RC may differ. Nobody has all the information – new information coming in all the time e.g Taupo farmers – have done a lot of work then told not enough

- What measuring stick to use? How do you calibrate it? Constantly changing environment e.g. 20 years ago if was fine
- How do we prepare farmers for this?
- Not clear on the environmental 'bads' and public 'goods'
- Plenty of individuals have directed resources to better environmental use within their own farm boundaries

Nitrogen

- Sheep and Beef at an advantage at the moment, as not same levels (of N use) as dairy yet
- More fertiliser be used on sheep and beef country
- Need to come up with different driver (incentive to not use N)
- Learning from overseas (capped limit) but what are the drivers?
- But cost of nitrogen is rising: may alter application
- Nitrogen is TOO cheap
- Need to be re-educated to not put N on. Education of N cycle in soil, in water, in plants, in atmosphere
- Probably not enough knowledge water quality still declining
- Way we use N is part of the problem, and part of the solution
- Make more use of N already available and different products around (e.g. N inhibitors)
- Nitrogen issue: need to fine tune application don't put too much into system
- Even if bagged N not added to land, still a problem with animals urine (increased stocking rates)
- Urine on a concrete pad better that on soil because can capture it before it leeches into water
- N can be stopped by putting cows on pads and collecting it, but will increase energy costs to farms
- N easier to control in soil. Base system on this
- Moisture needs to be held in the soil to help N absorption
- Poor performing farmers are pouring nitrogen on to make up for poor management
- Better farmers put on barest minimum: 137 units N per year, 6 applications
- Animal welfare issue: short of feed urea: increase supply
- Nitrogen fertiliser not the problem: Historical context need to understand the longer timeframe
- Dairy Accord a start but need to address the whole catchment
- Fencing / planting help long term
- We definitely over fertilise in New Zealand: There are other technologies
- More phosphate being used might be of concern
- Could be delayed possible effects: Delays are critical/ impacts on economic investments
- N Inhibitors sticking plaster only
- (Loss of clover) red herring? Intensification has taken it past anything clover could have supported
- Constantly learning about N but know an awful lot already. There is a gap between science and public

Can Farms in New Zealand Survive with Less Synthetic Fertiliser?

• Can they survive – yes, if best knowledge used

Moving Forward

- Need more examples farm /catchment system changes
- More tools to monitor water quality would be useful but complex catchment context
- More nutrient budgeting education
- Water logs more understanding relate what happened at time
- Need for quality dialogue

- Voluntary / education good for farmers
- Project green good knowledge team
- Need new technology for example, strip nitrogen from water

Understanding the Impact of Economic and Social Drivers

- 1. What are the key drivers behind the intensification of farming in New Zealand?
- 2. Do we have enough understanding of these drivers?
- 3. Are too many of our farming/food business models incompatible with long-term maintenance of our natural capital?
- 4. What are some of the ways these drivers can be addressed?
- 5. What will it take for farmers to become 'price makers', rather than 'price takers'?

What Are The Key Drivers Behind The Intensification Of Farming In New Zealand?

Economics

- Need to change drivers from economic spiral of land prices going up, stocking rates and N use going up. How can we make it still profitable but sustainable?
- Economic drivers not within farmers' control
- Commodity prices tending downwards
- Social and economic (still a business/bottom line) and costs are catching up. Discretionary spending/Improve discretionary income
- Farming: increasing in scale, moving away from family farm big corporates: big impact
- Economics the environment goes out window for low costs
- Short term vs long term driver for long term
- Farmers currently farming for capital gain not necessary for long term
- Economic drivers dominate
- Farmer incomes to remain equivalent (to other people's incomes) requires productivity to continually increase
- Market forces NZ exports dictate prices (including land prices)
- Economic / Incentives e.g. supply chain
- Rewards are economic/productivity
- Profit is the driver
- Temporal issue natural capital is a long-term measure, implying landowners are focused on short-term financial gain (but may be undermining their resource base)
- More production = more \$\$
- Farmers are advised to produce more: is this advice correct or incorrect?
- Young farmers: lack of understanding/- debt the 'hard to be green when in the red' concept
- Farmer worry is survival
- Corporate farms shareholder goals
- Macro (industry) rather than micro (farmers)
- Substantial \$ drivers to increase production
- 'Good' farmers use new products at higher cost to raise production
- Everything in society intensifying we want more from a limited resource
- Not full costing of our goods as consumers want more but are not prepared to pay not accounting for the change in our quality of life
- If a farmer got \$120/lamb would they run more lambs or less? (Based on historical evidence more)

- Organic farmers 10-15% premium but doesn't meet their extra cost (market not rewarding them) but they feel good
- Price taker versus price maker need to have value added
- Historically, return to farmers is from capital gain, not returns/profit
- People are not "paying" for their impacts on the environment Land Values
- Land prices what drives this? Is it farmers? Is it land use / lifestyle?
- Land use demand
- Speculation on land value
- Increase in land prices (especially for new entries)
- Urban pressures onto productive land
- Increased influence by lifestylers pushing farmers to less suitable land
- Need to increase profit to pay cost of land

Markets

- Consumer demand (cheapest price, volume, quality, value added) for goods
- Signal too confused
- Bugger-all people will pay for free range eggs
- How will consumers take responsibility for what they want if they won't pay for it? Don't blame/regulate the farmer
- Farmers will change very fast if they see an opportunity/price
- E.g. once a day milking better lifestyle, better for environment, same income why aren't more doing it?
- Consumers buy unsustainably produced goods not interested in how produced/don't have access to info
- Diversity of markets higher paying are more environmentally conscious dilemma managed carefully

Supply Organisations

- What drives farmers?: economic/industry drivers e.g. Fonterra: It is about producing more milk
- Drivers Fertiliser Companies
- Fonterra can't just decide you have done a fine job and pay more
- Fonterra responds to different pressures:
- Currently market pressures less impact and 'internal' pressure higher (expectations of NZ RC central government)
- To be in a good position when trade barriers come down is a motivation but trying to meet level where New Zealanders are comfortable is currently more important – environmental vs prices/products i.e. domestic pressures

Costs of Production

- Costs access i.e. cost of H, O urea fossil fuel increase and the cost increases too
- RMA cost of compliance
- Internal costs expectation of customer internal costs, rates etc

Social or Political Drivers

- Increased pressure: lifestyle issue, no time for family
- 55+ age = happy status quo = sons return sons want change
- Wealth \$ or the environment not necessarily both
- Farmers have greened conscience raised

- Farming council relationships tense
- Land prices rates generate revenues for local government land use charges e.g. urban development also generates local government income (implying the agencies are not necessarily adverse to land use intensification)
- Public perception (e.g. Taupo) of unacceptable practices may lead to more sustainable land use
- Still protecting status quo local government planning e.g. subdivision on elite soils
- Consumer or neighbour (community pressure) driving standards
- Drivers government lean on rural sector: driven harder by this model
- As farmers, have never understood drivers at a stock sale, a property sale (always going up) or changes made by a young and enthusiastic farmer (pushing production more). Some drivers of decisions do not conform to laws of economics (applies to all people) – there are other drivers

Moving Forward: Economic

- Farmers respond to economic measures which are commercialised
- Wealth is the prime driver. Options for taking this into account?
- Incentives are required to change current practices (increased productivity) to more sustainable practices
- How? Applying appropriate consumer taxes to the cost of production
- There are no penalties/ disincentives for land use intensification
- Should focus on profit, not productivity
- Farm value include natural capital value as well as capital value land value
- Whatever segment it is it must be cost effective
- Motivation money for change / reward
- Trick is to separate the different aspects of value (unbundle the price) sounds sensible, but mammoth task
- How could you redesign payment?
 - incentivise it (e.g. QA)
 - compliance nightmare
 - global market place will we ever get a premium for environmental products/higher value product
 - can we assume it will attract a price
- If we produce less 'commodity milk' will that gap be filled by a lower standard producer?

Moving Forward: Markets

- Kiwi green can't afford not to comply with market input allows to push "green"
- Possibly need change to the marketing
- Value chain supermarkets could dictate conditions of buying products
- European supermarkets are competing on quality (of products), implying the potential to increase consumer costs for sustainably produced products
- Break down consumers apathy a role for industry marketing whole industry

Do We Have Enough Understanding Of These Drivers?

• Need to look at where costs are being incurred to lead farmers to intensify e.g. rating, council costs/monitory.

Constraints to Moving Forward:

 General perception that all this environment 'stuff' is extra cost – more compliance costs – following Europe

Performance of Research on Delivering Needs

"Soil is one area where there are a number of issues which require better understanding if soils are to continue to have the capacity to support farming" *Growing for good* pg 184.

General Comments

- In farm studies of the soil and what happens huge variety of soils and farming operations in NZ share, learn from each other
- Farmers need to identify costs and profit in suggested changes: To not identify costs and profit goes over farmers heads
- Need to know the economic pros and cons of any changes in farming practices
- Research is a big cost through production levies just taken off at point of production e.g. 'dairy insight
- Producer research: lots of \$ goes to increase productivity
- Individual research projects not being linked: need to pull them together
- Farmers are always leading the researchers: often ridiculed for innovation
- Dilemma is the CRI clear about the definition?
- A Prof Walker is needed for farmers living soil biomass little info on it (farmers need to be shown data friendly systems)
- Lots of information sitting there how to get it to the people opening and closing the gates?
- Discussion groups gone (unless paid)
- No free information service
- Discussion on soil is how much N to do
- Need leadership
- What is the cost to farming if not address environment? Need more research?
- Many environmental things don't cost "green ≠ red" where is this in NZ?
- There is an assumption you can 'engineer' around soil problems with fertiliser additions
- Co-ordination of both research and industry
- Piecemeal at present. Collective strategy using farmers
- Research not getting through to farmers
- Concern about lost research funding
- Dissemination of research is needed
- Needs to be proven in a farm context
- Reflection of science funding, things have got tighter and tighter
- Risk assessment of land use change Have we enough info on this? Who?
- Need for better integration across research groups

Research Areas

- Want to know if farms exist that are profitable and sustainable?
- Animal health lungs and oxygen important, use vegetation to enhance health
- Soil research to capture N and enhance soil through different crops
- Nutrient balance
- Pasture growth model (short term)
- Information on organics (how to do it)
- N that can be used under different growing conditions: optimum use? E.g. low soil temp not much moisture
- Research needs to tell farmers about economic benefits of optimum use
- Where else can you anchor oxygen on to?

- Turn the question upside down: how does an environment that has been adversely affected affect farming? E.g. water/quality stock health
- Research cow urine/efficiency of cow/uptake of nitrogen/content of urea according to different kinds of feed?
- Are live things included (environment) below ground life impacts on the environment?
- Difficulty tackling on a regional level need better spatial information across regions
- Soil nutrients, residues, heavy metals, biological functioning, soil ecology, environment landscape and human elements
- Soil is a big worry, are we treating them correctly e.g. maize, can we grow maize for 700 years?
 - can we farm with nil-cultivation after spray out are they sustainable practices. New Zealand has huge range of soils
- Soil and mapping land use capability work done in the past needs to be progressed to a more detailed level more useful for decision making (planning)
- Scale is still the issue with soil mapping
- What issues will underpin this (to help direct research themes for soil/ land) soils differentiation robustness, appropriate stocking level/type how grass production may be in jeopardy from certain practices on certain soils/land is it possible to do this 'redesign' if we can maintain the economic benefits: Can it grow (capacity/value/industry)- look at the total picture e.g. standing off stock to protect soils can create issues dealing with effluent- look at what's happening and full implications of that (whole farm system)
- Issues in soil research and management include:
- Too much...(?) with planners using land use maps to make decisions
- Aluminium (contamination) in soils
- Zinc (and other trace elements) levels increasing in soils
- Concerns about more N more P additions to soil without looking at plant soil system (interactions). That is, how nutrient additions affect plant physiology and ecology
- Need to understand: compaction understanding / how to manage
- Ways things add to soils that alter it move beyond a beyond fertility focus (powdered molasses with urea)
- Long term carbon/nitrogen ratios
- Systems approach pull knowledge together
- Publicity access linked (10 pages) resources
- Farmers need tool includes info on their farm to make decisions with
- Need for education on some 'basics' of environment and research etc? Public contribution needed
- Natural processes not renewing soils (flood control) silt out to sea need more understanding of what it means
- Nitrogen when do you put on not much information research required: lot of information on pasture response
- Major questions about Nitrogen cycle, needs more research

Understanding Redesign

- 1. How necessary do you think it is to redesign New Zealand farms?
- 2. Do some farm types need to be redesigned more than others?
- 3. What kinds of things make it difficult to redesign a farming system?
- 4. What kinds of information or assistance would help farmers redesign their farms?
- 5. Is it necessary for the whole system (refer to diagram below) to be redesigned to achieve sustainable agriculture in New Zealand?
- 6. What changes are essential to achieve sustainable agriculture?

General Comment

- Farming complex constantly juggling lots of balls
- Need to shift to a culture of re-design
- Dairying is a big problem
- Is the Taupo catchment a prototype of the future?
- Fertiliser budgets only 'front end' of equation
- Observe nature and copy
- Paradigm shifts to look after soil
- Time scale needs to be changed (???) if adding chemical nitrogen, speed up all (???) processes
- Transition production sustainability: Chemical in biology model concept
- Put in the impacts/implications so people can decide where they want to sit
- If you fixed the intensity of inputs for particular farms/areas would bring value down different areas would have different values according to vulnerability:- e.g. Taupo – would have to come through councils – compliance nightmare – reanalyse it?
- What is the timeframe we need to do this in?
- Don't know what we're redesigning towards
- Difficulty is defining changes/impacts
- Redesign to say what we are not complete cultural change to thinking based on: quality, future, personal values, social, work ethic etc
- Lack of soil quality, implying soil degradation may drive a move to more sustainable practices
- Do we need to re-design farming?: Most land will only require minor fine tuning/not redesign
- Evolution not revolution: too much for farmers change has to be incremental

What Changes To Farming Are Needed?

• Need for compatibility with the land / surrounding landscape

Constraints to Redesign:

- Market research is market driven
- Inability to do business unless you comply with standards \$ important

Ideas for Redesign

- Best land use working to soil types and productive land
- Whole farm planning
- New systems e.g. OAD milking need to be implemented
- By adapting organics can drop cost factor (lower inputs)
- Certified organics marketing tool, also provides insights for other farmers
- Over time: changes / fads in farming practice e.g. super phosphate potash nitrogen. Where do we go to now? Need to find a balance (redesign) in whole systems
- COMMONSENSE
- Amazing how quickly some ecosystems recover
- Need to manage farmer expectations as well can't expect to return to pristine recovery/Time frame levels of recovery
- Riparian planting not whole answer: Need complete redesign consequences for \$
- Connect productivity to 20 yr result
- Clean Stream Accord
- Give appropriate technologies
- Using wet areas as buffers
- Issues are localised and need area specific fixes

Education Models for Farmers: Are They Leading To Change?

- 1. What kinds of farmer extension/education programmes are happening in your area?
- 2. What is the main purpose of these programmes? (e.g. increasing production, addressing sustainability issues, animal health)
- 3. What kinds of things are farmers changing as a result of these programmes?
- 4. What kinds of learning opportunities would help farmers to redesign their farms? (e.g. Monitor farms? Field days? Websites?)
- 5. What kinds of things encourage farmers to adopt new ideas about sustainable farming practices that will not necessarily increase their income or save them money?

General Comment

- 'Sustainable' farmer: 'intelligent' use of knowledge, including: grass grown, capacity of soils, farming systems
- Farmers struggling with overload?
- Farmers have to be receptive stage of life, farm, family, lower debt/smaller mortgage, disposable income, time, less financial responsibility, "freedom to move"
- Do farmers trust sources of information? This is an issue
- Fonterra is leading changes/but farmers still going through learning phase
- Other farmers trust leading farmers
- Need to collate information and spell out the consequences education
- Education is a big factor soil management
- Understanding is bigger than just farmers external drivers internal drivers
- Issues overtaking faster than educationalists can get their message out
- If you make nitrogen a priority tend to lose focus on whole farm system e.g. P, faecal
- Farming one industry where, if successful, farmers will share their success: commercial sensitivity not an issue
- Farmers less likely to share 'failures': problem with 'failure' is the time lag
- 60% farmers take advice from fertiliser reps (profit driven?)
- Last six months fertiliser reps attitude changed using fertiliser budgets but still use as a fertiliser selling point
- Farmers have good understanding, very conscious of the environment
- Messages to farmers muddled
- Farmers see themselves as caretakers: what is 'better state'?
- Some farmers learned 50 years ago and will not change. There's a mixed group out there
- Farmers more aware
- Science not short in this no need for further science, more need on extension and uptake
- Opportunity to utilise tools / tech out there better better understanding / uptake
- Needs more education different learning styles (many styles / channels needed) what are better ways – mass distribution? Fertiliser reps (what's in it for them?)
- Change doesn't happen overnight or decade
- Greater role of Landcare (as concept)
- Universities have changed focus- e.g. Massey moved from agriculture to business
- Social structure of farming has changed, (??) of lack of labour, stress, pressure. Lack of good labour management
- Question should farmers self regulate?
- Hasn't happened with milk quality
- Education process needed

• Do farmers have technical knowledge vs running farm business?

Types Of Extension Models

- Field days/Dexcel discussion groups
- Monitor farms dairy and dry stock
- Fonterra on-line programme
 - focused on technology
- Agriculture
 - business courses
 - Dexcel/AGITO
 - Win technology
- Clover interest groups
 - road shows
 - w Beef council to HB
- AGMARDT funding/SFF money
- Landcare groups
- Fact sheets
- Dairy Exporter/Rural News/Straight Furrow
- Waikato Times farming supplement
- Workshops by Meat and Wool Board" focused on specific topics. Production oriented
- Farm forestry, New Zealand tree crops association have annual conferences and monthly field trips learning by sharing information, publications
- Role model farmers trust farmers
- Environment Waikato
 - EW clean streams EW=helpers
 - Action groups e.g. Lake Taupo/Rotorua multi stakeholders includes farmers e.g. Whaingaroa Harbour- care = ground up = whole catchment and good buy in. Farmers fencing e.g. 80% ref harbour
 - EW information community groups need to get better at getting information to farmers
- Ballance Farm Environment (Awards)
- Look for role models
- If enter, and get feed back and sustainability
- MAF funding learning from leaders
- Measure of success: number of entries and quality of finalist
- How do I have a sustainable farm business? outward looking
- Peer review of farming business and field days at previous winners
- Sheep and beef monitor farms
- On farm field days: hands on/trusted independent source
- FEA more mainstream
- Structure of field days/discussion groups need good incentives to get people to attend

What kinds of things are farmers changing as a result of these programmes?

- People ID and look after natural features
- Fencing off of streams
- Cultural change 10 years ago compared with the way farmers work and the pressure on them, no time for community or outside of work
- Rate of change of values
- People wont move into to change now light is on

- There is more 'conservation' type articles in main stream farming books
 - Taumarunui has sustainable farming group going
 - Involves everyone SFF \$

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Developed a framework to consider how at address sustainability issues on the farm e.g. impact of intensive bull farming, led to

- changes to farm management. Used Stockpol
- higher profit
- improved environment outcome

What Is Not Working With Current Extension Models?

- Extension isn't delivering the result
- The demise of the farm adviser too much 'quasi' advice
- Decreased understanding of the processes between soil and water, and the degradation of natural capital
- Education models for sheep and beef slim when it comes to N
- Lots of tools to increase productivity but not many tools to do so in a sustainable way
- Need to move to optimum production rather than increasing production: but 'everyone' is seeking increase in profit therefore seeking to increase production
- Struggling to reach most farmers only reaching (links to values) the generally interested
- Dexcel contact = more economics and production. Dexcel totally production focus
- Education doesn't match students' needs and expectations (example was given based on Unitec experience)

Possible Education Models

- Step-change in attitudes. Take one step, think about impacts next step, next step
- Lead farmers: demonstrate benefits: more credible than being presented by agencies
- Farm advisors need to understand the issues
- Learning from peers key driver
- Tool kit: range of issues. Needs to be both temporal as well as spatial to determine best use of resources on a particular property (or catchment)
- Individual farms individual issues
 - to move to operating as a catchment
 - therefore education model needs to be integrated
- Peer pressure can produce change in attitude
- Help farmers work through cause / effect on farm
- Training in nutrient budgeting
- Education around ecology of soil to understand how N behaves in different situations i.e. in the soil (different types), water and air. We have forgotten to focus on the soil, instead we focus on N

Enabling or Encouraging Change:

- Need to teach farmers about commonsense benefits of caring for environment. But this can be hard to do!
- Flow on benefits. E.g. change in bird life
- What are the sound practices? E.g. benefit of fencing: Stop loss of stock (this will get farmer attention)
- Need good information about impact of changes in practices: MONITORING e.g. don't know how long it takes for change to take place
- Turn up to a meeting about organics in 4wd BMW
- Environmental cost to farmer is historical not economic need more info about what can be done

- How do we connect the long-term economic signals to tomorrow's decisions? Need leadership discipline – consistency
- A way of thinking can we change this or can we influence this? incentive driver / price? personal desire
- Education required up the 'food chain' e.g. industry, government
 - bigger than the individual and most of the drivers for on farm behaviour comes from industry and government etc
- Councils could / should do more
- Farming system changes need to be of economic benefit to farmers
- At discussion group could point out whole picture/whole farm system approach
- Fertiliser rep/s have a responsibility
- Take advice from a whole range of people e.g. QE2, to included conservation bodies, not just production

Moving Forward: Making the Transition from the Production to the Sustainability Era

General Comments about Sustainability

- Production could stay at same level and be sustainable
- Difficulty in defining 'sustainability'
- Sustainability is more than just environment. Also economic and social as well. 'Time' is important. Humans working on shorter time frame than Nature
- Measure sustainability will determine the answer we come up with
- Don't put blanket taxes on certain impacts of farming some farms may not be creating those impacts
- Possibly we need definition of sustainability
- Farmers want sustainability: Sustainability social, economics, environment?
- What is sustainable? definition
- How do you determine when sustainable ?
 - indicators nation capital
 - problem getting farmers onto appropriate financial indicators let alone non financial
- Making the connections/balance between wealth, productivity, social, environmental
- Triple bottom line needs better articulation, and all parts of the triple should be equal
- On whose definition of sustainability? need objective not subjective e.g. fertiliser reps diff to concerns

General Comments on Regulation

- Role of regulation: communities more effective @ change than regulation have to be ahead of regulation want to be left alone
- 2 sorts of regulation: need to avoid autocratic can stop innovation
- Hard rules for others
- Safer regulations for people to work to
- Regulation will come into place when wider communities state bottom line
- Regulators need to understand that there is greater cost for some farmers e.g. some farms have lots of river frontage lots of costs associated with this
- Need to drive cultural changes (across society) to avoid knee jerk regulations- takes lots of time but get better outcome- hard if economic factors are not working alongside- tax incentives another option e.g. Green house gas- what are the incentives you can use to drive that cultural change

- First we need to agree on the drivers i.e. N in ground water do we know the risks? We each know a segment only
- Wealth what is important enough? Do we value our environment? What are the social drivers?

Are we being strategic enough in our development of our farming systems – pulling together as 'Team NZ'?

Problems with Strategy

- It's piecemeal
- Problem technology is available but lack leadership, lack a definition of sustainability
- Need to do info sharing
- We don't have agreed plans
- Lack of exploration of other tools than regulation
- Studies in NZ tend not to take a 'big picture' approach there are comparative studies but often don't capture economic drivers
- Media: pit urban and rural together. Need more info about collective responsibility
- BAD news stories always get better coverage. Need "Good news stories": rivers cleaning up
- Intervention –can create a lot of unintended consequences social/economic
- New Zealand has to decide what trade offs to accept not 'do you want clean water?' but 'do you want clean water and walk to work" (environmental economics)
- Need for debate scale off farm society level lakes e.g. Taupo lifted debate off farm and involved whole community vs just the urban rural battle.

Questions of Strategy

- Risk assessment of land use change Have we enough info on this? Who?
- How proactive should we be? (are we waiting for others to tell us what to do?)
- Who 'pays' for the natural capital cost farm, consumer, industry community this debate is crucial to determine equity
- Issues of scale
- Issue of understanding
- Issues of institutions/systems (too many)
- Timeliness can't be too quick / too slow

Moving Forward

- Shift to non-point source pollution and solutions
- Require physical framework overlaid with organisational/management framework
- Focus on policy rather than change on the ground. On ground change occurs from the community
- Use consumer-driven Taupo as a template
- Need a whole range of solutions
- Farmers don't hold the solutions but will change when not alone
- Define and paint a vision that means something to the farmers, not high level
- Assistance programmes would be great, including \$ and good advice
- We need:
 - Knowledge
 - Funding mechanisms this is more important than Auckland's roads
 - Bio security we don't need any more pests. Anyone who brings in a pest should be sent back to their country of origin
 - Commitment from land users, government institutions
 - Fewer distractions on matters like access etc

- Properly funded research
- Paradigm shift needs to be for whole country not just farmers
- Broader understanding on holistic environmental management including in cities
- No finger pointing
- Promote good models and success stories
- o Acknowledge the problem (Alan's words) 'We will if they will'
- Include environment in school programmes focused on New Zealand education
- Need to look at other models of sustainability
- Need recognition from on high that individuals and communities matter

Is there enough understanding of growing urban/rural tensions, regarding environmental expectations, in our politically urban dominated society?

- Urban people need to understand economic value of primary production
- Understanding not good at the moment
- Critical: urban areas: lots of damage. Can't point the finger!
- Can't back each other into a corner problem
- Gap between rural and urban widening
- Need collective responsibility
- Urban people: recognise environmental cost of agriculture
- Farmers provide too much food taken for granted
- Supermarkets increasing the gap
- Urban NZ has a poor understanding of farming
- Environment 'stuff' is forced on us by people without intimate connections with land
- Urban population will be a tough challenge
- Example of transmission lines: authority is allowed to just do this. Scorched earth, without covering the cost

Working Together

- Raglan Harbour Cave good example of urban/rural communities working together
- An independent group like the Hillary Commission?
- Grassroots bottom up action lots of this in our industry
- Growth and Innovation Framework have a big role: trade/regional development
- Co-operative e.g. agriculture and horticulture sectors working together
- Co-operation e.g. Meat and Wool / dairy (happening now)
- Create cultural change vs regulation
- Everybody is part of the solutions

Leadership

- Farmers' views are important. They hold solutions
- Government need to be there too with \$
- Central Government leadership role needed
- The institutions need to support the drive: hard to get young farmers started due to cost of property
- Government needs to lead by example and start the conversation
- Need Ministry for Environment component
- Farmers need to lead the way otherwise it will come top down
- Leadership Style
 - knowledge rich

- \circ quality- focussed
- \circ proactive
- o teams approach
- \circ trust
- \circ open and prepared to grow
- o keep focus
- o motivate/demonstrate mana
- \circ independent
- o non government
- o action not talk
- Too big = too hard
- Promote success story, good news
- Because: organisations, sectors can be threatened and defensive. So who? Coalition of existing groups:
 - Hort NZ
 - Meat and Wool NZ
 - o Dairy
 - PCE
 - o Landcare Trust
 - QE2 National Trust
 - \circ Individuals
 - \circ Collective
 - \circ Group
 - Are they recognised by urban population?/others?
 - Local groups
- Still need VISION: goals (e.g. World cup) with an enabling organisation to assist, champion, promote: Is it the thinking of the NZ farmer?

Comments from Waikato Evaluation Sheets

This section lists regional-specific comments gathered through workshop evaluation sheets.

Positive

- Clearer identification of ultimate aim of sustainable farming
- Great report well done, Morgan, Philippa and the team
- Excellent report capturing the big picture of the context of land use and agriculture and economic importance
- Wonderful catalyst!
- Excellent. It is contributing to the solution for the issues it identifies
- Pleased with questions raised looking forward to NZ working closer together
- Initially I thought more farmers should be here (was disappointed) and then started to think I hope there are some key urban people here and possibly had my doubts. I think most here were on the same wavelength, now we need to put it into action as a unified over-arching approach
- The beginning of a new enlightening process of changing land management practices. It is evolutionary
- I am excited about embarking on this process makes me want to get out of the office and onto the land. NO more guilt just action
- Certainly making people aware of environmental issues
- An excellent effort which must be acted on seriously
- It has been a long time coming! Some really good questions have been asked to stimulate people's thinking. Thank you and congratulations for facilitating a seminar such as this
- Thank you for report and workshop
- Good start great to see organics used as a model for change
- Great intention. The work is in making it happen

Comment on Workshop Process

- Raised public awareness in a non-confrontational manner collective responsibility approach better than "Dirty Dairying" campaign
- Good initiative, good to hear Morgan Williams views in person
- Despite discussion on incentives and rules, at the end of the day with regards to filling out these forms, we were told we won't be allowed to leave unless we filled out the form .. regulations?! Instead an incentive should have been in place to encourage to change and to decide willingly to fill these out!

Challenges

- The report is critical in light of the pace of change and the intensity of the drivers of current trends. The drivers are society wide - consumers pay too little to cover the environmental costs of our current food production methods
- The key is taking the report and turning it into action on the ground
- Let's hope that the report doesn't disappear with a "too hard" label attached
- I think the question and negative consequences of treating land as a commodity are serious. Can agricultural land be owned by trusts to be managed sustainably and therefore opportunities for people to farm free of high mortgages. Farmers then have responsibility to farm sustainably
- How best can we ensure that the problems / damage / harm being done, and in many cases
 worsening by the month, are honestly examined and the CAUSES of the harm effectively
 addressed? Picking up pieces tinkering round the edges, making mini improvements are grossly
 inadequate where the magnitude of the negative outcomes is honestly examined. We need redesign and transformation that basic need is in every one's interests especially when the

sustainability issues will all seriously affect our future if we don't tackle them and find solutions that work

• The high cost of farming e.g. rates, mortgage, RMA - farmers are forced to use every method they can to increase output but to meet these costs if this means using nitrates and high stocking?

Moving Forward

- Forum needs to go round dairy industry. Farmers feel more secure and ready to share ideas amongst their own rather than feeling threatened amongst Government Agency groups etc
- Excellent piece of work well done. Need to follow it with a strategic management report
- The focus needs to be on those that create the farmer drivers e.g. did Fonterra change the way it does business (i.e. drivers it creates) because of the Clean Streams Accord
- What comes next?
- There is a lot we know about the issue and this workshop didn't (and was never likely to) produce new (?) outlet solutions it's about dealing with the complexity, I tend to agree with Bruce Thomson(?) it's more an absence of will than need for a new type of institution to strategise but who knows?
- Hopefully something comes from this report i.e. not another report that is put on the bookshelf. Action needs to start. Ideas have been put forward and need to be followed up / passed on to different industry's/acted upon
- Lacks a clear template for change is this the follow-up report?
- Good leadership now required to drive this initiative further
- Should be pulled up by govt/council proposed policies
- Follow up workshops will be critical otherwise it's just going to be an academic exercise
- Can't deliver this all to the foot soldiers. Have to lift dialogue up a floor or two
- Keep up the profile to ensure follow through
- Make sure that it doesn't stay as an unwritten report never on the ground stuff to happen
- Growing for Good must start from the 'engine room', the soil which is from where the food chain, the start and health of life starts. If the serious imbalance of soil nutrients in a lot of cases to be addressed
- The debate that this report has started is good and needs to be part of a continuous dialogue to keep the conversation going
- Where from here?
- My opinion is that "we are all in this together" and there needs to be an integrated approach both city developers and by farmers to achieve the long term good
- Incentives to farmers and community enjoy
- Although the report has stimulated debate the most important part is the next step, the how and who will influence the change to a sustainable future and develop the vision of sustainable farming. What further role will the PCE have in this next step?
- Educate the young in schools under 10 years
- The vision should include addressing effects of subdivision, growth etc on land prices, which forces farmers to intensify. Groups have talked about non-regulation approach, however, govt should regulate the use of farm land for farming purposes, which will reduce land prices, allow farmers to manage debt / costs and not need to intensify therefore the environment would benefit
- Farmers must have a "Good operating practice" plan in place specific to fertiliser application and riparian protection regulated by regional and local Government Agency. This "plan" would suit the particular farming practice and would be "verified" by an approved "Agency"
- Incentives are the key. If society really wants sustainable farming then we must give farmers strong incentives to farm sustainably, then they will. Education and Research Agency can follow They should not be thought of as key drivers
- Who / how will this message continue to be debated and implemented beyond the workshops?
- A good starting point. Need to move now to extension/communication of implications and provide material to assist in changing to meet a more sustainable future

- Issues in tangent to *Growing for Good*. Need to promote traceability issue (e.g. eid) to sustain markets, track acceptable use. Infrastructural access to Broadband for rural NZ for information flow. Needs to be infrastructural support for small rural towns. For sewerage systems to be sustainable operational with increasing costs but state/declining population to share costs
- Funding Research Agency mechanisms need to be streamlined so essential funding goes into area where knowledge is weak e.g. how does N work in our soils? Applying time and time again not only frustrating it wastes huge resources within our science and farm sectors. Stricter bio security to reduce further impacts on our farming environment therefore resulting increased costs to production and environment. We need knowledge to allow us to farm environmentally and viably. This needs to be science based. If we want NZ to be passionate about our environment we need strong, positive messages from the top. We are certainly not getting these from Transpower's proposed 400vAC grid upgrade and associated support from government looking for campaign votes. What is good for the goose need to be good for the gander. Some farmers are doing things very well, others largely through ignorance not so well. I believe few farmers want to ruin our environment
- Am keen to hear/see more about leadership exposing the will and the way.

Feedback

- Supposedly meant to deal with issues at farm, catchment, national levels but in fact doesn't address the issues except at a farm level
- I believe that although the PCE/ reports are getting out there and people attend these workshops etc; there is still not enough recognition of real people doing real things and using those skills and models in the education forum. The process is still captured by the institutions (academics) e.g. NIWA etc). There are other practitioners implementing some real outcomes. The issue of the "hackles going up" when reports of this nature emerge (the PCE series) is real out there: It's an 'institutional' academic approach. The PCE has to realise that what he has raised e.g. Redesign /ICM, etc is not NEW. But, there is no recognition of the "non institutionalised" individuals and groups who have been influencing ICM type MODELS on properties and "community" districts; who can through a more bottom-up series of forums and processes, educate and transfer real info not a theoretical construct
- It has not emphasised sufficiently the potential of contamination of soil and water resources by pesticides
- Meat and wool in R and D were not asked to contribute to report as largest group of farming land users, why not? Incentives for environmental preservation, production capital recognition could be built in to land values e.g. VSA scoring of land for sale
- Holier-than-thou approach do we really understand the issue? NZ needs a long-term vision / approach for this issue. Our history has been hot and cold (probably a lot to do with our political system). We need to be realistic about what would happen if we did nothing. What are the real dollars around this? Cost of compliance is value gained. Impact of fast actions changes natural processes e.g. flood control
- 1.5% of NZ is wetlands or wetland substrates but these generate only Z links of acknowledgement in the GFG report. Wetlands and wet soils are poorly understood, often badly managed and poorly administered by local Government Agency. Wetlands have values with beyond biodiversity. The National Wetland Trust is concerned about the lack of understanding of wetlands and the lack of attention paid to then by agencies such as MFE and PCE. Streams, rivers and lakes are mentioned but wetlands deserve at least equal rating with these
- I don't feel that the workshop shifted us any further forward I wonder if the questions asked were
 the right ones? Or whether an alternative process is needed? The report itself will help since it
 stimulates debate and raises awareness all part of the process of moving our attitudes /
 intentions as a society I don't know that the solutions it proposes are the right ones but it is an
 Important contribution
- Didn't change anything.

Other

- It will be good to see the follow-up from these workshops
- Come up and see us and have a look at our work!
- Provided a forum to discuss Research Agency needs
- Raises awareness of other perceptions of issues
- To identify gaps/issues not covered much in the report
- Take in the enormity of the problems relating how Research Agency and communication can be pro trade
- Drawn attention to the very conflicts of interest and lack of common goals that exist within our community, even amongst those that important to be interested in sustainable agriculture! The will is there at grassroots level e.g. farmers (= custody of 70% of our land) but the leadership is lacking... Great to initiate the conversation let's see how it can be developed to all NZ
- Given me "food" to continue being an environment advocate
- Stimulated thinking about what I could do personally and what could be done to influence those around me
- Learned a lot from practising farmers!
- Great debate issue is not new but for 65 years how much have things improved
- Emphasised the need for much more information, awareness, understanding of reality
- Raising awareness of the whole of NZ society for change
- Get an overview of what people in this community are thinking and future direction
- To hear the opinion of others
- Create a "walking together" attitude
- Reinforced views that I have developed through 60 years of Research Agency and education
- Joy in seeing change of interest and understanding
- Highlighted barrier to change.