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**BRIAN CARLIN MEMORIAL AWARD
STUDY TOUR REPORT**

**AN INVESTIGATION INTO THE GOVERNMENT
EXTENSION SERVICES OPERATING IN
SOUTH AUSTRALIA
VICTORIA
QUEENSLAND
NORTH AND SOUTH ISLAND, NEW ZEALAND**

JUNE 1 TO JULY 7, 1991

**BY PHILIP HAWKER
ADVISER
NARROGIN DISTRICT OFFICE
WESTERN AUSTRALIAN
DEPARTMENT OF AGRICULTURE**

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TOUR ITINERARY

01/06/91	am pm	Arrive Port Lincoln via Adelaide Met with Ken Holden and Bryan Ashton
02/06/91	am	Toured the advisory district with Bryan Ashton
03/06/91	am pm	Contacted landcare groups - Andrew Solomon Met landholder representative of lower Eyre Peninsular soils board - Andrew Solomon/Ken Holden
04/06/91	am pm	Property inspection of sheep discussion groups member - Bryan Ashton Assisted with Herbicide trial - John Dickinson
05/06/91	am	Arrived Melbourne via Adelaide
06/06/91	am/pm	Arrived Benalla - Inspected trial sites and met Landholders involved in soil care groups - Kathy Lindsay
07/06/91	am pm	Inspected sheep trials - Mal McFarlane Met with Peter Box and Jill Northfield to discuss soil conservation in the area. Met with John Avery to discuss extension
08/06/91	am/pm	Contacted Warren Bayne Boho land protection group
09/06/91		
10/06/91	am/pm	Contact Mollyullah Tatong Tree and Land protection group
11/06/91	am pm	Landcare in the Dookie area - Justin Shean Inspected Shepperton Research Station - Justin Shean Attended extension lecture - John Avery

12/06/91		Toured Rutherglen Research Station
13/06/91	am pm	Travelled to Toowoomba Toured advisory district, inspected paddocks - Nev Douglas
14/06/91	am pm	Attended DPI seminar Operation Quality Wheat - Mike Cahil
15/06/91	am/pm	Toured advisory area - Nev Douglas
16/06/91	am pm	Travelled to Goondiwindi Toured advisory area - Greg Salmon
17/06/91	am pm	Discussed office extension - Greg Salmon Assisted with trial - Greg Salmon Met local farmers - Greg Salmon Sheep and Wool extension - Lloyd Dunlop Landcare - Terry Ried Fallow management project - Dave Blackett
18/06/91	am pm	Travelled to Brisbane via Toowoomba Arrived Auckland
19/06/91	am pm	Arrived Hastings Discussed MAF structure - Tim Woods Visited meat works - Tim Woods
20/06/91	am pm	Met office staff Visited Shelton Ivory chemical resellers Consultancy visit - Phil Tither
21/06/91	am pm	Consultancy visit - Phil Tither Ravensdown fertiliser Williams and Kettle Agricultural Suppliers
22/06/91		Travelled to Dunedin via Wellington and Christchurch

23/06/91		Dunedin
24/06/91	am	Toured Invermay Research Centre - Nick Round Turner
	pm	Met various research staff
25/06/91	am	Met staff at Balclutha office
	pm	Consultancy visit - Colin Brown Advisory groups meeting - Colin Brown
26/06/91	am	Met staff at research station - Invermay
	pm	Travelled to Blenheim via Christchurch
27/06/91	am/pm	Worked on property - John Murray
28/06/91	am/pm	Worked on property - John Murray
30/06/91	am/pm	Worked on property - John Murray
01/07/91 to 07/07/91		Free time

Acknowledgments

The tour was made possible by the provision of the Brian Carlin Memorial Fellowship a travel grant to the value of \$3000, plus a further \$1500 of which \$750 was provided by Narrogin District Office and \$750 from Industry funds (RERF).

EXTENSION REPORT NO. 1

- SOUTH AUSTRALIAN DEPARTMENT OF AGRICULTURE
- PORT LINCOLN DISTRICT OFFICE

1.1 OFFICE STRUCTURE

Both the 'district team' that services the lower Eyre Peninsula and 'Regional Administration' responsible for the whole of the Peninsula are based in Port Lincoln.

The district advisory staff that I contacted included:

- | | |
|-------------------------------------|------------------|
| - Senior Agronomist | (Ken Holden) |
| - Livestock Adviser | (Bryan Ashton) |
| - Soils Adviser | (Andrew Solomon) |
| - Regional Plant Protection Officer | (John Dickinson) |

There are also research personnel working out of the office, most are regionally based and have limited extension roles.

1.2 OVERVIEW OF THE AREA

The advisory district these officers serve is about 8,000 Km² in size, extending from Port Lincoln and bounded by an approximate line through the towns of Port Neill, Yeelarna and Mount Hope to the north. The North-east coast receives about 300mm of rain per year and the Southern areas 550mm. There is approximately 800 farmers in the advisory district and commercial property sizes range from about 600ha on the Lateritic soils and red brown earths towards the centre of the peninsula to over 2000ha on the less fertile shallow limestone soils on the Western Coast.

1.3 SOIL TYPES AND LAND USE

A Lateritic Soils

Soils on the hills and slopes consist of mainly lateritic podsoles, and small areas of grey brown podsol. These soils have a gravely sandy loam surface which overlies gravely sand, below which is a subsoil of dense clay. The surface horizon is commonly acidic in reaction.

Generally mixed farming is conducted on these soils. Crops grown include cereals such as wheat, oats barley and legumes such as peas and lupins.

B. Red Brown Earth

Red brown sandy loams to clay loams are most commonly found in this area, however lighter soils containing ironstone are present also. Generally speaking these soils are more fertile and less acidic in reaction than the lateritic soils. Improved pastures plus various legume and cereal crops are grown. Waterlogging, water erosion on the steeper country and valley salinity are some of the more common forms of soil degradation in the area.

C. Sand Ridges and Flats

This area is rather dissected with soil types ranging from deep leached sands on the ridges to sands of varying depths over clay on the flats with pockets of red-brown earths and mallee soils also occurring. Many of the sandier soils are particularly infertile and prone to leaching.

Legume based pastures and crops are grown.

D. Shallow Limestone

The predominant soil type is 'shallow rendzinas' which consist of a grey loam surface highly alkaline in reaction over sheet limestone. In some areas wind and water erosion has reduced large areas to bare limestone. These soils are often rough and too shallow to cultivate.

Legume based pasture and cereal crop rotations are the most popular on the better soils. Lincoln weed is commonly found on the degraded soils and serves as a poor quality feed.

1.4 DISTRICT SPECIFIC PROBLEMS

- A. Approximately \$70 million is lost each year to CCN in Victoria and South Australia, it represents a big problem in the Eyre Peninsula region. Farmers are being forced to grow break crops, not susceptible to CCN such as lupins, peas and canola, remove grasses from pasture and grow resistant cereal varieties such as Moleneux wheat, Galleon barley and Marloo oats to overcome the problem.

Other root diseases such as Take-all and Rhizoctonia occur also.

- B. Alkaline soils, as described, (Zone 4) are very infertile and the use of soil residual herbicides such as the sulphonylurea group are severely restricted.

- C. Drench resistance is on the increase particularly in the higher rainfall areas, although the problem is not quite as severe as it is in Western Australia. Farmers have to dip for lice and Cobalt and Selenium treatments are used. Generally speaking animal health problems and disorders in the Eyre Peninsula region are similar to those faced by WA growers.

1.5 EXTENSION IN THE AREA

Survey work has indicated that about 1/3 of the farming community use the Department of Agriculture regularly and these people are usually members of the 12 bureau groups in the advisory district. An additional 1/3 are non-members and use the service infrequently whilst the remaining 1/3 have virtually no departmental contact.

The level of farmer contact varies across the advisory district, it ranges from poor immediately around the Lincoln area, due to small farm sizes, recreational farmers making up a large proportion of the population and the presence of other industries, to the reliable central and North Western areas where it is good.

More About Bureau Groups

(Interview with Jeff Pearson,
Cummins Bureau and Lower Eyre Peninsula
soils board member)

There are 154 bureau groups operating in the state with a total membership of about 3,500 people. Twelve of those are in the Port Lincoln advisory district with membership ranging from about 10-30 people. Some of these branches are old e.g. Cockaleeche Branch 102 years.

The bureau groups are nonpolitical, non religious and non lobby and consist of farmer members only, although some have chemical company representatives on the committee. They appoint a president, secretary and publicity officer and meet about once a month or more frequently when required. The basic objective is getting farmers together to share information about agricultural related issues.

These groups have a departmental representative and are probably the most important medium used by the Port Lincoln office for Agricultural extension. From what I could gather they are self supporting and really only use the Department of Agriculture as a resource base. The group structure does however provide an excellent extension medium for the Department of Agriculture. The guys at the office are making a conscious effort not to direct the groups too much or abuse the privilege of having a convenient extension network.

Most of the bureau's activities are practical and farmer related; they have harvest reports, invite guest speakers to their meetings, organise field days and conduct trials in their zones. They are flexible enabling a reactionary approach to problems and issues.

Dynamics of the group

The level of activity and progressiveness varies from group to group. Some bureau's have a majority of older members, they tend to be more rigid and traditional in their approach whilst other groups have younger members who have a more dynamic and lateral approach.

The groups do appear to have a good mix of the more and less progressive farmers. In some cases however, very progressive non bureau members have been left out in the cold.

The Right Rotations Project

The Right Rotations project, co-ordinated by Ken Holden is a high priority extension programme concerned with disease control, early seeding, weed control, stubble management and nutrition to achieve maximum cereal yields and would be comparable to the Agronomy packages currently being extended by the Narrogin office of the WADA. The bureau groups have a right rotation sub committee and are involved with conducting surveys, holding field-days, farm inspection days, organising guest speakers, producing extension material and the like.

The project is only in its infancy, the feedback so far has been encouraging.

Animal production extension

(i) Field days

On average about 12 extension events are conducted annually covering issues such as Woolplan, Time of lambing/shearing, stocking rate management, fencing, shearing etc. Bryan Ashton (animals adviser) is the co-ordinator of the animal production extension which is usually conducted through the bureau network.

(ii) Trial work

With the assistance of the Cummins bureau various mineral blocks were assessed over a period of 2 years. Twelve blocks were compared in a paddock divided up into small areas. The trial although not replicated proved that the majority of blocks were definitely not cost effective compared to normal grain supplements over summer. This was an excellent example of extension. The group devised the trial with assistance from Bryan, weighed the sheep and helped extend the information. Bryan effectively used the radio and newspaper to provide an ongoing commentary of the trial. This resulted in a disastrous effect on block sales in the state and has attracted legal action from the chemical companies producing the blocks.

(iii) **Discussion groups**

Bryan has effectively tackled sheep productivity extension by using a comparative analysis approach similar to that conducted over a number of years by the Narrogin office in the Pingelly area.

Approximately 48 farmers were approached with the objective being to increase wool production per hectare and ultimately dollars per hectare. Once the survey was completed a number of farmers were suggested to make changes in their management such as time of lambing, shearing etc. to increase profitability. These large changes required fairly intensive one to one farmer contact but served as an example for the rest of the group. These groups have a life of about three years.

1.6 LANDCARE

A. The Lower Eyre Peninsula Soils Board

The Board consists of seven land holders plus a departmental officer and is basically involved with the administration of the Landcare Act. They are responsible for conflict resolution and have the power to place a conservation notice on particular properties in the same way a West Australian soil conservation notice is used if negotiations fail. Land clearing is banned in South Australia except under special circumstances via an appeal system.

B. Landcare Groups

From what I could gather there have been very few farm plans produced in the area and it seems that the soil conservation staff have been preoccupied with surveying minor conservation works, and giving general advice on landcare when requested by individuals.

No attempt, it seems, has been made in the past to delineate catchment boundaries and undertake any form of catchment planning.

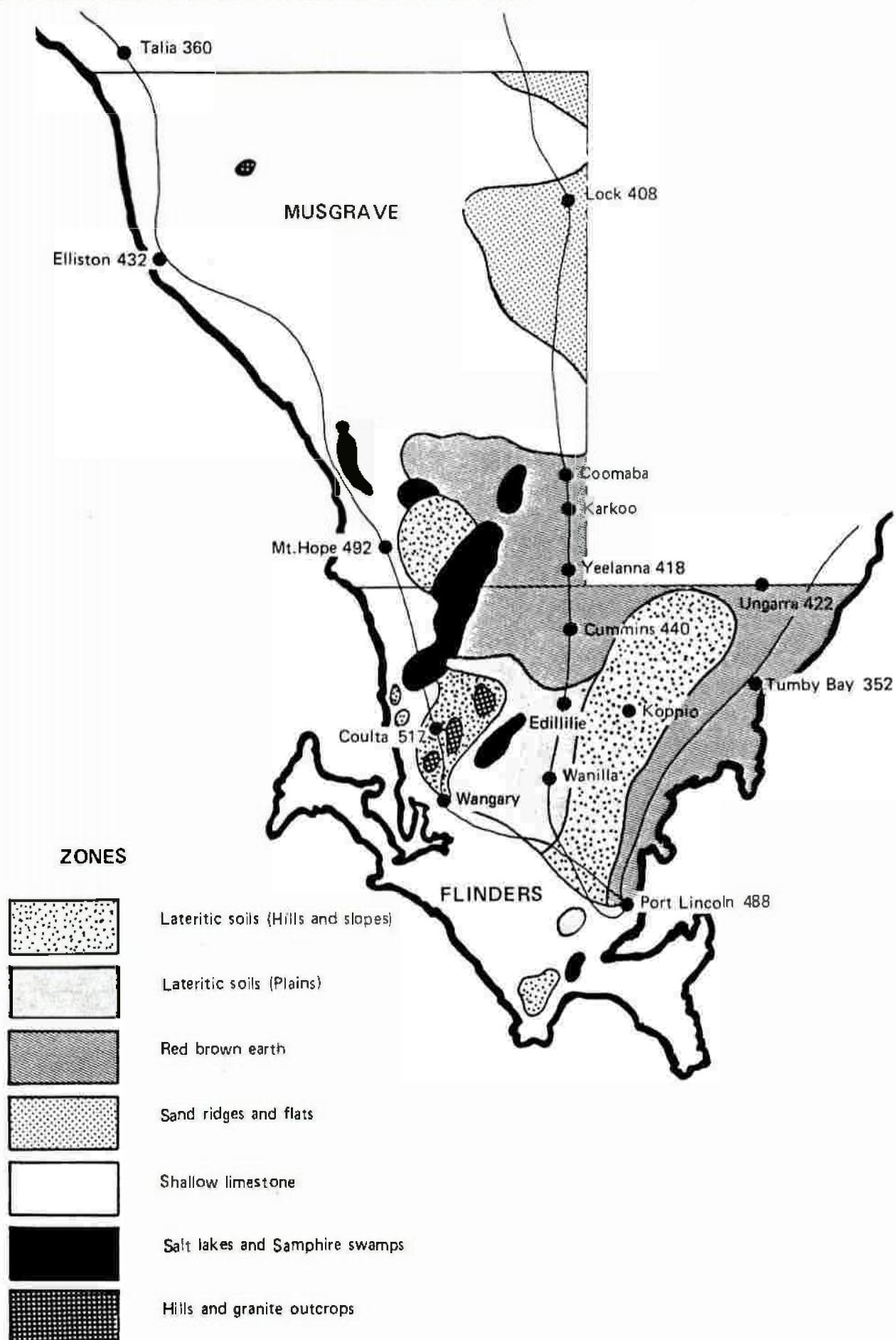
During my stay I had brief contacts with members from 2 landcare groups:

1. Tod River Catchment
2. Tumby Bay Landcare Group

The Tod River group did recently undertake a soils training day in which pits of representative soils were dug and inspected by locals. This was a combined effort from the landcare group, the Soil Conservation Board and local Agricultural Bureau. Surprisingly the individuals attending were not provided with information and materials for mapping soils on their properties, however, Andrew Solomon assured me follow up mapping exercises were planned.

Land Use and Average Rainfall (mm)

Average rainfall is based on all years of record to the end of 1977.





**NORTH EAST REGION
DISTRICT BOUNDARIES**

EXTENSION REPORT NO. 2

- VICTORIAN DEPARTMENT OF AGRICULTURE

2.1 THE ADVISORY DISTRICT

The Benalla district of the Department of Agriculture comprises the shires of Benalla, Bright, Myrtleford, Oxley, Rutherglen, Wangaratta, Violet town, Tungamah and Yarrawonga. (see attached map).

The total area of the district is 3.7 million hectares of which 811,821 ha is farming land. There are about 3,200 farmers served by the unit, while the total population of the area is 52,000 people. Agricultural enterprises include beef cattle, cropping, sheep (wool and prime lambs), dairying, wine, small seed production, tobacco, hops, fruit, nuts and berries.

Extension staff based at Benalla are mostly involved, with the major enterprises in the area such as beef, sheep and cropping. Generally speaking the extension staff utilise forms of mass media extension, organise field days, interact with farmers on the farm or in the office and conduct research.

Specifically the staff members I was involved with during my stay were:

Benalla Department of Agriculture

John Avery	Senior Agronomist
Kathy Lindsay	Soil Care Project Facilitator
Mal McFarlane	Sheep and Wool Officer
Peter Box	Golbourn Dryland Management Plan Officer

Benalla Department of Conservation and Environment

Jill Northfield	Land Care Group Project Officer Warrenbayne - Boho and Molyullah Tatong Landcare Group
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Shepperton Department of Agriculture

Justin Sheen	Landcare group project officer Dookie Landcare group
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2.2 METHODS OF EXTENSION UTILISED BY THE OFFICE

The Benalla office advisory staff conducts little one to one farmer extension with the greater emphasis placed on group activity.

The major agronomic extension thrust of the office seems to be via soil care groups as discussed in the next section. These groups are NSCP funded and is a programme that was primarily devised by John Avery. Although the office accepts advisory phone inquiries most of the ad hoc paddock inspection and crop protection work seems to be handled by the various chemical company representatives and resellers operating in the area. If this is really the case the advise would have to be pretty product biased.

John organises an annual crop crawl for resellers and chemical company rep's which involves a bus trip inspecting various trials and examples of effective chemical use. The objective of this is to provide 'training' for these sectors of the industry to ensure more consistent in paddock advice is given. When questioned about the risk of losing credibility and expertise by not doing individual on farm consultations John replied that it would be a risk for the newer and less experienced extension officers but he believed he had adequate experience and farmer contact for this not to be a problem. I'm not sure what the trainee advisers would do!

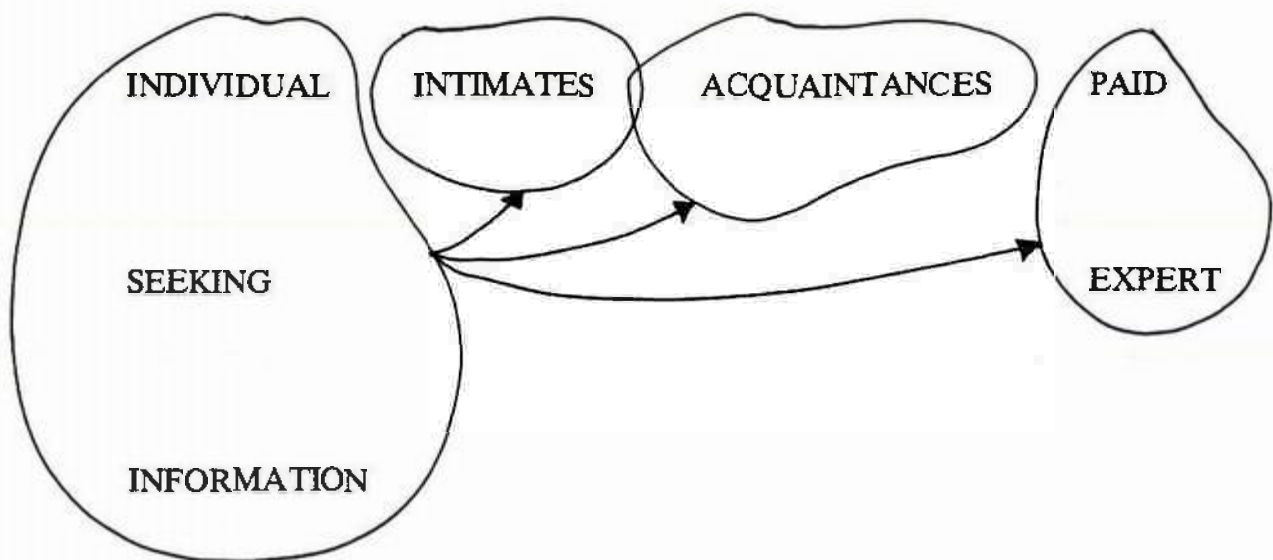
2.3 EXTENSION PHILOSOPHIES AND IMPORTANCE OF GROUPS (John Avery)

It has been believed in the past that improved technology adopted by the more progressive farmers will be slowly adopted by the wider community through the process of diffusion. Therefore an extension officer only has to inject the improved technology whether it be a new method of crop establishment or whatever, ensure that some individuals adopt it and sit back and allow it to diffuse. Unfortunately this approach widely used by chemical companies and various government bodies in the past has been only partially effective.

In the past the farmers have been blamed for not adopting first class technology however it is not that simple and it's important to note that each farmer is managing individual sets of resources that differ, and the particular piece of technology has to be modified to suit their requirements.

It is also important to understand how individuals learn. Generally speaking learning is self motivated and farmers usually only seek out information problems that they perceive.

When a farmer seeks information he does so at different levels , this can be illustrated in the following diagram.



Usually people that the individual has intimate contact with are approached first for information, then acquaintances and last of all the paid experts. In addition to this intimates and acquaintances are consulted more frequently. this is probably another reason why top class extension adoption may be slow.

Why Use Groups

It is widely accepted that group extension provides a more efficient transfer of information than one to one extension. However, more importantly, it allows the extension officer to move socially closer to the individuals seeking information generating better rapport and trust resulting in better adoption of extension messages.

2.4 THE SOIL CARE PROGRAMME (Kathy Lindsay)

The soil care programme started about two years ago with the objective of setting up discussion groups of 10- 15 farmers. Approximately 6 groups have been established in the Devenish, Goorambat and Cherry Vale areas north of Benalla. (see attached map).

Kathy Lindsay, based at Benalla, works as the facilitator. The soils in this area are predominantly reddish duplex and pale gradational loams, sandy clay loams and clay loams. Parent rock material varies from granites and gneiss to folded sediments of sandstone, siltstones, mudstones, shales and greywacke. The area supports mixed farming enterprises such as crop and livestock production (sheep).

The major soil degradation problem facing producers in this area is not soil salinity but problems such as poor soil structure, acidification and erosion. The aim of the soil care programme is to help farmers to work out what effect the soil health is having on their crops and to give them the opportunity to evaluate alternative management systems in their own localities.

The Demonstrations Sites

During my stay I inspected four of these demonstration sites, Burramine; Peter Lawless, Youarang; Kathy Beattie, Devenish; Colin Sinclair and Wilby.

The reason for using demonstration areas for soil care extension is based on the assumption that 'what a farmer hears he doubts, what he sees he will probably doubt, but what he does himself he cannot possibly doubt'. Therefore with each demonstration paddock the group devises the treatments, implements them with their own machinery and covers any associated expenses - the group owns the project. A replicated small plot trial is also established in the paddock with the demonstration treatments included separately to identify particular treatment effects and interactions.

Many of the farmers in these areas persist in multiple cultivation in preparation for cropping paddocks. Often these cultivations are not even required to kill weeds. This has resulted in these soils losing structure, dispersing and surface sealing. One of the most dramatic demonstrations I inspected was at Burramine. Half the paddock was conventionally cultivated and seeded, yielding 2.0t/ha. On the other half Gypsum was used, stubble retained and direct drilled, yielding 3.2 t/ha. The gross margin for the conventionally established half was about \$15/ha and the direct drill half \$70/ha.

The average farmer, is reluctant to trust what he sees in a small plot trial, but when he has devised the treatments, sown the paddock and harvested the halves it makes for a very powerful extension message.

When I spoke to growers about their reluctance to use direct drilling techniques they presented a number of interesting reasons. They were concerned firstly with the overuse of agricultural chemicals. Their reasoning was that agricultural chemicals have only been on the scene for about 40 years while the cultivation of soil has been going on since biblical times. A number of people questioned have had bad experiences with 245 T (dioxin contaminants) and residual organochlorides such as deildrin in the past. They were also suspicious of the chemical companies vested interest and becoming totally reliant on chemicals in their cropping systems.

2.5 THE RUTHERGLEN RESEARCH STATION

The Rutherglen Research Station is approximately 5km on the east side of town and has a staff compliment of about 70-80 people.

Around 60-90 trials are conducted each year in areas of crop and pasture production, livestock production and agro- forestry.

I was there a day and I met the following researchers:

1. Tony Ellington - Research Officer, Plant Production

Tony was involved in 'production research', investigating crop rotation, soil structure, acidity, gypsum, deep ripping and drainage. He believed the main cropping associated problems in the area were handling dispersive clay soils, subsoil compaction and acidity. One of Tony's trials I inspected was the evaluation of subsurface drainage using mechanical means such as more drains and slotted pipe. This was a large plot replicated trial with the treatments constructed under a paddock that was sown with conventional seeding equipment.

2. Bruce Walker- Scientist, Plant Production

Bruce gave me a brief tour around the campus and we inspected lupin disease trials and the various pieces of experimental machinery.

3. Allison Chambers, Greg Locke, Glen Scammel - Research Officers, Plant Production

These three staff were involved in plant protection fields. Allison and I inspected herbicide trials plus the trial plot spraying equipment that was being used.

Glen is currently employed with NSCP funds to look at establishment of improved pasture species in the area. He is setting up both replicated trials and demonstration paddocks in conjunction with soilcare groups.

4. Angela Avery - Research Officer, Plant Production

Angela is involved in selecting new lines of clover.

2.6 LANDCARE GROUPS CONTACTED IN THE BENALLA AREA

Warrenbayne-Boho

Land Protection Group Inc.

This is one of the more established landcare groups in the area. The group involves 150 landholders encompassing 40,000ha of land immediately SW of Benalla. The group has been involved with native pine and fodder tree planting, protective fencing of gullies and remnant vegetation and salt tolerant and perennial pasture establishment.

I spent half a day with the NSCP funded full time co-ordinator Angus Howel on a youth group tree planting exercise. I believe the key elements to this successful group are landholder awareness and enthusiasm (95% of the landholders derive some income off the farm), a credible co-ordinator and most importantly, Government financial backing. It is worth noting that as part of the land protection incentive scheme landholders are offered up to:

\$30/ha	for re-establishing perennial pasture
70c	per tubed seedling
40c	per tree guard
\$2/m	of conventional fencing
\$1/m	of electric fencing

What particularly impressed me about this group is their commitment to a wider audience. They regularly host youth groups and adult groups etc., usually from the city for tree planting weekends and the like.

Mollyullah Tatong Group Tree and Land Protection Group Inc.

As with Warrenbayne - Boha the Mollyullah Tatong group has a full time part NSCP funded co-ordinator, Bill Willett, who I spent a day with. The 11 member executive represents about 350 landholders of which 120- 130 are financial in a 620 square kilometre catchment.

Some of the activities the group are involved in include:

- i) Trial work looking at optimal tree planting densities for recharge control.
- ii) Agro-forestry.
- iii) Investigation of streambed erosion control techniques.
- iv) Fertiliser, gypsum, lime and dolomite on pasture trials.
- v) Farm planning workshops.

During my tour of the area I've inspected an extremely impressive integrated catchment management demonstration.

EXTENSION REPORT NO. 3

- QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRY

A. DARLING DOWNS REGION - TOOWOOMBA OFFICE

3.A.1 THE REGION - BACKGROUND

The Darling Downs comprises of 14 shires and covers an area of 40,235 square kilometres with a population of 140,000. About 800,000 ha of this area is cultivated with crops such as wheat, barley, sorghum, maize, cotton, sunflower and chickpeas being grown.

The usual crop rotations entail at least two to three summer crops, following by the same number of winter crops. If the season favours and moisture is available some country will be double cropped. This is usually fairly opportunistic and crops such as mung beans, paricum, millet, barley and sunflower are commonly used.

The soils in the area are renown for their natural fertility and high moisture holding capacity, however, there is enormous variability. The predominant underlying soil association is sedimentary in nature. Usually overlying this there can be found both basalt and alluvial soils.

3.A.2 THE DISTRICT

There are three agronomists based in the Toowoomba office servicing 4 shires out of the 14 described above immediately surrounding the western side of the Toowoomba city. I met with two of these, Mike Cahil and Bill Mills plus project coordinator for operation quality wheat Nev Douglas, (ex agronomist with over 20 years experience in the area).

3.A.3 THE CURRENT STATE OF PLAY WITH EXTENSION IN QUEENSLAND

The Queensland Government has severely restricted its financial support of the DPI's extension operation. This has resulted in some agronomists being offered redundancy packages and forced others to seek external project funds to allow them to continue to operate and it became very clear to me that this was causing a great deal of concern. It appeared that the QDPI is not only undergoing a great deal of change but also the officers were not being adequately informed of the situation.

Generally speaking it is planned that the average agronomist spends 20% of his/her time on adhoc/as demanded extension and the remaining 80% on project work. It was clearly laid out by Beth Woods, extension manager, at a seminar held at Toowoomba during my stay that the level of adhoc advice had to be carefully managed. In addition to this there was to be considerable decentralisation with a more regional level of control and where possible more user pay services.

A Brief Summary of the Policy

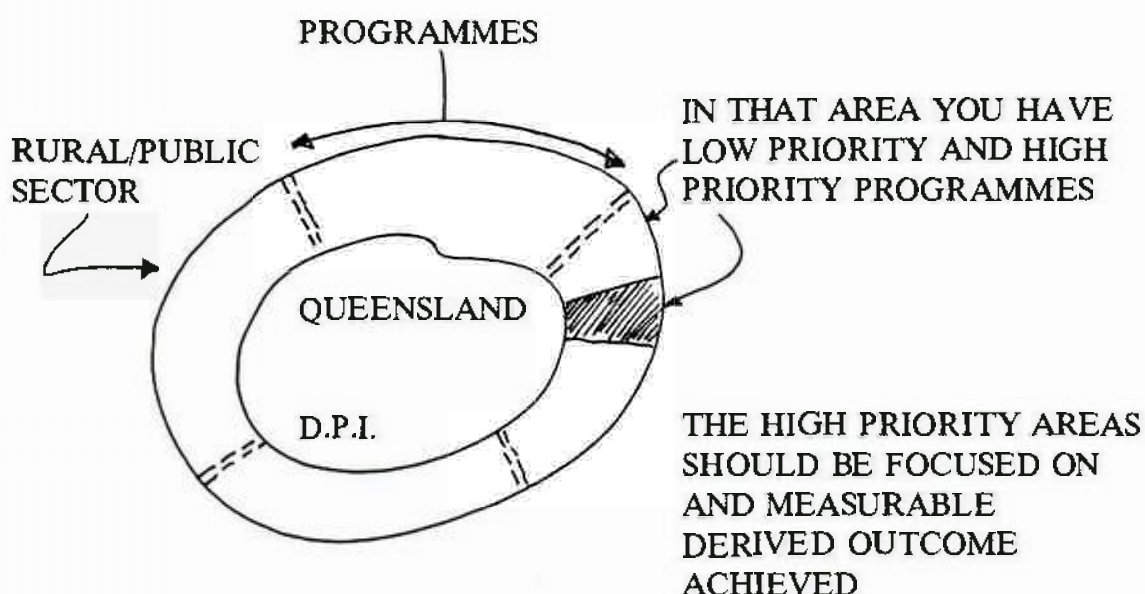
It is hoped that if the agronomists get involved in externally funded project work it will lead to greater efficiency by:

- a) more complete market research and consequently better recognition of larger groups;
- b) better strategic planning and focusing on key areas only;
- c) addressing farming systems rather than specific problems.

The key points on how this should affect staff performance includes:

- a) should encourage individual officer initiation and ownership of the project;
- b) be accountable, the individual will have to set targets, achieve and then evaluate performance;
- c) be professional and competitive as a result of having to compete for funds.

This can be summarised by the following diagram :



As already mentioned the QDPI is in a real stage of flux and the Queensland government are short of cash. I believe there is a real risk of the funding sources dictating extension priorities under this system.

Some of the good things the QDPI Extension Management are doing for their agronomists are:

- a) the setting up of an extension development group consisting of experienced agronomists;
- b) the production of a newsletter with extension staff contributions to keep people in touch;
- c) the establishment of a reference base of people with extension skills and to facilitate the adoption of new methods;
- d) provide local training for extension staff;
- e) run conferences focusing specifically on extension practices.

3.A.4 OPERATION QUALITY WHEAT

During my stay in Toowoomba I spent most of my time with Nev Douglas, co-ordinator for this particular project which is a good example of what the Management of the QDPI were trying to achieve.

Most of these style projects have a development and extension phases and I believe one of the big traps with this approach, is to get caught up in the development phase yielding the technical answers and lapse in the extension of the technology. Operation quality wheat has a large emphasis on extension, most of the technical aspects of growing high protein wheat are understood but requires extending. The main thrust of the project is the establishment of a network of agribusinesses farmer groups modelled on the MEY (most economic yield concept), an idea pinched from the United States.

Each group consists of 10- 15 producers with an attached government agronomist and the common goal is basically to produce higher sustainable profits from cropping enterprises by maximising input use efficiency. The groups are farmer driven and involve themselves in activities like :

- On farm demonstrations
- Regular field meetings to discuss progress of demonstrations
- Planning sessions
- Trips to places of mutual interest

I believe some of the important differences between these and some of the more traditional group activities include:

- farmer driven and farmer owned
- combines government, commercial and industry input into improving viable agricultural systems
- studies a broad range of issues in an integrated way
- employs learning by doing through on-farm demonstrations
- achievements can be measured objectively
- operates within a specific time frame

A unique feature of this particular project is that it is funded by both the QDPI, the wheat research council and various sectors of the industry such as the local fertiliser company. A company has been formed with Mike Cahil and Nev as directors and it is feasible that it could operate without DPI support. So far the idea has been well received with 18 MEY groups in the initial stages of setting up. The concept has been spurred on with relatively recent drops in grain protein levels causing concern amongst producers. Originally the project was to have a life of about 3 years, however, there is considerable pressure for the period to be extended and even for a similar project to be run for barley. A success story under difficult circumstances.

3.B THE WAGGAMBA SHIRE - GOONDIWINDI OFFICE

3.B.1 THE REGION - BACKGROUND

The Waggamba Shire is essentially the boundaries of the offices advisory district. It is approximately 180 Km long and 82 Km wide and roughly rectangular in shape. There are approximately 400 landholders in the shire.

In the past (40 years ago) only a small proportion of the shire was cropped. This has steadily increased to a present level of 20% of the shires area. This is quite significant considering that only 60% of the shire is cleared. About 24% of the shire is grazed by either cattle or sheep. Of this only 4% is improved pasture.

Crops are grown during winter with wheat being the predominant type. Cotton, grain, sorghum and barley are also grown. It is interesting to note that over the past five years on average 5,500 ha of cotton has been grown per annum, this is predicted to increase to maybe 60,000 ha for the 1991/92 season as confidence in the industry increases.

3.B.2 THE OFFICE

The Goondiwindi office is quite small, the staff I met there were agronomists; Greg Salmon and Dave Blackett, sheep and wool officer; Lyod Dunlop and soil conservationist; Terry Reid.

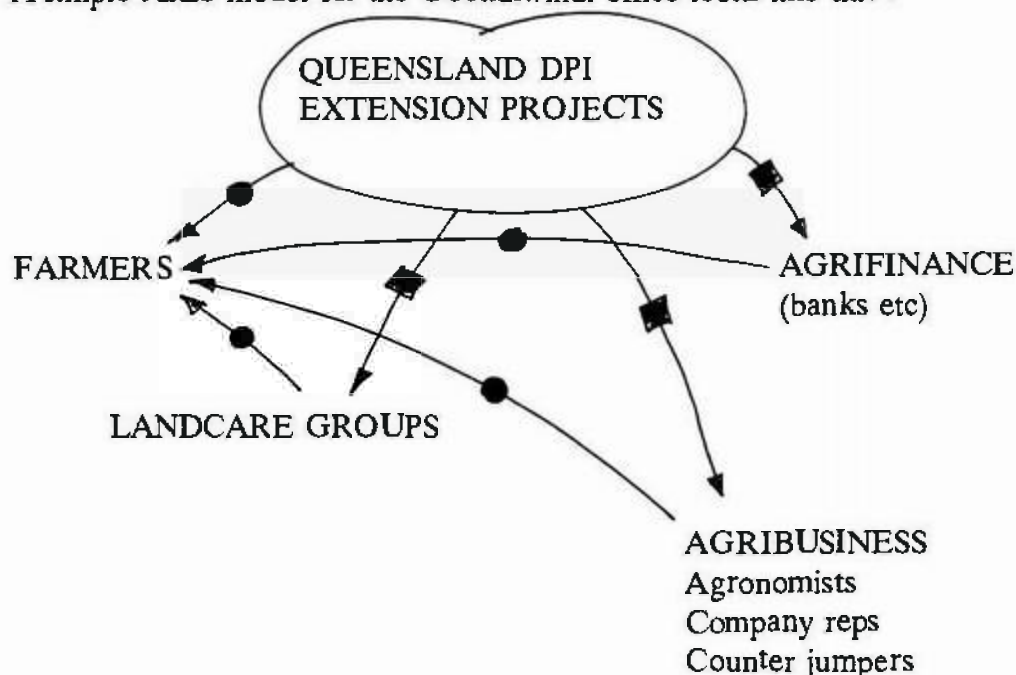
.3 GENERAL EXTENSION OVERVIEW - PERSONAL COMMUNICATION: **DAVE BLACKETT AND GREG SALMON**

Once again the ripples of policy change by the Queensland DPI are taking effect. The extension staff at the office are attempting to reduce their level of adhoc extension to 20% and establishing a greater emphasis on project work (structured extension!).

The Queensland DPI recognises that in the past advisers have been too technically orientated and had not carefully considered the efficiency of their extension activities. The DPI have extension specialists working in the field, conducting rapid rural assessment (RRA) surveys and from this information constructing agricultural knowledge and information models (AKIS). In summary this is a process in identifying involved groups in the extension process and the transfer of information which may reveal adoption barriers. Gus Hamilton has been doing this work in the Darling Downs region, some of the interesting things he has identified for example are:

- (a) Women are big players, they have a large input into whether change takes place, but usually not the technical aspects of change itself. They are often better educated than the male counterpart and have an intimate farm financial involvement.
- (b) The Darling Downs RRA survey and AKIS model construction took only take about 6 weeks to complete and seems value for time - maybe similar technology can be used by the WADA.

A simple AKIS model for the Goondiwindi office looks like this :



From the diagram it can be shown that you have both direct extension links with the farmer (●) and indirect by influencing other groups (■).

Goondiwindi Agronomist Group

This is a non farmer group and its members include private agronomists, chemical company reps, chemical resellers and QDPI staff.

Usually two meetings are held each year; a summer forum and winter forum with the objectives being :

- a) An opportunity for the various groups to share information.
- b) Resolve district problems.
- c) To ensure some continuity of the information being extended.

Bankers Meeting

An annual bankers farm bus tour is run involving district bankers, accountants, solicitors and pastoral house managers for the purpose of district familiarisation and for them to gain some familiarisation with technical aspects of farming. Usually the emphasis is changed from year to year to ensure that each of the meetings build on the previous one. It is important to ensure that they are lured along with a BBQ and beer.

Travelling Roadshows

The Goondiwindi office runs a week long series of full day hall/shed discussion forums in March followed by numerous half day field walks in July, November and February taking in different paddocks and demonstration sites. In conclusion of these forums a mini survey is usually run which helps to decide on what topics to cover in next years meetings.

Crop Management Notes

Comprehensive technical publications on crop management are produced by the QDPI on a regional level. These publications are produced by the local advisory and research staff and I was told should answer about 90% of crop related questions. These publications are intended to supersede the farmnote series produced by the DPI. WADA has retained their farmnote publication in conjunction with fairly recent quality productions such as the Wheat Book, Producing Lupins in WA and the regional wheat growers publication. Farmers in WA can expect better quality, more technically coherent publications than their Queensland counterparts.

Some of the Perceived Dis-Benefits of Change Over to Project Operations

In the Toowoomba report I documented the benefits of the change in operations to a project base. After speaking to David and Greg I gained some insight into possible problems.

- a) Most of the projects have a developmental phase and an extension phase, it is a real trap that officers put more effort into the development of technology but fail to tell anyone.
- b) The above outlined extension for the Goondiwindi office although not adhoc is neither project orientated either. What happens to this?
- c) The new system does not reward on demand extension, rather it could encourage the more fly by night research, with the producers being the ones to suffer as individual officers strive for promotion with a high turnover of projects.

Fallow Management Project - David Blackett

This project has received about 4.5 million dollars funding, 700,000 from NSCP, and involves 80% of David Blackett's time. The project area covers the whole of Southern Queensland and has a 5 year life. Its focus is on the management between crops, forages and lay pastures. For example the economics of systems of fallowing, methods of fallow weed control, stubble, soil crack and moisture management, minimising soil erosion and soil structural decline and the use of animals on fallows. It also includes other areas that interact with in crop and forage management such as timeliness of planting, nitrogen and phosphorus fertility and rotation systems.

The first stage of the project is market research using the RRA technique to ensure that consequent programmes and products resulting from the five year project are soundly based and effectively targetted. Generally speaking the technical information concerning fallow management is available, and this project is heavily extension weighted. Some of the extension activities planned so far include:

- a) The provision of training and technical info to back up district staff.
- b) Information packages for schools.
- c) Rainfall simulator illustrating water penetration into paddocks under various management.

3.B.4 LAND CONSERVATION

Rising saline watertables are not causing problems yet, the bigger issues are water erosion control on sloping country, the exposure of land to erosion through over grazing, droughts and plus remnant vegetation management.

The Waggamba Conservation Committee (WCC) was formed in 1989 by local men and women landholders with initially the main focus being tree planting and remnant vegetation protection. David outlined some of the problems with the group in a presentation at the 5th Australia Agronomy Conference. In summary these are:

- a) the group needs to be free standing, self motivating, and non reliant on government personnel;
- b) they need to avoid soft issues and target small achievable projects to gain credibility amongst peers;
- c) inexperience with the media; and
- d) some members not practicing land conservation ethics that the groups were promoting.

These problems are not all that different from those of some of the local LCD groups in WA. David also outlined that the committees must accept that they are not in a good position to provide technical advice. I could not agree with this; most LCD members of groups I'm involved with have excellent knowledge of land degradation problems and credibility with their neighbours putting them in a first class position to provide advice.

The WCC have been conscious in selecting projects to avoid being branded as 'too green'. Just recently they have produced the Waggamba shire land management manual, with assistance from NSCP and ran a series of herbicide application workshops involving QDPI staff and industry personnel.

Farm Planning

From what I can gather, water erosion farm plans have been constructed in the past by soil conservation officers. The farmers input was low, with the QDPI officer doing the majority of planning, as a result the rate implementation of these plans was disappointing. Terry Reid at the Goondiwindi office is about to embark on a series of whole farm planning workshops using a package similar to that devised by the Narrogin office.

EXTENSION REPORT NO. 4

- HASTINGS - MINISTRY OF AGRICULTURE AND FISHERIES

4.1 OUTLINE OF CHANGES TO MAF STRUCTURE

As with many government run organisations in New Zealand the MAF, Ministry of Agriculture and Fisheries, has undergone radical change in the last 5 years in line with the general decay of the New Zealand economy. Unlike the telephone service and railways the MAF hasn't actually been sold off under the State owned enterprises (SOE) scheme, rather, considerable pressure has been placed on employees to recoup bureaucratic overheads, operating and salary expenses by introducing a charge for services. This has resulted in the previous advisers who operated in a not so different way as us first undergoing a name change to consultants then activity change in their quest for money.

Generally speaking the financial mat has been pulled out from under the feet of MAF. The funding cuts have been so severe that the number of consultants has dropped from 200 to 150 in the last 2 years or so with a recent round of redundancies taking place about 3 months ago. These redundancies have been performance based, if the consultant fails to cover at least his own operating expenses and salary he runs a real risk of being made redundant. This has been effective in smoking out inefficient advisers and generally speaking it appeared that the younger staff were better able to cope with the change.

There are a number of disbenefits that immediately come to mind with this change:

- a) consultants tend to have more intimate contact with a fewer number of farmers;
- b) consultants are no longer involved with technology transfer; and
- c) a division develops between the consultants and other private sectors servicing the agricultural industry.

4.2 THE HASTINGS OFFICE

There is actually four divisions of MAF in the country: MAF Technology; which includes the consultants and research staff, MAF Quality; Agriculture Standards Division, MAF Corporation; the staff management body, and MAF Fisheries.

During my brief stay at Hastings I met the following people:

Tim Wood	
Phil Wood	Agricultural Consultants, MAF Tech.
Allister Dick	
John King	Regional economist, MAF Tech.
Derreck Whitworth	Shelton Ivory Agricultural resellers
Doug Henderson	Ravensdown fertiliser company
Phil Gregoe	Ravensdown fertiliser company
Brian Percy	Willams and Kettle chemical resellers

The Hastings office services about 1,600 bona fide farmers in a region that extends about 30-60 Km up and down either side of the town, along the coast in a strip about 50 Km wide from the foreshore to the Ruabine Ranges. The consultants work as a team, are particularly innovative in making money and represent one of the more successful offices in the country.

Agriculture in the Hastings Area

The actual town of Napier, approximately 15 Km south of Hastings, is situated in a valley. The soil types are of an alluvial nature, fertile and support kiwi fruit, pip fruit, summer fruit and vines. As you move away from the coast inland the rainfall increases, the country becomes more undulating and soils less fertile. Typically farmers are involved in sheep, deer, goat and beef livestock enterprises, small areas of cereal crop, brassicae fodder crop and process quality peas are also grown. Average farm sizes range from 500 - 1500 ha in size.

How the Consultants Operate

As mentioned earlier under this system mass media extension of technological information no longer takes place. Consultants in the past ran regular field days, had radio interviews and produced copious quantities of written material, this is no longer done. The only exception is when the government contracts the extension staff to produce certain publications or run field days. From what I can gather the government is actually one of MAF's best clients, Hasting MAF consultants are also involved in producing situation statements for the ministry; farm monitoring reports, producing taxation policy and the structuring and administering of drought relief schemes are just a few examples.

These local guys are also involved in the procurement of lambs for Progressive Meats, a local slaughter house supplying packaged meat to European, Japanese, Pacific and British markets. The arrangement is a little incestual but effective to the point where competing slaughter houses are now out of business. Progressive Meats have a set pricing schedule per carcase weight and then offer premiums for

lambs produced out of season to ensure continuity of supply. The meatworks themselves are a clean, small, efficient owner operated business running 2, 7 1/2 hour shifts per day for 5 1/2 days per week, processing about 2000 lambs per day.

All the lambs processed by the works come through the MAF scheme providing for the business about 80c per head of which 60c is credited to the individual consultant.

Each of the consultants (apart from John King who has little individual farmer contact) have probably between 20-40 clients. Their contract rate is about \$60/hour, a basic budget review plus 3 farm visits costs about \$900 a year, 6 visits plus a full financial review will cost at least \$3000 per annum.

Interestingly enough the consultants value group based activities for both client harvesting and revenue earning capacity. The consultants operate with groups ranging in size from 8-15, meeting between 6-10 times a year for half day sessions costing about \$500/day. Typical groups usually initially focus on getting an overview of each others farms then invite guest speakers, organise tours and run comparative analysis surveys.

The MAF consultants that I spoke to at Hastings firmly believe that the changes that had taken place were for the good. They admitted that the new system brought them into the real world to a certain extent and forced them to change, 'overnight you had to sharpen up and become a lot more accountable for the advice you gave'. Initially the farmers reaction was negative and established contacts were lost but new contacts, often individuals that had no previous dealings with MAF, were established. It is interesting to add that generally speaking these guys get paid less than us.

After being painted such a rosy image by the consultants I felt it was important to balance the viewpoint and contact a number of industry people.

4.3 DERRECK WHITWORTH; SHELTON IVORY CHEMICAL RESELLERS

Derreck is the owner of the shop and has over 20 years experience in the horticultural industry. There are four representatives operating through the shop, generally they have no formal qualifications and are not involved in basic crop agronomy. Their chemical knowledge on the other hand is very good and they are mainly involved with crop protection and fertiliser use. The annual chemical bill, say for apples, is very high, about \$2500 per ha, therefore it is important to keep customers happy with a high level of reseller contact.

When I asked Derreck about the changes MAF has recently undergone he only had negative comments. He believed it had effectively driven the good consultants out of the system into private enterprise with the growers being the big losers.

Generally speaking the resellers were now very reluctant to communicate with MAF because firstly they may be charged and secondly they may sell the advice they divulge.

4.4 DOUG HENDERSON (SUPPLY MANAGER), PHIL GREGOE (AGRONOMIST RAVENSDOWN FERTILISER COMPANY)

Ravensdown is New Zealand's largest farmer owned cooperative fertiliser company specialising in the manufacture and marketing of a range of fertilisers. The head office is in Dunedin with works located at Awatoto, Nelson, Hornby and Ravensbourne. The company essentially supplies 3 types of product, 1. phosphate based pastoral fertilisers, (including both acidulated, plain rock and products containing potassium and sulphur), 2. reactive rock phosphate and 3. DAP and MAP based cropping fertilisers. There is actually about 7 products available with a range of N:P ratios and potassium and sulphur contents. High analysis fertilisers for horticultural use are also produced.

I inspected the Awatoto works near Napier which supplies the East Coast and Southern areas of the North Island. The works opened in 1956 and badly needs an upgrade, they are running at about 1/3 - 1/2 capacity. Fertiliser use in the area apparently rapidly declined in 1985/1986 and levels have not fully recovered.

4.5 BRIAN PERCY (STORE MANAGER); WILLIAMS AND KETTLE AGRICULTURAL SUPPLIERS

Williams and Kettle are virtually the sole suppliers of agricultural products for people cropping in the area. Once again they have no qualified agronomist working in the field, only a couple of 'experienced representatives'. There are no MAF consultants based at Hastings who have broadacre cropping experience so the resellers and chemical company rep's have filled the niche. Williams and Kettle essentially offer a free complete crop management service providing technical information from sowing right through to harvest in return for shop patronage.

Brian believed MAF's biggest problem was that they were too academic, he believed in the past the organisation wasn't that effective and has now become even less so due to the introduction of fee for service.

EXTENSION REPORT NO. 5

- INVERMAY RESEARCH CENTRE AND BALCLUTHA OFFICE OF MAF

INVERMAY RESEARCH CENTRE

The Invermay Research Centre is located about 16Km west of Dunedin and is the administrative and management headquarters for the MAF (MAF Tech, MAF Qual, MAF Corp) South Region and an agricultural research station. Invermay was originally established as an agricultural research station in 1949 and now houses about 230 people in modern offices and laboratories on a 525ha property extending from fertile alluvial flats lower in the landscape to steeper bouldery hills. An adjoining 925ha leasehold property, Waiora, is run by the institute also for research purposes, much of it consists of steep hilly country with infertile acid soils and is used mainly for improved pasture species research.

The Invermay Research Centre now operates as a science contracting organisation for a variety of clients including mainly the Government at this stage in areas of plant and animal research, waste technology and pest management. For 1990/1991 MAF Technology South Region (MTS) has been contracted to deliver on 17 science programmes for the Foundation for Research Science and Technology (FRST) and Government clients. Research areas include:

- (1) New and improved plant cultivars and management priorities for pastures.
- (2) New and improved farm animals and animal production systems.
- (3) New and improved cultivars and management practices for arable and horticultural crops.
- (4) New and improved pest and disease management processes in primary production and the natural environment.
- (5) New and improved materials, industrial processes and products.
- (6) New and improved environmental monitoring and management technologies.

RESEARCH STAFF CONTACTED AT INVERMAY :

5.1 NICK ROUND TURNER - INFORMATION OFFICER

Nick has been working out of the Invermay centre for over 20 years and is responsible for meeting science information requirements (such as home gardening, professional and student), operating a computer data base for the region, general science editing, publishing of scientific articles and wider circulating material.

He did admit that now fee for service was being introduced the consultants who where once active in writing articles no longer did so. There is a full time journalist based at Invermay who is primarily responsible for the production of a farmer freebie newspaper and pressured the consultants for material. Admittedly, most of there articles written by consultants had a strong self promotional flavour. Nick commented that local farmers were not particularly interested in what happened at the centre. I found this a bit hard to believe and found it even more surprising to hear that the research centre does not produce an annual trial report.

Nick admitted that with the new system there could be a problem with information transfer. It is undecided whether the Government contracts consultants to deliver technical information to the farmers or research staff involve themselves in extension.

5.2 DON KENNEDY - FARM CONSULTANT, INVERMAY

I spoke to Don over lunch and we compared the New Zealand system with what happens in Western Australia. The impression I got from Don was that he enjoyed the challenge of operating as a consultant but appreciated that MAF was lacking as a result of not being involved in technology transfer.

5.3 GEORGE DAVIS - SCIENTIST

-George is involved with the Inverdale gene which is a prolific gene that has been isolated in the Romney. It's carried on the X chromosone and allows the female to produce an extra 60 - 70% lambs over her lifetime. The discovery is being hailed as one of the decades most important because it should allow producers to put extra selection pressure on leanness and fleece weights with prolificacy guaranteed.

5.4 JOHN KEOGHAN - SCIENCE LEADER, PLANT SOILS GROUP

John is the manager of the Plant Soils group at Invermay and one of the projects I spoke to him about was the on farm investigative development work that Warren Fraser, research associate, and himself are involved with.

Background

The South Island hill and high country, given the enormous range of climatic and topographical conditions presents a real challenge for successfully establishing pastures.

Typically the landscape can be broken up into units depending on the altitude, its aspect and the soil type. The objective of the project is to select the most appropriate pasture species and its management package for a particular landscape unit. The pasture species being evaluated include grass species such as ryes, bromes, Phalaris, fescue, oatgrass, cocksfoot and legumes such as lotus, red clover and vetch.

The approach

John and Warren have set up a number of onfarm trials and demonstration areas plus focus farms in the South East of the South Island. They have found that farmers in the past have been sceptical of small plot trials particularly when evaluating pasture species so they are setting up large plot trials (the replicated areas usually covering 3-4ha). The trials I was told are of sound experimental design yet large enough to be defined as a production system, contributing significantly to the livestock feeding goals of the co-operating farmer.

Best bets pasture species and management packages that are developed from the onfarm trials are then trialed on a larger scale on the focus farms. In this situation the farmer is encouraged usually with the input of a consultant to try the new 'package' on a paddock scale.

Warren basically spends 50% of his time working on the onfarm trials/demonstration areas and focus farms and 50% on the development of a new pasture establishment drill. The pasture establishment drill is designed to negotiate rocky areas and establish pasture in the absence of herbicides. It uses discs for creating a furrow and covering the outer furrow areas with soil to achieve a weed kill. From what I saw the machine worked particularly well and is soon to be marketed in the form of an interchangeable undercarriage for existing pasture drills.

5.5 IAN WOODHOUSE- MANAGER, ANIMAL BUSINESS

As mentioned earlier in the report the Invermay Research Centre (MAF Tech) are trying to operate as a science factory.

Not only are science products being produced but people with marketing backgrounds such as Ian are operating through the campus and are responsible for selling the technology. Some of the projects that they have successfully marketed to date include :

- i) 'the control box' of a computerised animal recording system to a computer company for development into a complete farmer friendly stock management package;
- ii) a deer blood typing service which allows deer farmers to identify the level of hybridisation in their herds;
- iii) the sale of fallow deer semen to the USA;
- iv) sire reference schemes in sheep;
- v) marketing contracts for outside clients. People like Ian offer a contract that includes developing a marketing plan and assistance with implementation and production logistics for small businesses; and a
- vi) pregnancy testing service. The above examples quoted seem innovative and from what I was told revenue earning. The WADA develops technology equivalent if not better than that being successfully marketed in New Zealand. Would it be possible for us to make use of people with marketing skills?

5.6 PHIL GREENWOOD - SOIL SCIENTIST

Phil is basically a soil physicist working on soil compaction in the southern areas of the South Island. Approximately 30% of soils in the area are susceptible to traffic pan formation and responsive to subsoiling (deep ripping). Implements used include subsoilers (rippers with wings), para ploughs and conventional ploughs. Phil's main task at this stage is the development of an air permeability tool for quick field evaluation of soil compaction that can be used by consultants. Apparently since privatization the consultants have been less inclined to get involved with soil structure issues, Phil also commented that their soils knowledge was poor. Apparently this has resulted in farmers seeking out the various research personnel directly, causing some problems.

5.7 RAY HANNAGAN - MANAGER, SOIL FERTILITY SERVICES LABORATORY

The MAF Tech at Invermay basically offer a soil and plant analysis and feed analysis service. The basic soil test includes pH, Sulphate, Calcium, Potassium, Magnesium, Sodium and Phosphorus and cost around \$40 per sample which incidentally is 3 times the price of the CSBP service here. Most of the soil samples processed in the Invermay lab are from graziers. The farmer provides information on his soil type, pasture composition and present grazing capacity and from this using fertiliser response curves built up from trials in the area recommendations are made.

I inspected the labs on the campus and they seem rather antiquated in comparison to the facilities used by CSBP. The lab is processing approximately 20,000 samples per year.

5.8 BRUCE KYLE - ANIMAL PRODUCT ION SCIENTIST

Bruce is in a unique situation; he operates for 50% of his time as a research scientist and the other 50% as a consultant. The fields of research he is involved in include: breeding of sheep with multiple teats to improve the mothering ability of high fertility animals, sheep and commercial sire reference schemes and deer blood typing. Obviously he is not involved in academic research but rather the refinement of technology into a commercial service.

5.9 BRUCE SMALLFIELD - SCIENTIST

Bruce is involved in the selection and evaluation of novel crops for growing in the South Island. Crops currently undergoing evaluation basically fall into four groups: (1) essential oils, (2) medicinal herbal products, (3) culinary herbs and (4) plant extracts.

The second stage of the project is to determine the commercial value of the crop, the economic feasibility of growing it and to develop markets. This project has a set time frame and on its completion it is expected that novel crops will be grown on a commercial scale. Once again a good example of research that has very clear 'money making' objectives.

BALCLUTHA DISTRICT OFFICE

This office is approximately 75km South-West of Dunedin (Invermay Research Station) from which three consultants and two animal health officers work out of servicing about 1000 farmers. The three consultants are Colin Brown, Graham Pringle and Peter Vucetich.

Graham until recently was operating under the animal business group and responsible for the introduction of the texel breed of sheep to the area. The texels are a European breed renown for producing a very lean, well muscled carcass. The sheep are unusual to look at and produce poor quality wool (the project would be likened to the attempted introduction of Awassi sheep by the WADA), the project did not make a profit but the introduction has been successful. While the animals were still in quarantine approximately 40 farmers were offered a 50% share in individual rams. At the same time Graham was running a series of BBQ's around the South Island, inviting farmers to try the meat and inspect live animals and, if they wanted, place orders for rams. Approximately \$500,000 worth of sheep were sold through the project, with the average ram price being \$2,000 (top price paid was \$54,000).

Peter is relatively new to the office and is relying heavily on Government contracts to generate revenue. Peter is currently trying to 'sell' the soil testing service offered by MAF plus a grass grub detection test and in the process prospecting for clients. He admitted that it is difficult to find clients.

The consultant I spent the most time with in the South Island was Colin Brown. Colin in my opinion was highly motivated, dynamic and probably the most effective consultant I met in New Zealand given the constrained system they all working under there. His revenue was derived from basically three sources.

1. Government contracted prescribed extension.
2. Extension consultancy work such as running discussion groups and providing technical information.
3. On going financial consultancy work.

Extension Consultancy

What impressed me about Colin is that instead of expanding his existing clientele and generating more income he has redirected time into the development of research results at a farm level. In theory this is part of the job brief but from what I could gather practiced by few consultants.

Some of the development work Colin is involved with includes management systems for new pastures species which I inspected at Michael Richards property. Colin indicated that clients were prepared to pay for new ideas but they had to be introduced at a whole farm level and that means the consultant has to take research results and do the developing work.

Group Work

Colin is currently running three discussion groups and is attempting to set up more. The groups usually have about 10 members and meet monthly for a farm inspection plus organise tours of interest once or twice a year. Farm inspections involve the group touring a members property looking at aspects of management, followed by a planning session to discuss possible changes/improvements. The discussion group meeting I attended was run particularly well; after the farm inspection the group listed aspects of the farms management, then broke up into groups of threes and fours to decide on possible changes. The group then reformed to discuss the changes and come to a common resolve with the farmer in question.

Colin also runs farmers wives discussion groups.

EXTENSION REPORT NO. 6

- PROPERTY OF J W MURRAY, WAIMA HILLS BLENHEIM
SOUTH ISLAND

John owns 650 hectares of land extending from the sea up into an adjoining mountain range some 1500 feet higher. The farm is located in the Ward Shire approximately 50km by road SSW of Blenheim and receives about 500mm of rain per year.

The property essentially supports two families.

6.1 SOIL TYPES AND LANDUSE

The main enterprises are sheep and cattle, paddocks are rarely cropped and this is only ever to turnip or hay standing fodder. There is a large variation in soil type across the property dictating productivity.

A. Coastal Paddocks

Consist mainly of light coloured gritty sand overlying shingle and includes approximately 8% of the property. The soil type has poor water holding capacity often resulting in the pastures burning off over summer and the area becoming susceptible to wind erosion.

The pastures growing have a low carrying capacity and are infrequently topdressed with phosphate and nitrogen. Lucerne has been established on the site in the past but fails to persist for more than two years.

B. Paddocks Immediately Upslope Of The Coastal Paddocks

Are still part of an ancient dune system and consist mainly of a deep coarse texture sand and comprise about 10% of the property. The paddocks are being overrun with Marram grass and are also susceptible to wind erosion. The paddocks aren't topdressed and have a low carrying capacity.

C. Steeply Undulating Country Immediately Behind The Dunes

Consist of better quality soils. Comprising about 10% of the property. The steepness of the areas makes it difficult to establish pasture, control weeds and fence. In places the topsoil has been removed by water erosion, exposing the relatively infertile underlying clay. These paddocks are also susceptible to slipping if overgrazed.

D. Fertile Dark Coloured Loam Overlying Clay

These areas were originally sown down to cocksfoot, clover and ryegrass mixtures. They are slowly being infested with barley grass and need resowing. Some of the flat areas are arable and have been occasionally cropped to fodder.

E. High Altitude Stony Soils

Steep unarable and less fertile compared to soil type D. Predominantly improved grass based pasture.

6.2 SHEEP ENTERPRISE

John runs a self replacing Corriedale flock comprising of 2400 ewes of which 32% are hoggets, 20% 2 tooth, 35% 4 and 6 tooth and 12% 8 tooth. A relatively small number of male sheep (130) are also run consisting of 30 rams and the balance being hoggets or 2 tooth wethers.

Approximately 700 fat lambs (predominately ram lambs) are turned off each year. They dress out at 17-22 kg at four months of age.

Ewes are joined over a period of 8 weeks starting the first of April, lambs are dropped in August and the typical percentage is about 105%. The flock is shorn pre lambing.

6.3 CATTLE ENTERPRISE

Approximately 175 cows of mixed age, 23 bulls and the odd steer are run on the property. Of the 23 bulls only 10 are used each year and one, the stud bull, is selectively mated to a stud herd of calves to breed replacement sires.

6.4 GRAZING STRATEGIES

The farm is not intensively grazed to a set pattern as other properties I visited were in New Zealand. The reason for this is due to the unevenness of terrain, range of soil types and growing conditions across the property. Rather, paddocks are shut up and allowed to grow then grazed over a number of weeks. Usually a paddock is grazed once in an annual cycle.

Cattle and sheep are run together and this often created problems because the sheep would intensively graze the pasture often forcing the cattle to eat the poisonous bracken fern.