



**DEER INDUSTRY  
NEW ZEALAND**



**MENDIP HILLS LIMITED  
FARM FOCUS DAY**

*Thursday 21<sup>st</sup> May 2009*

**MENDIP HILLS  
Leader Road  
Parnassus**

**10.30 am assemble - Bring own lunch, morning and afternoon tea - tea & coffee provided**

**4 Wheel Drives Please**

<b>11.00 a.m.</b>	<b>Welcome and Introduction</b>	Peter Bradley Simon & Meisha Lee	- Facilitator - Farm Manager
<b>11.15 a.m.</b>	<b>Farm Tour:</b> <u>Top Deer Unit (working lunch)</u> Management update	Simon/Peter	
	Development Alternatives: Forestry initiatives Regeneration Stock water system	Wayne McClunie - MAF Program Miles Giller – QEII Trust Simon	
	Requirements for Stock Water Environmental incentives	Phil McGuigan – Environment Canterbury James Hoban – Environment Canterbury	
	Grass variety trial at Mendip Pasture cage cuts deer blocks	Sam Spencer-Bower – Agriseed	
	<u>Bottom Deer Unit –</u> Breeding program update Johne’s update	Simon/Peter Ian Page – Canterbury Vet Clinic Ltd	
<b>2.30 p.m.</b>	<b>Woolshed presentation</b> Feed Budget - Options and cost benefits for supplement	David Stevens - AgResearch	
	Carbon Credits Emission Trading	Clayton Wallwork - Carbon Farming Group	
	Market update	Ian Stuart - Mountain River	
	Long term outlook for Venison	Mark O’Connor - DINZ	
	Animal Health Board	Malcolm Gilbert	
<b>4.30 p.m.</b>	Closing Comment	Mark Shadbolt - Chairman	

***Informal BBQ kindly donated by Mountain River  
Refreshments provided by Canterbury Branch of the Deer Farmer Assn.***

*In the spirit of the OCCUPATION, HEALTH AND SAFETY ACT the Owners have taken all reasonable care in making your visit to the property as safe as possible, they clearly point out, you enter the property at your own risk.  
The Owners will accept no responsibility for any incident or injury to any person or property that takes place while you are visiting the property.*



## 1.0. PROPERTY DETAILS

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- 1.1 **Area:** Mendip Hills 6,132 ha Total 5,232 ha Effective
- 1.2 **Labour:** Simon & Meisha plus 5 staff
- 1.3 **Rainfall:** Varied  
Range between 850 mm – 1,050mm
- 1.4 **History:** Land owned by the Black family since 1954. Currently, under the stewardship of Bryden Black. Simon and Meisha took over as manager's of Mendip Hills in 2007.

Mendip Hills is currently being farmed in conjunction with a 150 ha finishing property in Mid Canterbury of which 140 ha is irrigated.

1.5 **Areas:**

Home Flats 320 ha  
60 ha deer fenced  
Weaner Hinds from weaning  
R2 Hinds too after scanning

160 ha non deer fenced  
Finishing cattle  
Making supplements  
This year also for lamb finishing

Lower Hill 495ha  
12 paddocks sheep and cattle  
Summer dry lighter soil  
90 ha of kale for wintering cattle

Hill Deer Block 495 ha  
3 blocks for MA breeding Hinds  
1 small block plus 3 holding paddocks

Birchdale 414 ha  
24 paddocks sheep and cattle

Le Crens 414 ha  
2 blocks: sheep and cattle

Leader 541ha  
16 paddocks  
This year summer Brassica sown  
Used to finish lambs

Limestone 710 ha  
3 blocks: sheep and cattle

Gilt 865 ha  
20 ha Flats  
8 blocks: sheep and cattle

Conway 795 ha  
11 blocks: sheep and cattle

Mountain 1187 ha  
6 blocks Tussock  
Summer grazing ewes  
Autumn grazing breeding cows

## 1.6 This year's re-grassing and winter feed program.

Spring

Kale	90ha	Lower Hill/Home Flats
Turnips	100ha	Home Flats/Leader
Summer Rape	42ha	Lower Hill/Home Flat
New grass	23ha	Mailbox and bottom deer block

Autumn

Turnips	100ha	Top Percy's, (native), Kowhai Flat (manuka)
		Scottys (kale) and Mid Hill (kale)
New Grass	58ha	Leader, Lower Hill/Home Flats

Lime applied pre development.

All brassica crops sown with 300kg/ha Serpentine Super.

All new grass paddocks sown down with 400kg/ha Super.

100kg/ha of Urea used on Kale crops.

Paddocks coming out of native are usually disced in the autumn and winter fallowed.

## 1.7 Stock Water

Own system and Waiiau/ Cheviot county scheme

Natural springs and creeks.

Stock water has been under pressure this summer especially within the Hill Deer Unit. A new stock water system for this area is being investigated.

Alternatives include: gravity system, pumping, pelting wheels and a large storage pond.

## 1.8 Soil Tests:

MENDIP HILLS								
Name	Test Date	pH	Olsen P	K	S	Mg	Ca	Na
<b>Lower Hill</b>								
Tonk B14	10.09.07	5.8	23	14	9	52	8	9
Mid Hill	10.09.07	5.5	15	12	10	39	5	5
Cocksfoot	13.10.07	6.1	20	22	18	10	9	9
Top Hocks	10.07.07	5.2	18	8	9	39	5	
Heather	10.07.07	5.1	22	6	14	48	6	
<b>Conway</b>								
Tin Hut	10.09.07	6.0	19	41	17	39	14	6
<b>Leader</b>								
Island	11.10.06	5.6	11	6	6	30	5	4
Woodchester	11.10.06	5.7	14	14	6	17	7	3
Gardens	11.10.06	5.9	25	27	9	23	9	3
FirstMedM6	11.06.06	6.0	12	2	7	27	8	7
<b>Flat Deer Paddock</b>								
18 acre	22.09.06	6.1	25	2	6	16	13	6
Yard House	22.09.06	6.1	37	7	8	28	13	8
Chrisy	22.09.06	6.1	23	3	10	23	13	10
Mailbox	11.10.06	5.7	18	6	6	20	8	6
<b>Hind Block</b>								
Optimise Trial								
South East		5.3	14	8	4	36	5	3
North East		5.4	15	7	5	31	4	3
South East		5.3	17	7	7	22	4	2
North East		5.6	13	8	5	18	4	3

### April 2009 soil tests

Dougs		6.1	18	9	9	28	10	13
Bull Pdk		6.5	38	14	6	29	13	12
Mothering		5.6	18	10	12	35	8	11
First Flat Mile		6.1	5	8	6	33	9	10

### Deer Hill Block Development

	pH	P	Mg	K	Na	S	P Retention	A1
Airstrip	5.4	7	28	5	6	4	20	3.8
Road Block	5.6	2	27	4	8	2	17	2.4

## 2.0. HISTORIC AND TARGET STOCK NUMBERS & STOCK UNITS

	2006/07 1 <sup>st</sup> July	2007/08 1 <sup>st</sup> July	2008/09 1 <sup>st</sup> July	2008/09 1 <sup>st</sup> May	Target Numbers in 3 years
<b>DEER</b>					
MA Hinds	1,000	1,173	1,172	1,050	1,500
R2 Hinds	173	268	200	240	200
R1 Hinds	280	293	342	268	350
Herd Sire					
Red Stags	45	47	24	17	70
Wapiti Stag	10	8	8	8	8
Terminal Stag				7	20
<b>DEER STOCK UNITS</b>	<b>2,971</b>	<b>3,682</b>	<b>3,390</b>	<b>3,189</b>	<b>4,050</b>
<i>Percentage of Total Stock Units</i>	<i>11%</i>	<i>20%</i>	<i>21%</i>	<i>11%</i>	<i>27%</i>
<b>SHEEP</b>					
MA Ewes (Corriedale)	8,800	8,800	8,564	8,315	8,800
2 tooth Ewes					
Corriedale	2,700	2,100	2,150	1,767	
Corriedale/Romney		600	600	1,000	2,000
Ewe Hoggets					
Corriedale	4,100	3,200	3,150	2,000	
Corriedale/Romney	600	1,000	1,000	2,339	2,400
Finishing Lambs			800	420	400
Killers	70	70	70	25	70
Rams	123	125	125	102	125
<b>SHEEP STOCK UNITS</b>	<b>15,453</b>	<b>15,055</b>	<b>15,855</b>	<b>15,382</b>	<b>16,550</b>
<i>Percentage of Total Stock Units</i>	<i>50%</i>	<i>51%</i>	<i>52%</i>	<i>47%</i>	<i>50%</i>
<b>CATTLE COMMERCIAL</b>					
MA Cows + R3 Heifers	840	840	915	969	900
R2 Heifers Replacements	264	275	300	280	220
R2 Heifers Fattening			90	80	190
R1 Heifers	370	367	368	374	387
R1 Steers	340	360	368	370	387
R2 Steers	350	340	357	351	372
Breeding Bulls	30	29	29	32	29
Grazier – R2 Steers			116		150
<b>CATTLE STUD</b>					
MA Cows	45	44	44	40	44
R3 Heifers	20	18	18	12	18
R2 Heifers	20	9	9	6	9
R1 Heifers	20	20	26	20	6
R1/R2 Bulls	22	18	14	14	14
Stud Bulls	2	2	2	2	2
<b>CATTLE STOCK UNITS</b>	<b>11,918</b>	<b>10,296</b>	<b>11,466</b>	<b>13,576</b>	<b>12,445</b>
<i>Percentage of Total Stock Units</i>	<i>39%</i>	<i>29%</i>	<i>37%</i>	<i>42%</i>	<i>37%</i>
<b>TOTAL STOCK UNITS</b>	<b>30,342</b>	<b>29,033</b>	<b>30,711</b>	<b>32,147</b>	<b>33,051</b>

### 3.0 DEER POLICY AND PERFORMANCE

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- Wean late March.
- All Weaner Stags and surplus Weaner Hinds sold to finishing property on truck weight.
- Replacement Weaner Hinds go down to flats and stay there.
- In calf R2 Hinds return to the hill after scanning. September/October.
- Empty and surplus in calf R2 Hinds are sold.

#### 3.1 Objectives for the deer operation are:

- Grow Hind numbers to 2,000 Hinds as development allows.
- Focusing genetics on growth rates and hind efficiency.
- Maximise number of hinds to a suitable terminal sire.
- Lift fawning percentage.
- Increase weaning weight.

#### 3.2 Current and Historic Breeding Program

2006/07	438	MA Hinds	-	Wapiti Stag
	562	MA Hinds	-	Red Stag
	200	R2 Hinds		Red Spikers
2007/08	398	MA Hinds		Wapiti Stag
	775	MA Hinds		Red Stag
	270	R2 Hinds		Red Spikers
2008/09	Middle Hill	296 MA Hinds		7 Terminal Sires (B11's)
	Swamp	289 MA Hinds		8 Terminal Sires (Wapiti)
	Hydes	331 MA Hinds (JD tested)		7 Red Stags
	Airstrip	88 2 <sup>nd</sup> mated Hinds		3 R2 Red Stags
		Estimated still another 50 hinds plus, out in the blocks not brought in at weaning		
	Home Flats	240 15 month Hinds		8 MA Red Stags

### 3.3 Weaning Weights

Truck weights of weaners sold to finishing farm and number of weaner hinds retained.

	2006/07	2007/08	2008/09
Reds	51.5kgLW	51.0kgLW	46.0kgLW
Terminals	54.04kgLW	50.5kgLW	48.0kgLW
Replacement Weaners			
Bottom deer farm	280hd	340hd	268hd

### 3.4 Johne's Disease Antibody Blood-test Results to Date:

Date	Class	Test Positive Prevalence
July 08: sample testing	Older MA hinds 1:17 tested	7%
Oct 08: age group tested	R2yr hinds ('07 born)	50%
Nov 08: sire group	MA stags	10%
Jan 09: age group tested	15 month hinds ('08 born)	20%

The 303 yearling hinds currently on-farm were blood tested for Johne's Disease on 28.01.09  
Results:

Negative = 240	
Suspect = 3	20% Prevalence
<u>Positive = 60</u>	
<b>Total = 303</b>	

It is the intention to re test R2 hinds tested negative again at pregnancy testing before being sent up the hill.

327 3<sup>rd</sup> and 4<sup>th</sup> calvers Johne's tested at weaning.

Results of blood sampling of R4/5yr old Hinds for Johne's.

Negative = 287	
Suspect = 7	14% Prevalence
<u>Positive = 40</u>	
<b>Total = 327</b>	

## 4.0. SHEEP POLICY

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- Base flock Corriedale ewes
- Romney genetics now being used
- Past sold most of the lambs store

### 4.1 Animal Health

- All Ewes pre-tup get Iodine and Selenium
- 2 tooth ewes and lighter ewes drenched pre-tup
- 2 tooth ewes Toxo
- MA ewes and 2 tooth ewes Campo
- Pre Lamb all ewes Oral Drench, 5 in 1 and Iodine
- Lambs FEC and strategically drenched

### 4.2 Scanning Results to Date

	2008	2007
Terminal Ewes	147%	147%
MA Ewes	151%	148%
4 <sup>th</sup> Ewes	145%	128%
2th Ewes	134%	110%

### 4.3 Lambing Percentage

Lambing % to Ram	109%	100%
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### 4.4 Lamb Sales for 2008/09

Killed off mothers	1,600 @	16kgCW	\$74.00
Stores to Finishing farm	3,100 @	27.5kgLW	\$52.25
Lamb Plan	1,709 @	27.0kgLW	\$56.70
Lamb Plan	933 @	31.0kgLW	\$83.70
Lamb Plan	380 @	32.0kgLW	\$83.70
Ewe lambs	4,330	Estimated 1,300 to be culled	

### 4.5 Breeding Program 2009

1,526 Ewes	Terminal Sire	16 <sup>th</sup> April
6,789 Ewes	Romney/Corriedale	18 <sup>th</sup> April
2,767 2th Ewes	Romney Sire	18 <sup>th</sup> April
4,339 Ewe Hoggets	still 1,300 to cull	

## 5.0. CATTLE POLICY

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- Hereford herd
- Small Hereford stud, however some Angus bulls are purchased
- Calf as 3 year old
- All weaners retained

### 5.1 Animal Health

#### MA Cow

- Poupon for lice late Autumn
- Long acting Selco pre calving

#### R3 Heifers

- Copper and Selenium Autumn
- Poupon worm drench pre calving

#### Other young cattle

- Copper, Selenium, B12 and drenched strategically.
- BVD vaccinating program of 1<sup>st</sup> and 2<sup>nd</sup> calvers has been undertaken.

### 5.2 Pregnancy Testing Results

	2009	2008
MA Cow	7%	9% dry
R3 Heifer	3.5%	5.5% dry

### 5.3 Cattle numbers to winter:

MA cows in calf	689
R3 heifers in calf	280
R2 heifer replacement	270
R2 heifer finishing	110
R2 steer finishing	351
R1 heifers	374
R1 steers	370

A better in calf result this year than in the past in the MA cows, has allowed Simon to cull more of the later calving and poor constitutional type cows.

The TB reactor however has complicated the selling of cattle outside the Mendip operation.

## 6.0. DEVELOPMENT TO DEER UNIT

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Mendip's objective is to continue to clear re-growth scrub.

Two areas are currently being developed, one mechanically and the other spray/oversow.

### Mechanically

#### Kowhai Flat

20 ha cleared annually in the autumn, winter fallowed and sown in turnips the following summer.

### Spray and Burnt

Road Block 70ha	Airstrip 33 ha
- 5 ha clear	- 20 ha regrowth Manuka
- 50 ha regrowth Manuka sprayed with Metsulphron	spray with
- 15 ha bush (to be retained)	Metsulphron

### 6.1 Estimated cost for current proposed expansion

Stock	Ha	Hinds/ha	Hinds
Halfway	12	2.0	24
Airstrip	33	2.0	66
Road Block ...70		.7	<u>69</u> (not stocked with Hinds initially)
<b>Total Hinds</b>			<b>139</b>

#### Capital Cost

##### *Fencing*

Halfway	1.0 km @ \$14/m	
Airstrip	1.2 km @ \$14/m	
Road Block	1.6 km @ \$14/m	
<b>Total Fencing</b>		<b>\$ 53,200</b>

##### *Spray*

Airstrip	22 ha @ \$380/ha	
Road Block	50 ha @ \$400/ha	
<b>Total Spray</b>		<b>\$ 28,360</b>

##### *Stock*

Retained incalf 2yr Hinds		
139 @ \$550/head		
<b>Total Stock</b>		<b>\$ <u>76,450</u></b>

**Total Cost of Development** **\$158,010**

#### Cost Benefit

Increase in Deer Stock Unit	<i>Su</i> 278	<i>G Margin</i> \$60.44	\$16,802
		<b>Return on Capital</b>	<b>10.6%</b>

Allowance has not been made for current grazing of this area. Simon estimates currently 12 cows & calves and 100 single ewe lambs in this area as a norm.

## 6.2 If a full development program was undertaken and stock water is upgraded

### 6.2.1 Airstrip and Halfway

#### *Objective*

Develop to a stage where the paddock has the ability to produce 5 tonne DM/ha.

#### Stage 1

August 2008 Finishing fencing, heavy graze with Hinds. Apply Lime and fertilizer.

Summer 2009 First spray Roundup

Autumn 2009 Second spray Roundup.  
Oversow short rotation , fertilizer and Lime.  
Sheep to trample and spread.

#### Stage 2

Autumn 2010 Third spray Roundup.  
Oversow permanent pasture.

#### Return on Capital

##### Estimated Cost

Development	Stage 1	33 ha @ \$1,540/ha	
	Stage 2	33 ha @ \$ 920/ha	\$ 86,790
Fencing		2.2km @ \$ 14/m	\$ 30,800
Additional Stock			
Estimated stocking		4.5 Hinds/ha	
		An increase 108 Hinds @ \$550/hd	\$ 59,400

**Total Cost of Development \$176,990**

#### Cost Benefit

	<i>Su</i>	<i>G Margin</i>	
Increase in Deer Stock units	216	\$66.97	\$ 14,465

**Return on Capital 8.1%**

## 6.2.2 Road Block 50ha effective

### *Objective*

Develop to a stage where the paddock has the ability to produce 5 tonne DM/ha.

### Plan

November 2008	Spray Glyphosate/Metsulphuron mixture
May 2009	Use cattle
June 2009	Burn – appropriate permits
Spring 2009	Apply fertilizer and Lime
November 2009	Possible Roundup spray
Autumn 2010	Second spray Roundup. Fertilizer oversow short rotation grass/clover.
Spring 2011	Lime & fertilizer
Autumn 2012	Third spray Roundup Fertilizer oversow permanent pasture.

### Return on Capital

#### Estimated Cost

#### Development

2008	55ha	@	\$ 500/ha
2009	55ha	@	\$ 707/ha
2010	55ha	@	\$ 790/ha
2011	55ha	@	\$ 490/ha
2012	55ha	@	\$1,010/ha

\$192,335

#### Fencing

1.6km @ \$ 14/m

\$ 22,400

Additional Stock 4.5 Hinds/ha

205 Hinds @ \$550/hd

\$112,750

### **Total Cost of Development**

**\$327,485**

### Cost Benefit

Increase in Deer Stock Units	<i>Su</i> 460	<i>G Margin</i> \$66.97	\$ 27,457
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### **Return on Capital**

**8.3%**

## 7.0. CARBON CREDITS EMISSION TRADE

### Mendip Hills Station Field Day - Annual Carbon Footprint by Clayton Wallwork

#### Estimated Current Emissions for Mendip

	Unit	Factor	#	NZU
Petrol	Litres	0.00234	7200	17
Diesel	Litres	0.00268	30000	80
Electricity	kWh	0.00023	96000	22
Nitrogen	Tons	5.63900	6	31
Cattle	Cow	1.71000	2516	4302
Sheep	Ewes	0.33000	15382	5076
Deer	Deer	0.66000	1590	1049
			<b>Total</b>	<b>10578</b>

Current Reductions – Post 1990 Forests				
		ha	NZUs/ha	Total
Native regeneration		750	3	2250
Leyland Cypress		5	22	110
			<b>Total</b>	<b>2360</b>

Total Carbon Footprint				
	Emissions	10578		
	Reductions	2360		
	Total	8218		

#### If current regulations were not changed

Costs to Mendip Hills at three prices of carbon				
	Carbon	\$10	\$25	\$50
\$/Stock Unit	32000	\$2.57	\$6.42	\$12.84
\$/hectare	5200	\$15.80	\$39.51	\$79.02
<b>Estimated Cost</b>		<b>\$82,000</b>	<b>\$205,000</b>	<b>\$410,880</b>

#### To offset these emissions and be "carbon neutral" would require

Native	2739	hectares
Douglas Fir	457	hectares

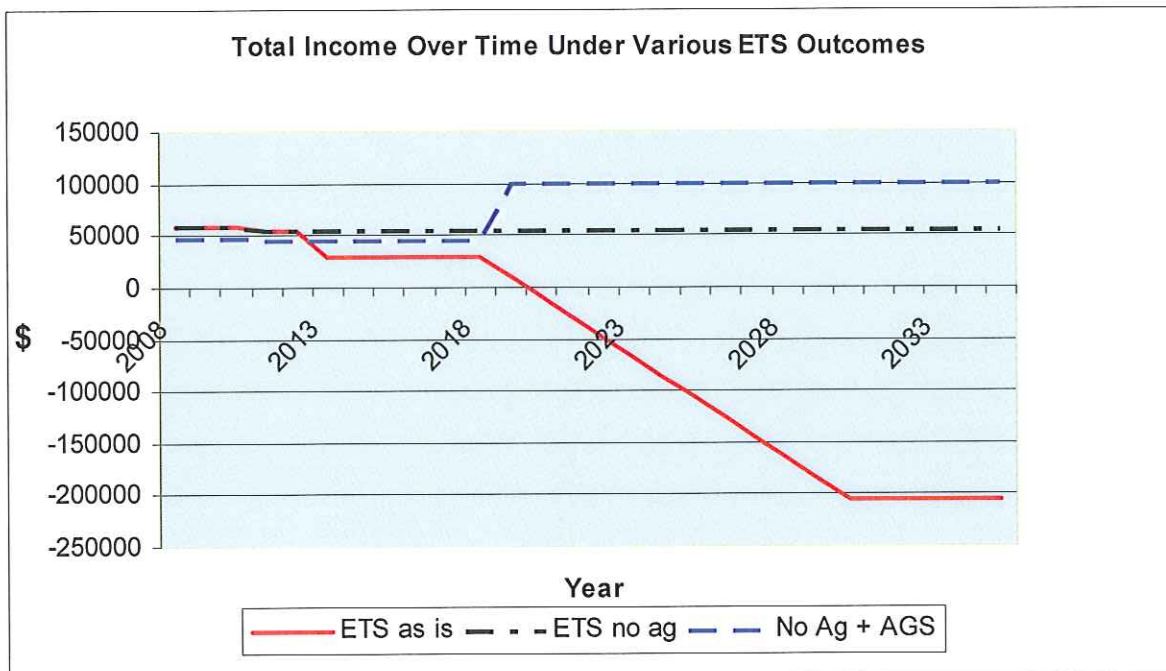
These figures have been estimated under the current regulations brought in under the previous Labour Government. Currently the National Government is revisiting these regulations and there was to have been an announcement at the end of May. Current thoughts are however, that nothing will be announced till August when the Australian's, are also meant to make announcements on carbon emissions for agriculture.

Road Block - 70 hectare development site  
**Comparing alternative land uses**

	Deer	Native Regen	Douglas Fir
Cost of establishment (\$/ha)	\$3,500	\$0	\$2,000
Fencing (\$/ha)	\$320	\$320	\$320
Rates & insurance (\$/ha)	\$9	\$9	\$9
Deer (\$/ha)	\$1,435	-	-
<b>Total Cost (\$/ha)</b>	<b>\$5,264</b>	<b>\$329</b>	<b>\$2,329</b>
Annual Returns (\$/ha)	\$911	\$75	\$194
Pay back period (yrs)	6	4	12

Notes

- Native Regen, is fencing off the block and allowing a native forest to establish naturally
- Costs of establishment for deer includes all development costs to pasture stage (5tDM/ha)
- Fencing cost based on 1600m of fencing at \$14 per meter
- Deer animal cost and returns based on 4 hinds per hectare
- Assume price of carbon is \$25 per NZU/Carbon Credit
- Annual returns for Douglas fir increase over time to an average of around \$450/ha/yr
- Potential for native and Douglas fir establishment costs to be met by MAF AGS, although no carbon returns for 10 years
- Could possibly receive ECAN grant for costs towards fencing for native regen areas
- Could possibly get rates relief for native regeneration areas if a QEII covenant is in place
- Analysis does not include discounting, cost of money, or inflation
- Emission factors from [www.carbonfarming.org.nz](http://www.carbonfarming.org.nz)
- Forestry Data from SCION indicative sequestration tables, 2008



Key

- ETS as is - Emissions Trading Scheme does not change from current rules
- ETS no ag - Emissions Trading Scheme remains the same except agriculture is exempt
- No Ag + AGS - ETS no ag (above), plus plant 100 ha of Douglas Fir under the Afforestation Grant Scheme

**Afforestation Grant Scheme**

This scheme provides a grant towards planting and associated costs for landowners to establish plantation forest. While the government retains all carbon credits the landowner is free to harvest and may convert land use after the 10 year term of the agreement without paying deforestation penalties. This scheme is becoming quite popular with average grant rate of \$1600/ha in the last tender round. Landowners should check with you council to ensure they may carry out forestry on the proposed area of land.

**Permanents Forests Sink Initiative**

Provides a formal mechanism by which landowners may accrue carbon credits, in the form of Assigned Amount Units (AAU's), for establishment of new permanent forest. This allows a landowner to accrue and trade carbon credits that could be used to offset his/her own carbon liabilities. This requires a 50 year covenant to be registered against the land title.

**Emissions Trading Scheme**

While this scheme is already in force it is also currently under review. The current structure of the scheme will be described, though this is subject to such review. This scheme provides a formal mechanism by which landowners may accrue carbon credits, in the form of New Zealand Units (NZU's), for establishment of new forest. This allows for a landowner to accrue and trade carbon credits that could be used to offset his/her own carbon liabilities. There is no covenant registered against the land title and a landowner may exit the scheme at any time by repaying all units.

Any landowner who deforests more than 2 hectares of pre-1990 forest land in a five year period following 1 January 2008 becomes a compulsory participant of the ETS. This will require the surrender of units according to the area, age and species of forest that is deforested. It would be wise for landowners intending to deforest to apply for an exemption, should they own less than 50 hectares at 1 September 2007. Otherwise they may apply for an allocation of free units.

## 8.0 FEED PLANNING FOR DEER

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By David Stevens, AgResearch Invermay

Feed planning is a process that many farmers follow as part of their feeding management. Often, however, it is done informally, by intuition.

Regardless on how it is done there are several trigger points, or rules of thumb that need to be taken into account. There are also some basic principles that drive pasture growth and utilization, as well as feed intake that are also important.

Once the underlying principles are met then detailed budgets can be done. It is always important to revisit budgets, as they are always indicative rather than absolute, and change constantly.

So what happens in deer, and what triggers should we be looking for?

### Critical Rules of Thumb –

#### Pasture cover

- For maximum pasture growth cover should be maintained at above 1200 kg DM/ha most of the time. Times when it can go below this are when the potential pasture production is low. Losing 20 to 40% of 50 kg DM/ha/d (10 to 20 kg DM/ha/d) is a very large amount of feed. In drought or in winter, though the potential percentage might be the same, the relative actual amount is much lower when pasture growth may only be 5 kg DM/ha/d.
- For maximum intake pasture cover should be above 1500 kg DM/ha in the winter and 2500 kg DM/ha in spring and summer
- To avoid intakes below maintenance then pasture cover should be above 800-900 kg DM/ha. Below this supplementation will be required to maintain deer condition

#### Hind body condition

- Hind live weight does not give us an adequate view of the body stores that might be available, only condition scoring (CS) can do that. Triggers here are that CS should be above 2.5 at mating to keep dry and late hinds to a minimum. Moving down to CS 2 may mean an increase of 10% dries and 10 days later conception. Getting condition score this low will put the hind under significant nutritional stress and may cause secondary disease problems
- Condition score in spring, by calving, should be back to 3
- The loss of 1 condition score is approximately 7 to 10 kg live weight, or the equivalent of 14 to 20 kg dry matter saved
- To gain 1 condition score it takes 3 time what you saved or 42 to 60 kg dry matter.

#### Using supplements

- Cost supplements both on their cost in energy terms rather than dry matter, and their relative effectiveness in the diet. For example, ruminants cannot have only a diet of grain, and so some roughage is needed regardless of cost.
- Consider the practicality of using the supplement rather than just its cost – this include transport, storage, feeding out, palatability of the supplement, potential health effects, potential nutrient deficiencies.
- Consider feed blocks if there is a lot of rank pasture as they will help balance the diet and get the deer to utilize the feed better.

## Feed planning

- Plan early to maximize other potential benefits.
- Feeding supplements early in a drought means that animals are used to the feed and if a break occurs then you can keep feeding the supplement while the grass growing conditions are best, and allow time for new grown pasture to get through the potential nitrate poisoning stage.
- Feeding high quality supplements to weaners early rather than hinds late may help maintain high weaner growth in the autumn when their potential to grow is higher than later in winter.
- Feed supplements before the grass is too short to respond well after drought or winter.
- Feed supplements before hinds have lost too much condition, as gaining weight before mating for example, is expensive compared to maintaining weight.
- Know what pasture cover you want at some critical point in the future and plan toward this. For example, if you want 1200 kg DM/ha pasture cover by September 30 on the hind calving block, then you can work back on historical and estimated pasture growth rates, compared with feed demand, to know if you can achieve this or need more supplement.
- Consider the type of supplement and which class of stock it is best fed to. For example, on Mendip Hills our Johnes management plan has had an influence on the type of supplements being fed to young stock.
- Consider other options such as grazing off or reducing stocking rate.

## Feed requirements

- Hinds need approximately 2 kg pasture DM/d for maintenance. This is the equivalent of 1.8 kg barley (as fed), 1.9 kg PKE (as fed) or 2.2 kg DM as baleage.
- R2's also need 2 kg pasture DM/d for maintenance, and because they are younger will succumb to stress much faster if underfed.
- R1's need 1.6 to 1.8 kg pasture DM/d for maintenance plus some growth.
- All deer may need 10 to 20% more feed in cold, windy, wet conditions.
- Hinds in CS 4 or better may need less feed.
- Stags should be budgeted at 4 kg DM/d.

## Mendip Hills example

Hind Block 1140 hinds, 105 kg live weight.

Starting cover 1000 kg DM/ha

Effective Area 416 ha

The following table used the software QGraze to estimate pasture intake in each month from the pasture cover available, the opening pasture cover each month and the live weight change each month. The requirement to maintain the hind live weight is then estimated and this is the amount of supplement required. If a higher pasture cover is required at the beginning of October then more supplements need to be fed, especially in late winter and early spring.

Month	Days	Pasture Growth Rate (kg DM/ha/d)	Opening Pasture Cover (kg DM/ha)	Estimated Intake (kg/hind/d)	Estimated Weight Change (kg/month)	Estimated Requirement (kgDM/hind/d)	Total Supplement (kg/month)	
May	10	3	1000	1.5	-2	0.40	4560	
June	30	3	990	1.4	-8	0.53	18240	
July	31	0	950	1.5	-3.6	0.23	8208	
August	31	8	800	1.9	0	0.12	2052	
September	30	15	850	2.25	2.8			
October			1070					
							33.06	tonnes for the winter

Another 100 kg of cover would need another 41.6 t DM fed in the winter

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