

Please answer the questions below in your presentations, photos are a great way to tell your story rather than words
Presentations 20min long with 10min question time, if time is available at the end of the overall workshop you could create a panel of the speakers to address further questions
Each presentation to be no more than 10-12 slides

Sub soil Manuring of laser graded flood irrigation bay

Euroa Best Wool Best Lamb group

Project started in 2015

The project was run at David Hansens 313 Ha property at Katunga.

Why the group wanted to do this project? *What instigated the idea of the project, why did the group feel it was important to do?*

How was the project designed?

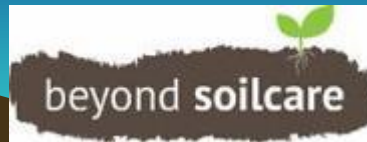
How was the project run? *How did you go about setting up your project to get the results*

What were the learnings from the project? *Also were they expected / unexpected/ why*

What practice changes have occurred through the project? *Individually or as a group*

What's next, is there further questions you would like answered from the project?

This project is supported by the Goulburn Broken Catchment Management Authority's Beyond SoilCare program through funding from the Australian Government's National Landcare Program.

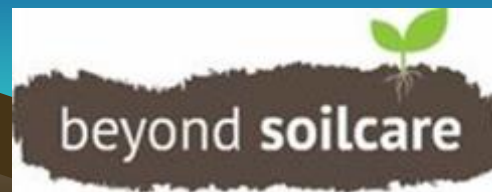


Subsoil High Impact Treatment

Subsoil Manuring at 20 T/Ha

By

Soil Health BestwoolBestlamb Group



Background

- Subsoil work by Peter Sale, Latrobe University and Renick Peries DEDJTR, et al
- On farm trials by Soil Health BWBL group
- Dave wanted to increase production
- Stop hard pan from occurring after Laser levelling
- Long term outcome, not a cost every year

1st Crop in 2005

Subsoil treatment	Wheat yield (t/ha)
Control	7.6
Deep rip	8.0
<i>Inorganic amendment</i>	
Gypsum	8.5
MAP	8.5
<i>Organic amendment</i>	
Lucerne pellets	12.9
Dynamic lifter	13.2
LSD (P=0.05)	1.8



67%

Twelve (12) wheat crops from 2005-2012

Average commercial crop - 5.8 t/ha

Average subsoil-manured crop - 9.3 t/ha

60 %

Changes in Subsoil 4 years after treatment

Control plot 30-40 cm



SSM plot 30-40 cm



Explains 50-fold increase in *hydraulic conductivity*
2 ½ -fold increase in *macroporosity*

(Gill *et al.* 2009)

Funding

- A few phone calls
- Quick application helped by Goulburn Broken Catchment Management Authority staff
- Not onerous
- Many thanks to the GBCMA for their ongoing support .



Farm Overview

- Owned and run by Dave and Jess Hansen
- At Naring which is approx half way between Numurkah and Cobram
- 340 Ha of which 162 Ha flood irrigated
- Trading Business mostly sheep / lambs anything that looks like being a profitable trade.
- Also trade heifers about 10% to join and sell

Farm Overview

- Irrigated country
 - 50% Lucerne
 - 35% sub-clover and ryegrass
 - 15% permanent pasture
- Barley (Cape Barley) and Oats (saia oats) into most of the farm each year to increase production

Farm Overview

- Fertiliser – farm broken into thirds
 - 1 5m³/Ha of chook manure
 - 2 Lime 400Kg/Ha & Compost 400Kg/Ha
 - 3 500Kg/Ha Fresh air
- This is rotated every year



11/MAR/2014

Treatment

- 20 tonnes chicken manure to the Ha
- 1.5 Ha per bay
- \$75.00 per tonne spread or \$30/m³ spread
- Total cost \$1500Ha

Poultry Manure Analysis

Nutrient	%	Kg/T	Kg/20T
pH (water)	7.1		
N	4.35	43.5	870
P	1.02	10.2	204
K	2.10	21.0	480
S	0.65	6.5	130
Ca	1.81	18.1	362
Organic Carbon	40.3	403.0	8060

Why Muck Around









25/MAY/2015

Pasture Establishment

- Barley 25-30 Kg/Ha
- Lucerne 15 Kg/ Ha sown under Barley
- Fertiliser 75Kg/Ha DAP
- Treated Barley out competed establishing Lucerne
- Resow year 2 with 15Kg/Ha Lucerne

Establishment

Control



Treated

Germination rates

- Seedling establishment per 0.1M²
- Control 15 Lucerne, 9.8 Barley
- Manure 16 Lucerne, 9 Barley



11/MAR/2014



Moisture Probe

VIEW

DISPLAY

MODE

RANGE

FROM

PERIOD

GRAPH TABLE

Min Max SCALE Y

INDIVIDUAL AVERAGE STACK

2D 1W 2W 1M 3M 6M

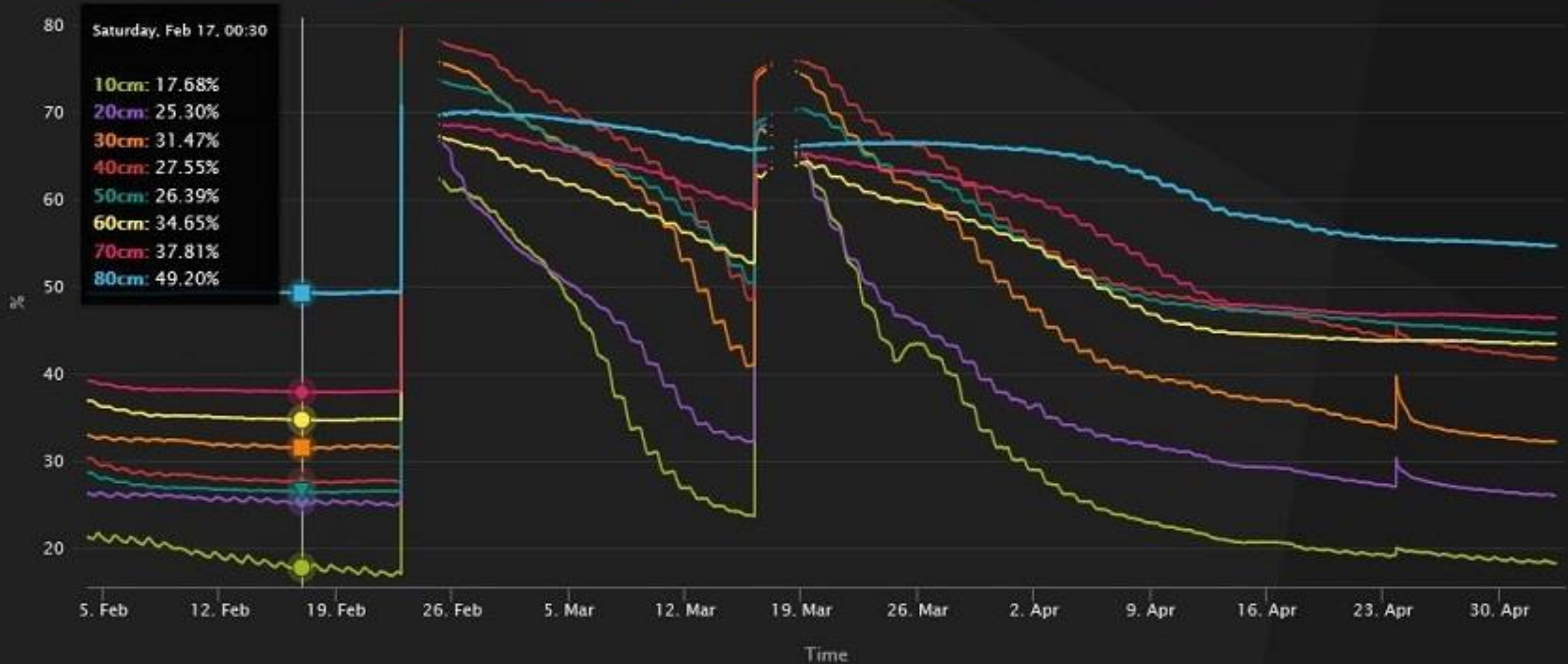
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TYPE: SOIL MOISTURE CONTENT (%)

RANGE: 04/02/2018 - 03/05/2018

MODE: INDIVIDUAL





29/MAY/2014



18/AUG/2014



Treated

Control

18/AUG/2014



Control

28/OCT/2014



Treated

28/OCT/2014

Dry Matter Production

- Estimated dry matter production increase ranged from 20% to 30%. Lets say 25% increase for arguments sake
- This would depend on rainfall, irrigation and plant species being observed
- This should allow for a 25% increase of stocking rate

Feed tests

	Control Barley Fresh	Manure Barley Fresh	Control Barley Hay	Manure Barley Hay	Control Lucerne April 18	Manure Lucerne April 18
CP %	10.6	22.3	6.0	12.1	26.1	29.0
ME MJ/Kg DM	10.1	10.9	8.0	9.4	10.4	10.9
NDF %	55.0	51.1	59.4	52.1	32.6	31.5
Intake % of BW	2.18	2.35	2.02	2.30	3.68	3.81
Intake (Kg) 35 Kg Lamb	0.76	0.82	0.71	0.81	1.29	1.33
MJ Intake	7.7	8.9	5.7	7.6	13.4	14.5

Gut Feel Economics

- Increase of 25% Dry Matter
- Hence increase stocking rate by 25%
- 2016/17 irrigation stocking rate 23 DSE /Ha
- Increased stocking rate 28.75 DSE/Ha
- 2016/17 Gross Margin \$/DSE \$53* or \$83* (top 20%)
- Hence increased GM/Ha **\$305/Ha or \$477/Ha**
- **This does not take into account increased feed quality**

The Now

- Soil moisture probes have now been taken over by Dave
- The probes have been great and have really helped make good irrigation decisions.
- Dave has said that if he was doing it (Laser Levelling) again he would pay for it (subsoil manuring) to be done himself.
- Opportunity Cost whilst laser levelling to subsoil chook manure

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Thank You

- For more Subsoil High Impact Treatment information contact
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