Newsletter #26

Pasture Cropping

JUNE 2016

Welcome

Sheep Pen Creek Land Management Group Inc. was successful in obtaining a 25th Anniversary Landcare grant for $20,000 and with this money trialed a multi-species mix at 4 sites in their area north and west of Violet Town. Some of you will have attended the field days that have already been held.

Our final field day as part of this project will be held at the Violet Town Community Centre [heated]on Tuesday 21st of June starting at 9:30am. Full details are on the next page and we hope many of you will take the opportunity to catch up with Col and to reflect on the journey we have been on.

I would also like to acknowledge the part that so many people have played – our trial participants, presenters and facilitators as well as all the people who have attended the information days that we have held. It is pleasing to note how many of you open the newsletter and look at its content.

It is good to know that we have met a need in our community and hopefully we are now able to better manage our farms especially when the seasons are so unpredictable. Also that we now better understand our soils, the plants that we grow and the animals that we raise.

Sheep Pen Creek will continue with the trial sites and intend to hold at least one field day per year for the foreseeable future.

Information will be on the Gecko CLaN's website www.geckoclan.com.au

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SHEEP PEN CREEK LAND MANAGEMENT GROUP

MULTI-SPECIES PASTURE CROPPING FIELD DAY

"SOIL STRUCTURE DECLINE, IMPACTS AND MANAGEMENT"

WITH COLIN SEIS and BRAD COSTIN

TUESDAY 21st JUNE 2016

FROM 9:30AM TO 3:00PM

FROM THIS → **TO THIS IN LESS THAN 12 MONTHS**

We shall be conducting our final field day of this project on Tuesday 21st June at the Violet Town Community Centre.

The programme will start with a discussion on the implications of soil structural decline on your production system, understanding different soil types in the sheep pen creek area, how to identify soil structural problems and then addressing how we can make improvements and where Pasture Cropping can be part of the solution. We shall then visit some of the trial sites after lunch.

LUNCH PROVIDED

RSVP BY MONDAY 20TH JUNE TO

Kerri Robson: Ph.: 0418 140 710 or landcare2@iinet.net.au
OR Jacci Campbell: Ph. 5828 9274

ALL WELCOME

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REPORT ON FEBRUARY FIELD DAY

1. MANAGEMENT:

- FOWLERS – SPRAY BROAD LEAF WEEDS THEN RESOW PLOT 1
- BARRETT-LENNARDS – YIELD 1.5 T/HA .NO WEEDS. RESOW REST OF PADDOCK WITH HARVESTED SEED TO COMPARE WITH PLOTS.
- AUSTIN - SPRAY BROAD LEAF WEEDS THEN RESOW

2. WEED COMPETITION:

- NEED TO BE CONTROLLED.
- NO HERBICIDE – GRAZE HEAVILY THEN SOW DRY EARLIER IN THE SEASON [FEB/MARCH]. SOW AT A HIGHER RATE. GRAINS ONE WAY THEN OTHER SPECIES THE OPPOSITE WAY.
- IF USING HERBICIDE – WAIT FOR WEEDS TO GERMINATE AFTER RAIN –SPRAY WITH SPRAYSEED 1.5LT/100 LTR WATER PER HA THEN SOW WITHIN 2 DAYS.
- **SPRAY TOPPING**
  - **VULPIA[SILVER GRASS] AT SEED SET - GLYSOPHATE**
  - **ERODIUM AND CAPEWEED –WHEN CLOVER IS AT 5 LEAF STAGE –HAMMER**
  - **BARLEY GRASS – AUGUST**
  - **ONION GRASS –WHEN TIPS HAVE TURNED A PURPLE COLOUR.**

THESE ARE SUGGESTIONS ONLY. SPEAK WITH YOUR CHEMICAL SUPPLIER FOR ADVICE

3. GRAZING:

- CAN BE GRAZED WHEN PLANTS CANNOT BE PULLED OUT OF THE GROUND [APPROX 1 MONTH.]
- PLANTS NEED TO BE APPROX 12 INCHES HIGH[30CM]
- GRAZE NO SHORTER THAN 6 INCHES [15CM]
- STOP GRAZING IN OCTOBER IF YOU WANT A SELF-REPLACING CROP.

4. SEED MIX /HA

- OATS – 50KG
- PEAS - 10 KG
- WINIFRED BRASSICA – 1KG
- DAIKON RADISH – 1KG
- TURNIP – 0.5KG
- VETCH – 5KG

  OTHER – ARROWLEAF CLOVER – BALANSA CLOVER –PLANTAIN – CHICORY –LUCERNE-BUCKWHEAT –GATTON PANIC – PREMIER DIGIT

Pasture Cropping

Laser reveals water's secret life in soil

Date:
March 30, 2016
Source:
The above post is reprinted from materials provided by **American Society of Agronomy (ASA), Crop Science Society of America (CSSA)**. The original item was written by Susan V. Fisk.

Summary:
Most of us think nothing of rainfall or where it goes, unless it leads to flooding or landslides. But soil scientists have been studying how water moves across or through water soil for decades. Researchers may be taking the study of “soil hydrology” to some exciting new territory. Territory that may help soil scientists manage water resources better.

"There are a number of reasons why more accurate predictions of water flow is important. Better management of water resources is one," Hirmas says.

The flow of water in agriculture gives rise to many questions: Can we correctly predicting recharge rates of our aquifers in drought regions? Perhaps we can more efficiently use water for food production or predict how areas will react to climate change. Also, we could have better prediction of water runoff and soil erosion, deposition, and sedimentation of surface water reservoirs. Finally, we could predict how plant nutrients are transported in the soil environment.

Soil is made up of particles of sand, silt, and clay. Also within the soil is organic matter -- decomposed plant litter, soil microbes, other organisms, and root systems. Air and water make up the rest.

Hirmas has been researching the ease of water movement through soil, called conductivity. This happens in larger empty spaces, macropores, that help move water through the soil.

"The soil structure affects how easily water can be transported through the soil. This is called 'hydraulic conductivity'," says Hirmas. "Conductivity is a property of the soil. It affects how quickly water can be transported through the soil. Saturated hydraulic conductivity refers to the conductivity of the soil when the soil is fully saturated with water. In this case, all the soil pores are filled with water."

Soil pore size is important to conductivity because of some complex geometry and scientific properties. Simply, a soil pore that is twice as large as another will conduct sixteen times the volume of water as the smaller pore in the same amount of time.

Soil scientists call this movement of water preferential flow. Hirmas explains, "Preferential in this case means that a significant portion of the water will be transported through a relatively few number of large pores. That is, a few large pores preferentially transport a majority of the water."

Hirmas has been using a special tool called a multistripe laser triangulation (MLT) scanner. The scanner was originally developed for engineering purposes. Hirmas adapted its use to study soil pores and preferential flow.

To determine if the MLT scanner could be used to predict preferential flow, Hirmas designed a study. The research group took saturated soil and allowed blue dye to flow through the sample. An easily identifiable visible pattern developed. The areas of the soil that turned blue showed larger pores. These pores allowed the dyed water to pass through -- a preferential flow pattern. Next, they took the same soil sample, and scanned it using MLT. The pattern from the laser significantly matched that of the dye pattern.

The MLT offers advantages to researchers in the field of soil hydrology. "The MLT scanner is better at detecting and mapping the soil macroporosity when the soil is dry versus when it is saturated with water," Hirmas says. Using math to account for the difference between the two states of the soil, Hirmas can make predictions about water movement

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Cover crop trial aims to unlock better soil health

http://www.stockjournal.com.au/story/3880098/cover-crop-trial-aims-to-unlock-better-soil-health/?cs=4879#!

CATHERINE MILLER May 3, 2016, 7:30 a.m.

VISITING EXPERT: Cover Crop Solutions' Steve Groff, US, with Cadgee farmer Nick Wight and Elders Naracoorte agronomist Jason McClure at a green manure trial site at Strathyre with tillage radish.

United States-based cover crop pioneer Steve Groff had a simple message for South East growers recently – treat cover crops like cash crops.

On a tour through southern Australia last month with AGF Seeds, Mr Groff said similar management was needed to grow radish, millet and other cover crops as cereals and pulses, including fertiliser and insect control.

"It (cover crops) can make a good farmer better, but a bad farmer worse," he said.

Mr Groff who has been growing cover crops for more than 20 years developed tillage radish through a business he co-founded called Cover Crop Solutions.

Tillage radish has been available in Australia since late 2014 through AGF Seeds and local suppliers. It reaches maturity in 10-12 weeks. Its development involved working closely with the University of Maryland and undertaking on-farm trials.

Mr Groff said farmers needed to experiment on their own farms with no one system fitting all.

"The big picture is increasing soil health and organic matter and reducing compaction, but it will look different for different people with some even looking for disease control," he said.

Mr Groff said it had taken time for widespread adoption but now up to half of farmers in the Pennsylvania area were growing cover crops – either as single species or a mix of varieties.

He said in low summer rainfall regions it was not always feasible, but it was important farmers were prepared for rainfall events.

Cadgee farmer Nick Wight, Strathyre Props, conducted a green manure trial in a paddock that had struggled to grow a consistent crop in the past six years, with variable plant height to patchy growth and germination.

He hopes it will increase the yield of his winter crop, which will be oat and ryegrass hay.

In late January the Mackillop Farm Management Group member, with advice from Elders Naracoorte agronomist Jason McClure, planted eight trial plots each 10 metres wide (the width of a seeder) and 500m long with sorghum, maize, Summer Max, lunch radish, tillage radish, canola, millet and Mace wheat.

Due to low summer rainfall the plots received only about 100 millimetres – mostly from irrigation.

Late last month they were disced into the soil. Mr Wight said the millet and two radish varieties had the best early establishment, but the sorghum and maize grew the most biomass – up to a metre high. "A lot of people talk of major benefits so it will be interesting to see any difference in the next two to three years," he said.

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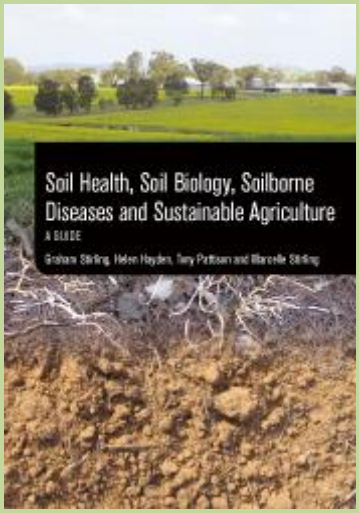

Our capacity to maintain world food production depends heavily on the thin layer of soil covering the Earth's surface. The health of this soil determines whether crops can grow successfully, whether a farm business is profitable and whether an enterprise is sustainable in the long term. Farmers are generally aware of the physical and chemical factors that limit the productivity of their soils but often do not recognise that soil microbes and the soil fauna play a major role in achieving healthy soils and healthy crops

Soil Health, Soil Biology, Soilborne Diseases and Sustainable Agriculture provides readily understandable information about the bacteria, fungi, nematodes and other soil organisms that not only harm food crops but also help them take up water and nutrients and protect them from root diseases. Complete with illustrations and practical case studies, it provides growers and their consultants with holistic solutions for building an active and diverse soil biological community capable of improving soil structure, enhancing plant nutrient uptake and suppressing root pests and pathogens.

The book is written by scientists the grains, vegetable, sugarcane, grazing and horticultural industries.

This book will be useful for: growers, consultants, agronomists and soil chemists, extension personnel working in the grains, livestock, sugarcane and horticultural industries, professionals running courses in soil health/biological farming, and students taking university courses in soil science, ecology, microbiology, plant pathology and other biological sciences.

This book is available from CSIRO publishing

Barrett-Lennard's soil pit Nov 2011
Photo by Brad Costin

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What is Soil Health?

Soil health refers to the ability of the soil to achieve its full potential and be productive under the intended land use. Healthy soils have favourable physical, chemical and biological properties that promote plant health and maintain environmental quality.

The three characteristics of soil health are: • physical • chemical • biological

Physical soil health refers to the friability and hardness of the soil. A physically healthy soil does not have hard pans or hard setting surfaces. It holds water well, drains well and does not restrict root growth. You can assess physical health in the field using a spade; there also are a range of measurements that can be taken in the field or laboratory.

Chemical soil health means that nutrients are in balance and available to the crop, the acidity/alkalinity is in the desired range and there are no problems with salinity or sodicity. Chemical soil health can be measured by conducting a soil test.

Biological soil health refers to soil life. A healthy soil has more soil organisms than an unhealthy soil of the same type. Crop residues break down more easily and the chemical and physical health is better. You can assess biological health in the field by checking for organisms and comparing the smell and feel of the soil. A high organic matter or carbon content for your soil type usually means a healthy soil.

Why is it important?

A healthy soil is 'fit for purpose'. This means, it is easy to work, friable, holds water and nutrients well and is free draining. It allows for abundant, healthy root growth and good crop establishment. Crops grown on healthy soils have less disease and weed pressure than crops grown on soils with health limitations. A healthy soil saves effort and money.

HOW GREEN WAS YOUR SUMMER?

Which of the following did you see in your paddocks?
Which do you want and how can you get rid of those that you don't?

Kikuya	Chicory	Lucerne
Paspalum	Phalaris	
Windmill grass[chloris, enteropogon].	Wallaby grass [austrodanthonia sps],	
Native dandelion	Red grass[bothriochloa]	
Kangaroo grass[themeda]	Weeping grass[microlaena]	
Prairie ground cherry	Heliotrope	Melons
Marshmallows	Stinkwort	Panic
Wireweed	Goosefoot	Nightshade
Fleabane	Bindii	Caltrope