

# United States study tour to learn about summer forages



**Evan Lewis, Werneth**

**December 2015**



## **Background**

The common farming cycle in the high rainfall zone of South West Victoria is to grow winter crop or pasture, followed by a summer period with little or no plant production. This 'dry period' may be a missed opportunity, as approximately a quarter of annual rainfall is received during the December to April period, with very little growth to show for it. This rainfall largely evaporates back from the soil surface into the atmosphere and a lack of ground cover means the soil becomes excessively hot and 'bakes'.

A downside of the lack of growth during the dry period is the belief that the soil biology is thought to 'shut down'. When plant growth does resume in Autumn, soil temperature is declining and biological activity is naturally slower. The inability to enable year round biological activity is thought to limit the potential health of the soil.

Through the National Landcare Program, the Corangamite CMA in partnership with Southern Farming Systems are trialling the use of multi species forages to make use of summer rainfall and encourage biological activity. Evan Lewis from Werneth is one of five farmers who is hosting an alternative forage site. Evan is very enthusiastic about the potential of these alternative forages in the system and wishes to learn first-hand how they are being used in the United States, so he can apply some of the thinking in Southern Victoria.

This is a report on the study tour and complements a presentation given to Woody Yaloak farmers in October 2015.

## **Study Tour**

In September 2015 I embarked on a study tour of the Mid North of America that began in South Dakota and included North Dakota and finished in Minnesota. The purpose of the trip was to further investigate first-hand the use of alternative forages as a means of improving soil health. Although the climate was a little different what we wanted to know was the possibility of adopting many of the concepts they used to improve soil health in their systems and apply them to ours in southern Victoria.

The concept was first floated from a visit by Dr Jill Clapperton ("Rhyzoterra", Montana) after a Victorian No-Till conference in 2012 where she advocated the use of plants to help ameliorate hard setting soils that produced way under their potential because of limitations such as sodicity. From there we have employed the help of Southern Farming Systems to conduct trials and compare the different mixes of forages suitable for our region. We are conscious that in continuous cropping systems, of which a large tract of farm land has now become in our area, there may be an opportunity to capture extra production in dormant periods and raise our organic carbon levels at a faster rate than we are depleting them.

## **1. Rick Bieber (north central South Dakota)**

Rick is a farmer who has run a continuous no-till system for a number of decades in a 16” (400 mm) rainfall environment. He underpins the success of his operation to the use of diverse cropping rotations and the use of multi-species cover crops. Soil cover is paramount in a low moisture environment and cover crop establishment is critical before the snow season sets in. It then becomes a valuable source of feed for his cows in the spring after the snow melts. Rotations included corn, wheat, sunflowers and flax. He believed his system derived all the nitrogen it needed from the soil biology doing its work and so didn’t require a legume phase.



## 2. Joe Breker

Joe farmed in an area just north of the border between North Dakota and South Dakota near a little town called Havana.



Joe employed the services of Abbey Wick (NSDU soil health specialist) and she was able to meet us on location and explain how they were overcoming some of their limitations through the use of diverse forages.



Just by eliminating mass cultivation and incorporating controlled traffic they witnessed large changes to soil porosity (no-till on the right). What we also noticed in their area was the close proximity of the water table to the surface so the use of deep rooted forages (e.g. Tillage radish) were used to de-water the profile in some instances. Soil pits were widely used.

### 3. The use of livestock.

The last farmer we visited was in the mid- west of Minnesota near a little town called Redwood falls. He farmed in a 25"plus rainfall environment and in conjunction with his cropping operation he used diverse cover crops to feed his cows.



Mix Analysis Green Cover Seed 918 Road X Bladen, NE 68928 402-469-6784  
 Customer: Daniel Tiffany Mix: Cover Mix #1  
 Seeding Rate: 30 lbs/acre 6/30/2015

	%	Lot	Origin	Germ	Purity	Other	Inert	Weeds	Test
Sunn Hemp	7%	TS-TS/02/60	India	85%	99.9%	0.0%	0.1%	0.0%	M-15
Iron & Clay Cowpeas	27%	1457	FL	96%	99.3%	0.0%	0.7%	0.0%	M-15
Common Vetch	10%	L18-14-6250	OR	85%	99.4%	0.1%	0.5%	0.0%	A-14
Grp. 7 Stonewall Soybeans	13%	3830	AL	80%	99.7%	0.0%	0.3%	0.0%	M-15
Clover - Crimson	2%	4-DC39ACTD	OR	75%	65.2%	0.1%	34.6%	0.1%	J-14
Pearl Millet - "Tiffleaf III"	10%	9360	TX	80%	98.0%	0.4%	1.5%	0.1%	A-15
Sweet Forever(BMR S.S.)	20%	8912	TX	97%	98.0%	0.4%	1.5%	0.1%	A-15
Turnip (purple top)	2%	14.5762.N	ID	90%	98%	1%	1%	1%	A-14
Impact Forage Collards	2%	14.5820.N	ID	90%	98%	0%	2%	0%	A-14
Hunter hybrid turnip	2%	HUN23AY	NZ	99%	100%	0%	0%	0%	J-15
Rape Bayou	2%	L18-13-260	OR	85%	99%	0%	1%	0%	N-14
Nitro Radish	2%	P27-13-105H	OR	99%	99%	0%	1%	0%	M-15
Sunflower- Peredovic	3%	PF 14.3	NE	95%	100%	0%	0%	0%	F-15

He also believed diversity was paramount as we duly witnessed from the result of sowing the above mix (14 species forage crop). The top photo was taken on the day he was introducing the cows. The livestock return the crop to the soil by either pushing the crop down to the soil surface or through their manure.

## **Lessons Learnt**

What stood out from all the farm visits was the farmers who used the forages in their system were able to reduce inputs significantly (and subsequently increase overall farm profitability), when planting successive cash crops. This was a bonus to all the soil health attributes already achieved from these forages.

The level of diversity in plant species that we have employed In South West Victoria seem to come up short if we are looking to achieve many of the benefits to soil biology that the farmers in America are seeing. The variety of plants selected, however, are not too dissimilar to what we grow in our environment and some of the more aggressive deep rooted species are now beginning to become available from local seed suppliers as demand for them increases.

The lack of soil cover in our harshest periods of the year (namely summer and early autumn) is a stand out and something we desperately need to address to stop the degradation of our soil. Grazing management needs to be included in this.

Because our soil can set so hard I believe in some situations the employment of a once- off cultivation/ripping process, in conjunction with multi species forage crops, would accelerate the amelioration process of those soils.

I would like to take the opportunity to thank all of the people involved in making the short trip possible and I believe the wealth of knowledge gleaned from the experience was invaluable in determining changes for our farming system going forward.