

**Understanding
and
Implementing
No-Till Systems**

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The clock is ticking, time is running out!

**“The UK may have as few as 100
harvests left in its soils due to intense
over-farming!”**

“Looming agricultural crisis”

University of Sheffield. October 2014



SEWELL FARMS



One makes it, one uses it, one loses it

History at Sewell Farms

2nd generation farmer. Married with 4 children
1000 acres for 10 landowners across 6 parishes.
Only own 67 acres (with 3500t storage)
Family partnership. Tom & Sarah Sewell + parents
Don't work Sundays & currently no borrowings
No P & K (from a bag) for 19 yrs
No ploughing for 16 yrs
On leadership team at The Vine, Maidstone. School
Governor at Watringbury School
Director of Weald Granary

My 3 man team!



What If



Who and why?



Dwayne Beck, Dakota Lakes Research, Pierre S Dakota.

Gabe Brown, Browns Ranch, Bismarck, N Dakota



"Biggest problem now is tax liability!"

Gabe's sprayer! (for 5000ac)



Because.....

- No glyphosate used for 7 years*
- No insecticide used for 17 years*
- No fungicide used for 12 years*
- No artificial fertilizer applied*
- Selective herbicide used 1 yr in 3*
- No crop insurance bought*
- Yields better than county average (127bu against 100bu)*

Mob-grazed cattle!



New Zealand
David Ward, Ashburton



Excellent soil structure, worms, roots, clean crops.



Another day in Paraguay!

Victor – 15 Ha



Lucas – 9000 Ha



Travel findings and thoughts.

Farmers embracing No-Till had improved soil.
(SOM, water retention, infiltration, roots & worms)

Farmers were normal people like you and me. They were relaxed and optimistic. Had more time for leisure and planning

They were all making good profits from varied operations

No sign of compaction where no-till (with a disc) was used.

Benefits were being seen across all soil types, climates and unit sizes.

4 Main Benefit Areas

Soil

Water

Profit

Time

How do we achieve these benefits?

4 Basic Principles.

1. *Retained Residues (maintain soil cover & build SOM)*
2. *Diverse Rotations (including N fixing and spring breaks)*
3. *The use of Cover Crops*
4. *Employ ULD No-Till Technology.*

Diverse Rotations

Winter Wheat

Winter Oilseed Rape

Cover Crop
(Linseed, Sunflower, Buckwheat, Phacelia)

Winter Wheat

Cover Crop
(Forage Rye, Oats, Vetch, Phacelia, Buckwheat, Linseed, Tillage Radish)

Spring Beans

Possible rotation going forward?

Treat cover crops as a break crop?!

As much residue as possible!

Year 1	Winter wheat	
Year 2	Winter Barley	
		Cover crop with clover/vetch to really build N.
Year 3	Spring wheat	
		Cover crop
Year 4	Spring beans	
Year 5	Winter wheat	
		Cover crop
Year 6	Spring (or winter) oats	Winter if field is clean, spring if Blackgrass bad

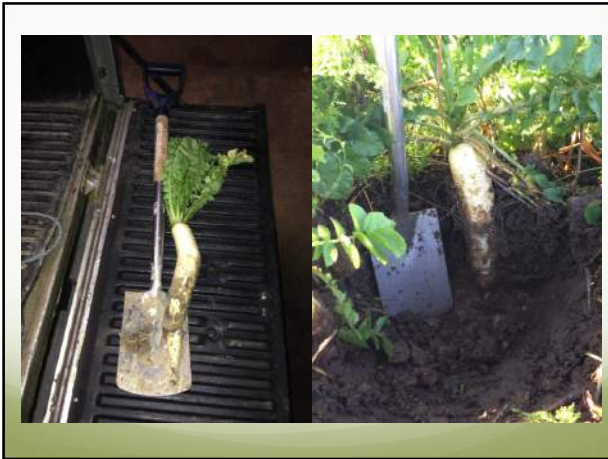
Cover Crops

THE BENEFITS

- Improve Soil Quality
- Reduce Erosion
- Retain Soil Nutrients

- Break-up Soil Compaction
- Replenish Nitrogen
- Increase Organic Matter
- Combat Weeds

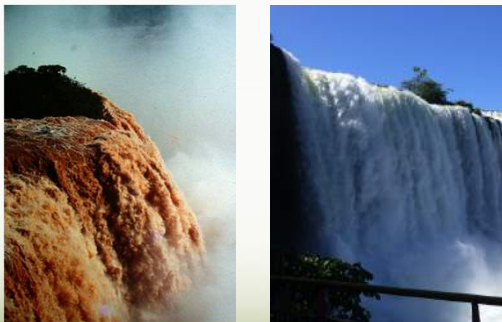
Interesting, increase diversity, free flowers for my wife!



Roland Woolf
SOM 1.2% in '02 to 2.9% in '14



Iguassu Falls 40 years ago and today !



What we did at home.



Sold!
£55k

Drill building!



Assembled on farm!





Ready and planting!



Day before planting Wheat!



View from the cab!



Drilling No Problem



**Same field
in
November!**



Skyfall (Drilling & Dec '14)



Skyfall at T3

11t/Ha yield

300kg/Ha N

All making 13% protein

All cut first week August.



Combining Crusoe

Planted into cover crop after OSR
Sept 2014 @ 275 seeds/m²

Yielding in excess of 12t/ha, 13%+ protein







Benefits of a No-Till System

- Reduced fuel use & tractor hours
- Reduced wearing metal & maintenance time
- Improved soil structure and trafficability
- Reduced requirement for labour
- Improved water infiltration rates
- More worms & better roots cycling nutrients
- Reduced soil erosion by wind and water
- Improved Soil Organic Matter
- Improved water holding capacity
- Better timeliness of operations
- More even and consistent germination
- High output with one man & machine
- More free time
- More fun!
- More opportunities!?

Downsides of a No-Till System
(anecdotal evidence!!)

Neighbours will think you're mad! (but secretly admire you!)

Not initially cosmetically "pretty".

Management needs to be spot-on & timings different to conventional (Earlier autumn, later spring)

Drill operation & maintenance absolutely key

Machinery magazines and shows become boring!
Very little expertise in the UK, but growing number.

Think differently – It's a new system!

WARNING!



Take home message

Soils health is everything!

(Healthy roots & worms, detailed soil test)

It's a "No-Till System" not a drill purchase.

(includes cover crops, retained residues and diverse rotations, ULD drill & team!)

Then.....

Improve Soils, Yields, Profitability and Time

Thank you!

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