

A case for conservation farming

Funded by the Australian Government's Caring for Our Country

Yass, Southern Tablelands, NSW

Total area farmed: 250 ha

Conservation farming since 1985



Photo: Courtesy The Land

John and Robyn Ive took the conservation agriculture sector, and themselves, by surprise when they took out the Conservation Farmer of the Year Award in 2009. Better known in some circles for their excellence in wool production, the Ives have no cropping on their 250 hectares property, "Talaheni", 40 kilometres south of Yass, where they have been farming for over 30 years.

Since becoming better known to Conservation Agriculture and No-till Farming Association (CANFA) members over the ensuing years, the Ives have proven their passion for farming and conservation agriculture practices, despite not growing crops. This commitment has again been recognised at the 2011 Carbon Farming Conference, where they took out the top prize of National Carbon Cockey of the Year.

John Ive is also a Climate Champion, one of 34 farmers from across Australia recruited to the program in March 2010, to bridge the communication gap between scientists and farmers about managing climate risk in their local areas and for specific commodities.

Over the past three decades, the Ives have increased the livestock carrying capacity of their land at the same time removing domestic grazing from more than 30 per cent of the property. Monitoring is a cornerstone of the "Talaheni" operations and with a background in agricultural research and resource planning, all of which has proved useful in the production of ultrafine wool from a commercial flock of around 600 Saxon Merino breeding ewes. John uses single-sire mating groups, assessed using sire performance records and artificial insemination to source and appraise the best genetics available.

"We have 30 years of records in the form of computerised individual sheep breeding and performance which helps us establish a more efficient flock. Not only do we look at sire, pregnancy, lambing and weaning history alongside bodyweight, micron and fleece characteristics," said John, "we also schedule shearing and lambing to match animal demands to seasonal pasture production."

A small Angus herd is also run to assist in managing pastures to best suit the sheep operation, with the steer portion destined for feedlots.

Echoing the sentiment of many other conservation farmers who often say "groundcover is king", the Ives aim to maintain 90 per cent groundcover using approximately 50 percent perennial grasses, both native and exotic, and 30 percent legumes.

More than 30 percent of the property is now under native trees with about 10 percent managed as an agro-forestry area for what will ultimately become furniture quality timber. In the meantime timber from these areas provide wooden poles for on-farm construction and off-farm sale.

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“Over the past 30 years, we’ve established an estimated 250,000 trees on rocky ridges where water table recharge is high. Most of the revegetation that has occurred has been achieved by exploiting dry seasonal conditions to trigger and then hasten natural regeneration.

“This is a low cost, low labour input approach to establishing native species where there are sufficient seed trees remaining.”

The benefits of this strategy have been multifaceted, explained John. “We’ve overcome severe dryland salinity by turning off the recharge tap allowing our flats to achieve their pasture production potential, as well as providing shade and shelter for stock, improved biodiversity and a source of timber.

“Whole-of-farm analysis has also established our property sequesters more carbon than it emits. These timbered areas continue to sequester carbon, providing a calculated and more than adequate off-set for our sheep and cattle operations.”

The Ives conduct regular soil testing to identify and address deficiencies, with applications of sulphur and micronutrient enriched reactive rock phosphate which is suited to the highly acid soils and ultrafine wool production. Lime/gypsum and poultry manure have been used on reclaimed salinity areas for maximum yield. When they purchased “Talaheni” 30 years ago, the pH level was around 3.6 (CaCl₂). Using various soil management strategies, these highly acid soils are now managed around a pH level of 4.5-5.0.

They conduct yield mapping based on differential within-paddock grazing activity for variable-rate fertiliser application and apply in crop fertiliser-lime mix when direct drilling pasture to help take advantage of seasonal conditions on light and erosion prone flats once salinity impacts have been overcome.

Along with some engineering earthworks to control water movement, previously saline flats have been resown with highly productive perennials, primarily Phalaris. These are now the most productive pastures on the property, regularly yielding above the critical annual 4,000 kilograms of dry matter required to enhance soil carbon in the region. With good seasonal conditions (viz. 2010) these pastures produce over 10 000 kg/ha dry matter supporting up to 17.5 DSE/ha/an grazing pressure under rotational management.

Stock movements on “Talaheni” are managed to minimise soil compaction. A gravity water reticulation system provides stock water to the smaller paddocks and portable troughs allow high-density grazing of target areas, supported by temporary electric fencing, for purposes such as weed control. Remaining paddocks are watered by farm dams.

“Our paddocks have been reconfigured from the initial ‘chequerboard’ layout of nine paddocks to partitions based on sub-catchment boundaries, soil conditions and aspect. We now have more than 40 paddocks incorporating extensive laneway networks and native vegetation corridors linking up remnant areas,” said John.

“Not only can we now target areas, the aspect fencing has enabled us to control grazing so that we grow higher quality pastures with higher digestibility for longer period throughout the year. The added benefit not only ensures better animal performance but also lower methane emissions.”

Between 1982 and 2010, the Ives have more than doubled overall carrying capacity, with reclaimed saline areas lifting from 2 DSE/ha to 17.5 DSE/ha, by constructing contour and graded banks, filling gullies, rectifying soil acidity, fencing according to landscape characteristics, protecting remnant vegetation and inducing tree regeneration on high recharge ridges. Vigorous, deep-rooted mixed-species and cultivar

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perennial pastures have been sown on the reclaimed flats.

John Ive has honed his skills to develop a farming program which identifies the role of climate in productivity changes and measures production increases independent of climatic variation.

He uses a daily soil water balance model called WaterBank, developed with the assistance of a programming friend and calibrated with over five years of on property soil sampling, which is widely used to assist in the timing of operations such as grazing rotation and tree and pasture establishment, as well as more recently assessing the future impact of climate change on soil moisture.

“Talaheni” receives annual rainfall of around 690mm, calculated using 118 years of mean monthly SILO-based weather data for the property.

“If you don’t measure it you can’t manage it,” maintains John. “We have monitored groundwater levels using a network of piezometers for the past 20 years, as well as acidity, soil nutrients, tree cover, impact of grazing pressure and botanical changes over time using grazing exclusion cages, dam salinity, flora and fauna lists and of course, our livestock breeding and performance records.”

With climate, land use and commodity market issues likely to continue challenging farmers in the decades ahead, John and Robyn Ive are set to continue championing the cause for conservation agriculture, simply because it makes sense.

“It is a win: win with benefits for us and the broader community,” said John.

John Ive is a member of the CANFA committee and one of CANFA’s ‘Dial-a-friend’ contacts.

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Mean monthly weather statistics collated from 118 years of SILO-based weather data for “Talaheni” (<http://www.nrw.qld.gov.au/silo/datadrill/>)

Month	Max Temp (C)	Min temp (C)	Mean temp (C)	Rain (mm)	Evap (mm)	Evap/Rain ratio
Jan	28.5	13.7	21.1	57.9	202.9	3.50
Feb	28.2	13.8	21.0	46.4	164.3	3.54
Mar	25.1	11.4	18.3	54.0	135.6	2.51
Apr	20.5	7.4	14.0	51.6	78.3	1.52
May	15.9	4.2	10.1	55.5	46.9	0.85
Jun	12.5	1.8	7.2	62.7	31.0	0.49
Jul	11.4	0.8	6.1	59.6	34.4	0.58
Aug	13.2	2.0	7.6	61.7	51.2	0.83
Sep	16.1	4.0	10.1	60.2	77.6	1.29
Oct	19.6	6.7	13.2	68.5	117.7	1.72
Nov	23.1	9.3	16.2	57.9	154.5	2.67
Dec	26.7	11.8	19.2	54.1	199.2	3.68
MEAN/TOTAL	20.1	7.2	13.7	690	1294	1.87



Photo: John & Robyn Ive receiving the 2009 CFOTY Award from Neville Gould & Anne Williams

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Nuts & bolts

1980: Purchased rundown farm and named it "Talaheni" (Arabic for wait-a-while)

1981: Purchased cast-for-age Otterbourne ewes (19 micron)

1982: Commenced restricted drought grazing strategy which subsequently lead to a tree re-establishment method

1983: First shelterbelt planting undertaken

1984: Constructed contour and graded banks to minimise sheet and gully erosion; filled gullies and installed a number of head-of-gully dams; deep ripping of mid slopes areas to improve water infiltration using a 'double skip row' approach; used Canberra sewage ash on saline areas to address acidity and promote pasture growth; constructed first mia-mia to provide shelter for newly shorn sheep; commenced referencing to landscape and soil characteristics and introducing laneway network; first attempt at pasture establishment using conventional cultivation and seed drill

1985: Commenced midside sampling of all two tooth ewes prior to entering breeding flock; started applying nutrient enriched reactive rock phosphate fertiliser

1987: Implemented single sire mating group strategy

1988: First fencing out of remnant vegetation to exclude domestic grazing

1991: Installed network of piezometers to monitor watertable depth

1995: Used poultry manure to promote pasture growth on degraded phalaris pasture as salinity impacts were overcome

1996: First sale of furniture-grade timber milled on farm

1999: Commenced staple profiling for management of staple strength

2000: Dispensed with buying flock rams and commenced buying superior stud rams

2001: Introduced liming plan to address acidity

2002: Established first perennial pastures on reclaimed areas using direct seeding after spray out

2003: First sale of wethers to sharlea shed* operator (sub 13.5 micron)

2005: Introduced aspect fencing to prolong green pasture growth; ceased mulesing

2009: First use of artificial insemination allowing access to top quality sires

2011: Constructed state-of-the-art raised-board shearing shed

* sharlea shed—shedded sheep operation for ultrafine wool production

