

Sustainability integrated across whole farm business

THE FARM

Nick, Lynne and Michael Strong

Clover Hill Dairies, Jamberoo, NSW (South Coast)

Clover Hill Dairies (CHD) has developed a highly efficient, sustainable and profitable farming enterprise that supports agricultural production, biodiversity and minimises the contributions of climate change. The farm business is seeking an optimal level of operations and greater outputs from the original 50 ha holding, while minimising the dairy's impact on the local catchments and output of greenhouse gases.

"Our commitment to stewardship starts from the ground-up. We focus on maintaining good soil fertility and structure and grass cover, which has helped avoid the problems of erosion, soil loss and pugging associated with other high-intensity farms," Lynne said.

Changes to the farming system

The following on-farm changes have been made to improve energy efficiency:

- An energy audit realised energy efficiency gains of 1170 kWh per year and saved 11.72 t CO₂ per year through the installation of:
 - a variable speed motor on the vacuum pump; and
 - a water storage tank to capture plate cooling water for dairy yard washing.
- Moving from milking twice a day to three times a day increased the amount of milk produced from the same number of cows by 15% to 20%, which equates to a potential 25% reduction in methane emissions per litre milk.

BUSINESS SNAPSHOT

- Herd numbers: 200 milkers
- Effective farm area: 50 ha
- Breed: Holsteins (North American)
- Production:
 - 170,000 kgMS/yr
 - 34,000 kgMS/ha
 - 850 kgMS/cow
- Pasture management system:
 - Zero tillage and herbicide
 - Kikuyu base overplanted with annual rye by broadcasting
- Supplements fed: 3.6 tonne/cow/yr
- Rainfall: 1,500-2,000 mm
- Irrigation: none
- Soil type: Clay loam
- Soil carbon levels: 5-12%



Nick (pictured), Lynne and Michael Strong have improved the energy efficiency of their dairy with progressive improvements to the equipment and facilities and by moving from milking twice a day to three times daily.

- Dairy shed upgrade efficiencies included natural lighting, recycled water operating the hydraulic pump that controls cow entry and exit.
- Optimal animal nutrition and GHG mitigation strategies include feeding rumen modifiers, highly digestible energy-efficient grains and protected fats.
- Dairy surrounds extensively landscaped and cow comfort optimised

Information/resources needed to make the changes

Partnerships with Southern Rivers CMA (SRCMA), Landcare Illawarra, Small Farms Network and National Heritage Trust Envirofund, as well as Community Waterwise, Advance Australian Agriculture and NSW DECC.

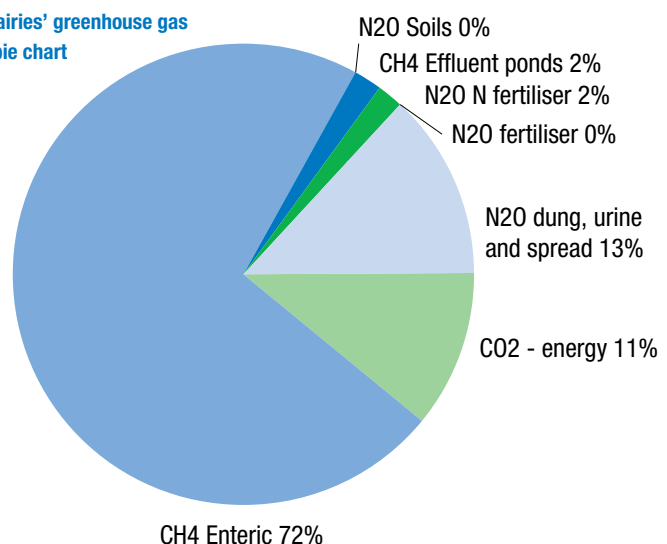
Combined funding from these sources generated more than \$250,000 that the Strongs have matched to enhance their landscape and waterways and ensure productivity gains have minimal impact on the environment.

More information on the Strongs' environmental program is available at: <http://www.cloverhilldairies.com.au/environmental.htm>

LESSONS LEARNED

- Strive for high soil fertility through a combination of manure-based and inorganic fertilisers. Soil test bi-annually and run a nutrient budget aiming to improve long-term problem paddocks, capturing nutrient excesses and fertilising to requirement. Maintain or increase high soil carbon levels and improve the soil pH.
- Increase biodiversity and reduce GHG emissions by planting native trees, shrubs and grasses.
- Practise zero tillage, avoid use of herbicides and apply fertilisers to paddocks with good residuals to minimise runoff risk.
- High organic carbon levels improve soil moisture and nutrient holding capacity, also sequesters substantial carbon from atmospheric pools.
- Monitor inputs and outputs with the aim of being carbon neutral.

Clover Hill Dairies' greenhouse gas accounting pie chart



Improvements to the farm's laneways, landscape and waterways ensure productivity gains have minimal impact on the environment.

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