

Reduce environmental impact, lift productivity: a win-win project for farmers



The South East Councils Climate Change Alliance (SECCCA) formed as a result of regional councils wanting to collaborate in greenhouse gas emission reductions. SECCCA conducted an inventory of emissions sources across its councils and found that industry contributed 16% of total regional emissions. In Bass Coast and Cardinia Shires, the dominant industry is agriculture, consequently the Agricultural Resource Efficiency Project was conceived as a means of assisting farmers in emission reductions.

The Victorian Government Sustainability Fund supported SECCCA to work with 25 beef and 25 dairy farmers to deliver the following environmental performance improvements:

- 10% reduction in greenhouse gas emissions
 - 15% improvement in efficiency in water use and
 - 10% reduction in waste going to landfill
- while simultaneously lifting farm productivity.

Farmers were recruited through the two local landcare networks, the Bass Coast Landcare Network and the Westernport Catchment Landcare Network, which also provided Environmental Best Management Practice training as a precondition to the program. Following their induction, farmers received on-farm visits from Genesis Now, an environmental audit company selected by SECCCA through an Expression of Interest process, to develop an action plan for delivering upon the project targets.

The auditors and the farmers considered as much documentation regarding the farming operations as was possible; bills for energy, water, fuel and fertilizer and income statements such as the milk cheque and beef sales. They looked over maps and aerial photographs, considered whole-farm management plans and discussed the farmers' long-term plans for the property. They explored possible shifts in produce, changes to animal and pasture management practices, what might be feasible future investments – in short they tested everything that related to farm performance, socially, economically and environmentally.



In the farmhouse kitchen discussing the options

The auditors then developed with the farmer an action plan based upon this information. They looked at perhaps the 10 ten most likely actions to be considered for implementation and developed a business case for each of them. What was the capital cost? What would be long-term savings that would result? What is the consequent return on investment? What savings would result in resource use? In greenhouse gas emission reductions? Could they expect productivity improvements?

Compiling the data in this manner meant that the farmer could use his or her usual decision-making process to consider what investment they might make in their farm to improve both productivity and environmental performance. Farmers were given modest grants which they matched or they committed to in-kind support to implement selected actions and allow a calculation of the performance improvements that result. Actions such as installing solar pumps, using heat exchangers to cool milk, using evaporation retardants to conserve dam water, making greater use of windbreaks to conserve soil moisture and planting drought-tolerant pasture species deliver considerable benefit to farms. Actions that involve animal management, varying rotation rates and pasture management deliver significant benefits also. A professional evaluator was a member of the project team that oversaw the project. His report delved into the Lessons Learnt such that the project can influence farm practice across Victoria and beyond.

The project, which wound up in the first half of 2010, showed savings much greater than expected.

Project results	Total	Bass Coast	Western Port	Dairy	Beef
Emissions reductions%	18	17	19	18	18
Improvement in efficiency of water use %	35	28	37	35	30
Reduction in waste %	54	46	60	54	52
Production increase %	15	23	8	14	17
C sequestered tonnes CO ₂	62	48	87	67	59

The methodology developed through the project - the audit tools, processes for documenting farm performance, the full inventory of actions possible and the business case approach – is available for dissemination to other beef and dairy farmers and to other agricultural and horticultural industries. Operators of broiler sheds involved in chicken meat production, viticulturalists, fruit and berry growers and the region's market gardeners could be involved in an application of the project methodology to improve their economic and environmental performance.

SECCCA is looking for opportunities for disseminating the project and for developing further work in these areas. Public funding might not be available in the future so private sector finance could be sought or councils might, through their economic development departments, support an indicative range of operators to show the usefulness of this approach more widely in their regions. This could involve the council making a budget allocation in the vicinity of \$1000 - \$2000 per participating operator to cover the audit and action plan development. The benefits that will result, when presented to the region more generally, will assist in the move to better environmental performance and to more productive farms.

Description of Recommendations	Estimated investment	Savings \$ / year		Calculated Savings \$ / year	R.o.I %pa	Savings	
		Elec	Other			Elec kWh	portion
Install a 10 kW wind turbine	\$35,000	\$4,600		\$4,600	13.1%	30,660	72.9%
Install methane digester system.	\$50,000	\$2,300	\$5,275	\$7,575	15.2%	16,500	39.2%
Install night sky cooling for pre-cooler water	\$5,000	\$1,170		\$1,170	23.4%	8,360	19.9%
Replace mercury vapour lights with T5 fluorescents	\$750	\$137		\$137	18.3%	982	2.3%
				\$0	0.0%		0.0%
Totals	\$90,750	\$8,207		\$13,482	14.9%	56,502	134.3%
Present Levels of Consumption and Cost		\$0		\$0		42,078	
Savings as portion of current consumption & costs						134%	

The table above shows the approach that is taken.

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