



## Early intervention in farming family health: making informed life choices for sustainable family farming

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### Abstract

The Sustainable Farm Families project ([www.sustainablefarmfamilies.org.au/](http://www.sustainablefarmfamilies.org.au/)) has now completed the first three years of its research with broadacre farmers in Victoria, South Australia and New South Wales. The third party economic evaluation reports that the program has had significant outcomes for farmers participating in this program. Using clinical indicators alone the evaluators have confirmed that this evidence-based program, engaging with farming families in an educative and proactive manner, has empowered them to make a difference in their health status and to sustain this over the three years of the project.

In addition to the clinical indicators the research team also collected qualitative data based on responses to questions put to farmers about their understanding and beliefs of health and well being and its impact on their farming family business. This paper reports on farmer responses over the three years and includes anecdotal evidence on the choices they make in the light of their greater understanding of the causes and outcomes of their personal health and well being.

It makes recommendations supporting early intervention including a proactive response from farmer associations, rural health services and government to assist family-based farms to make decisions about their future in farming which includes information on the health, well being and safety of the family members working the farm

### Background to the project

The Sustainable Farm Families (SFF) Project engages with farming families informing them about healthy living options and farm safety. It recognises that their family health is essential for them to effectively utilise their economic and natural resources.<sup>1</sup> The underlying message is to increase awareness of the human resource in 'triple bottom line' and to focus on financial, natural, and human resource management. The project motto being: "no point in a better bottom line if you're not there to enjoy it."

The SFF Project ([www.sustainablefarmfamilies.org.au/](http://www.sustainablefarmfamilies.org.au/)) was conducted over three years with broadacre farmers in Victoria, South Australia and New South Wales. It has been recognised as a leading health program for farming families and received numerous awards in areas of health promotion and research partnerships during 2005 and 2006.

Funded through the Joint Research Venture on Farm Health and Safety managed by the Rural Industries Research and Development Corporation and led by Western District Health Service, the SFF program identified the need for strong intersectoral collaboration. Partnerships were developed with Royal Melbourne Institute of Technology (RMIT) University, Farm Management 500 (FM500) (benchmarking farmer group), LandConnect Australia (training organisation), Victorian Farmers Federation (VFF), Department Primary Industry and Australian Women in Agriculture to develop, implement and evaluate a three year program to address farming family health in broad acre farmers.

The SFF program is delivered to farming families over three years using a format that engages them as active learners where they commit to healthy living and safe working practices. It consisted of an annual workshop, newsletters, industry association involvement, pre and post knowledge questionnaires, personal action plans and measurement of clinical indicators. People who have farmed for more than five years; aged between 18–75 years and involved in a farming business are eligible to attend. Participants were self-selecting.

## Our approach

Four theories relating to adult learning and evaluation were used to design the SFF program. These included Azjen and Fishbein's (1980) theory of reasoned action and planned behaviour<sup>2</sup>, Kolb's (1984) training and delivery model<sup>3</sup>, Kirkpatrick's (1998) training and evaluation framework<sup>4</sup> and Rogers (1983) research on the diffusion of information.<sup>5</sup>

Kolb's (1984) model uses the principle that individuals reflect on their own experiences, acquire new concepts, actively experiment with new ways of working, which become part of their experience base. This learning is supported with videos, graphs, statistics, and reflection on one's own practice.

Azjen and Fishbein's (1980), theory of "reasoned action and planned behaviour" also guided our approach. By incorporating multiple reflection and discussion periods throughout each session participants were able to support and develop their own individual and group focused learning.

By involving the farming family unit we were able to address health issues effecting both men and women and relate these to the farming business. Participants were able to draw on each others past experiences, values, knowledge and understanding to better comprehend and conceptualise health information delivered and relate it to their farming family unit. These theoretical frameworks guided the development of a structured resource participant manual used by them throughout the program to reinforce key learning's and positive health behaviours.

### Topics covered

Understanding the constraints of farming families and the various seasonal pressures SFF programs were scheduled by relevant industry representative's experts and in collaboration with the farming family unit.

To support the theoretical basis of the program participants attended an initial two-day workshop in the first year followed by single day sessions in the subsequent years two and three.

Topics delivered were relevant to Australian health trends with a particular emphasis on rural populations. Participants were requested to fast for 10 hours to aid in the physical assessment process undertaken upon arrival. A healthy breakfast followed the initial assessment and participants were seated in table groups to facilitate discussion and incorporation of the aforementioned learning models.

Topics were structured to address health issues experienced by farming populations and included:

- the state of rural health
- cardiovascular disease
- cancer including bowel and skin
- farm health and safety
- stress and stress management
- diet and nutrition including a supermarket tour
- gender specific (prostate cancer, impotence, women's health, breast cancer)
- action planning annually.

Year two and three topics:-

- anxiety and depression
- gender topics in reverse
- diabetes
- health and farm business



- physical activity
- action planning.

## What we measured

Participants had their health assessed in a one-on-one basis with a health professional and included: fasting cholesterol, blood glucose; weight and height measurement (BMI); body fat percentage; blood pressure and pulse; waist and hip measurement.

This initial assessment formed the basis of the further 30-minute assessment that takes place later in the two day program, and then annually. Other topics covered in this latter assessment process included: discussion of initial physical results; allergies, current medications; familial history and incidence of disease; neurological; skin; cardiovascular; respiratory; gastrointestinal assessment; urological assessment; reproductive/sexual history and assessment; social history, anxiety or depression stress.

Under ethical guidelines individuals were referred for further follow up and ongoing management if they were outside of agreed health ranges. Table 1 represents the dataset from which participants' physical data was collated and reported.

**Table 1 Average baseline characteristics of SFF participants**

Variable	Number of participants (n = 128)	Percentage of participants
Male	70	54%
Female	58	46%
Born in Australia	121	95%
Current smoker	5	4%
Previous smoker	28	22%
	<b>Mean</b>	<b>Standard deviation</b>
Age	47	8.79
General health score (where 1 = excellent and 5 = poor)	2.56	0.08
Body mass index (kg/m <sup>2</sup> )	26.06	3.44
Total cholesterol (mmol/L)	5.49	1.10
Waist circumference (cm)	91.18	10.79
Waist-hip ratio	0.89	0.09
Blood sugar level	4.88	0.63
Blood pressure (systolic) (mm Hg)	126.28	15.13
Blood pressure (diastolic) (mm Hg)	79.34	9.08
Pulse rate	72.89	9.26

**Table 2 Participants at risk in base year in terms of particular clinical indicators**

Participants at risk in base year	Number of participants
Body mass index $\geq$ 25	67
Total cholesterol level $\geq$ 5.5 mmol/L	45
Total cholesterol level $\geq$ 4.5 mmol/L	80
Waist-hip ratio Men > 0.90 Women > 0.80	70
Waist circumference Women > 88 cm Men > 102 cm	30
Blood pressure (systolic) (mm Hg) $\geq$ 140	26

\*The above indicators were sourced from the National Heart Foundation<sup>6</sup>.

We are aware that the burden of disease is higher for people in rural Australia (AIHW 2002)<sup>7</sup> but we do not have another farming population with which to compare our sample. Nevertheless we believe that the number of participants in this project referred (typically) their general practitioner is high.

As part of this research project the Joint Research Venture on Farm Health and Safety funded an economic evaluation of the SFF program. The research aimed to determine the effectiveness of the SFF project in reducing the burden of harm attributable to the health related behaviours of the farmers and to inform future decision making about the project. The evaluation provided an ideal opportunity to validate the SFF Project approach in economic terms and to assist us make policy recommendations for further work to address farming family health.

Over the SFF program participants reported changes in the health and wellbeing behaviours in terms of;

- diet and nutrition through healthier eating and better food choices
- increased physical activity through exercise, changes in farming practice (e.g. running to the farm gate, walking)
- safer work practices
- health checks (these were undertaken each year as part of the SFF program).

The SFF Economic Evaluation used data from the 97 participants who completed **all three** workshops from 2003–2006. Whilst some participants attended two of the three workshops their data has not been included. Rates of participation are outlined in Table 4.

**Table 3 Attendances at the SFF Workshops**

Baseline 2004	Year 1 2005	Year 2 2006	Completed all 3 SFF
128	115	104	*97

\*Participants used for the SFF Economic Evaluation

Any changes in lifestyle and behaviour from participating in the SFF project can potentially influence health in a number of ways. For example safer work practices (which can have effects for employees and family members), disease pathways (reducing weight and exercising more decreasing risk for CVD and diabetes).

Statistically significant ( $p < 0.05$ )\_mean changes over 12 and 24 months were identified in a range of clinical parameters, including body mass index, systolic blood pressure, total cholesterol, waist circumference and waist hip ratio. Highly significant reductions were recorded in the latter three clinical parameters. Mean changes in those at risk achieved greater reductions in five clinical parameters considered.

Importantly the initial changes and improvements in clinical indicators were maintained over the life of the SFF project particularly for those considered at risk. On the basis of the clinical indicators it was predicted that 8 cases of diabetes (type 2) per year and 2 cardiovascular events over ten years were avoided (Boymal et al). Boymal et al concluded that on the basis of at least two measures, that SFF project generates significant benefits to society and cost saving to government for it to be considered a worthwhile project. This report is pending publication with RIRDC.





**Table 4** Sequence of intended outcomes from the SFF project

Participation in SFF project				
	Behaviour changes	Changes in clinical indicators	Changes in morbidity and mortality	Benefits of these changes
	Self-report	Measured after 1 year and after 2 years	Projected changes	Estimated benefits
	<ul style="list-style-type: none"> <li>Eating healthier food</li> <li>More exercise</li> <li>Safer farming work practices</li> <li>Health follow up checks</li> </ul>	<ul style="list-style-type: none"> <li>Obesity-related indicators:               <ul style="list-style-type: none"> <li>– waist circumference</li> <li>– body mass index</li> <li>– waist-hip ratio</li> <li>– percentage of fat in body mass</li> </ul> </li> <li>Blood sugar level</li> <li>Blood pressure               <ul style="list-style-type: none"> <li>– systolic</li> <li>– diastolic</li> </ul> </li> <li>Cholesterol levels</li> <li>Pulse rate</li> <li>General health score (not measured in year 2)</li> </ul>	<ul style="list-style-type: none"> <li>Reduced risk of               <ul style="list-style-type: none"> <li>• Cardio-vascular event</li> <li>• Death due to cardio-vascular event</li> </ul> </li> <li>Diabetes</li> </ul> <p><b>In addition, there are likely to be reductions in</b></p> <ul style="list-style-type: none"> <li>• Farming accidents</li> <li>• Cancer</li> <li>• Anxiety and Depression</li> </ul>	<ul style="list-style-type: none"> <li>Increased Quality Adjusted Life Years</li> <li>Downstream cost savings</li> </ul>

Source: Boymal, Rogers, Brumby and Willder 2006<sup>8</sup>

**Table 5** Mean change in clinical parameters and risk parameters from baseline to year 2 and year 3 for those at risk

	Change from baseline to	
	Year 2 Mean (± Standard Error)	Year 3 Mean (± Standard Error)
<b>Participants at risk in base year</b>		
Body mass index ≥ 25 (n=67)	- 0.42 (0.13)	** - 0.44 (0.16) **
Total cholesterol level ≥ 5.5 mmol/L (n=45)	- 0.91 (0.13)	*** - 1.26 (0.12) ***
Total cholesterol level ≥ 4.5 mmol/L (n=80)	- 0.59 (0.1)	*** - 0.92 (0.09) ***
Waist-hip ratio* Men > 0.90 Women > 0.80 (n = 70)	- 0.015 (0.00)	*** - 0.016 (0.00) ***
Waist circumference Women > 88 cm Men > 102 cm (n = 30)	-3.50 (0.81)	*** -3.17 (0.69) ***
Blood pressure (systolic) (mm Hg) ≥140 (n=26)	-10.38 (1.44)	*** - 12.5 (1.91) ***

Significance values \*\*\* p ≤ 0.001, \*\* p ≤ 0.01, \*p ≤ 0.05. Based on two-tailed significance tests.

## Attitudes and beliefs

In addition to the clinical indicators the research team also collected qualitative data based on responses to questions put to farmers about their understanding and beliefs of health, well being and its impact on their farming family business. Specifically at the start of the program we asked them why they were participating; what do they believe are the primary health issues for farming families; what are farm families' attitudes to health; and, how do they access health information. Their responses are set out below

### Reasons for participating

Reasons for participating can be grouped into five categories; obtaining a free health check; opportunity to learn about their health; having a broader concern for farmer health; and family and farming industry influence to participate.

The opportunity of a free health check and information on health was an important reason for participating. Farmers recognised it was important to understand their current health status and agreed that a follow up with their health professional may be required. They also felt the complexity and delays in accessing health services created apathy in having regular health checks.

It was important for many participants to learn about their own health status. Managing stress was a reoccurring theme and was often cited as a reason for participating in the program. Overall farmers wanted to improve their family health, especially the health of their children, and the program helped them to do this. Participants also expressed broader concerns for farmer health and recognised that they need a benchmark to begin to assess the status of their family health. Most recognised that health was linked to farming business success and that research into this aspect of farming had not been a high priority.

Some men commented that their partners (spouses) were the reason they attended or that the farm industry connection or consultant influenced their decision (although more men attended than women).

Many commented openly that they were concerned about the ability of their partner to continue on with the work of farming and the impact on their partner's health.

### Primary health issues for farming families

The primary health issues for farming families were; the demands of the job; that they are an ageing workforce and concerns about occupational health and safety; the attitudes and beliefs of farmers themselves about health and well being; diet and alcohol abuse and access to reasonable health services.

Stress was mentioned numerous times by participants. Participants were unable to articulate the causes of the stress. There was often a knee-jerk response to the question without knowing what it actually meant and what could be done to reduce stress. More money or rain was seen as solutions to stress. They acknowledged that most people were reluctant to seek help when they were stressed. Some groups were also aware of the connection between stress, depression and anxiety and the need for a program like this to address this important issue.

Farmers recognised that the job itself is a primary health issue. It is a varied and demanding job with a high workload. Unless you actually leave the farm you are always working.

Participants also recognised that they are an ageing workforce and continuing to work the farm predisposed them and their family to accidents and injury. They were not 'bullet proof' and need to develop strategies to cope as they aged. Maintaining fitness so that they could keep up with the demands of the job was an often cited response.

There were many issues raised relating to occupational health and safety on farms. Participants were conscious of the need to maintain safe working practices, especially when it came to protection from the sun, working with chemicals, farm machinery and manual handling. Children in the workplace was



mentioned on numerous occasions as well as fatigue as many participants work off farm to supplement their income and are often tired and prone to accidents.

There were wide ranging discussions on how farmer attitudes and beliefs impacted their health and well being. A general view was that men are stoic in talking about their health. They are also less likely to discuss their own health issues, let alone the health of their partners or children.

Participants also recognised that their diet was not as good as it could be. Having access to a range of fresh fruit and vegetables was an issue for many. While their relative isolation meant they were less tempted to access highly processed 'fast food' it also limited their access to healthy foods.

Participants also recognised that lack of access to primary health care was a major issue for farming families. It was difficult for them to get away from the farm for lengthy periods to visit specialists in regional or capital cities. Waiting for appointments was a source of frustration and many had given up doing so. Added to this was that many farmers waited for numerous ailments to emerge before seeking a medical appointment and often would not follow the advice set once a consultation had occurred.

### **Farming family attitudes to health**

When asked what were farming family attitudes to health participants included; their traditional/conservative attitude; their positive outlook; that rural living is healthy; and their response is typically pragmatic when health becomes an issue.

Participants felt that farmer attitudes to health were improving and that there is increasing awareness of occupational health and safety issues on farms driven by the rate of accidents on farms, and publicity about these accidents. Participants also recognised that older farmers are more set in their ways and a challenge for the agricultural industry is to get older farmers to pay attention to their health and well being. With regard to gender the consensus is that women on farms are more likely to take responsibility for family health issues than men.

Some of the traditional attitudes articulated by participants were; "She'll be right", we are "bullet proof", especially the young farmer. Farmers also "Work hard [and] therefore play hard". The assumption was that it "Won't happen to me". A common view held by many participants was that they were healthier than their urban cousins and that rural living is healthy because "We live in a healthy environment [we] do not have air pollution".

Farmers suggested that in relation to their health crisis management prevailed – attend to it when it happens. It is not a priority as the 'need' is to get the job done.

Some thought there was too much emphasis on health. There is information overload and too many hypochondriacs. They felt people were overly concerned with what could go wrong rather than getting on with the job.

### **What types of information do farmers' access?**

When asked how they access health information participants cited different media; through children and other families; farm support groups; allied health services and their general practitioner. Community nurses did not get recognised as an information source.

Participant's accessed health related information from a range of newspapers and magazines. Television and radio life style shows provide a wide range of information on health and well being. The Internet also provides a wealth of information. Interestingly participants recognised that their children were a source of information on healthy living and safety as a result of school programs, which focus on health and wellbeing.

As farmer groups are partners in the SFF program it is not surprising that support groups should be identified as a key source of information. FM500, the Victorian Farmers' Federation and Australian Women in Agriculture are supporters of the SFF program. Their role in gaining farmer support for SFF after preliminary discussions around health of the farming human resource with WDHS is a reflection

of the important role these groups play in educating farmers about healthy living choices for their families.

## Has the program made a difference?

At the end of the three year program participants were asked if the SFF had made a difference to their health, well being and farm safety. Participants expressed the view they were more aware of their own health and that of their family. They had a greater understanding as to how they can respond to maintain good health and could see, and feel the benefits in their own health. They also made a connection between farmer health, well being and safety, an assumption held by our research team when designing the program.

In terms of awareness participants acknowledged they were primarily responsible for their own health, well being and safety. A good starting point in this awareness was more careful consideration of their diet and the impact of moderate exercise - one of the most empowering aspects of the program. Reading food labels and being aware of the food they fed their family was constantly mentioned by participants.

Participant responses also confirm that the three workshops over a two-year period were important as they could see the connection between their attempts to improve aspects of their health, wellbeing and safety and obtain feedback on their efforts to change.

Participants also reported that they had a greater sense of perspective about the important role of health in their farming family decisions. For many health management was now a priority, and they were passing this view onto family members.

In terms of the farming business decisions participants recognised that if they are healthy they can work longer, and more effectively. As this is part of a whole of life change they also saw that they needed to change their lifestyle, not only in the quieter times of the year, but also when they were working in the busy, or peak farming times of the year. The program provided them with a rationale to have more time off, to try and achieve a better balance of work and non work.

In terms of managing stress and general anxiety they recognise that it is important to recognise stress early and to talk with others about their concerns. For those who had denied themselves a holiday in recent years they recognised that this was an essential part of their personal regeneration and were doing such events.

The SFF program had wide ranging personal effects, or impacts, on behaviour. As several participants noted, the learning gave them permission to care about themselves.

We were encouraged that many farmers made a connection between health, well being and farm safety and raised the connection between wellness and accidents – if you're were unwell, you were more likely to not pay attention and be injured. While it was our assumption as program planners that this was the case having participants make this link was a great outcome for the program. Many participants reported they used the Work safe checklists provided to undertake a farm safety audit and were more proactive in improving OH & S for employees and other family members.

Managing the family diet was one thing participants could do and it had a significant impact on health. They followed up on information suitable for their needs, and this made a difference. Living on farms often some distance from larger centres also challenges farming families to provide healthy and nutritious meals. Many reported they are now more systematic in planning and shopping for appropriate food for their family.

What is clear from the responses is that farming families participating in the SFF program did make healthy living choices, can see the connection between health and farm safety and can identify strategies to manage stress. The evidence from the health changes in the SFF participants confirms that there were changes on a number of indicators. Participants also know why these measures have



changed and feel empowered to continue with a well being regime of diet, exercise and relaxation. They also felt more empowered about seeking advice and assistance from different health sources.

## Conclusions and recommendations

The strength of this program is the way in which farmers are engaged as active participants in learning about their health. Their knowledge is valued and central to the discussion. While their knowledge is patchy, it contributes to the spirit of shared learning with other farmers. It is important that they receive clear feedback on their current status, and change over time. It is only through this process that they can get a perspective on the state of their health, wellbeing and the role of OH & S and begin to make a real difference in their lives.

We recommend that the SFF philosophy and approach be extended further to other rural settings where people can work together to improve their individual and collective wellbeing, health and safety.

We strongly recommend that the format be maintained. The temptation to take parts of the program to meet time constraints is most unproductive and does not allow for reflection time away from the farm. Participants need to experience the whole program as we have developed and refined it through participant feedback.

We also recommend working with farmer, industry and trade groups. These associations play a critical role in gaining and maintaining participation. The group learning process is very powerful. The SFF requires intersectoral collaboration to achieve its goals for farming families and health professionals wishing to extend, repeat and transfer the program.

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## Presenter

**Stuart Willder** is a registered nurse with over 15 years' experience in the critical care and emergency fields. He has a Graduate Certificate in Critical Care, Graduate Certificate in Men's Health and is completing his Masters in Nurse Practitioner. He has a specific interest in rural men's health and has focused much of his work on improving the knowledge of rural farmers' health knowledge. Stu runs a small farm in the Western District and is Principal Researcher of Sustainable Farm Families.