EXPLORING AND IMPROVING FARMER HEALTH ACROSS VICTORIA - A RESPONSE TO DROUGHT

Mercer-Grant, C[1 3], Brumby, S[1 2 3], Hatherell, T[1 3] & Harper, T[4]

[1] National Centre for Farmer Health, Australia
[2]Deakin University, Australia
[3]Western District Health Service, Australia
[4]Victorian Department of Primary Industries

Abstract

Sustainable Farm Families™ is an initiative of Western District Health Service, Hamilton. Commencing in 2003 the program has been delivered to over 2,300 farming men and women across Australia. The program has proven to be life changing and in some instances life saving for the participants. In July 2007 the program was funded by the Department of Primary of Industries (DPI) to deliver the program to 1,000 farmer participants across Victoria as part of DPI's drought recovery response. The intended outcomes of this project for DPI were fourfold:

- *Increase the resilience of farming families to cope and recover through drought from improved physical and mental health and reduced risk of farm accidents,*
- *Increase the capacity of the workforce,*
- *Increase the knowledge of the state of farming health; and*
- *Institutionalise the funding of the program*
-

The Sustainable Farm Families™ (SFF) is a program that seeks to improve the health, well-being and safety of farming families through health assessments and the provision of education to farmers within their own local communities.

SFF represents an effective and valuable tool in the assessment, education and empowerment of farm families across various agricultural industries. It also demonstrates that when farmers are provided with information relevant to their health, well-being and safety they consider these factors in both day-to-day and strategic decision making about their farming business. In this paper we will outline in detail the implementation of the Victorian SFF™ program and show how it has been applied across Victorian rural health services and the way in which it engages across different agricultural sectors.

Keywords: health, well-being, safety, agriculture, family, farming

Subtheme: Health indicators farming families

Introduction

In 2007, across the state of Victoria, Australia one hundred percent of agricultural land was declared in Exceptional Circumstances (Pearson D 2010). Water restrictions, nil water allocations for irrigation, limited domestic supplies and reduced livestock production was impacting on rural communities and farm men and women health. With the back drop of Australia's worst drought on record farm family health, well-being and safety is a significant issue for the long-term human capital and workforce capacity of major farming industries. Recognising this the Victorian Government, through the Department of Primary Industries, provided resourcing to Western District Health Service, Hamilton to deliver the Sustainable Farm Families™ (SFF) program which is described in another paper (Brumby S, Willder S et al. 2009). 50 locations across Victoria were selected to assist

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

1,000 farmers to address their health, wellbeing and safety in drought affected Victoria. Whilst safety has been long recognised as an issue for farm men and women and children with high occupational deaths, general health and well-being had slipped under the radar.

In understanding the health and well-being of the Australian farming population, one needs to identify with the underlying characteristics of the farming family unit, which include a strong work ethic, low socio-economic status, high level of injury and risk taking behaviours and high per capita levels of disease rates and morbidity (Todd 2006). Farmers are ageing, working harder, longer and increasingly rely on family members to provide the extra labour needed to survive in today's environment of climatic change and agricultural strain. Together these issues are affecting the physical and mental health well-being of farming families, which are experiencing higher rates of illness, including diabetes, cardiovascular disease and respiratory illness (Pearson D 2010).

The Australian Institute of Health and Welfare, (2008) provides evidence that 'the general health of rural people is, by urban standards, very poor. Rural populations have above average rates of premature mortality through heart disease, cancer and suicide.' This is consistent with research conducted by Fragar and Franklin (2000) who noted that male farmers face a 40 percent increase in age standardised deaths compared with the general male population. Cancer, farm injury, cardiovascular disease, and suicide account for this increased mortality in the farmer population. International research also highlights hearing deficits (McCullagh M and Robertson C 2009). Additionally farm work practices can also result in pesticides being taken into the home where children and spouses are exposed (Thompson, Coronado et al. 2003). Reports show that male farmers commit suicide at higher rates than non-farming males and the general population. Suicide rates across most age groups for men are higher in rural and remote centres and for women in the 30 to 44 year age group (Caldwell, Jorm et al. 2004; Miller K and Burns C 2008). Whilst the cost of farmer illness, injury and accidents is not known, Fragar and Franklin (2000) note that the full costs of farm injury and illness are probably not being borne by the industry. Further to these challenges, climate is affecting the prosperity and health of farming families. Farmers have had to cope with the stress of a long-term drought, as well as face future uncertainty and a requirement to change their farming systems significantly to cope with a climate of change.

Farmers' ability to cope with these changes and make informed management decisions related to their farming enterprises relies on them having a sound state of physical and mental health. Lessons from the drought have shown that the more tired and stressed farmers become, the more likely they are to become ill, contributing to poor farm management decisions and 'shortcuts' being taken on-farm that increase OH&S risks (Birchip Cropping Group 2008). All of these factors contribute to seriously jeopardising and impacting on the health of the farmer, their family, the profitability and sustainability of the farming enterprise and the rural community in which they live.

As shown in Figure 1, farmer health is a complex issue that has a ripple effect on the farming family unit, and extended community. Poor farmer health is, to a great extent, preventable and early intervention and health maintenance has flow on benefits, not only to profitability but also to family and rural community members in the long term.

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

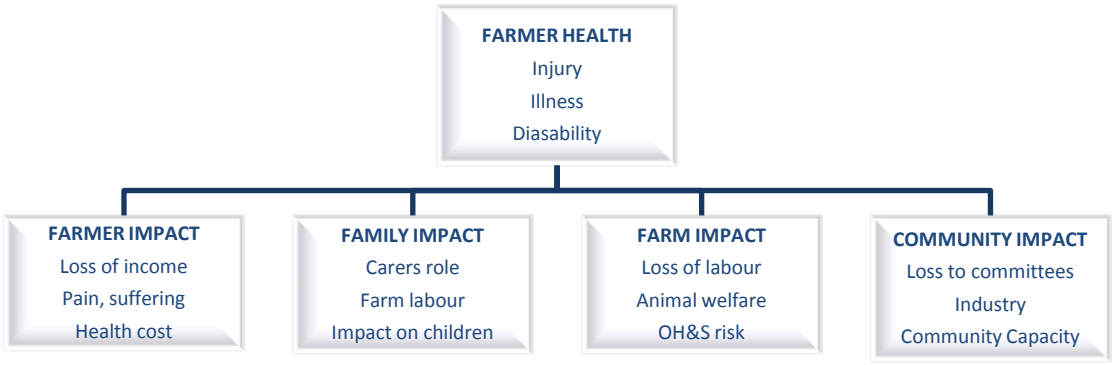

Figure 1 - The flow on effect of poor health on farmers, families, farms and communities (Brumby S 2008)

The SFF program is a service delivery and research initiative developed through a unique process of intersectoral collaboration involving rural health services, universities, agricultural agencies, and farming communities. Together these bodies have combined to deliver an evidence based approach to address the health, well-being and safety of the farming family.

The SFF program provides farm men and women with information on their personal health and well-being and explores attitudes to health, well-being and safety and provides opportunities for improving outcomes. The program uses intersectoral collaborative arrangements to show how farming family health relates to farming productivity, profitability and healthy communities.

Methodology

The Sustainable Farm Families™ program consists of a structured two-day workshop in year one and a one-day workshop in years two and three or a two day program in year two. Participants were recruited from local communities through existing farming or community networks for each of the programs, for example the BestWool BestLamb industry group or conversely the local football and netball club. Local industry and community knowledge in relation to time of year and workshop locations was vitally important. On the day of the program and prior to the topic delivery a facilitator (Department of Primary Industries) would undertake a focus group discussion with group participants. This allowed for exchanging of ideas, introduction of participants and a general understanding of the project content. During this stage a group of questions were asked regarding their farming unit, reason for attendance and the current value of health in their farming entity.

Topics covered were systematically chosen and linked to relevant health issues predominant in farming and rural population's specifically cardiovascular disease, cancer, diabetes, stress, OH & S and gender specific health. The SFF resource manual was also developed around Kolb's experiential learning framework and provided both a written and a visual resource for participants (Kolb D A 1984). The first day was timetabled to cater for fasting blood cholesterol and glucose measurements and the fasting farmer. All participants were provided with a healthy breakfast following a brief physical assessment and introduction. Participants were seated in table groups to facilitate discussion around learning needs and to promote behavioural change as identified in Azjen and Fishbein's (1980) theory of reasoned action and behaviour model. Topics were structured to address health, well-being and safety issues experienced by farming populations and included:

- The state of rural health
- Cardiovascular disease
- Diabetes
- Farm health and safety
- Stress and stress management

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

- Diet and Nutrition – supermarket tour
- Gender related topics delivered in separate groups e.g. prostate cancer, impotence, women's health and breast cancer

Education sessions were delivered by two health professionals with expertise in rural health and gender health who also had farming experience. Relevant focus group data was collected that would be later collated for reference and evaluation.

Education sessions/topics in the program were run to a set timeline and incorporated specific learning objectives that would be completed by all participants within their resource manual. Following each of the sessions each participant was required to assess the delivery of the session and the relevance of this to their farming entity and current life situation. A relevant rating scale was used for this assessment and data used for future evaluation methods. During each session frequent table group discussions enabled reflection, conceptualisation and planning as per the Kolb model of effective learning. In addition participants developed 'action plans' in which they identified personal goals and strategies to achieve these goals. This process was an important part of the delivery process in that participants were able to learn not only from the health professionals but also from each other and the peer experiences within table group discussion.

Physical Assessment

One of the most successful facets of the SFF DPI Drought Recovery project, and the most influential in gaining attendance, was the physical assessment process undertaken by all participants.

The physical assessment process was set up to undertake initial screening of participants following a minimum of 10 hours of fasting to aid in accuracy of the testing procedures. Initial screening was 5 minute assessment which included the following privately recorded tests. The parameters used are as outlined by Shaw and Chisholm (2003):

- Fasting total cholesterol and blood sugar
- Weight and height measurement
- Body mass index less than 25
- Body fat percentage
- Blood pressure and pulse
- Waist and hip measurement

This initial assessment was a confidential process and recorded in the health record and the participant's resource manual for later reference. Bookings for a full 20-minute physical assessment are made prior to the commencement of breakfast. These physical assessments were undertaken on the afternoon of the first day and in the morning of the second day of the program. Specific topics and discussions undertaken in this assessment process included areas deemed relevant in the prevention and detection of poor health. –

- Evaluation and discussion of initial physical assessment results and how they related to the individual, their work
- Allergies and current medications
- Familial history and incidence of disease as family history is an important risk factor (Nasir, Budoff et al. 2007)
- Neurological assessment
- Skin assessment
- Cardiovascular assessment (Shaw J and Chisholm D 2003)

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

- Respiratory assessment as despite low smoking rates often have high respiratory disease (Lamprecht 2007)
- Gastrointestinal assessment and risk for upper and lower GI disorders
- Urological assessment for relevant risk and disorders
- Sexual history and assessment for disorders
- Psychosocial assessment (Kessler 2002)

Outcomes and Results

All findings were recorded in the health record collated for each participant. Discussions with each participant were made regarding the results and need for referral to other health professionals or medical practitioners. Upon agreement a full referral was made using relevant documented health information.

In Table 1 is a summary of the baseline health data encountered in the SFF DPI Drought Recovery programs. This data provides a glimpse into the health of Victoria's primary producers and highlights the importance of health education and service provision in rural and remote parts of the state.

Table 1: The farming cohort (*n*=964)

Variable	Participants (n)	Percentage
Male	525	54.5%
Female	439	45.5%
Born in Australia	902	93.6%
Language other than English spoken at home	20	2.0%
Government benefits	403	41.8%
Current smoker	74	7.7%
Previous smoker	238	24.7%
Self Health rating (good-excellent)	883	91.5%
Self Health rating (fair-poor)	81	8.4%
Body pain (moderate-very severe)	346	35.9%
Alcohol drinkers	810	84.0%

SFF DPI Drought Recovery had 964 participants who undertook programs during over 2007- 2008 had 45.4% female and 54.6% male. The majority were born in Australia with less than 2% having a language other than English as their primary language at home. Over 400 individuals were receiving Government support for their primary production and/or well-being during this study. Only 6.9% were current smokers, which is a lower rate than the 19.1% of Victorians who currently smoke (Department of Health 2010). Less than 10% of people considered their health to be fair or poor even though 35% had experienced moderate to severe body pain in the preceding month. Of the cohort 85% consume alcohol on a semi-regular basis, with 46% drinking at high risk levels at least monthly. Further study is required to determine whether alcohol consumption is used for body pain relief by farm men and women.

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

Table 2: First year baseline data (*n*=924)

Statistics of all participants (inc. range)	**Mean (±SD)**	
Age (18 - 79 years)	49.39 years	(±11.28)
Weight (43.80 - 147.00kg)	80.39kg	(±15.52)
Body mass index (BMI) (15.09 - 51.11kg/m^2)	27.26	(±4.59)
Fasting blood glucose level (2.4 - 9.8mmol/L)	5.26	(±0.68)
Fasting total cholesterol level (3.87 – 8.40mmol/L)	4.73	(±0.80)
Systolic blood pressure (80 - 210mmHg)	128.41	(±16.47)
Diastolic blood pressure (50 - 120mmHg)	78.95	(±10.61)
*Body fat percentage (4.8 – 49.7%)	28.37	(±8.11)

** n=921 as 3 participants were heavily obese and no reading was obtained*

Table 2 reveals the baseline health data of the 924 farm men and women completing the first year of the DPI funded SFF program.

In Australia, the median age of farmers has increased marginally from 51 years of age in 2001 to 52 years of age in 2006. However, more importantly, the proportion of farmers older than 65 years of age increased to 18% in 2006 from 15% in 2001 with the proportion of farmers under 35 years of age decreasing to 10% in 2006 (Australian Bureau of Statistics 2008).

The SFF DPI Drought Recovery program reflected these findings with 10.2% of the participating farmers under 35 years. The majority of farmers that participated in the year 1 program were aged between 35-64 years. We found though that the participants were of a slightly younger cohort than the Australian median with only 8.5% over the age of 65 and a median age of 50.00 years.

The average BMI of 27.29 indicates that the average farmer is in the overweight category with biochemical analysis revealing some other trends that are listed in greater detail below.

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

Table 3: Baseline data for farming men (*n*=505) and farming women (*n*=419)

Statistics of participants (inc. range)	Mean (±SD) Male	Mean (±SD) Female	Ideal Range
Age (18 – 79 years)	50.28 (±11.26)	48.32(±11.23)	n/a
Weight (43.8 – 147.0kg)	86.64kg (±13.69)	72.85 (±14.21)	n/a
Body mass index (BMI) (15.0 – 51.1kg/m^2)	27.48 (±4.03)	26.99 (±5.17)	20 – 24.9
Fasting blood glucose level (2.4 – 9.8mmol/L)	5.29 (±0.65)	5.22 (±0.71)	< 5.5mmol
Fasting total cholesterol level (3.87 – 8.40mmol/L)	4.75 (±0.77)	4.70 (±0.83)	< 5.5mmol
Systolic blood pressure (80 – 210mmHg)	131.00 (±15.92)	125.29 (±16.61)	<140 mmHg
Diastolic blood pressure (50 – 120mmHg)	80.63 (±10.58)	76.91 (±10.60)	< 90 mmHg
Waist circumference (63 – 142cm)	98.92 (±10.99)	88.35 (±12.27)	<102 (male) <88 (female)
***Body fat percentage (4.8 – 49.7)**	23.88 (±6.00)	33.82 (±6.92)	10-25% (male) 20-35% (female)

** n=921 as 3 participants were morbidly obese no readings were available.*

The men attending the program were slightly older (50.28 years) than their female counterparts (48.32 years). They also recorded a higher average Body Mass Index (BMI) score of 27.48kg/m^2 compared to 26.99kg/m^2 in farming women which was not unexpected. In Table 4 the number of participants at risk in the base line using parameters outlined by Shaw et al (2003) show a high percentage of overweight or obese participants in addition to over 30% having elevated glucose levels and well as 39 percent showing abdominal adiposity through elevated waist measurements.

Table 4: Number of participants that fell into the 'at risk' range at baseline

Statistics of participants	Mean (±SD) Male	Mean (±SD) Female	Total percentage
Body mass index (BMI) (kg/m$^{2)}$ ≥ 25	29.15 (±3.37) *n*=365	30.02 (±4.34) *n*=253	67.0%
Fasting blood glucose level ≥ 5.5 (mmol/L)	5.99 (±0.48) *n*=164	6.03 (±0.60) *n*=124	31.1%
Fasting total cholesterol level ≥ 5.5 (mmol/L)	6.08 (±0.65) *n*=76	6.14 (±0.62) *n*=72	16.0% *
Systolic blood pressure ≥ 140 (mmHg)	148.75 (±11.34) *n*=164	150.76 (±12.86) *n*=84	26.8%
Diastolic blood pressure ≥ 90(mmHg)	94.29 (±6.13) *n*=129	93.28 (±4.92) *n*=64	20.8%
Waist circumference (cm)≥88 for women,≥ 102 for men	111.02 (±7.29) *n*=165	99.05 (±18.83) *n*=193	38.7%

**Noting this does not include the 48 participants already on hypolipidaemic (cholesterol lowering) medication*

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

The most common reasons why farm men and women were referred for further follow up were 20.0% for cardiovascular review (20.%), diabetes assessment (17.8%) and 16.1% for skin conditions (including potential skin cancers). Other common reasons for referral included respiratory conditions (11.5%) despite low smoking rates and 10.0% for urological complaints. A referral involved a written referral sent to their nominated health professional and a copy sent to the participant and one retained in the health record. On occasions, individuals were referred for more than one reason. The importance of undertaking these health assessments on the farming population is highlighted by the fact that less than a third of participants did not require for further follow up.

Qualitative Findings

Through the workshop process we gather qualitative information from participants about the attitudes and approach to personal and family health. The focus group responses were read and reread by two researchers and categories themed using an open coding process, '*invivo codes*' as described by Grbich (1999). These attitudes were themed to:

- Traditional, stoic attitude
  - If the problem isn't serious there isn't a problem
  - Negative attitudes towards health
  - Farmers know best

- Health is not a major priority,
  - There's no time for health
  - Farm comes before health
  - Need to push on with farm work regardless of health
  - Farming is a "lonely occupation"
  - No one to "fill in" when sick
  - Other people's health comes before personal health
  - Different age groups have different attitudes
- Access to Services
  - There is limited access to services
  - Money affects ability to look after health
- Positive attitudes
  - Occupational health and safety is improving
  - Farmers have a lot of mental stressors and cope well

Other common responses to this question were: the belief that farming families have a growing awareness of health and safety; that farming is a healthy lifestyle because farmers live in the *"fresh air"*, grow their own food and eat *"less takeaway"*; that health is postponed to be sorted *"out another day"* when work is not so busy; farming families are in denial about illness and injury and believe that *"it won't happen to me"*; farmers think they are fitter than they actually are, thinking that *"because physically active on the farm they are physically healthy"*; and farming families are unaware of their limitations, not giving themselves *"enough rest, time out"*.

Discussion

The baselines results to date reveal significant health indicators that link to current health trends reported throughout Australia and the world including obesity, pre-diabetes, and rising skin cancer in rural populations. Victorian farming sectors have significant health issues related to access to services and information that place their health at greater risk than metropolitan populations. As revealed through the preliminary results men and women are reluctant to report issues such as body pain that affects their work as a problem and are often content to continue with an ailment for long

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

periods- '*If the problem isn't serious there isn't a problem.*' The baseline health assessment provided by the Sustainable Farm Families™ program reveals factors of concern and the need for referral to address issues for possible disease and mortality risks. Results from the first year project revealed 72.2% of men and 69.3% of women required referral to a medical practitioner or allied health specialist. Issues surrounding mental health, alcohol consumption, body pain, poor work practices and sub standard occupational health and safety practices were also discovered. All participants indicated they would recommend the program to others and many assert they have found the project to be a life-changing experience. In a recent impact evaluation, undertaken by Roberts Evaluation (2009), 93% of farmers interviewed felt that after completing the SFF program they now have the tools to implement health behaviours, and 93% reported that they have increased confidence in their ability to manage their own health and well-being as a result of the workshops.

An initial concern of the project was that SFF may be reaching to the "worried well" and may not find significant health indicators to report upon due to the self-selecting sample within the program. Farmers may enrol in the project because they have an interest in their health, have a good concept of a healthy lifestyle and health care practices and thus paradoxically do not believe they have any health issues. As participants self select, there is the possibility of selection bias with the likelihood that participants may consider health to be more important to their farm business and lifestyle than those who choose not to participate. Conversely, as SFF programs are free to attend, and the availability of medical bulk billing is lower in rural communities, people who were unwell may have been more motivated to attend and have their health checked (Grigg D and Atkins C 2004).

The results from the second year of the SFF program to date reveal there is a positive change in the health of the returning 703 participants and a reduction in the need for referral to healthcare agencies. Improvements in body mass index, total fasting cholesterol and systolic blood pressure are statistically significant ($P \leq 0.05$) in participants at risk and will be reported on in subsequent papers. A report undertaken by the Victorian Auditor General Office (2010) commented that the Victorian government had a sound basis for funding the SFF program as a drought assistance measure. Program results also indicate its effectiveness – participants are more knowledgeable about their health after attending and their clinical health indicators improve from the first to second year. At risk male and females had the highest rate of improvement.

Conclusion

The SFF project is identifying many health, well-being and safety issues for farming men and women in Victoria. This project demonstrates through the qualitative and quantitative information collected that the health of farming populations is not as good as urban dwellers. The Roberts external evaluation (2009) reinforced that the SFF program was meeting the aims of the Drought Recovery program by increasing the resilience of farming families to cope and recover through drought from improved physical and mental health and reduced risk of farm accidents. The SFF project and their associated partners are giving voice to the health, well-being and safety needs of farming families and the means by which their health can be improved

By providing education and assessments focused upon the needs of the farming population with cross sector collaboration and ownership through the health, community and agriculture sectors, the ability to address farming family health is possible. Farming families are an important part of Australian society, not only for the provision of valued commodities and their ability to endure a climate of change including economic, climatic, social and demographic constraints thrust upon them, but because of the lifeblood they supply to regional communities.

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

References

Australian Bureau of Statistics (2008). Agriculture in Focus: Farming Families. Canberra

Australian Institute of Health and Welfare (2008). Australia's health 2008. Canberra, Australian Institute of Health and Welfare.

Azjen, I. and M. Fishbein (1980). Understanding Attitudes and Predicting Social Behaviour. Englewood Cliffs, Prentice Hall.

Birchip Cropping Group (2008). Critical Breaking Point? The effects of drought and other pressures on farming families. Birchip.

Brumby S (2008). The flow on effect of poor health on farmers, families, farms and communities. Rural directions for a better state of health launch. Echuca

Brumby S, Willder S, et al. (2009). "The Sustainable Farm Families Project: changing attitudes to health." The International Electronic Journal of Rural and Remote Health Research, Education, Practice and Policy 9(1012).

Caldwell, T., A. Jorm, et al. (2004). "Suicide and mental health in rural, remote and metropolitan areas in Australia." Medical Journal Australia 181(7): S10 - S14.

Department of Health (2010). Victorian Population Health Survey Report Melbourne Department of Health, .

Fragar L and Franklin R (2000). The Health and Safety of Australia's farming community Rural Industries Research Development Corporation, Moree.

Grbich C (1999). Qualitative Research in Health: An introduction. New South Wales Allen and Unwin

Grigg D and Atkins C (2004). The Bulk Billing Crisis Melbourne Victorian Council of Social Services.

Kessler, R., G. Andrews, L. Colpe, E. Hiripi, D. Mroczek, S. Normand, E. Walters, and A. Zaslavsky (2002). "Short screening scales to monitor population prevalence's and trends in non-specific psychological distress." Psychological Medicine 32(06): 959-976.

Kolb D A (1984). Experiential learning: experience as the source of learning and development. Englewood Cliffs, Prentice Hall.

Lamprecht, B. L. S., B.Kaiser M. Studnicka, and A.S. Buist (2007). "Farming and the Prevalence of Non-Reversible Airways Obstruction-Results From a Population-Based Study." American Journal of Industrial Medicine 50: 421-426

McCullagh M and Robertson C (2009). "Too late smart: farmer's adoption of self-protective behaviours in response to exposure to hazardous noise " AAOHN Journal 57(3): 99-105.

Miller K and Burns C (2008). "Suicides on farms in South Australia 1997 - 2001." Aust J Rural Health 16: 327 -331.

Nasir, K., M. J. Budoff, et al. (2007). "Family History of Premature Coronary Heart Disease and Coronary Artery Calcification: Multi-Ethnic Study of Atherosclerosis (MESA)." Circulation 116(6): 619-626.

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings

Pearson D (2010). Victorian Auditor-General's Report: Sustainable Farm Families Program Melbourne Victorian Government Printer

Shaw J and Chisholm D (2003). "Epidemiology and prevention of type 2 diabetes and the metabolic syndrome." MJA 179(7): 379-383.

Storey, J. (2009). Sustainable Farm Families Impact Evaluation 2007-2009. Melbourne Roberts Evaluation

Thompson, B., G. D. Coronado, et al. (2003). "Pesticide Take-Home Pathway among Children of Agricultural Workers: Study Design, Methods, and Baseline Findings." Journal of Occupational and Environmental Medicine 45(1): 42-53.

Todd, H. (2006). Social and family aspects of dairy farm expansion - Findings from the "Sustainable dairy farm systems for profit" project. M5 Project Information Series Queensland, Department of Primary Industries and Fisheries

March2011 - ISBN 978-92-990056-6-8 www.ifmaonline.org - Congress Proceedings