



This information is provided to assist food producers of all shapes and sizes in the Southern Gippsland region, encompassing the municipalities of Bass Coast and South Gippsland Shire Councils, to build adaption to climate change into their business for long term resilience.

We hope that it will be useful to maintain the viability of local food production through adapting to current and future climate changes.

If you have any additional information that would be useful to add to this listing, please email jill.vella@southgippsland.vic.gov.au or phone 5662 9200.

BEEF FARMING	2
DAIRY FARMING	3
DIVERSIFICATION.....	5
GENERAL ADVICE	7
GENERAL GRAZING	11
HORTICULTURE & VITICULTURE	12
SHEEP FARMING	13
SOCIAL ACTION	14
SOIL HEALTH	15
WATER.....	17
WEATHER / CLIMATE PROJECTIONS	19

BEEF FARMING

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Feed Demand Calculator

<http://tools.mla.com.au/fdc/>

Match your natural pasture supply with your livestock demand to increase your productivity and efficiency. This will help you:

- Balance feed supply and demand of your flock throughout the year.
- Understand the impact of changing time of lambing on annual feed demand.
- Identify feed gaps and how modifying your stocking rate may help close these gaps.

Livestock Biosecurity Network

<http://www.lbn.org.au/>

Biosecurity is a risk to your business that requires careful management. Climate changes may impact upon the location diseases are found in the future, the lifecycles of pest and diseases and our ability to prevent their introduction to our properties.

The site has a large amount of information on current pests and diseases facing livestock industries including tools to help plan for better managing the risks.

In the event of an disease outbreak, emergency management protocols are implemented at government and agency level which is outlined in the Municipal Emergency Management Plan

South Gippsland - <http://www.southgippsland.vic.gov.au/emergency-management>

Bass Coast - http://www.basscoast.vic.gov.au/Services/Emergency_Management

DAIRY FARMING

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Cool Cows

<http://www.coolcows.com.au/index.htm>

Shifting weather patterns and a trend towards higher temperatures means heat stress and its impact on cow performance, health and welfare is becoming a serious issue for Australian dairy farmers. Dairy Australia is helping farmers adapt to this changing operating environment through the Cool Cows program, which offers dairy farmers and their advisers information and tools to help stay ahead of heat stress.

Dairying for Tomorrow

<http://www.dairyingfortomorrow.com/index.php?id=17>

A practical natural resource management (NRM) program to secure the future of Australia's dairy farms.

Dairying for Tomorrow supports dairy farmers and the industry reduce their environmental footprint by enabling activities such as reduced on-farm fertiliser loss, improved effluent systems, retaining native bush and the fencing of waterways.

Livestock Biosecurity Network

<http://www.lbn.org.au/>

Biosecurity is a risk to your business that requires careful management. Climate changes may impact upon the location diseases are found in the future, the lifecycles of pest and diseases and our ability to prevent their introduction to our properties.

The site has a large amount of information on current pests and diseases facing livestock industries including tools to help plan for better managing the risks.

In the event of an disease outbreak, emergency management protocols are implemented at government and agency level which is outlined in the Municipal Emergency Management Plan

South Gippsland - <http://www.southgippsland.vic.gov.au/emergency-management>

Bass Coast - http://www.basscoast.vic.gov.au/Services/Emergency_Management

Betting the Farm radio article and video

Scientists concerned that climate change is biting harder and faster than models predicted are campaigning for a bigger research investment to protect Australia's \$58 billion agriculture industry from extreme weather. Great story that gives an important insight into how extremes of climate are already impacting farming businesses. [Read more](#)

Among the various interviews with farmers in South East Australia, Gippsland's Gillian Hayman discusses the changes dairy farmers are making to adapt to climate change and manage risk.

Gillian and Dairy Australia also feature in a short [video](#) outlining changes action that dairy farmers have been making in the areas of mitigation and adaptation.

DIVERSIFICATION

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Why Do Farming Families Diversify? Who are most likely, what are their reasons and what are the results?

Diversification is a system that can not only build economic resilience for farming families but if carefully considered and built around robust climate scenarios, it can also provide an opportunity to be climate resilient. This paper endeavours to 'understand why farming families diversify their on-farm activities and what the outcomes of those diversifications are'.

<https://rirdc.infoservices.com.au/items/07-156>

Direct to Market Tool – Open Food Network

“Changing the food system takes partnership and trust. It takes logistics, resources, and software”.

The Open Food Network is a non-profit, open source web based service that aims to “partner the food movement in your part of the world”. It is a great resource to be able to market your products and learn from others as to how to develop new markets for your agribusiness online.

<http://openfoodnetwork.org/>

Solving gassy burps with seaweed!

Most cow methane comes from burps (90%) rather than farts (10%). Livestock produce the equivalent of 5% of human-generated greenhouse gases each year, or five times Australia's total emissions. Seaweed could be the answer with a Queensland species of seaweed, recently identified as being able to [reduce ruminant methane production by 99%](#).

Could this be an opportunity for new local aquaculture to support our local dairy and beef industry? It may depend on how effective local seaweed species are but could be worth investigation. Who knows, it could be a big earner in the future if we are to reduce emissions or pay a price for it – Here's link from Fiji as a starter on how to farm seaweed for all those brave entrepreneurs out there -

<http://www.fao.org/docrep/field/003/ac287e/ac287e03.htm>

GENERAL ADVICE

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Business Planning

Whoever said “If you don’t plan to succeed, you plan to fail” may have seemed simplistic, however planning along with doing certainly moves you in the right direction towards prosperity and your ideal “success”. While agri-business certainly has circumstances fairly unique to the industry, like all other businesses they have inputs and outputs which correspond to a dollar value, expenditure for inputs and income for their outputs. These are subject to variations in availability of inputs, as in water from rainfall, and quality of or demand for outputs, as in volume of crops grown and the market price.

It is the changing and increasingly variable climatic conditions we are experiencing that is and will continue to challenge agribusiness so profoundly when planning ahead for their business.

The Victorian State Government provides support for business planning through their Business website or contact your Business Support Officer at your local Council. Other industry bodies may also provide support in this area.

If you don’t have a comprehensive business plan with includes planning for various scenarios, e.g. for low rainfall over an extended period, that is adaptable, then perhaps this resource is for you.

<http://www.business.vic.gov.au/>

Business Plan Templates - <http://www.business.vic.gov.au/setting-up-a-business/how-to-start-a-business/write-a-business-plan>

Farm Business and Financial Planning Workshop notes – 2 September 2016



Farm Business and
Financial Planning Wo

The Economic Benefits of Native Shelter Belts Report

The protection of existing native vegetation and the planting of shelterbelts may provide a multitude of productivity and biodiversity benefits for farming industries. The value of shelterbelts in raising agricultural productivity has been demonstrated in many countries suggesting potential improvements in crop yields (25%), pasture yields (20-30%), and dairy milk production (10-20%).

[Read more.. -](#)

[http://www.southgippsland.vic.gov.au/Files/Sustainability/The Economic Benefits of Native Shelter Belts.PDF](http://www.southgippsland.vic.gov.au/Files/Sustainability/The_Economic_Benefits_of_Native_Shelter_Belts.PDF)

Climate Change Impacts On Pest Animals and Weeds

Producers are likely to have time to adapt their pest animal and weed management strategies to climate change.

- Pests will generally extend southwards and to higher altitudes as a result of warming trends.
- Increased pest surveillance is crucial to prevention and management.
- With greater climatic variation, strategic pest management will become more important.

[Read more.. -](#)

<http://www.southgippsland.vic.gov.au/Files/Sustainability/Climate-change-weeds-and-pests.PDF>

Life Cycle Assessments: A useful tool for Australian agriculture

<http://ausveg.com.au/enviroveg/RIRDC-CCRSPI-LCA-Brochure.pdf>

Climate change poses specific challenges for Australia's primary industries, with mounting public concern and media scrutiny about the way food is grown and distributed through markets. As well, there is increasing domestic and international legal and regulatory pressures to reduce greenhouse gas (GHG) emissions.

All primary industries use energy and water resources throughout their supply chains for purchased inputs, production, processing, refrigeration, transport and retail. Life Cycle Assessment (LCA) is a technique that enables industries to identify the resource flows (inputs such as energy and water) and environmental impacts (such as GHG emissions) associated with the provision of products and services. It is a tool that is being increasingly used by agricultural enterprises for evaluating the environmental impacts associated with a product, process or activity over its entire life cycle, from cradle to grave.

Weather to pasture outlook tool

<http://rainfall.mla.com.au/Station/AllLocations>

Your Resource Efficient Farm Workbook

Climate changes are likely to place greater financial pressure on your business, so every way you can find to reduce costs will be helpful. This is a great resource for your business from Cultivate Agribusiness.

<http://www.cultivate.org.au/projects/efficientag>

Mental Health – your best asset in difficult times

Good business decisions need a cool head and a sharp mind. Feelings of anxiety, stress, and depression are a very natural human reaction when business is hard. Unfortunately they also cloud the mind making it hard to make clear business decisions. Quite often we need help to ease these feelings.

If you find you are experiencing any of these feelings, it is **perfectly okay** to make an appointment with your GP to discuss some management strategies and be connected to the ongoing support that is right for you. Other options include having a chat to a friend or contacting Lifeline:

Phone **13 11 14**

Online Chat: [Crisis Support Chat](#)

If life is in danger call **000**

Lifeline has specific information for **Rural Mental Health** at <https://www.lifeline.org.au/Get-Help/Facts---Information/Rural-mental-health>

Rural Family Assistance – Australian Government

The Australian Government provides some resources for Rural Families affected by drought which may be relevant for your circumstance.

[Assistance Measures](#), or by telephoning the Farmer Assistance line on **13 23 16** from 8 am to 8 pm, Monday to Friday.

GENERAL GRAZING

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Effect of warming on the productivity of perennial ryegrass and kikuyu pastures in south-eastern Australia

<http://www.publish.csiro.au/?paper=CP12358>

Abstract : Grazed pastures in south-eastern Australia are typically based on temperate (C3) species, such as perennial ryegrass (*Lolium perenne*). With predictions of warming to occur in this region, there has been growing interest in the performance of more heat-tolerant and deep-rooted subtropical (C4) pasture grasses, such as kikuyu (*Pennisetum clandestinum*). This study used an existing pasture model to estimate the production of kikuyu compared with the commonly used perennial ryegrass at seven sites in south-eastern Australia,

Livestock Biosecurity Network

<http://www.lbn.org.au/>

Biosecurity is a risk to your business that requires careful management. Climate changes may impact upon the location diseases are found in the future, the lifecycles of pest and diseases and our ability to prevent their introduction to our properties.

The site has a large amount of information on current pests and diseases facing livestock industries including tools to help plan for better managing the risks.

In the event of an disease outbreak, emergency management protocols are implemented at government and agency level which is outlined in the Municipal Emergency Management Plan

South Gippsland - <http://www.southgippsland.vic.gov.au/emergency-management>

Bass Coast - http://www.basscoast.vic.gov.au/Services/Emergency_Management

HORTICULTURE & VITICULTURE

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Vegnotes 39 (2013)

<http://ausveg.com.au/publications/Vegenotes/Vegenotes39.pdf>

Understanding and managing impacts of climate change and variability on vegetable industry productivity and profits.

Project VG12041 assessed the likely impacts of climate change and increased climatic variability on the productivity and profitability of the Australian vegetable industry. It aimed to identify measures that could be undertaken to minimise adverse impacts and take advantage of opportunities.

Vegetable Industry Development Program Fact Sheet - Climate Change: Managing Variability and Carbon

http://www.vgavic.org.au/pdf/VIDP_Climate-Carbon.pdf

The fact sheet introduces the causes of climate change and discusses the contribution of horticulture. Possible industry impacts, future adaptations and an instructive case study are also presented.

Learning from the Millennium Drought – Ricca Terra Farms (Viticulture)

In 2003 Ricca Terra had a vision, “to identify and nurture grape varieties that suited a Mediterranean climate” and they endeavoured to learn from the Millennium Drought for future prosperity and sustainability. Here is a link to their story.

<http://riccaterrafarms.com.au/news/learning-from-the-millennium-drought/>

SHEEP FARMING

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Feed Demand Calculator

<http://tools.mla.com.au/fdc/>

Match your natural pasture supply with your livestock demand to increase your productivity and efficiency. This will help you:

- Balance feed supply and demand of your flock throughout the year.
- Understand the impact of changing time of lambing on annual feed demand.
- Identify feed gaps and how modifying your stocking rate may help close these gaps.

Livestock Biosecurity Network

<http://www.lbn.org.au/>

Biosecurity is a risk to your business that requires careful management. Climate changes may impact upon the location diseases are found in the future, the lifecycles of pest and diseases and our ability to prevent their introduction to our properties.

The site has a large amount of information on current pests and diseases facing livestock industries including tools to help plan for better managing the risks.

In the event of an disease outbreak, emergency management protocols are implemented at government and agency level which is outlined in the Municipal Emergency Management Plan

South Gippsland - <http://www.southgippsland.vic.gov.au/emergency-management>

Bass Coast - http://www.basscoast.vic.gov.au/Services/Emergency_Management

SOCIAL ACTION

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

Agricultural Climate Resilience Project

Social media better enables the dissemination of information to interested individuals, sometimes known as “Followers”, in real time, without the need to wait for a newsletter to be prepared. Adaptation is

We invite you to keep informed of the project’s activities at the following public social media sites

Sustainability Gippsland

<http://sustainabilitygippsland.com/group/agricultural-climate-adaptation-project-southern-gippsland>

Twitter www.twitter.com/@agclimateadapt

Facebook <https://www.facebook.com/agclimateadapt>

Participate Sustainability Victoria – Climate Change Conversations

The Victorian Government has developed a site for Climate Change Conversations including a couple of video case studies featuring local food producers, Gillian Hayman from Gipps Dairy, and Gil & Meredith Freeman from Grow Lightly Connect Ltd. This is a way in which your voice can be heard at the State Government level.

<http://participate.sustainability.vic.gov.au/climatechangeconversations>

Take 2 – Pledge for climate action

The Victorian Government needs our help to reach net zero emissions by 2050, and keep the global temperature rise to under 2 degrees. They are calling for all Victorians to pledge and sign up to be part of Victoria’s action on climate change.

Anyone can take up the challenge, even the [Birchip Cropping Group is getting involved](#), so don’t restrict yourself, maybe your business can join up too! [Sign up today!](#)

SOIL HEALTH

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200.

A free online course - 'Getting to Know Your Soil'

Do you actually know what's in your soil? This free introductory course called 'Getting to Know Your Soil' is rich with information. You'll learn about the best way to grow sustainably. Presented by Dr Elaine Ingham.

<http://soilfoodwebcourse.com>

Soils are alive

This site provides background information relevant to soil health and the sustainable use of land for agriculture, horticulture and other practices, including forestry. The information emphasises the biological processes in soil.

<http://www.soilhealth.see.uwa.edu.au/index>

Victorian Resources Online

Access key information on soils and how to assess them from the Victorian State Government - http://vro.depi.vic.gov.au/dpi/vro/vrosite.nsf/pages/soil_health_tools_1

Graham Shepherd's Drought Resistance Scorecard and the Rating Scales

<http://sustainabilitygippsland.com/uploads/00729bbfb1c0fdf14860b307d338f4ed.docx>

Graham Shepherd's Visual Soil Assessment webpage

<http://www.bioagrinomics.com/visual-soil-assessment/how-it-works.html>

Article: The Conversation - Eyes down: how setting our sights on soil could help save the climate, December 1, 2015 10.26pm AEDT

“The world’s soils could be a key ally in the fight to limit global warming to 2 degrees Celsius, thanks to their ability to store carbon and keep greenhouse gases out of the atmosphere.”

<https://theconversation.com/eyes-down-how-setting-our-sights-on-soil-could-help-save-the-climate-51514>

Article references a published paper, Global Soil Organic Carbon Assessment, which can be found at <http://www.dr-achbani.com/wp-content/uploads/2015/10/Global-soil-organic-carbon-assessmen.pdf> . Within this article is a reference to carbon mapping in Australia, titled, Baseline map of organic carbon in Australian soil to support national carbon accounting and monitoring under climate change which can be found at <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12569/abstract>

Dairy Australia – Understanding purchased compost products

Compost can increase the water retention capacity and structure of your soil but are not all created equally, particularly when it comes to nutrients.

“In summary, test your soils, understand your nutrient needs and consider what is the right product for your situation, consider at what rate it should be applied and time it right to minimise losses to the environment”



Dairy_Compost
Flyer_FINAL_0215_w

WATER

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200

Estimating Dairy Farm Water Requirements and Storages – Agriculture Victoria & Gipps Dairy

“Estimating stock water needs and understanding what is currently in storage is fundamental to planning” for dry seasonal conditions. Under changing climatic conditions, it is important to consider your water needs under different rainfall scenarios. Look back to the rainfall conditions of the last dry period, what water would you have needed to get through that time at your current stocking rate. It may also be useful to look at different stocking rate scenarios also.

<http://www.gippsdairy.com.au/LinkClick.aspx?fileticket=PQahehBSFZA%3d&tabid=540>

This tool and others on Gipps Dairy Seasonal Conditions site can be helpful for all farming based businesses.

<http://www.gippsdairy.com.au/SeasonalConditions/Water.aspx>

Online Farm Water Calculator - Agriculture Victoria

Utilise this online farm water calculator to determine the amount of water you will need and can store on farm.

Be sure to consider changing some of the expected rainfall variables to see if you are prepared to ride out another dry period and work towards predicting the point at which throughout the year you may need to consider taking early action to avoid water shortages and maintain financially viable level of production.

<http://agriculture.vic.gov.au/agriculture/farm-management/soil-and-water/water/farm-water-solutions/farm-water-calculator>

Stock water - a limited resource – NSW DPI

While some information in this document is specific to NSW, most of it is relevant for all farming businesses and considers water quality as a consideration as part of your farm water assessment / audit. This may be particularly relevant if you utilise ground

water.

<http://www.dpi.nsw.gov.au/agriculture/emergency/drought/planning-archive/strategies/audit/stockwater-limited-resource>

WEATHER / CLIMATE PROJECTIONS

If you have any information that would be useful to add to this listing, please contact Jill Vella

EMAIL jill.vella@southgippsland.vic.gov.au

PHONE 03 5662 9200

Climate Tools for Decision Makers

CliMate is designed for decision makers whose business relies on the weather.

CliMate allows you to interrogate climate records to ask questions relating to rainfall, temperature, radiation, and derived variables such as heat sums, soil water and soil nitrate, and well as El Nino Southern Oscillation status.

It is a suite of climate analysis tools delivered on the Web, iPhone, iPad and iPod Touch devices.

<http://www.australianclimate.net.au/>

The Climate Dogs

Here is the link to the DEPI website with the climate dog animations

<http://www.depi.vic.gov.au/agriculture-and-food/farm-management/weather-and-climate/understanding-weather-and-climate/the-climatedogs-the-four-drivers-that-influence-victoriaas-climate>

Climate Change in Australia

Projections for Australia's NRM regions.

<http://www.climatechangeinaustralia.gov.au/en/>

Video – Explaining interaction of climate and terrestrial systems

Earth from Space gives a fascinating insight into how the earth's climate and ocean systems interact and what this means in a world with increasing temperatures

<https://youtu.be/OSRgKKoLLiQ>