

FEAT Regional Scenarios

Major Parameter Information Sheet

2015

This publication has been compiled by Alison Collier and Eamon Holligan of Regional Services (North), Department of Agriculture and Fisheries.

© State of Queensland, 2016

The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 3.0 Australia (CC BY) licence.

Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.



You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

Note: Some content in this publication may have different licence terms as indicated.

For more information on this licence, visit <http://creativecommons.org/licenses/by/3.0/au/deed.en>

The information contained herein is subject to change without notice. The Queensland Government shall not be liable for technical or other errors or omissions contained herein. The reader/user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using this information.

Table of contents

1	Introduction	2
2	Major Parameters	3
2.1	Regional Assumptions.....	3
2.1.1	Climate and Soil Characteristics	3
2.1.2	Farming System Characteristics	3
2.2	Cane Assumptions and Summary.....	5
2.2.1	Sugar & Molasses Prices (\$)	5
2.2.2	Harvest Cost (\$/tonne).....	5
2.2.3	Levies/Penalties (\$/tonne)	5
2.2.4	Yield and CCS.....	6
2.3	Machinery.....	6
2.3.1	Fuel Cost (\$/litre).....	6
2.3.2	Percentage of Full Load, Speed and Field Efficiency	6
2.3.3	Repairs and Maintenance - Tractors (\$/hr).....	6
2.3.4	Repairs and Maintenance – Implements (\$/hr).....	6
2.3.5	Out of Field Tractor Hours	6
2.4	Plant, Ratoons and Soy.....	6
2.4.1	Billets.....	6
2.4.2	Chemical Input Costs	6
2.4.3	Irrigation	7
2.5	Fixed Costs.....	7
2.5.1	Land Rates.....	7
2.5.2	Business Insurance.....	7
2.5.3	Business Electricity; Licenses & Fees; Land Maintenance	7
2.5.4	Accountancy and Legal; Bank Charges, Telephone and Stationary; R&M Buildings; R&M Motor Vehicle, Registration, Fuel; Training	7
2.5.5	Labour	7
2.5.6	Water.....	7
2.5.7	Electricity (Irrigation)	7

1 Introduction

Regional Farm Economic Analysis Tool (FEAT) files are provided as a tool to assist growers in their use and understanding of FEAT and generalised sugarcane economics. The FEAT scenarios were developed in consultation with growers and industry advisors from each region, and are current for the year 2015. The operations, input costs and yields used in these scenarios reflect broad regional trends and are not reflective of any individual situation. The regional files are provided solely as a means of demonstrating the functionality of FEAT. This information sheet outlines the method of estimation for each of the major parameters. All prices are exclusive of GST.

2 Major Parameters

2.1 Regional Assumptions

2.1.1 Climate and Soil Characteristics

The following tables provides details of the key climate and soil characteristics used to develop the representative farms.

Table 1: Key climate and soil characteristics by region

Burdekin (Delta)	
Location	Area of around 38,000 hectares surrounding Ayr and Home Hill and falling within the Lower Burdekin Water jurisdiction.
Soil	Light to medium soils.
Climate	Tropical climate with generally hot, humid summers and milder drier winters. Most rainfall occurs between January and March. Average annual rainfall around 1070mm.
Burdekin (BHWSS)	
Location	Area of around 35,000 hectares surrounding Clare, Millaroo and Dalbeg on the lower Burdekin flood plain.
Soil	Heavy soils.
Climate	Tropical climate with generally hot and humid summers and milder drier winters. Most rainfall occurs between January and March. Average annual rainfall around 1070mm.
Tully	
Location	Area of around 22,000 hectares extending from the Kennedy Valley in the south to Feluga in the north.
Soil	Flood Plain: heavy alluvial, slopes, light soils.
Climate	Tropical climate, significant rainfall in most months of the year. Short dry season. Average annual rainfall around 2850mm.
Mackay	
Location	Area of around 80,000 hectares surrounding Mackay.
Soil	Volcanic clay soils; sandy/clay duplex; heavy cracking clays.
Climate	Humid subtropical climate. Highly variable. Sunny dry winter and hot humid summer. Most rainfall occurs between January and March. Average annual rainfall around 1500mm.
Herbert	
Location	Area of around 76,000 hectares surrounding Ingham.
Soil	Terrace silty loam: acidic soils, low in organic matter.
Climate	Tropical climate, with a humid wet season from November to April, and an average annual rainfall of around 2000mm.

2.1.2 Farming System Characteristics

Table 2 describes the key characteristics of the various farm management systems used to develop the regional scenarios. Where appropriate, the same farming principles were applied across all regions to ensure that profitability between regions is comparable. For example, farms in all regions

are assumed to operate under controlled traffic and grow a legume break crop in the fallow. Farming characteristics involving irrigation management, green or burnt cane harvest, and the number of ratoons, however, were selected according to standard industry practice within each region. A standard farm size of 150 hectares was selected to enable a comparative assessment between regions. Note that, the actual average farm size in each region may differ from 150 hectares.

Table 2: Characteristics of the sugarcane farming systems

Field	Characteristics
Irrigation Management	Furrow irrigation (BHWSS and Burdekin Delta). Applied as overhead water (traveller and pivot) (Mackay).
Soil Management	Controlled traffic with pre-formed beds. Reduced tillage and zonal tillage of block prior to planting. Zero tillage in ratoons. Legume cover crop in fallow.
Nutrient Management	Six Easy Steps nutrient management and soil testing each cycle. Subsurface nutrient application. Soil ameliorant applied in soy fallow.
Pest Management	Integrated pest management.
Harvesting	Cane is burnt prior to harvest (BHWSS and Burdekin Delta).
General	Tractor fleet consists of: one 103-kW tractor, one 75-kW tractor and one 47-kW tractor. 150 hectare farm size. Contract planting (cane). Contract harvesting. Laser levelling each cycle. Plant crop and three ratoons (BHWSS and Burdekin Delta). Plant crop and four ratoons (Tully, Mackay and Herbert). Legume break crop grown between sugarcane cycles.

2.2 Cane Assumptions and Summary

2.2.1 Sugar & Molasses Prices (\$)

The sugar price is set at the five-year Queensland average price of sugar between 2010 and 2014 (\$430). The molasses price is the five-year average of the annual prices reported by Mackay Sugar between 2010 and 2014 (\$102.46).

2.2.2 Harvest Cost (\$/tonne)

Determined by region based on local advice

Table 3: Harvest cost by region

Region	(\$/tonne)
Burdekin (Delta)	\$7.20
Burdekin (BHWSS)	\$7.20
Tully	\$8.50
Mackay	\$8.50
Herbert	\$8.50

2.2.3 Levies/Penalties (\$/tonne)

Levies/penalties are sourced from relevant industry bodies and are correct for 2015. In the Burdekin Delta and BHWSS regions levies include the Burnt Cane Levy. The cost of levies will vary depending on the membership in various organisations.

Table 4: Levies and penalties by region

	Region				
	Burdekin (Delta)	Burdekin (BHWSS)	Tully	Mackay	Herbert
Levies/Penalties	\$0.81	\$0.90	\$0.65	\$0.96	\$0.85

2.2.4 Yield and CCS

Set at the average annual yield (tonnes per ha) and CCS by region according to available historical data (see table below). In the case of Mackay, the average yield of a property with access to irrigation was estimated based on the assumption that 2ML of irrigation will boost yield by 16 tonnes per hectare compared with no irrigation (due to limited access to data).

Table 5: Yield and CCS data ranges by region

Region	Historical Data Range
Burdekin (BHWSS)	2005-2014
Burdekin (Delta)	2005-2014
Tully	2006 - 2014 (excluding 2011)
Mackay	2005, 2007-2009, 2012-2014
Herbert	2005-2014 (excluding 2011)

2.3 Machinery

2.3.1 Fuel Cost (\$/litre)

Estimated at \$1 per litre, after diesel fuel rebate and the removal of GST.

2.3.2 Percentage of Full Load, Speed and Field Efficiency

Estimated based on local advice, influenced by type of operation (i.e. tilling, spraying, planting etc) and soil type. Field efficiency is influenced by; time taken to perform adjustments to machinery, time to add seed/fertiliser, minor breakdowns, turning at row ends and other non productive delays.

2.3.3 Repairs and Maintenance - Tractors (\$/hr)

Based on the sum of the major tractor repair and maintenance components (i.e. maintenance including oil and filters, tyres, batteries and repairs) expressed in \$ per hour.

2.3.4 Repairs and Maintenance – Implements (\$/hr)

Total lifetime repairs and maintenance is estimated at 25 per cent of the implement price when new. Cost per hour is a function of the implements productive life.

2.3.5 Out of Field Tractor Hours

Equal to 10 per cent of total tractor plus implement hours.

2.4 Plant, Ratoons and Soy

2.4.1 Billets

The price of billets used for planting is equivalent to the on farm price of cane.

2.4.2 Chemical Input Costs

Fertiliser, herbicide and pesticides prices were sourced from local suppliers during the year 2015.

2.4.3 Irrigation

Water rates are sourced from local water providers and are correct for 2015. Irrigation volumes are estimated in each region for plant, ratoons and legumes based on local advice.

Table 6: Water rates by region

Region	ML/ha	
	Average Cane	Legume
Burdekin (BHWSS)	12	4
Burdekin (Delta)	16	5
Tully	0	0
Mackay	2	0
Herbert	0	0

Electricity for irrigation is applied under Tariff 65 (peak and off-peak). Electricity tariffs are sourced from Ergon Energy and are correct for 2015.

2.5 Fixed Costs

2.5.1 Land Rates

Based on the median unimproved value of cane land per hectare and the relevant council rate for each region.

2.5.2 Business Insurance

Based on regional averages as determined by past research and applied to each region as a percentage of income.

2.5.3 Business Electricity; Licenses & Fees; Land Maintenance

Based on an average figure as determined by past research and applied on a per hectare basis.

2.5.4 Accountancy and Legal; Bank Charges, Telephone and Stationary; R&M Buildings; R&M Motor Vehicle, Registration, Fuel; Training

Based on regional averages as determined by past research and applied at a standard rate to all regions as a percentage of income.

2.5.5 Labour

Data on farm labour requirements is from local knowledge and advice. Labour is priced at \$35 per hour.

2.5.6 Water

Water tariffs for irrigation are sourced from the supplier based on the appropriate water scheme. Water tariffs are correct for 2015.

2.5.7 Electricity (Irrigation)

A daily supply charge for electricity (irrigation) is applied based on tariffs sourced from Ergon energy and correct for 2015.