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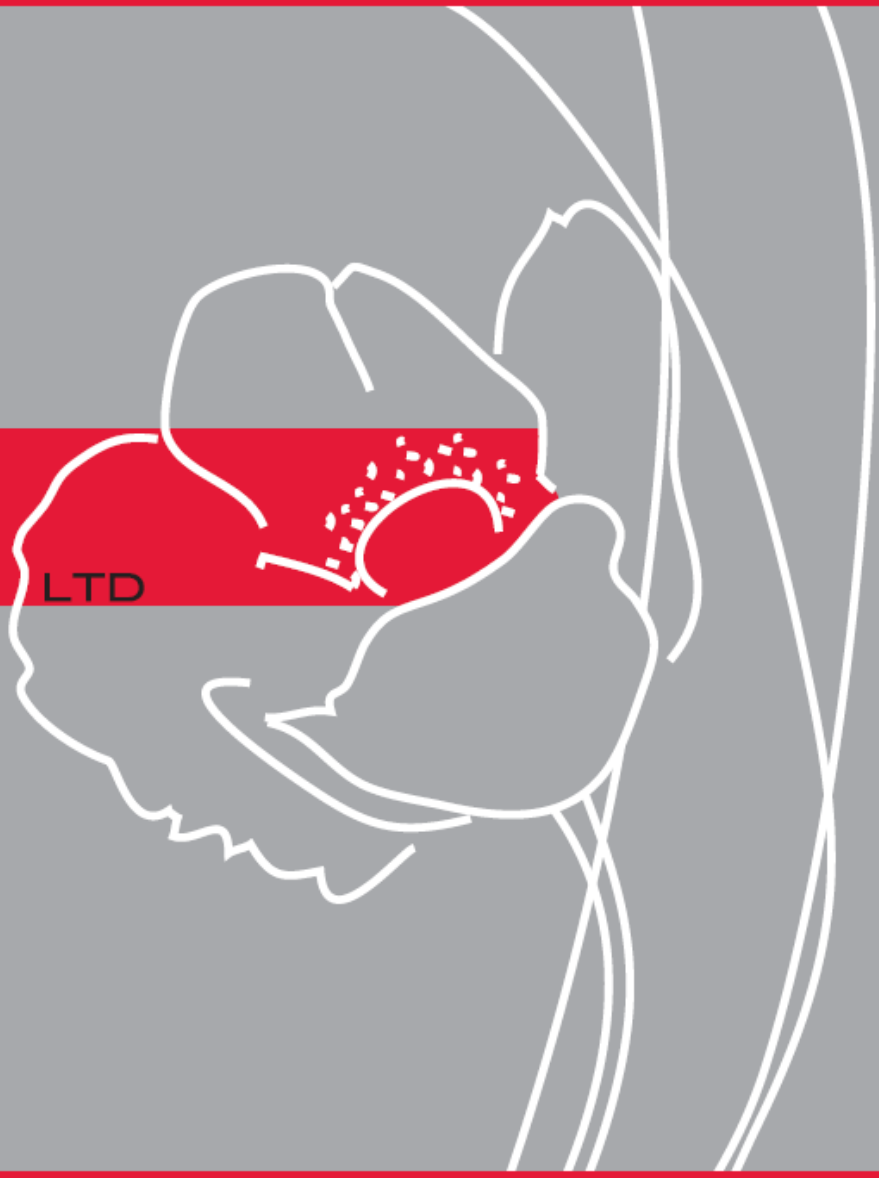
TPI ENTERPRISES LTD

Northern Australia

Food Futures Conference

Niche Session

5 November 2014



Industry overview

Unique pharmaceutical industry with agricultural product being the key input

Narcotics

- *Natural narcotics*
- *Synthetic and semi-synthetic narcotic derivatives*

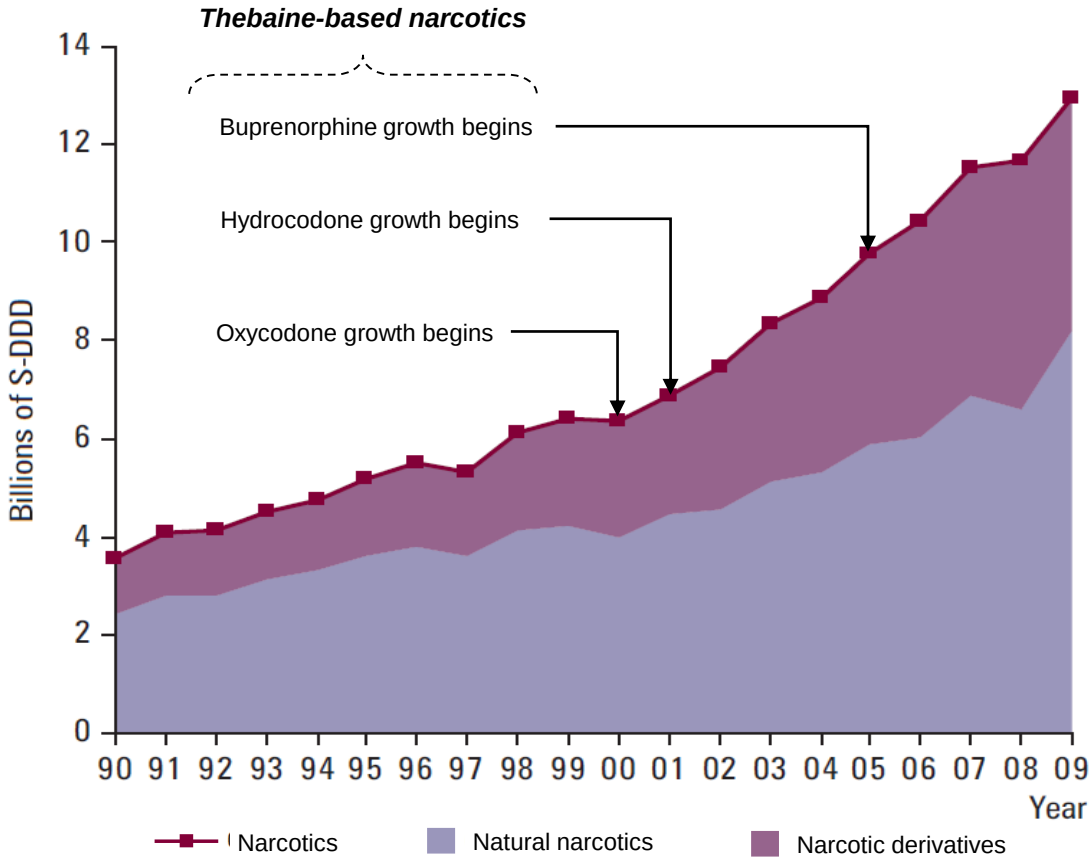
Agricultural Production	Narcotic Raw Material (NRM)	Active Pharmaceutical Ingredient (API)	Final Dosage Formulations (FDF
			
Morphine Codeine	Morphine Sulphate Codeine Phosphate	MS Contin Panadeine Panadeine Forte	
Thebaine	Oxycodone HCl Hydrocodone Buprenorphine	Oxycontin Vicadin Endone Tylenol	
Oripavine	Naloxone Naltrexone Buprenorphine HCl	Suboxone Subutex Narcan Revia Contrave*	

Demand for narcotics

Growth underpinned by traditional use and new products

- Demand for narcotics has exhibited steady annual growth in the 20-year period to 2009
  - Defined Daily Doses (DDD) increased more than 3.5 times
- Key drivers include:
  - ***Ageing populations and the increasing incidence and severity of chronic disease***
  - ***New product approvals and alternate narcotic applications (non-pain management)***
  - ***Significant global shortage of morphine and emerging pain management markets in developing countries***
  - ***Retreat from non-narcotic pain management alternatives to more traditional narcotics***
- Consumption of narcotic derivatives has quadrupled over the same period
  - Partly driven by thebaine-derivative narcotics including oxycodone, hydrocodone and buprenorphine
- Generally, global stocks of narcotics are targeted to reflect one full year of supply

Global consumption of narcotics in billions of Defined Daily Doses for Statistical purposes (S-DDD)



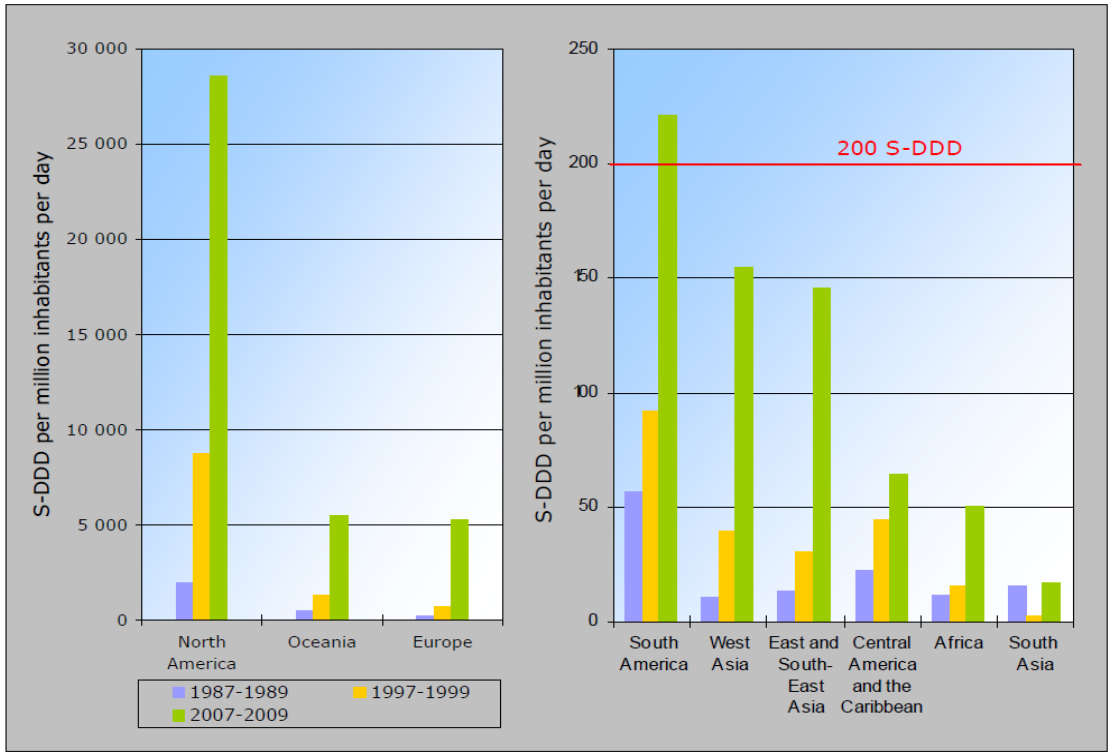
Source: INCB Narcotic Drugs Report 2010

Ongoing growth – pain management

Global shortages and developing markets driving growing demand

- Pain management remains a key growth driver for narcotics
- Historically, almost all regions have experienced exponential growth in the Defined Daily Dose (per million inhabitants) of narcotics since 1987
- The World Health Organisation (WHO) has identified morphine as an essential medicine in the treatment of severe pain
  - advocates that freedom from pain should be regarded as a human rights issue
- Both WHO and INCB have drawn attention to a critical shortage of essential narcotic drugs
  - Six countries account for c.79% of global morphine consumption
  - Developing countries, which represent c.80% of the global population, account for only 6% of morphine consumption
  - WHO estimates 10 million cancer cases per year will occur in developing countries by 2015
- In 2005, WHO and INCB adopted a resolution to work with relevant member states of the World Health Assembly to ensure medical availability of narcotic drugs for the treatment of severe pain

All regions: Average consumption of narcotic analgesics (87-89, 97-99, 07-09)

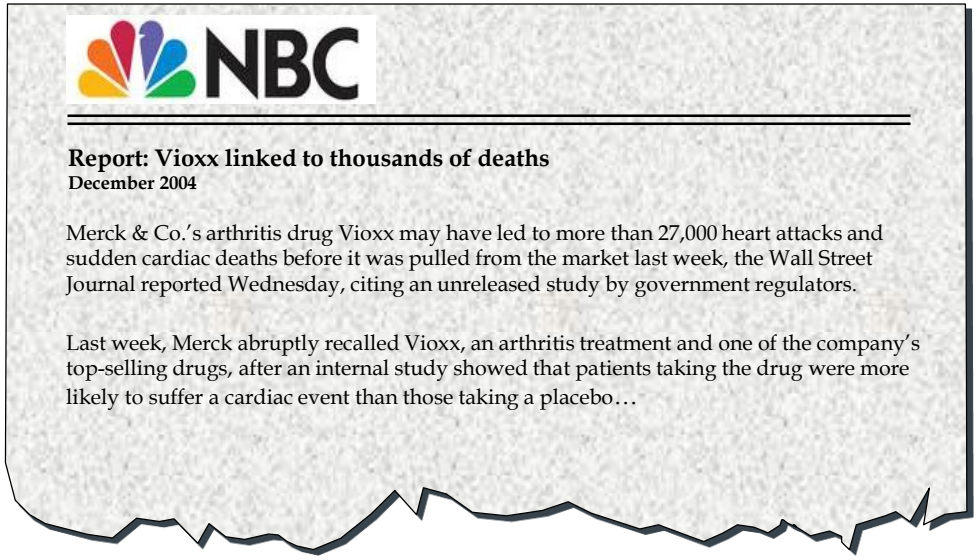


Source: INCB Report on the Availability of Internationally Controlled Drugs 2010

Ongoing growth – pain management

Retreat from non-narcotic pain management alternatives

- Demand for traditional narcotic pain management drugs is also being supported by a retreat from certain pain management drug alternatives
- A number of non-narcotic pain management drugs have been banned by the US Food and Drug Administration (FDA) for side effects associated with use
- Long-term use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) has been associated with gastric erosion
  - Common NSAIDs include aspirin, ibuprofen and naproxen
- Rofecoxib, an arthritis NSAID was withdrawn from market in 2004
  - Increased risk of heart attack and stroke
  - 80 million users globally when withdrawn
  - Marketed under brand names Vioxx and Ceoxx
- Dextropropoxyphene, a consumer drug used to treat mild pain was removed from European and US markets in 2009
  - Concerns of fatal doses and arrythmias
  - 10 million users globally when withdrawn
  - Marketed under brand names Capadex, Di-Gesic and Lentogesic
  - Codeine the most obvious substitute



NBC

Report: Vioxx linked to thousands of deaths
December 2004

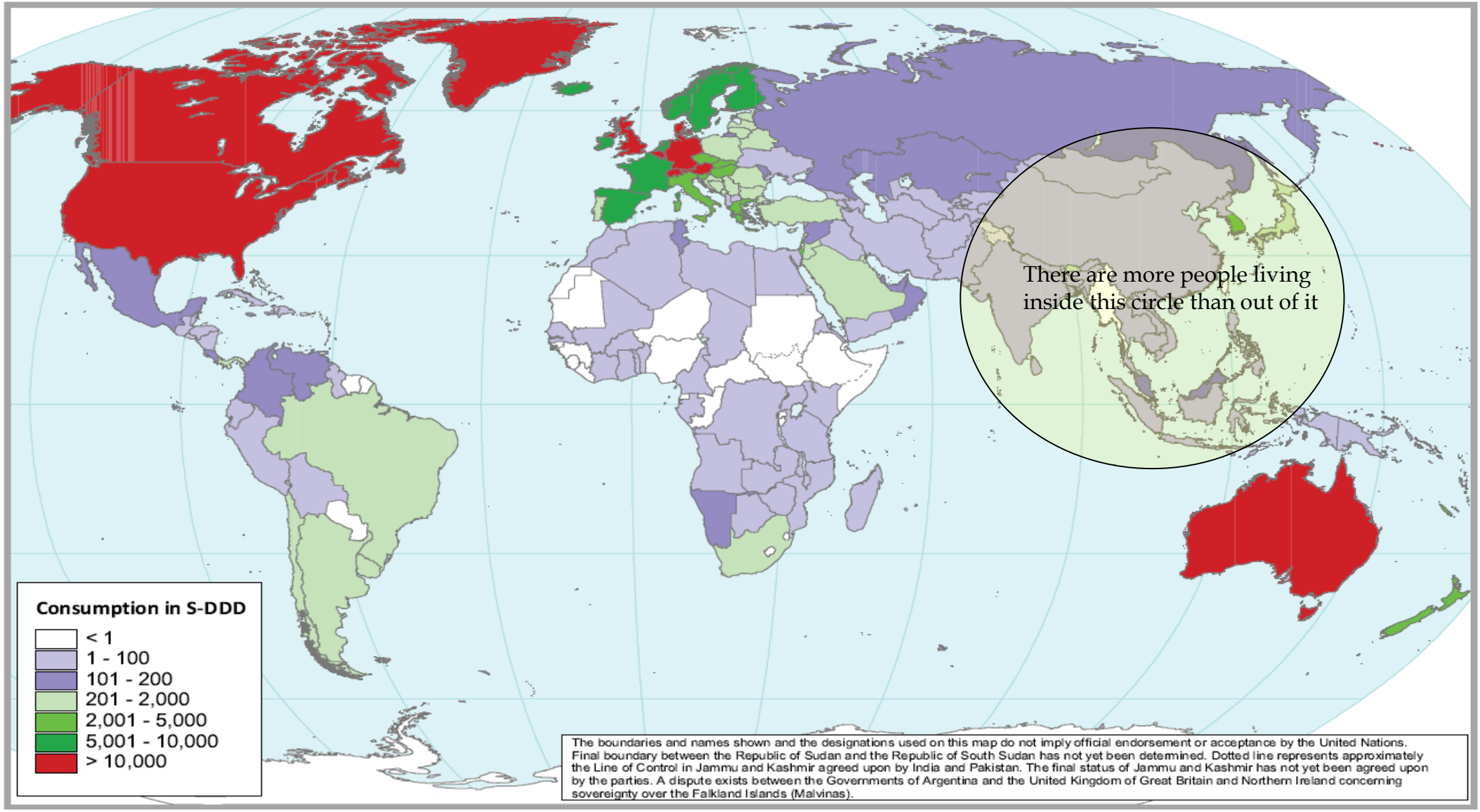
Merck & Co.'s arthritis drug Vioxx may have led to more than 27,000 heart attacks and sudden cardiac deaths before it was pulled from the market last week, the Wall Street Journal reported Wednesday, citing an unreleased study by government regulators.

Last week, Merck abruptly recalled Vioxx, an arthritis treatment and one of the company's top-selling drugs, after an internal study showed that patients taking the drug were more likely to suffer a cardiac event than those taking a placebo…

Source: National Broadcasting Commission, 2004

Global discrepancy in availability

Global shortages and developing markets driving growing demand



*Codeine, dextropropoxyphene, dihydrocodeine, fentanyl, hydromorphone, ketobemidone, morphine, oxycodone, pethidine, tilidine and trimeperidine.

Source: INCB Report on the Availability of Internationally Controlled Drugs 2014

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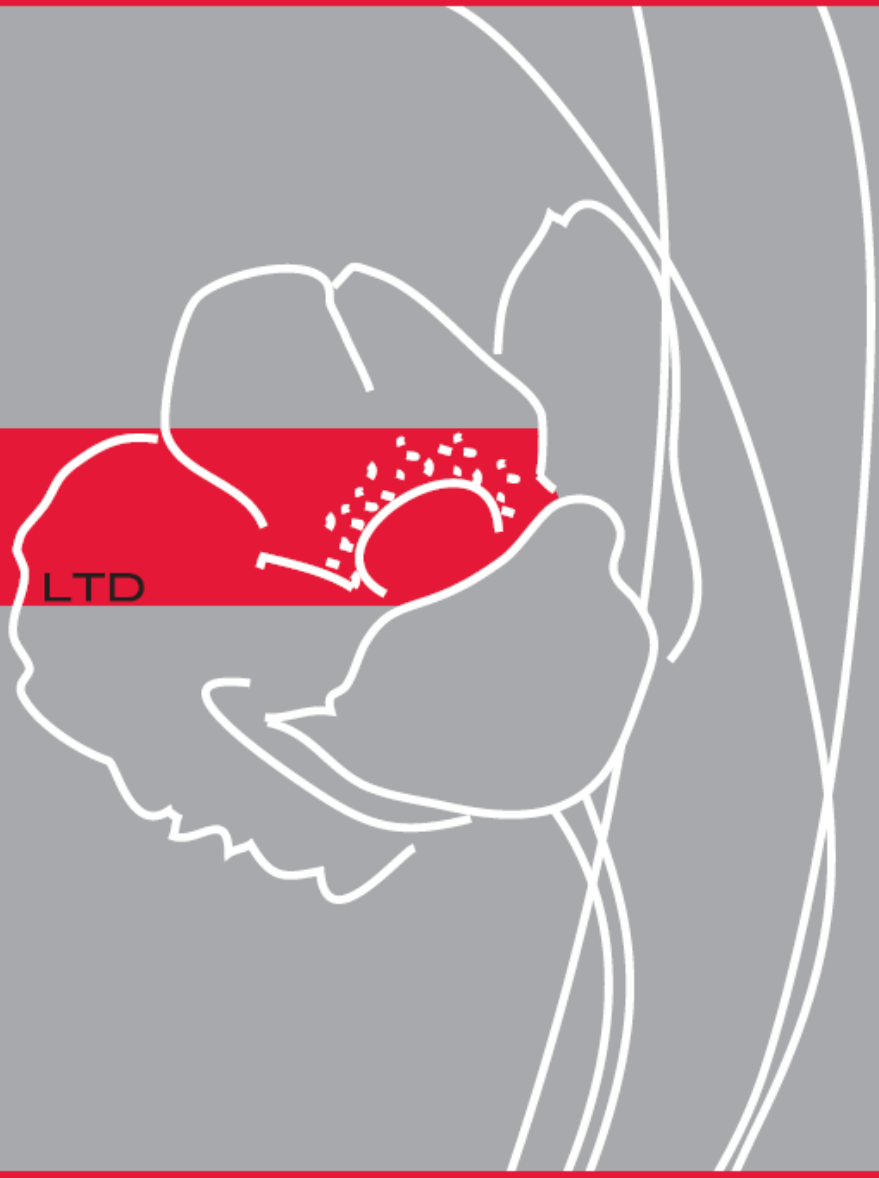
Manufacturing Overview

Food Futures Conference

Niche Session



TPI's key IP Industrial advantage

1/3 operating cost, 1/5 capital cost, no toxic solvents

TPI Technology

$20,000,000 Capital Investment (100 tonne facility)

Operating Cost 1/3 of competitors

5 Ha site

Modular expansion capability

No toxic solvents

No wastewater treatment

Competitors Technology

$100,000,000 Capital Investment (100 tonne facility)

10 Ha site

Toxic solvents

Wastewater treatment required

Old technology

3 year construction and approval timeline

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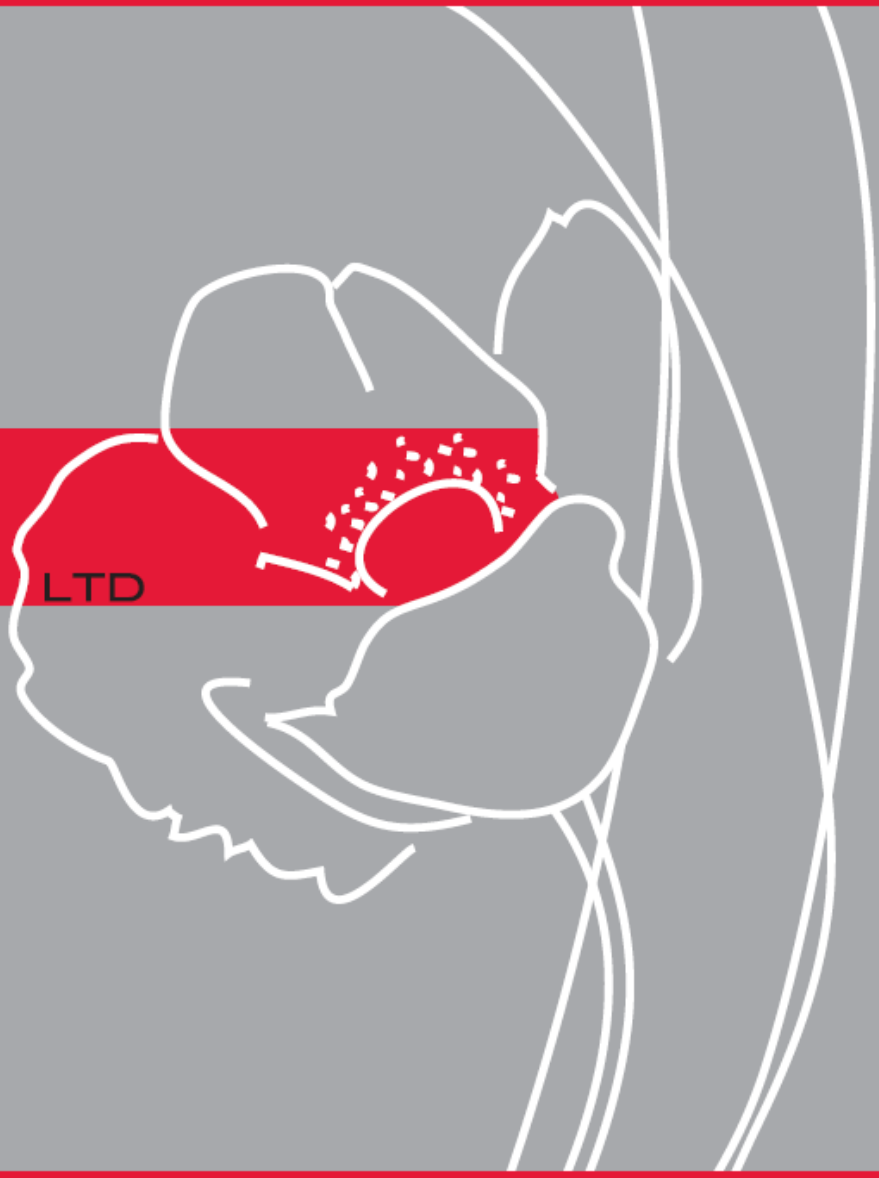
Agricultural Supply

Food Futures Conference

Niche Session

An opportunity for the NT



50% of global supply from Tasmania

Global eggs in one basket

Friday, March 4, 2011

News

Anger

Flop goes poppy season

KAROLIN MacGREGOR

TASMANIA'S poppy industry is battling through one of its worst harvest seasons as constant wet weather takes its toll.

Unseasonable summer weather, including heavy rain and strong winds, has caused extensive crop damage around the state, particularly in the North-West.

Poppy companies are trying to get crops off as quickly as the weather conditions allow, but this year's harvest is proving extremely difficult. Crop quality is also being affected because the rain leaches out valuable alkaloid.

Tasmanian Alkaloids field operations manager Rick Rockliff said this harvest season was one of the most challenging the industry had ever faced.

"We just get start harvesting and it rains again, which causes delays – and they're long delays too," he said.

Mr Rockliff said about 65 per cent of the company's crop had now been harvested.

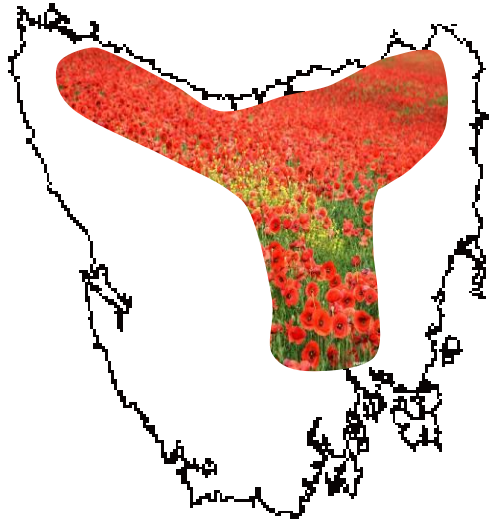
CUTTING

TPI contracted poppy straw cycle

SOWING → **GROWING** → **HARVEST**

May-June	*August-December*	*January-April*
Contract negotiation	Crop management	Crop harvest
	- Irrigation	Assessment of estimated crop alkaloid content
July	- Insecticide	
Crop sown		Final crop payment

TPI Tasmanian contracted poppy growing regions



Tasmanian 2013 sowing/ 2014 Harvest

Another challenging year (wet sowing, good summer)

September ´13

Rick Rockliff of Tasmanian Alkaloids (ABC Rural 3/10/13)

"We've had probably the wettest period in living memory. I've been told that by people even more senior than me," he said.

"They can never remember so much rain, so many wet months."

POPPY CRISIS

By *LIBBY BINGHAM*

Oct. 3, 2013, 10:30 p.m. The Advocate

POPPY CRISIS

WEATHER WORRY: Poppy Growers Tasmania president and North Motton farmer Glynn Williams looks at the soggy soil that is waiting for a poppy crop to be planted. Picture: Stuart Wilson.

WEATHER WORRY: Poppy Growers Tasmania president and North Motton farmer Glynn Williams looks at the soggy soil that is waiting for a poppy crop to be planted. Picture: Stuart Wilson.

THE Tasmanian poppy industry is within 12 days of facing its biggest crisis since inception.

December 13

Raw material supply issues, not a one-off

2011 Harvest a disaster

ABC News

Record wet summer in parts of Tasmania

Updated Mon Feb 28, 2011 12:48pm AEDT

The Bureau of Meteorology's review of Tasmania's summer has confirmed the weather was much wetter and cooler than average.

Burnie, Ulverstone, Wynyard, King Island airport and Scamander all had their wettest summers on record, a result of the La Nina weather pattern which caused flooding in Queensland and New South Wales.

Falmouth in the north-east recorded Tasmania's second wettest summer day ever, with 282 millimetres falling in 24 hours.

The south of the state escaped the deluge, but temperatures overall were much cooler than last year.

Parts of the north of Tasmania registered the wettest summer on record. (ABC News)

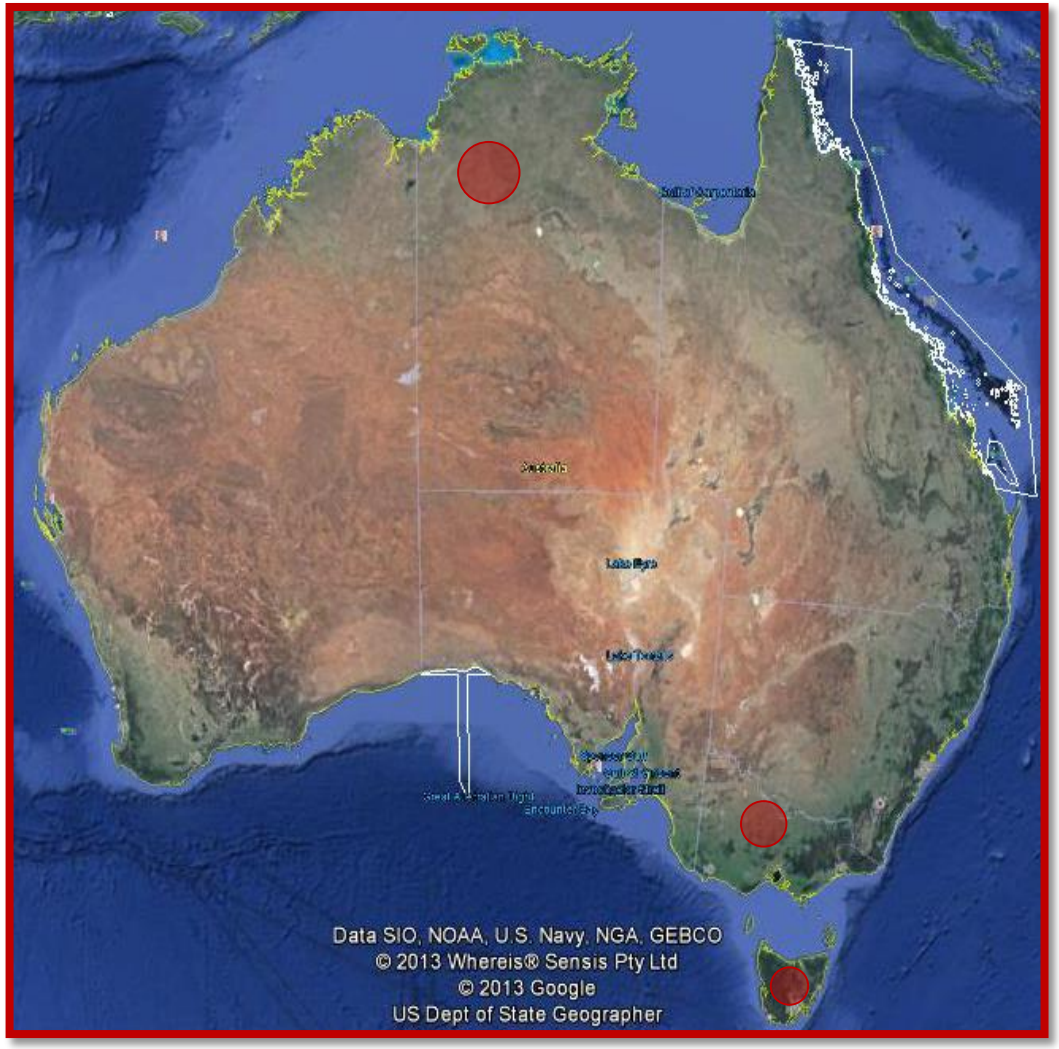
Ian Barnes-Keoghan from the Bureau says not only did Tasmania miss out on a long run of hot days, many days were not even mild.

"There was lots of times when temperatures failed to even get into the mid teens," he said.

Even when the temperature did reach average, heavy clouds from the north dulled the days.

Raw material supply (Australia)

Reducing risk of agricultural supply



Northern Territory (Off-season growing)

Current trials at Katherine Research Station and Douglas-Daly Research Station

1. Alkaloid cost predicted at $100-$150/kg
2. Focus on reducing growth rates and two crops a season
3. Lower risk of rain events
4. Average grower size 1000´s Ha
5. Freight a consideration

Victoria

Current trials at Yarrawonga, Rochester, Elmore

1. Alkaloid cost predicted at $140-$160/kg
2. Average grower size >100Ha

Tasmania (At full capacity)

Current area of 2500Ha in 2013

1. 2000 Ha to be planted in 2014
2. Alkaloid cost predicted at $170-$180/kg
3. Average grower size 11Ha

Raw material supply Australia

Legislation has passed in both NT and Vic

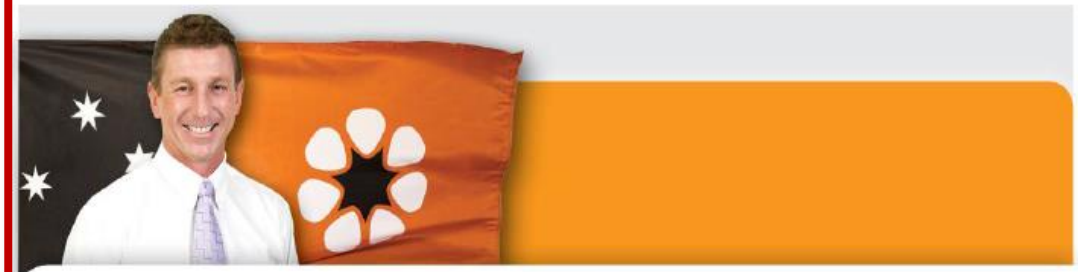
Poppy output blossoms as new state joins in

- by: *RICK WALLACE*
- From: *The Australian* 22nd March 2014

Farmer Mike Badcock, in his poppy crop in northwest Tasmania, says the state has plenty of extra capacity but Victorian competition is healthy. Picture: Chris Kidd *Source:* TheAustralian

AUSTRALIA is poised to dominate the global poppy supply with Victoria joining Tasmania as one of the few jurisdictions in the world licensed to grow the crop for pain relief medication production.

New laws passed last week will help create a $100 million a year industry in Victoria, tapping into booming demand for painkillers in Asia, according to the state government.



WILLEM WESTRA VAN HOLTHE MLA | Member for **KATHERINE**

MEDIA RELEASE

MINISTER FOR PRIMARY INDUSTRY AND FISHERIES

POPPY LEGISLATION PASSED

15 May 2014

Legislation has been passed in the Northern Territory Parliament today to allow for the cultivation and processing of opium poppies in the NT under a strict licensing regime.

Minister for Primary Industry and Fisheries Willem Westra van Holthe said this now paves the way for the establishment of a potential $30 million industry in the NT.

"This industry will ultimately be able to supply the international pharmaceutical industry with opium which is a key ingredient in pain-relief medicines that include morphine, thebaine, codeine, papaverine and noscapine," Mr Westra van Holthe said.

Opportunities - Raw material supply

Northern Territory, a new paradigm in supply

First Poppy Crop grown in NT

Key Benefits

- Lower Alkaloid price opportunity (<$100/kg)
- Very rapid growth rate (13th June sowing – Capsules August 19th) 66 days compared to 180 days in Tasmania
- Predictable weather- no rain during critical pre harvest phase
- Increased security opportunity
- Potential 2 growing seasons in 1 dry season

Key Risks

- Insects and pests
- Higher costs of freight (fertiliser etc)
- Transport cost back to Vic $10-15/kg of Alkaloid
- Managing isolation and staffing

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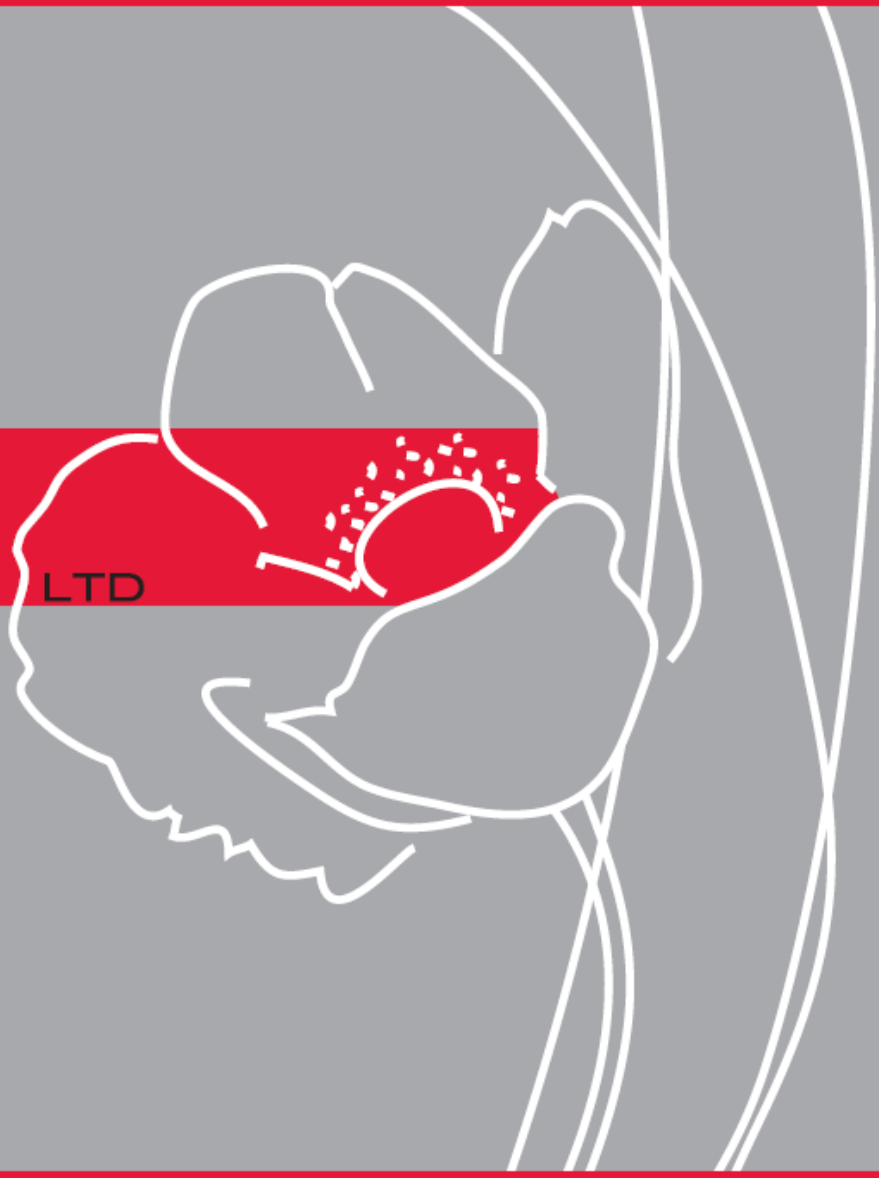
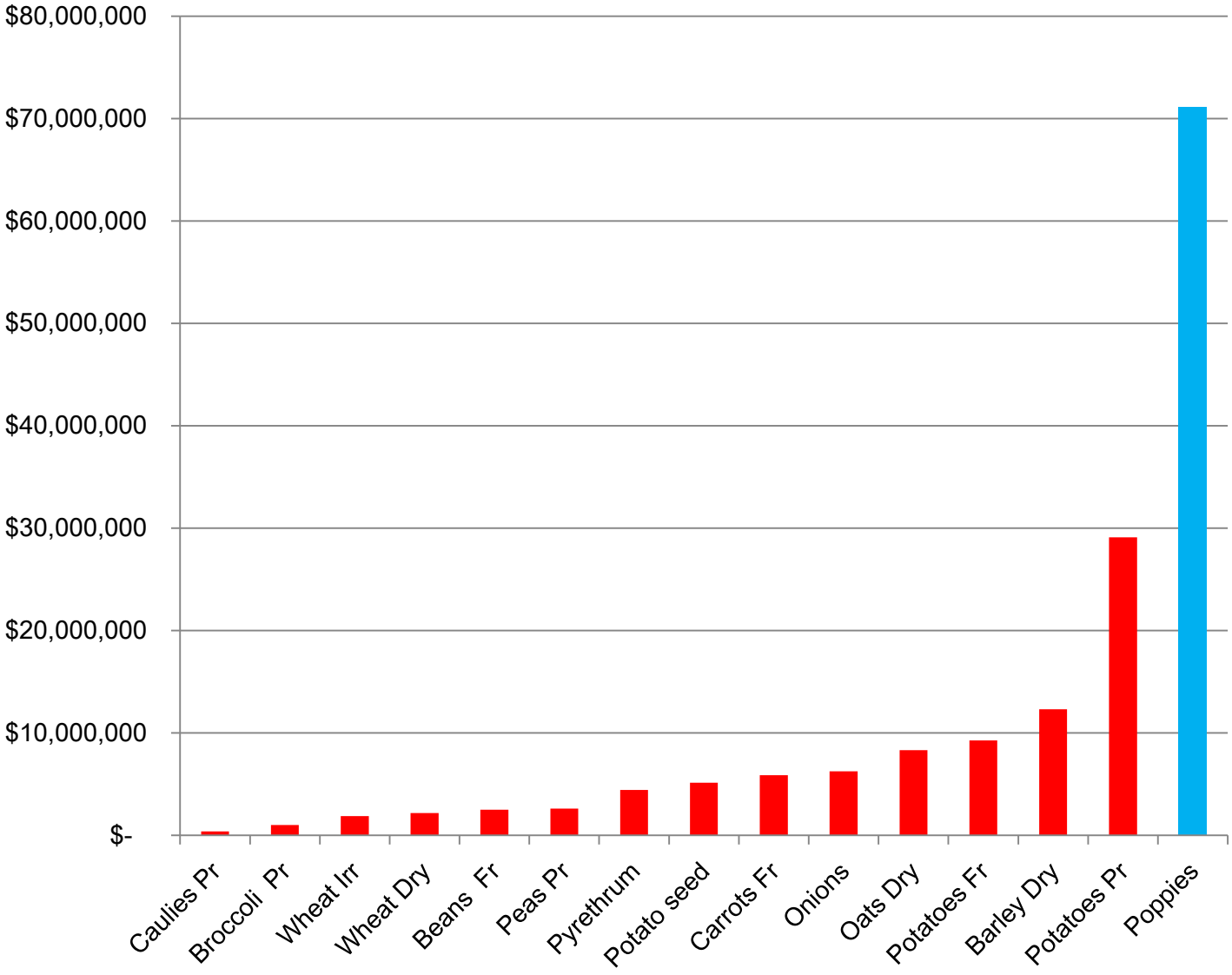
Agricultural Specifics

An opportunity for the NT



Comparison of total Tasmanian Gross Profit returns

Excessive reliance on poppies in Tasmanian Cropping Agriculture



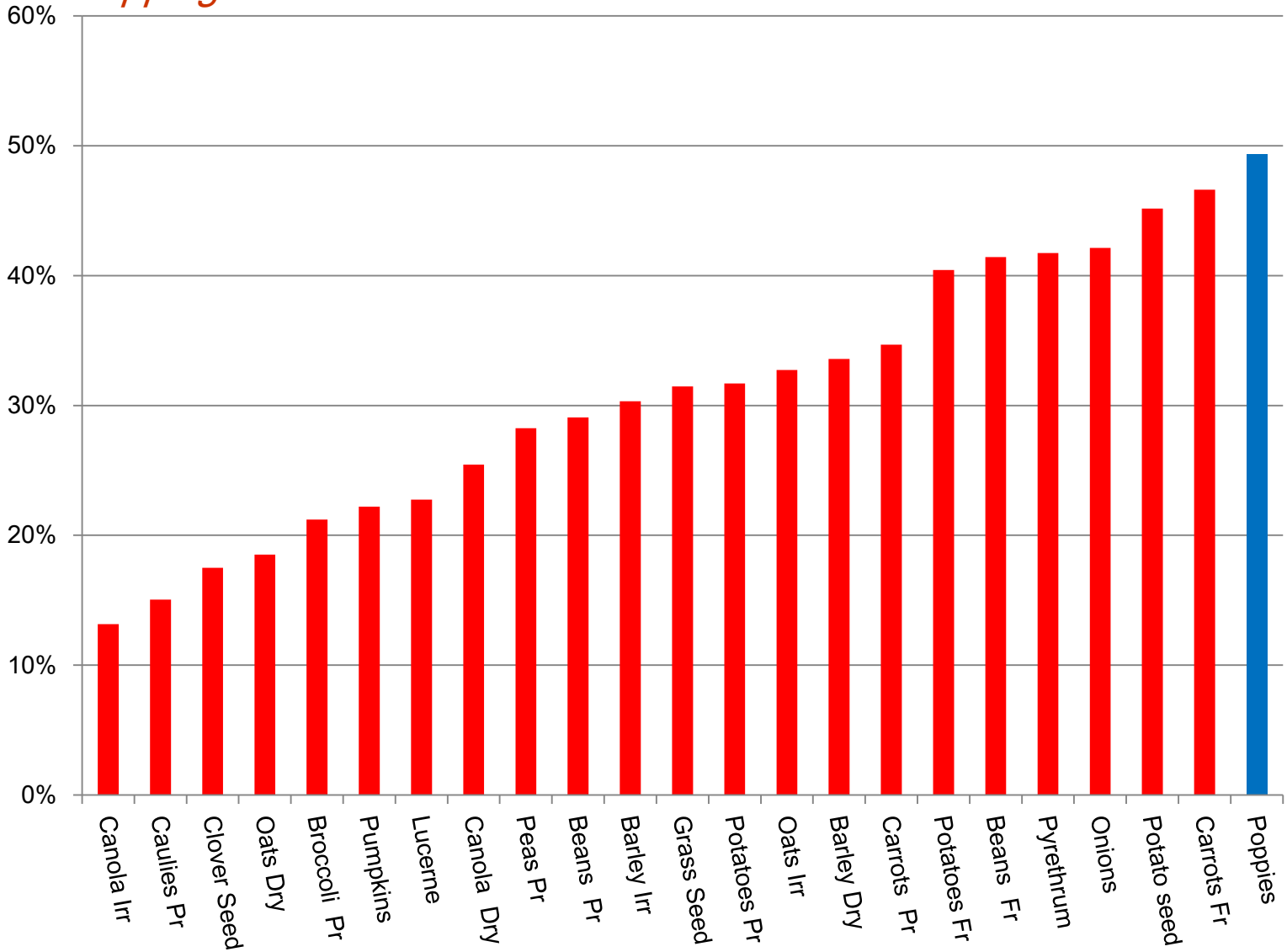
Key Facts

- Using ABS data for area harvested multiplied by DPIWE gross Margi returns Meander valley
- Poppies contributes 45% of total Gross Profit to Tasmanian cropping
- 2nd is Potatoes with 27%.
- Poppies and Potatoes make up 72% of Gross Profit of Tasmanian cropping agriculture

Refer reference slide for source

Comparison of Gross Margin returns

Poppies provide the greatest gross margin of any crop in Tasmania cropping



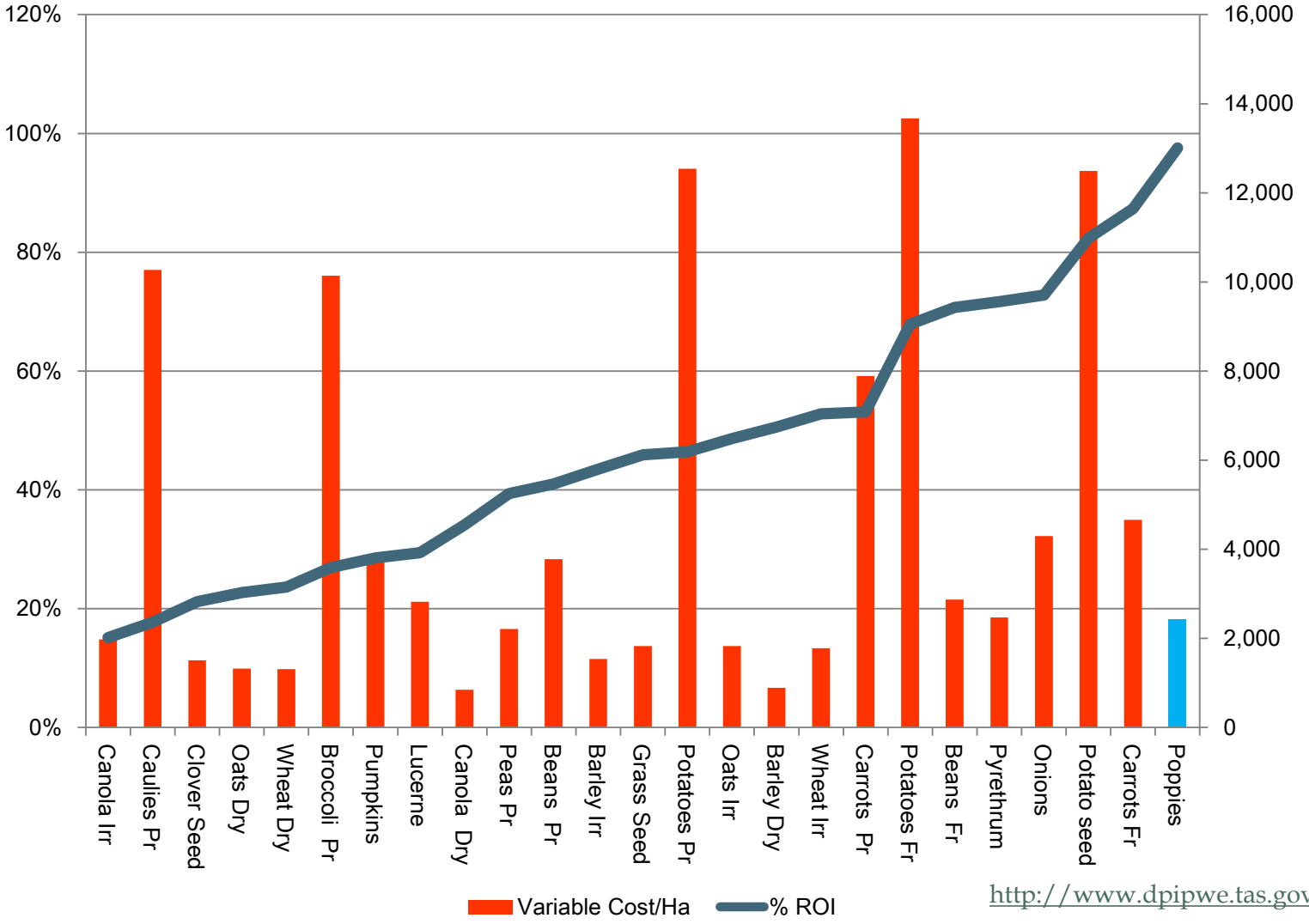
Key Facts

- Using 2012 DPIWE gross margin returns Meander valley
- Poppies achieve a 49% gross margin

Refer reference slide for source

Comparison of ROI and Variable cost inputs

Poppies are highest return of 98% ROI with one of the lowest input costs



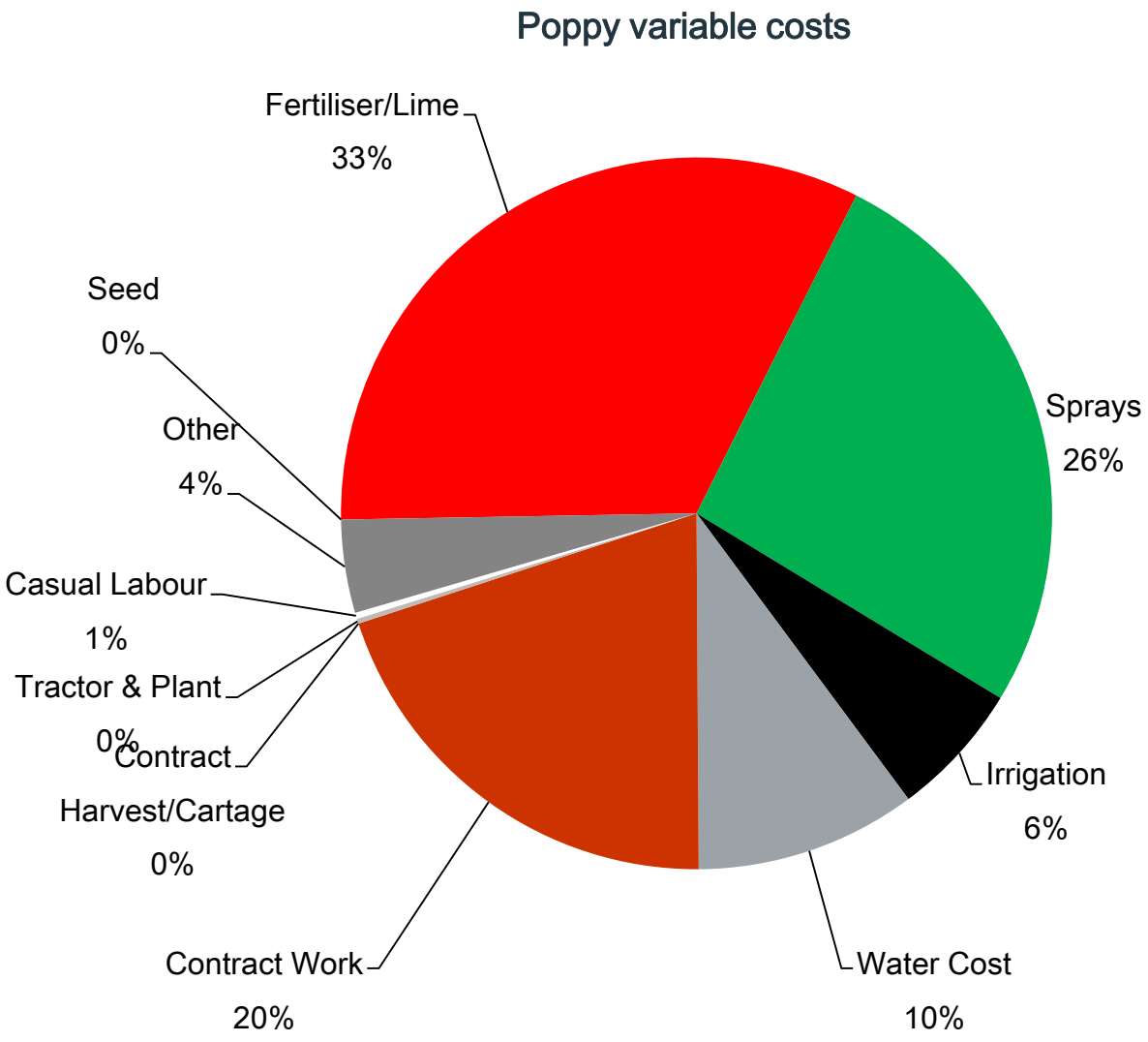
Key Facts

- Using DPIWE gross margin returns Meander valley
- Poppies are the highest ROI with one of the lowest input costs
- If variable cost if farmer risk , then poppies are the greatest ROI with one of the lowest input risk profiles

http://www.dpipwe.tas.gov.au/inter.nsf/WebPages/LBUN-8M589T?open

Poppies Farmer Returns (Tasmania TIAR)

Expect a return from between $1000-$2000/Ha



Key Facts

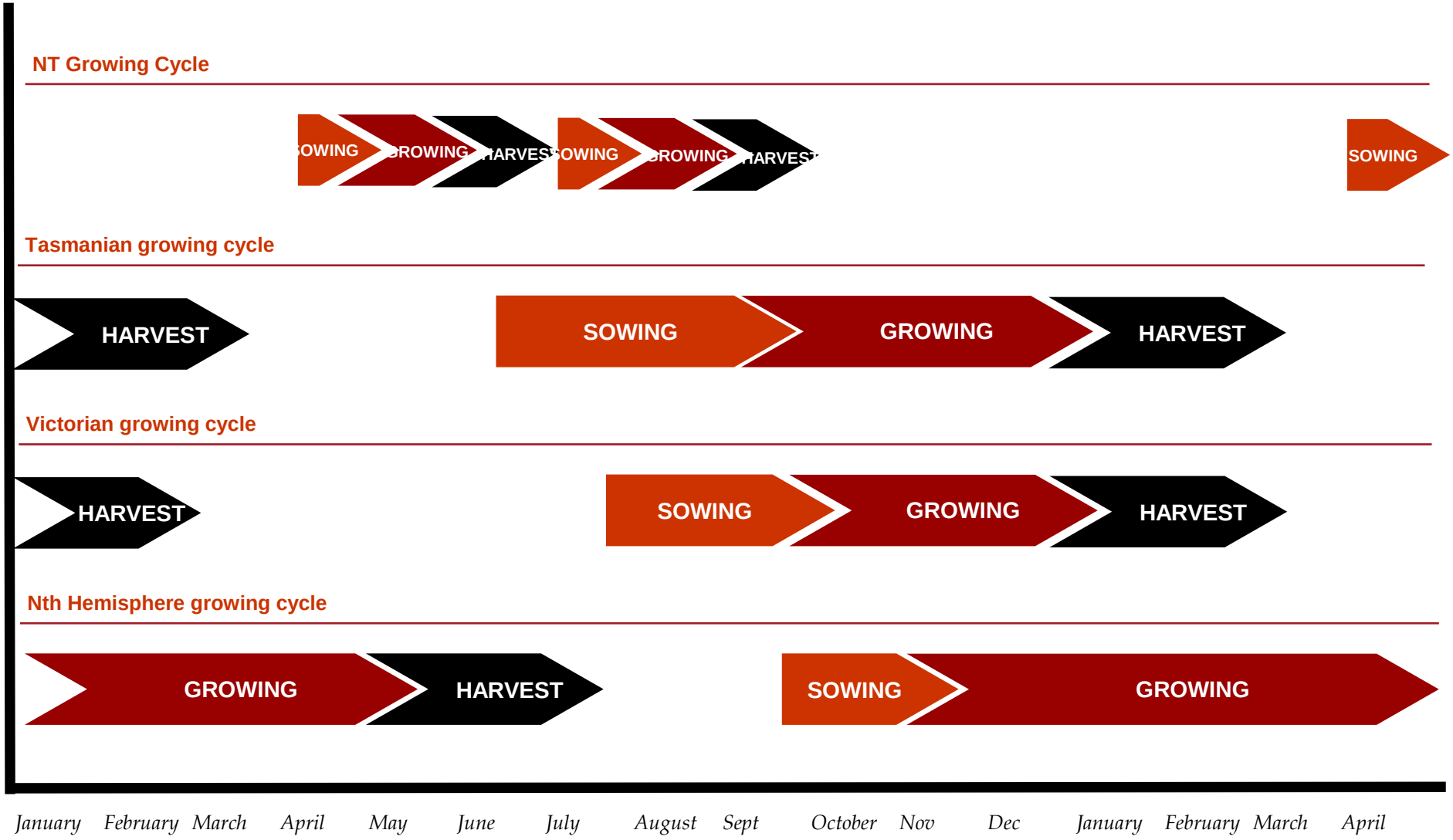
In Midlands average Gross Margin is

Total Income	**$4,350**
Variable Costs	
• Seed	$0
• Fertiliser/Lime	$672
• Sprays	$540
• Irrigation	$127
• Water Cost	$207
• Contract Work	$413
• Harvest/Cartage	$0
• Tractor & Plant	$5
• Casual Labour	$6
• Other	$87
Total Variable Costs	**$2,060**
Gross Margin /HA	**$2,290**

http://www.dpipwe.tas.gov.au/inter.nsf/WebPages/LBUN-8M589T?open

Poppy straw timing

Spreading risk and working capital peaks



NT Summary

Niche crop opportunity

1. Government support critical
2. Fact based approach (Ignore Dooms-dayers but consider the past)
    1. Magpie geese
    2. Humpty Do rice venture
3. Must be competitive and identify a financial advantage
    1. lack of rain risk
    2. Broad Acre
    3. Profit share
    4. Larger land size
    5. Availability of water
4. Weather and Agriculture are significant risks (NT has an advantage)
5. Diversity is key to any agriculture
    1. Tasmania too dependant on poppies for profitability

References/Sources

- ABS DATA
  - http://www.abs.gov.au/ausstats/abs@.nsf/mf/7121.0
- TIAR REPORT (FINAL)
  - http://www.farmpoint.tas.gov.au/farmpoint.nsf/downloads/E6609ABBFCADBB2FCA2578A300024AA4/$file/Potential_land_for_Poppies.pdf
- ENTERPRISE SUITABILITY MAPPING (DRAFT)
  - http://www.dpiw.tas.gov.au/inter.nsf/Attachments/JBAS-8SJUZW/$FILE/WfW_ESM%20Demo_2-12_standard.pdf
- INCB DATA
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- GROSS MARGIN DATA
  - http://www.dpipwe.tas.gov.au/inter.nsf/WebPages/LBUN-8M589T?open