The Australian Fertiliser Sector

2010-2016

Selling what we make
- not what you need

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Climate Friendly Fertiliser Pty Ltd

(Receiver and Manager Appointed)

The IFA's Vision

The International Fertilizer Industry Association (IFA) in its recent publication "*The Role of Fertilizers in Agricultural Mitigation Strategies*" identifies two key product changes going forward:

1. "**Better Integration of Organic Resources** such as animal wastes and crop residues into crop nutrition programs"

2. "**Increasing soil organic matter** by integrating organic nutrient sources jointly with mineral fertilizers in plant nutrition programmes"

CFF has developed some of these products

The following presentation gives an overview of what was CFF's vision to deliver the product mix that the IFA has so clearly identified.

Capex comparison

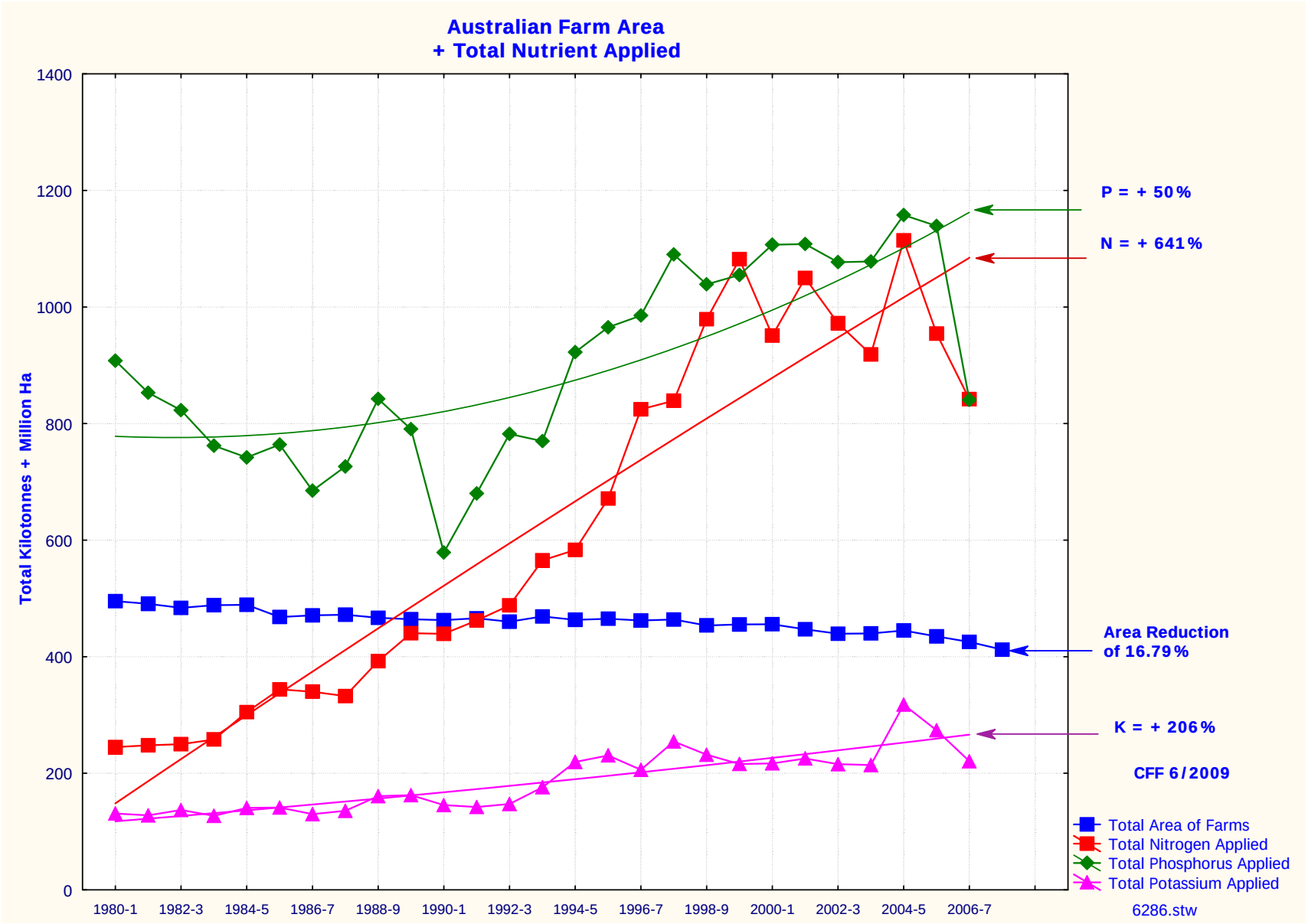
- 3rd Generation Chemical Fertiliser Plants cost between $A 2,200 and $2,900 Capex per metric tonne of annual production

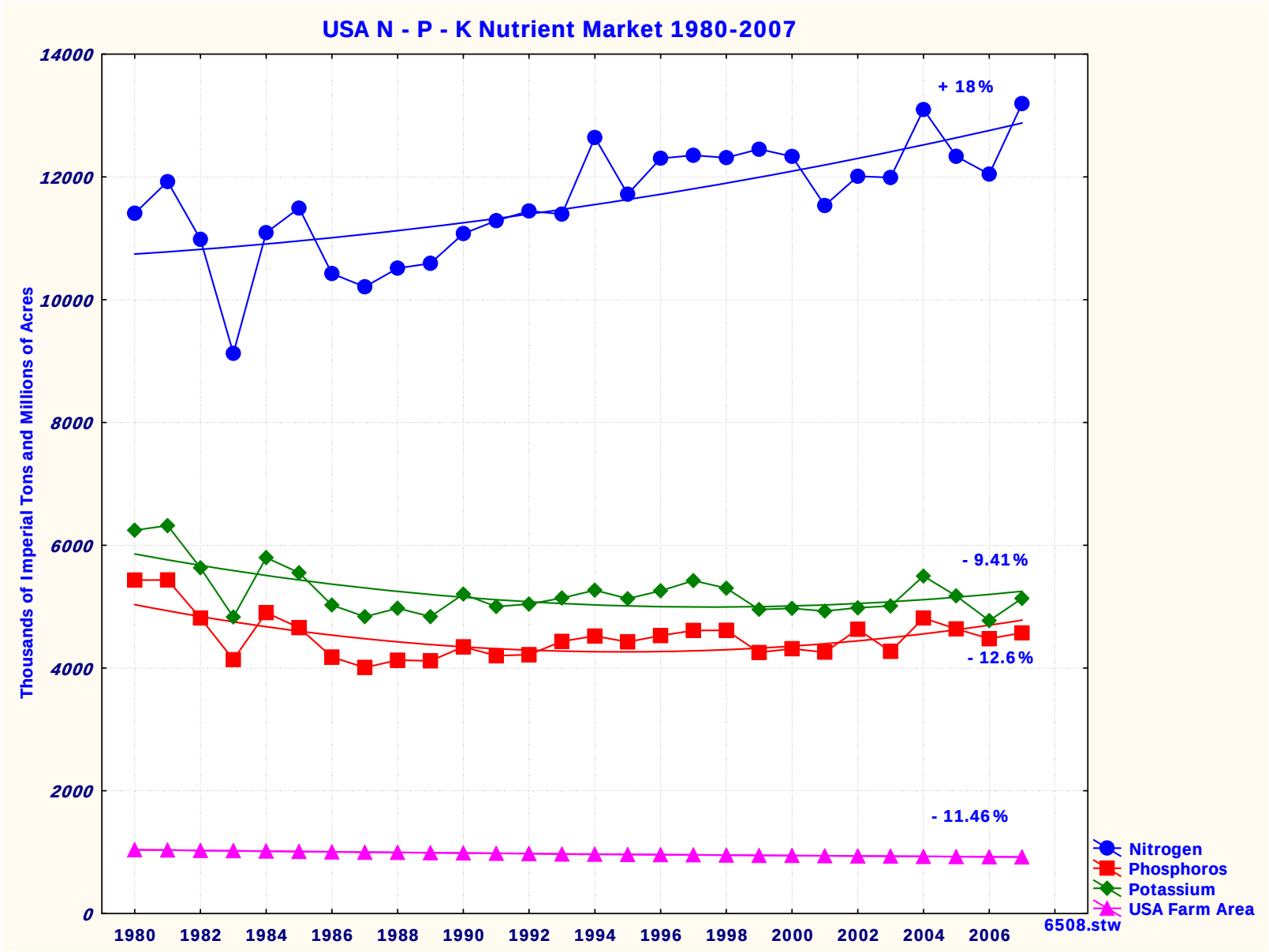
- ✓ **CFF plants cost in the region of $A 200 per metric tonne of annual production**

- However, the CFF plants require access to some 3rd generation product to produce a full product range

The Australian Farm Sector

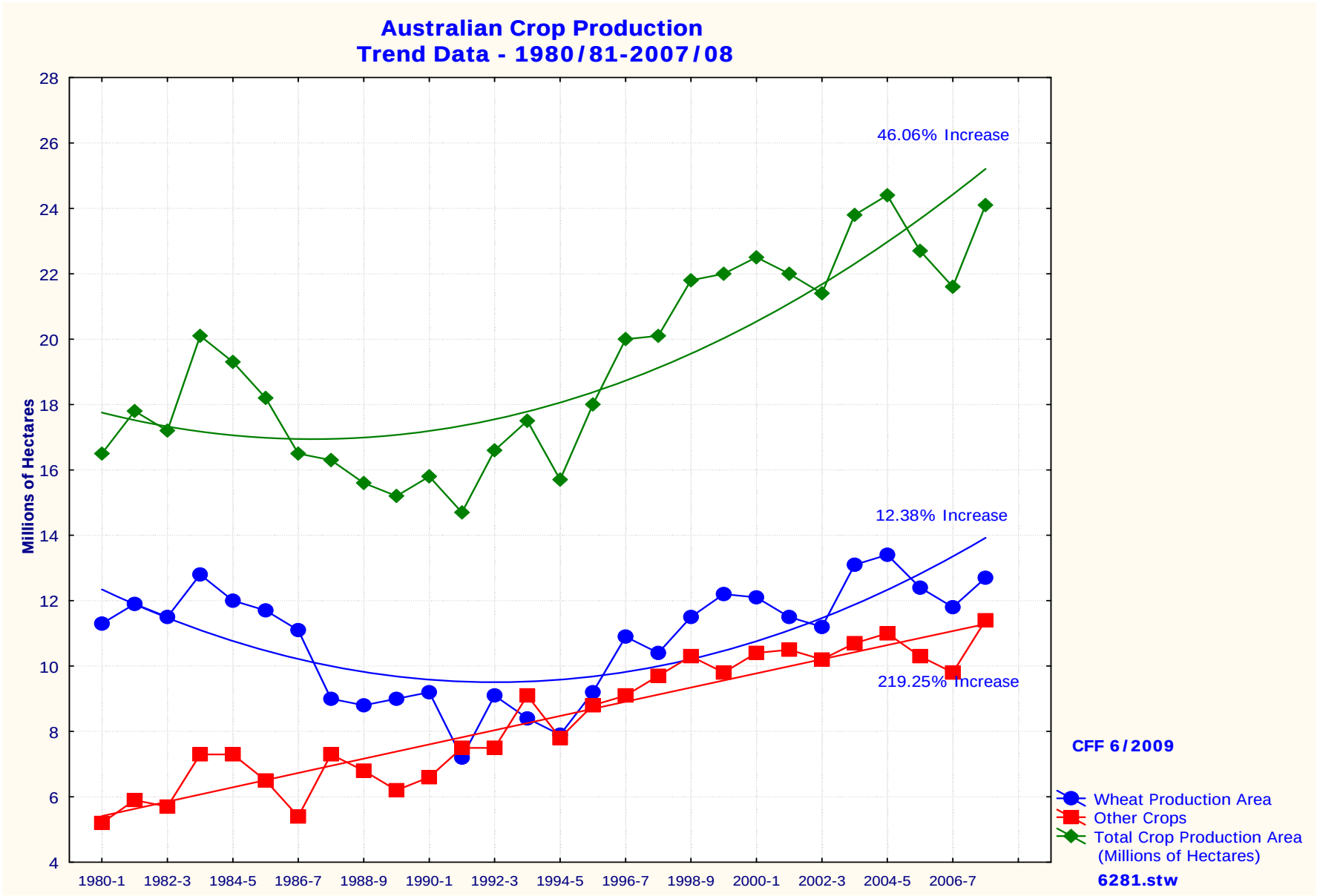
- The following slides give a good overview of the changes in Nutrient use in the Australian farming sector since 1980.
- The data used is from ABARE and ABS
- USA data is from USDA


Australian Farm Area
+ Total Nutrient Applied
Total Kilotonnes + Million Ha
1400
1200
1000
800
600
400
200
0
1980-1
1982-3
1984-5
1986-7
1988-9
1990-1
1992-3
1994-5
1996-7
1998-9
2000-1
2002-3
2004-5
2006-7
P = + 50%
N = + 641%
Area Reduction
of 16.79%
K = + 206%
CFF 6/2009
Total Area of Farms
Total Nitrogen Applied
Total Phosphorus Applied
Total Potassium Applied
6286.stw


USA N - P - K Nutrient Market 1980-2007
Thousands of Imperial Tons and Millions of Acres
14000
12000
10000
8000
6000
4000
2000
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
+ 18%
- 9.41%
- 12.6%
- 11.46%
Nitrogen
Phosphoros
Potassium
USA Farm Area
6508.stw

Commercial Disadvantage

- Whilst Australia has lost 16.79% of its farm area over the period 1980 -2007 the USA has lost only 11.46%
- Nitrogen use in the USA is up by 18% over the same period, in Australia it is up by **641%**
- Phosphorus use in the USA is down by 12.6% but in Australia it is up by **50%**
- Potassium use is down by 9.41 % in the USA but in Australia it is up by **206%**
- Australian farmers are seriously overusing nutrients because, amongst other things, the fertiliser products that they are buying were not developed for Australian conditions


Australian Crop Production
Trend Data - 1980/81-2007/08
Millions of Hectares
28
26
24
22
20
18
16
14
12
10
8
6
4
1980-1
1982-3
1984-5
1986-7
1988-9
1990-1
1992-3
1994-5
1996-7
1998-9
2000-1
2002-3
2004-5
2006-7
46.06% Increase
12.38% Increase
219.25% Increase
CFF 6/2009
Wheat Production Area
Other Crops
Total Crop Production Area
(Millions of Hectares)
6281.stw

Winter Crop Production

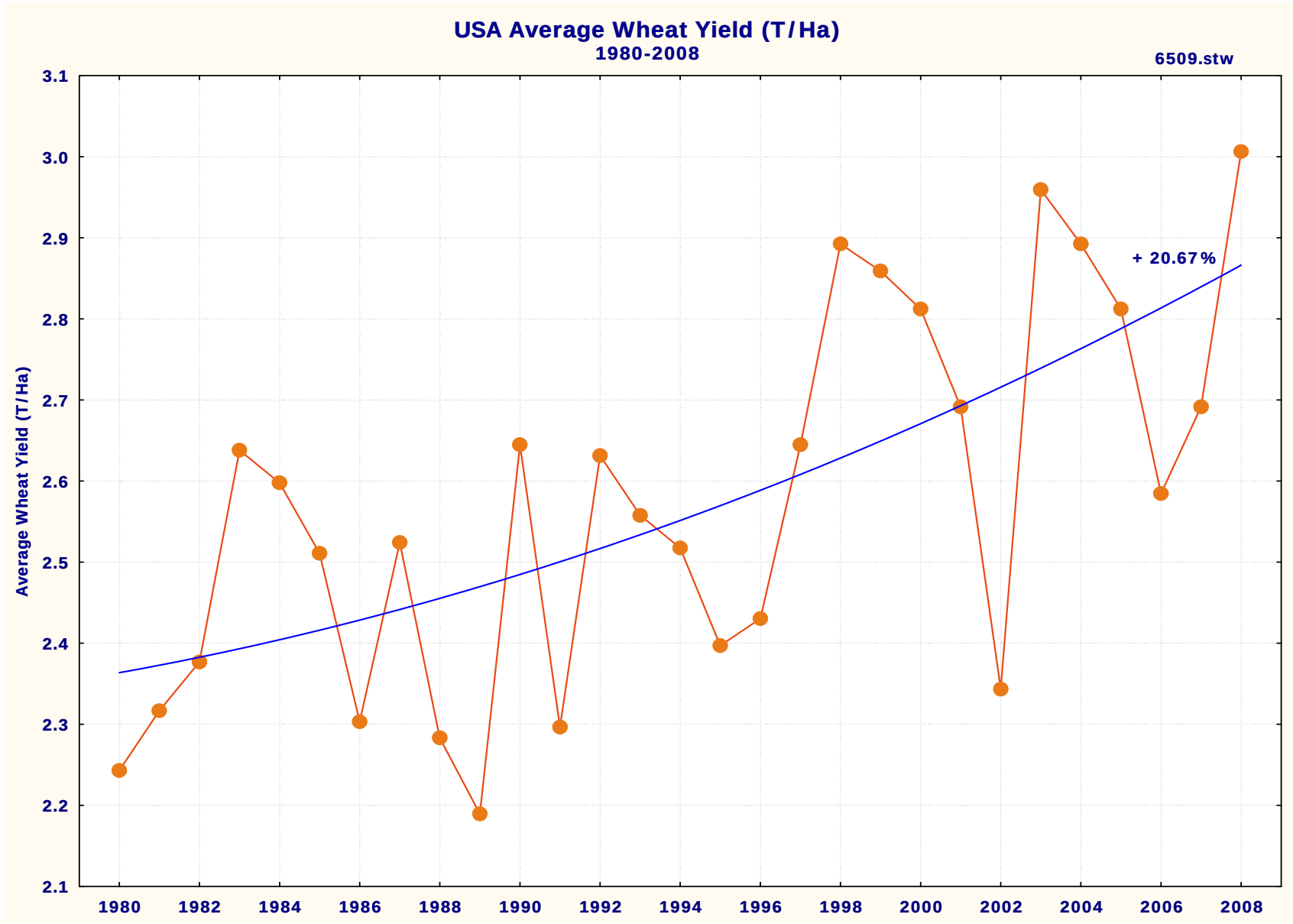
- Of the 41.37 million HA available across the southern states for winter cropping less than 20 million Ha on average is used

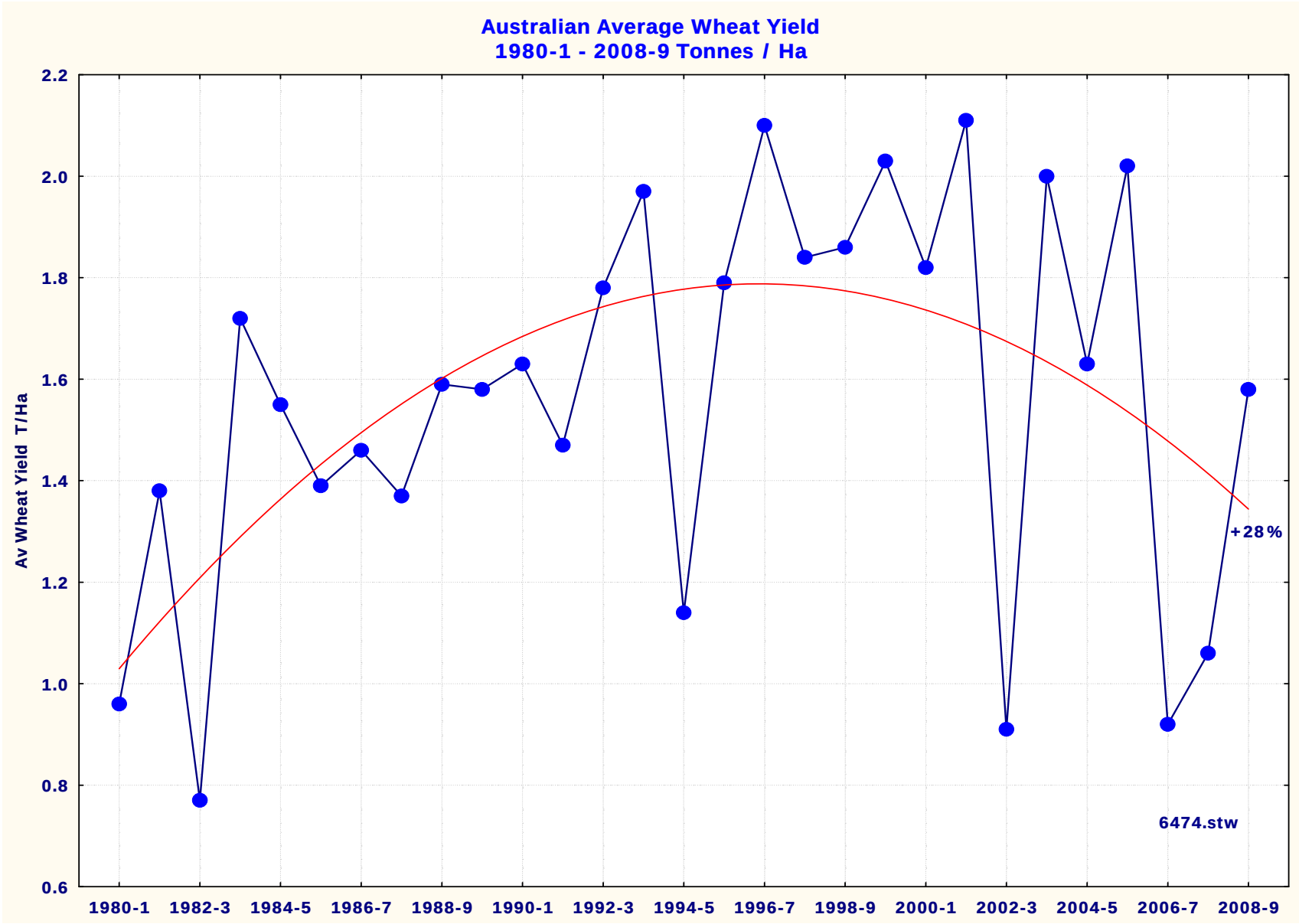
- Due to consistent rainfall deficiencies, soil acidification and rapidly depleting soil carbon, Dryland winter croppers struggle to achieve long term average production of 1.2 tonnes/Ha (USA Farmers average in the region of 2.9 tonnes and the EU 4.5 tonnes)

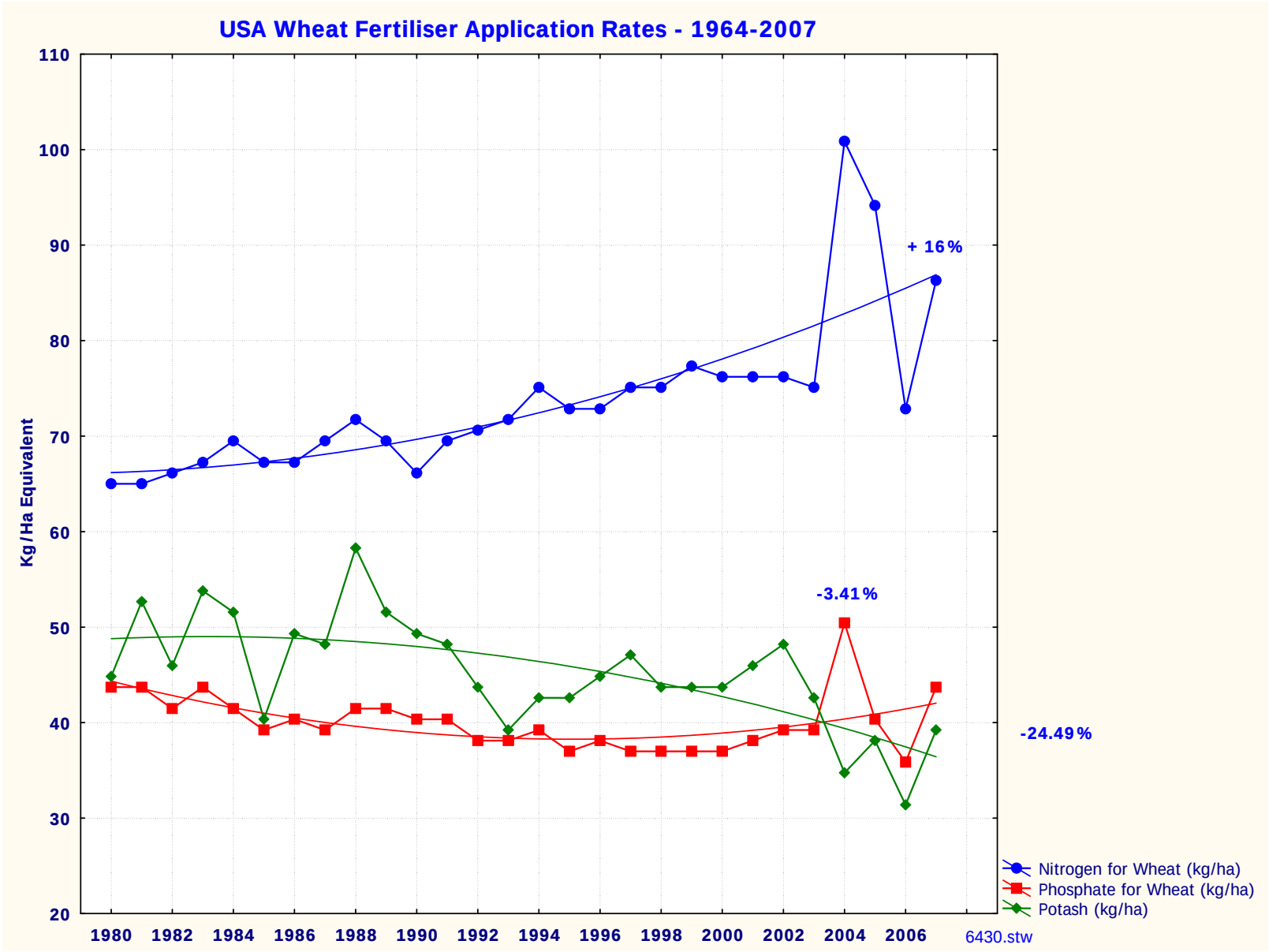
Wheat Yield

- The average wheat yield by American farmers has had an almost straight line growth since matrix fertiliser became available in the mid 1960's.

- Average wheat yield across the whole continental USA is approaching 2.9 tonnes / Ha Equivalent


USA Average Wheat Yield (T/Ha)
1980-2008
6509.stw
Average Wheat Yield (T/Ha)
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
+ 20.67%


Australian Average Wheat Yield
1980-1 - 2008-9 Tonnes / Ha
Av Wheat Yield T/Ha
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
1980-1
1982-3
1984-5
1986-7
1988-9
1990-1
1992-3
1994-5
1996-7
1998-9
2000-1
2002-3
2004-5
2006-7
2008-9
+28%
6474.stw

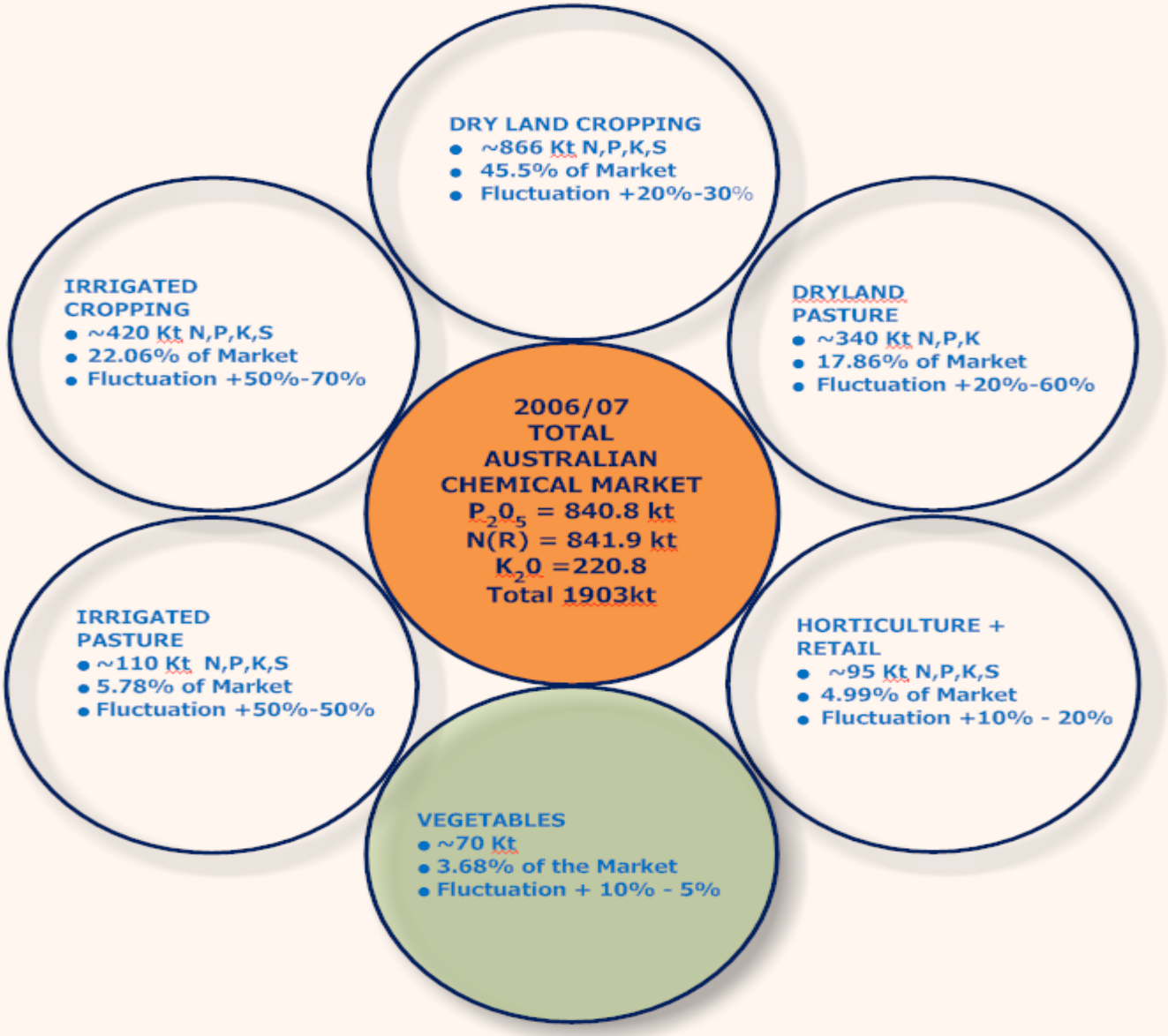

USA Wheat Fertiliser Application Rates - 1964-2007
Kg/Ha Equivalent
110
100
90
80
70
60
50
40
30
20
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
+ 16%
-3.41%
-24.49%
Nitrogen for Wheat (kg/ha)
Phosphate for Wheat (kg/ha)
Potash (kg/ha)
6430.stw

The Australian Market

- The Following Slides outline the farm nutrient market as it currently exists in Australia

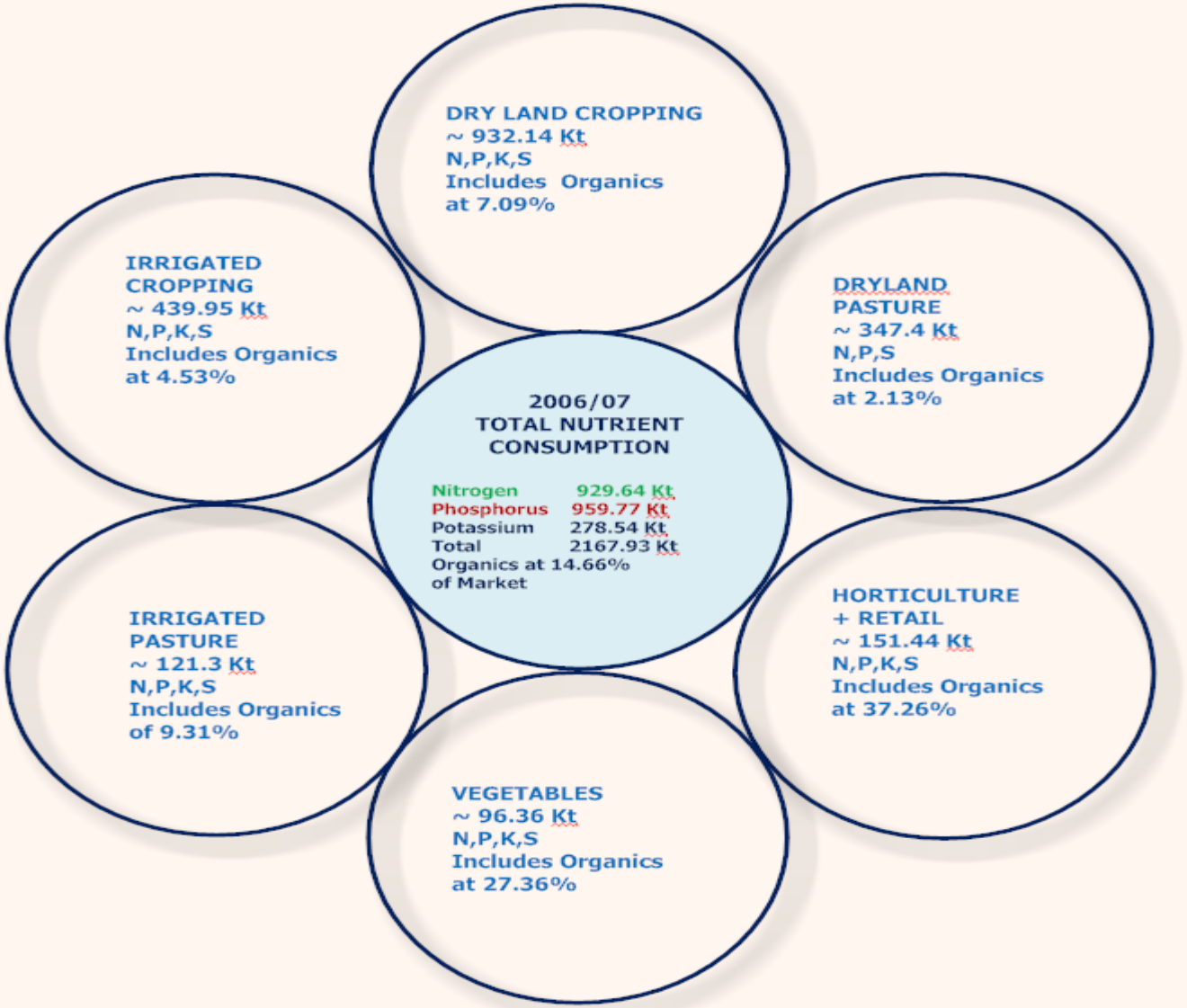
- In order to preserve consistency in data the base year is 2006/07 as this is the latest data set available

2006/07 Australian Fertiliser Sector - Chemical Nutrient Vendors



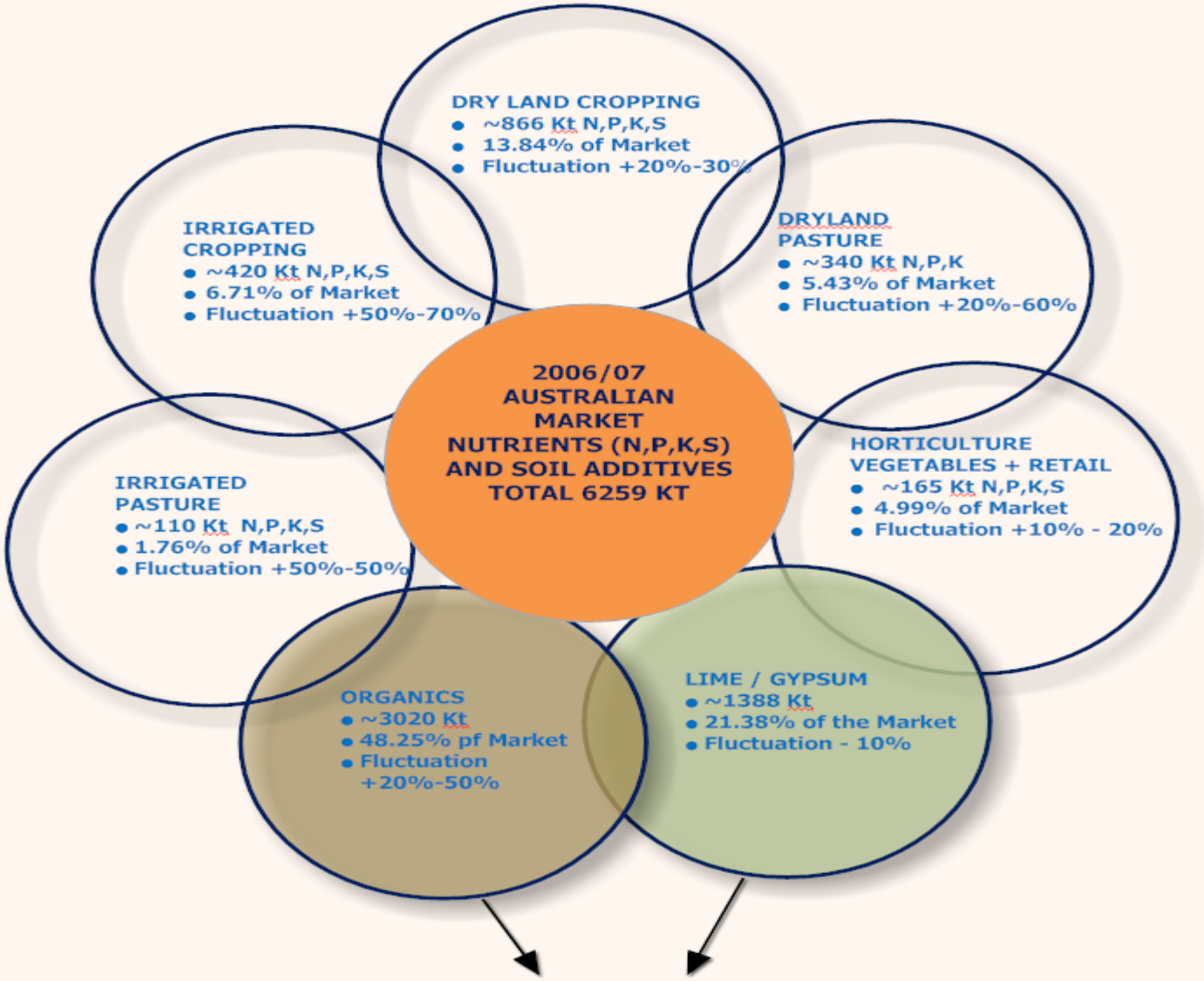
File 6466.sdr

2006/07 Australian Fertiliser Sector - Total Nutrient Consumption



File 6452.sdr

2006/07 Australian Fertiliser Sector - Nutrient and Soil Additive Application Breakout



69.63% (4.4 MILLION TONNES)
IS NOT AVAILABLE IN GRANULATED FORM

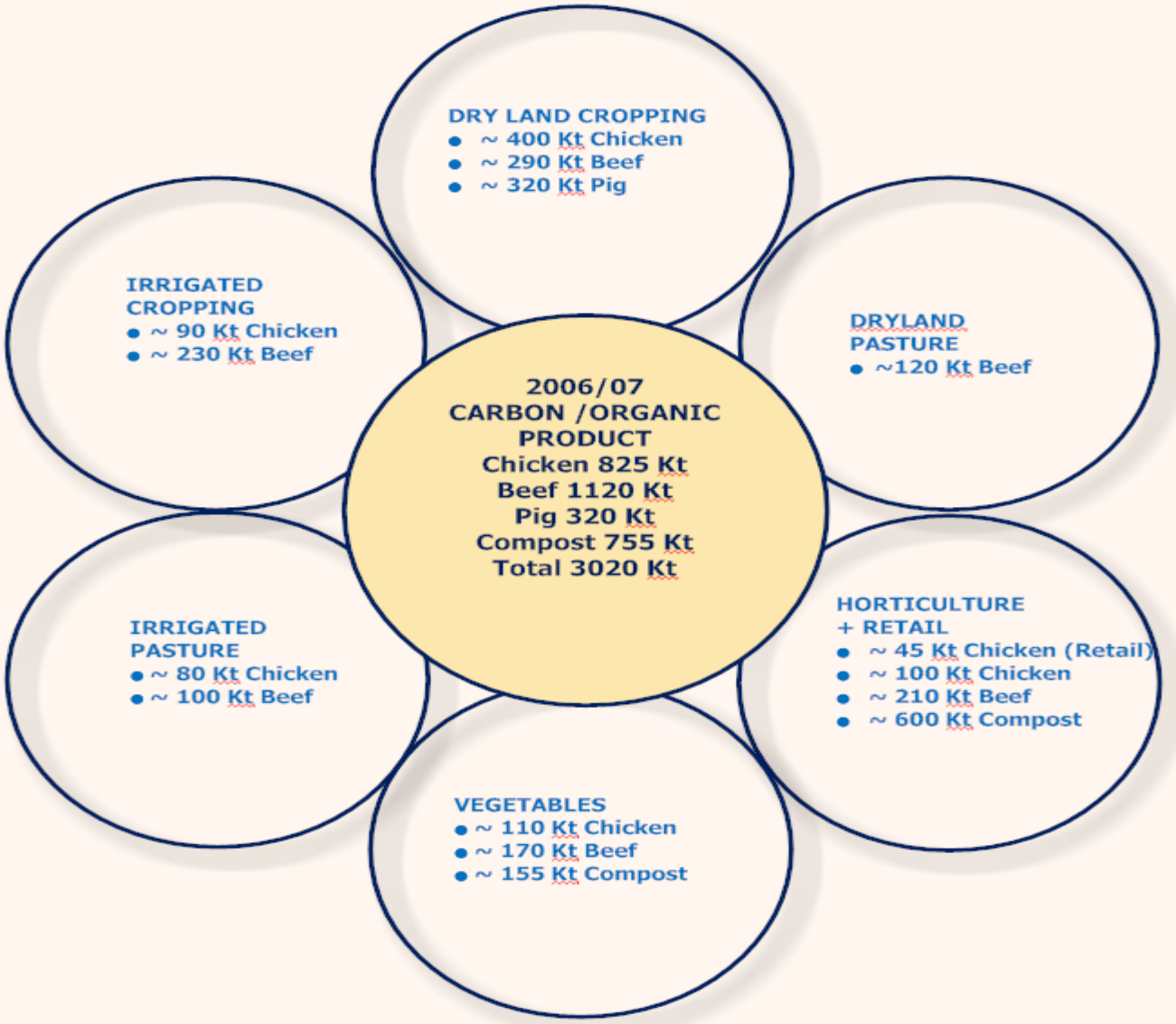
File 6448.sdr

Nutrient Recycling

- Since mid 2005, recycling nutrients has become a major business.

- In 2006/07 about 14.6% of all nutrients used on Australian Farms were recycled nutrients

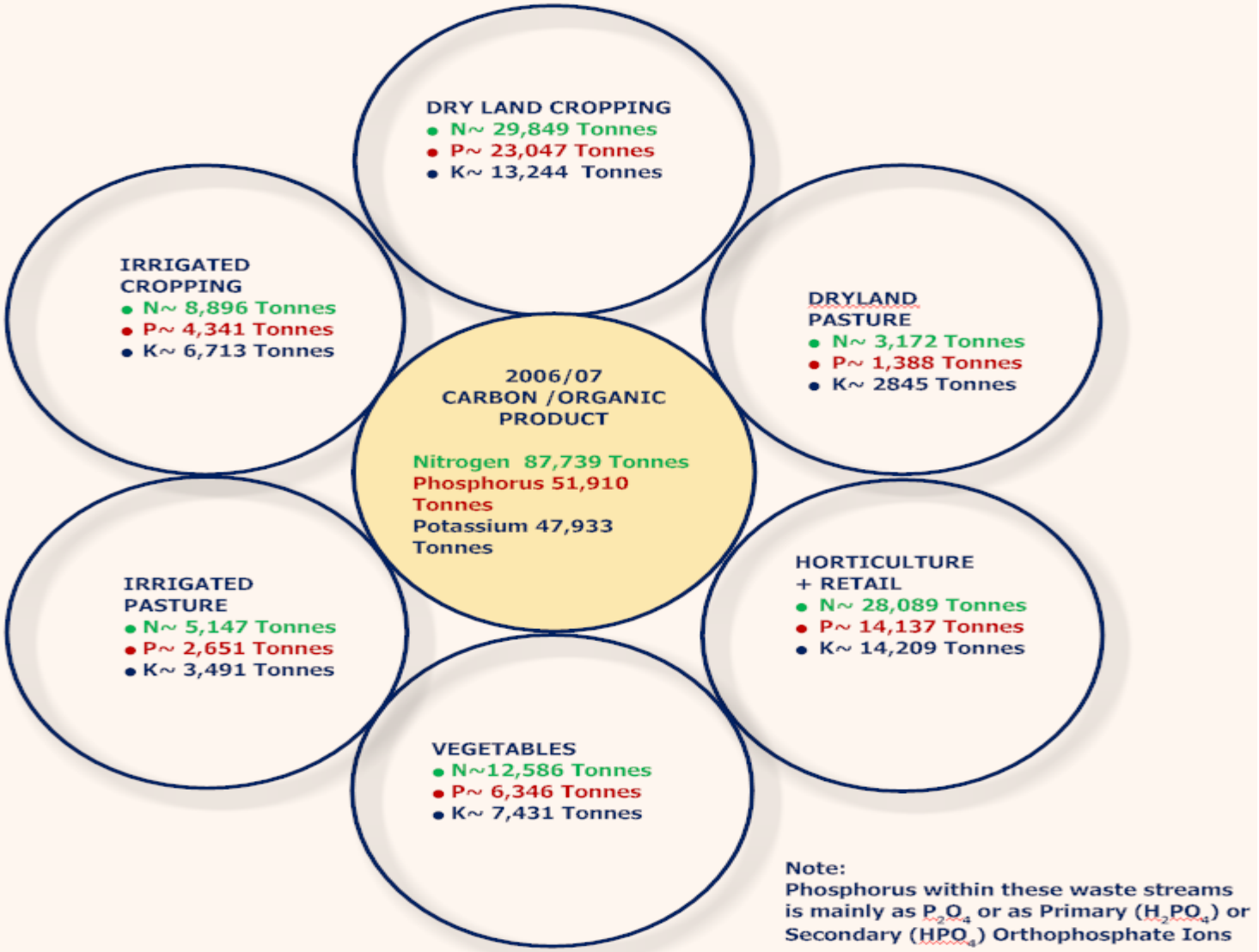
2006/07 Australian Fertiliser Sector - Carbon/Organic Product Utilisation



NONE OF THESE PRODUCTS AVAILABLE IN GRANULATED FORM

File 6450.sdr

2006/07 Australian Fertiliser Sector - Carbon/Organic Product Utilisation



Note:
Phosphorus within these waste streams is mainly as P_2O_4 or as Primary (H_2PO_4) or Secondary (HPO_4) Orthophosphate Ions

File 6451.sdr

Granulated lime and gypsum

- The Agricultural Lime and Gypsum market Nationally was in the region of 1.33 million tonnes in 2006/07 and is contracting at about 10% per year due to OH+S issues and the growth of Low Till and No Till.

- CFF Technology allows the high strength granulation of Lime and gypsum which opens a significant new market across the country

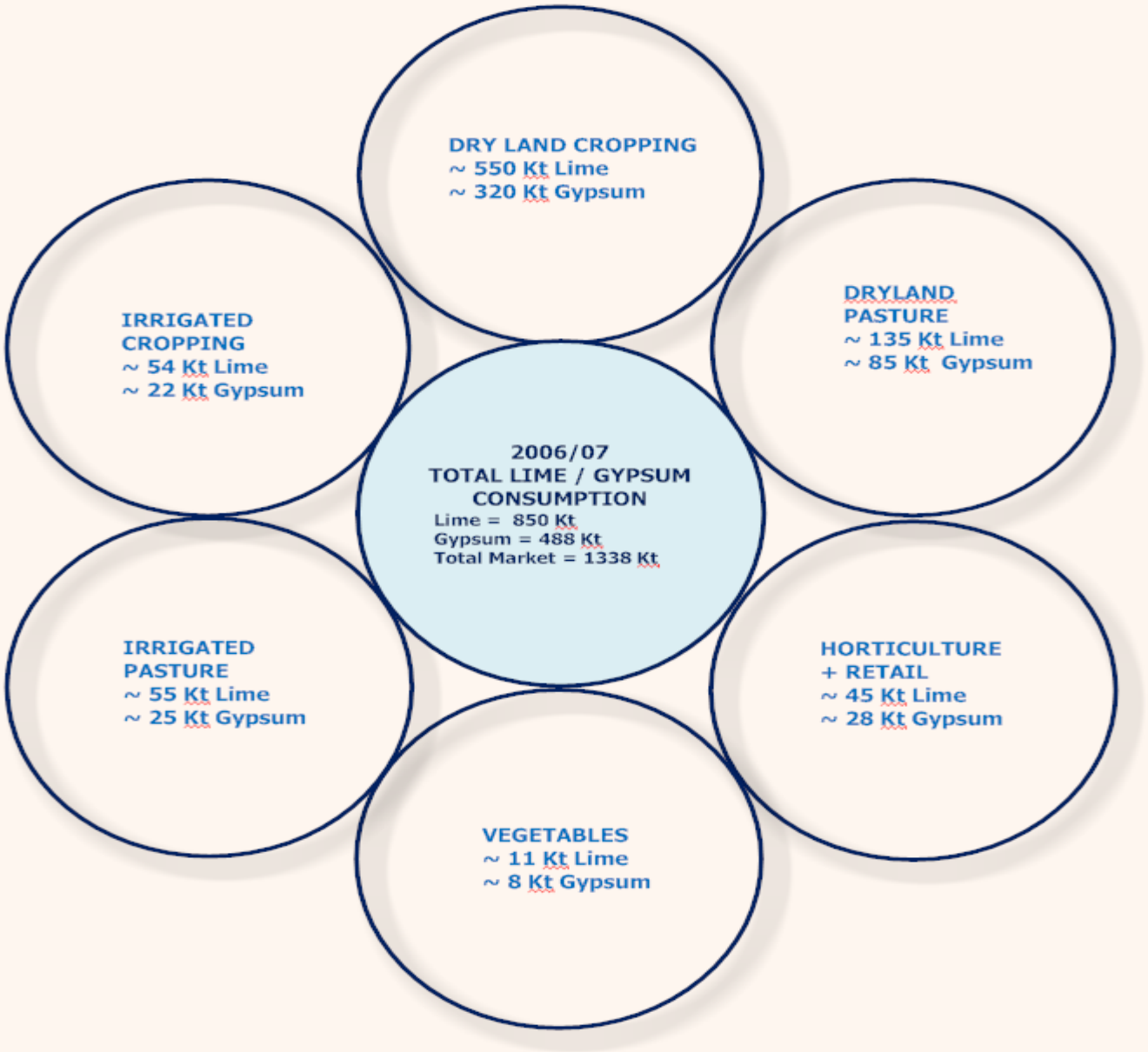
Winter Crop Production

- The ready availability of high quality granulated lime will change the way that soil pH adjustment is carried out

- Instead of applying 2-4 tonnes of powdered lime on a 5-10 year rotation and cultivating this lime into the soil profile, farmers will be able to apply 50kg per Ha per year via a disc drill or air seeder directly into the germination zone

- This application can take place at any time convenient to the farmer

2006/07 Australian Fertiliser Sector - Lime and Gypsum Market



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How will the Market Change

- The CPRS or similar system will restrict if not stop the landfill of organic wastes

- The CPRS or similar system will limit if not stop the surface spreading of manure, compost, lime and gypsum due to the emission issues inherent in these practices

How Big is the Impact?

- National changes to waste management arrangements under some form of CPRS will make a large pool of nutrients available for recycling – using DEHW figures and existing market data the quantum looks like:

  - Elemental P (P_2O_5 Equiv) ~387,000 tpy (46% of the market)
  - Nitrogen (R) ~448,000 tpy (53% of the market)
  - Elemental K (K_2O Equiv) ~516,000 tpy (234% of the market)

CONTROL OF THE NUTRIENT RESOURCE

- CFF controls some of the core technology to make this massive nutrient resource available to farmers for use in their existing equipment

- CFF will need ongoing access to chemical fertiliser for co-blending with this resource

- CFF and its chemical fertiliser supply partner will have a major impact on the Australian market.

The Barrier to Growth

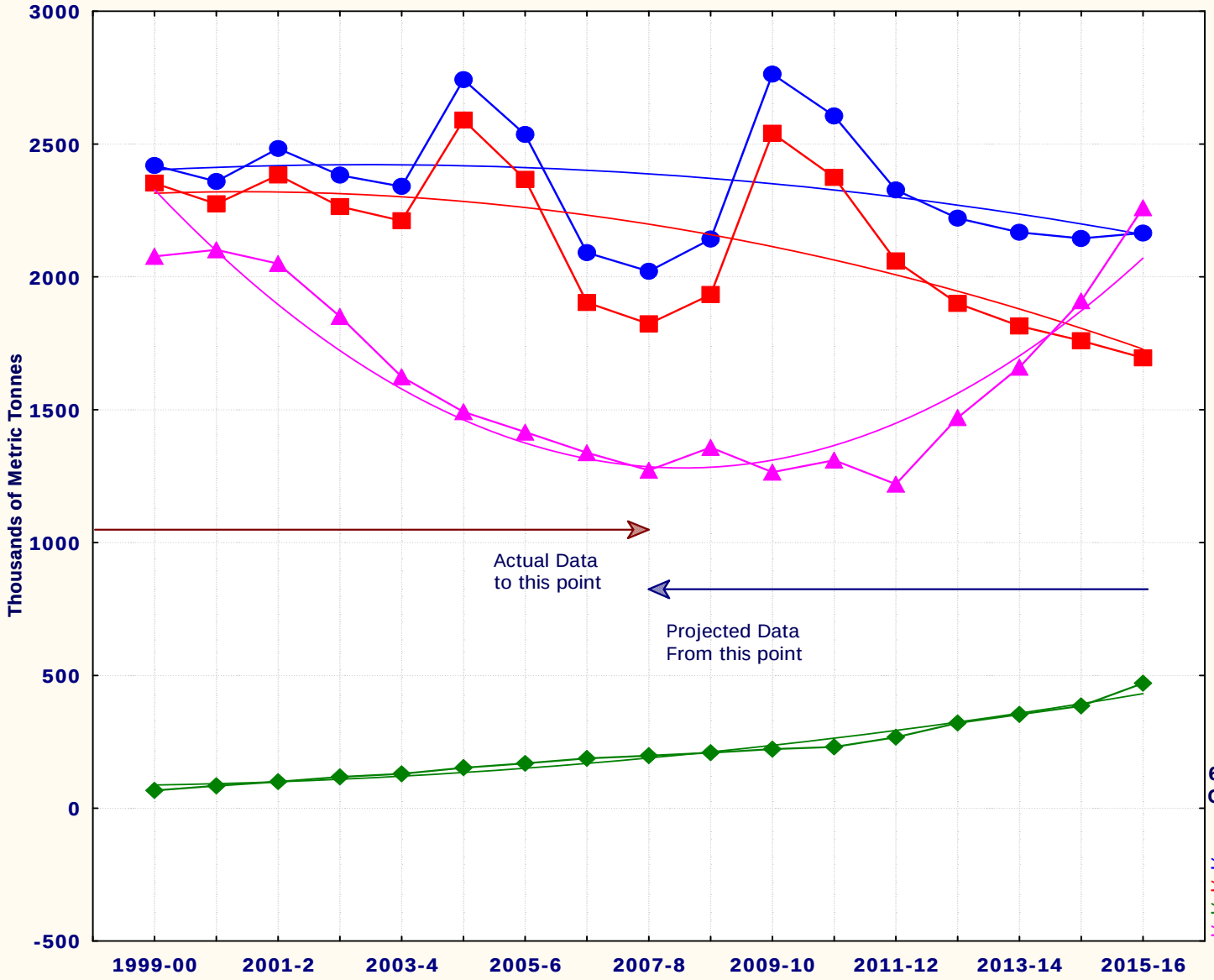
- The major handicap until now is that there was no capability to convert recycled products into a format that was compatible with existing 3rd Generation fertiliser application systems

The Market in 2016

- CFF Believes that the Fertiliser market place in 2016 will be very different to the market that exists at this time

- The following slide shows the synopsis of what CFF estimates this market will look like

Actual and Projected Australian Product Market Nutrients and Calcium 1999-00 - 2015-16



NOTE:
Projected data has a standard error of+10% to -10% related to climatic conditions

6482.sta
CFF 3/2010

- Total Nutrient Market
- Total - New Nutrients
- Total Recycled Nutrients
- Total - Calcium Products

R+D Production

- CFF has been making trial products since March 2009 with its pilot plant:
- 32 different proof of concept products including:
- Pathogen Free Replacement for Dynamic Lifter
- Lower cost replacements for DAP and MAP
- Granulated lime, gypsum and lime/biochar mixes
- Fully organic, broad acre hi trace element carbon based hi strength granular products

Field Trial

- Last winter CFF conducted a replicated field trial for winter wheat using a product CFF developed as a possible replacement for MAP in winter wheat production

- This product demonstrated that it was possible to replace MAP on a KG for KG basis with a lower cost CFF product and still maintain the same production levels


CFF
29.06.09

Cost Savings

- On the approx 640,000 tonnes of MAP used by Australian farmers in 2006/07 the use of the CFF product would have saved farmers in the region of **$A 192 million**

Capex comparison

- 3rd Generation Chemical Fertiliser Plants cost between $A eq 2,200 and $2,900 Capex per metric tonne of annual production

✓ **CFF plants cost in the region of $A 200 per metric tonne of annual production**

- However, the CFF plants require access to some 3rd generation product to produce a full product range


What's brown and sounds like a bell....?
... DUNG!
It might be 'dung' to you, mate, but it's my bread and butter!