



TASK IDENTIFIER	STUDENT NAME	TEACHER NAME
2.1	Logan Guldbransen	Miss Marley
TOPICS	GENRE	SITTING DATES:
Data	Report	Issued: 8/8 Draft Due: 18/8 4:00 (hand copy) Final Due: 25/8 4:00
TASK CONDITIONS		

TIME ALLOWED: 3 weeks (Two weeks in Class)

INSTRUCTIONS TO STUDENTS:

1. You must adhere to All Souls St Gabriel's Assessment Policy.
2. Any submitted work is to be typed
3. Show full working and/or reasoning/justification at all times.
4. Present your work neatly and use correct grammar, punctuation and spelling.
5. Use of a calculator is permitted.
6. Grades will be awarded according to the marking criteria grids
7. Your name must be on the front of this paper and on all separate pages of work submitted.

CCE's

Recalling/remembering, Graphing, Calculating with or without calculators, Substituting in formulae, Extrapolating, Sketching/drawing, Structuring/organising a mathematical argument, Setting out/presenting/arranging/displaying, Applying strategies to trial and test ideas and procedures, Applying a progression of steps to achieve the required answer

RESULTS

U&F

PS&R

TEACHER COMMENTS

Maths assignment - cotton data

Introduction- This data was collected from the Australian department of agriculture(website available in bibliography) .The data gathered is based on the cotton production rates nationally and internationally, the first table is an international production rate of cotton from 2005-2013. The second table shows the Australian harvest area, lint yield and cottonseed production in QLD, NSW and in all of Australia from 1990-2013. This data was gathered from the Australian government department of agriculture. The information shows Australia as the second largest cotton producing country in 2013 behind America. Australia supplies countries such as Indonesia, Thailand, China, Japan and several more countries.

Aim- To investigate the production of cotton and lint in Australia from 2003-2013 and compare to the rest of the world.

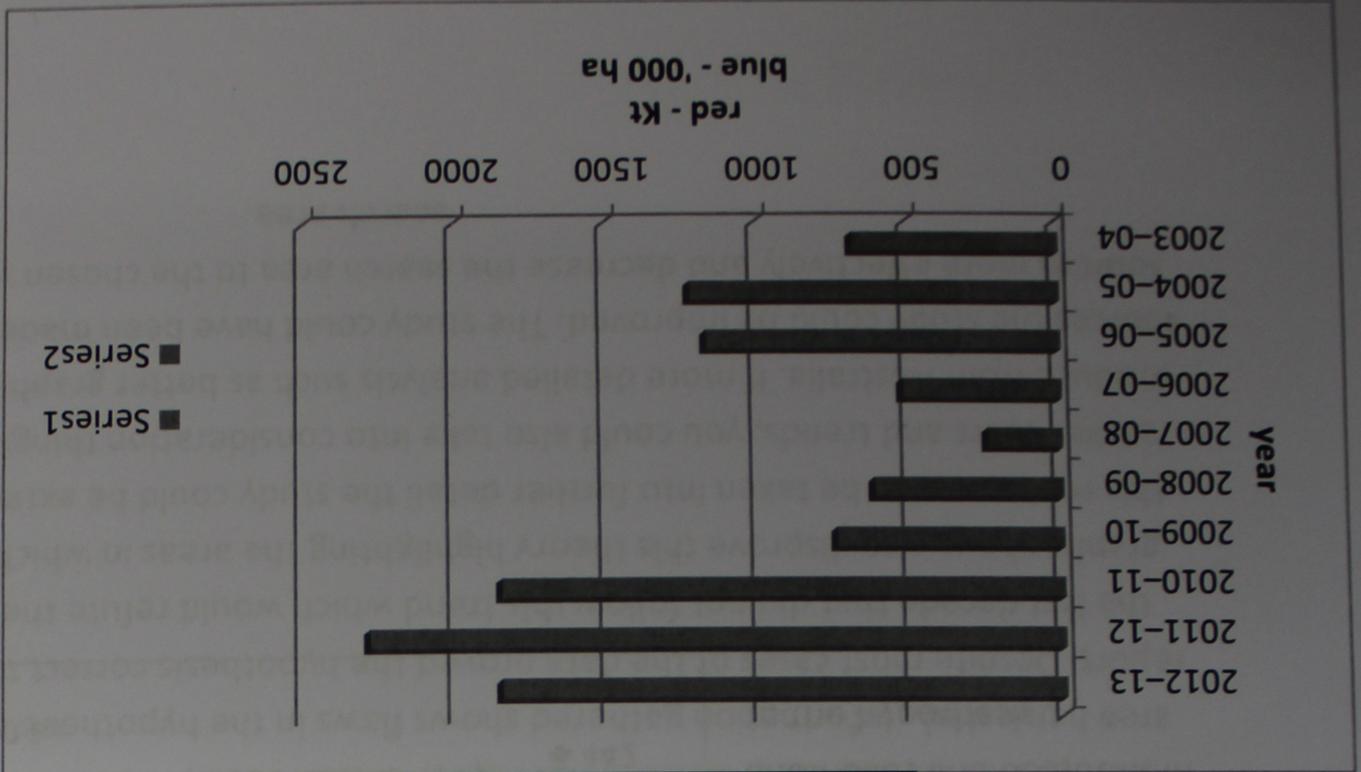
Hypothesis- Australia has higher cotton seed production in the years it has its largest area harvested.

Method- The information was collected from the website listed in the bibliography. The number

summary used includes mean, median, mode, max, min, range, q1, q3, and interquartile range. The mean is found by going to the box under the chosen column of data and typing =average (you then highlight from the top box of info to the bottom and two numbers will appear in the brackets e.g. =average (c22:c29) you then hit enter and the mean will appear in place of the formula. To find the median, mode max and min you do the same as the mean E.G. =median (c22:c29). The method for finding the range is slightly different you still type under the selected column but after the equals sign you will press on the box that has the max in it then – the box that has the min in it E.G = (c34-c35) this will give you the range. To find the quartiles, you type quartile after the equals sign then highlight the data then press comma 1(for quartile 1) or 3 (for quartile 3) this will give you the upper and lower quartiles. To find the interquartile range you will use the same method as the range except using the two quartiles instead of the min and max.

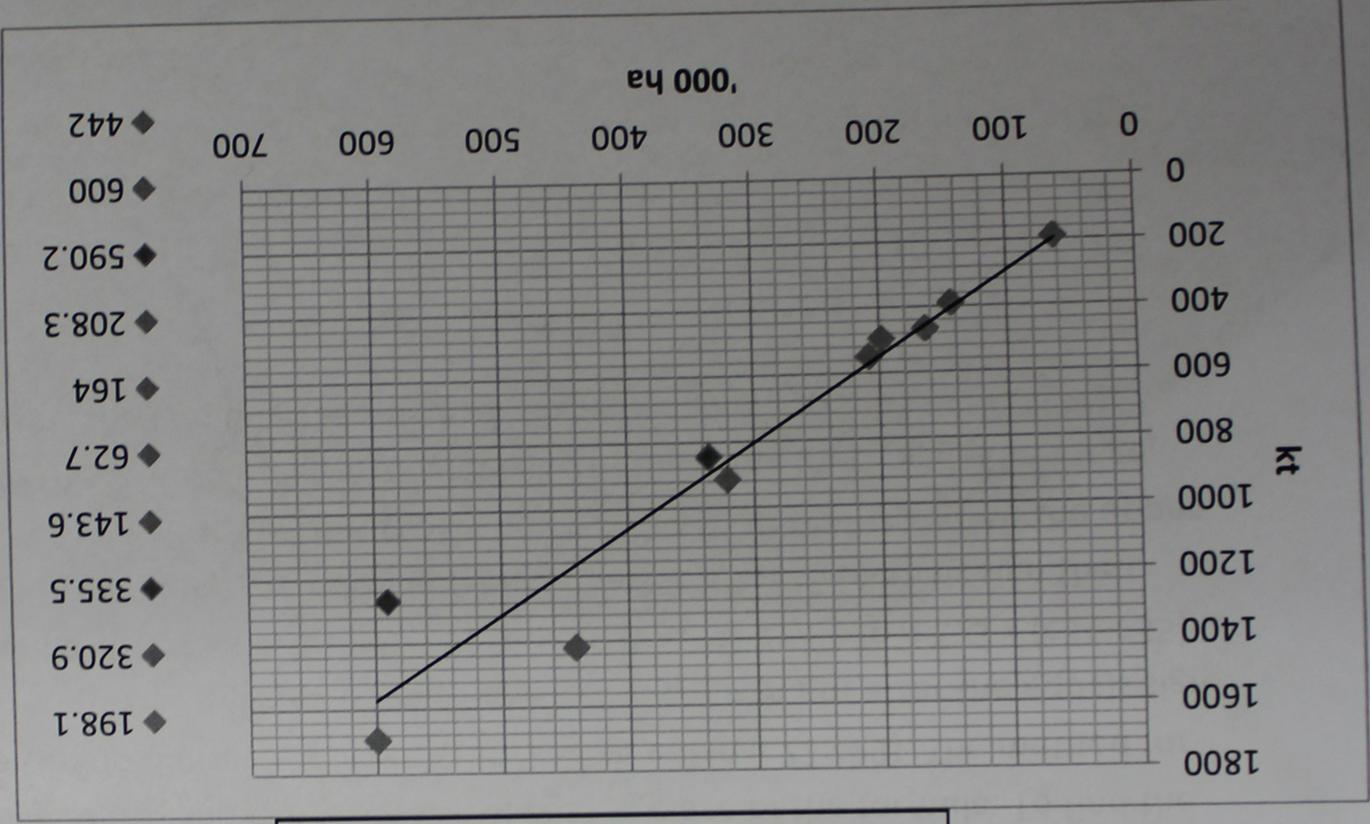
Results-

Australian cotton production



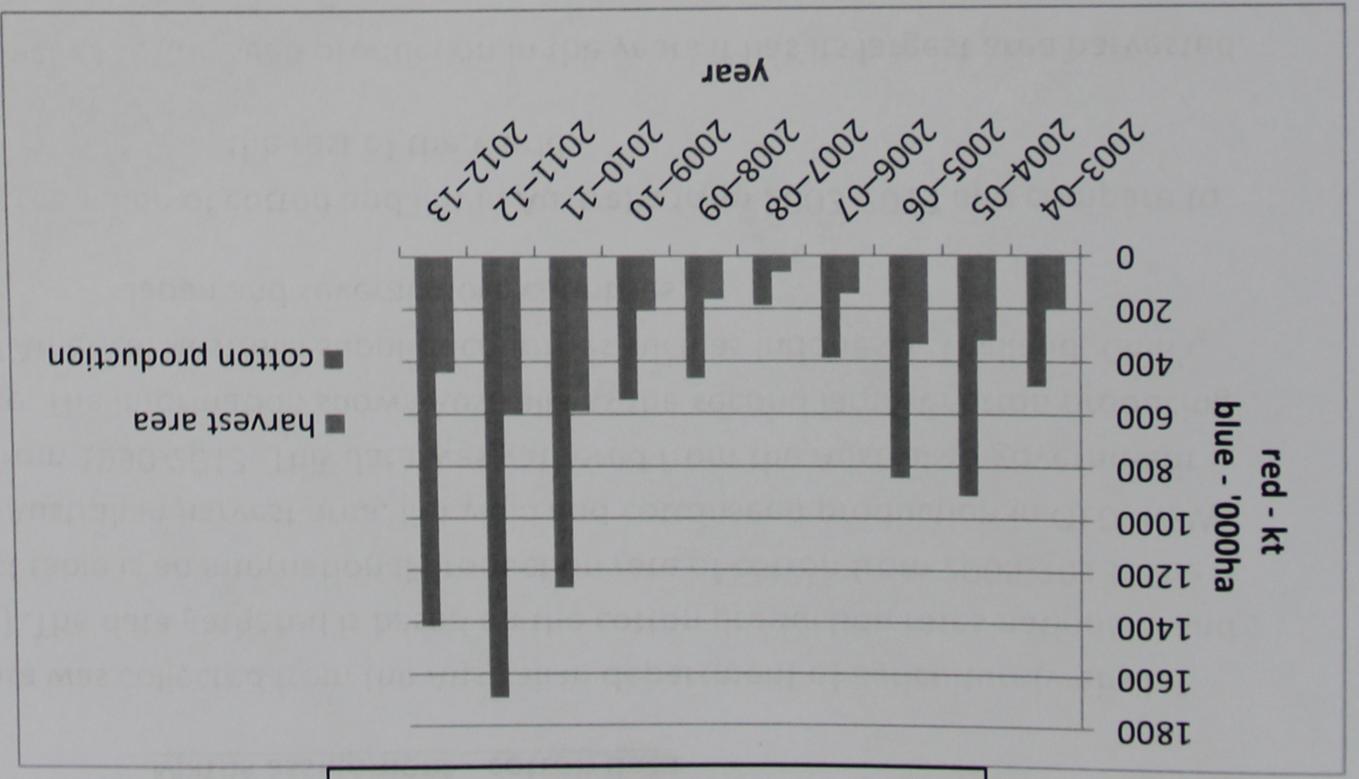
The two following graphs show the cotton production (red) in relation to the harvest area (blue) in Australia over the last 10 years. This graph give a brief understanding of the theory in a way of showing amount of harvest area compared to amount of cotton production. It has a trend that shows if one factor is larger the other is as well.

Australian cotton production stats



This graph shows the relationship between Australia's cotton production (vertical) and harvest area (horizontal) the blue dots are the years that follow the trend but the red dots are the years in the last decade that are anomalies and do not fit in to the hypothesis.

Australian cotton production and harvest area



The graphs show a trend over the ten years that in the years the harvest area is the largest Australia has produced more cotton.

The following graph has highlighted years which disprove the hypothesis

year	area	product
2003-04	198.1	493.7
2004-05	320.9	912.3
2005-06	335.5	844.4
2006-07	143.6	387.8
2007-08	62.7	187.8
2008-09	164	465.5
2009-10	208.3	547
2010-11	590.2	1269.4
2011-12	600	1693.5
2012-13	442	1416.9

Even though 2005-06 had a larger harvest area 2004-05 had a higher production rate for the cotton

2012-13 had a higher production rate of cotton compared to 2010-11 even though its harvest area was significantly larger.

mean	821.83	695.7
Product (with anomalies)	744.625	520.35
Product (without anomalies)	306.53	264.6
Harvest area (with anomalies)	285.975	203.2
Harvest area (without anomalies)		

This chart shows the mean and median for cotton production and harvest area in Australia in the last decade. In the red text the two anomalous years 2005-06 and 2012-13 have been removed which have changed the outcome for the mean and median.

Analysis-The aim of this report was to prove whether the hypothesis should be accepted or rejected. The hypothesis was that Australia has higher cotton seed production in the years it has its largest area harvested. Information gathered shows flaws in the hypothesis developed at the start of the report. Despite most cases of the data proved the hypothesis correct there were two cases found in the last decade that did not follow this trend which would refute the hypothesis. The tables and graphs above also disprove this theory highlighting the areas in which the hypothesis is flawed. If this report was to be taken into further detail the study could be extended to backtrack and study earlier years and trends, you could also take into consideration things like the lint yield and other produce from Australia. If more detailed analysis such as better graphs further detail and extended sources the study could be improved. The study could have been made easier through arranging the sources more effectively and decrease the search area to the chosen years which would shrink the search area.

Conclusion- Through the study performed it can be concluded the theory of Australia having a larger harvest area means it would have a higher cotton production has been proven false despite in some cases this theory proving to be true and applying to certain scenarios the final result is that this hypothesis is refuted.

Bibliography-

[http://data.daff.gov.au/data/warehouse/agcstd9abcc002/agcstd9abcc0022013/ACS2013_Cotton T
ables_v1.0.0.xls](http://data.daff.gov.au/data/warehouse/agcstd9abcc002/agcstd9abcc0022013/ACS2013_Cotton_Tables_v1.0.0.xls)

	Area Harvested	
	NSW '000 ha	QLD '000 ha
1990-91	202	77
1991-92	225	87
1992-93	204	82
1993-94	210	84
1994-95	157	89
1995-96	185.5	118.4
1996-97	277	119.1
1997-98	299.3	138.8
1998-99	381.7	179.9
1999-2000	313	151.3
2000-01	327.9	199.4
2001-02	289.7	119.3
2002-03	165.2	59.3
2003-04	97.2	100.8
2004-05	162.8	158.1
2005-06	214.3	121.2
2006-07	108.7	34.9
2007-08	41.2	21.4
2008-09	88	76
2009-10	123.8	84.5
2010-11	347.7	242.5
2011-12	358.1	241.1
2012-13	283.5	158.5

mean =AVERAGE(D22:D29)
 median =MEDIAN(D23:D29)
 mode =MODE(D23:D29)
 max =MAX(D23:D29)
 min =MIN(D23:D29)
 range =(D34-D35)
 Q1 =QUARTILE(C23:C29,1)=QUARTILE(D23:D29,1)
 Q3 =QUARTILE(C23:C29,3)=QUARTILE(D23:D29,3)
 IQR =(D38-D37)

otton Harvested, Lint

AUSTRALIA '000 ha	Lint Yield		
	NSW t/ha	QLD t/ha	AUSTRALIA t/ha
279	1.678	1.403	1.602
312	1.812	1.688	1.777
286	1.478	1.314	1.431
294	1.301	1.123	1.25
246	1.594	1.402	1.524
303.9	1.46	1.27	1.386
396.1	1.599	1.403	1.54
438.2	1.588	1.371	1.519
561.5	1.243	1.341	1.274
464.3	1.574	1.638	1.595
527.3	1.627	1.432	1.553
409	1.771	1.594	1.719
224.5	1.83	1.43	1.724
198.1	1.849	1.68	1.763
320.9	2.136	1.881	2.011
335.5	1.883	1.597	1.779
143.6	2.223	1.71	2.099
62.7	2.252	1.864	2.12
164	2.024	1.987	2.007
208.3	2.067	1.549	1.857
590.2	1.689	1.396	1.569
600	2.057	1.907	1.996
442	2.335	2.146	2.267

=AVERAGE(E22:E29) =AVERAGE(F22:F29) =AVERAGE(G22:G29) =AVERAGE(H22:H29)
 =MEDIAN(E23:E29) =MEDIAN(F23:F29) =MEDIAN(G23:G29) =MEDIAN(H23:H29)
 =MODE(E23:E29) =MODE(F23:F29) =MODE(G23:G29) =MODE(H23:H29)
 =MAX(E23:E29) =MAX(F23:F29) =MAX(G23:G29) =MAX(H23:H29)
 =MIN(E23:E29) =MIN(F23:F29) =MIN(G23:G29) =MIN(H23:H29)
 =(E34-E35) =(F34-F35) =(G34-G35) =(H34-H35)
 =QUARTILE(E23:E29,1) =QUARTILE(F23:F29,1) =QUARTILE(G23:G29,1) =QUARTILE(H23:H29,1)
 =QUARTILE(E23:E29,3) =QUARTILE(F23:F29,3) =QUARTILE(G23:G29,3) =QUARTILE(H23:H29,3)
 =(E38-E37) =(F38-F37) =(G38-G37) =(H38-H37)

Cottonseed Product			
	NSW	QLD	AUSTRALIA
	kt	kt	kt
526	160	686	
563	186	749	
365.1	162.4	527.5	
334.2	131.3	465.5	
286.5	187.1	473.6	
382.4	212.4	594.8	
627.5	232.6	860.1	
672.3	269	941.3	
677.5	346.9	1024.4	
695.7	350.4	1046.2	
740.5	399.5	1140	
777.1	276.4	1053.5	
425.3	120.5	545.8	
254.2	239.6	493.7	
491.8	420.5	912.3	
570.6	273.8	844.4	
311.1	76.7	387.8	
131.3	56.5	187.8	
252	213.6	465.5	
361.9	185.1	547	
805.2	464.2	1269.4	
1041.5	650.2	1693.5	
935.9	481	1416.9	

=AVERAGE(I22:I29) =AVERAGE(J22:J29) =AVERAGE(K22:K29)
 =MEDIAN(I23:I29) =MEDIAN(J23:J29) =MEDIAN(K23:K29)
 =MODE(I23:I29) =MODE(J23:J29) =MODE(K23:K29)
 =MAX(I23:I29) =MAX(J23:J29) =MAX(K23:K29)
 =MIN(I23:I29) =MIN(J23:J29) =MIN(K23:K29)
 =(I34-I35) =(J34-J35) =(K34-K35)
 =QUARTILE(I23:I29,1) =QUARTILE(J23:J29,1) =QUARTILE(K23:K29,1)
 =QUARTILE(I23:I29,3) =QUARTILE(J23:J29,3) =QUARTILE(K23:K29,3)
 =(I38-I37) =(J38-J37) =(K38-K37)

	2005-06	2006-07	2007-08
	kt	kt	kt
Africa	1495	1249	1024
Mali	223	185	109
Americas	4416	3209	3528
Australia	650	487	266
Greece	294	272	283
Uzbekistan	1045	980	915
Other	1641	1792	2371

mean =AVERAGE(B5:B12) =AVERAGE(C5:C12) =AVERAGE(D5:D12)
 median =MEDIAN(B6:B12) =MEDIAN(C6:C12) =MEDIAN(D6:D12)
 mode =MODE(B6:B12) =MODE(C6:C12) =MODE(D6:D12)
 max =MAX(B6:B12) =MAX(C6:C12) =MAX(D6:D12)
 min =MIN(B6:B12) =MIN(C6:C12) =MIN(D6:D12)
 range =(B17-B18) =(C17-C18) =(D17-D18)
 Q1 =QUARTILE(B6:B12,1) =QUARTILE(C6:C12,1) =QUARTILE(D6:D12,1)
 Q3 =QUARTILE(B6:B12,3) =QUARTILE(C6:C12,3) =QUARTILE(D6:D12,3)
 IQR =(B21-B20) =(C21-C20) =(D21-D20)

World Exports of Raw

2008-09	2009-10	2010-11	2011-12
kt	kt	kt	kt
778	886	882	983
71	96	98	136
3551	3097	3693	3782
260	395	505	994
174	191	163	218
653	827	577	544
1098	2263	1819	3 367

=AVERAGE(E5:E12)

=MEDIAN(E6:E12)

=MODE(E6:E12)

=MAX(E6:E12)

=MIN(E6:E12)

=(E17-E18)

=QUARTILE(E6:E12,1)

=QUARTILE(E6:E12,3)

=(E21-E20)

=AVERAGE(F5:F12)

=MEDIAN(F6:F12)

=MODE(F6:F12)

=MAX(F6:F12)

=MIN(F6:F12)

=(F17-F18)

=QUARTILE(F6:F12,1)

=QUARTILE(F6:F12,3)

=(F21-F20)

=AVERAGE(G5:G12)

=MEDIAN(G6:G12)

=MODE(G6:G12)

=MAX(G6:G12)

=MIN(G6:G12)

=(G17-G18)

=QUARTILE(G6:G12,1)

=QUARTILE(G6:G12,3)

=(G21-G20)

=AVERAGE(H5:H12)

=MEDIAN(H6:H12)

=MODE(H6:H12)

=MAX(H6:H12)

=MIN(H6:H12)

=(H17-H18)

=QUARTILE(H6:H12,1)

=QUARTILE(H6:H12,3)

=(H21-H20)

2012-13	2010-11	2011-12	2012-13
kt	kt	kt	kt
1278	882	983	1278
191	98	136	191
3900	3693	3782	3900
1306	505	994	1306
261	163	218	261
697	577	544	697
2533	1819	3367	2533

=AVERAGE(I5:I12)
 =MEDIAN(I6:I12)
 =MODE(I6:I12)
 =MAX(I6:I12)
 =MIN(I6:I12)
 =(I17-I18)
 =QUARTILE(I6:I12,1)
 =QUARTILE(I6:I12,3)
 =(I21-I20)

=AVERAGE(J5:J12)
 =MEDIAN(J6:J12)
 =MODE(J6:J12)
 =MAX(J6:J12)
 =MIN(J6:J12)
 =(J17-J18)
 =QUARTILE(J6:J12,1)
 =QUARTILE(J6:J12,3)
 =(J21-J20)

=AVERAGE(K5:K12)
 =MEDIAN(K6:K12)
 =MODE(K6:K12)
 =MAX(K6:K12)
 =MIN(K6:K12)
 =(K17-K18)
 =QUARTILE(K6:K12,1)
 =QUARTILE(K6:K12,3)
 =(K21-K20)

=AVERAGE(L5:L12)
 =MEDIAN(L6:L12)
 =MODE(L6:L12)
 =MAX(L6:L12)
 =MIN(L6:L12)
 =(L17-L18)
 =QUARTILE(L6:L12,1)
 =QUARTILE(L6:L12,3)
 =(L21-L20)

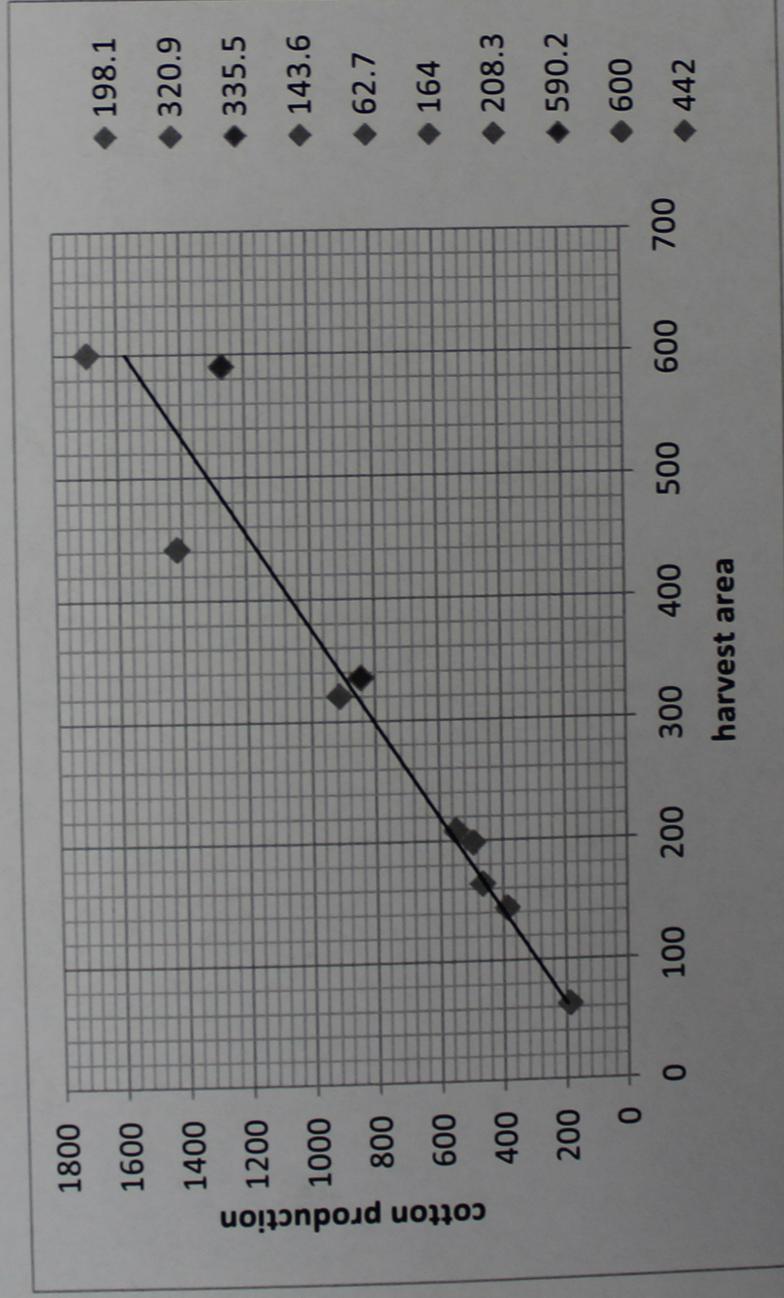
Cotton production in Australia

A theory has been developed that the cotton production in Australia in the last decade has been higher when it has a larger harvest area.

Research has been performed in an attempt to prove this theory. There has been a study into the trends and anomalies in the cotton production in Australia in the past ten years in.



A lot of research has been put into it that shows key events that this hypothesis proves correct in



It has been discovered there are certain occasions in the last decade that have proved this hypothesis false and resulted in it being refuted as correct theory.

The information gathered to perform this study was collated from the Australian government department of agriculture website below. If you wish to learn more read on at the website

http://data.daff.gov.au/data/warehouse/agcstd9abcc002/agcstd9abcc0022013/ACS2013_Cotton_Tables_v1.0.0.xls