

## Year 8 Independent Learning Project (ILP)



Subject: **Maths**

ILP Title: **Food crops**

<b>In this project you will learn:</b> <ul style="list-style-type: none"><li>• How to read and interpret information from tables and graphs.</li><li>• How graphs can sometimes give misleading information.</li></ul>	Time you should spend on this project:  No more than 4 hours
<b>At the end of this project you should:</b> <ul style="list-style-type: none"><li>• Have answered all questions and shown your working out.</li><li>• Checked your answers using a calculator.</li><li>• Hand your completed activities to your maths teacher.</li></ul>	
<b>You should break down your time in the following way:</b> Tasks 1-4 should take no more than one hour each.	
<b>Weblinks you should use to help you with this task:</b> <a href="http://www.mymaths.co.uk">www.mymaths.co.uk</a> : add and subtract decimals (search 1007), real life graphs (search 1184).	
<b>Other resources and ideas which may help you could be:</b> You could create your own Excel spreadsheet for Task 1 and investigate how to do these calculations.	
<b>Your work will be assessed by:</b> Your maths teacher will provide a written or verbal comment on the tasks you have completed.	
<b>The key words to learn in this project are:</b> Crops, produced, consumed, stocks, representation, bushel, biodiesel.	
<b>Your parents may be able to help you by:</b> <ul style="list-style-type: none"><li>• Test you on the definitions of key words and explain them if needed.</li><li>• Checking spelling.</li><li>• Ensure you complete all tasks.</li></ul>	



## Case study 3: Food crops

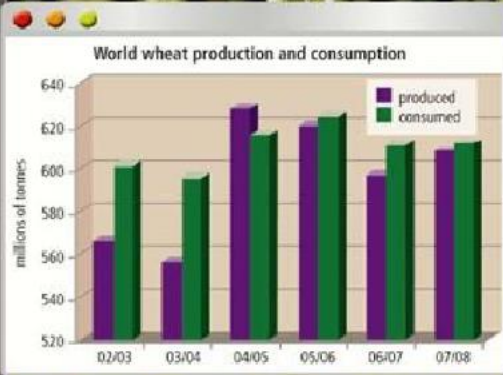
Wheat has been cultivated for around 10000 years, originating from an area that is now part of Iran. It is still vitally important to us today, and keeping the world fed is a delicate balance between production and consumption.

### Task 1

The table shows world wheat production between the years 2002 and 2008. The row labelled 'stocks' shows how much wheat is left in reserve.

World wheat production, consumption and stocks (million tonnes)							
	02/03	03/04	04/05	05/06	06/07	07/08	
produced	566	556	628	620			608
consumed	601	596	616		611	612	
stocks	169	129		137	123		

- Find the figure '129' in the spreadsheet. Can you work out how it was calculated? Show your workings.
- Complete the missing entries in the spreadsheet.
- In how many years does consumption of wheat exceed production?
- What is happening to the stocks of wheat that are held in reserve?



### Task 2

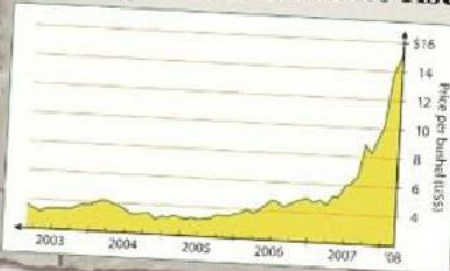
Here is a bar chart generated from the spreadsheet.

For the first two years, the 'produced' bar is roughly half the height of the 'consumed' bar.

- How does that compare with the figures in the spreadsheet for those years?
- Do you think that the chart is a good representation of the actual figures? Explain your reasoning. Suggest improvements if appropriate.

The graph shows the price of wheat between 2003 and 2008. A 'bushel' is an agricultural unit, usually of weight.

## Wheat prices continue to rise

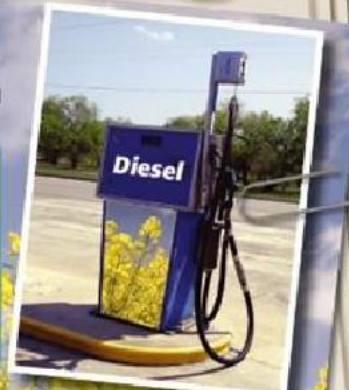
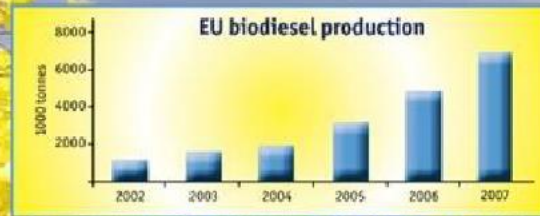


### Task 3

- Roughly what is the lowest price a bushel of wheat has cost since 2003?
- When was the price at its lowest?
- How long did the price take to double from its lowest value?
- How long did it take to double again?



Crops are not only used for food. Some crops, such as rapeseed, are used to make biodiesel, which is an alternative source of fuel. The bar chart shows the trend in production of biodiesel in the EU between 2002 and 2007.



### Task 4

- Write down estimated values for the biodiesel production for each year from 2002 to 2007.
- Roughly how many times bigger is the production of biodiesel in 2007 than it was in 2002?
- (Harder) Looking at the trend, what do you think the EU biodiesel production would have been in 2012? See if you can find the real value on the Internet and compare with your estimate. How close are you?