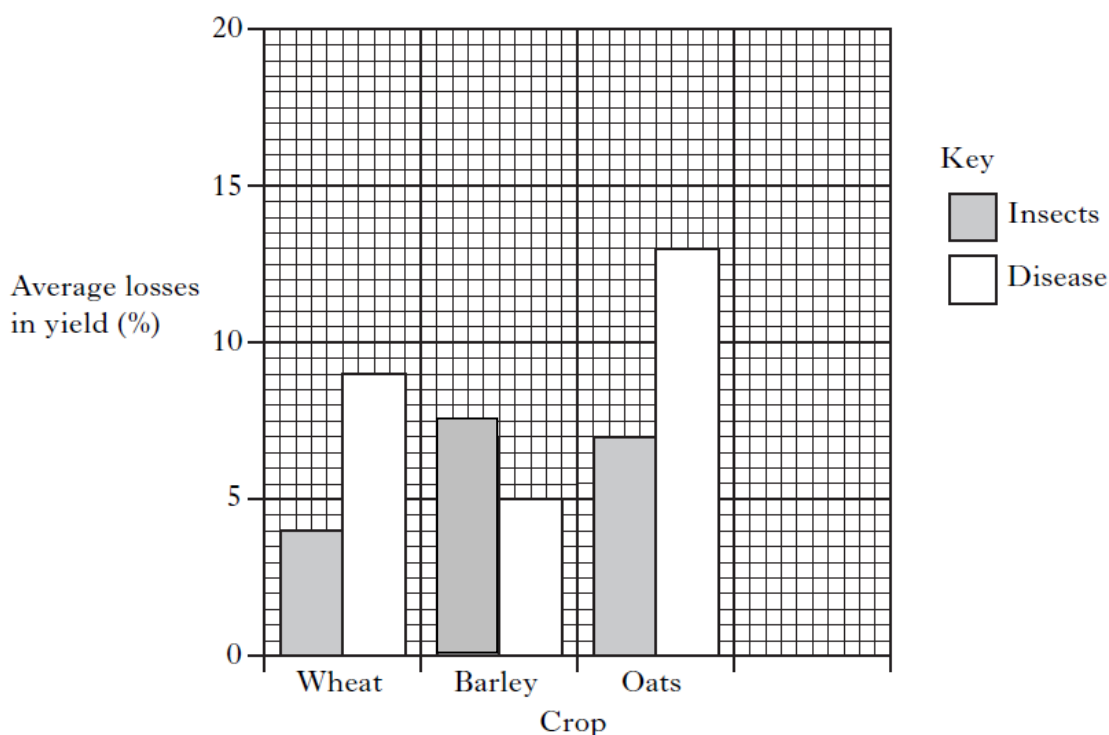


## N5 Biology LE5 Food Production Homework

1. Decide if each of the following statements about the distribution of life is **True** or **False**. If the statement is **False**, write the correct word to replace the word underlined. [3]

Statement
i) The increase in human population is <u>requires</u> farmers to <u>decrease</u> their crop yield.
ii) Nitrates absorbed by plants are needed to make <u>carbohydrates</u> .
iii) Eutrophication leads to <u>decreased</u> aquatic biodiversity.

2. The bar chart below shows the average annual **losses in yield** caused by insects and disease in the production of three crops in Scotland.



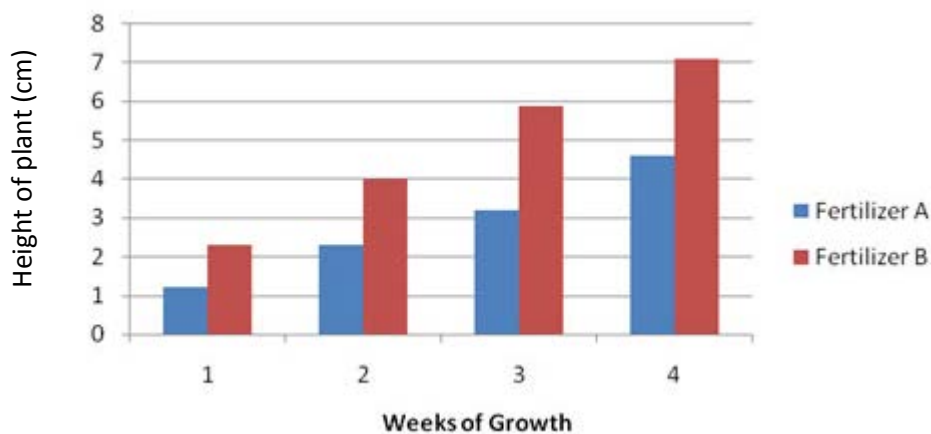
- a) Which crop has the lowest combined losses from these two causes? [1]
- b) The total yield of oats which **would have been produced** if insects and disease had not affected the plants is 162,500 tonnes. Calculate the total crop of oats harvested after the effects of insects and disease. [1]
- c) Calculate the **simple whole number** ratio of loss in yield of barley from insects to disease? [1]

3. The graph below shows the results of an investigation into the effect of two fertilisers on plant growth.

- a) What are the **independent** and **dependent** variables? [2]

b) What **conclusion** can be drawn from this investigation?

[1]



c) Suggest a suitable control for this investigation.

[1]

4. The table below shows the results of an investigation into effects of different levels of fertiliser applied to a pea crop.

Crop growth	Nitrogen applied (kg)		
	0	45	90
Pods per plant	10	30	50
Seeds per pod	20	22	25

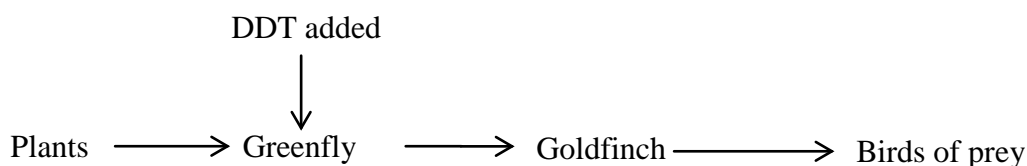
a) What is the percentage increase in pods per plant from 0 kg Nitrogen to 90 kg Nitrogen? [1]

b) Calculate the number of seeds produced per plant at each mass of nitrogen applied - present this information in a table? [3]

5. Draw a diagram or flow chart to explain the stages of eutrophication. Include the following terms - algal bloom, bacteria, biodiversity, fertilisers, oxygen, photosynthesis, respiration. [6]

6. DDT is an insecticide which can be used to kill insects such as lice, fleas and greenfly.

*Example:*



DDT builds up in the bodies of animals as it cannot be broken down.

a) Greenfly were sprayed with DDT. After a period of time DDT levels were measured in each type of organism shown. State which of these organisms would have the highest levels of DDT. [1]

b) State the term used for the build up of the pesticide in animals. [1]

c) As an alternative to using DDT, ladybirds were introduced to feed on greenfly. State the name given to this method of reducing numbers of crop pests. [1]

d) Predict what might have happened to the number of goldfinches if the DDT had the desired effect on the greenfly. [1]

e) Name another method that could be used as an alternative to the use of pesticides. [1]

Total = 25 marks
------------------