N5 Biology **LE5 Food production** LEARNING OUTCOMES

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| -+\* | by the end of each lesson you should know (including meanings of **key words**) |
| **Increasing** **Crop Yield** |  | * I can explain that increasing human population requires an **increased food yield.**
* I can explain that increasing food yield can involve the use of **fertilisers** and **pesticides**.
* I can state that **fertilisers** provide chemicals such as nitrates which increase crop yield
* I can state that plants and animals which reduce crop yield can be killed by **pesticides**
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| **fertilisers** |  | * I can state that **nitrates** dissolved in soil water are absorbed into plants.
* I can explain that nitrates are used to produce **amino acids** which are synthesised into plant **proteins**.
* I can explain that animals **consume** plants or other animals to obtain amino acids for protein synthesis.
* I can state that **fertilisers** can be added to soil to increase the **nitrate** content of the soil.
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| **algal bloom** |  | * I can describe **eutrophication**:
* **fertilisers** can **leach** into fresh water, adding extra, unwanted nitrates.
* This will increase algal populations which can cause **algal blooms**.
* Algal blooms **reduce light levels**, killing aquatic plants.
* These dead plants, as well as dead algae, become food for **bacteria** which increase greatly in number.
* The bacteria use up large quantities of **oxygen**, reducing the oxygen availability for other organisms.
* algal blooms therefore result in the **death** of many aquatic organisms
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| **pesticides** |  | * I can explain that **pesticides** sprayed onto crops can **accumulate** in the bodies of organisms over time. As they are passed along food chains, toxicity increases and can reach lethal levels.
* I can state that build-up of toxic substances in living organisms is known as **bioaccumulation**.
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| **Alternative farming practices** |  | * I can explain that **genetically** **modified** (GM) crops can be used to reduce the use of fertilisers. E.g. **GM crops** are being developed to increase the plants’ ability to absorb nitrates
* I can state that the use of **biological control** and **genetically modified (GM)** crops as alternatives to the use of **pesticides**.
* I can state that **biological control** is the control of a pest using its natural consumer or a disease
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