**Courses for**

**Royal**

**Horticultural**

**Society**

**Qualifications**

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| **RHS Level 3 Certificate**  **in**  **Plant Growth, Garden Planning and Applied Propagation** |

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| **Unit 1 Topic 2**  **Recap and research notes** |

**This workbook is saved as a Word document so that you can type into it:**

**this means spacing is just a rough guide, the text is fluid and you can alter the spacing as you make notes.**

**Recap and research notes**

This section is designed to help you consolidate and recap the material for AO1 and AO2 (knowledge and application) which you have covered for this topic.

**Topic 2: Plant Knowledge**

**E1. The role of exploration on plant diversity**

***Gardens through time: where did all the plants come from?***

In topic 1 you looked at a timeline of garden styles. Here you need to start with some examples of plant introductions from the sixteenth to the twenty-first century. To link with the rest of this topic, it will be good to have the origin of the plant and its collector with each example.

**Suggestion: find three plant examples for each era.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Period** | **Plant name** | **Who introduced it?** | **Where did it come from?** |
| **Sixteenth century** |  |  |  |
| **Seventeenth**  **century** |  |  |  |
| **Eighteenth century** |  |  |  |
| **Nineteenth century** |  |  |  |
| **Twentieth century** |  |  |  |
| **Twenty-first century** |  |  |  |

**The impact of plant exploration and introductions:**

* **On world populations of people**
* **On world populations of plants**
* **On gardens in Britain.**

**Exploration and peoples:**

Population growth is based on the availability of resources, including basic food crops.

* Dependence on the potato as a basic food crop led to the great Irish potato famine when harvests were struck by blight.

**How did the introduction of various trade crops affect local populations, the community, culture and local biodiversity?**

Examples to consider could be

* Cotton production in the Caribbean and USA and manufacture in the UK ([university of Warwick archives](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiaideo7M-BAxWGLcAKHd9TDvkQFnoECCYQAQ&url=https%3A%2F%2Fwarwick.ac.uk%2Ffac%2Farts%2Fhistory%2Fpeople%2Fstaff_index%2Fgriello%2Fcotton-the_making_of_a_modern_commodity_-_riello.pdf&usg=AOvVaw1hlPMWfySPOwyaLXqfljae&opi=89978449))
* Jute production in Bengal and manufacture in Scotland (Dundee was ‘Juteopolis’ in the nineteenth century: see [Warwick University’s digitised library](https://warwick.ac.uk/services/library/mrc/archives_online/digital/tradeboard/jute/) )

A person working on a machine

Description automatically generated

* Sugarcane in the Caribbean
* Coffee and tea in South-East Asia
* Rubber, tobacco and currently palm for oil would also be examples where local mixed subsistence growers supporting a community are swept up in monocultures for export which have a massive impact on biodiversity.
* Production of maize by local farmers, and then first the growth of large scale farming for export and subsequently reliance on US imports, followed again by greater self-sufficiency is detailed in a [UN paper on Mexican farming.](https://www.un.org/en/chronicle/article/tracing-maize-tortilla-chain)

**Suggestion: note some details from one example.**

There are a lot of excellent and very readable books which show the impact of trade in key plants on the shaping of the modern world, e.g. *Seeds of Change: Five Plants That Transformed Mankind* by Henry Hobhouse.

**Plant breeding initiatives**

These could include the export of subsidised US genetically modified soya and maize seeds to South American farmers, which prevented them from saving their own seed in their traditional farming patterns (as well as the impact of reckless pesticide use where these seeds were planted).

**The impact of plant introductions on world populations of plants**

* Consider the effect on biodiversity of rainforest clearances to make way for commercial plantations producing bananas, palm oil, pineapple, sugar cane, tea and coffee for international trade.
* Also consider the impact of invasive non-native species, described by the RHS [here](https://www.rhs.org.uk/prevention-protection/invasive-non-native-plants).

**Suggestion - note one example of the adverse effect of a plant introduction.**

**The impact of plant introductions on British gardens**

Your notes give you extensive examples of how the expeditions of successive plant hunters from the Tradescants onwards have enriched British gardens. Your examples (above) should cover this.

**What are the main genetic advantages of wild-collected plant material?**

**What are the ethical problems in collecting plant material today?**

**There are some positive environmental impacts of plant collection:**

* the potential conservation of plant species through their wider distribution
* reintroduction after habitat loss in the wild

**however the negative impacts on local plant populations are generally greater.**

The RHS asks you to think about the impact of wild plant collection on both the donor and recipient ecology.

**What are the potential effects on**

* **the ecology from where plants are taken?**
* **the ecology into which they are introduced?**

**Regulation of international plant collection**

* **What are the main implications of the Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES)?**
* **What are the main implications of the Convention on Biological Diversity?**
* **What are IUCN Red Lists?**
* **What regulations cover the export and import of plants in the UK?**

**E2. Plant information sources**

**Plant information**

* **What is the purpose of the International Code of Botanical Nomenclature?**
* **What is the International Code of Nomenclature for Cultivated Plants?**
* **What is a nomenclatural standard?**
* **What is a type specimen?**
* **What is the role of the International Plant Names index?**
* **What role does *The Plant Finder* play in horticultural nomenclature?**

**Ecosystem services**

**What are the main forms of each of the following ecosystem services:**

* **regulating?**
* **Cultural?**
* **Supporting?**
* **Provisioning?**

**What standard resources for plant information does the RHS provide?**

**E3. Applied plant knowledge**

RHS guidance on the scope of this section defines **r**esearch as ‘any scientific, or grower/garden led formal or informal trials.

Communication can be defined as channels of information through which that research is made available to practitioners. Learners should be able to interpret the terminology used within simple/basic botanical glossaries.’

* **Where would you find information about the origin, natural habitat, geographic spread of a plant?**
* **Give an example folklore/medicinal uses of a plant.**
* **What is the relevance of a plant’s natural method of propagation to its use in a planting scheme?**
* **How do you assess the biodiversity rating of a garden border?**
* **What sources can give you the conservation status of a plant?**
* **Think of two examples of the predictive nature of scientific names:**
* **Think of four examples of the advantages of scientific names:**

**E4. Managing plants within botanic and other gardens**

Plant collections need to be named and recorded correctly to have value for conservation, research, education and communication.

* **If plants are the living collections within a garden, what other sorts of collections might there be in a garden?**
* **What is an accession number?**
* **What other information might be useful in a plant database?**
* **What are the advantages and the limitations of a plant database?**

**Describe the specific function of these digital tools:**

* **BG Base**
* **BRAHMS**
* **Candide**
* **Iris**
* **Persephone**