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Literature Review Instructions

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Report for
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1 Objective

To support the development of a flexible, high-resolution modelling framework by conducting a structured literature review of:

1. The **existing Tasmanian Enterprise Suitability Maps (TESMs)** – their inputs, methods, and limitations
2. Comparable **crop suitability models** from other regions
3. **Emerging, high-value, or climate-resilient crops** suitable for Tasmania's cool temperate climate

Your review will guide improvements to TESMs and the inclusion of specialty crops (e.g. truffles).

2 Part 1: Review of the Existing Tasmanian Enterprise Suitability Maps (TESMs)

2.1 Tasks

- **Summarise current model features**
 - List/tabulate all crops currently included
 - Identify spatial inputs (e.g. rainfall, soil type, temperature, slope)
 - Describe modelling approach (deterministic rules, scoring thresholds)
 - Note assumptions (irrigation assumed, no uncertainty, uniform management)
- **Critically assess limitations**
 - Missing inputs (e.g. chill hours, pH, drainage, frost exposure)
 - Lack of uncertainty estimation or validation
 - Inflexibility for adding niche or specialty crops
 - Over generalization (ignoring micro climates, management practices)

2.2 Suggested Comparator Models

Briefly describe 2–3 of the following alternative suitability frameworks, focusing on inputs, methods, uncertainty, extensibility:

- **New Zealand S-map & Crop Suitability Layers** (Manaaki Whenua – Landcare Research)
 - Includes truffles and other specialty crops
 - Integrates soil, climate & management
 - Modular and extensible design
 - Victorian Horticulture Crop Suitability Framework
 - Queensland Land Suitability Guidelines (DES)
 - FAO EcoCrop / GAEZ
 - USDA Crop Suitability Tools
 - CSIRO land evaluation frameworks
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3 Part 2: Literature Review on Emerging & Climate-Resilient Crops

3.1 Selection Criteria

Identify crops that are:

- Not in TESMs
- High-value or specialty (e.g. truffles, saffron, hops)
- Climate-resilient (drought/frost/salinity tolerance)
- Suitable for regenerative, small-scale systems in Tasmania
- Under trial or limited local production (bonus)

3.2 Crop Summary Requirements

For each candidate crop, capture at minimum the details required as input to the existing TESM, and any others identified from your literature review, e.g:

- **Climatic:** temperature range, rainfall, chill hours, frost/heat tolerance
 - **Soil:** texture, drainage, pH, organic matter
 - **Topography:** slope, elevation suitability
 - **Water:** irrigation needs or dryland tolerance
 - **Management:** pest/disease issues, growing season, pollination
 - **Markets:** value, demand trends, Tasmanian viability
 - **Model Inputs:** spatial variables you could add to TESMs
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4 Deliverables

1. Narrative Report (4–6 pages)

- Executive summary
- TESMs overview & limitations
- Comparator model insights
- 5–10 recommended crops (with focus on truffles)
- Recommendations for new inputs & uncertainty handling

2. Reference List

Please only use Peer-reviewed journals, government & industry reports. Use reference formatting according to Monash unit guidelines.

5 Resources

- **TESMs:** <https://dpirwe.tas.gov.au/agriculture/land-resources/land-capability-and-suitability/enterprise-suitability>
 - **NZ S-map:** <https://smap.landcareresearch.co.nz/>
 - **FAO EcoCrop:** <https://ecocrop.fao.org/>
 - CSIRO, AgriFutures, DPIPWE, AgVic, QLD DES publications
 - Google Scholar, Scopus, Web of Science, Trove
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