

Introduction

Gardeners in Australia are facing a race against time as they experience the growing impact of climate change in their own gardens. The changing climate is presenting unique challenges for gardeners and causing them to question the effectiveness of traditional gardening practices.

Climatic shifts, such as Prolonged droughts, erratic precipitation patterns¹, and rising pest populations², drive Australian gardeners to adopt more resilient and sustainable practices to ensure their gardens' health and thrive under increasingly harsh conditions. Climate-resilient gardening emerges as a necessary evolution for home gardeners seeking to sustain vibrant and productive gardens.



At the heart of climate-resilient gardening is regenerative gardening³, which focuses on restoring and enhancing soil health, promoting biodiversity, and sequestering carbon. This approach helps mitigate the adverse effects of climate change and contributes to broader environmental sustainability. For home gardeners, developing a personal climate change action plan involves specific steps like improving soil quality, selecting appropriate plants, and designing the garden layout. By implementing these strategies, gardeners can transform their spaces into resilient gardens that not only survive but also thrive under changing conditions while playing a part in mitigating climate change impacts.

Soil Preparation

Droughts have become more frequent and severe, reducing soil moisture and increasing water stress on plants⁴. Meanwhile, altered precipitation patterns, including heavier rainfall events, are causing waterlogging and erosion⁴ in some areas, while others experience prolonged dry spells. These extremes not only stress plants but also create ideal conditions for various pests² that thrive in warmer and more variable climates.



This underlines the importance of soil health as a cornerstone of climate-resilient gardening, playing a critical role in both adaptation and mitigation of climate change impacts⁵. Regenerative gardening focuses on restoring soil ecosystems through practices such as composting, mulching, and avoiding chemical inputs. These practices enhance soil fertility and water retention, leading to improved plant health and helping to sequester carbon.

Soil testing is helpful for understanding the specific composition of the soil, such as nutrient deficiencies, pH imbalances or contamination. This allows gardeners to make informed decisions about amendments and plant

selection. Easy DIY soil testing methods and soil testing services are available online, helping gardeners understand their soil's needs and adjust it accordingly. Synthetic fertilisers or pesticides should be avoided to protect the soil's microbial life, vital for plant health and growth.



Adapting to climate extremes involves creating resilient soil systems that endure droughts and heavy rains⁶. Techniques like no-dig gardening and avoiding exposed topsoil are effective; layering organic matter reduces soil disturbance, maintains structure, and enhances biodiversity⁷. This improves water infiltration and retention, which is crucial for managing erratic precipitation, and reduces topsoil erosion⁴. Mitigation efforts focus on similar sustainable practices that reduce greenhouse gas emissions, as healthy soils act as carbon sinks by capturing atmospheric CO₂⁵. These methods include organic mulching, implementing cover crops and no-dig practices, enhancing microbial activity, improving soil structure, and significantly reducing erosion and nutrient loss⁷.

By prioritising soil health, Australian gardeners can create more resilient landscapes that withstand the impacts of climate change and support sustainable gardening practices benefiting the broader environment.

Plant Selection

Plant selection is an important part of climate-resilient gardening, given the challenges of droughts, erratic rainfall, and temperature extremes. Prioritising plants that can endure climate variability is key to ensuring the garden's health and viability. Local indigenous plants are well-adapted to your garden's soil and climatic conditions, requiring minimal water and maintenance while supporting local biodiversity. Many native plants have evolved to thrive in Australia's diverse climates, making them more resistant to local pests and diseases and providing food and shelter for native animals and insects⁸. Gardeners should only plant non-native plants if they are not considered invasive. Local councils usually provide invasive species, weeds, and indigenous plant lists.



Furthermore, gardeners should focus on perennial plants, which are better equipped to face climate extremes than annuals. Perennials have deeper roots that reach low-lying water tables⁹. By planting perennials, the no-dig approach is naturally followed, and the integrity of the soil is preserved. Planting ground covers or mulching to avoid exposed soil will prevent water evaporation during droughts and the erosion of fertile soil during extreme rains. Replacing large lawn areas with native alternatives will also significantly reduce water usage and enhance biodiversity in your garden.

Companion planting is another useful approach for a climate-resilient food-producing garden¹⁰. It promotes Biodiversity and can reduce the spread of pests. It also strengthens soil health through varying root structures and diverse nutrient supply, improving soil fertility and structural integrity. The [SGA website](#) provides a valuable

and comprehensive list of companion plants. By carefully selecting the right plants for your garden and local conditions, you can reduce garden maintenance, protect the soil and establish a sustainable and resilient garden ecosystem.

Garden Design



A thoughtful garden design connects the knowledge of soil health and plant selection in a climate-resilient garden. To start, a site analysis should be conducted to investigate the garden orientation and the sun path to uncover the hottest and most shaded areas and to plan accordingly. Understanding the flow of water due to slopes and sealed soils will help to maximise rainwater use and prevent soil erosion and nutrient runoff. Avoiding non-permeable paving and considering alternatives like cobble-stone paving or stepping stones will provide natural water absorption.

Capturing rainwater and installing rainwater tanks will help gardeners reduce their reliance on municipal water supplies and provide a sustainable water source during droughts.

A climate-resilient garden is best planned by following a set structure and focusing on each level individually, as each has unique benefits. Starting at level 1, the tree canopy offers shade, reducing soil temperature and water evaporation while providing habitats for birds and other wildlife. However, if you plan on planting under tree canopies, remember that the soil can be dry and lack nutrients.

Level 2, the mid-story of small trees and large shrubs, can create windbreaks and further shade, protecting lower layers from harsh weather. Level 3, the understory of small (native) shrubs, supports diverse flora and fauna, adding to the garden's biodiversity and providing food and shelter for local wildlife. Level 4, ground covers and grasses, prevent soil erosion, improve water retention, and suppress weeds.

At level 5, gardeners can incorporate features like water sources, rocks, and logs, creating microhabitats and shelters for various animals and insects. This promotes the ecological balance and offers hydration during dry periods, helping them thrive and maintain their roles in the ecosystem. Additionally, gardeners can incorporate wild, undisturbed corners in the garden design, enhancing the wildlife shelter and nesting options. Finally, for level 6, mulch and healthy soil are crucial for retaining moisture, regulating temperature, and providing essential nutrients, fostering robust plant growth and climate resilience.



Including your own compost in the garden design is beneficial as it enriches the soil with essential nutrients, improving soil structure and fertility while eliminating the need for synthetic fertilisers and lowering your carbon footprint¹¹.

By integrating these practices, home gardeners create beautiful and resilient spaces and contribute to broader climate change mitigation efforts, taking personal action against the global climate crisis.

For more information on the effect of climate change on your garden, purchase your tickets [here](#) and join SGA's Climate Resilient Gardening Forum on Wednesday 14th August 2024.

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