



Growing Southern Highbush blueberries in New South Wales: preparing for a changing climate

NSW blueberry growing regions will likely continue to experience very high suitability for blueberry production by 2050.

Developing industry-informed climate planning information

Climate change is altering the growing conditions for many agricultural commodities across NSW. Primary producers need evidence-based information about the changing climate, and the risks and opportunities it may bring.

Through its Vulnerability Assessment Project, the NSW Department of Primary Industries is increasing the resilience of our primary industries by providing information and data to help the sector better plan for, and respond to, climate change. The project has determined climate change impacts for extensive livestock, broadacre cropping, marine fisheries, forestry, horticulture and viticulture, and important cross-cutting biosecurity risks to inform sound planning, risk management and adaptation decisions.



Blueberry in NSW

NSW production of blueberries has increased 240% over the 5 years to 2020-21 (Source: NSW DPI).

The NSW berry producing areas are shown in Figure 1. Most blueberries are grown on the North Coast, where southern highbush (low chill) varieties dominate. Southern areas, support smaller volumes of northern highbush (high chill) varieties, matching the cooler climate.

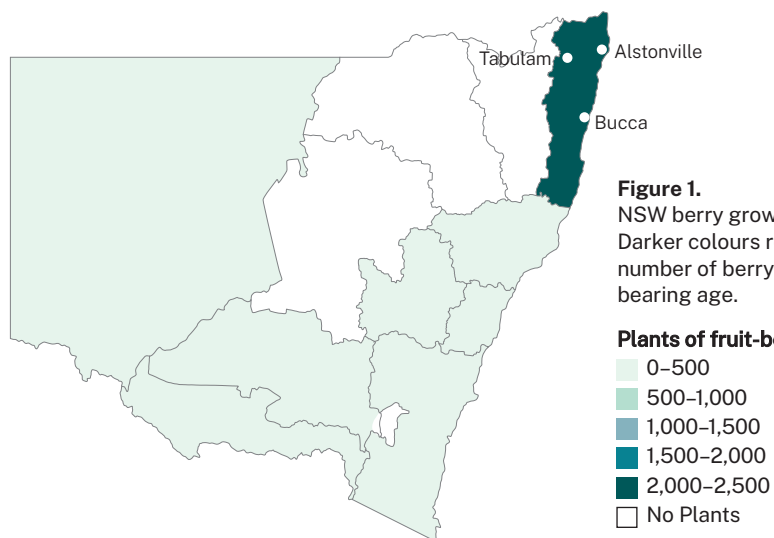


Figure 1. NSW berry growing regions. Darker colours represent a higher number of berry plants of fruit bearing age.

Climate and the blueberry industry

Blueberry growing regions in NSW are expected to continue to have a very highly suitable climate for production by 2050 under a changing climate. Climate risks to the NSW blueberry industry affect the phenophases of the berry's lifecycle in different ways.

Climate change risks to the NSW blueberry industry include:



Extreme heat: Increased temperatures and hot days may increase irrigation water requirements.



Frost: Reduced incidence of frost will increase suitability for blueberry flowering and fruit development.

Climate impacts: what to expect

Flowering and fruit development are the most important blueberry phenophases to production. All blueberry growing regions are expected to maintain high climate suitability for flowering and fruit development (*high confidence*). A warmer climate will likely benefit blueberry production around Bucca and Tabulam by reducing the risk of frost (*high confidence*).

Vegetative growth, flower bud initiation, floral bud swell and burst and maturity climate suitability is expected to remain similar to what has been historically experienced (*moderate to high confidence*).

Blueberry quality

Grey mould can limit blueberry yield and cause post-harvest rot. In the North Coast region, grey mould levels are expected to remain similar to historical from April to August. The historical and projected future trends indicate that the month of April is likely to be less suitable for grey mould than the other months in areas north of Alstonville.

Irrigation water requirements

All blueberry-growing regions are expected to require more water under a warming climate. Moisture monitoring equipment and targeted irrigation cycles may help growers be more efficient with water use. Growers may need to assess whether they can access sufficient water to meet plant needs. New water infrastructure may be required in areas where water demand increases.

How to adapt

Adapting to extreme heat

The NSW blueberry industry will need to use management tools to reduce the temperature of the fruit and plant and manage soil moisture levels. Irrigation can cool the environment around the plant and fruit, maintain soil moisture levels and deliver sufficient water to meet plant demand. In future, industry may also need to consider the use of shade nets and polytunnel plastic removal/venting during extreme heat events.

A changing climate may bring opportunities for the expansion of blueberry growing regions further down the NSW coast. Regions such as Tabulam, Port Macquarie and Nowra are expected to become more suitable for growing blueberries under a warmer climate. However, high land prices in some regions may limit expansion. For other areas, such as west of the Great Dividing Range, expansion may be restricted by the expected very high water requirements in these areas.

Methodology and data

Climate projections were sourced from Climate Change in Australia's 'Application Ready Data'. This dataset is comprised of projections from an ensemble of 8 global climate models, each presenting a plausible future climate. The models differ in their projections, giving rise to uncertainty in our modelling which is reflected in the confidence statements given in brackets in the text. Care should be taken when interpreting these results.

The Vulnerability Assessment Project is intended to highlight potential industry- or regional-level changes. Intermediate and high emissions scenarios were used in the assessments (RCP4.5 and RCP8.5), but these are not the only future scenarios possible. The inclusion of climate variables important to the commodities production was based on published research, expert knowledge and data quality and availability.



FOR MORE INFORMATION

Please get in touch with vulnerability.assessment@dpi.nsw.gov.au

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