Local Land Services
Central Tablelands

Horticulture and climate change

Pink Lady apples.
Photography – NSW DPI

The Central Tablelands region is located in central NSW, and includes the major towns of Bathurst, Cowra, Lithgow, Mudgee and Orange.

The region has a number of natural resource assets and is home to a diverse range of agricultural industries. This information is part of a series of factsheets highlighting changes and options for the region associated with climate change.

Production in our district

The Central Tablelands district's unique physical characteristics such as a temperate climate, elevation, fertile soils, good rainfall and the availability of secure irrigation has established a record of producing high quality fresh fruit, vegetables, oils and wine.

Central Tablelands horticulture is very diverse. Combined, producers supply over 60 types of fruits, vegetables, nuts, mushrooms, oil, herbs, and nursery, turf and cut flowers categories to the domestic and export markets.

Individually these businesses vary in farm size, operational complexity, business maturity, marketing and supply chain focus. Some industries, like apple production, need specific geographic locations while others can be more broadly based such as viticulture or vegetable production.

Because horticulture is intensive, the actual land areas used are small compared with those used for other agricultural activities.

Production footprint

Horticulture has a small environmental impact relating to climate change in Australia. While agriculture emissions amount to some 16% of all national industry emissions, horticulture comprises just 1% of this total.

This is due in part to the types of crops grown, the mixture of perennial crops such as tree fruits, tree nuts and vine fruits, combined with seasonal vegetables and herbs. This provides carbon storage above ground and below ground. The practice of minimal tillage further helps to build up and contain carbon in the soil.

The Central Tablelands has the potential for very high yields; horticultural enterprises can deliver the most productive returns per hectare of land, per greenhouse emissions and use of water resources.

Despite these good credentials, the industry is still vulnerable to predicted changes to rainfall and temperature. Potential impacts are changes in plant growth, pest and disease risk, product quality and industry location.

There is a need for resilient and adaptive horticultural production systems that are less vulnerable to climate variabilities and adverse weather events like frost, hail, fire and storms.

There will be opportunity to develop new product categories and expand into new markets while adapting to the changing production environment.

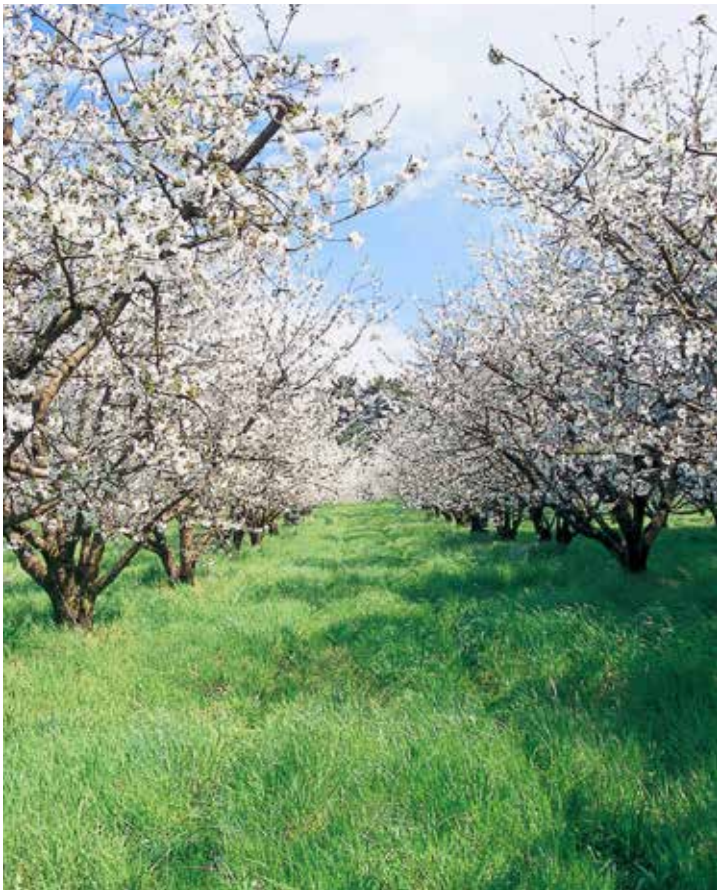
Potential impacts

Fruit trees, vegetables and vines will all experience inconsistent changes to flowering, pollination, harvest dates, sunburn incidence, colour development and fruit size. In the next decade, there could be physical limitations on temperate fruit trees ability to meet chill requirements. Varietal selection and a diversity of genetics can be used to match crops to new climate regimes.

Soil water balance changes

Since rainfall and soil moisture reserves are projected to decline in spring, less water may be available for irrigation at important crop growth stages. ***Access to water for permanent cropping is the single most critical factor in horticultural development.*** Overall vulnerability to water shortages is greater for perennial crops than for annual crops. Horticultural producers will need to invest in securing a water supply to cover spring water shortages and change management practices to mitigate against the negative effect of more frequent heavy summer storms.

For more information... www.lls.nsw.gov.au/centraltablelands



Cherry blossoms. Photography – NSW DPI

Biosecurity

As globalization occurs, with increased cargo and people movement, alongside climate change, biosecurity is increasingly a national and regional on-farm issue. Pest and disease incursions directly threaten the economic viability of the horticultural and viticulture industries and its associated domestic and international trade.

Prevention of potential pest and disease incursions can be progressed by adoption of more advanced monitoring technologies and supporting integrated pest management solutions that reduce the need for agrochemicals that are increasingly unacceptable in markets.

Land use

Site suitability may change for some horticultural crops as a result of climate change. With increased human movement to this region, potential horticultural land may be at risk from competing demands.

Where settlement encroaches on horticultural areas, there may be conflict with neighbours if farming operations generate noise, odours or dust. Frost control equipment as pumps operated at night, bird and bat scaring guns, hail netting, pesticides and use of pesticide application equipment, processing sheds and composting operations have all caused neighbourhood conflict.

Adaptation options

Valuing diversified horticultural systems

There are significant benefits in diverse and locally adapted agro-ecosystems, and their potential both to improve productivity and provide genetic diversity essential for adaptation to changing environments and markets. Maintaining local horticultural genetic resources, testing new crops and varieties will allow the Central Tablelands to be resilient to natural and human-induced disturbances.

Protected cropping

Protected cropping is an industry adapting new technology to take advantage of growing demand for fresh vegetables and to manage climate variability. These technologies allow farmers to reduce the use of water, fertiliser and pesticides compared with field cropping and older styles of undercover cropping, allowing greater control of production. The technology is expected to become more energy efficient and may in the future incorporate renewable power sources, such as solar photovoltaic. Migration of these businesses to cooler climates, close to retail markets, will decrease electricity cooling costs.

The protected-cropping industry is likely to be least affected by the physical impacts of climate variability such as storms and frost events and as such; it may be a very useful adaptation strategy. Protected cropping systems are very efficient users of water.

Resource and cost efficiency gains

Growers look for ways to reduce energy use and input costs to improve their bottom line and make their operations more sustainable. Because of this, energy efficiency is a key strategy for farm success in the coming years. The main on-farm greenhouse gas emissions in the horticultural industry are from electricity used to run irrigation pumps, packing sheds and cool rooms.

More sophisticated irrigation systems, scheduling tools, and the management training to use them effectively will lead to better water use performance.

Innovative systems for fertilizer timing and placement will reduce wastage, nitrogenous emissions and increase cost savings.

Supply chain cost efficiencies will also be achieved by increasing vertical integration of more horticultural businesses, including production, packing, direct marketing and in some cases retailing and export.

Information sources and additional reading

The Victorian government has produced several videos on climate risk management for horticulture producers. **http://agriculture.vic.gov.au/agriculture/horticulture/farmview-videos**

For more information contact your nearest Central Tablelands Local Land Services office on 1300 795 29 or visit

www.lls.nsw.gov.au/centraltablelands

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For updates go to www.lls.nsw.gov.au/centraltablelands