Agricultural production is included here because threats to farm viability undermine the ability of landholders to be good environmental stewards.

The NSW farm sector not only provides food and fibre for millions of people, it manages about 80% of the state, including much wildlife habitat.

NSW Department of Primary Industries warns there is a “high” risk that industries, infrastructure, and regional economies will be disrupted by climate change as many crops currently grown cease to be viable in the same location.

The strongest farm sectors in NSW are dryland and irrigated cropping (wheat, cotton, rice, etc.), cattle, sheep, fruit (including grapes), poultry, dairy, and pigs. Many of these have been affected already by lower rainfall, higher temperatures, and increased evaporation caused by climate change, and these threats will intensify.

The Department of Primary Industries has warned climate change poses “extreme” risks to several agricultural sectors.

Most vulnerable are those that rely on irrigation, including fruit and vegetable growing, rice, cotton, dairying, and intensive livestock operations that require feed from irrigated lands.

While more efficient technologies, better adapted crop strains and bloodlines will offset some impacts, by 2050 climate change is forecast to reduce production significantly: sheep meat by -12.2%; wheat by -11.6%; dairy by -11.3%; and beef by -3%.

WHEAT PRODUCTION

Wheat is the main crop grown in NSW, with the 2013-14 annual harvest more than double the combined volume of barley and sugar cane, the two next biggest.

The 6.6 million tonnes harvested in NSW that year made up about a quarter of the national crop, and was worth almost $2 billion.

Australia’s wheat farmers are possibly the most efficient in the world, with yields trebling last century until the 1990s, when they levelled out.

Research by the CSIRO shows rising temperatures and reduced rainfall from climate change are responsible.

In the 25 years to 2015, the potential yield of our wheat fields under ideal conditions fell 27%, due mainly to changes in rainfall (+28%) and increased maximum average daily temperatures (+1.05°C) during crop growth.

Actual yields, however, remained steady because farmers improved tilling practices and used more heat- and drought-tolerant wheat varieties.

The question is how long they can continue to do so.

The CSIRO calculates that even if productivity improves at the same rate as it has for the past 25 years, yields will fall from an average of 1.34 tonnes to 1.55 tonnes per hectare by 2041, possibly making wheat producers in marginal areas unviable.

IMPACTS

REGIONS AFFECTED: ALL REGIONS

HOT DRY & DEADLY: IMPACTS OF CLIMATE CHANGE ON NATURE IN NSW

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