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# The impacts and evidence of Australian droughts on agricultural crops and drought related policy issues--A review article

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**Abstract** The recurrence of drought spells over the years in Australia has become a frequent phenomenon with significant impacts on agricultural output and productivity. Protracted drought events impacted crop physiology with adverse impact on grain development, hampered chlorophyll production, fruit bearing, number of grains/spikes, ovule fertility, pollen vitality, nodule performance, flowering period, cell growth, photosynthesis and transpiration, seed set and standard seed size. The average winter crop production across various crops in non-drought years was 45,676 kilo tones, whereas the average production in drought-affected years was only 25,592 kilo tones. In the years 1990, 2002─10, 2003─07, 2006, 2006─07, and 2018─19, drought reduced various crops production in Australia by 51%, 18%, 32%, 58%-56%-50% and 53%, respectively. Crops in general follow three types of adaptive strategies to respond drought: a) drought escape; b) drought avoidance; and c) drought tolerance. Different techniques such as zero tillage, priming, mulching, relay cropping, homestead gardening, dry land farming and pond water harvesting have offered good prospects of reducing drought impacts in various crops. There are fifteen drought adaptation and mitigation practices reported in the literature. These include increasing farm size, changing cropping pattern, selecting tolerant crop, developing tolerant varieties, soil evaporation, $CO_2$ incorporation, fertiliser application, mulching, supplementary irrigation, relay cropping, homestead gardening, pond water harvesting, priming, dry land farming, and zero tillage. Although, there are fifteen different strategies to manage drought by farmers, using a combination of these measures is suggested to be more effective. The drought policy of the country is fraught with ambiguity as Australian government encourages managing droughts by farm owners at one hand and supports farm owners with a huge amount of public money on the other hand to respond drought events.

**Keywords**: Australian drought, Crop production, Crop physiology, Drought overcome, Drought policy.

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