



Department of  
Primary Industries and  
Regional Development

Digital Library

---

Natural resources published reports

Natural resources research

---

1-2024

## Agricultural groundcover update December 2023

Justin Laycock

Follow this and additional works at: [https://library.dpird.wa.gov.au/lr\\_publishedrpts](https://library.dpird.wa.gov.au/lr_publishedrpts)



Part of the [Agriculture Commons](#), [Environmental Monitoring Commons](#), [Natural Resources and Conservation Commons](#), [Remote Sensing Commons](#), and the [Sustainability Commons](#)

---

This article is brought to you for free and open access by the Natural resources research at Digital Library. It has been accepted for inclusion in Natural resources published reports by an authorized administrator of Digital Library. For more information, please contact [library@dpird.wa.gov.au](mailto:library@dpird.wa.gov.au).

# Agricultural groundcover update

## December 2023

Justin Laycock, Agricultural Resource Management and Assessment

### Important points

- About 96% of the grainbelt had adequate vegetative groundcover (more than 50%) to prevent wind erosion in December 2023.
- In the northern half of the grainbelt, a larger-than-average area has 51–60% groundcover, which is expected to decrease to below 50% over the summer.
- Just under 4% of the grainbelt (553,000 ha) had less than 50% groundcover, which is inadequate to prevent wind erosion.
  - West Midlands Ag Soil Zone had the highest risk of wind erosion and 11.4% of this farmland had inadequate groundcover.
- Less than 0.5% of the grainbelt had a high to very high risk of wind erosion because groundcover levels were less than 30%.

### December groundcover analysis

#### Areas with adequate groundcover

About 96% of arable farmland in the grainbelt had more than 50% vegetative groundcover, which is adequate to prevent wind erosion. This is typical for the end of the year, however a larger than average area (20%) of the northern half of the grainbelt had 51–60% groundcover (Figure 1), which is likely to decrease over summer and become inadequate to prevent wind erosion.

#### Areas with inadequate groundcover

About 4% (553,000 ha) of arable farmland in the grainbelt had less than 50% groundcover which is inadequate to prevent wind erosion. This amount of groundcover is equivalent to a decile 5 rank for December (data from 2016 to 2023; Table 1). Groundcover is expected to continue to decrease over summer and early autumn and consequently the risk of wind erosion may increase to high or very high.

The northern half of the grainbelt has a greater erosion risk than the southern half because 11% of farmland in the north had inadequate groundcover, compared to 2% of farmland in the south. The Mullewa to Morawa Ag Soil Zone and the West Midlands Ag Soil Zone (see Background and methods) in the north had the highest percentages and are discussed below.

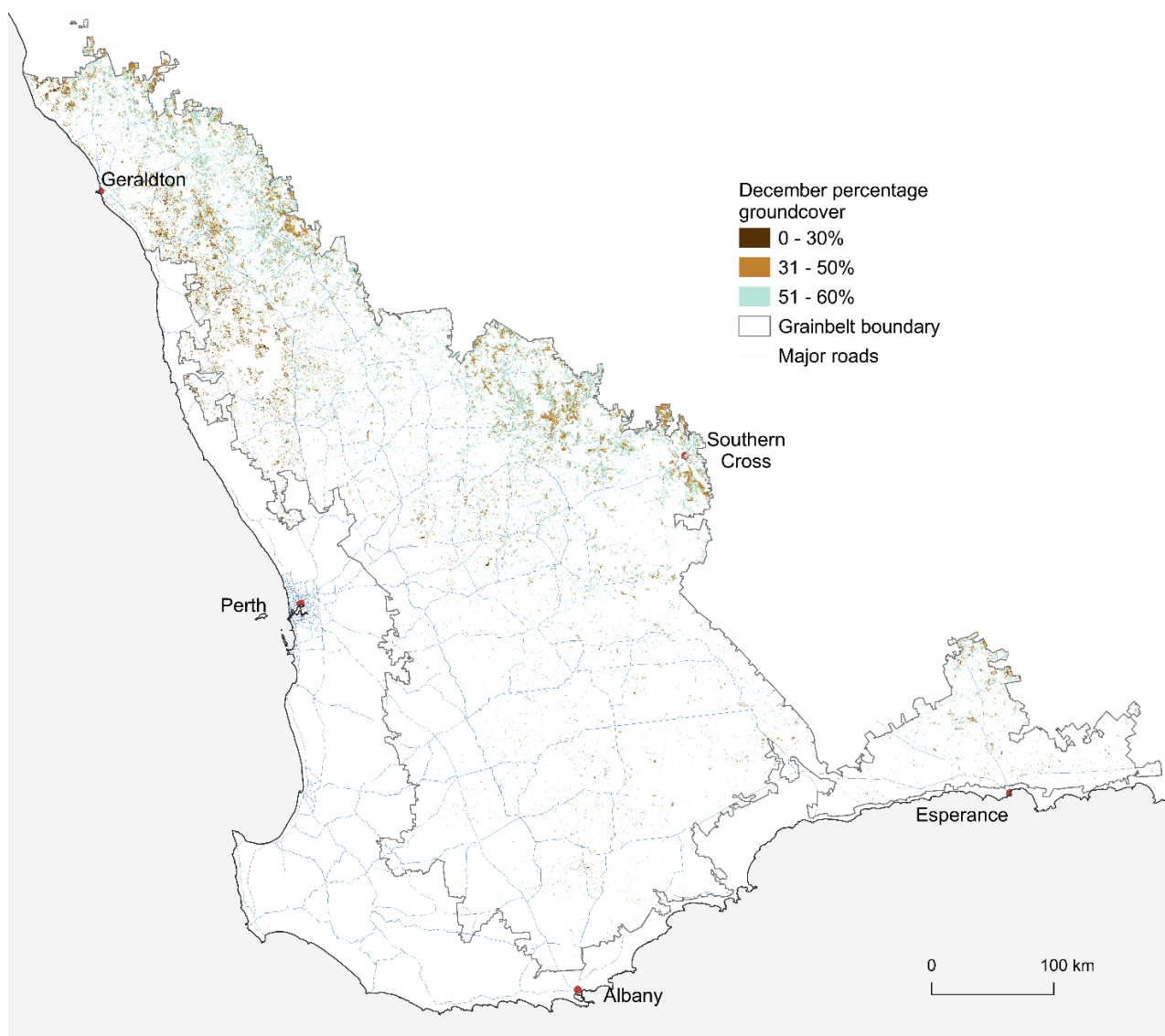


Figure 1: Percentage of groundcover across the grainbelt, December 2023

Table 1: Area and rank of the amount of farmland in the grainbelt with inadequate groundcover to prevent wind erosion in December

Year	Area (ha)	Area (%)	Rank
2023	553,000	3.7	5 (median)
2022	155,400	1.0	1 (best)
2021	212,400	1.4	2
2020	828,000	5.5	7
2019	601,800	4.0	6
2018	331,700	2.2	4
2017	1,224,900	8.1	8 (worst)
2016	225,300	1.5	3

## High to very high risk of wind erosion

About 32,000 ha of the grainbelt has less than 30% groundcover which has a high to very high risk of wind erosion. This is twice as much as last year, and an increase of 10,000 ha since October.

About 2.1% (19,500 ha) of the West Midlands Ag Soil Zone had less than 30% groundcover. About 0.7% (7,500 ha) of the Mid West Ag Soil Zone also had less than 30% groundcover, while all other ag soil zones in the grainbelt had less than 0.3% of their area with high to very high risk of wind erosion.

## Mullewa to Morawa Ag Soil Zone

The very dry seasonal conditions in the Mullewa to Morawa Ag Soil Zone resulted in many thin and patchy crops. The percentage of arable farmland with inadequate (less than 50%) groundcover was over 11% (74,500 ha), the second highest percentage of all ag soil zones in the grainbelt for December 2023. This percentage is similar to 2020–21 dry season, yet much lower than in 2018 when 34% (230,000 ha) of farmland was in this class. However, less than 0.1% of farmland had less than 30% groundcover, which has a very high erosion risk (Figure 2).

The percentage of arable farmland with inadequate cover is equal to November 2020. If summer follows the same path as in 2020–21, the percentage could increase to 30% and erosion could be widespread in late summer and autumn (Figure 3).

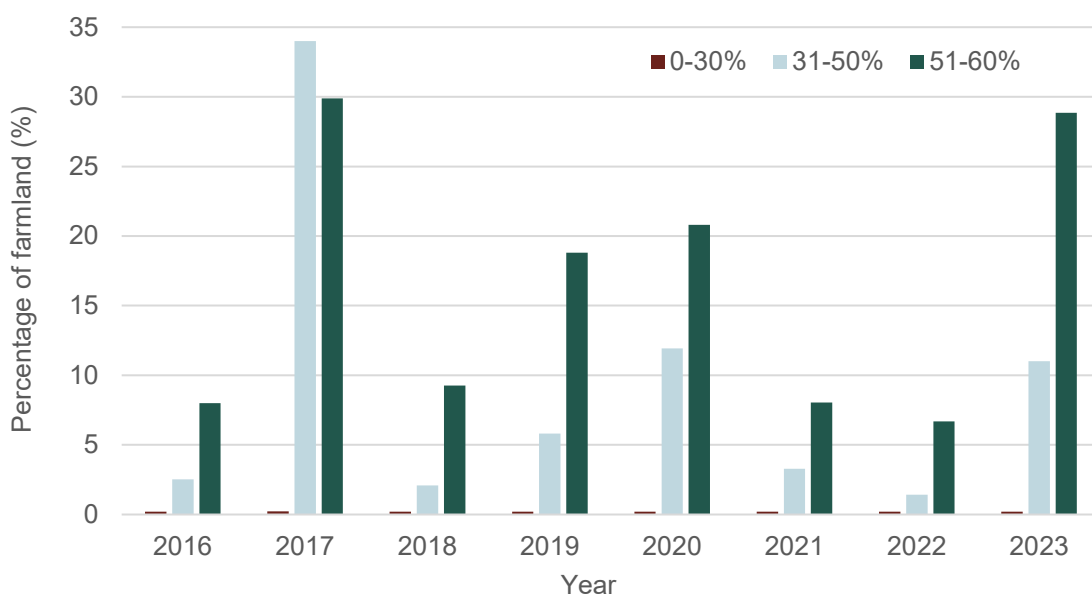


Figure 2: Percentage of farmland in the Mullewa to Morawa Ag Soil Zone with less than 30% groundcover, 31–50% groundcover or 51–60% groundcover in December, 2016–2023

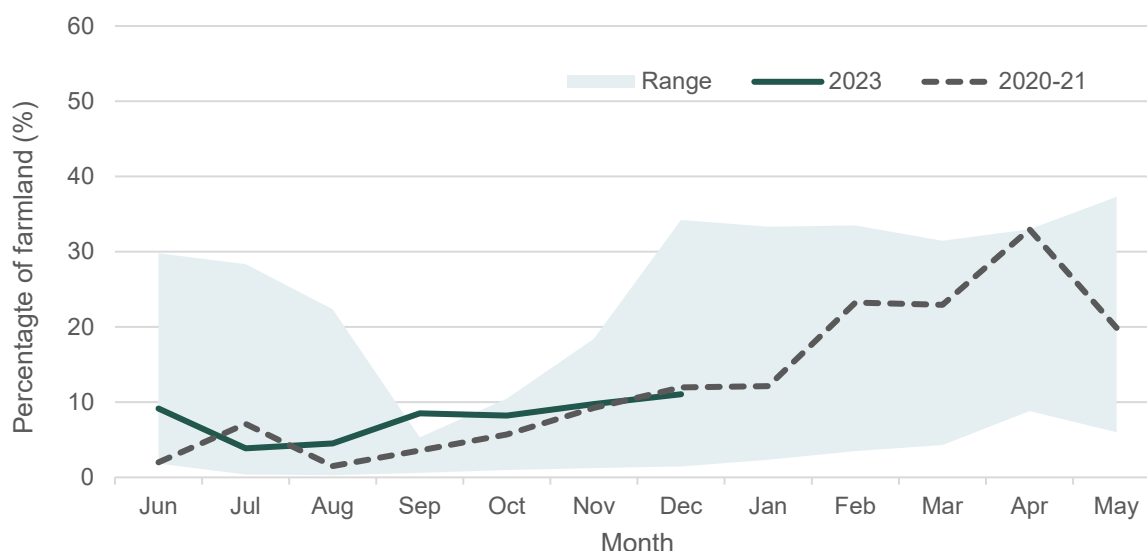


Figure 3: Percentage of farmland with inadequate groundcover in the Mullewa to Morawa Ag Soil Zone in 2023, compared to the range of monthly percentages from 2016 to 2022 and the 2020–21 season

## West Midlands Ag Soil Zone

The West Midlands Ag Soil Zone is dominated by sandy soils that are highly susceptible to erosion. Of all the ag soil zones, it consistently has the highest median percentage of arable farmland with inadequate groundcover to prevent wind erosion for December (10.3%). However, in 2023, there was 11.4% (104,000 ha), which is double that of November, yet was expected given the dry seasonal conditions (Figure 4). The increase places it above the average for the monthly percentages from 2016 to 2022 and similar to the 2020–21 dry season (Figure 5).

In December, about 2.1% (27,500 ha) of farmland had less than 30% groundcover, which has a high to very high erosion risk; only in December 2021 was there a higher percentage (2.2%; Figure 4). The other ag soil zones all had less than 1%. If the 2023–24 season follows what happened in the 2020–21 season, about 12% of farmland in this ag soil zone will have a high to very high risk of wind erosion in May.

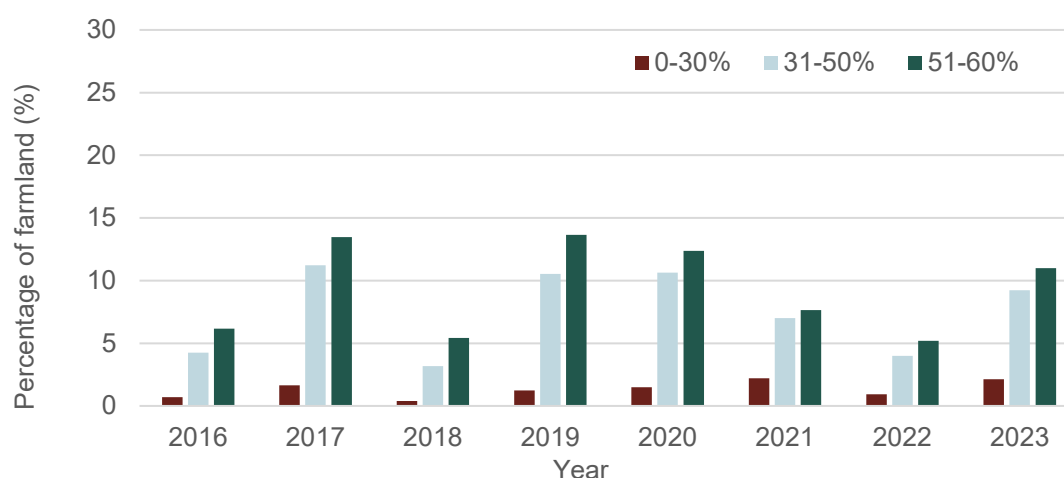


Figure 4: Percentage of farmland in the West Midlands Ag Soil Zone with less than 30% groundcover, 31–50% groundcover or 51–60% groundcover in December, 2016–2023

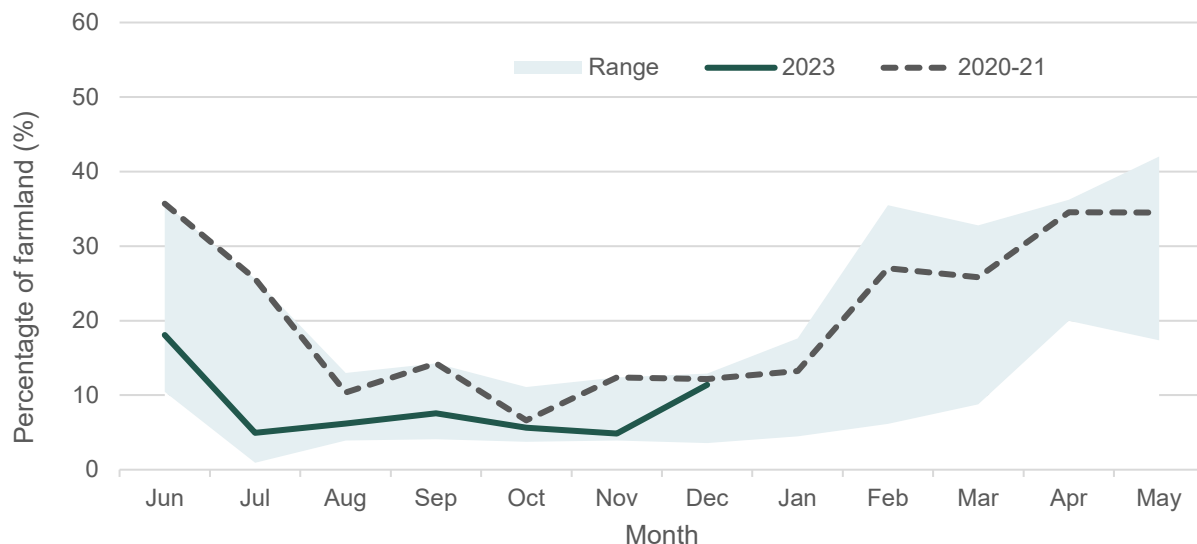


Figure 5: Percentage of farmland with inadequate groundcover in the West Midlands Ag Soil Zone in 2023, compared to the range of monthly percentages from 2016 to 2022 and the 2020–21 season

## Background and methods

Total vegetative groundcover imagery derived from the Landsat and Sentinel satellites is used as an indicator of wind erosion risk in the WA grainbelt. Less than 50% vegetative groundcover is classified as inadequate to prevent wind erosion. Farmland with less than 30% groundcover has a high to very high wind erosion risk. Farmland with 31–50% groundcover has a moderate wind erosion risk.

Satellite groundcover can be viewed through a variety of web portals. [GEOGLAM RAPP Map](#) and [Veg Machine](#) portals allow users to view current and historical vegetative groundcover. Details on the acquisition and processing of satellite groundcover imagery by DPIRD are available in '[Using Landsat satellite imagery to estimate groundcover in the grainbelt of Western Australia](#)' (Laycock et al. 2022).

Analysis and summary statistics can be processed for any areal extent. The grainbelt represents one spatial unit comprising all arable land used for broad acre cropping and livestock. Ag soil zones provide a broad geographic assessment of groundcover because they align with regional soil characteristics and seasonal climatic conditions (Figure 6).



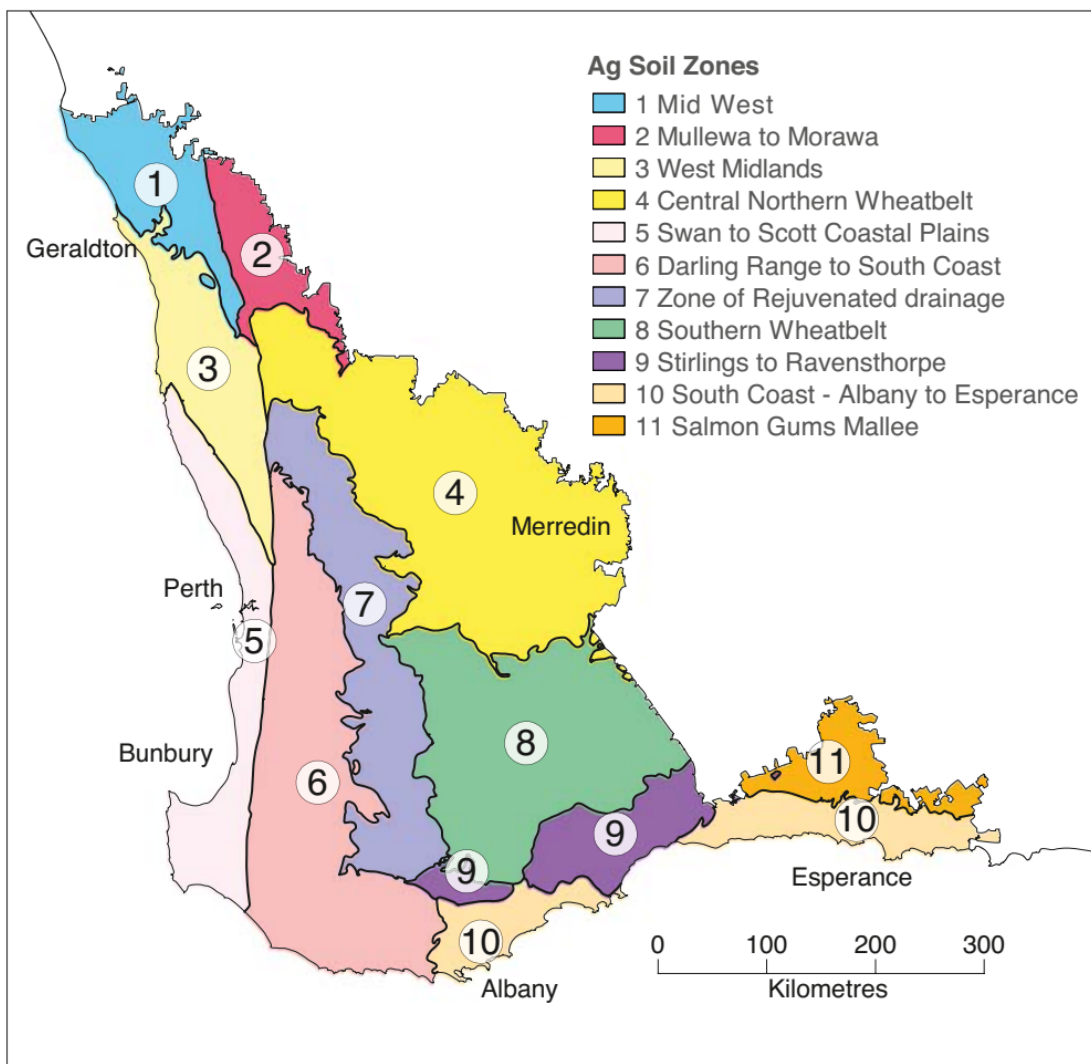


Figure 6: Ag soil zones of the south-west of Western Australia

### Important Disclaimer

The Chief Executive Officer of the Department of Primary Industries and Regional Development and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.

Copyright © State of Western Australia (Department of Primary Industries and Regional Development), 2024.