

Mapping irrigated horticulture for irrigation communities since 1997



Resilient Rural Communities

An enterprise of Rural Business & Community Pty Ltd

Trends in Irrigation Development on the Murray and Lower Darling (Baaka) River Systems



MDBA Conference 2022



Acknowledgement of Country



We acknowledge the First Peoples of the Millewa-Mallee, the Latji Latji and Ngintait as the Traditional Owners and Custodians of the Country we are on today. We pay our respects to Elders past and present of the First Peoples of Millewa-Mallee, and the ancient connection they hold with their Country.





Who and what?

- Community organisation (not-for-profit)
- Mapping irrigated land use data since 1997 (continuous)
- Utilised by land and water managers including:
 - Irrigators, industry groups, local, state and federal government agencies/bodies, educational institutions, other interested parties
- Informs decision-making and complements other studies
- This study commissioned by MDBA to compile irrigated land use data:
 - from 2003 to 2021
 - for the Lower Murray-Darling region of Vic, NSW and SA







The journey...



Irrigation development 1887 to 2003 VIC/NSW

NURRUNBDGEE RIVER

EDWARD RIVER

WAROOL RIVER

New South Wales

Victoria

MURRAY RIVE 1887: Mildura 1890: Curlwaa 1909/10: Merbein, Pomona 1920's: Coomealla, Nyah, RedCliffs 1947: Euston, Robinvale 1997 irrigation area: 92,600 ha 2003 irrigation area: 106,800 ha

DARING RIVER

Lake <mark>Vict</mark>oria





Key findings – Phase 1

For the LMD (Phase 1) study area ...

- Irrigation footprint expanded by 25% (+48,890 ha):
 - from 194,715 ha in 2003 to 243,605 ha in 2021
- Permanent plantings increased (net) by 37% from 2003-2021 (+35,575 ha)
- Seasonal plantings decreased (net) by 34% from 2003-2021 (-26,285 ha)
- Most irrigated horticulture is located in Victoria (42%)



2021 Irrigation Footprint



- Each state experienced highest growth at different times
- Highest average annual growth rate (permanent plantings) was in Victoria (2003-09)





Key findings cont'd

For the LMD (Phase 1) study area ...

Permanent plantings:

- Highest growth period was 2018-2021
- Drip irrigation was dominant 2003-2021
- Almonds were dominant in 2021, replacing wine grapes

Seasonal plantings:

- Highest net *decrease in growth* period was 2003-2009
- Overhead irrigation was dominant in 2021, replacing surface irrigation
- Field crops (eg. fodder, pasture, cotton*) remained dominant over vegetables 2003-2021









Crop types (LMD)



- 516% increase (37,815 ha) in almond plantings, from 7,330 to 45,145 ha
- 179% increase (2,890 ha) in olive tree plantings, from 1,615 to 4,505 ha
- 66% increase (5,100 ha) in table grape plantings, from 7,720 to 12,820 ha
- 43% decrease (26,755 ha) in field crops, from 62,815 to 36,060 ha
- 16% decrease (8,235 ha) in wine grape plantings, from 51,850 to 43,615 ha
- 49% decrease (3,095 ha) in dried grape plantings, from 6,360 to 3,265 ha



Crop types (Vic)



- 535% increase (22,250 ha) in almond plantings, from 4,155 to 26,405 ha
- 396% increase (2,990 ha) in olive plantings, from 755 to 3,745 ha
- 78% (4,690 ha) increase in table grape plantings, from 6,010 to 10,700 ha
- 50% (2,465 ha) decrease in dried grape plantings, from 4,920 to 2,455 ha
- 46% (7,045 ha) decrease in wine grape plantings, from 15,410 to 8,365 ha



Crop types (NSW)



- 29,100% increase (7,275 ha) in almond plantings, from 25 to 7,300 ha
- 13% increase (805 ha) in wine grape plantings, from 6,160 to 6,965 ha
- 72% decrease (23,960 ha) in field crops (summer/winter) from 33,240 to 9,280 ha
- 43% decrease (510 ha) in dried grape plantings, from 1,200 to 690 ha



Crop types (SA)



- 263% increase (8,290 ha) in almond plantings, from 3,150 to 11,440 ha
- 35% increase (2,115 ha) in vegetable crops, from 6,000 to 8,115 ha
- 65% decrease (1,010 ha) in stone fruit plantings, from 1,565 to 555 ha
- 26% decrease (3,515 ha) in field crops, from 13,705 to 10,190 ha
- 7% decrease (1,995 ha) in wine grape plantings, from 30,280 to 28,285 ha















Irrigation methods (LMD)

Permanent plantings



- Overhead sprinklers now dominant (replaced surface in 2021)
- Some variances between states

- Drippers have increased in dominance since 2003
- All other irrigation methods have declined
- Trend consistent across all states







Land use change

2009 Mallee dryland paddock



Same site in 2021 Irrigated horticulture







Irrigation growth (LMD)







Distribution of land use





54%



70,000

Irrigation growth trends (states)

Permanent plantings

VIC: 58% increase NSW: 68% increase SA: 10% increase







40,000

Irrigation growth trends (states)

Seasonal plantings

VIC: 5% decrease NSW: 70% decrease SA: 7% decrease







Irrigation footprint

From 2018 to 2021:

LMD Vic +3%

• Expansion +3,310 ha Retired -535 ha Net change +2,775 ha

LMD NSW -15%

• Expansion +5,480 ha Retired -13,960 ha Net change -8,480 ha

LMD SA +3%

• Expansion +3,170 ha Retired -270 ha Net change +2,900 ha

LMD total -1%

• Expansion +11,960 ha Retired -14,765 ha Net change -2,805 ha





Rate of change

Permanent plantings from 2003 to 2021 Average ha/year:

	2003-09	2009-12	2012-15	2015-18	2018-21	Total
LMD VIC	+2,515	-117	+57	+1,455	+1,158	+1,264
LMD NSW	+106	-38	-135	+893	+1,842	+462
LMD SA	-73	-288	-395	+1,350	+982	+250
LMD total	+2,548	-443	-473	+3,698	+3,982	+1,976





Recap

In the Lower Murray-Darling region:

- Irrigated horticulture
- Permanent plantings
- Seasonal plantings

Permanent plantings:

- Highest growth period
- Dominant irrigation method
- Dominant crop

Seasonal plantings:

- Highest net decrease period
- Dominant irrigation method
- Dominant crop
- Each state experienced highest growth rates at different times
- Ongoing mapping of irrigation land use data supports decisionmaking now and in the future

2018-2021 Drip Almonds (winegrapes) 2003-2009 Overhead (surface) Field crops





More information

For the full report:

<u>Phase 1 report: Irrigated crop area data for the Lower Murray-Darling 2003 to 2021</u> (mdba.gov.au)

For mapping requirements:

Sue Argus, Program Manager SunRISE Mapping & Research 139 Lime Avenue, Mildura Ph. 03) 5021 3156, <u>sue@sunrisemapping.org.au</u>

To support ongoing data collection by community organisations, informing policy and decision-making:

Pat Timmons, Executive Officer Rural Business & Community 139 Lime Avenue, Mildura Ph. 03) 5021 3156, <u>pat@sunrisemapping.org.au</u>

