areas in the June 7 to 12 period and totals were from around 75 mm in the west to around 40 mm in the east.

We have had a few follow up rain events and in the past four weeks the region has had highs of 250 mm of rain in some western areas down to around 110 mm in eastern areas. It has been a fantastic start to the season but is too wet in the west with around 100 mm being lost in runoff in some areas. Nutrient leaching is also a problem in western sand soil areas. What a difference a month (and 10 inches of rain!!!) can make.

Roundup Ready canola crop, south west Mullewa.

Most programs went in as planned. A small number of growers changed their plans and opted out of some canola area and changed it into cereal crops.

There have been some crop emergence problems where heavy rain caused furrow fill. This problem mostly occurred on sandier soil types. This has caused pre emergent herbicides to move into the furrows with the washed soil and reduced crop stand density. There were also problems getting through the root material from big 2018 canola and cereal crops in many areas. These problems were due to root strands wrapping around seeding tines and pushing much more soil than necessary. This resulted in very deep sowing is some soft soils and greatly reduced crop emergence.

Not much crop has been resown but many sand soil paddocks have lower than ideal plant numbers. Canola fared the worst followed by wheat crops.

Nutrient spreading and spraying are the main jobs at the moment. Lucerne Flea have also been very active in many heavy soil areas.

Seasonal rainfall across the grain regions – 25 year averages and year to date

Brought to you in association with JOHN DEERE	25yr Annual Average (mm)	2019 rainfall to date (mm)	Summer 25yr Annual Average (mm)	Summer 2018–19	Autumn 25yr Annual Average (mm)	Autumn 2019	Winter 25yr Annual Average (mm)	Winter 2019 to date	Spring 25yr Annual Average (mm)	Spring 2018
Emerald Qld	564	258	251	52	106	182	67	43	125	113
Toowoomba Qld	679	276	276	73	138	232	86	19	180	184
Roma Qld	579	150	256	36	119	133	75	16	134	106
Goondiwindi Qld	619	142	253	66	123	110	98	19	147	174
Narrabri NSW	621	139	217	69	119	111	123	14	162	149
Gunnedah NSW	627	189	211	65	108	144	126	24	183	207
Dubbo NSW	588	170	184	117	125	70	129	17	152	166
West Wyalong NSW	437	177	118	84	79	85	120	28	122	86
Wagga Wagga NSW	531	181	134	110	109	161	147	44	141	149
Swan Hill Vic	308	117	69	57	64	58	87	44	88	41
Bendigo Vic	490	188	100	60	105	78	158	92	128	61
Horsham Vic	365	163	76	41	71	66	120	85	99	47
Lake Bolac Vic	506	282	108	72	103	171	153	90	142	73
Murray Bridge SA	358	117	66	30	80	53	120	58	94	47
Kadina SA	327	120	60	9	76	70	110	47	82	58
Cummins SA	390	211	51	6	89	115	174	95	76	48
Esperance WA	618	196	90	37	136	95	251	98	140	146
Wagin WA	391	179	50	7	90	51	165	128	85	61
Northam WA	407	169	61	32	87	30	189	137	80	55
Mingenew WA	347	207	33	0	86	4	171	193	57	40
Moora WA	385	159	46	6	82	20	189	137	68	65
Mullewa WA	320	145	56	12	90	37	131	107	43	24

Last rainfall reading July 16, 2019.

District Reports...

July–August 2019

Wheat and barley crops are mostly early tillering. There has been some programs that were completed after the rain and the odd paddock is at the 2-leaf stage. There are small areas of crop that are at booting and even head emergence where there were some storms in early May and crop got away at this time.

Canola crops are mostly four to five leaf with the odd crop close to flowering where the May storms fell. Weed and insect control are the main activities on canola at the moment.

Lupin crops have generally emerged well and are mostly at the six to eight leaf stage.

Generally crops look very good but grain fill will be a challenge with the mid June crop emergence timing. September conditions will need to be wet and cool for the region to get average crops from here. Anyway, so far, so good.

Peter Norris
Agronomy For Profit and Synergy Consulting, Geraldton
July 10, 2019

SOUTH COAST

Seasonal conditions for the South Coast have improved over the past two months. Some moderate rainfall totals of 20 to 30 mm during late June and early July has put the season back on track.

The South Coast region is still the driest area of the Western Australian grain growing belt. The northwestern weather fronts are failing to deliver significant rainfall. The region needs a good southerly front to deliver soaking rain and build up stored soil moisture for a spring-time reserve.

This crop of Jurien lupins has established well at 'Lennoch Park', the Gibson district farm of siblings James and Susie Lewis. (PHOTO: Quenten Knight)

Chasing rainbows on the South Coast highway at Coomalbidgup, about 60 km west of Esperance – some more rain would be nice to find at the end of them. (PHOTO: Quenten Knight)

Most crops were sown on time and are developing well with no major insect or disease pressures. Standard grass and broadleaf weed control are the main on-farm activities.

Top-up nitrogen decisions are the most difficult to make at the moment – crops look good but there is very little stored soil moisture.

Quenten Knight
Agronomist, Agronomy Focus, Esperance
July 11, 2019

Southern region

SOUTH AUSTRALIA SUMMARY

Average June rainfall and sufficient soil moisture in most South Australian cropping regions, has allowed for generally good winter crop establishment. Additional rainfall in early July has kicked the crops along.

Indian Ocean temperature forecasts indicate that a positive Indian Ocean Dipole (IOD) is expected to be the dominant driver of climatic conditions in Australia for the remainder of winter and spring. A positive IOD at this time of year typically brings drier conditions to much of southern and central Australia.

While this probabilistic forecast indicates that the chance of exceeding median rainfall is quite low across large parts of southern Australia, it does not mean that these areas will not receive rainfall sufficient to sustain crop and pasture production during the next three months.

ABARES, Weekly Australian Climate, Water and Agricultural Update, July 11

VICTORIAN MALLEE

The first round of top-dressing is all-but complete in the region and in some situations – mainly early sown barley – 'the gate has closed' on urea spreading altogether. Crops in the southern Mallee area are looking very impressive as follow up rains and showers continue. This is also increasing growers' optimism with robust rates of nitrogen being applied to match yield potential. Getting your hands on enough urea supply has been the challenge.

A week or two ago, areas in the northern Mallee were in need of a good moisture top up. And right on cue, many areas received some good rain which increased confidence levels.

Growers continue to feed livestock in these northern areas and the Mildura region still needs good rain. Those without subsoil moisture are anxiously looking for the next rain event.

Most cereals have reached the end of tillering growth stage and stem elongation has commenced in canola.

Moist conditions and thick crop canopies are prompting growers to develop their fungicide strategies. Low levels of spot form of net blotch have been detected, particularly in barley on barley paddocks.

Low levels of redlegged earth mite, bryobia mite and blue oat mites have also been detected.

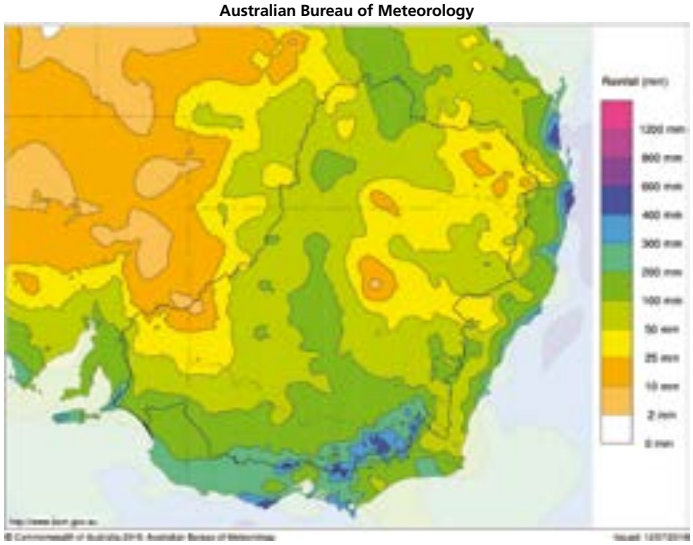
Weed control has been excellent considering many crops were dry sown.

All eyes will be on the Indian Ocean Dipole as we get closer to the crucial September and October months when crops are flowering and reaching maximum biomass.

Louisa Ferrier
Engagement and Member Services Leader,
Birchip Cropping Group
July 11, 2019

Right on cue, many areas in the Mallee received good rainfall in early July which kicked canola and cereal crops along very nicely.

Murray–Darling Basin rainfall totals (mm) for April 1 to July 12, 2019
Australian Bureau of Meteorology



The southern states are generally away to an encouraging start to the 2019–20 winter crop while central-west and northern NSW and southern Queensland are still dry.

Northern region

NSW SUMMARY

Drought conditions continued across the majority of New South Wales (NSW) during June and into early July, with signs that the event is intensifying in the northern half of NSW. Low rainfall totals over the past six weeks have been insufficient to provide the widespread follow up falls needed to continue the momentum from the easing of conditions experienced in some regions during May.

Producers and rural communities are expected to continue drought mitigation strategies for the remainder of winter and into spring.

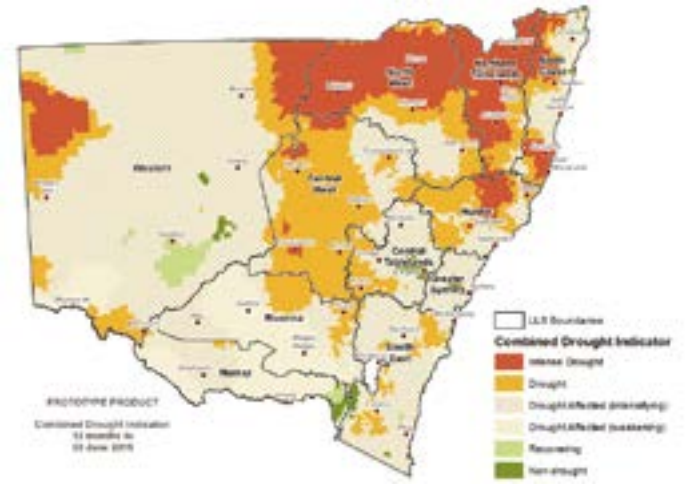
The June rainfall pattern was variable, with only isolated areas of the state receiving average monthly totals. Parts of southern NSW benefited from larger totals, which have aided the establishment and prospects of recently sown winter crops. While this is welcome, winter crop yields in southern NSW remain critically dependant on follow up rainfall over the next few months.

The remainder of the state's wheatbelt experienced the continuation of dry conditions throughout June. Winter crop sowing conditions have been tough, especially in the north and west of the cropping region, where the sowing period is almost closed. The onset of cold conditions and frost is also limiting agronomic productivity in many areas, particularly at high elevations, where feed growth is now typically slow.

The NSW DPI Combined Drought Indicator (NSW CDI – see chart next page) provides a general regional assessment of the complex pattern of field conditions across NSW. Overall the CDI at the end of June shows little change from May in terms of the

District Reports…

July–August 2019



total area of the state affected by drought conditions. There has been an increase in the area categorised as Drought Affected (Intensifying), reflecting the lack of follow up or breaking rainfall that is required to provide longer term relief to agronomic and hydrological conditions. Overall the CDI shows that 97.6 per cent of NSW remains in one of the three drought categories.

The official climate forecast released by the Bureau of Meteorology (BoM) on June 27 continues to indicate a higher chance of drier than average conditions across NSW for winter and into spring. The emerging influence of the Indian Ocean Dipole (IOD) reported last month remains the dominant feature of the forecast, with the IOD still predicted to move into a positive phase over coming months. A positive IOD is generally correlated with dry conditions for central and southern Australia.

The BoM also provided an updated ENSO outlook on June 25, where the El Niño status was downgraded to 'Inactive' – a small amount of positive news despite the IOD situation likely being the dominant influence for rainfall moving into spring.

NSW DPI
July 2019

DARLING DOWNS

Weather conditions

Things have not improved on the Downs with only 5 mm of rain in May and about 20 mm over three falls in June. Consequently, there has been no improvement in soil moisture conditions. Temperatures have been mild during the day with some frosts in short bursts.

Winter crop

The central and western areas of the Downs have a small amount of winter crop that is growing fairly well. The cereals are elongating as they move to the reproductive phase whilst the chickpeas are still in the early growth stages.

On the Eastern Downs the main paddocks planted are those with some irrigation, and these crops are growing well. The lack of June rain meant there was no further winter crop planting and there are very few dryland paddocks sown, with a number turned over to grazing.

There has been an increase in the use of Weedit technology as fallow weed emergence is patchy and growers look to economically keep on top of the few weeds growing.

Many growers have taken advantage of the dry time to fertilise earlier than usual with nitrogen in the hope of a summer crop planting opportunity in a few months time.

Summer crop outlook

There is the prospect of another large summer crop planting with so much area not able to be planted to winter crops. This will create issues with seed availability, as last summer was a difficult season for all growers, including seed producers.

We are potentially looking at a very wide sowing window, with sorghum the main crop being planned.

Irrigation water supplies are down significantly from last summer, and with limited subsoil moisture to date, growers may be changing tactics and crop choice to cope with this.

The current outlook for rain is not showing any significant falls on the horizon.

Hugh Reardon-Smith
Agronomist – Landmark, Pittsworth
July 11, 2019

This photo shows a typical eastern Darling Downs cropping paddock this winter – stubble!

ANSWER TO IAN'S MYSTERY TRACTOR QUIZ

The tractor is a 1932 40 hp single cylinder two stroke semi diesel Landini.

SOUTHERN AUSTRALIA FOCUS

COVERING CROPPING SYSTEMS OF SOUTHERN NSW, VICTORIA, TASMANIA, SOUTH AUSTRALIA & WESTERN AUSTRALIA

Paired-rows give entry level crop competition

By Cindy Benjamin, WeedSmart

HIGHER crop yield and less weeds naturally flow from increased crop competition, but the costs involved in changing machinery and farming systems can be a barrier to achieving these benefits.

Narrowing row spacing, while maintaining the same seeding rate, is generally accepted as the simplest way to increase crop competition. But growers who are not ready to change over their machinery can gain much of the weed suppression benefit using paired-row sowing systems. If this is coupled with east-west sowing the benefits are even greater.

Peter Newman, WeedSmart western extension agronomist says paired-row systems such as the Stiletto Boot, which is popular in Western Australian sandy soils, are a cheap way to increase crop density and achieve earlier canopy closure.

Yield maintained in weedy situations

"Generally, there is not a yield response over single row seeding but yield is maintained in weedy situations, taking some pressure off in-crop herbicides without adding significantly to the weed seed bank," he said. "Paired-row systems reduce the

Peter Aikman, Annuello, Victoria has used a paired-row system to maintain crop competition to suppress weeds while gaining seeding efficiencies through slightly wider row spacing. This crop of Compass barley was dry sown in April 2018 and germinated on 12 mm rainfall on May 4.

'auto allelopathy' effect that suppresses plant growth when the seeds of crops like wheat are planted very close along the row. Spreading the seed out, essentially in a slightly wider band, gives each crop seed more room to germinate and grow without impacting on the growth of neighbouring crop plants."

In southern Australian farming systems there has been steady adoption of paired-row systems – such as Rootboot and Groundhog – to improve seedbed utilisation (SBU), which is a measure of the seed and fertiliser spread relative to the row spacing.

Southern WeedSmart extension agronomist Greg Condon says the paired-row systems help avoid the problems with fertiliser toxicity that can occur in single wide row systems.

"Older paired-row setups moved too much soil and left the seedbed very rough," he says. "They also had poor stubble handling capacity, used more fuel, achieved poor seed-soil contact and growers had problems with pre-emergent herbicide safety in some situations."

"Most of these constraints have been fixed with the newer configurations now available on the market. Growers who might have had bad experiences before will probably find that paired-row boots now move less soil, have narrower openers and fit better with a wider press-wheel setup."

Greg says that although paired-row systems are a good interim option, the best long-term solution is to change to narrow single-row spacing, no wider than 250 mm for tynes or 190 mm for disc planters.

Paired-row system technology options

Dr Jack Desbiolles, senior agricultural research engineer at University of SA has undertaken extensive trials investigating the benefits of increasing the space between seeds in the seedbed. Paired-row sowing is one way to effectively achieve this and can deliver both increased yield and useful suppression of weeds.

"When it comes to paired-row seeding systems, the technology can be categorised into either split or integrated designs," said Jack. "The split designs use a Y-splitter tail located further behind the opener, which delivers seeds into a furrow backfill. While seed spread can be more limited, seed placement can be accurate. But seed is often exposed to diluted furrow moisture and contamination from residue and pre-emergence herbicide, all of which can reduce the rate of crop establishment."

While these Y-splitter design solutions represent easy and low-cost upgrades for compatible single row seeding systems, the newer, integrated paired-row designs are becoming more mainstream.

Paired-row systems such as the Rootboot (pictured) and Groundhog have improved seedbed utilisation.

"The integrated designs are compact and streamlined, sitting closely behind the opener and are designed to deliver seeds onto an undisturbed ledge on each side of the trench that the opener creates," he said. "The accuracy of seed placement depends mostly on the primary furrow shape not affecting the integrity of side ledges. These paired-row configurations are more expensive but often achieve good seed-soil contact without diluting soil moisture or allowing residue or herbicide contamination," Jack says.

One grower's experience

Farming at 'Annuello' in the north-west of Victoria, Peter Aikman started using a Rootboot paired-row system in 2014 as part of their strategy to increase sowing efficiency after buying additional land and doubling their cropped area.

Peter's Horwood Bagshaw seeder had been set up on 30 cm, single row spacing for cropping wheat, barley and legumes in rotation. To cover more area per day at seeding, Peter changed to 35 cm row spacing but did not want to lose the crop competition benefits that he had seen at 30 cm spacing.

"Widening the tyne spacing allowed us to increase sowing speed and add two more tynes to increase the seeder width. Together these changes increased our seeding efficiency from 12 to 16 hectares per hour, which means we save seven days at seeding time and can finish planting the whole area on time," he said. "To keep the crop competition benefits we turned the row direction to east-west where practical, and use the Rootboot opener to seed 10 cm paired-rows on 35 cm tyne spacing."

Peter has found that this paired-row system moves some soil around, but in some instances this can be a good thing as it helps to fix any small areas left bare after a legume crop or slightly eroded after using the self-propelled sprayer on sand hills.

"Brome grass is one of our major weeds and we are trying to reduce its germination and seed set by using the combination of the paired-row system and east-west sowing, together with other strategies such as robust crop and herbicide rotation, monitoring for weeds, acting early to prevent weed blow-outs and using harvest weed seed control."

In August, WeedSmart Week will be held in two locations – Emerald, Queensland and Horsham, Victoria – shining the light on integrated weed management tactics, including crop competition, that growers can use to stave off herbicide resistance in weeds. Register on the WeedSmart website.

For more information about paired-row sowing and crop competition, visit the Weedsmart website: *www.weedsmart.org.au* ■