Veratin

Verigrow in Wheat

Katanning

2021

TC2021-001 Veratin Verigrow RF WHT

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Abstract

This trial was conducted on the TrialCo Research Farm 5 km north of Katanning to compare Veratin Verigrow with standard nitrogen (N) treatments of Flexi-N or Urea at equivalent units of N on the growth, production and grain quality of wheat in 2021.

The trial was established as a randomized complete block of 4 treatments and 4 replicates in a single bank with each plot 12 m long by 2 m wide.

On the 26th May 2021 treatments containing 17 units of N were applied either as Verigrow at 35%N, Flexi-N at 42%N or Urea at 46%N. The Verigrow and Flexi-N treatments were liquid banded in-furrow at seeding whilst Urea was top-dressed and incorporated by sowing (IBS). All plots were sown to Scepter wheat at a rate of 91 kg/ha to a depth 2.5 cm.

On the 8th July 2021 43 days after sowing (DA-S) when the crop was mid tillering (GS23) a second application of each treatment was applied containing another 42 units of N. The liquid treatments of Flexi-N was applied via hand-boom and granular Urea was top-dressed by hand. The Verigrow 35%N product caused total blockages of the spray lines, filters and nozzles resulting in this treatment not receiving a second application and removed from the treatment list in this report.

At 41 and 75 DA-S the NDVI (Normalized Difference Vegetation Index - a measure of the state of plant health based on how the plant reflects light at certain frequencies) was recorded for each plot using a hand-held green-seeker.

At 209 DA-S the trial was plot harvested for yield comparisons with grain samples collected from each plot and analysed for quality (protein, moisture, specific weight and screenings) according to CBH standards.

All data collected was statistically analysed with the proprietary agricultural field research program ARM® using an Analysis of Variance at a confidence limit of 95%. All mention of differences contained within this report refer to statistically significant differences.

The season was excellent for the duration of the trial with April to October Growing Season Rainfall (GSR) 150 mm above the long-term average. The trial was never under stress and never waterlogged culminating in excellent final yields of 7.14 to 8.19 t/ha across all plots.

In this trial 17 units of N applied as Verigrow 35%N in-furrow at seeding was equal to or better than 59 units of N (17 units of N at seeding followed by 42 units of N 43 days after seeding) in the form of either Flexi-N or Urea on the growth, yield and grain quality of Scepter wheat.

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Trial Aim

To compare Veratin Verigrow with standard nitrogen (N) treatments of Flexi-N or Urea at equivalent units of N on the growth, production and grain quality of wheat in 2021.

Site Details

Location	Katanning	TrialCo Research Farm
GPS (101)	-33.63669 117.50025	

Trial Design

Randomised complete block (replicate 1 in treatment order)			
Number replicates	4	**Number treatments**	4
Number ranges	1	**Number rows**	18
Plot length (m)	12	**Plot width (m)**	2
Trial depth (m)	12	**Trial width (m)**	44

Sowing Details

Sowing Date	26/05/2021		
Crop / CV	Wheat / Scepter	**Sowing rate (kg/ha)**	91
Sowing width (m)	1.788	**Sowing depth (cm)**	2.5
Tyne row width (cm)	25.4	**Tynes per plot**	7

Trial Maintenance

Date	Product	Rate		Timing/Notes
26/05/2021	Trifluralin	2	L/ha	knockdown IBS herbicide
	Paraquat 360	1.1	L/ha	knockdown IBS herbicide
	Sakura	118	g/ha	knockdown IBS herbicide
	Hasten	0.5	% v/v	knockdown IBS herbicide
	MAP (11:22.8:0:1.2)	80	kg/ha	banded at sowing fertiliser
	Flutriafol	200	mL/ha	liquid IF at sowing fungicide
	Evergol Prime	80	mL/100 kg	on seed fungicide
	Gaucho	240	mL/100 kg	on seed insecticide
3/06/2021	Chlorpyrifos 500EC	1	L/ha	post emergent insecticide
	Bifenthrin	80	mL/ha	post emergent insecticide
23/06/2021	Chlorpyrifos 500EC	500	mL/ha	post emergent insecticide
	Alphacypermethrin	100	mL/ha	post emergent insecticide
16/07/2021	Velocity	670	mL/ha	post emergent herbicide
	Lontrel	100	g/ha	post emergent herbicide
	Trojan	40	mL/ha	post emergent insecticide
	Hasten	1	% v/v	surfactant
23/08/2021	Chlorpyrifos 500EC	500	mL/ha	post emergent insecticide
	Trojan	20	mL/ha	post emergent insecticide
	Prosaro	300	mL/ha	post emergent fungicide

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Treatment List

Trt No.	Treatment Name	Rate	Unit	N%	Appl Code	Appl Description	Applic Date
1	Nil						
2	Verigrow 35% N	48.2	L/ha	17	A	liquid banded in-furrow at seeding	26/5/21
3	Flexi-N	40	L/ha	17	A	liquid banded in-furrow at seeding	26/5/21
	Flexi-N	100	L/ha	42	B	spray application at 6 WA-S via hand boom	8/7/21
4	Urea	36.7	kg/ha	17	A	topdressed and incorporating by seeding	26/5/21
	Urea	91.7	kg/ha	42	B	6 WA-S topdressed by hand	8/7/21

Treatment Application Details

Application Code	A		
Application Date	**26/05/2021**		
Crop Stage At Application	GS00		
Air Temperature	16.1 C		
% Relative Humidity	36.1		
Wind Velocity Direction	12.2 KPH N		
% Cloud Cover	80		
Treatment Number	**2**	**3**	**4**
Application Method	LIQUID BAND	LIQUID BAND	BAND
Application Placement	SOIL	SOIL	SOIL
Appl. Equipment	Liquid Injection	Liquid Injection	Spreader
Operation Pressure	1.05 BAR	1.05 BAR	n/a
Tyne/Nozzle Spacing	0.25 cm	0.25 cm	0.25 cm
Tynes/Nozzles per Row	7	7	7
Band Width	1.8 m	1.8 m	1.8 m
Ground Speed	5 KPH	5 KPH	5 KPH
Total Application Rate	100 L/ha	100 L/ha	36.7 kg/ha
Treatment Rate	48.2 L/ha	40 L/ha	36.7 kg/ha
Application Carrier (Water) Rate	51.8 L/ha	60 L/ha	n/a
Total Mix Size	20 L	20 L	78.4 g/plot
Treatment Amount in Mix	20 L	20 L	78.4 g/plot
Carrier (Water) Amount in Mix	20 L	20 L	n/a
Propellant	COMAIR	COMAIR	n/a

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	B	
Application Date	**8/07/2021**	
Crop Stage At Each Application	GS23	
Air Temperature	13.8 C	
% Relative Humidity	71.7	
Wind Velocity Direction	8.5 KPH W	
Wet Leaves (Y/N)	No	
% Cloud Cover	60	
Treatment Number	4	5
Interval to Prev. Appl.	43 DAYS	43 DAYS
Application Method	SPRAY	SPREAD
Application Placement	FOLIAR	FOLIAR
Appl. Equipment	Handboom	Handspread
Operation Pressure	2.5 BAR	n/a
Nozzle Model	Teejet	n/a
Nozzle Type	15	n/a
Nozzle Tip Size, Color	015 Green	n/a
Tyne/Nozzle Spacing	50.0 cm	n/a
Tynes/Nozzles per Row	4	n/a
Band Width	2.0 m	n/a
Boom Height	50.0 cm	n/a
Ground Speed	5 KPH	5 KPH
Treatment Rate	100 L/ha	91.7 kg/ha
Number of Applications	2	1
Total Volume per Application	104 L/ha	91.7 kg/ha
Product Rate per Application	50 L/ha	91.7 kg/ha
Water (Carrier) Rate per Application	54 L/ha	n/a
Mix Overage	25.0 %	
Total Mix Size per Application	1.9 L	163 g/plot
Product Amount in Mix per Application	0.96 L	163 g/plot
Carrier (Water) Amount in Mix per Application	0.94 L	n/a
Propellant	COMAIR	n/a

Treatment Application Comments

Applic B 08/7/2021	trt 4: 2 applications/passes at 50 L/ha per plot to achieve desired application rate of 100 L/ha

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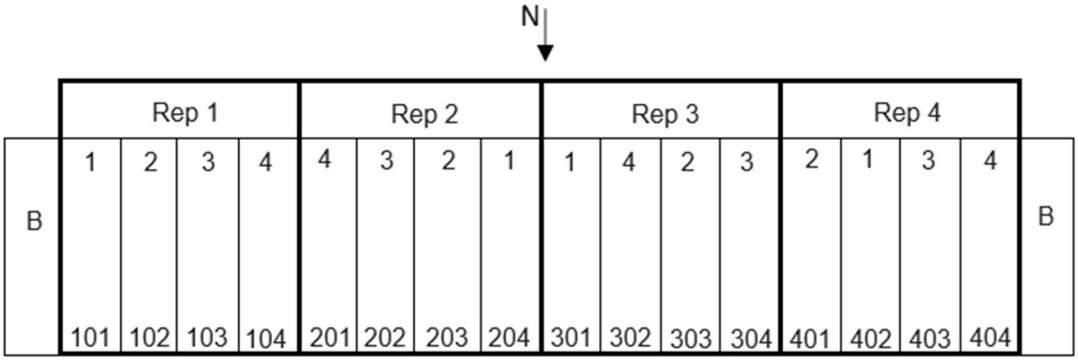
Trial Layout



Soil Analysis

Date		15/3/2021
Depth		0-10
Colour		BRGR = brown grey
Gravel	**%**	5
Texture		1.5 = sand/loam
Ammonium Nitrogen	**mg/kg**	10
Nitrate Nitrogen	**mg/kg**	33
Phosphorus Colwell	**mg/kg**	24
Potassium Colwell	**mg/kg**	243
Sulfur	**mg/kg**	8.5
Organic Carbon	**%**	1.6
Conductivity	**dS/m**	0.26
pH Level (CaCl2)		4.4
pH Level (H2O)		5.4
PBI		33.5

Field Comments

24/06/2021 no differences across plots
All plots = 100% vigour compared to treatment 1 Nil
Crop GS12-13

Results and Discussion

Table 1. Analysis of Variance for Crop NDVI

No.	Treatment	Rate	Unit	N%	Code	Description	6/07/2021 41 DA-S NDVI	9/08/2021 75 DA-S 32 DA-B NDVI
1	Nil						0.45 a	0.75 ab
2	Verigrow 35% N	48.2	l/ha	17	A	IF at seeding	0.44 a	0.77 a
3	Flexi-N	40	l/ha	17	A	IF at seeding	0.45 a	0.77 a
	Flexi-N	100	l/ha	42	B	6 WA-S		
4	Urea	36.7	kg/ha	17	A	at seeding	0.45 a	0.77 a
	Urea	91.7	kg/ha	42	B	6 WA-S		
LSD P=.05							**0.023**	**0.03**
Standard Deviation							**0.015**	**0.02**
CV							**3.4**	**2.61**
Replicate F							**3.079**	**1.215**
Replicate Prob(F)							**0.0684**	**0.3466**
Treatment F							**5.539**	**3.618**
Treatment Prob(F)							**0.0092**	**0.0371**

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

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Table 2. Analysis of Variance for Crop Yield

No.	Treatment	Rate	Unit	N%	Code	Description	21/12/2021 209 DA-S Yield t/ha	%Nil
1	Nil						7.33 c	100 c
2	Verigrow 35% N	48.2	l/ha	17	A	IF at seeding	8.01 a	109 a
3	Flexi-N	40	l/ha	17	A	IF at seeding	7.84 ab	107 ab
	Flexi-N	100	l/ha	42	B	6 WA-S		
4	Urea	36.7	kg/ha	17	A	at seeding	7.84 ab	107 ab
	Urea	91.7	kg/ha	42	B	6 WA-S		
LSD P=.05							**0.408**	**5.6**
Standard Deviation							**0.265**	**3.6**
CV							**3.44**	**3.47**
Replicate F							**1.793**	**0.64**
Replicate Prob(F)							**0.202**	**0.6035**
Treatment F							**4.811**	**4.69**
Treatment Prob(F)							**0.0151**	**0.0164**

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Final yields were excellent and ranged from 7.14 to 8.19 t/ha across all plots.

The Nil treatment had the lowest yield, and this was significantly lower than Verigrow 35%N (17N), Flexi-N (17N plus 42N) and Urea (17N plus 42N)

Verigrow 35%N (17N) was the highest yielding treatments, significantly higher than Nil.

Verigrow 35%N (17N) was equal in yield to Flexi-N (17N plus 42N) and Urea (17N plus 42N).

Table 3. Analysis of Variance for Grain Quality

No.	Treatment	Rate	Unit	N%	Code	Description	21/12/2021 209 DA-S Grain Quality Protein %	Moist %	Spec Weight kg/hL	Screen %
1	Nil						8.8 b	11 a	83 a	2.2 a
2	Verigrow 35% N	48.2	l/ha	17	A	IF at seeding	9.5 a	11 a	83 a	1.9 a
3	Flexi-N	40	l/ha	17	A	IF at seeding	9.4 a	11 a	82 a	2 a
	Flexi-N	100	l/ha	42	B	6 WA-S				
4	Urea	36.7	kg/ha	17	A	at seeding	9.6 a	11 a	83 a	1.9 a
	Urea	91.7	kg/ha	42	B	6 WA-S				
LSD P=.05							**0.53**	**0.1**	**0.77**	**0.43**
Standard Deviation							**0.35**	**0.07**	**0.5**	**0.28**
CV							**3.76**	**0.63**	**0.6**	**13.46**
Replicate F							**5.986**	**0.727**	**5.038**	**3.28**
Replicate Prob(F)							**0.0098**	**0.5551**	**0.0174**	**0.0586**
Treatment F							**4.864**	**1.8**	**1.822**	**2.027**
Treatment Prob(F)							**0.0145**	**0.1937**	**0.1895**	**0.1545**

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

There were very few differences in the grain quality parameters of protein, moisture, specific weight and screenings between treatments.

Verigrow 35%N (17N), Flexi-N (17N plus 42N) and Urea (17N plus 42N) were equal in grain protein and contained significantly more protein than Nil.

In general grain protein was very low and did not reach the desired 11.5% to be classified as Hard Wheat (H1 or H2). All treatments would be graded as ASW1 (Australian Soft White).

There were no differences between any of the treatments in terms of Moisture, Specific Weight and Screenings.

Conclusion

In this trial 17 units of N applied as Verigrow 35%N in-furrow at seeding was equal to or better than 59 units of N (17 units of N at seeding followed by 42 units of N 43 days after seeding) in the form of either Flexi-N or Urea on the growth, yield and grain quality of Scepter wheat.

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Replicated Data

Table A1. Crop NDVI

No.	Treatment	Rate	Unit	Code	Description	Plot	6/07/2021 41 DA-S NDVI	9/08/2021 75 DA-S 32 DA-B NDVI
1	Nil					101	0.44	0.78
						204	0.46	0.75
						302	0.47	0.75
						403	0.43	0.72
2	Verigrow 35% N	48.2	l/ha	A	IF at seeding	103	0.46	0.78
	Verigrow 35% N	120.6	l/ha	B	6 WA-S	203	0.45	0.78
						304	0.43	0.76
						401	0.43	0.74
3	Flexi-N	40	l/ha	A	IF at seeding	104	0.46	0.79
	Flexi-N	100	l/ha	B	6 WA-S	202	0.42	0.76
						305	0.47	0.76
						404	0.44	0.77
4	Urea	36.7	kg/ha	A	at seeding	105	0.47	0.77
	Urea	91.7	kg/ha	B	6 WA-S	201	0.44	0.77
						303	0.45	0.78
						405	0.42	0.75

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Table A2. Crop Yield

No.	Treatment	Rate	Unit	Code	Description	Plot	21/12/2021 209 DA-S Yield kg/plot	t/ha	%Nil
1	Nil					101	13.22	7.34	100
						204	13.10	7.28	100
						302	13.56	7.53	100
						403	12.86	7.14	100
2	Verigrow 35% N	48.2	l/ha	A	IF at seeding	103	14.72	8.18	111
	Verigrow 35% N	120.6	l/ha	B	6 WA-S	203	14.26	7.92	109
						304	14.74	8.19	109
						401	13.94	7.74	108
3	Flexi-N	40	l/ha	A	IF at seeding	104	14.48	8.04	110
	Flexi-N	100	l/ha	B	6 WA-S	202	14.30	7.94	109
						305	14.26	7.92	105
						404	13.42	7.46	104
4	Urea	36.7	kg/ha	A	at seeding	105	14.68	8.16	111
	Urea	91.7	kg/ha	B	6 WA-S	201	14.50	8.06	111
						303	14.36	7.98	106
						405	12.94	7.19	101

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Table A3. Grain Quality

No.	Treatment	Rate	Unit	Code	Description	Plot	21/12/2021 209 DA-S Grain Quality Prot %	Moist %	Spec Weight kg/hL	Screen %
1	Nil					101	9.4	10.8	83.8	1.8
						204	9.0	10.8	82.9	2.0
						302	8.5	10.8	81.5	2.6
						403	8.4	10.7	82.4	2.4
2	Verigrow 35% N	48.2	l/ha	A	IF at seeding	103	9.5	10.9	82.9	1.9
	Verigrow 35% N	120.6	l/ha	B	6 WA-S	203	9.7	10.8	82.9	1.9
						304	9.5	10.9	82.7	2.0
						401	9.3	10.8	81.7	1.9
3	Flexi-N	40	l/ha	A	IF at seeding	104	9.6	10.9	82.2	1.7
	Flexi-N	100	l/ha	B	6 WA-S	202	10.1	10.7	82.9	2.3
						305	9.1	10.8	82.2	2.2
						404	8.9	10.8	82.2	1.9
4	Urea	36.7	kg/ha	A	at seeding	105	10.2	10.7	83.0	1.5
	Urea	91.7	kg/ha	B	6 WA-S	201	10.2	10.8	83.7	1.7
						303	9.0	10.9	82.3	1.9
						405	8.8	10.8	82.5	2.4

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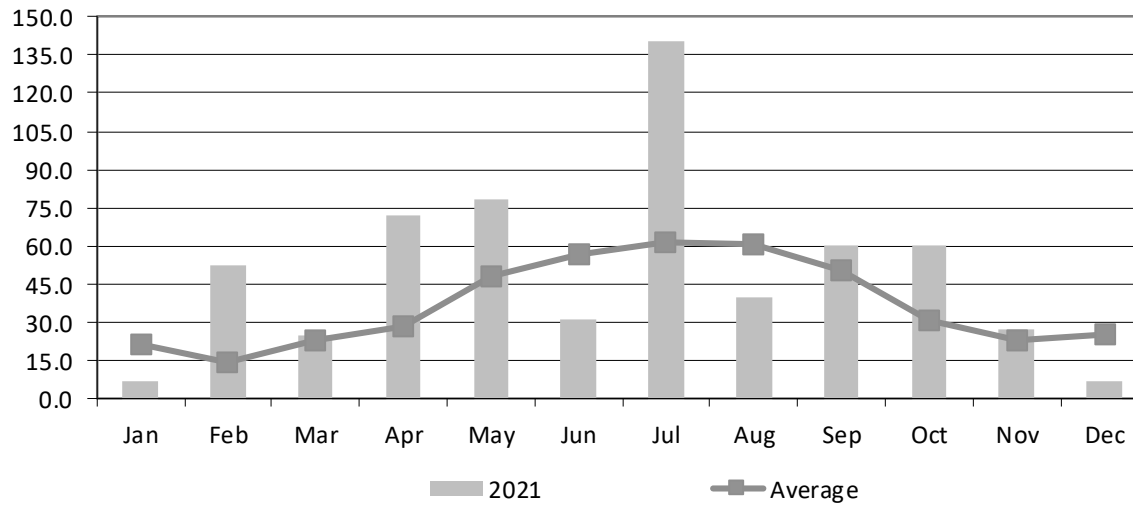
Weather Data

DPIRD Station Katanning KA004

2021 Daily Rainfall (mm)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0	0.0	0.0	1.4	0.0	1.4	0.0	7.2	0.8	1.0	0.2	0.0
2	0.0	0.0	6.2	0.0	0.0	0.0	1.0	1.0	2.8	3.8	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	2.0	0.4	0.0	0.0
4	0.0	0.0	8.0	0.0	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	5.6	0.0	35.0	0.0	13.2	0.2	0.2	6.2	0.0	0.0
6	0.0	0.0	0.6	0.0	1.0	0.4	0.8	0.0	0.0	0.2	0.4	1.0
7	0.0	18.0	0.2	0.0	0.4	3.0	16.2	0.0	0.0	0.0	0.0	0.0
8	0.0	33.4	0.6	7.4	0.2	0.0	2.2	0.2	0.0	0.8	0.0	0.0
9	0.0	0.2	0.0	0.0	0.0	0.0	2.8	5.2	16.8	0.0	0.0	0.0
10	1.4	0.0	3.0	0.0	0.0	2.0	12.4	12.8	19.2	0.0	0.0	0.0
11	0.0	0.0	0.0	1.0	0.2	0.6	0.6	2.8	0.0	0.0	0.0	0.0
12	0.0	0.0	0.6	45.0	0.0	0.0	0.4	0.0	0.2	10.4	0.0	0.0
13	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.2	0.0	0.0
14	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.2	0.0	3.0	0.8	0.0	3.6	0.2	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.2	13.0	0.2	3.0	0.2	0.0	2.4
18	0.0	0.4	0.0	0.0	0.0	0.2	0.0	2.4	0.4	0.0	0.2	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	3.2	8.2	0.0	3.0
20	5.2	0.0	0.0	0.2	0.0	4.6	0.4	2.6	0.2	4.4	0.0	0.0
21	0.0	0.0	0.0	0.0	0.2	6.4	25.0	0.2	0.0	3.8	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.4	24.4	0.0
23	0.0	0.0	0.0	0.0	8.2	1.0	0.0	0.0	0.0	0.0	2.2	0.0
24	0.0	0.0	0.0	0.0	10.2	0.0	0.4	0.2	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.6	4.6	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	34.6	1.2	3.0	14.4	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	3.4	0.2	0.8	2.8	1.2	0.0	0.0
29	0.0		0.0	0.0	6.4	2.8	7.4	0.2	0.2	0.2	0.0	0.0
30	0.0		0.0	16.8	9.2	0.4	5.2	0.4	1.0	0.0	0.0	0.0
31	0.0		0.2		4.8		3.0	0.4		0.0		0.0
2021	**6.6**	**52.0**	**25.0**	**72.2**	**78.6**	**31.2**	**140.2**	**40.0**	**60.0**	**60.6**	**27.4**	**6.4**
2021 GSR Apr-Oct: 482.8												
Cum.	**6.6**	**58.6**	**83.6**	**155.8**	**234.4**	**265.6**	**405.8**	**445.8**	**505.8**	**566.4**	**593.8**	**600.2**
Average	**21.4**	**14.1**	**23.1**	**28.4**	**47.8**	**56.4**	**61.2**	**60.9**	**50.1**	**30.5**	**22.5**	**25.2**
Ave GSR Apr-Oct: 335.3												
Cum.	**21.4**	**35.5**	**58.6**	**87.0**	**134.8**	**191.2**	**252.4**	**313.3**	**363.4**	**393.9**	**416.4**	**441.6**

2021 Monthly Rainfall vs Long Term Average (mm)



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DPIRD Station Katanning KA004

2021 Daily Temperature (°C)

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
Date	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
1	16.6	28.0	15.6	32.9	15.5	23.2	16.9	30.7	7.8	19.7	10.0	17.8	7.2	16.7	5.2	10.0	12.1	15.2	9.8	18.4	10.2	18.4	6.5	25.2
2	14.4	27.2	12.9	35.9	15.6	27.1	13.5	29.8	7.1	22.2	8.2	17.0	8.5	14.6	4.3	12.2	4.5	10.4	6.3	17.7	8.3	19.3	7.0	25.6
3	14.1	28.0	17.0	28.3	17.6	22.2	14.9	26.8	10.3	21.2	7.7	18.0	4.4	16.2	4.8	14.7	3.1	15.2	6.4	15.8	5.5	23.4	6.4	27.7
4	11.9	28.3	10.0	24.0	18.6	25.8	16.3	28.5	11.0	16.6	8.5	17.7	7.8	13.9	3.6	16.3	1.4	16.3	2.7	16.8	5.5	27.8	8.1	30.8
5	13.6	30.4	12.8	25.9	17.3	27.3	16.1	31.6	13.4	19.6	9.9	15.6	8.0	12.6	3.0	16.3	0.9	19.1	7.1	15.5	8.3	21.4	9.4	32.5
6	11.4	32.5	13.2	19.9	17.5	25.4	13.7	29.0	12.5	22.2	10.7	14.9	6.4	15.2	1.5	17.6	2.7	20.7	0.7	15.5	5.5	20.7	9.2	23.4
7	10.0	35.5	13.8	19.0	16.7	27.5	18.0	25.4	9.8	20.2	6.0	16.1	8.3	12.8	2.4	18.3	6.3	25.2	4.1	19.4	2.7	23.4	12.0	29.1
8	14.0	39.5	13.8	23.9	16.1	26.6	12.4	19.5	8.3	19.1	8.3	12.7	6.1	15.2	9.2	18.9	11.4	24.1	5.7	17.5	9.0	22.2	12.6	35.6
9	21.4	39.4	12.9	26.1	16.3	31.4	11.2	20.9	9.2	18.8	8.6	15.6	9.2	15.6	9.8	15.2	9.7	11.0	4.5	18.6	10.2	20.1	20.4	37.8
10	18.1	28.8	13.2	24.9	17.2	30.3	12.2	23.5	9.7	17.9	9.0	19.7	6.0	14.1	5.7	9.9	6.7	15.7	1.1	20.0	3.4	23.4	18.1	29.0
11	13.2	29.3	10.2	24.4	19.4	28.6	13.9	16.3	6.9	23.1	7.5	18.0	2.8	13.5	3.6	14.9	6.5	14.9	8.9	19.7	5.5	23.8	10.6	24.4
12	8.8	33.8	8.2	28.6	15.1	24.0	13.9	19.3	13.2	14.6	10.7	16.3	7.7	16.3	7.7	15.7	2.0	13.7	2.9	15.7	8.3	22.8	10.9	24.4
13	12.8	27.5	11.4	33.0	7.8	21.9	9.0	19.4	4.3	15.3	5.8	16.4	10.1	15.7	5.2	16.6	3.5	18.2	4.7	18.6	5.6	24.3	5.7	26.8
14	11.6	26.8	14.9	34.4	8.7	23.9	7.2	19.7	8.6	16.6	9.0	13.5	8.7	14.8	2.4	17.7	1.9	20.2	4.2	21.4	7.2	26.4	6.9	25.4
15	13.4	27.0	19.8	37.1	8.9	27.3	7.9	23.3	12.0	16.9	5.7	16.0	6.7	13.8	3.0	15.3	3.9	19.5	7.7	28.2	9.9	30.7	6.3	30.0
16	12.9	29.1	23.9	38.7	10.7	31.7	8.3	22.4	12.5	21.8	7.8	17.3	8.7	16.1	1.7	20.3	8.3	13.6	10.8	29.1	10.5	24.3	10.6	30.5
17	11.4	31.9	14.9	34.6	13.1	34.9	7.4	24.5	13.2	24.9	3.5	15.7	6.4	15.5	7.7	21.9	3.4	14.8	13.3	21.7	13.9	24.4	13.7	23.3
18	12.5	35.6	12.4	23.1	12.7	35.5	7.2	25.5	11.7	21.5	2.4	15.3	7.3	14.8	9.2	18.8	6.2	15.5	3.7	26.9	11.2	17.9	12.1	21.8
19	15.8	37.1	7.4	27.7	12.1	35.8	9.0	23.8	10.7	22.2	2.5	15.2	7.4	15.7	9.2	16.1	8.8	17.5	12.0	18.2	9.9	22.2	5.5	29.6
20	18.5	33.5	10.6	31.8	13.1	35.2	13.4	22.4	5.9	22.0	8.5	12.1	8.4	11.4	7.3	16.7	3.9	17.3	10.5	18.1	3.0	27.2	8.5	34.4
21	16.4	33.1	15.0	32.0	13.7	37.0	7.0	23.8	7.1	20.5	7.2	10.5	9.8	15.0	7.7	17.3	4.1	22.4	9.5	17.6	8.3	28.7	13.9	30.2
22	15.7	37.9	14.6	34.2	17.0	23.1	10.8	20.2	10.1	17.5	4.2	13.2	5.5	12.2	7.1	13.1	3.7	25.1	8.0	21.2	13.5	21.3	12.2	33.3
23	13.6	36.2	13.5	38.3	8.2	22.8	8.6	26.1	7.2	16.4	6.5	14.6	7.2	13.7	0.7	14.5	10.6	19.7	4.4	24.3	7.8	24.3	9.8	35.5
24	15.5	29.9	16.4	29.9	5.9	24.8	11.5	28.0	4.7	13.1	4.6	14.0	5.2	15.2	3.0	17.1	4.9	17.5	5.9	28.9	5.9	28.9	13.1	33.8
25	13.6	27.9	16.6	33.2	7.1	24.6	9.5	27.8	5.9	15.8	2.1	15.2	8.4	17.0	3.2	18.6	3.8	15.2	11.8	16.3	11.1	29.4	14.9	34.9
26	12.2	29.8	15.8	26.5	9.8	24.8	7.1	28.8	6.1	16.2	3.4	16.0	10.2	16.7	9.2	16.0	7.2	18.6	3.5	13.4	11.9	32.0	15.3	38.3
27	12.6	26.2	13.7	28.5	8.8	28.9	13.2	27.5	6.7	19.9	5.2	15.5	8.0	12.3	4.9	14.5	10.5	18.7	7.1	15.0	11.9	34.6	14.3	38.1
28	9.7	30.7	14.7	28.1	12.0	32.8	10.3	28.9	10.6	24.5	9.6	16.9	5.7	13.4	5.8	15.7	9.5	18.1	3.1	17.4	11.6	37.1	12.8	39.4
29	13.1	31.0			13.3	39.1	12.4	25.8	13.9	18.4	8.2	13.1	8.7	17.3	9.4	16.9	9.0	21.1	3.7	15.8	13.1	27.7	13.3	41.2
30	14.3	32.7			21.6	37.4	8.5	18.6	10.8	14.4	4.0	13.2	8.1	11.4	10.3	16.2	10.9	21.6	1.8	23.2	5.8	25.1	14.4	34.4
31	13.3	35.3			19.1	24.6			10.2	14.8			2.8	12.2	10.6	18.4			6.8	27.0			13.8	27.0

2021 vs Long Term Average Monthly Temperature (°C)

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
2021	13.8	31.6	13.9	29.5	13.8	28.6	11.4	24.6	9.4	19.0	6.8	15.4	7.3	14.5	5.8	16.2	6.0	17.9	6.2	19.8	8.5	25.1	11.2	30.8
Ave	13.6	30.1	14.1	29.7	13.1	27.0	11.1	23.3	8.6	19.2	6.9	16.2	6.0	14.8	5.9	15.4	6.2	17.6	7.7	21.9	10.1	26.2	11.8	28.8