



AGROMETEOROLOGICAL BULLETIN

May 2019
3rd 10-day period

- Temperature
- Relative Humidity
- Soil Temperature
- Sunshine Duration
- Precipitation
- Evaporation
- Growing Degrees
- Reference Evapotranspiration
- Accumulated Rainfall from the beginning of wet period
- Accumulated Reference Evapotranspiration
- Number of dry days



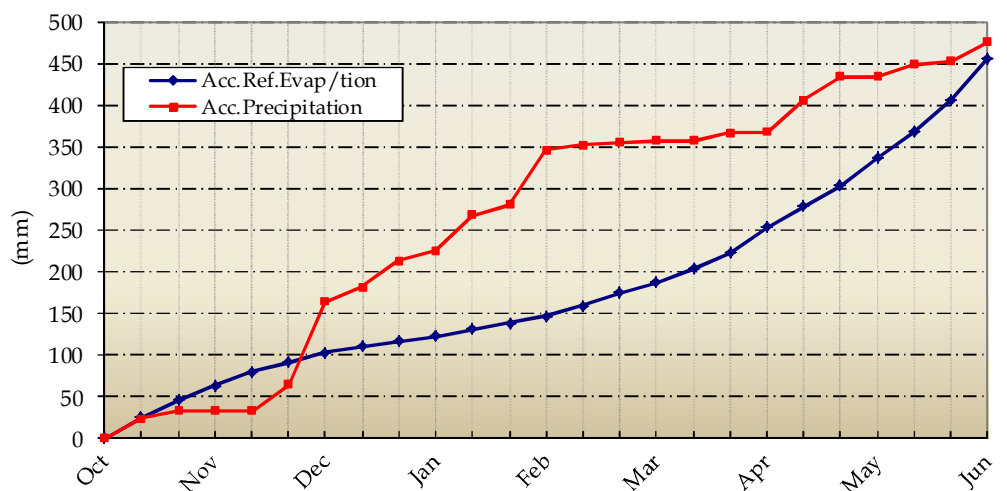
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3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	24.2	26.6	22.0	23.6	25.0	27.8	27.4	26.4	27.2	29.6	25.9	28.3	24.2
	Min	15.4	12.8	15.0	15.4	14.0	12.0	14.0	15.2	16.0	14.8	14.0	14.4	16.5	12.7
Relative Humidity	Max	93	91	97	98	93	88	91	89	93	93	96	93	76	-
	Min	54	56	32	64	63	41	36	37	55	45	43	48	35	-
Soil Temperature at 10 cm	06 UTC	20.4	20.2	20.4	20.6	19.6	19.0	19.4	21.0	20.0	22.0	22.4	20.5	22.8	19.3
	12 UTC	24.6	24.2	25.6	21.6	21.6	23.0	19.0	26.2	26.6	27.0	28.0	24.3	26.4	23.6
Sunshine Duration		12.3	8.8	12.8	3.5	11.1	11.4	9.0	12.5	12.9	13.2	12.2	10.9	9.8	8.3
Precipitation					22.8								22.8	1.7	12.4
Evaporation		6.2	2.6	9.8	3.6	4.4	5.0	6.7	3.3	4.8	11.9	7.7	66.0	94.7	70.1
Growing Degrees	5	15.4	13.5	15.8	13.7	13.8	13.5	15.9	16.3	16.2	16.0	16.8	166.9	191.5	147.7
	10	10.4	8.5	10.8	8.7	8.8	8.5	10.9	11.3	11.2	11.0	11.8	111.9	136.5	92.7

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.8	58.8	45.7
Precipitation - Reference Evapotranspiration	-27.0	-57.1	-33.3
Number of Rainy Days	1.0	1.0	2.4
Number of Dry Days	7.0	6.0	-

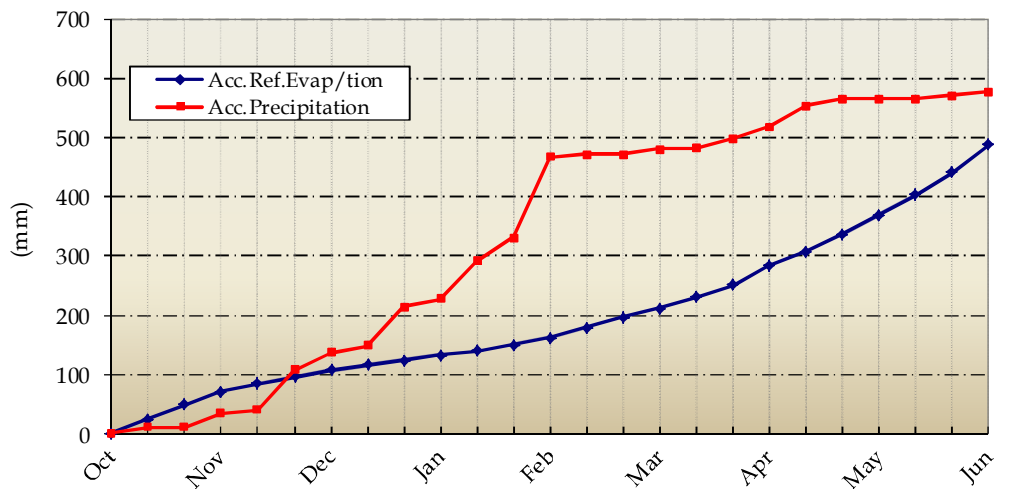
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.8	18.6	23.6	22.0	24.8	27.5	27.0	24.6	24.8	27.6	24.2	24.5	29.4	25.4
	Min	11.7	11.0	9.4	11.8	12.2	12.6	16.2	15.0	15.4	14.2	15.0	13.1	16.2	14.0
Relative Humidity	Max	100	98	100	96	100	92	95	98	98	100	94	97	91	-
	Min	26	69	45	52	36	33	45	44	45	25	56	43	33	-
Soil Temperature at 10 cm	06 UTC	19.6	19.2	18.6	17.6	19.4	19.4	20.6	20.2	20.0	21.0	21.0	19.7	24.3	21.4
	12 UTC	24.0	19.8	21.2	20.8	21.6	22.8	21.2	22.4	22.8	24.6	24.2	22.3	26.8	25.8
Sunshine Duration		11.9	0.8	11.2	12.1	12.9	7.9	6.0	11.5	10.9	12.7	7.9	9.6	11.9	10.2
Precipitation			1.0					3.9					4.9		6.8
Evaporation		7.1	3.4	9.0	15.0	7.0	9.2	6.3	4.0	8.0	9.2	8.0	86.2	75.4	63.7
Growing Degrees	5	13.3	9.8	11.5	11.9	13.5	15.1	16.6	14.8	15.1	15.9	14.6	152.0	195.8	161.7
	10	8.3	4.8	6.5	6.9	8.5	10.1	11.6	9.8	10.1	10.9	9.6	97.0	140.8	106.7

3rd 10-day period (21-31/05/2019)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.0	60.4
Precipitation - Reference Evapotranspiration	-41.1	-60.4
Number of Rainy Days	2.0	0.0
Number of Dry Days	4.0	14.0

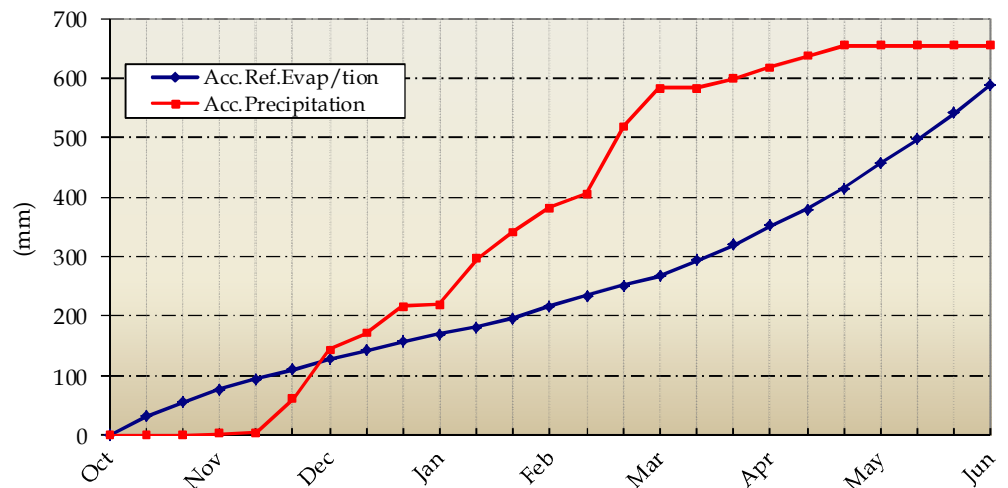
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.0	25.2	24.2	24.0	23.0	23.0	24.4	32.4	25.0	25.0	26.2	26.0	24.4	24.9
	Min	18.2	21.4	19.0	18.0	14.4	14.0	15.4	18.6	16.6	15.8	17.4	17.2	20.3	16.6
Relative Humidity	Max	82	88	88	83	90	92	87	92	93	89	82	88	89	-
	Min	40	52	68	46	59	71	46	20	61	55	55	52	72	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.8	3.0	6.5	12.6	12.6	12.4	10.5	9.3	7.6	2.2	9.8	8.0	8.2	10.1
Precipitation														0.0	4.4
Evaporation		2.9	3.2	4.8	6.6	5.8	2.4	8.1	7.1	4.3	3.0	6.1	54.3	61.7	74.4
Growing Degrees	5	21.1	18.3	16.6	16.0	13.7	13.5	14.9	20.5	15.8	15.4	16.8	182.6	190.7	173.1
	10	16.1	13.3	11.6	11.0	8.7	8.5	9.9	15.5	10.8	10.4	11.8	127.6	135.7	118.1

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.4	46.4	-
Precipitation - Reference Evapotranspiration	-47.4	-46.4	4.4
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	16.0	23.0	-

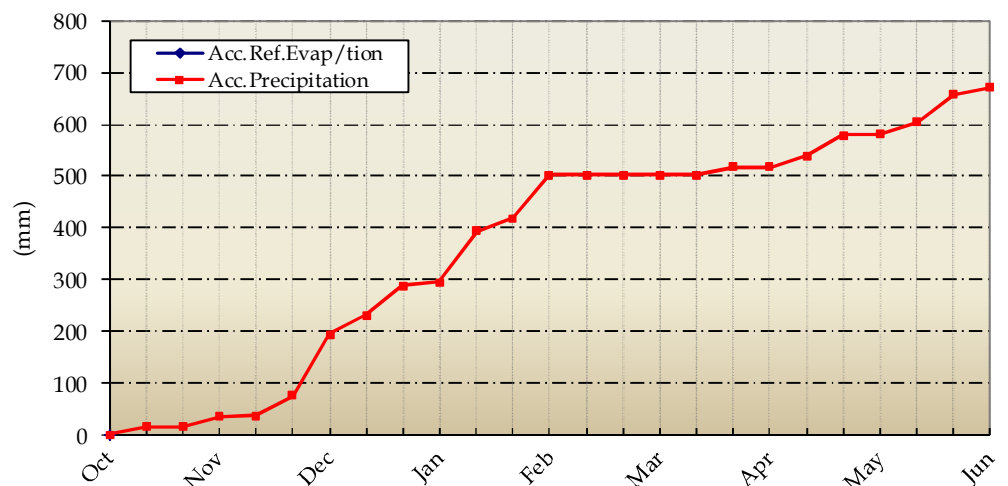
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	23.6	24.0	23.0	23.6	26.2	25.6	24.2	24.6	24.6	23.0	24.2	26.7	24.6
	Min	11.0	7.4	9.0	7.4	10.6	10.2	13.0	13.0	16.2	12.0	14.0	11.3	12.9	10.6
Relative Humidity	Max	93	100	100	95	91	100	100	100	80	100	93	96	97	-
	Min	38	38	33	47	43	36	46	46	48	47	53	43	50	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	17.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.4
Sunshine Duration		12.4	10.1	12.1	7.6	11.6	4.3	6.1	9.7	6.9	3.8	7.5	8.4	8.3	8.1
Precipitation					4.7			7.0				1.7	13.4	59.7	20.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	55.4
Growing Degrees	5	12.5	10.5	11.5	10.2	12.1	13.2	14.3	13.6	15.4	13.3	13.5	140.1	162.7	138.9
	10	7.5	5.5	6.5	5.2	7.1	8.2	9.3	8.6	10.4	8.3	8.5	85.1	107.7	83.9

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	42.6
Precipitation - Reference Evapotranspiration	-	-	-21.7
Number of Rainy Days	3.0	8.0	3.4
Number of Dry Days	6.0	4.0	-

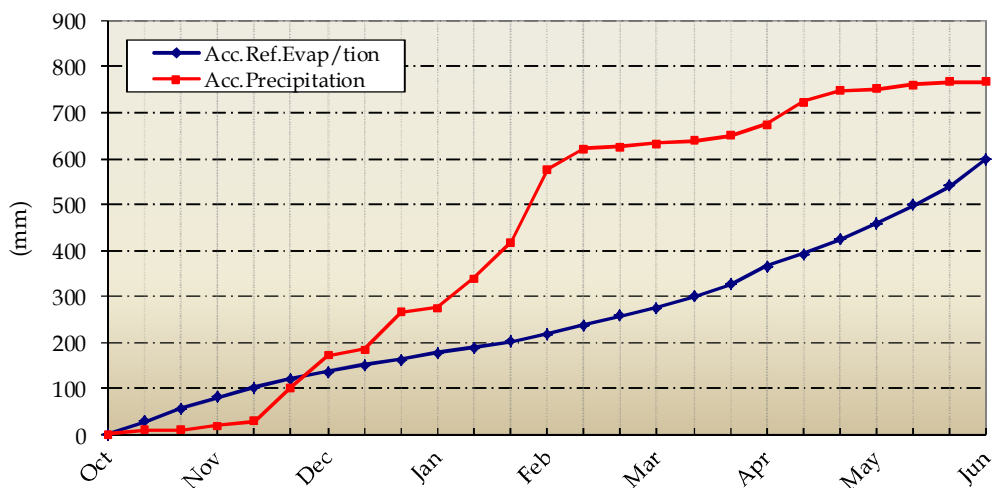
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	25.8	28.0	24.4	27.1	27.2	27.0	24.8	27.4	32.0	31.2	27.3	29.3	26.1
	Min	14.2	12.5	12.4	12.8	12.0	12.4	15.6	13.7	12.0	14.3	15.4	13.4	15.5	13.4
Relative Humidity	Max	89	76	86	89	90	84	85	88	90	84	89	86	90	-
	Min	36	29	17	35	18	36	35	45	34	21	25	30	35	-
Soil Temperature at 10 cm	06 UTC	19.4	18.8	18.5	18.4	19.5	20.4	21.2	20.0	20.8	21.4	22.4	20.1	23.2	20.5
	12 UTC	20.6	20.0	21.6	21.8	22.2	25.0	22.0	23.5	25.0	25.6	24.6	22.9	26.0	24.4
Sunshine Duration		4.9	1.1	12.5	12.3	12.4	9.1	4.7	12.1	12.5	12.6	8.4	9.3	10.7	9.6
Precipitation		0.0						1.3				0.0	1.3	15.5	3.4
Evaporation		5.0	6.4	6.9	11.7	9.1	4.9	6.1	5.9	5.8	8.8	7.4	78.0	67.9	68.8
Growing Degrees	5	14.8	14.2	15.2	13.6	14.6	14.8	16.3	14.3	14.7	18.2	18.3	168.8	191.4	162.7
	10	9.8	9.2	10.2	8.6	9.6	9.8	11.3	9.3	9.7	13.2	13.3	113.8	136.4	107.7

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.9	59.8	49.3
Precipitation - Reference Evapotranspiration	-57.6	-44.3	-45.9
Number of Rainy Days	1.0	2.0	1.1
Number of Dry Days	9.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

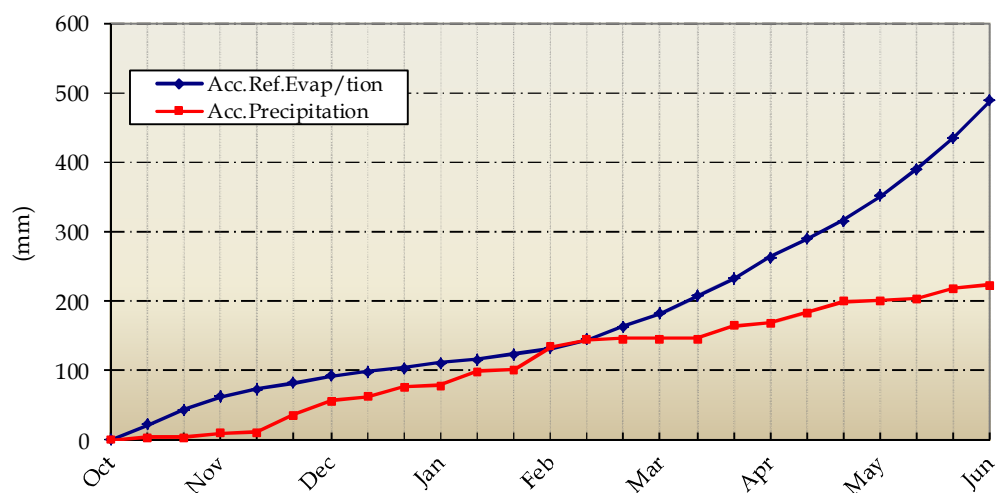


Larisa

3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.2	27.4	29.2	26.8	29.2	28.6	24.4	30.8	30.6	31.3	27.0	28.6	29.0	27.7
	Min	11.2	11.4	10.2	14.4	11.7	12.3	15.6	12.0	13.8	14.8	13.4	12.8	15.4	12.6
Relative Humidity	Max	83	78	95	89	95	90	91	97	77	71	83	86	86	-
	Min	16	24	30	37	26	33	55	27	25	26	39	31	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	20.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	22.3
Sunshine Duration		11.9	8.0	9.7	5.2	9.9	9.3	3.0	11.7	11.8	9.1	6.5	8.7	9.1	8.8
Precipitation				0.1	3.8			1.1				0.0	5.0	0.7	17.2
Evaporation		11.5	5.9	7.4	6.1	10.8	8.7	5.4	8.2	10.7	10.8	6.6	92.1	89.7	67.8
Growing Degrees	5	15.2	14.4	14.7	15.6	15.5	15.5	15.0	16.4	17.2	18.1	15.2	172.7	189.2	166.2
	10	10.2	9.4	9.7	10.6	10.5	10.5	10.0	11.4	12.2	13.1	10.2	117.7	134.2	111.2

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.8	56.5	50.4
Precipitation - Reference Evapotranspiration	-48.8	-55.8	-33.2
Number of Rainy Days	3.0	2.0	3.0
Number of Dry Days	5.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

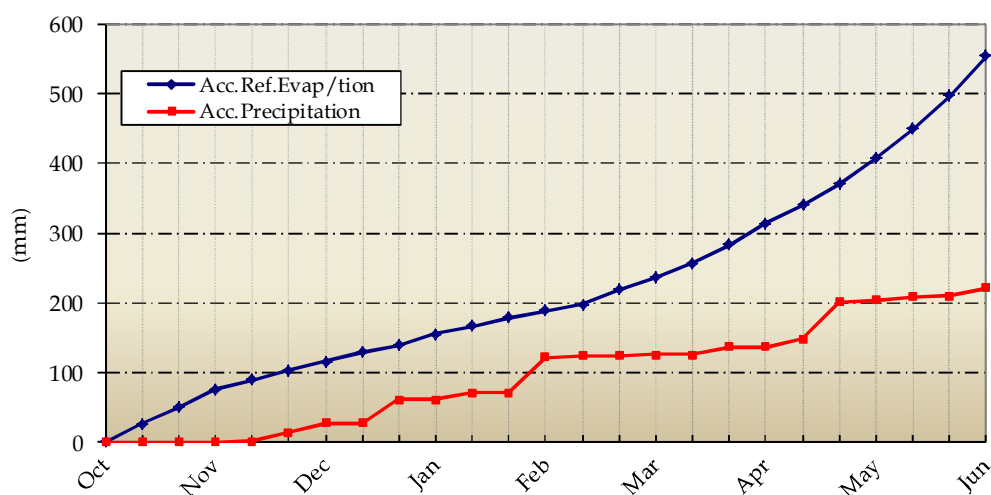


Mikra

3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.0	26.2	27.8	26.0	27.0	27.0	25.2	29.2	29.4	29.0	24.8	27.1	28.0	26.2
	Min	13.2	14.4	14.0	15.8	15.6	16.0	15.6	16.0	16.0	16.8	16.4	15.4	17.0	13.9
Relative Humidity	Max	68	76	91	91	81	77	82	85	79	73	79	80	84	-
	Min	21	27	32	41	35	39	47	30	26	30	50	34	39	-
Soil Temperature at 10 cm	06 UTC	20.0	20.6	20.6	21.0	20.4	20.8	21.2	20.4	21.5	22.2	22.6	21.0	22.7	20.7
	12 UTC	24.8	24.8	25.5	24.6	25.4	25.2	22.0	25.0	24.0	26.8	23.8	24.7	25.5	25.4
Sunshine Duration		13.3	9.1	10.6	8.7	13.0	9.9	2.7	11.7	13.4	11.6	4.5	9.9	9.4	8.3
Precipitation					9.8			0.1				1.6	11.5	6.2	16.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	79.0	70.6
Growing Degrees	5	15.1	15.3	15.9	15.9	16.3	16.5	15.4	17.6	17.7	17.9	15.6	179.2	192.5	165.0
	10	10.1	10.3	10.9	10.9	11.3	11.5	10.4	12.6	12.7	12.9	10.6	124.2	137.5	110.0

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.9	54.7	48.7
Precipitation - Reference Evapotranspiration	-45.4	-48.5	-32.5
Number of Rainy Days	3.0	7.0	2.9
Number of Dry Days	9.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

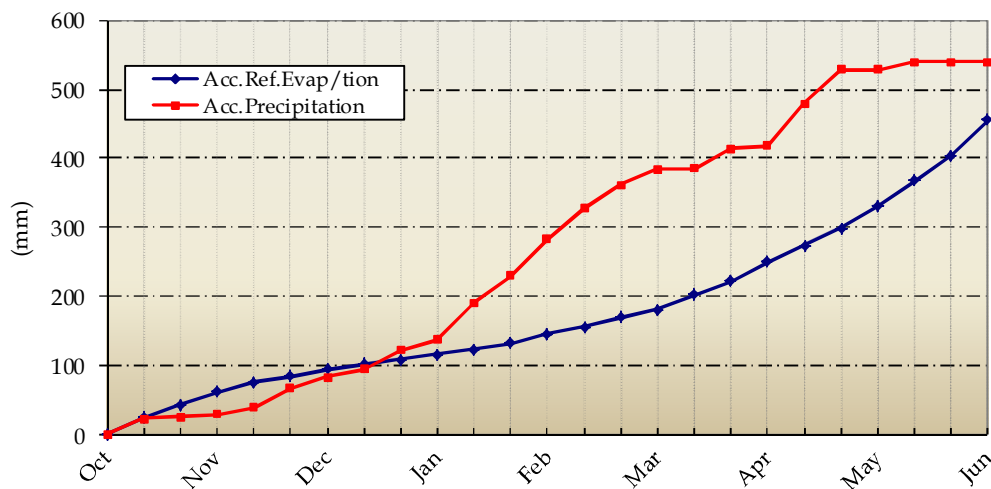


Tanagra

3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.8	23.6	27.8	25.3	26.8	27.9	25.4	30.5	29.2	32.1	29.6	27.9	27.0	26.9
	Min	12.9	11.2	12.5	13.6	13.4	13.1	13.1	12.0	15.4	15.5	14.2	13.4	16.1	12.8
Relative Humidity	Max	81	76	82	81	83	81	83	84	73	78	73	80	78	-
	Min	21	31	24	30	28	25	34	23	21	19	28	26	32	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.7	0.5	13.2	9.9	12.2	8.8	3.4	12.7	13.5	13.1	11.5	10.0	10.5	
Precipitation														0.1	6.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	15.9	12.4	15.2	14.5	15.1	15.5	14.3	16.3	17.3	18.8	16.9	172.0	182.1	
	10	10.9	7.4	10.2	9.5	10.1	10.5	9.3	11.3	12.3	13.8	11.9	117.0	127.1	

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.2	55.9	
Precipitation - Reference Evapotranspiration	-51.2	-55.8	6.0
Number of Rainy Days	0.0	1.0	2.3
Number of Dry Days	24.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



Agrometeorological Data

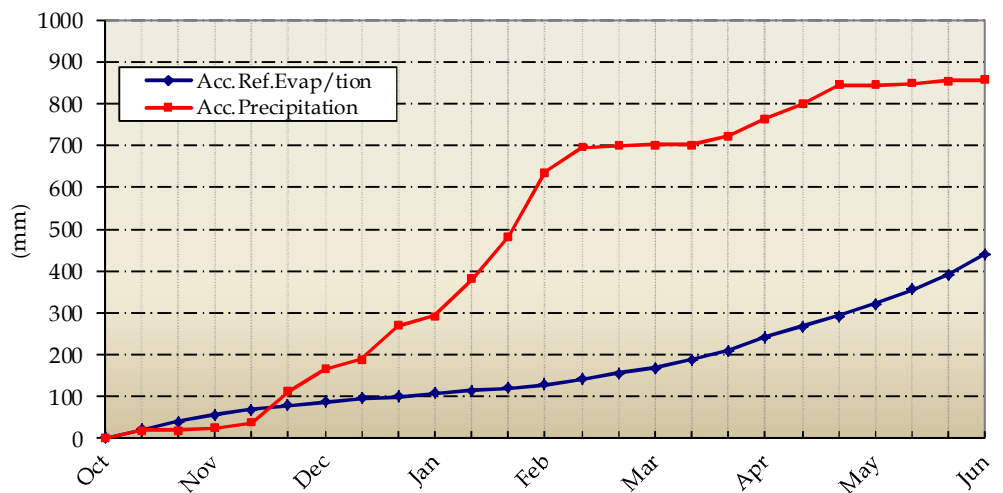
May 2019

Tripoli

3rd 10-day period (21-31/05/2019)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.3	23.8	26.4	21.6	24.2	24.5	22.6	25.0	26.2	28.5	25.0	24.7	25.5	24.8
	Min	9.2	5.7	8.4	7.1	6.0	8.8	10.9	7.5	7.8	8.8	9.0	8.1	10.8	9.2
Relative Humidity	Max	85	87	95	93	95	95	87	94	94	93	90	92	94	-
	Min	28	23	17	31	27	32	29	29	25	20	27	26	34	-
Soil Temperature at 10 cm	06 UTC	16.8	-	16.6	17.8	-	-	18.8	16.8	18.2	19.4	20.2	18.1	20.5	18.5
	12 UTC	24.2	-	27.0	23.6	20.4	-	22.2	26.8	27.6	29.4	25.2	25.2	26.5	21.5
Sunshine Duration		11.4	2.0	13.1	8.8	8.9	10.1	6.6	13.1	13.3	13.3	10.2	10.1	9.9	8.9
Precipitation			0.0			0.0	0.0	1.1				0.0	1.1	32.2	11.3
Evaporation		-	-	8.4	-	-	-	1.0	7.3	7.1	8.5	4.7	-	66.3	48.7
Growing Degrees	5	11.8	9.8	12.4	9.4	10.1	11.7	11.8	11.3	12.0	13.7	12.0	125.7	144.9	132.1
	10	6.8	4.8	7.4	4.4	5.1	6.7	6.8	6.3	7.0	8.7	7.0	70.7	89.9	77.1

3rd 10-day period (21-31/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	48.1	48.6	47.0
Precipitation - Reference Evapotranspiration	-47.0	-16.4	-35.7
Number of Rainy Days	1.0	3.0	2.6
Number of Dry Days	9.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





◆ **List of Symbols and Abbreviations**

Reference Evapotranspiration ETo (mm):

Calculated by the FAO Penman-Montieth equation

$$ET_0 = \frac{0.408 * \Delta * (R_n - G) + \gamma * \frac{900}{T + 273} * u_2 * (e_s - e_a)}{\Delta + \gamma * (1 + 0.34 * u_2)}$$

using 10-day step.

R_n is estimated from sunshine measurements and G assumed to be zero.

Growing Degrees: Degrees with mean temperature exceeding the base of 5 or 10 °C.

Number of Rainy Days: Number of days with precipitation of at least 0.1 mm.

Number of Dry Days: Number of dry days recorded since the last rainy day.

Measurements Units

- ◆ Temperature : °C
- ◆ Relative Humidity : %
- ◆ Soil Temperature : °C
- ◆ Sunshine Duration : Hours
- ◆ Precipitation : mm
- ◆ Evaporation (Pan) : mm
- ◆ Growing Degrees : °C

UTC (Universal Time coordinates) in Greece

- ◆ Winter : Time(UTC) = Local time - 2
- ◆ Summer : Time(UTC) = Local time - 3

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