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564 **Table 1.** Weather parameters during the crop growing seasons 2016 and 2017

Month	Rainfall (mm)	Average monthly temperature(°C)		Mean temperature (°C)	Sunshine (hour)	Relative humidity (%)	Monthly average O <sub>3</sub> (ppb)
		Maximum	Minimum				
<b>July, 2016</b>	539.4	38.8	24.4	31.6	80.6	82	27.5
<b>August, 2016</b>	387.5	32.6	24.2	28.4	55.8	83	26.9
<b>September,2016</b>	174	34.3	22.5	28.4	189.0	72	31.1
<b>October,2016</b>	37.2	33.9	16.2	25.0	161.2	63	29.2
<b>July, 2017</b>	170.5	34.1	26.2	30.2	145.7	78	30.4
<b>August, 2017</b>	127.1	33.8	25.9	29.8	127.1	82	27.1
<b>September, 2017</b>	198	33.6	23.7	28.7	186.0	77	31.7
<b>October, 2017</b>	0.0	34.0	17.1	25.6	192.2	68	30.6

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584 **Table 2** Plant growth parameters at tasseling and silking stages of maize under the different treatments (Average of 2016 & 2017)

Cultivar	Treatment	Photosynthetic rate $\mu\text{mole (CO}_2\text{) m}^{-2}\text{ s}^{-1}$		Stomatal conductance $\text{mole (H}_2\text{O) m}^{-2}\text{ s}^{-1}$		Leaf area index		Chlorophyll (mg/g FW)	
		Tasseling	Silking	Tasseling	Silking	Tasseling	Silking	Tasseling	Silking
<b>HQPM-1</b>	Amb	36.8±1.42 <sup>*b</sup>	37.1±1.54 <sup>b</sup>	0.42±0.02 <sup>a</sup>	0.45±0.016 <sup>a</sup>	3.8±0.18 <sup>b</sup>	3.7±0.09 <sup>b</sup>	1.6±0.013 <sup>b</sup>	1.56±0.012 <sup>b</sup>
	EC	42.9±1.1 <sup>a</sup>	41.6±1.2 <sup>a</sup>	0.35±0.01 <sup>b</sup>	0.38±0.014 <sup>b</sup>	4.3±0.15 <sup>a</sup>	4.1±0.06 <sup>a</sup>	1.78±0.008 <sup>a</sup>	1.83±0.013 <sup>a</sup>
	EO	33.9±1.3 <sup>c</sup>	33.6±1.31 <sup>c</sup>	0.38±0.01 <sup>b</sup>	0.40±0.017 <sup>b</sup>	3.3±0.25 <sup>c</sup>	3.1±0.11 <sup>c</sup>	1.43±0.013 <sup>c</sup>	1.45±0.01 <sup>c</sup>
	ECO	38.1±1.2 <sup>b</sup>	37.6±0.99 <sup>b</sup>	0.36±0.01 <sup>b</sup>	0.37±0.008 <sup>c</sup>	3.7±0.12 <sup>b</sup>	3.6±0.07 <sup>b</sup>	1.57±0.021 <sup>b</sup>	1.61±0.027 <sup>b</sup>
<b>PMH-1</b>	Amb	39.5±0.77 <sup>b</sup>	37.3±0.98 <sup>b</sup>	0.43±0.02 <sup>a</sup>	0.43±0.012 <sup>a</sup>	4.0±0.16 <sup>b</sup>	3.8±0.11 <sup>b</sup>	1.56±0.025 <sup>b</sup>	1.52±0.016 <sup>b</sup>
	EC	44.4±0.63 <sup>a</sup>	43.1±0.92 <sup>a</sup>	0.34±0.01 <sup>b</sup>	0.36±0.014 <sup>b</sup>	4.6±0.17 <sup>a</sup>	4.5±0.13 <sup>a</sup>	1.71±0.017 <sup>a</sup>	1.68±0.018 <sup>a</sup>
	EO	33.4±0.59 <sup>c</sup>	34.8±1.11 <sup>c</sup>	0.38±0.01 <sup>b</sup>	0.40±0.015 <sup>b</sup>	3.7±0.18 <sup>c</sup>	3.5±0.09 <sup>b</sup>	1.47±0.01 <sup>c</sup>	1.44±0.011 <sup>c</sup>
	ECO	39.5±0.60 <sup>a</sup>	38.6±1.01 <sup>b</sup>	0.36±0.01 <sup>b</sup>	0.38±0.013 <sup>b</sup>	3.9±0.13 <sup>b</sup>	3.8±0.11 <sup>b</sup>	1.54±0.01 <sup>b</sup>	1.59±0.019 <sup>b</sup>

585 \*SE (n=4), Different lowercase subscripts within a variety show significant difference between the treatments according to Duncan's test

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Table 3. Yield and yield attributes under different treatments Cultivar	Treatment	Cob length (cm)		Number of grains (cob <sup>-1</sup> )		Grain weight (g) (cob <sup>-1</sup> )		Grain yield (g m <sup>-2</sup> )		Biological yield (g m <sup>-2</sup> )		100 grain weight (g)	
		2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
<b>HQPM-1</b>	Amb	12.3±0.18 <sup>*b</sup>	12.9±0.15 <sup>b</sup>	222±5.5 <sup>b</sup>	237±6.8 <sup>b</sup>	58.1±1.2 <sup>b</sup>	61.2±1.3 <sup>b</sup>	420±15.81 <sup>b</sup>	460±18.25 <sup>b</sup>	1380±30.82 <sup>b</sup>	1140±28.39 <sup>b</sup>	23.7±0.24 <sup>b</sup>	24.3±0.23 <sup>b</sup>
	EC	14.1±0.17 <sup>a</sup>	13.7±0.11 <sup>a</sup>	270±4.5 <sup>a</sup>	261±11.6 <sup>a</sup>	71.0±1.1 <sup>a</sup>	74.7±2.1 <sup>a</sup>	560±15.11 <sup>a</sup>	540±14.93 <sup>a</sup>	1510±41.43 <sup>a</sup>	1460±25.21 <sup>a</sup>	26.1±0.39 <sup>a</sup>	25.4±0.39 <sup>a</sup>
	EO	11.4±0.11 <sup>c</sup>	11.9±0.16 <sup>c</sup>	207±3.6 <sup>c</sup>	231±8.6 <sup>b</sup>	53.6±1.5 <sup>c</sup>	58.8±2.8 <sup>b</sup>	380±18.25 <sup>c</sup>	420±15.81 <sup>b</sup>	1280±35.35 <sup>c</sup>	1060±37.63 <sup>c</sup>	22.6±0.30 <sup>c</sup>	22.8±0.72 <sup>c</sup>
	ECO	12.5±0.24 <sup>b</sup>	13.0±0.17 <sup>b</sup>	239±8.0 <sup>b</sup>	255±6.7 <sup>b</sup>	64.5±2.7 <sup>c</sup>	68.7±0.8 <sup>b</sup>	460±19.14 <sup>b</sup>	490±23.80 <sup>c</sup>	1360±28.57 <sup>b</sup>	1280±43.77 <sup>b</sup>	24.1±0.42 <sup>b</sup>	24.8±0.65 <sup>b</sup>
<b>PMH-1</b>	Amb	16.7±0.17 <sup>b</sup>	16.6±0.15 <sup>b</sup>	283±8.9 <sup>b</sup>	246±7.0 <sup>b</sup>	79.9±.93 <sup>b</sup>	77.1±1.15 <sup>b</sup>	570±14.71 <sup>b</sup>	530±19.31 <sup>b</sup>	1480±50.82 <sup>b</sup>	1440±35.59 <sup>b</sup>	25.4±0.58 <sup>b</sup>	25.5±0.65 <sup>b</sup>
	EC	18.4±0.23 <sup>a</sup>	18.0±0.16 <sup>a</sup>	298±10.4 <sup>a</sup>	283±7.2 <sup>a</sup>	85.3±1.1 <sup>a</sup>	80.1±.89 <sup>a</sup>	630±22.81 <sup>a</sup>	570±19.57 <sup>a</sup>	1730±56.12 <sup>a</sup>	1690±43.27 <sup>a</sup>	26.9±0.80 <sup>a</sup>	26.4±0.84 <sup>a</sup>
	EO	15.5±0.36 <sup>c</sup>	16.1±0.06 <sup>b</sup>	239±8.8 <sup>c</sup>	206±12.1 <sup>c</sup>	70.0±0.57 <sup>b</sup>	69.1±0.99 <sup>c</sup>	510±18.87 <sup>c</sup>	480±19.73 <sup>c</sup>	1350±53.90 <sup>b</sup>	1340±46.00 <sup>c</sup>	25.0±0.98 <sup>b</sup>	25.1±0.40 <sup>b</sup>
	ECO	16.4±0.18 <sup>b</sup>	17.1±0.21 <sup>b</sup>	272±7.5 <sup>b</sup>	264±7.2 <sup>b</sup>	77.2±.81 <sup>b</sup>	75.9±0.83 <sup>b</sup>	560±14.93 <sup>b</sup>	540±11.08 <sup>b</sup>	1500±35.82 <sup>b</sup>	1470±34.15 <sup>b</sup>	26.3±0.71 <sup>b</sup>	25.2±0.97 <sup>b</sup>

589 \*SE (n=4), Different lower case subscripts within a variety show significant difference between the treatments in the same year according to Duncan's test

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591 **Table 4a** . F-ratio and level of significance for plant growth parameters at tasseling and silking

Parameter	Tasseling			Silking		
	Cultivar	Treatment	Cultivar *Treat	Cultivar	Treatment	Cultivar *Treat
<b>Photosynthetic rate</b>	0.003ns	2.79*	0.77ns	0.03ns	44.56**	0.28ns
<b>Stomatal conductance</b>	9.85*	30.95**	2.01ns	8.11*	26.76**	1.76ns
<b>LAI</b>	10.25*	21.20**	1.91ns	13.33*	31.77**	2.22ns
<b>Chlorophyll</b>	0.20ns	52.11**	0.29ns	0.34ns	48.9**	0.29ns

\* significant at 0.05, \*\*significant at 0.01 level and ns- non significant

**Table 4b.** F –ratio and level of significance for maize yield and yield attributes

Parameter	Year	Cultivar	Treatment	Year *cultivar	Year * Treat.	Cultivar * Treat.	Year* Cultivar *Treat.
Cob length	47.28**	7.46**	105.73**	0.217ns	0.62 <sup>ns</sup>	5.68*	1.12 <sup>ns</sup>
Grains (cob <sup>-1</sup> )	35.19**	1.61 <sup>ns</sup>	44.03**	18.23*	3.86*	1.12 <sup>ns</sup>	2.71 <sup>ns</sup>
Grain weight (cob <sup>-1</sup> )	72.99**	17.12**	292.88**	13.06*	8.27*	3.86*	10.13**
Grain yield	13.27*	0.35 <sup>ns</sup>	71.91**	3.93*	2.74 <sup>ns</sup>	1.30 <sup>ns</sup>	0.247 <sup>ns</sup>
Biological yield	20.10*	32.46**	112.01**	28.34*	3.41*	0.73 <sup>ns</sup>	0.031 <sup>ns</sup>
100 grain weight	8.49*	5.15*	23.1**	9.95*	0.96 <sup>ns</sup>	4.71*	2.95*

\*significant at 0.05, \*\*significant at 0.01 level, and ns=non-significant

**Table 4c** F –ratio and level of significance for maize quality attributes

Element	Cultivar	Treatment	Cultivar x Treat.
<b>Protein</b>	9.22*	11.72*	2.44 <sup>ns</sup>
<b>Carbohydrate</b>	11.03*	23.45*	2.11 <sup>ns</sup>
<b>Phosphorus</b>	66.86**	16.71**	1.65 <sup>ns</sup>
<b>Potassium</b>	47.18**	17.34**	2.23 <sup>ns</sup>
<b>Lysine</b>	1.22 <sup>ns</sup>	17.61*	1.99 <sup>ns</sup>
<b>Amylose</b>	0.84 <sup>ns</sup>	22.46**	0.53 <sup>ns</sup>

\*significant at 0.05, \*\*significant at 0.01 level, and ns=non-significant

592 **Figure Captions**

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594 **Fig. 1.** The concentrations of daily average ambient O<sub>3</sub> during 2016 and 2017

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596 **Fig. 2.** (a) Protein (b) carbohydrate (c) phosphorus (d) potassium (e) lysine and (f)  
597 amylose content in maize grains under the different treatments (Average of 2016 and 2017)

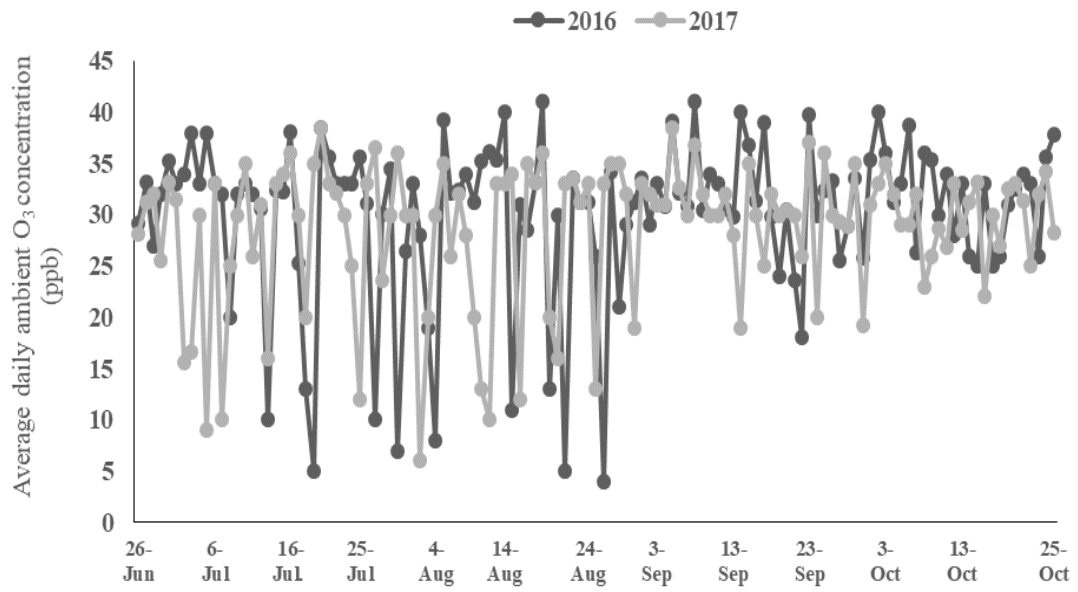
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**Fig. 1.**

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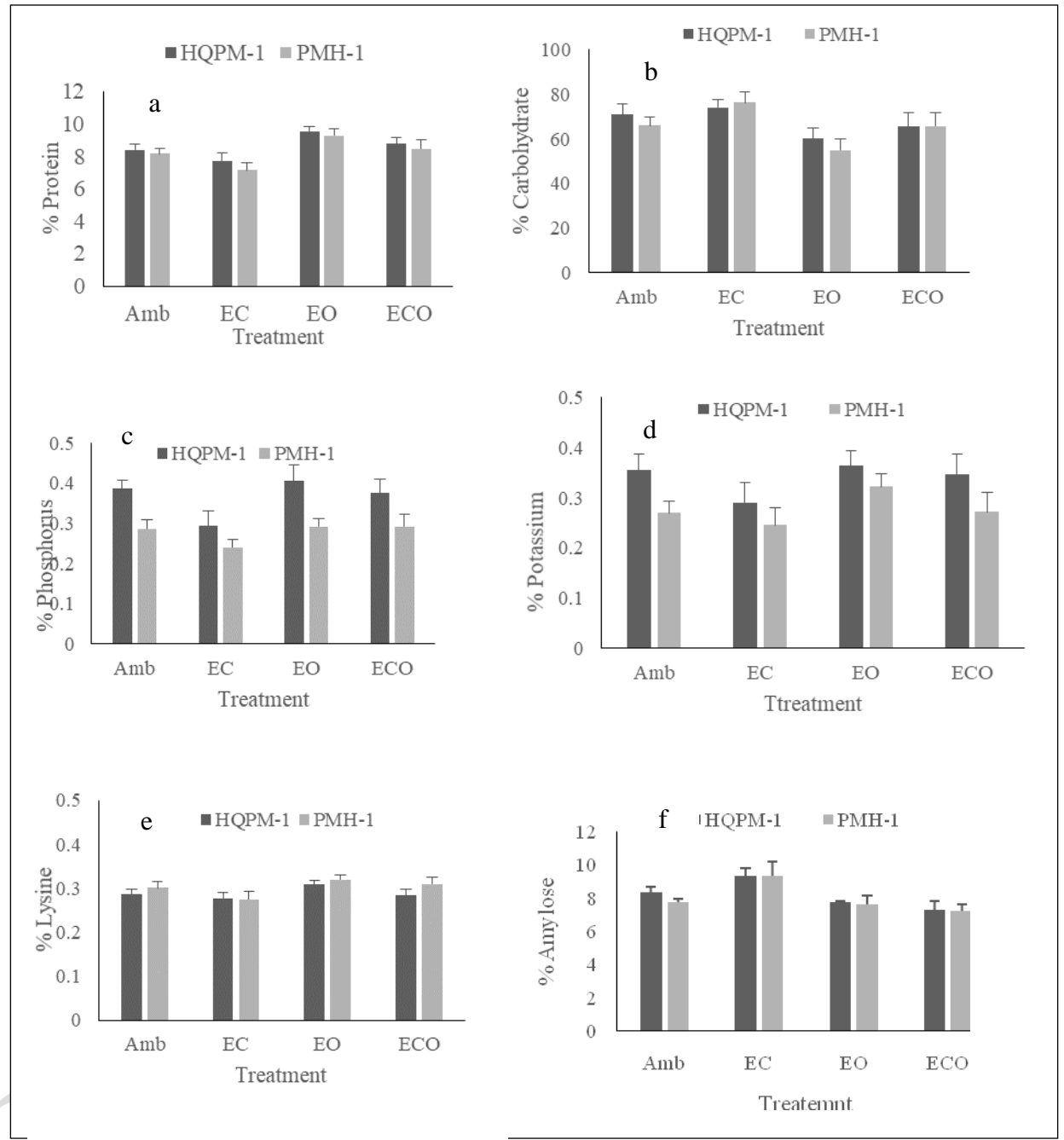
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**Fig. 2.**

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