Table 4: Cumulative Number of leaves of pepper treated with AMF under different watering regime

TREATMENTS	WEEKS AFTER TREATMENT					
	6	**8**	**10**	**12**	**14**	**16**
PW$^+$	17.00^f	30.10^f	35.70^f	38.30^g	45.20^f	41.20^g
PW$^-$	15.30^f	20.40^g	29.90^g	30.00^h	35.80^g	36.30^h
PGDW$^+$	41.20^b	56.20^{ab}	76.60^c	93.20^c	110.40^a	117.00^b
PGDW$^-$	33.40^d	49.50^d	68.50^c	76.14^f	89.00^e	93.10^f
PGGW$^+$	37.90^c	55.60^{ab}	80.00^{ab}	96.20^b	109.00^b	119.50^{ab}
PGGW$^-$	31.10^e	45.60^e	72.50^d	81.60^d	97.10^c	99.70^d
PGCW$^+$	44.60^a	63.40^a	83.00^a	99.00^a	108.00^b	116.20^b
PGCW$^-$	37.90^c	49.10^d	65.71^e	74.30^f	91.20^d	95.20^e
PGMW$^+$	42.00^b	63.80^a	84.20^a	98.00^a	112.80^a	123.05^a
PGMW$^-$	34.20^d	52.60^c	74.00^c	79.04^e	94.10^c	107.10^c

Values are means of five replicates. Means with the same letter in a column are not significantly different (DMRT at $p<0.05$). PW$^+$ = Well-watered pepper; PW$^-$ = Water stressed pepper; PGDW$^+$ = Well-watered pepper inoculated with *Glomus deserticola;* PGDW$^-$ = Water stressed pepper inoculated with *Glomus deserticola;* PGGW$^+$ = Well-watered pepper inoculated with *Gigaspora gigantea*; PGGW$^-$ = Water stressed pepper inoculated with *Gigaspora gigantea*; PGCW$^+$ = Well-watered pepper inoculated with *Glomus clarum;* PGCW$^-$ = Water stressed pepper inoculated with *Glomus clarum*; PGMW$^+$ = Well-watered pepper inoculated with *Glomus mosseae*; PGMW$^+$ = watered pepper inoculated with *Glomus mosseae.*

Table 4 shows the cumulative number of leaves of pepper treated with AMF under different watering regime. At 6WAT, well-watered plants treated with G. *clarum* (PGCW$^+$) had the highest number of leaves (44.6), while watered-stressed non-mycorrhizal plants (PW$^-$) had the least (15.3). Similar observations were made at 8, 10 and 12 with PGCW$^+$ having higher values which are not significantly different from PGMW$^+$ but were different from all the other treatments. Plats treated with PGMW$^+$ had the highest values at 14 WAT and 16WAT. There is no significant difference in the cumulative number of leaves between PGDW$^+$, PGGW$^+$ and PGCW$^+$. This was in line with the work of Hata, Kobae, and Bamba, (2010) who opined that AMF improved soil structure may also trigger plant growth and development Well-watered non-mycorrhizal plants had the least values throughout the time of the experiment.

Table 5: Cumulative Number of fruits pepper treated with AMF under different water regime

TREATMENTS	WEEKS AFTER TREATMENT					
	10	**12**	**14**	**16**	**18**	**20**
PW^{+}	0.00^{d}	3.00^{e}	5.00^{f}	8.80^{g}	15.60^{f}	41.00^{g}
PW^{-}	0.00^{d}	2.00^{e}	2.60^{g}	5.00^{h}	9.00^{g}	15.00^{h}
$PGDW^{+}$	4.00^{b}	8.00^{d}	13.20^{e}	20.10^{e}	38.30^{b}	57.00^{b}
$PGDW^{-}$	3.00^{c}	8.00^{d}	10.50^{c}	16.04^{f}	24.00^{e}	30.10^{f}
$PGGW^{+}$	7.90^{a}	15.30^{a}	20.00^{a}	25.90^{d}	37.20^{b}	52.00^{d}
$PGGW^{-}$	3.10^{c}	10.00^{c}	14.60^{d}	21.20^{e}	30.00^{c}	34.00^{e}
$PGCW^{+}$	4.00^{b}	13.70^{ab}	19.50^{ab}	28.00^{c}	44.00^{b}	67.10^{a}
$PGCW^{-}$	3.00^{c}	9.00^{d}	12.01^{e}	25.20^{d}	30.30^{d}	55.30^{c}
$PGMW^{+}$	4.00^{b}	13.00^{ab}	21.70^{a}	36.00^{a}	48.20^{a}	67.05^{a}
$PGMW^{-}$	3.00^{c}	10.00^{c}	16.00^{c}	30.04^{b}	40.10^{c}	53.50^{d}

Values are means of five replicates. Means with the same letter in a column are not significantly different (DMRT at $p<0.05$). PW^{+} = Well-watered pepper; PW^{-} = Water stressed pepper; $PGDW^{+}$ = Well-watered pepper inoculated with *Glomus deserticola;* $PGDW^{-}$ = Water stressed pepper inoculated with *Glomus deserticola;* $PGGW^{+}$ = Well-watered pepper inoculated with *Gigaspora gigantea*; $PGGW^{-}$ = Water stressed pepper inoculated with *Gigaspora gigantea*; $PGCW^{+}$ = Well-watered pepper inoculated with *Glomus clarum;* $PGCW^{-}$ = Water stressed pepper inoculated with *Glomus clarum*; $PGMW^{+}$ = Well-watered pepper inoculated with *Glomus mosseae*; $PGMW^{+}$ = watered pepper inoculated with *Glomus mosseae*

The cumulative number of fruits of pepper treated with arbuscular mycorrhizal fungi under different watering regime was observed and presented in Table 5. Fruits were observed at 10WAT except in the non-mycorrhizal pepper plants. Plants treated with *Gigaspora gigantea* and well watered ($PGGW^{+}$) had enhanced number of fruits at 10WAT. $PGGW^{+}$ had higher cumulative number of fruits at 12WAT (15.3) which was not significantly higher than $PGCW^{+}$ and $PGMW^{+}$ but were significantly different from the other treatments while PW^{-} had the least (2.0). Observation at 14WAT was a bit different from the previous weeks in that $PGMW^{+}$ had the highest cumulative number of fruits (21.7) but this value was not significantly different from $PGGW^{+}$. At 16WAT and 18WAT $PGMW^{+}$ had value that are significantly higher than all the other treatments while at 20WAT, $PGMW^{+}$ and $PGCW^{+}$ had higher values that were not significantly different from each other but were different from other treatments.

The cumulative number of fruits was higher in $PGCW^{-}$ (55.3) than $PGGW^{+}$ (52.0). Water-stressed *G. mosseae* ($PGMW^{-}$) treated plants had cumulative number of fruits that are not significantly different from that of well-watered *Gigaspora gigantea* treated plants ($PGGW^{+}$). Glomus mosseae and Glomus Clarum better adapted to water-stressed and performed better in terms of number of fruits produced during this period. The results of this study was similar to report of Afolayan and Oyetunji, (2017; 2018) who opined that AMF enhanced higher roots and tuber production in white yam and white yam vine cuttings. This higher production of fruits in both watered and water-stressed mycorrhizal plants might be as a result of high absorptive surface area of mycorrhizal plants as reported in the work of Oyetunji, Ekanayake and Osonubi (2003). Arbuscular mycorrhizal has been shown to increase the productivity of a variety of agronomic crops (Sylvia, 1993). In a related study, Afolayan, Oyetunji, Olawuyi and Ajanlekoko, (2017) reported that AMF influenced pepper yield when planted on spent engine oil.

CONCLUSION

Pepper is an important crop that is consumed daily in Africa and especially Nigeria. Its production all year round is constraints by seasonal rainfall. This accounts for unstable price and scarcity during the dry season. Mycorrhizal fungi have proved effective in enhancing tolerance of pepper to water stress. The use of arbuscular mycorrhizal fungi (AMF) will help to alleviate peppers' shortages and scarcity during the off-season. Glomus mosseae has higher potential to tolerate water stress in pepper and its thereby recommended.

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