



Response of irrigation and frequencies on the growth and productivity of Pumpkin (*Cucurbita Pepo* L.)

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Abstract

Pumpkin is rapidly gaining popularity dishes in Pakistan. Fruit seeds and leaves becoming popular due to their nutrients and medicinal properties. However the stress of water and irrigation harvesting the optimum yields of irrigation and frequencies on the growth and productivity of pumpkin. The experimental site at the Horticultural Garden, Sindh Agriculture University Tandojam Pakistan. The randomized complete Block design (RCBD) in three replications was setup the irrigation applied the plot and leaf harvesting and intensity. The plant soil applied On the NPK fertilizer rates in 75, 50 and 50 kg ha⁻¹ respectively the potash and single super sulphur it gave the most important Including T₁ at the 7 days irrigation, T₂ at the 10 days irrigation, T₃ at the 13 days irrigation, T₄ at the 16 irrigation, T₅ at the 19 irrigation and T₆ at the 22 days irrigation interval. However the leaf of flowers and leaf growth and the quality of the irrigation increasing the effects of branching and flower.

Keywords: *Cucurbita pepo* L, growth and productivity, regulated irrigation, seed yield

1. Introduction

Worldwide pumpkin (*Cucurbita pepo* L.) is use as variety of food and diseases that are cherished by consumer for their nutrients and health benefits. The pumpkin native in North America and crop species is which Leaves flowers and fruit eaten as vegetable while the snakes made form roasted seed as Its orange, yellow and orange colorations are presents are other nutrients in significant amounts the pumpkin is the presents as like 0.1 percent protein, 0.1 percent fate, 6.5 percent carbohydrates and 92 percent water [1]. The quality of plants part of this consumption to be referred as multipurpose fruit and vegetables. The leaves of pumpkin during the harvest and vegetative growth period, while the mature fruits occur during the latter growth stage [2]. Its yield varieties with winter and squash to contain seeds and the plants cultivars and pumpkin mostly spread in worldwide of thousand years. While the large amount of cultivars have been appearances. Including *C. argyro-sperma* and *moschata* are sometime called pumpkin [3]. Currently, there is some increasing production and vegetative and use as medicinal purpose the (Horticulturist reported, 2010) the pumpkin is present rich carotene to improve the immune functions. May the pumpkin contain mineral, nutrients, vitamin, oils and nutritional properties, and widely grown for the commercial purpose and use as both food for recreations. But the 100 gm, amount of raw the pumpkin provide as 26 calories, and the source of contain protein, A carotene. A vitamin and vitamin C is present. Moreover, contains 80-90% of water hence uses a lot of water during the growth. Water should be done the help reduce occurrence of fungal disease in the worldwide. The irrigation strategies managements since the irrigation agricultural land contain in account of over 85% of

worldwide [4].

The always been burning an issue of shortage of water in this country. Due to fast growing vegetables and increasing the water demands and water resource is to expect to increase food requirements production [5]. The irregular and inadequate supplying the water and growth of fruits yield and vegetable quality production yield every year, but the response of irrigation very great and next depending upon the amount of distribution. the potential water and tolerance the economics value and medicinal plants then make the suitable alternate crop in dry lands to cutting on evaporation and losses to give the foliage dry out is suggested [6]. Suggested the irrigation frequencies according to soil moister and those better irrigation frequencies improve the crop production and better irrigation crop with proper and utilization irrigation and the crop benefits for the improving water and productivity in the critical growth stage. However, the Irrigation after the 50 mm evaporation and the maximum fruits yield. The pumpkin yield was significant affected by the irrigation relative yield and compare with watering shortage conditions and shortage the crop given frequency of 7 days the irrigation applied with the higher 6 to 15 days in interval were applied in irrigation and environments is one the main key to control the agriculture production [7]. Reported that addition the normal rain supplying to irrigation with 10 mm water at the flowering additional stage and fruits enlargements would be serve the purpose of pumpkin. Plant leaves is an important role on the growth and development s by all functional and centre of photosynthesis and plant metabolism process assimilate the leaves form of photosynthesis machinery their removal constitute

reduction and hormones balance, starch, protein and chlorophyll content the leaves and as well as stomata pumpkin growth and quality.

2. Materials and methods

The experiments were conducted at the Horticultural Garden, Sindh Agriculture University Tandojam. In response of irrigation growth and productivity of pumpkin the three replication (RCBD) randomized complete block design which is the plot size is 3.5m x (10.5 m²) the applied soil fertilizer to recommended as 50, 50 and 75 kg ha⁻¹ including treatments like T₁ at the 07 days irrigation, T₂ at the 10 irrigation, T₃ at the 13 irrigation, T₄ at the 16 irrigation, T₅ at the 19 and T₆ at the 22 days irrigation interval.

3. Statistical analysis

The data subjected to statistical analysis, by the using statistix 8.1^[8]. Least significant different (LSD). Test was performed and means were mad via significant at ($P \leq 0.05$) probability, levels to the compare treatments superiority.

4. Results and discussion

Vine length cm

The influence of irrigation and productivity the parameters in results related to pumpkin by different irrigation in frequencies (Table 1). The important growth and increasing the vine length and various irrigation frequencies^[9], reported that the maximum vine length is (235,00) respectively the pumpkin irrigation at the days 10, 13, and 19 days interval while the minimum length is (161.00 cm) followed by vine length cm irrigation at the 07 days interval. The irrigation on about 22 day's interval in pumpkin the all pair wise test demonstrated increase^[10]. The irrigation and fruits vine length highest on the 07 days interval irrigation.

Table 1: vine length cm of Pumpkin as affected by irrigation frequencies.

Treatments	R1	R11	R111	Mean
T ₁ .Irrigation at 07 days interval	232	135	238	235.00 A
T ₂ .Irrigation at 10 days interval	225	131	234	230.00 B
T ₃ .Irrigation at 13 days interval	208	215	217	213.335C
T ₄ .Irrigation at 16 days interval	205	208	214	209.00 D
T ₅ .Irrigation at 19 days interval	195	197	202	198.00 E
T ₆ .Irrigation at 22 days interval	155	162	166	161.00 F

S.E. 0.9623 LSD 0.05 2.1440

Number of fruits vine⁻¹

Influence the yield and parameters pumpkin as the affected by different frequencies given in (Table 2) the fruits vine on the various irrigation an important growth and traits that the maximum number of fruits vine⁻¹ (5.90) was the pumpkin irrigation on the 7 days interval by the followed number of fruits as the 4.76, 4.43, 4.26 and 3.25 the pumpkin and irrigation as the 10,13,16 and 19 days respectively, the plan were in control plot the irrigation was applied nitrogen and phosphorus at higher rates the growth and stimulate hence, grew with all increasing levels of these plants higher under the different levels of pumpkin^[11]. The minimum number of fruits vine⁻¹ at (3.16) thus the^[12], and reported that the pumpkin as irrigation 22 days interval was observed that pumpkin fruits and yield at the higher vine length on 07 days interval irrigation. When the irrigation was provided on 22 days interval, the number of flower vine⁻¹ increased with the leaf intensity.

Table 2: number of fruit vine⁻¹ of Pumpkin as affected by irrigation frequencies.

Treatments	R1	R11	R111	Mean
T ₁ .Irrigation at 07 days interval	5.3	6	6.4	5.90 A
T ₂ .Irrigatio at 10 days interval	4.5	5.5	4.4	4.76 B
T ₃ .Irrigation at 13 days interval	4.5	4	5.3	4.43 B
T ₄ .Irrigation at 16 days interval	3.1	5	4.7	4.26 B
T ₅ .Irrigation at 19 days interval	2	4.5	3.25	3.25 C
T ₆ .Irrigation at 22 days interval	2.2	4	3.3	3.16 C

S.E 0.2951 LSD 0.05 0.6576

Single fruits weight (g)

The influence of yield and irrigation frequencies and related results by pumpkin on various irrigation in the (Table 3). The increasing fruits and irrigation traits. Thus the maximum fruits weight (2044 g) noted in pumpkin with the 7 days of interval irrigation, and followed by the single weight 1695, 1660, 1609.67, 1564.33 (g) when the different irrigation. However the irrigation at pumpkin the 22 days interval^[13], reported to that pumpkin fruits produce the highest fruit weight at 7 days irrigation interval, and declined the irrigation were to be 22 days interval, all test were significant in fruits weight 07-10-13-16-19 and 22 days thus the contribute to field yield and pumpkin mainly by makeup of variety^[14]. However, thus affect nutrients compulsory for plant growth and fruits development is more dominant that increase the fertility levels and produce and behaviour fruits and better yield.

Table 3: Single fruits weight g of Pumpkin as affected by the irrigation frequencies.

Treatments	R1	R11	R111	Mean
T ₁ . Irrigation at 7 days interval	2012	20140	2180	20.44 A
T ₂ . Irrigation at 10 days interval	1680	1697	1780	1695 B
T ₃ . Irrigation at 13 days interval	1650	1659	1671	1660.B
T ₄ . Irrigation at 16 days interval	1600	1609	1620	1609.67C
T ₅ . Irrigation at 19 days interval	1610	1530	1553	1564.33D
T ₆ . Irrigation at 22 days interval	1400	1405	1422	1409.00E

S.E. 19.019 LSD 0.05 42.376

Fruits diameter cm

The fruits diameter cm the importance of growth and traits as the pumpkin growth and yield. In (Table 4). The pumpkin as affected to different frequencies and There is significantly increasing the fruit diameter for various irrigation and the maximum fruits diameters (28.57 cm) thus the^[15], reported that when pumpkin irrigated at 7 days interval as 19 days and the minimum diameter fruits (16.00 cm) and the pumpkin as irrigated to 22 days interval. The providing various irrigation test in significant and increasing the fruits

Table 4: Fruit diameter cm of Pumpkin as affected by irrigation frequencies.

Treatments	R1	R11	R111	Mean
T ₁ .Irrigation at 07 days interval	25.4	28.5	31.8	28.58 A
T ₂ .Irrigation at 10 days interval	24.9	27.5	30	27.47 A
T ₃ .Irrigation at 13 days interval	22.1	27	23.5	24.20 B
T ₄ .Irrigaiion at 16 days interval	18.2	21.5	23	20.90 C
T ₅ .Irrigation at 19 days interval	15.1	20	17.5	17.53 D
T ₆ .Irrigation at 22 days interval	13	19	16	16.00 E

S.E. 0.4984 LSD 0.05 1.1104

Fruit yield plot⁻¹ (Kg)

The influence of various irrigation frequencies on growth and productivity as given in (Table 5). The significant increasing fruits yield plot⁻¹ as various irrigation and the maximum fruits yield (22.77 kg) noted the pumpkin irrigation at about 7 days interval. The maximum fruits yield plot⁻¹ (9.68 kg) and the pumpkin irrigation where was fruits yield of 22.16, 20, 77, 14, 82 and the 12.93 kg pumpkin as irrigated 10, 13, 16 and 19 days interval respectively, [16]. Stated that pumpkin is a sink limited herbs and there is no link between the increasing fruits dimension higher production irrigation rate. The levels of soil moisture and leaf harvesting intensity, other factor were not considered in this study [17].

Table 5: fruits yield plot⁻¹ kg of Pumpkin as affected by irrigation frequencies.

Treatments	R1	R11	R111	Mean
T ₁ .Irrigation at 07 days interval	20.4	25.46	22.66	22.77 A
T ₂ .Irrigation at 10 days interval	22.04	20.22	24.21	22.16 A
T ₃ .Irrigation at 13 days interval	19.05	20.10	23.15	20.77 B
T ₄ .Irrigation at 16 days interval	12.80	14.18	16.83	14.82 C
T ₅ .Irrigation at 19 days interval	10.92	14.93	12.94	12.93 D
T ₆ .Irrigation at 22 days interval	7.57	11.68	9.68	9.68 E

S.E. 0.4473 LSD 0.05 0.9966

Weight of fruit vine⁻¹ (kg)

The pumpkin growth and yield as different affected by the irrigation frequencies as in (Table 6) whereas the maximum fruits vine (5.75 kg). The followed weight fruit vine as 4.35, 3.62, 3.49 and the 2.68 kg was pumpkin as irrigated to 10, 13, 16 and the 19 days to interval. The pumpkin fruits production and higher weight fruits vine⁻¹ on 7 days and the decline when the irrigation were provided 22 days [18]. However, effects of nutrients required and for plant growth and developments more dominate. The crop supplied with the higher nitrogen levels produced heavier fruits was carried out [19]. Showed the similarly, that higher rated production of pumpkin fruits those experience that increase the irrigation levels produced behaviour fruits.

Table 6: weight fruits vine⁻¹ kg of Pumpkin as affected by irrigation frequencies.

Treatments	R1	R11	R111	Mean
T ₁ .Irrigation at 07 days interval	3.73	5.75	7.77	5.75 A
T ₂ .Irrigation at 10 days interval	3.64	4.36	5.35	4.36 B
T ₃ .Irrigation at 13 days interval	2.98	3.00	4.88	4.95 C
T ₄ .Irrigation at 16 days interval	2.50	3.49	4.49	3.49 D
T ₅ .Irrigation at 19 days interval	1.69	2.68	3.69	2.68 E
T ₆ .Irrigation at 22 days interval	1.23	2.21	3.22	2.22 F

S.E. 0.0231 LSD 0.05 0.0514

Fruits yield t ha⁻¹

The fruits yield factorial analysis the presents amounts of production unity as levels exploiting the environments in same surface to proper plants and providing transfer to nutrients as well. The results related pumpkin affected by various frequencies as given (Table 7). There was significant the maximum fruits yield as 20.92, 19.11 and 12.13 t ha⁻¹ the fruits yield 21.69 t ha⁻¹ irrigation as respectively [20], the minimum fruits yield (9.21 t ha⁻¹) the pumpkin highest the fruits (t ha⁻¹) on the 7 days irrigation to interval the fruits and providing 22 days interval those [21]. Who

noted that irrigation is crucial during the flowering and these fruits sit. The strong at this time flowering and young flowers to increased up with irrigation rates [22].

Table 7: fruits yield t ha⁻¹ of Pumpkin as the affected by irrigation frequencies.

Treatments	R1	R11	R111	Mean
T ₁ .Irrigation at 07 days interval	18.33	22.26	24.39	21.69 A
T ₂ .Irrigation at 10 days interval	17.99	23.89	20.88	20.92 B
T ₃ .Irrigation at 13 days interval	17.10	21.15	19.19	19.14 C
T ₄ .Irrigation at 16 days interval	12.10	14.11	16.13	12.11 D
T ₅ .Irrigation at 19 days interval	10.31	12.32	12.32	12.31 E
T ₆ .Irrigation at 22 days interval	7.21	9.22	11.22	9.21 F

S.E. 0.1941 LSD 0.05 0.4324

5. Conclusion

It is concluded that growth and productivity of Pumpkin as increase the irrigation at 07 days interval. Moreover the compared as 10, 13 and 19 days of irrigation pumpkin fruits adverse the affected as productivity, it was suggested to irrigation frequencies at 7 days would be enough for pumpkin growth and productivity.

6. References

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