







vegetative growth by enhancing photosynthetic capacity and facilitating nutrient transport <sup>4,5,6</sup>.

**Table 1:** Growth Parameters of Cabbage under Different Potash Treatments

Treatment (K)	Plant Height (cm)	Leaf Area (cm <sup>2</sup> )	Number of Leaves (count)
Control (0 mg L <sup>-1</sup> K)	30.2 ± 1.3	160.4 ± 6.5	12.3 ± 0.9
50 mg L <sup>-1</sup> K	35.5 ± 1.8	175.6 ± 7.3	13.5 ± 1.1
100 mg L <sup>-1</sup> K	39.0 ± 2.1	190.8 ± 8.1	14.8 ± 1.3
150 mg L <sup>-1</sup> K	43.5 ± 2.3	205.1 ± 9.4	16.2 ± 1.6
200 mg L <sup>-1</sup> K	47.8 ± 2.5	220.3 ± 10.2	17.4 ± 1.8

**Yield Parameters:** The yield of cabbage, as indicated by fresh and dry weight, also improved with the application of potash. The fresh weight of cabbage increased from 450 ± 18 g in the control group to 740 ± 35 g in plants treated with 200 mg L<sup>-1</sup> K (Table 2). Similarly, the dry weight of cabbage increased from 120 ± 7 g to 220 ± 15 g as the potassium level increased. These increases in biomass are likely due to enhanced photosynthesis and carbohydrate accumulation, which are crucial

for the synthesis of structural components (Pereira S) (Ali S). The number of heads per plant also increased significantly with potassium application, from 1.2 ± 0.1 heads in the control to 2.0 ± 0.2 heads in the 200 mg L<sup>-1</sup> K treatment. Furthermore, the average head diameter was enhanced, with plants treated with 200 mg L<sup>-1</sup> K exhibiting a diameter of 24.6 ± 2.3 cm compared to 18.4 ± 1.2 cm in the control.

**Table 2:** Yield Parameters of Cabbage under Different Potash Treatments

Treatment (K)	Fresh Weight of Cabbage (g)	Dry Weight of Cabbage (g)	Number of Heads (count)	Head Diameter (cm)
Control (0 mg L <sup>-1</sup> K)	450 ± 18	120 ± 7	1.2 ± 0.1	18.4 ± 1.2
50 mg L <sup>-1</sup> K	520 ± 20	145 ± 9	1.4 ± 0.1	20.1 ± 1.5
100 mg L <sup>-1</sup> K	600 ± 25	170 ± 11	1.6 ± 0.1	21.8 ± 1.8
150 mg L <sup>-1</sup> K	680 ± 30	195 ± 13	1.8 ± 0.1	23.2 ± 2.0
200 mg L <sup>-1</sup> K	740 ± 35	220 ± 15	2.0 ± 0.2	24.6 ± 2.3

**Nutrient Uptake:** Potassium application had a significant effect on nutrient uptake by cabbage plants. As shown in Table 3, nitrogen uptake increased from 82.4 ± 4.5 mg/plant in the control to 132.4 ± 7.0 mg/plant with 200 mg L<sup>-1</sup> K, indicating that potassium may enhance nitrogen assimilation or uptake efficiency. Phosphorus uptake also increased from 10.3 ± 0.5 mg/plant in the control to 17.5 ± 1.2 mg/plant with the highest potassium treatment. This

improvement in phosphorus uptake might be due to potassium's role in activating enzymes that are involved in the uptake and translocation of phosphorus (Islam MR, ) (Abd-El-Aty MS, ) (Liaqat W, ) (Hussain MI, ). Potassium uptake itself was directly correlated with the potassium treatment, increasing from 120 ± 6.0 mg/plant in the control to 240 ± 12.0 mg/plant at the highest dose.



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