

## عنوان مقاله:

Effects of Nitrogen Fertilization and Plant Growth Regulators (PGRs) on Yield of Wheat (*Triticum aestivum* L.) cv. Shiraz

## محل انتشار:

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## خلاصه مقاله:

Plant growth regulators (PGRs) are widely used for lodging control in winter wheat (*Triticum aestivum* L.) grown at high N rates. Although the introduction of semi-dwarf wheat cultivars had largely solved the problem of lodging, evidence was already accumulating that the timely application of a growth retardant such as chlormequat (CCC) or ethephon could increase the grain yield of wheat, by the alteration of dry matter partitioning independently of any control of lodging. A field experiment was conducted during the 2004-5 growing season at the experimental farm of the College of Agriculture, Shiraz University (Shiraz, Iran,) located at Badjgah. The design of the experiment was a randomized complete block with treatments arranged as split plot with four replicates. Nitrogen levels (0, 100 and 200 kg ha<sup>-1</sup>) were the main plots. The N was applied as Urea (46% N), half at the time of stem elongation and the other half at onset of flowering. The PGR treatments included CCC at 2.20 kg ha<sup>-1</sup> applied at Zadoks growth stage (ZGS) 25, ethephon at 0.28 kg ha<sup>-1</sup> at Zadoks growth stage (ZGS) 39, and controls (without any PGR) were assigned to sub-plots. The results showed that both PGR treatments reduced the plant height and this reduction played an important role in the increase of the grain yield in wheat, via the alteration of dry matter partitioning into the spikes. However, CCC at 2.20 kg ha<sup>-1</sup> applied at ZGS 25 increased the grain yield (8.9 t/ha) significantly, compared to the ethephon (8.2 t ha<sup>-1</sup>) and control (7.2 t ha<sup>-1</sup>) treatments; the highest grain (8.9 t ha<sup>-1</sup>) yield was obtained at 200 kg ha<sup>-1</sup> N and 2.20 kg ha<sup>-1</sup> CCC application. The beneficial interactive effects of PGRs and nitrogen rates on winter wheat yield are worthy of further exploration.

## کلمات کلیدی:

Wheat, Nitrogen, CCC, Ethephon, Yield, Yield components

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