

## عنوان مقاله:

Integration Effects of Split Nitrogen Fertilization and Herbicide Application on Weed Management and Wheat Yield

## محل انتشار:

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## خلاصه مقاله:

A field study was conducted to determine the integration of split N fertilization and herbicide application on weed management and wheat (*Triticum aestivum* L.) yield in Shiraz, Iran, in 2005/2006 and 2006/2007 growing seasons. The experimental design was split plot with four replications. Main factors consisted of N timing and splitting, and sub plots included iodosulfuron-methyl-sodium plus mesosulfuron-methyl-sodium, solfosulfuron and two weedy and weed free controls. Compared with the weedy check, iodosulfuron-methyl-sodium plus mesosulfuron-methyl-sodium and solfosulfuron reduced weed biomass by 66% in 2005/06 and 55% in 2006/07, 37% in 2005/06 and 45% in 2006/07, respectively. In all herbicide treatments applied in both years, the highest (353.6 kg h<sup>-1</sup> in 2005/06 and 224.1 kg h<sup>-1</sup> in 2006/07) and the lowest (65.6 kg h<sup>-1</sup> in 2005/06, and 24.0 kg h<sup>-1</sup> in 2006/07) weed biomass were obtained from the full N (304 kg urea ha<sup>-1</sup>) application at tillering stage and zero N application at sowing and stem elongation stages T1N<sup>0</sup>, T2N1, T3N<sup>0</sup> and no N fertilization at sowing, tillering and stem elongation stages T1N<sup>0</sup>, T2N<sup>0</sup> and T3N<sup>0</sup>. Nitrogen use efficiency of the crop increased when N was split. Consequently, wheat LAI and grain yield increased. However, in the presence of weeds, both LAI and grain yield increases were lower. The results of the present study showed that integration of N and herbicide treatments caused even a higher increase in wheat LAI and grain yield, but resulted in a higher reduction in weed biomass when compared with either treatment alone. N splitting of T1N<sup>1/2</sup>, T2N<sup>1/2</sup> and T3N<sup>0</sup> increased wheat grain yield (61% in 2005/06 and 75% in 2006/07), biological yield (76% in 2005/06, 94% in 2006/07), and LAI (62% in 2005/06 and 2006/07). In conclusion, weed control was essential for efficient use of N fertilizer by the crop. Therefore, in order to increase wheat grain yield, integration of split N and herbicide is recommended for the region. The results of this study showed that N splitting treatments of T1N<sup>1/2</sup>, T2N<sup>1/2</sup>, T3N<sup>0</sup> and iodosulfuron-methyl-sodium plus mesosulfuron-methyl-sodium had the best efficiency in terms of weed control in wheat.

## کلمات کلیدی:

Herbicide, Nitrogen splitting, Nitrogen timing, Weed control, Wheat yield

## لینک ثابت مقاله در پایگاه سیویلیکا:

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