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Less nitrogen and later sowing maintains yield in winter wheat

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Observing the physiological period of wheat in the field. Photo courtesy of Lijun Yin.

In current agricultural systems, nitrogen utilization rates are still quite low. In many cases, less than half of applied N fertilizer is absorbed by plants due to differences in species and soil conditions. Large amounts of nitrogen fertilizer are wasted through runoff and volatilization, which leads to water and air pollution.

In an article recently published in Agronomy Journal, researchers reported on late-sown winter wheat, which requires less nitrogen input but maintains a high grain yield. These findings can help growers reduce environmental pollution and decrease the waste of resources.

The team found that optimized late sowing resulted in a near-optimum N status, improved nitrogen use efficiency, utilization efficiency, and uptake efficiency. Optimized N nutrition index and N distribution contributed to a higher net rate of photosynthesis, which led to faster accumulation of dry matter after flowering. Ultimately, these factors resulted in a consistent grain yield among the three treatments.

Overall, a reduction of N input under optimized late sowing decreased the amount of mineral N in the 0- to 100-cm soil layer tested at harvest. It also reduced apparent N loss. In short, optimizing N inputs and use in wheat will reduce environmental pollution and decrease resource waste.

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Yin, L., Liu, K., Li, L., Wei, M., Yang, R., Xue, K., ... Wang, X. (2020). Late-sown winter wheat requires less nitrogen input but maintains high grain yield. *Agronomy Journal*, *112*. **https://doi.org/10.1002/agj2.20171**

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