

## Protecting the water environment from overused fertilizers

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Non-point source (NPS) pollution has been increasingly serious in China in last 30 years. In the pursuit of higher agricultural productivity to feed the growing population and intensive livestock production with the decreased farmland occupied by construction, China is the world's largest consumer of fertilizers. Taking Taihu River Basin as an example, on the average the annual amount of nitrogen (N) and phosphorus (P) fertilizer applied were 570-600 kg/hm<sup>2</sup> and 79.5-99 kg/hm<sup>2</sup>, respectively. However, the average utilization rate of fertilizer was only 30-35%. Excessive fertilizer input increases the background value of N and P in the soil, and increases the risk and loss of N and P to the water body, thereby putting aquatic ecosystems downstream at risk of eutrophication. The planting pollutants loads including TN, TP, and ammonia are the main pollutant sources in Taihu River Basin, accounting for 38%, 23%, and 21% of total pollutants at the end of 2010. The Chinese State Council issued "Action Plan for Prevention and Control of Water Pollution" (GF[2015] No.17) on April 2<sup>nd</sup>, 2015, which proposed the aims of controlling agricultural NPS pollution, namely by 2020, coverage of soil testing and fertilizer recommendation technology should reach more than 90%, with fertilizer utilization rate increasing to above 40%. Therefore, to solve the environmental problems induced by overused fertilizer, in this study we compared and analyzed different technologies to mitigate agricultural NPS pollution.