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*Running title: Gross N dynamics in a Chinese chernozem*

### Summary

The effects of partial substitution of synthetic fertilizer N (NPK) with equal quantities of maize stover N (50 kg ha<sup>-1</sup>, NPKS) or cattle manure N (115 N kg ha<sup>-1</sup>, NPKM) were investigated after 23 years with respect to maize yield, biomass N uptake, residual soil N and gross soil N dynamics in

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