[1]崔喜安,姜宇,米刚,等.长期麦秸还田对暗棕壤土壤肥力和大豆产量的影响[J].大豆科学,2011,30(06):976-978.[doi:10.11861/j.issn.1000-9841.2011.06.0976]
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长期麦秸还田对暗棕壤土壤肥力和大豆产量的影响

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Title: Effect of Long-term Application of Wheat Straw on Fertility of Dark Brown Soil and Yield of Soybean

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作者： 崔喜安[1] (KeySearch.aspx?type=Name&Sel=崔喜安)； 姜宇[1] (KeySearch.aspx?type=Name&Sel=姜宇)； 米刚[1] (KeySearch.aspx?type=Name&Sel=米刚)； 刘晓莉[1] (KeySearch.aspx?type=Name&Sel=刘晓莉)； 马星竹[2] (KeySearch.aspx?type=Name&Sel=马星竹)； 孙景玲[1] (KeySearch.aspx?type=Name&Sel=孙景玲)
1.黑龙江省农业科学院 黑河分院，黑龙江 黑河 164300；
2.黑龙江省农业科学院 土壤肥料与环境资源研究所，黑龙江 哈尔滨 150086

Author(s): CUI Xi-an[1] (KeySearch.aspx?type=Name&Sel=CUI Xi-an)； JIANG Yu[1] (KeySearch.aspx?type=Name&Sel=JIANG Yu)； MI Gang[1] (KeySearch.aspx?type=Name&Sel=MI Gang)； LIU Xiao-li[1] (KeySearch.aspx?type=Name&Sel=LIU Xiao-li)； MA Xing-zhu[2] (KeySearch.aspx?type=Name&Sel=MA Xing-zhu)； SUN Jing-ling[1] (KeySearch.aspx?type=Name&Sel=SUN Jing-ling)
1.Heihe Branch of Heilongjiang Academy of Agricultural Sciences, Heihe 164300;
2.Institute of Soil Fertilizer and Environment Resources, Heilongjiang Academy of Agricultural Sciences, Harbin 150086, Heilongjiang, China

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摘要： 以始于1979年的长期定位试验为依据，研究了麦秆长期还田及与化肥配施对暗棕壤肥力及大豆产量的影响。结果表明：随着种植年限的增加(1)土壤有机质和pH值整体呈下降趋势，麦秸与化肥配施比单施化肥更有效减缓土壤有机质和pH的降低；(2)土壤碱解氮整体呈现大幅波动，各处理年均含量表现为麦秸+高量化肥(S+N2P2)>高量化肥(N2P2)>对照(CK)>麦秸(S)>低量化肥(N1P1)>麦秸+低量化肥(S+N1P1)；(3)土壤速效磷呈逐年上升趋势，不同处理的年均含量整体表现为S+N2P2＞N2P2＞S+N1P1＞N1P1＞S＞CK；(4)大豆产量年际间波动较大，各处理年均产量表现为S+N2P2> N2P2> S+N1P1> S > N1P1> CK。因此，长期麦秸还田与化肥配合有助于维持土壤肥力和提高大豆产量。

Abstract: In order to find the effect of long-term wheat straw returning combined with chemical fertilizer on soil fertility and soybean yield, we carried out field trail in the dark brown soils of Heihe city in Heilongjiang province, and set six treatments.including control(CK), wheat straw(S), low levels of fertilizer(N1P1), wheat straw + low levels of fertilizer(S+N1P1), high levels of fertilizer(N2P2) and wheat straw + high levels of fertilizer(S+N2P2).The results showed that soil organic matter and pH were decreased with the increase of planting years, and the decrease range were slowdown under the condition of combined application of straw and chemical fertilizer; the fluctuations of the content of soil available N were obvious with the trend of decrease-increase-decrease during the whole experiment, the low valley appeared in 1984, 1987 and 1990, respectively, the peak in 1993, and the content of the inter-annual average of soil available N showed as S+N2P2> N2P2> CK> S> N1P1> S+N1P1; the content of soil available P increased with the increasing of planting years, and the whole trend the inter-annual manifested as S+N2P2＞N2P2＞S+N1P1＞N1P1＞S＞CK; soybean yield varied with planting year, the inter-annual yield presented as S+N2P2> N2P2> S+N1P1> S > N1P1> CK.Results suggest wheat straw returning combined with proper chemical fertilizer could maintein soil fertility and improve soybean yield in the dark brown soils area.

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第一作者简介：崔喜安（1962-），男，高级农艺师，从事土壤肥料研究。E-mail：cxa2010@126.com。

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