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基于CBEM模型的2010年农田化肥需求预测

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Forecasting fertilizer demand of China in 2010 using CBEM model

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摘要 本文探讨了如何构建中国作物体系-专家模型（简称CBEM模型）并预测了中国2010年农田化肥需求。结果表明，我国12种主要作物氮肥施用普遍度和强度都较高，而磷钾肥较低，尤其是钾肥的施用普遍度和强度远远低于氮肥。有半数的农户在很少在豆类、薯类、玉米上施用磷肥，超过半数的农户在玉米、豆类、油料、棉花、薯类和茶叶上很少施用钾肥。同时由于人口、经济、食物需求甚至生物能源的持续发展，农业会在未来几年保持旺盛发展。通过CEBM模型综合测算发现，2010年我国农田化肥需求总量将达到4900万吨至5361万吨，与2005年相比，氮磷钾化肥需求将分别增长3.6%～7.5%，2.4%～14.1%，6.5%～38.7%，5年共增长178万吨至638万吨。增长量最大的是蔬菜、果树和玉米。

关键词：　化肥需求　2010预测　CBEM模型　中国　化肥需求　2010预测　CBEM模型　中国

Abstract：

The supply and demand of fertilizer in the world has fluctuated frequently in recent years, which requires more reliable forecast of fertilizer demand for market development. In collaboration with IFA, a new method of crop based- expert's model （CBEM） has been developed for China. Based on this model, the trend of fertilizer demand before 2010 was forecasted. The results showed that fertilizer demand of China would increase continuously in the next five years. Although most of the crops of China have been treated with chemical fertilizers at large scale and with great quantity, a lot of crops have great room to use more fertilizers. More than half of farmers rarely use phosphate fertilizer on maize, soybean and potato. Nearly 70% farmers rarely use potash fertilizer on maize, soybean, oilseeds, cotton, potato and tea. Compared with nitrogen and phosphate, the application rate of potash fertilizer was low in most crop systems of China. Meanwhile, the huge and growing population, more and more food demand especially animal food and the developing economy will strongly encourage the development of cash crops, such as vegetables and fruit trees, which require more fertilizers compared with other crops. The developing situation of food security and bio-fuel would require planting more maize, soybean and oilseeds, which would tighten the international supply of these products and then result in booming development of them in some countries, such as China. Integrated analysis of planting area, fertilized area and application rate of 12 cropping systems of China indicated that the total demand of fertilizer would reach 49.00 to 53.61 million tons in 2010. Compared with that in 2005, the fertilizer demand would increase by 1.78 million tons at least, and would increase by 6.38 million tons at maximum. The growth rate of N, P_2O_5 and K_2O would be 3.6%–7.5%，2.4%–14.1% and 6.5%–38.7%, respectively, from 2005 to 2010. The main consumers of increased demand of fertilizer would be vegetables, fruit trees, and maize. They shared 21%–29%, 17%–26% and 17%–21% of the total 1.78–6.38 million tons of increased demand from 2005 to 2010, respectively.

Keywords：

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