

Efficient and Clean Production of Straw Briquet Fuel and Key Combustion Technology and Equipment



Prof. Zhao Lixin, Director, Team Leader and Principal Investigator, received the National Science and Technology Progress Award

pattern compression roller, three types of straw pellet machines and two kinds of straw-briquetting machines were creatively researched and developed, and the first straw briquette production line in China was established. Third, anti-slagging formulations based on the straw ash content and its component analysis, were innovatively developed and efficient combustion equipment suitable for the straw briquette fuel in China was integratively developed. Fourth, the standard system for straw briquette fuel in China was constructed.

Project outcomes include three authorized invention patents, 22 authorized patents for utility models, 13 agricultural industry standards formulated and 57 papers published. Over past three years the result applications had been promoted to 10 provinces or cities across China, providing 1 563 800 tons clean fuels, and producing 1.147 billion Yuan cumulative added output value. As a result, the straw briquette industry in China developed dramatically and the research team won the Second Prize of National Science and Technology Progress Award in 2013 for the great achievements.

This research team organizations included Chinese Academy of Agricultural Engineering (CAAE), Hefei Tianyan Green Energy Development Co., Ltd, and Beijing Shengchanglvneng Technology Co., Ltd. The principal Investigators included Zhao Lixin, Tian Yishui, Meng Haibo, Yao Zonglu, et al.

Straw forming fuel technology can be considered as one of the main routes and developing directions to tackle the straw burning problem, however, the key technology must be solved. Focusing on the problems such as short application life occurred at critical component of forming equipment and serious slagging in combustion devices, the project research team had achieved the following results on the four aspects: "Theoretical Basis, Forming Technology, Combustion Technology and Standard System". First, theoretical bases on straw material properties, straw briquetting and combustion mechanisms were formulated. Second, some key components such as pelleter ring die, modular briquetting machine ring die and embedded hole



Authorized patents and award obtained by the research team



Self-developed straw pelleter for briquette fuel



Automatic and efficient straw briquette fuel burner system



Cotton straw briquette fuel with a diameter of 8 mm



Corn straw briquette fuel with a diameter of 8 mm

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