



Farmland Size and the Usage of Chemical Fertilizers on Plant Growth and Productivity

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DESCRIPTION

Fertilizers are necessary to feed a growing and increasingly affluent global population and play a significant role in food production worldwide. But not all of these nutrients that are supplied to crops are really utilized. For instance, crop plants can only typically digest between 30 and 50 percent of nitrogen these nutrients, which crop plants are unable to absorb, continuously leak from the soil into the water or escape into the atmosphere, which can lead to a number of environmental issues. In spite of a steady rise in the global demand for fertilisers in agriculture to fulfill the rising demand for food, the negative environmental effects of fertiliser application must still be taken into account.

When farmers in China try to enhance yields by using too much fertiliser, it frequently results in low use efficiency and a high proportion of fertiliser loss, which causes major local, regional, and global pollution. On a little more than 99% of the world's agriculture, China uses about 28% of all fertilisers. The government and the general public have recently expressed grave worries about the environmental damage and health risk brought on by the over use of fertilisers. The Chinese government has made efforts to reduce pollution caused by excessive fertiliser use, including providing free soil testing services, encouraging smallholder farmers to adopt improved management practices, removing subsidies for chemical fertiliser manufacturers, and subsidizing organic fertilisers. Identifying the variables influencing farmers' fertiliser application is crucial for furthering China's agricultural development in a sustainable manner.

In order to forecast long-term changes in the capacity of soil to supply crop nutrients, it is crucial to comprehend how fertilizers affect microbial activity and the dynamics of nutrient cycle. Both inorganic and organic fertilizers, such as manure, can offer direct sources of NO₃-N and NH₄-N; however, crop nutrients may be sustained for several years by the mineralization of manure

leftovers In comparison to uncultivated grass pasture, the LTE have shown large losses in soil carbon in all cropping regimes. The relative scarcity of agricultural land has been a significant underlying factor in the growth in demand for fertilisers. Other closer-to-home factors include improved water management in irrigated systems, new seed varieties, increased irrigation, and declining real fertiliser prices. Farmers' usage of fertilisers is also influenced by soil features, seed types, hired labor, applied technology, and education.

In the Crop Residue study of the LTE at Pendleton (CR-LTE), In the Crop Residue study of the LTE at Pendleton (CR-LTE), fertilization with ammonia-based fertiliser or manure resulted in significant disparities in parameters relating to soil quality. Less soil organic C, total N, mineralizable, soil macronutrients, water-stable aggregates and infiltration, lower pH, and lower grain yield are found in soils fed with inorganic N as opposed to manure. The fertiliser treatments led to a wide range in soil pH, with manure addition slowing pH drop and inorganic N-fertilizer accelerating it.

According to a number of studies, the size of the farm is a significant factor in determining how often farmers apply fertiliser. Large-scale farms often use less fertiliser than small-scale farms. However, the preceding research did not go into great detail about the fertilizer usage efficiency (FUE), which is a better measure of crop assimilation efficiency or nutrients loss rate. The goal of the current study is to offer fresh proof of this problem. Using farm-level agricultural output statistics from China, this paper examines the relationship between farm size and FUE among growers of rice, wheat, and maize. The article's remaining sections are divided into the following groups. The data source, variable definition, and estimation process are covered in the section that follows. The section that follows the presentation of the empirical results discusses some of the variables that prevent farms from growing in size.

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