Impact of social networks on fertilizer use efficiency of kiwifruit production in China- Mediator effect of green fertilization technologies adoption

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Improving the fertilizer use efficiency (FUE) is an effective way and key factor point to achieve reduce negative the growth usage of fertilizer and reduce surface non-point source pollution in agriculture production in China. Existing research related to the influencing factors of fertilizer use efficiency ignores the impact of farmers’ social networks, which can affect the fertilizer use and then its efficiency. This paper analyzed the impact of social networks on fertilizer use efficiency and the mediator effect of green fertilization technology adoption, based on the measurement of farmers’ fertilizer use efficiency using stochastic frontier method with a household survey of 569 farmers in Shaanxi of China, which was conducted in 2021. The results shows that the fertilizer use efficiency of kiwifruit production had a low FUE, with an average value of 0.333, which means fertilizer input had a 66.7\% reduction potential without the reduction of output. Social network had a significant positive impact on FUE, in which social network trust and learning had a greater impact on FUE. Farmers’ adoption of green fertilization technology played a positive mediator effect in the process of social networks influencing their fertilizer use efficiency, which was mainly promoted by social network trust and learning. Household characteristics such as age, gender, education level and years of agricultural production, farm characteristics such as cultivation scale, number of laborers and whether they join cooperatives, and village characteristics such as the number of village agricultural supply points all have significant effects on FUE.