

Chinese Farmers' Adoption of Precision Agriculture Technologies in Cropping Systems

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PERSPECTIVE

The present standing of precision agriculture adoption by granger farmers inside crop farming systems within the North China Plain was explored. AN integrated model of "Adapted Unified Theory of Acceptance and Usage of Technology" was developed to elucidate individual farmers' intention to adopt precision agriculture. 456 surveys were conducted via face to face interviews within the North China Plain and structural equation modeling analysis was accustomed estimate the projected AUT2 model. The results showed that the perceived would like for technology characteristics, perceived advantages, perception of the effectiveness of facilitating conditions and perceived risks of adoption have important impacts on farmers' intention to adopt precision agriculture. The facilitating conditions were the simplest predictor up Chinese farmers' temperament to adopt these technologies. Policy manufacturers and repair suppliers ought to take into account these factors within the promotion of technologies. Precision agriculture has the potential to deliver improved and a lot of property food production. Despite the assorted policy initiatives to strengthen national food security, there's proof that the adoption of precision agriculture technologies in China has been abundant lower when put next to alternative developed agricultural economies. This study, so aims to explore the factors that confirm Chinese farmers' adoption of precision agriculture technologies in cropping systems and to produce recommendations on technology promotion within the future. The increase within the world population, plus more and more unstable trade goods costs, has resulted within thought to improve the potency of food production to confirm equitable food security internationally. In recent decades, farmers have responded by increasing chemical inputs, like pesticides and fertilizers that has resulted in negative environmental and agronomical consequences. Farm production in China benefited from accumulated chemical use once 2004, once the govt. began to eliminate agricultural taxes on farmers, and introduced 3 subsidies. In parallel, environmental challenges like wearing and pollution, water inadequacy, and also the overuse of chemical inputs in China became a serious social concern. As a result, technological enhancements in agriculture are needed to drive property advances in labor productivity, farm incomes,

food security and general economic process, while reducing negative agricultural environmental impacts. One resolution is to implement advanced agricultural technologies, like precision agriculture technologies, thus on modify the lot of precise use of agricultural inputs. Advantages ensuing from application of PA are known, and embrace the subsequent, entomb alia; increasing potency, productivity and gain in field operations; enhancing food security; and minimizing the unintended impacts of inputs on agricultural production systems and atmosphere.

Precision agriculture, a side of site-specific crop management or precision farming, represents a farming management idea supported observant, measure and responding to intra-field variability in production. Applications like yield monitors, unmanned aerial vehicles, polarimetric artificial aperture measuring system, Multi-GNSS precise purpose positioning are developed and applied within the agriculture production. Farmers' adoption of PA technologies have primarily occurred in additional developed agricultural economies, like the USA, Australia, European country and also the GB, while the adoption rates ar completely different globally, with lower rate of adoption in developing agricultural economies, like China.

In China, wherever the advantages of adoption are doubtless high, there has been restricted analysis into end-users' PA adoption within the farming community above all those having smaller farms. Analysis comes on PA one are dedicated to technology innovation, and pilot or trial comes victimization PA technologies are launched. A case study in Heilongjiang Province reported that tractor auto-guidance is that the most accepted with twenty fifth of farmland equipped with bound sorts of PA technologies. However, exploratory analysis conducted by Edward Calvin Kendall instructed that PA technologies are thought-about inaccessible, unsuitable and redundant for Chinese smaller farms.

A pilot survey was conducted with twenty eight farmers in province and Shandong in March 2018 through phone and on-line interviews. Supported the feedback from the pilot study, the form was refined to amend the interpretation bias to create the farmers more leisurely with the things, and a revised final form was developed. Five-point like art scales were employed in the

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survey, anchored by one to 5. The form was at first developed in English then translated into Mandarin. Things with their several latent variables are provided in Table one. Distinctive appropriate PA technologies were performed exploitation data retrieved from the prevailing literature. The targeted technologies were exactitude soil sampling, yield mapping, GPS steering and unmanned aerial vehicles. A farmer are known as associate degree adoptive parent of PA if he or she uses one in every of these PA technologies. associate degree open-ended question was additionally other for those that didn't still adopt and use PA to spot the most reasons why they stopped exploitation PA and to realize a lot of general concepts on the consistency of PA adoption. Farmers didn't adopt PA if they need ne'er taken half in a very demonstration project. There have been slight variations in PA adoption at the provincial level. Farmers in province and Shandong provinces

had slightly higher adoption rates compared to Henan province; however there was no important distinction among the 3 regions Pearson Chi-square 1.78% of the surveyed farmers had purchased UAVs themselves. 32.52% of the farmers had taken half in demonstration comes control by the govt. centered on exploitation UVAs to fine-tune chemical and chemical applications and world Navigation Satellite System steering with sowing. The foremost frequent reasons given on why PA adoption had not continuing were that farmers cannot afford the instrumentation and can't notice a service provided by contractors. a number of the farmers argued that chemical and chemical work completed exploitation UVA was difficult in higher temperature conditions. Farmers in province indicated that they'd used the GNSS-enabled tractors for seeding work by exploitation the GNSS capabilities to live farm size once calculative payments to the service suppliers.