

ECONOMIC EFFICIENCY OF THE CROPPING SYSTEM TRANSITION ON POOR RICE SOIL IN XUAN LOC DISTRICT, DONG NAI PROVINCE

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Rice is the traditional food crop and highly considered by the ability to ensure the stable food demand of poor people in Xuan Thanh and Xuan Hung communes, Xuan Loc district, Dong Nai province. Xuan Hung commune has many ethnic minorities (Khmer, Cham, Stieng, Hoa, Tay, Nung, Cho-ro) with different religions. Most of them live in the situation of economic difficulties, temporary housing, poor production practices and high conservatism. Xuan Hung is a sub-irrigated rice area, currently with mono-cultivation system of three rice crops per year. The arable land grouped into "gray-brown", low nutrients and lack of water in the dry season due to limited supply source. In Xuan Thanh commune, the villagers are mainly poor farmers, they came from many central and northern provinces by free migrating or followed through "new economic program" of the Government. Xuan Thanh commune is a sub-rice area with the current cultivation system of two rice crops per year, in which, rice is grown in flat areas depending on raining water. The soil is grouped into "gray-gold" with low nutrients and poor water holding capacity. In general, the drought and water shortage are always the main constraints and important factors limiting the effectiveness of rice production in Xuan Thanh and Xuan Hung communes.

From 2009 to 2011, the Institute of Agricultural Sciences for Southern Vietnam and Department of Science and Technology of Dong Nai province had implemented the study on "Restructuring cropping system on inefficient rice land at Xuan Thanh and Xuan Hung communes" provide that to find out the cropping system models with high economic efficiency.

The research results showed a very positive effectiveness on economic benefit and social effects. Hybrid maize variety DK9901 and groundnut GV10 are the two promising crops for changing the traditional low efficient monoculture rice farming system. The new cropping models showed that hybrid maize gained higher yield from 1.61 to 1.74 times and higher profits from 2.12 to 4.80 times compared to rice. In case of groundnut, GV10 gave higher yield from 1.69 to 2.45 times and profits from 2.33 to 9.37 times compared to rice. From the good results, the large-scale cultivation models have been developed after plot research was implemented in the following crop season. The results on farmer fields showed that, the model with hybrid maize DK9901 got high yield from 1.46 to 2.03 times and profit increased from 1.49 to 3.78 times (corresponding to VND5-18 million/ha), respectively, compared to traditional crops. In case of groundnut model, GV10 gave higher yield from 1.72 to 1.80 times and profit increased from 2.02 to 2.12 times (corresponding to VND6.8-11.5 million / ha), respectively, compared to traditional crop.

The study results of for whole system in changing the traditional mono-rice crop into rice-maize cultivation in the irrigated rice land in Xuan Hung commune or maize-rice in the rain-fed rice land in Xuan Thanh commune, with 2-3 crops/year, had increased the yield by 16-52% and profit by 19-145%, respectively, compared to rice crop farming. The new farming systems with rice-rice-groundnut or groundnut-rice had also increased the yield by 28-37% and profit by 43-53%, respectively, compared to the traditional one. From the above-mentioned results, it can be said that, the study results are highly convinced about economic efficiency on the cropping system transition.

The new cropping models have also been highly received attention and active support from local farmers and authorities. As a result, the percentage of farmers who have accepted perfectly the new farming system with hybrid maize is very high with 77-96%. For groundnut cropping, the percentage of farmers accepted was also relatively high with 54-62%. The latter one has lower rate of acceptance due to groundnut is less popular crop in the locality and some other limitations such as level of mechanization, lack of family labors...

The above-mentioned results indicated that, the alternative models of maize and groundnut crops in rotation with rice on the inefficiency rice land in two communes of Xuan Loc district, Dong Nai Province have good results both in the social effect as well as in economic efficiency. The demonstrations on farmer's fields with high economic benefits is a very active propaganda way in the improvement of local production. In addition, the improvement of existing rice cropping systems in two sub-rice areas have also contributed to limit the adverse impact of weather (in the dry season) creating good solution for enhancing environmental sustainability and farming life of indigenous people.





Cropping systems of maize and groundnut rotation with rice on poor rice land in Xuan Loc district, Dong Nai province