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Paper in proceedings
Impacts of Conservation Tillage Machinery on Service Provider’s Livelihood: A Farm Level Study

M. A. Monayem Miah¹ and M.E. Haque²

¹Agricultural Economics Division, Bangladesh Agricultural Research Institute, Joydebpur, monayem09@yahoo.com
²Adjunct Associate Professor, Murdoch University, Australia, enamul.haque71@gmail.com

Introduction

Most tillage operations in Bangladesh are done by power tiller to lower cost and decrease time required for cultivation (Islam, 2000; Miah, 2000; Barton, 2000; Miah et al., 2002; Haque et al., 2008). The traditional tillage method reduces soil organic carbon at double rate and decreases soil fertility (Grace, 2003), has losses of irrigation water and soils (Sayre and Hobbs, 2003), and damages the ecological environment (Grace, 2003). Therefore, the concept of conservation tillage has arisen all over the world which is new in Bangladesh. A power tiller operated seeder (PTOS) is a two wheel tractor operated seed drill, widely used for establishment of various crops. The sowing of seeds and laddering operations are completed simultaneously in a single pass using PTOS in many areas of Bangladesh. Most of the grain seeds like wheat, paddy, maize, jute, pulses, oilseeds etc are sown in line using PTOS. The owners of PTOS are using this device for their own land cultivation and earning cash income through custom hiring to other farmers. The custom hiring of PTOS is highly profitable at farm level (Miah et al. 2010) and many service providers could improve their livelihood through this machine. The socioeconomic impacts of this popular conservation tillage implement have not been done in the country. Therefore, the present study was conducted to explore the socio-economic profile of the PTOS service providers; to find out the usages pattern and problems of PTOS at service providers’ level; and to determine the impacts of PTOS on the livelihoods of service providers.

Materials and methods

This study was conducted at four Upazillas namely Bochagonj, Fulbari and Dinajpur Sadar under Dinajpur district and Baliakandi under Rajbari district. The reason of this selection was that PTOS is being widely used in Dinajpur and Rajbari districts. A total of 53 service providers taking 47 persons from Rajbari and six persons from Dinajpur district were randomly selected for the study. Data and information were gathered from selected service providers of PTOS through administering household survey using pre-tested interview schedules during July, 2008. The impacts of PTOS on the livelihoods of service providers were assessed through analyzing ‘Before’ and ‘After’ socio-economic standings of the service providers.

Results and discussion

The study reveals that PTOS has made a tremendous improvement in the livelihoods of its service providers in the study areas. The average land holding has increased by 8.6%. Significant increase was registered in the value of calves (33%), goats (82%) and chickens (27%). The annual household income was significantly increased by 63.4% during post-ownership period. Both the quantity and value of farm equipment and household assets were significantly increased after having PTOS. Again, the number and value of semi-pacca building were significantly increased by 42% and 69% respectively during post-ownership period. On the contrary, the numbers of Katcha-pacca and Katcha houses decreased by 3.7% and 17.1% respectively. The amount of loan received during PTOS ownership period was
about 50.5% higher than that of pre-ownership period. The increased income of beneficiaries are mostly spent on farm machinery, nutritious food, clothes, health care, education expenses and making of houses that indicate higher standard of living to some extent, compared to pre PTOS service period. The service providers encountered problems like higher fuel cost, lack of riding facility, non-availability and higher price of spare parts, roller jam, and lack of trained driver.

Due to higher adoption of PTOS, financial support and technical assistance should be made available by the government of Bangladesh for service providers and local manufacturers. Fuel cost may be reduced for small holder farmers. Training on repair and maintenance of PTOS for operators is highly required. Furthermore, research work should be carried out to improve the machine with riding facilities and adding fertilizers application system with existing PTOS that will improve fertilizer uses efficiencies.

References