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Socio-demographic Status of Potato Growers in Chapainawabganj, Bangladesh

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ABSTRACT

Socio-demography of statuses reflects the demographic and social roles and achievements of an individual(s) in a population. The current profile of socio-demographic on potato growers is vital to know for sustaining of a major demandable vegetable, potato. The purpose of the present study was to determine the status of socio-demography in Chapainawabganj district. Using a random sample procedure, a total of 40 respondents were selected on six socio-demographic characteristics like as, age, level of education, experience level, farm size, family size and annual income. Data were collected from five upazilas in Chapainawabganj district (Bholahat, Gomostapur, Nachol, Shibganj and Chapainawabganj sadar) using a pre-structured interview schedule. Middle aged (36 to 50 years) potato farmers having primary education and 11 to 25 years' experience in potato farming. They have medium sized farm (1.1 to 3 ha) living in a medium sized family (5 to 7 persons) and medium annual income (32 to 302 thousand Taka). Form the above indication, it was clarified that the features of socio-demography was not a mark to sustain potato farming system.

Keywords: Chapainawabganj, Potato farmers, Socio-demography, Socio-economic characteristics, Sustainability

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1. INTRODUCTION

Potato (*Solanum tuberosum* L.) is the most important vegetable crop in Bangladesh. Vegetable basket of Bangladeshi consumers is incomplete without potato. It contributes 55% of the total vegetable production in Bangladesh (BBS, 2009). Potato is the third most important crop in Bangladesh. In respect of nutrient, potatoes are comparable with rice and wheat. It can easily be digestible. Although potato is a temperate crop, it can be grown in most parts of the country during the winter season (Azimuddin et al., 2009). Well fertilized, sunny weather with sufficient soil moisture is appropriate for potato cultivation and climate of Bangladesh is suitable for that. The optimum growth and development require a temperature range of 15-21° C. It is being cultivated in Bangladesh since 1960 as exotic vegetable which is specially brought from the Netherlands.

At present, potato is grown in about 4.61 lac hectares of land to produce 84 lac tons (Chowdhury & Hasan, 2013). The average yield of potato is 13.32-18.08 ton/ha (BBS, 2011; BADC, 2012). Its production can be increased up to 30-40 tons/ha using high yielding varieties and improved production technology (Chowdhury & Hasan, 2013). Moreover, in recent years, potato has become an important crop for food security, especially during extreme flooding during the monsoon. Potato is the only crop for which seed

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stocks are kept in cold stores ready for immediate planting after floods. Increased productivity of potato, even a small scale, is possible with efficient management of available resources and good quality seed (Kadian et al., 2000).

However, at present nearly 460 thousand hectares (ha) of cultivable land is under potato cultivation and the country produced 8,326 thousand tons' potatoes in the year 2010-2011 (BBS, 2012). The average yield of potato per ha is 13.32 t/ha which is very low in comparison to other potato producing countries like 43.2 tons/ha in France, 44.7 tons/ha in Netherlands and 44.6 tons/ha in the USA in 2007. Hossain et al. (2008) reported that the national average yield of potato is very low (19.07 tons/ha) compare to its potential yield 30-40 tons/ha, due to lack of quality seed, cultivation of indigenous potato (yield 5-7 tons/ha), lack of high production technology and high price of quality seed. Bangladesh is the third largest potato producer in Asia and standing sixth in the world (FAO, 2010; MoA, 2009). Bangladesh experienced much progress in its potato production in the past decades; it has increased by 5 percent per annum (Uddin et al., 2010).

In the scenario of Bangladesh, after the rice (Boro-irrigated rice, Aman-rainfed rice, Aus-short duration rice), potato is the second most important crop in terms of consumption in some parts of the country such as Munshigonj district (Hossain et al., 2014). Recently, it has become important and popular food crop because of quick economic return and its multiple uses as vegetable and delicious processed items. Munshigonj, Sherpur, Narayangonj, Dhaka district of Bangladesh produce more potato (World Food Security Atlas, 2008). This study showed that potato production is highly profitable and it provides cash money to farmers. In terms of profitability, potato production was more attractive than any other winter vegetables. Per unit yield and gross return of potato were found higher than other competitive crops (Ahmed et al., 2009). According to Siddique et al. (2015) potato has greater scope and potential for food security and poverty alleviation in Bangladesh.

A number of studies to agronomic, economic and physiological aspects of potato cultivation have so far been conducted in Bangladesh. Mukul et al. (2013) conducted a study on the profitability of potato cultivation and found that the average yield of potato was 4720 kg per hectare and the average gross return amounted to TK. 33040 per hectare. Sarkar & Yesmin (2014) and Akhter et al. (2001) were conducted a survey on potato production in some selected areas of Bangladesh.

Water shortage is a major issue in the Barind tract region of Chapainawabganj, and owing to poor moisture content, potato farmers in Nachol, Shibjang, and Kansat are converting their fields to sugarcane or mango orchards. Because of the weather conditions and soil type in this location, mango output is higher. Farmers in this area typically use personal deep water for agricultural cultivation. It is the primary cause of rising manufacturing costs. As a result, new low-cost water facilities are critical for optimum potato cultivation in this area. Then, because of the climate aspect, disease infestation is high in this location, which necessitates 2-3 times pesticide treatment for optimal potato growth and development. To tackle this problem, farmers want drought and pest resistant varieties for this region (Nahar et al., 2013). Next, because storage facilities in this area are so limited, farmers must store their crops in Rajshahi. Farmers in Chapainawabganj require more cold storages with ample storage space. Latest information on potato production in Chapainawabganj district is limited. So, it is necessary to demonstrate the socio-demography of potato farmers in these areas.

Socio-demographic and economic data are collected and made available periodically in an aggregate form. Such data are to be helpful in understanding changes in the agriculture safety situation of an area over years and differences across areas (Kweon, 2011). At the past year, the demographic factor in the structure of agriculture have been stated in Barbados (Henshall, 1966) and in Malaysia (Shaffril & Uli, 2010). The aim of the present study was to know the socio-demographic status of potato farmer in Chapainawabganj district.

2. MATERIALS AND METHODS

2.1. Study Area

The study was conducted in all five upazilas namely Bholahat, Sadar, Gomostapur, Nachol and Shibganj of Chapainawabganj district (Fig. 1).

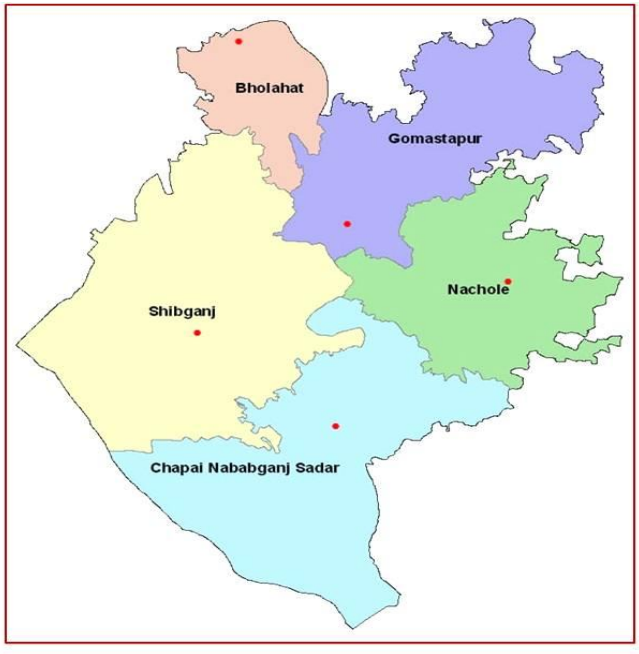

Fig. 1 Location of study area (five upazilas) at Chapainawabganj.

2.2. Sample Size

The sample size was 40. The data were collected from 40 responded that were randomly from 40 potato growers at 20 villages of the studied upazila.

2.3. Data Collection Procedure and Analysis

The pre-structured interview schedule was used for data collection by face-to-face interview. The selected socio-demographic characteristics of the potato growers were documented in the age, education and experience of farmers, and their farm size, family size and annual income. Six demographic characteristics of the farmers involved in potato cultivation of studied area were presented in Table 1.

Table 1 Characteristics profile of the respondents

Characteristics	Measured by	Min.	Max.
Age	Year	26	65
Education	Class	0	12
Farming experience	Year	4	22
Farm Size	Hectare	3	32
Family Size	Person	3	10
Annual Income	Taka (in thousand)	32	302

Table 2 Characteristics profile of the potato growers (40 respondents)

Characteristics	Mean	SD
Age (26 - 65 years)	43.63	9.6
Education (0 - 12)	6.00	3.9
Farming experience (4 -12 years)	8.98	4.4
Farm size (3-32 hectare)	13.18	7.4
Family size (3-10 person)	6.68	2.0
Annual income (32 – 302 thousand taka)	126.25	70.2

SD, Standard deviation

The age was categorized with three groups like young (26 to 35 years), middle age (36 to 50 years) and old (50 to 65 years). The level of education was considered to collect from no education (unable to read and write, grade point 0), primary level education (from class I to V, grade point 1, 2, 3, 4, 5), secondary level education (from class VI to X, grade point 6, 7, 8, 9, 10) and above secondary level education (from class X to XII, grade point 11 and 12). Experience level of potato farmer was sorting out with three forms such as low experience (up to 10 years), medium experience (11 to 25 years) and high experience (Above 25 years). Based on farm size, the potato growers have labeled with three categories like small (up to 1), medium (1.1 to 3) and large (above 3). Data on family size had to collect on small (up to 4 members), medium (5 to 7 members) and large (above 7 members). According to annual income farmers were categorized in low income (bellow 32 thousand taka), medium income (32 to 302 thousand taka) and high income (above 302 thousand). The data were analyzed by Microsoft Excel Software.

3. RESULTS AND DISCUSSION

The mean values of six characteristics of potato growers were shown in Table 2. The mean age was 43.63 years when data were collected from 40 farmers where respondents were 26-65 years old. The mean values of the rest five characteristics were 6.00 for education (0-12 score), 8.98 for farming experience (4-12 years), 13.18 for farm size (3-32 hectare), 6.68 for family size (3-10 person) and 126.25 for annual income (32-302 thousand taka). As compared to Pandit & Basak (2013), the mean score of vegetable growers on literacy (4.72), family size (7.86), farm size (1.21 hectare) and annual income (Tk. 86.17 thousand) were described.

Table 3 Socio-economic status of farmer (total number of respondents 40)

Category	Character	Number	%
Age (years)	Young (26 to 35)	11	27.5
	Middle age (36 to 50)	22	55
	Old (50 to 65)	7	17.5
Level of education	No education (Unable to read and write)	12	30
	Primary (Class I to V)	12	32.5
	Secondary (Class VI to X)	11	25
	Above secondary (class X to XII)	5	12.5
Experience (years)	Low experience (Up to 10)	17	42.5
	Medium experience (11 to 25)	21	52.5
	High experience (Above 25)	2	5
Farm size (ha)	Small Up to 1	11	27.5
	Medium (1.1 to 3)	25	62.5
	Large (Above 3)	4	10
Family size (person)	Small (Up to 4)	7	17.5
	Medium (5 to 7)	18	45
	Large (Above 7)	15	37.5
Annual income (thousand Tk)	Low (bellow 32)	11	27.5
	Medium (32 to 302)	23	57.5
	High (above 302)	6	15

The highest 55% middle aged farmers were engaged in potato cultivation. The young group farmers were 27.5% where the old farmers were 17.5% in case of all experimented areas (Table 3). The greatest percentage of farmers (32.5%) related to potato cultivation in Chapainawabganj district was completed primary school education. Near percentage to highest was 30% those had no education. The 25% farmers completed secondary school education and the rest 12.5% farmers were completed above secondary level education (Table 3). On the basis potato cultivation experience of respondent's, the highest 52.5% farmers had moderate experience (11 to 25 years) in potato cultivation. The low and high experienced farmers were observed 42.5% and 5%, respectively (Table 3). Among the categories of farmers based on farm size, the peak

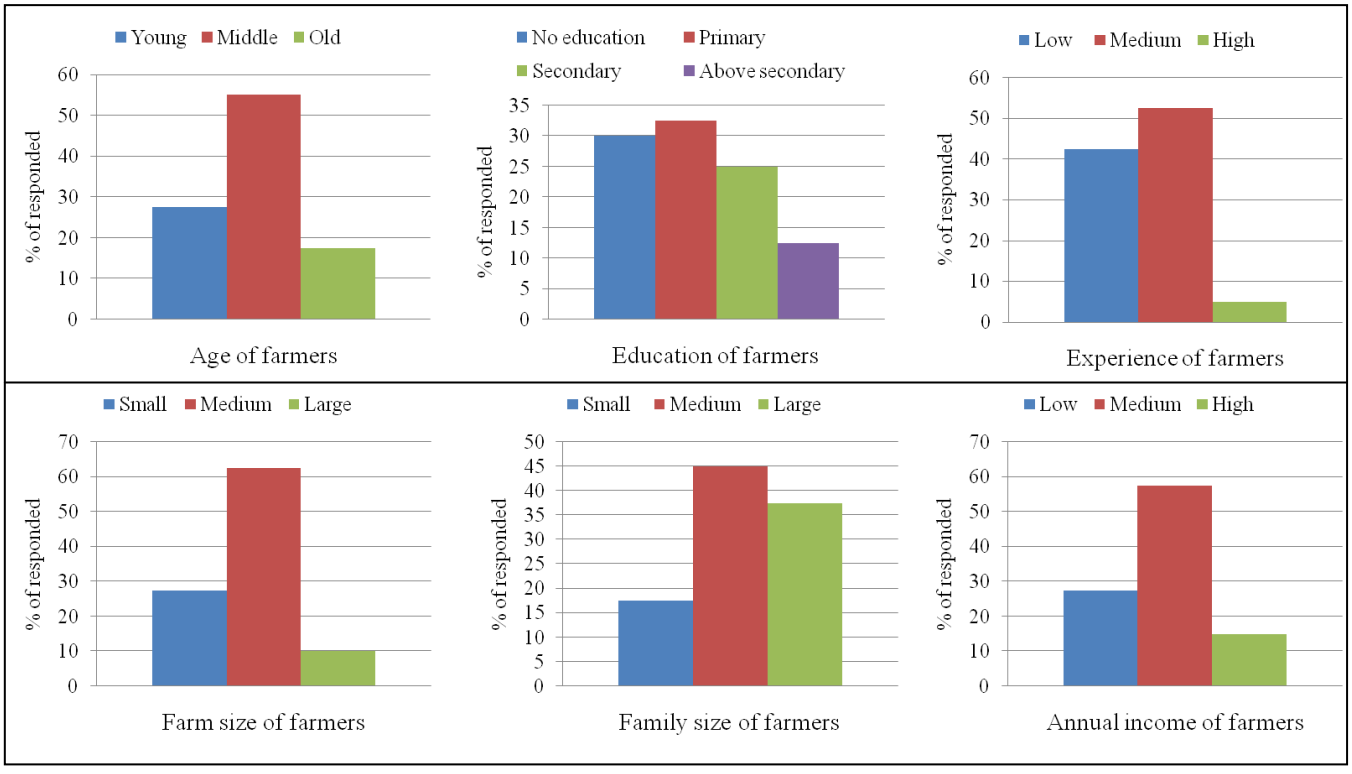

Fig. 2. Overview of socio-demographic feature of potato growers at study area.

percentage of farmers (62.5%) had medium sized farm. The 27.5% farmers had small sized farm while only 10% farmers had large sized farm (Table 3). The maximum percentages of farmers (45%) were lived in a medium sized family of the studied areas, on the other hand, only 37.5% farmers had in large sized family. The rest 17.5% potato growers were lived in the small sized family (Table 3). When considered the annual income of the farmers in the study areas, the highest percentage of the respondents (57.5%) had medium income followed by low income (27.5%) and high income (15%) income earners (Table 3). It has been described (Koukouli et al., 2002) that socio-demographic variables included: gender, age, level of education, employment status, profession, marital status, total number of persons living in the house and living arrangements. In the present study, six important demographic features like age, education, experience, farm size, family size and annual income have been accounted. The socio-economic and demographic characteristics of the vegetable growers on same six characteristics have been reported previously (Pandit & Basak, 2013). The similar observation like present study was revealed in socio- demographic characteristics of organic and conventional potato farmers (Lepcha et al., 2021).

The highest percentages of six socio-demographic features of potato growers were presented in Fig. 2. The percentage was highest in middle aged (36 to 50 years) among age categories farmers. These results suggest that, the farmers were still in their active/productive age. The modal age bracket or group of farmers between 21–50 years according to (Falola & Achem, 2017) are considered to be active/productive age in farming activities. Participation of youth in agriculture in Nigeria is due to the high level of agricultural apathy by the youth as suggested in the studies on youths' participation in agriculture in Nigeria conducted by (Falola et al., 2013; Adekunle et al., 2009). To deem education status potato farmers, it was highest in primary educated (class I to class V) among four education levels studied here. This indicated that those that attend above secondary education do not participate in farming activities due to the preference for white collar jobs, especially in developing countries (Falola et al., 2013; Muhammad-Lawal et al., 2009)

The highest percentage potato growers were medium experienced (11 to 25 years) when considered to three experience levels. High experienced (above 25) farmers were involved in other crop farming, suggesting that farmers are not benefitted financially. The similar observation has been recorded previously (Eliya et al., 2019). The medium sized farm (1.1 to 3 ha) was highest percentage potato farmers, recorded in Chapainawabganj district of Bangladesh. The contrast findings to this result reported (Anish & Bhat, 2020), where farm size was large within most of the farmers in Bajura district of Nepal.

The medium sized family (5 to 7 persons) of potato farmers was noticed highest percentage among sizes of family studied. The average household size was 6.68 persons in the present study. This result was contrast to findings of Halliru et al. (2018), stated that the large sized family (11

persons) can be engaged more households in farming which can be positive impact for sustaining farming systems by the changing.

Medium (32 to 302 thousand Taka) annual income was recorded in greatest percentage potato growers (Fig. 2). The farmers having high annual income were a few involvements in potato cultivation. It is indicated that potato cultivation did not attract to those farmers due to huge constrains in cultivation, storage and marketing. The rich farmers can be sustained the potato farming, reported by their observation (Lepcha et al., 2021).

The real socio-demographic features of a community will be disclosed with the features of highest percentage individuals. In the potato farmers community of five upazilas at Chapainawabganj, middle aged (36 to 50 years) potato farmers had primary education and 11 to 25 years' experience in potato farming. They had medium sized farm (1.1 to 3 ha) lived in a medium sized family (5 to 7 persons) and had medium (32 to 302 thousand Taka) annual income (Fig. 2). Form the above indication, it was clarified that the features of socio-demography were not a mark to sustain potato farming system.

4. CONCLUSION

Socio-demographics describe the relationship that exists between individuals, or groups of individuals and their attained socio-demographic statuses (socio-demographic positions and successes) in a given population over a given period. Potato cultivation status is assessed through the study where most of the respondents were middle-aged, primary educated, had a medium-sized household with medium-sized farm, had a medium annual income and had a medium level of farming experience. The above-described status at the studied area is not suitable for the sustainable potato farming. For sustainable potato farming at the studied area, farmers is considered to be the young aged, highly experienced, literate, having large sized family with high annual income.

REFERENCES

Adekunle, O. A., Adefalu, L. L., Oladipo, F. O., Adisa, R. S., & Fatoye, F. (2009). Constraints to youth's involvement in agricultural production in Kwara State, Nigeria. *Journal of Agricultural Extension, 13*(1), 102-108.

Ahmed, S., Rashid, M. H. A., & Chowdhury, N. (2009). Comparative profitability of Boro rice and potato production in some selected areas of Mymensingh district. *Progressive Agriculture*, *20*(1-2), 253-258.

Akhter, S. M., Anwar, M., & Asaduzzaman, M. (2001). *Potato production in some selected areas of Bangladesh*. Tuber Crops Research Centre, BARI, Joydebpur, Gazipur, Bangladesh.

Anish, S., & Bhat, C. G. (2020). Socio-economic analysis of potato in Bajura district of Nepal. *J. Bio. Innov.*, *9*(2), 183-194.

Azimuddin, M., Alam, Q. M., & Baset, M. A. (2009). Potato for food security in Bangladesh. *Int. J. Sust. Crop Prod*., *4*(1), 94-99.

BADC, (2012). *Annual Report 2011-12*. Bangladesh Agriculture Development Cooperation, Dhaka, Bangladesh.

BBS, (2009). *Yearbook of Agricultural Statistics of Bangladesh*. Bangladesh Bureau of Statistics, Ministry of Planning, Government of the People's Republic of Bangladesh.

BBS, (2011). *Yearbook of Agricultural Statistics of Bangladesh*. Bangladesh Bureau of Statistics. Statistics Division, Ministry of Planning, Government of the People's Republic of Bangladesh.

BBS, (2012). *Statistical Year Book of Bangladesh*. Bangladesh Bureau of Statistics. Bangladesh Statistics Division, Ministry of Planning, Govt. of the People's Republic of Bangladesh.

Chowdhury, M. A. H., & Hasan, M. S. (2013). *Handbook of Agricultural Technology*. Bangladesh Agricultural Research Council, Farmgate, Dhaka.

Eliya, K., Paul, D., Ted, N., & Julius, O. (2019). Assessing factors influencing farmers adoption of improved potato varieties in Malawi. *International Journal of Economy, Energy and Environment*, *4*(1), 1-10.

Falola, A & Achem, B. A. (2017). Perceptions on climate change and adaptation strategies among sweet potato farming households in Kwara State, North central Nigeria. *Ceylon Journal of Science*, *46*(3), 55-63.

Falola, A., Ayinde, O. E., & Ojehomon, V. E. T. (2013). Economic analysis of rice production among the youths in Kwara State, Nigeria. *Albanian Journal of Agricultural Sciences*, *12*(3), 503-510.

FAO, (2010). *Food and agriculture data*. Food and Agriculture Organization, Rome, Italy.

Halliru, S. L., Bichi, A. A., & Muhammad, A. S. (2018). *Effects of demographic characteristics for farmers to climate change in Bunkure, Nigeria*, Intech Open Pub., USA.

Henshall, J. D. (1966). The demographic factor in the structure of agriculture in Barbados. *Transactions of the Institute of British Geographers*, *38*, 183-195.

Hossain, M. A., Zomo, S. A., Ullah, A., Rahaman, S. M. S., & Sarkar, M. D. (2014). Production and grower preference of potato in northern zone of Bangladesh: Scenario from Shibgonj, Bogra and Kalai, Joypurhat. *Journal of Bioscience and Agriculture Research*, *1*(2), 93-101.

Hossain, M., Dey, T. K., Akther, S., Bhuiyn, M. K. R., Hoque, M. A., Kundu, B. C., Hossain, M. A., & Begum, S. N. (2008). *Activities and achievements of Tuber Crops Research Centre at a glance*. Tuber Crops Research Centre, BARI, Gazipur.

Kadian, M. S., Ilangantileke, S. G., Jayasinghe, U., Hossain, A. E., Hossain, M., & Babu, A. G. C. (2000). Potato seed system in Bangladesh and Srilanka. *Global Conference of Potato* (6-11 Dec., 1999, New Delhi). pp. 690-697.

Koukouli, S., Vlachonikolis, I. G., & Philalithis, A. (2002). Socio-demographic factors and self-reported functional status: The significance of social support. *BMC Health Services Research*, *2*, 225-235.

Kweon, Y. J. (2011). Crash data sets and analysis, *In*: Handbook of Traffic Psychology, Porter BE (Ed.), Academic Press, Massachusetts, pp. 97-105.

Lepcha N., Mankeb, P., & Suwanmaneepong, S. (2021). Productivity and profitability of organic and conventional potato (*Solanum tuberosum* L.) production in West-Central Bhutan. *Open Agriculture*, *6*, 640-654.

MoA. (2009). *A Hand Book of Agricultural Statistics*. Ministry of Agriculture, Government of People's Republic of Bangladesh. Dhaka.

Muhammad-Lawal, A., Omotesho, O. A., & Falola, A. (2009). Technical efficiency of youth participation in agriculture. A case study of the Youth-Agriculture programme in Ondo state, Southwestern Nigeria. Nigeria Journal of Agriculture, Food and Environment, 5(1), 20-26.

Mukul, A., Rayhan, S. J., Hassan, M. M. (2013). Farmer's profitability of potato cultivation at Rangpur district: the socio-economic context of Bangladesh. *Russian Journal of Agricultural and Socio-Economic Sciences*, *1*(3), 136-144.

Nahar, N., Hossain, M., & Bashar, M. A. (2013). Survey on the incidence and severity of common scab of potato in Bangladesh. *Journal of the Asiatic Society of Bangladesh, Science*, *39*(1), 35-41.

Pandit, J. C., & Basak, N. C. (2013). Constraints faced by the farmers in commercial cultivation of vegetables. *J. Bangladesh Agril. Univ.*, *11*(2), 193-198.

Sarkar, M. M. A., & Yesmin, F. (2014). Profitability of potato cultivation in some selected areas of Rangpur district in Bangladesh. *International Journal of Sustainable Crop Production*, *9*(1), 11-15.

Shaffril, H. A. M., & Uli J. (2010). The influence of socio-demographic factors on work performance among employees of government agriculture agencies in Malaysia. *The Journal of International Social Research, 3*(10), 459-469.

Siddique, M. N. A., Sultana, J., Huda, M. S., Abdullah, M. R., & Chowdury, M. A. (2015). Potato production and management with preference to seed potato supply chain, certification and actors involve in Bangladesh. *International Journal of Business, Management and Social Research*, *1*(1), 01-13.

Uddin, M. A., Yasmin, S., Rahman, M. L., Hossain, S. M. B., & Choudhury, R. U. (2010). Challenges of Potato Cultivation in Bangladesh and Developing Digital Databases of Potato. *Bangladesh J. Agril. Res*., *35*(3), 453-463.

World Food Security Atlas. (2008). *World Food Programme*, FAO, Rome, Italy.