

ESTIMATION OF LOSS FOR STORAGE DISEASES OF POTATO IN SOME CITY/TOWN MARKETS OF BANGLADESH

M. M. Rashid, A. S. Mitu¹, M. M. Rahman², M. S. Hossain³ and S. Mandal⁴

Bangladesh Sugarcrop Research Institute, Ishurdi, Pabna

¹Soil and Nutrition Division, Bangladesh Sugarcrop Research Institute, Ishurdi, Pabna

²Manager-PDS, Lalteer Seed Limited, Khulna

³Planning and Development Division, Bangladesh Sugarcrop Research Institute, Ishurdi, Pabna

⁴Farm Division, Bangladesh Sugarcrop Research Institute, Ishurdi, Pabna

ABSTRACT

The experiment was carried out during the year 2025 at the Plant Pathology Department and Seed Pathology Center, Bangladesh Agricultural University, Mymensingh. For surveying the market diseases of potato in shop cum storage, 10 shops from three selected markets of each city/town viz. New markets kacha Bazar, kawran Bazar and Uttara Kacha Bazar of Dhaka City; Shaheb Bazar Master para, Shalbagan Kacha Bazar and New Market Kacha Bazar of Rajshahi as well as Mesua bazar, K. R Market and Sesh moor bazar of Mymensingh were selected. Sample was collected in every week throughout the experimental period. Pathogens were isolated by tissue planting method on to PDA (Potato Dextrose Agar) and NA media. In Dhaka city the loss estimated of potato by 5.58, 4.96 and 4.55% in the month of July, August and September, respectively. In Rajshahi city the survey revealed the loss estimated of potato by 5.85, 5.58 and 5.28%, respectively in the month of July, August and September. The loss estimated by 5.84, 5.54 and 5.25%, respectively in the month of July, August and September at Mymensingh town.

Key words: Potato, market disease, Dhaka city, Rajshahi and Mymensingh.

Introduction

Potato (*Solanum tuberosum* L.) is a tuber crop belonging to the family Solanaceae. It is the most important source of human food and ranked as the fifth major crop of the world (Hooker, 1983). The area and yield of potato vary from year to year in Bangladesh. However; recent reports indicated that 4161 million tons of potatoes were produced from 744 thousand hectares of land in 2005-2006 (BBS, 2006). Potato crop has many hazards in the field as well as in the storage and market, of which soft rot, dry rot, potato scab, potato gangrene, hollow heart are important. A recent report indicated that 0.187 million tons of potato were lost in Bangladesh due to diseases (Anonymous, 2006). In Bangladesh considerable work have been done by BAU and BARI Scientist on different aspects of diseases of potato but no systematic work has been done on the market diseases of this crop, except recording the occurrence of a few diseases and only a limited research work has been done. Therefore, the present work was carried out to determine the diseases occurrence of potatoes during storage period in some city/town markets (Dhaka, Rajshahi and Mymensingh) of Bangladesh.

Materials and Methods

The experiment was carried out during the year 2025 at the Plant Pathology Department and Seed Pathology Center, Bangladesh Agricultural University, Mymensingh. For surveying the market diseases of potato in shop cum storage, 10 shops from three selected markets of each city/town viz. New markets kacha Bazar, kawran Bazar and Uttara Kacha Bazar of Dhaka City; Shaheb Bazar Master para, Shalbagan Kacha Bazar and New Market Kacha Bazar of Rajshahi as well as Mesua bazar, K. R Market and Sesh moor bazar of Mymensingh were selected. In each shop, random sampling was made in four bags per cultivar. The bags were opened and the diseases tubers (soft rot, dry rot and common scab) of each bag were separated from the healthy ones. The diseased tubers from those bags were weighed and these amounts was divided by the total amount of potato in the four (4) bags and multiplied by 100; so as find out the percentage of

loss due to diseases (Islam,1995). The storage condition especially temperature and humidity were found to be important factors for the variability of disease incidence and tuber losses. Here monthly temperature and humidity during the study period are presented (Table 1). Data were recorded from time to time during the tenure of the works for requisite parameter. The experiment was conducted in two factors RCBD and the data collected on different parameters under the experiment were statistically analyzed to obtain the level of significance using the MSTAT- computer package program developed by Russell (1986).

Table 1: Monthly temperature and humidity during the study period at Dhaka, Rajshahi and Mymensingh

Month and Place		Average air temperature(°C)			RH (%)
		Max.	Min.	Ave.	
July'15	Dhaka	32.50	26.50	29.50	77
	Rajshahi	33.20	26.00	29.60	83
	Mymensingh	32.70	26.40	29.55	84
August'15	Dhaka	31.90	25.80	28.85	74
	Rajshahi	32.80	25.50	29.15	82
	Mymensingh	31.50	26.40	28.95	79
September'15	Dhaka	30.50	25.10	27.80	78
	Rajshahi	31.40	25.10	28.25	85
	Mymensingh	30.80	26.90	28.35	83

Results and Discussion

Survey of market disease of potato in three market of Dhaka city: The survey results on different market diseases (soft rot, dry rot, and scab) of potato in New market kacha bazaar, Kawran bazaar and Uttara kacha bazar of Dhaka are presented in Tables 2-3. The % loss by the storage diseases found as significant among the studied periods and also between the potato varieties. The % soft rot in Diamant ranged 3.83-4.29, whereas 0.77-0.95% for dry rot and 0.62-0.71% for scab, respectively. On the other hand, the soft rot, dry rot and scab ranged as 2.10-2.83, 0.83-1.41 and 0.88-1.06%, respectively for cardinal. The study also detected higher % total losses in Diamant than that of Cardinal (Table 2).

Table 2: Prevalence of potato disease in ten shops of Dhaka city

Month	Variety	% Loss	% Soft rot	% Dry rot	% Scab
July'15	Diamant	5.86 a	4.29 a	0.86 cd	0.71 d
	Cardinal	5.30 c	2.83 d	1.41 a	1.06 a
August'15	Diamant	5.58 b	4.01 b	0.95 b	0.62 e
	Cardinal	4.34 d	2.55 e	0.83 d	0.96 b
September'15	Diamant	5.22 c	3.83 c	0.77 e	0.62 e
	Cardinal	3.89 e	2.10 f	0.91 bc	0.88 c
LSD (0.05%)	-	0.20	0.05	0.05	0.05

Table 3: Loss estimation of storage potato as affected by various diseases in Dhaka city

Month	% Loss	% Soft rot	% Dry rot	% Scab
July'15	5.58 a	3.56 a	1.13 a	0.89 a
August'15	4.96 b	3.28 b	0.89 b	0.79 b
September'15	4.55 c	2.96 c	0.84 c	0.75 b
LSD (0.05%)	0.14	0.04	0.04	0.04

The month wise results and comparative incidence among the diseases from three selected markets in ten shops cum storage of Dhaka was presented in Table 3. The study recorded maximum incidence i.e. losses of potato in the month of July, then decreased up to the last month of the study (September'15). The storage

condition especially temperature and humidity were found to be important factors for the variability of disease incidence and tuber losses. The Study revealed the fact that potatoes were subject to affect different diseases in the markets of Dhaka city. Again in contrast of storage disease the soft rot dry rot and scab ranked in 1st, 2nd, and 3rd position, respectively (Table 3).

Survey of market disease of potato in three market of Rajshahi city: The survey results on different market diseases (soft rot, dry rot, and scab) of potato in Shaheb bazar master para, Shalbagan kacha bazar and New market kacha bazar of Rajshahi are presented in Tables 4-5. The % loss by the storage diseases found as significant among the studied periods and also between the potato varieties. The % soft rot in Diamant ranged 3.66-4.10, whereas 0.92-0.93% for dry rot and 0.65-0.81% for scab, respectively. On the other hand, the soft road, dry rot and scab ranged as 3.44-3.85, 0.97-1.19 and 0.87-1.06%, respectively for Cardinal. The study also detected higher % total losses in Cardinal than that of Diamant (Table 4). The month wise results and comparative incidence among the diseases from three selected markets in ten shops cum storage of Rajshahi was presented in Table 5. The study recorded maximum incidence i.e. losses of potato in the month of July, then decreased up to the last month of the study (September'15). The Study overall revealed the fact that potatoes were subject to affect different diseases in the markets of Rajshahi city. Again in contrast of storage disease the soft rot dry rot and scab ranked in 1st, 2nd, and 3rd position, respectively (Table 5).

Table 4: Prevalence of potato disease in ten shops in Rajshahi city

Month	Variety	% Loss	% Soft rot	% Dry rot	% Scab
July'15	Diamant	5.83 a	4.10 a	0.92 e	0.81 d
	Cardinal	5.88 a	3.85 b	0.97 c	1.06 a
August'15	Diamant	5.54 b	3.88 b	0.92 e	0.74 e
	Cardinal	5.62 b	3.47 d	1.19 a	0.96 b
September'15	Diamant	5.24 c	3.66 c	0.93 d	0.65 f
	Cardinal	5.32 c	3.44 d	1.01 b	0.87 c
LSD (0.05%)	-	0.08	0.08	0.00	0.00

Table 5: Loss estimation of storage potato as affected by various diseases in Rajshahi city

Month	% Loss	% Soft rot	% Dry rot	% Scab
July'15	5.85 a	3.98 a	0.94 c	0.93 a
August'15	5.58 b	3.68 b	1.05 a	0.85 b
September'15	5.28 c	3.55 c	0.97 b	0.76 c
LSD (0.05%)	0.05	0.05	0.00	0.00

Survey of market disease of potato in three market of Mymensingh city: The survey result on different market diseases (soft rot, dry rot, and scab) of potato in Mesua bazar, K. R. market and Sesh moor bazar of Mymensingh are presented in Tables 6-7.

Table 6: Prevalence of potato disease in ten shops of Mymensingh town

Month	Variety	% Loss	% Soft rot	% Dry rot	% Scab
July'15	Diamant	5.83 a	4.14 ab	0.97	0.72
	Cardinal	5.84 a	4.18 a	0.95	0.71
August'15	Diamant	5.54 b	3.94 bc	0.95	0.64
	Cardinal	5.56 b	4.00 ab	0.84	0.72
September'15	Diamant	5.24 c	3.72 d	0.87	0.65
	Cardinal	5.26 c	3.74 cd	0.85	0.67
LSD (0.05%)	-	0.05	0.22	NS	NS

Table 7: Loss estimation of storage potato caused by various diseases in Mymensingh town

Month	% Loss	% Soft rot	% Dry rot	% Scab
July'15	5.84a	4.14a	0.96	0.71
August'15	5.54b	3.97b	0.90	0.68
September'15	5.25c	3.73c	0.86	0.66
LSD (0.05%)	0.04	0.15	NS	NS

The % loss by the storage diseases found as significant among the studied periods and also between the potato varieties. The % soft rot in Diamant ranged 3.72-4.14, whereas 0.87-0.97% for dry rot and 0.64-0.72% for scab, respectively. On the other hand, the soft rot, dry rot and scab ranged as 3.74-4.18, 0.84-0.95 and 0.67-0.72, respectively for cardinal. The study also detected higher % total losses in Cardinal than that of Diamant (Table 6). The study recorded maximum incidence i.e. losses of potato in the month of July, then decreased up to the last month of the study (September'15). Again in contrast of storage disease the soft rot dry rot and scab ranked in 1st, 2nd, and 3rd position, respectively (Table 7).

Conclusion

The study revealed that potatoes were subject to infection by different diseases in the markets of Dhaka City, Rajshahi and Mymensingh. Again in contrast of storage disease the soft rot dry rot and scab ranked in 1st, 2nd, and 3rd position, respectively at Dhaka, Rajshahi and Mymensingh

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