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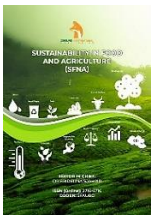

RESEARCH ARTICLE

ASSESSMENT OF FACTORS AFFECTING POST-HARVEST LOSS OF POTATO AND MANAGEMENT IN GUMMER WOREDA

Yemane Woldeyesus Ambo

Wolkite University, College of Agriculture and Natural Resource, Department of Plants science Wolkite, Ethiopia
**Corresponding Author Email: jemise21@gmail.com*

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ABSTRACT

A survey data was collected from 3 kebeles of the Gumer Woreda and then the data was analyzed by SPSS software. The selected kebeles was Ariket shelko kebele, Denber kebele and Abeka kebele. From these three selected kebeles, about 12 male and 3 females total of fifteen potentially known potato producing farmers as total sample size were selected randomly. Out of 15 respondents, 6(40%) of them were aged 20-30 years while 7(46.7%) of them were aged 31-59 years. The remaining 1(6.67%) of the respondents was aged sixty and above. Around 95.1% of the respondents were found to be at the productive age. In the case of loss that 67.67% of male respondents and 100% of female respondents responded that transportation of potato product affect postharvest loss of potato in the woreda. But the rest of the respondents 26.67% of total respondents on average (33.33% of male respondents and 0% of female respondents) assured that transportation does not affect postharvest loss of potato.

KEYWORDS

Harvesting, Loss, Potato, Post-harvest

1. INTRODUCTION

1.2 Background and Justification

Potatoes belong to the family Solonace and genus solanium, the tuber breeding & species have been identified as hyper sub-genus potato's (Pall Knurna, 2003). Potato originated in South America in the high land and potato species have waded distribution rang in from the troika to the temperature equinox of the word and extension from the level to attitude of 2438 m (Mergoon, 1962).

Potato's grows and consumed in majority of countries more than any others crops and in the global economy it is the fourth important softer the three cereals including maize, rice and wheat (Stephan, 1999). Increasing the yield of potato's such other crop plant is one of the most important researches to crop with food consumption of the animals, feed and indirectly nitrogen fixes to the sold with the country (Weldgoris, 1999).

Potato introduce to Ethiopia takes in 1858 by Germany botanist (Shimmered Pankherea 1964) unlike its along history of cultivation and in spite of the production Cond activity environment is Ethiopia is endowed with suite blew climatic and edaphic condition for high yield and production high quality potatoes the national quorate yield estimated 15-35 ton/ha (FAD, 2003).

Potato grown well on drained sand 10 am to clay 10 soil and rich in human and it prefers soil in acidic to neutral range PH Of 5.5-7.5. The optimum soil temperature is 16-20 ^{o}C and annual rain fall ranges from 500-750mm (Tinall, 1983).

It is the fact the Ethiopia economy is based on the agricultural sector and over 85% of the production is dependent on the benefit obtained from this sector one of the most Rapid growth area in the field of an agriculture is vegetable crops, among these potato is a very divers field fro up one how is highly potential to supply a cheap and quality full (Nutrient full) food in a short period of mine (Abebech et.al, 1995).

However a number of constraints hinder its productivity and product. It products a proximately twice of calories Peron it area as that price and wheat. In terms of dry matter production per unit area potato is among the most productive crop cultivate in the developing countries. The problem content of potato is the highest among the four major food crop such as corn rice and wheat. Therefore, potato is a great value (potential) crop for self-food sufficient security in the course of time and it became a very important non cereal stable. In Ethiopia in SNNPRS Gurage Zone, Gummer Woreda is one of the most potatoes growing Woreda now a day. In this Woreda only up to 1950 hectare alone rainy season and annual productivity per hectors is 378 quintals on average (Semahegn et.al. 2006).

Even through the woreda can cultivate(produce) great amount of potato yield in year, but there is constraints product of productivity related to yield and yield components such as post-harvest loss, Agronomic practices due to these loss of yield the formers not harvest considerable yield from their farm, due to less experience of their farm management practices, due to less experience of the farmers to control disease, and specially the losses that caused by back warded harvesting and post-harvest handling practices.

So, to improve those problems especially the losses of yield after harvesting at the postharvest handling stage, the researchers conducted a research to assess the loss of post-harvest loss of potato assuming that transportation, storage, marketing process and consuming stage are some of the proposed factors to affect postharvest-loss of potato and to assess the degree of the problem at each stage and what actions we should take to improve the problem. As a result, this survey based research paper was able to determine the post-harvest loss of potato yield in the woreda.

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2. Materials and Methods

2.1 Site Description

The study was conducted in Gummer woreda which is found in Gurage zone and it is located at southern eastern part of Wolkite town and it is 60 km far from the Wolkite town (capital of Guraghe Zone) and 260 km away from Addis Ababa. The woreda is bounded by Ezha woreda at eastern direction, Cheha woreda at western direction and Silta zone at the southern direction. The woreda has two agro-ecological Zones as Dega and Woindega ranging between 1200-1400 manual rainfall; and average temperature of the woreda ranges from 16-21. Elevation attitude of the woreda is 2925 M.S.L. The population status of the woreda is very bulk means has 18 rural kebeles and 3 minor sub town. So the population premature covers about 44,500 male and 251,980 female from the woreda annual statics obtained total population is 95980.

2.2 Sampling Techniques and Sample Size

In the case study area, there are 18 kebeles and three of them were under the town administration. From this kebeles we have selected three kebeles randomly to conduct the study and the kebeles are Ariket shelko kebele, Denber kebele and Abeka kebele. From these three selected kebeles, about 12 male and 3 females total of fifteen potentially known potato producing farmers as total sample size were selected randomly. From each household primary data was collected through interview using self-administered structured questionnaire. Some supportive secondary data to be used as existing literature reviewed from different governmental and nongovernmental sources, published and unpublished documents and so on.

2.3 Data Analysis

Primary data collected from respondents was reduced into summary form so that it could be possible to analyze it. The findings of paper were organized and presented in the form of words, numbers and percentages by using tables. In other words, the researchers used frequencies and percentages as part of descriptive statistics to come up with sound outcomes.

3. Results and Discussion

The primary data which enabled the researchers analyze factors affecting Post-harvest Loss of Potato and Management in Gummer Woreda was obtained from field work. In the field work, Amharic version of a questionnaire was used to conduct the interview process to 15 potentially well-known respondents. These respondents were selected randomly out of 60 potato producing farmers who were first selected purposively taking in account of their potential to be used as target population. As a result, the collected data was analyzed using descriptive approach and tabulated form.

To assess losses of potato yield after harvesting at the postharvest handling stage, the researchers conducted this research proposing transportation, storage, marketing process and consuming stage as factors affecting postharvest loss of potato and the degree of the problem at each stage and what actions we should take to improve the problem. So, this survey analysis was able to determine the post-harvest loss of potato yield in the woreda.

3.1 Demographic Character of Respondents

Table 1: Socio-demographic Data of Sampled respondents

S.N	Questions Raised	Response	Frequency	Percent
1	Age	18-30	6	40
		31-59	7	46.7
		>59	2	13.3
2	Sex	Male	12	80
		Female	3	20
3	Educational level	Illiterate	5	33.4
		Read and write	7	46.6
		Primary school completed	2	13.3
		Secondary school completed	1	6.67
		Above secondary school	0	0

Source: Own survey, October /2022

A. Age

The age of sampled respondents in Gummer Woreda ranges from 20 to 63 years. The age groups were categorized into three; the first 20-30 years, the second 31-59 years and the third age group was greater than or equal to 60 years. Therefore, out of 15 respondents, 6(40%) of them were aged 20-30 years while 7(46.7%) of them were aged 31-59 years. The remaining 1(6.67%) of the respondents was aged sixty and above. Around 95.1% of the respondents were found to be at the productive age. The age category as a whole was productive and helpful for the effective management of such cooperatives.

B. Sex

This socio-demographic data had also its own significance to show to what extent gender inequality is being minimized through empowerment of women farmers in the Gumer Woreda because it demands the involvements of both sex for the success of its goals. Out of 15 sampled respondents, 12(80%) and 3(20%) of them were male and female respectively. This implies that there had been women participation in this critical area where food insecurity could be alleviated though the number of women is not satisfactory. As the number of Women among the people in Ethiopia has undeniable role playing ratio and which in turn has crucial role in the economy, their participation obviously affects agricultural productivity in general and increasing productivity of crops being used for foodstuff in particular. But, one can see from tis analysis result that the number of men is still greater than women, and this in turn may lead to the conclusion that there still exists the dominance of males over females in the process of improving agricultural productivity in the Woreda.

C. Educational level

Out of sampled 15 respondents, 5(33.33%) of them are illiterate, 7(46.67%) of them could read and write. 2 of the respondents 13.33%) have completed primary school and the remaining 1(6.67%) of them have completed secondary school.

3.2 Analysis of Influence of Factors Affecting Postharvest Loss of Potato

Table 2: Influence of transportation on postharvest loss of potato

No	Number of respondents		transportation affect postharvest loss of potato	transportation does not affect postharvest loss of potato	In percent	
					transportation affect postharvest loss of potato	transportation does not affect postharvest loss of potato
1	Male	12	8	4	67.67%	33.33%
2	Female	3	3	0	100%	0
3	Total	15	11	4	73.33%	26.67%

Source: own survey, October /2022

Analysis of data indicated in the above table-2 that 67.67% of male respondents and 100% of female respondents responded that transportation of potato product affect postharvest loss of potato in the woreda. But the rest of the respondents 26.67% of total respondents on average (33.33% of male respondents and 0% of female respondents) assured that transportation does not affect postharvest loss of potato. As a result, the analysis output showed that transportation system of produced product has great role to affect postharvest loss of potato and finally leads to overall economic capacity of farmers in the woreda.

Table 3: Effect of storage on postharvest loss of potato

No.	Number of respondents		postharvest loss is affected by storage	postharvest loss is not affected by storage	In percent	
					postharvest loss is affected by storage	postharvest loss is not affected by storage
1	Male	12	9	3	75%	25%
2	Female	3	3	0	100%	0%
3	Total	15	12	3	80%	20%

Source: own survey, October /2022

As it was expected earlier, analysis of data in the above table-3 showed that storage area of potato affect postharvest loss of potato. As it is corroborated by the analysis result, 80% of (75% of male respondents and 100% of female respondents) the total respondents on average responded that storage of potato affect postharvest loss of potato. And the remaining 3 or 20% of (25% of male respondents and 0% of female respondents) the sampled respondents responded that storage of potato does not have anything to do with postharvest loss of potato.

Table 4: Effect of farmers' processing marketing on postharvest loss of potato

No.	Number of respondents		postharvest loss is affected	postharvest loss is not affected	In percent	
					postharvest loss is affected	postharvest loss is not affected
1	Male	12	4	8	33.33%	67.67%
2	Female	3	1	2	33.33%	67.67%
	Total	15	5	10	33.33%	67.67%

Source: own survey, October /2022

As it is shown in the above table-4, the role of processing marketing to affect postharvest loss of potato is immaterial. As the analysis showed, 5(33.33%) of the total respondents replied that processing marketing has positive effect on postharvest loss of potato whereas 46(63.89%) of them responded that processing marketing has not effect on postharvest loss of potato which is in contrast to our expectation in the previous section of this chapter.

Table 5: Influence of consumption stage on postharvest loss of potato

No.	Number of respondents		postharvest loss is affected by consumption stage	Percentage	postharvest loss is not affected by consumption stage	Percentage
1	Male	12	7	58.33%	5	41.67%
2	Female	3	2	67.67%	1	33.33%
	Total	15	9	60%	6	40%

Source: own survey, October /2022

As it was expected and corroborated from table-5 above, consumption stage of potato producing farmers is directly related to postharvest loss of potato. In other words, as farmers consume more, postharvest loss of potato also become more and more. According to the analysis in the table, 9(60%) of the respondents responded that consumption stage has strong impact on postharvest loss of potato whereas the remaining 6(40%) of them assured that consumption stage could not affect postharvest loss of potato.

4. Summary

Analysis of data in this research paper indicated that 67.67% of male respondents and 100% of female respondents responded that transportation of potato product affect postharvest loss of potato in Gumer woreda. But the rest of the respondents (26.67%) of total respondents on average (33.33% of male respondents and 0% of female respondents) assured that transportation does not affect postharvest loss of potato. As a result, the analysis output showed that transportation system of produced product has great role to affect postharvest loss of potato.

As it was expected earlier, analysis of data showed that storage area of potato affect postharvest loss of potato. As it is corroborated by the analysis result, 80% of (75% of male respondents and 100% of female respondents) the total respondents on average responded that storage of potato affect postharvest loss of potato. And the remaining 3 or 20% of (25% of male respondents and 0% of female respondents) the sampled respondents responded that storage of potato does not have anything to do with postharvest loss of potato.

Furthermore, the role of marketing process to affect postharvest loss of potato is immaterial. As the analysis showed, 5(33.33%) of the total respondents replied that processing marketing has positive effect on postharvest loss of potato whereas 46 (63.89%) of them responded that processing marketing has not effect on postharvest loss of potato which is in contrast to our expectation in the previous section of this chapter.

Additionally, analysis result revealed that consumption stage of potato producing farmers is directly related to postharvest loss of potato. In other words, as farmers consume more, postharvest loss of potato also become more and more. According to the analysis in the table, 9(60%) of the respondents responded that consumption stage has strong impact on postharvest loss of potato whereas the remaining 6(40%) of them assured that consumption stage could not affect postharvest loss of potato. All concerned bodies should work hard so that it could be possible to increase productivity of Agricultural sector in general and decrease post-harvest loss of potato production in particular in the woreda. Since training is a known tool to enable workers in any organization or in any sector, provision of post-harvest loss related training to potato producing farmers in general and to these potentially known farmers in particular should also take a prior attention from concerned bodies. Even fertile ground should be created to tackle the problem related with post-harvest loss of potato not only in Gumer woreda but also in Ethiopia in General and in Guraghe zone in particular.

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