The Social Sciences 11 (11): 2809-2816, 2016
ISSN: 1818-5800

Potential of Malaysian Growers in Vegetable Farming

Noraniza Yusoff
School of Government, UUM College of Law, 06010 UUM Sintok, Kedah Darul Aman, Malaysia

Abstract: Agriculture continues as the basis in Asian states. Contract farming increases critical consideration regarding food output in Asian states with regard to distribution of wealth, opportunities and privileges within a society, environment ability to last over time and incorporated control. The contract farmers are experiencing difficulty due to inadequacy of dealing ability for their farm harvests, paying defers, approach to great quality seeds and fertilizers, obtainable power and water, logistics, a means of conveyance and post-harvest processing basic facilities as well as facts on fertilizers and pesticides usage and related hazards. Studies on vegetable farming concern on season and collective cropping arrangement to enhance effectiveness use lesser inputs and support natural sources. These characteristics could rectify output and marketing exercises to cultivate healthy foods and increase profitableness. The purpose of this study is to examine the potential of Malaysian growers in vegetable farming by analyzing the yield and profit in vegetables cultivation. Research methodology of this study used quantitative approach to collect and analyze data. Data analysis of the study used linear regression to analyze vegetable yield and profit. The result shows that R value represents the simple correlation between vegetable harvest and gain. The regression model statistically significantly predicts the gain in vegetable farming. In conclusion, the return in vegetable farming is associated with harvest of the cultivation.

Key words: Business, farming, grower, malaysia, vegetables

INTRODUCTION

In regards to the growing need for farm-fresh cultivates and recent option strength harvests, vegetables also give a significant function in developing the earning of small growers particularly. There is a possibility for rising productivity of cultivation of plants harvest by native growers and the chance for occupation and family earning produced by vegetable output. Vegetable output is labor-intensive in specific states in the world and can produce three to 10 times the occupation and earning per hectare of land compared to that of cereals such as maize. Vegetables also produce a number of occupation opportunities in compatible business that emerges, for example marketing, processing and transportation. This scenario provides a chance to incorporate ever-increasing jobless manpower.

Vegetable study is restricted by insufficient financial sources. Government capitals and sponsor donations are decreasing. In Malawi, the insufficiency of great quality seeds additionally restricts vegetable productivity. There is no continuing study on vegetable irrigation exercises. In Malaysia, the vegetable industry recorded less than five percent of Malaysia's entire exports of food product whereas the portion of vegetable imports in the entire imports of food product was 9.30% for 2005. A diversity of opposition encounters this difficulty which includes different industries in both national and global markets, ranging from labor attainable problems to global competitiveness. The significance of equal and healthy food usually concerns on the food function of vegetables. A continuing attention on the advantages of consuming fresh foods may contribute chances to the industry. Malaysia is consuming more vegetables that they did 20 years ago but common consumption at 38.52 kg is less than the suggested degree and less than those in other Asian and Pacific states. The per capita consumption indicated a fresh-weight principle, the top five vegetables are choy sum, round cabbage, cucumber, long bean and red chili.

In 2005, self-sufficiency or self-reliance for vegetables was positioned at 74% decline from 95% in 2000. Other main policy problems regarding the vegetable industry center on passage to land, labor attainable, rising input expense, the environment and approach to sustain productivity and plans in order to arrive at self-sufficiency in vegetable productivity by the year 2010. The vegetable industry is greatest explained as an industry with various groups of crops. Most vegetables are once-a-year harvest such as tomatoes and potatoes while others are occurring every 2 years such as asparagus. Several crops are cultivated for direct consuming like fresh-market tomatoes while several are cultivated for processing into goods like tomato sauce. Many vegetables demand much the same

managing and share a usual marketing arrangement. On large scale markets, for instance, nearly all kind of vegetables are managed. Fresh product has very limited shelf life and needs a fast turnaround time among farms and markets and ideally refreshing throughout storage and transportation. The decomposability of fresh products also determines particular management to reduce marketing losses.

Vegetable produce is harvested on small plots and the harvest area under vegetable is only 1% of the sum of agricultural land usage. The size in ha below vegetable farming reduced from 40,000-38, 000 ha across the period from 2000-2005. About 16,546 vegetable growers were studied, encompassing a sum area of 16,745 ha while the common farm size was 1.01 ha and aggregate spreading statistics shows a crucial condition. The >80% of total vegetable growers have under 0.5 ha and below four percent of total vegetable growers have farm size of greater than 1.0 ha. Regarding a common farm size of merely one ha, the vegetable industry in Malaysia can best be explained as small and divided. The ability to accomplish an acceptable farm earning on such restricted source is seriously restrained. There were >13,327 farms which were developed for a particular purpose in the productivity of vegetables in the year 2004. From the domestic agriculture study in the year 1990, the amount of farms producing vegetables has since dropped near to 20%. Vegetable productivity has principally increased throughout the final 5 years from 512,000-682,000 tons throughout the term of the year 2000 to the year 2005. Meanwhile, the sum of vegetable products has been improving above the terms of the year 2000 to the year 2005 produced acreage drop of 5%. Vegetables are harvested across Malaysia with the considerable acreage in Johor, Pahang, Kelantan and Perak located in Peninsular Malaysia. Sarawak in East Malaysia also reported considerable vegetable size in hectare.

Literature review: Center for Integrated Agricultural Systems (CIAS) operated with a group of 19 farmers on an engagement. A farmer-led case study shows that costs, notably labor expenses can be immediately incorporated into gross selling on a vegetable farm of whichever size. Net earnings issue most regarding financial ability to last over time or to sustain. The season net cash earning is utilized in this report to explain a farm's gross selling minus total present year cash expenditures. Factors such as recommends machinery usage and land expenses, lower in price and cost in terms of foregoing alternatives were not taken into account. The 3 years usual net cash earnings for the farms in this survey ranged from <$2,000 to >$8,000 per acre. Market yard is knowledgeable more year-to-year variant in net cash earning per acre than the two substantial farm kinds. It is much difficult to study the expectations for making money rising and marketing fresh products. Traditional instruments, for instance stabilize sheets, earning report and cash flow investigations are crucial to understand the economics of any farm business. Many farmers are searching for methods to gather financial facts and comfortably share it with other growers (Hendrickson, 2005).

Well-organized Organic Vegetable Production System (OVPS) can contribute food safety and healthy foods for individuals while being less damaging to the environment and more effective in natural source usage. Nevertheless, most OVPS studies conducted in advanced states generally are subject to moderate or semitropical climatic situations. Institutionalized study in natural farming in nearly all tropical states occurs to be comparatively current and it is not an important concern for the International Agricultural Research Centers. Tropical growers in Asia cultivating vegetables naturally, whether by plan or default, must overcome important questions. Natural farmers in moderate weathers rarely encounter an inadequacy of appropriate variations, considerable rainfall and the year-round existence of insects. In relation with the online writings study, tomato is the vegetable most usually studied in organic farming followed by lettuce, carrot and cucumber. The results show that there are not much study on crops significant to tropical Asia, for instance eggplant, chili pepper, dissimilar cucurbits for instance gourds and by a particular locality significant native vegetables. To enhance and encourage OVPS in tropical states, institutional study is required to recognize and expand vegetable variation, alternative crop security and management approaches greater suited to the tropics.

While fresh market vegetable farmers demand different instruments in order to assess the sustainability of their actions, being involved in this program is greatly useful to compare their financial fact to farms of much the same and dissimilar ranking. There is no perfect size for a fresh market vegetable farm; farmers require utilizing their management expertise and economic analysis instruments to outline the ranking and stage of mechanization that makes a great majority of perception for them. The fact included in this case study can assist the regulation of farmers as they establish ends for their farms and arrange their actions to be aware of those ends (Hendrickson, 2005). Weed command and crop harvest were much the same between executes in transplanted broccoli, generally as limited duration of crop period. In snap bean, weed

command was largest where initial-period flexible-term extremely painful was followed by either shovel farming or brush hoeing. When utilized separately, weed command was significant with the brush hoe, spider cultivator or shovel cultivator. In Malaysia, constant earning development has seen diversification in the arrangement of Malaysian foods. The diversification can be represented by more consumption of wheat, meats, fish, vegetables and fruits whereas per capita consumption of conventional staple-rice has been demonstrated to move from higher to a lower place direction more than the years. The dissimilar characteristic in the development of per capita consuming among vegetables and meats is probably further described by the low assessment of expenses flexibility of need for vegetables (Tey *et al*., 2009).

The shift in the expenses flexibility possibly represents a shift in the pattern of need for vegetables seeing as there was not much improvement in per capita consumption of vegetables across the years. In simple terms, the pattern can be shown as a change from quantity to quality particularly when stronger quality vegetables grow more reasonably in accordance with increased earning. Malaysia's agro-food industry is more market-led with users being the basic driving force in deciding preferable vegetables to be provided in the market. Standard stronger quality vegetables in Malaysia are found from natural vegetables, fine agricultural practiced vegetables and manufactured vegetables. The ability of natural vegetables sector is predicted to value RM800 million in 2010 subject to the 9th Malaysian Plan. The power of market direction that demands stronger quality vegetables is also more important in national agro-food market. The favorable assessment quality flexibility omits source and tuberous vegetable, which indicates that Malaysian users are inclined to enhance their need for quality vegetables in response to their earning increase. To be more precise, urban users are forecasted to need more of stronger quality vegetables omits source and tuberous vegetable than rural users do. Enhancing user need for quality vegetables would require the growth of food markets in terms of market section and quality enhancement. For instance,vegetables in the division of natural fresh products market are usually understood to be of stronger quality. One of the most significant features of quality is food security. The power of need for quality can be studied from the results. It can be forecasted that the shift in the pattern of need will expedite a greater patterned food, agricultural and trade plan both nationally and globally (Tey *et al*., 2009).

From the year 2008-2012, fresh vegetables, most recently Malaysia's eight-biggest crop, recorded a powerful development in the amount of productivity with 17.9%. Malaysia is a net exporter of agro-food and seafood productions. In the year 2012, Malaysia's agro-food and seafood trade extra was US$11.7 billion with import price at US$17.5 and US$29.2 billion in exports. Malaysia's agro-food and seafood imports have been advancing at a Compound Annual Growth Rate (CAGR) of 14.5% during the year 2007. Canada's highest imports from Malaysia were palm oil, cocoa, margarine and vegetable oil. In Selangor, economic changes and development had affected developed inhabitant and shift in liking of the society of Selangor, Malaysia. Proof manifests that the society have calibrated from the consumption of vastly formal food to the consumption of more proteinaceous food, fruits and vegetables. This shift in liking will previously generate consequences on the sizes of agricultural land usage for productivity of dissimilar agricultural crops. A situation of catalyst of Agricultural Land Use for Vegetables Production (ALUVP) is evaluated in the research. ALUVP was compared with the ability impulsive variables at three dissimilar scales utilizing Spatial Analyst 3.2 in an arcGIS 9.2 environments. Results indicated that vegetables are discovered planted in diverse cropping arrangements with coconut, orchard, paddy, rubber, idle grass while there were studied struggle among vegetables productivity and oil palm, swamp/forest for land usage. Factors such as maximal temperature, common temperature, slope, inhabitant denseness and soil sets have reverse associations with ALUVP whereas extent to lake, main river, small roads, road denseness, amount of rainfall per day, percentage urban populations have direct association with ALUVP. Catalyst of ALUVP varies at dissimilar degrees of estimation than at higher degree. Regarding the contention for land usage inside and among agricultural area and other more valuable non-agricultural areas, it is questionable that the government program initiative of acquiring self-sufficiency in vegetables productivity by the year 2010 will be fulfilled.

MATERIALS AND METHODS

The data used in this study are from the Taman Kekal Pengeluaran Makanan (TKPM) research in 2015 using quantitative approach. The number of sample was 53 growers in Malaysia (Yusoff, 2015). This study proposes that harvest of vegetable in the farming activity decreases

the likelihood of reporting gain. The question is why do some growers report less gain than other growers? Harvest of vegetable affects the amount of gain achieved by growers. The independent variable is harvest of vegetable and the dependent variable is gain of growers. This study analyzes the reporting of gain from year 2009-2013 of nonprobability sample of growers by questionnaire survey. Intra-class correlation was used to assess the reliability of the instrument involving 2 raters. The intra-class correlation is an estimate of the level to which raters give much the same scales to each person or object rated. The word "intra-class correlation" was initially invented to refer to an estimate of similarity between objects inside several groups or class. In agreement or reliability estimate, the "class" is the individual or object on which numerous scales are made, and it is the similarity of these scales "inside" every individual or object that is demonstrated by the coefficient. Some variants of the coefficient exist; however, the one most with the biggest tendency to be utilized to estimate inter-rater agreement is the version that considers dissimilar degree raters selected for every ratee and dissimilarity in the arrangement of raters and does not demand that each ratee be rated by each rater. Intra-class correlation analyzes two kinds of forecasted agreement, which are the agreement among one rater and another single rater (classified as "single measure" in the output) and the agreement among the common raters' scales and the common scales by another, much the same group of raters (classified as "average measures" in the output). The single estimate intra-class correlation represents the agreement between raters and therefore how fit an assessment scale established on the scales of one rater probably concurs with scales by another rater. The average measures coefficient analysis agreement among commons of scales and is relevant only if assessments average the scales of two or more raters.

About 47 farmers have been rated in intra-class correlation analysis to assess the validity. In intra-class correlation, when the assessor variant is disregarded, the correlation index can be explained regarding rater consistency instead of rater agreement (Shrout and Fleiss, 1979). The value for the intra-class correlation coefficients consistency of harvest is 0.140 and 0.977. The value for the intra-class correlation coefficients agreement of harvest is 0.106 and 0.968. The value for the intra-class correlation coefficients consistency of gain is 0.815 and 0.997. The value for the intra-class correlation coefficients agreement of gain is 0.800 and 0.996. Single measure is the assessment of reliability for a single, typical assessor. Average measure assesses reliability if more than one assessor is utilized to contribute scales. Intra-class correlation coefficient (2.1) of harvest of vegetable equals to 0.106. This means that intra-class correlation coefficient (2k) which in this case is intra-class correlation coefficient (2.4) equals to 0.968. Therefore, 96.8% of the variance in the mean of these raters is "real". The objective of this paper is to determine the association between harvest of vegetable and farmers' gain. This objective tries to explain and predict the association between the dependent and independent variable. Linear regression analysis was used to fulfill the objective where it focuses on explaining or predicting one of the variables on the basis of information on the other variable. Null hypothesis is no significant association between harvest of vegetable and farmers' gain. Figure 1 shows the relationship between the independent and dependent variable.

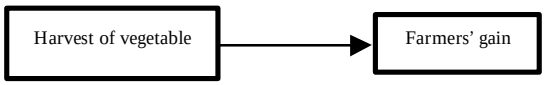

Fig. 1: Relationship between independent variable (harvest of vegetable) and dependent variable (farmers' gain)

RESULTS AND DISCUSSION

The harvest of vegetable and farmers' gain: Table 1 shows that R value represents the simple correlation between harvest of vegetable and farmers' gain from 2009-2013. The R^2 value shows that harvest of vegetable can account for 51% (2009), 45.3% (2010), 48.6% (2011), 76.2% (2012) and 46.8% (2013) of variant in farmers' gain. To describe why some growers reported gain more than others, it is shown by the variant in gain of different farmers. This model included harvest of vegetable which describes 51% (2009), 45.3% (2010), 48.6% (2011), 76.2% (2012) and 46.8% (2013) as a factor. This means that 54% (2009), 55% (2010), 52% (2011), 24% (2012) and 54% (2013) of the variation in farmers' gain cannot be described by harvest of vegetable. Thus, there must be other variables that also have an effect (Field, 2000). The following contains the figure of scatter diagram which shows the relationship in harvest of vegetable and farmers' gain from the year 2009-2013 (Fig. 2-6).

This is in contrast to Sanchez-Garcia *et al.* (2013), who showed that an accumulation of 26 wheat genetic constitutions largely cultivated in Spain throughout the 20th century was assessed in eight opposition settings in order to quantify reproduction fulfilment in crop and correlated traits. From 1930-2000, crop rose at a proportion of 35.1 kg ha^{-1} per year or 0.88% annually but assessments of Relative Genetic Gain (RGG) were

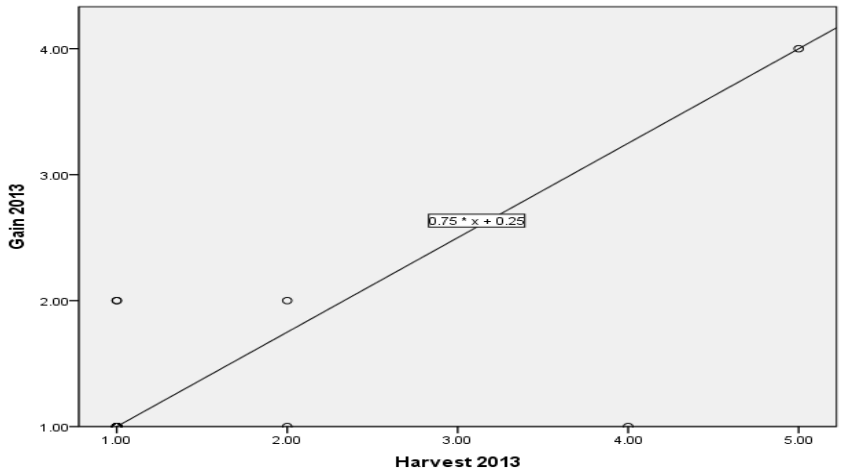

Fig. 2: Scatter diagram which shows the relationship in harvest of vegetable and farmers' gain in the year 2013

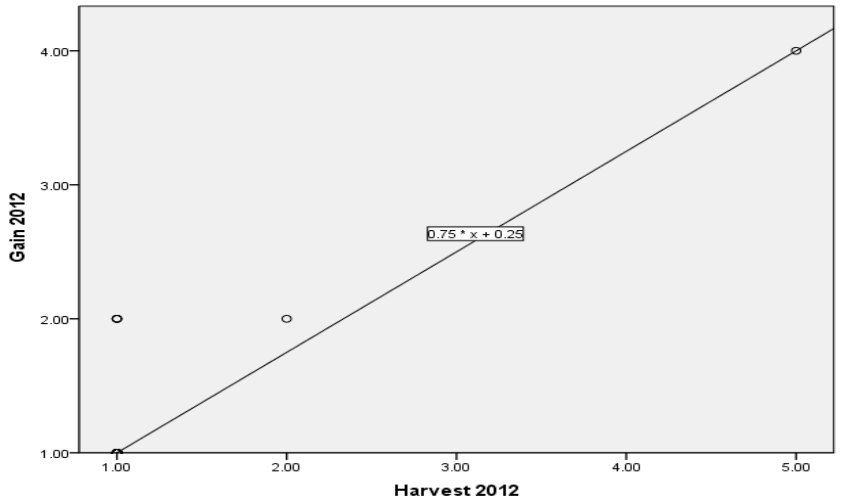

Fig. 3: Scatter diagram which shows the relationship in harvest of vegetable and farmers' gain in the year 2012

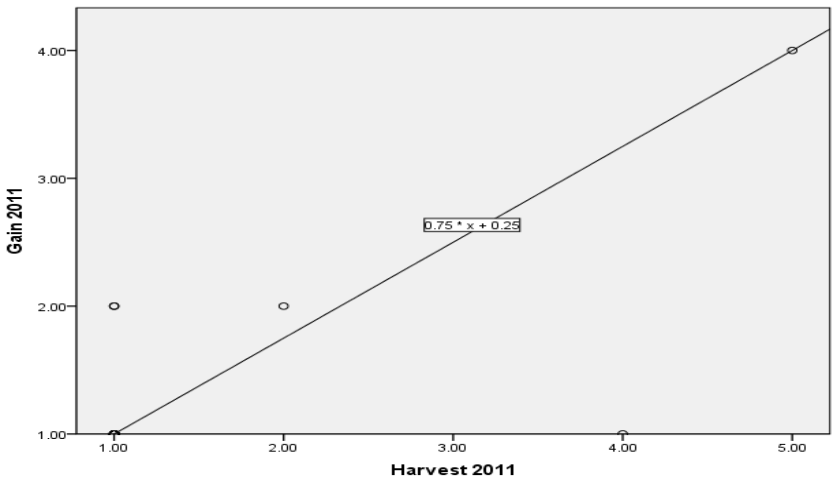

Fig. 4: Scatter diagram which shows the relationship in harvest of vegetable and farmers' gain in the year 2011

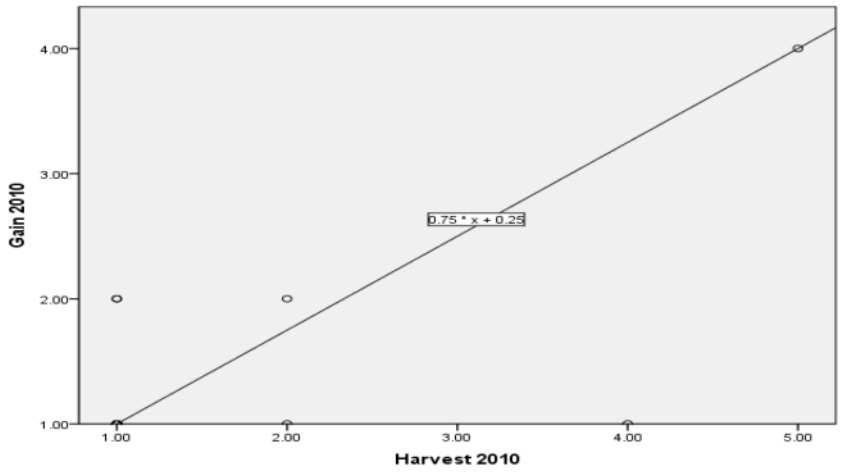

Fig. 5: Scatter diagram which shows the relationship in harvest of vegetable and farmers' gain in the year 2010

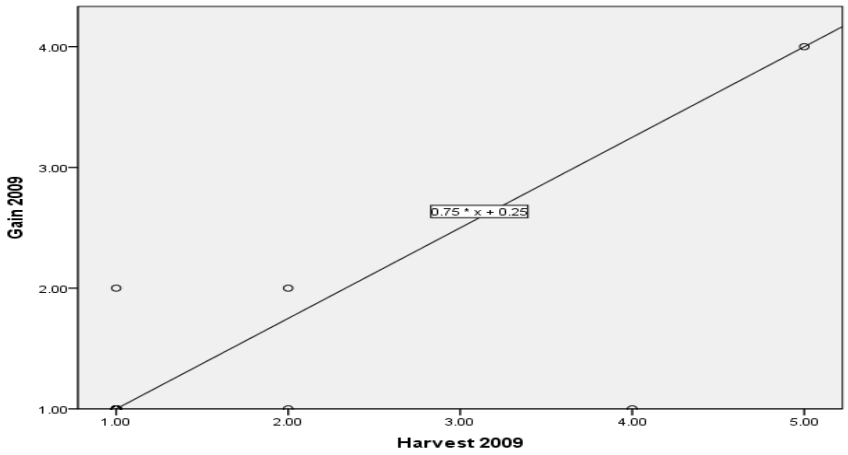

Fig. 6: Scatter diagram which shows the relationship in harvest of vegetable and farmers' gain in the year 2009

Table 1: Model summary of linear regression for harvest and gain in 2009-2013

Years	R	R^2	Adjusted R^2	Standard error of the estimate
2009	0.714	0.510	0.479	0.54263
2010	0.673	0.453	0.423	0.55664
2011	0.697	0.486	0.459	0.52737
2012	0.873	0.762	0.749	0.36578
2013	0.684	0.468	0.445	0.49407

environment-dependent. RGG assessed for crop were in a positive manner correlated with the average lowest everyday temperatures from disseminating to leading in the investigating settings ($R^2 = 0.81$; $p < 0.01$). The amount of grains/spike and the amount of spikes/m2 rise at a scale of 0.60% annually and 0.30% annually, severally, whereas grain weight remained static. The current research discovered two major periods of crop enhancement throughout the century. The first one occurred simultaneously with the initiation, throughout the 1950s of the first enhanced cultivars gathered from intra-particular intertwines which raised the crop of landraces by 30% due to an enhancement of c. 58% in the number of grains/sharp point, followed by a 16% decrease in grain weight. The early cultivars demonstrated a Higher Harvest Index (HDI) which rose from 0.25-0.40, however sustained the identical surface biomass at maturation like the landraces (in spite of decreasing both crop height and the amount of tillers/crop) due to enhancement in the division of tillers cultivations sharp points. The second crop earning took place after the initiation in the early 1970s of partially-small germplasm from International Maize and Wheat Improvement Centre and some French cultivars. This recent germplasm further decreased crop plant Height Improved (HI) equal to 0.45 and raised the amount of tillers/crop while sustaining their scale of

Table 2: ANOVA of linear regression for harvest and gain in 2009-2013

Years	Sum of squares	df	Mean square	F-values	Sig.
2009					
Regression	4.9000	1	4.900	16.642	0.001
Residual	4.7110	16	0.294		
Total	9.6110	17			
2010					
Regression	4.6230	1	4.623	14.919	0.001
Residual	5.5770	18	0.310		
Total	10.2000	19			
2011					
Regression	5.0010	1	5.001	17.983	0.000
Residual	5.2840	19	0.278		
Total	10.2860	20			
2012					
Regression	8.1124	1	8.124	60.722	0.000
Residual	2.5420	19	0.134		
Total	10.6670	20			
2013					
Regression	4.9460	1	4.946	20.260	0.000
Residual	5.6140	23	0.244		
Total	10.5600	24			

Table 3: Coefficients of linear regression for harvest and gain in 2009-2013

	Unstandardized coefficients		Standardized coefficients		
Years	β	SE	Beta	t-values	Sig.
2009					
Constant	0.578	0.214		2.700	0.160
Harvest of vegetable	0.467	0.114	0.714	4.079	0.001
2010					
Constant	0.649	0.209		3.099	0.006
Harvest of vegetable	0.449	0.116	0.673	3.862	0.001
2011					
Constant	0.641	0.191		3.362	0.003
Harvest of vegetable	0.467	0.110	0.697	4.241	0.000
2012					
Constant	0.446	0.139		3.205	0.005
Harvest of vegetable	0.717	0.092	0.873	7.792	0.000
2013					
Constant	0.620	0.170		3.653	0.001
Harvest of vegetable	0.456	0.101	0.684	4.501	0.000

fertility, therefore affecting in a crop earn of c. 37%. The cultivars delivered throughout the final decade of the century did not provide important crop enhancements.

Table 2 shows that F is 16.642 (2009), 14.919 (2010), 17.983 (2011), 60.722 (2012) and 20.260 (2013) is significant at $p<0.001$ because the value for significance is less than 0.001. The result shows that there is less than a 0.1% opportunity that an F-ratio this large would occur by opportunity alone. Therefore, it can be concluded that linear regression model results in significantly better prediction of farmers' gain than if the mean values of farmers' gain are utilized. In short, the regression model generally predicts farmers' gain significantly favorably (Field, 2000). This is in contrast to the result by Mohammadi (2014), who shows important dissimilarity for genetic constitutions, setting and Genotype x Environment (GE) interaction. Grouping of genetic constitutions based on method 1 (intercept and slope of linear regression model) showed three different classes whereas utilizing line slopes (method 2) represented two genetic constitution groups. The determination coefficients of regression model were strong and utilizing these grouping methods was meaningful in this dataset. Regarding the dendogram of genetic constitutions major consequences plus GE interaction (method 3) and dendogram of GE interaction (method 4), there were nine and eight genetic constitutions clusters, respectively. Finally, genetic constitutions G1 (3805 kg ha^{-1}), G2 (3690 kg ha^{-1}) and G6 (3591 kg ha^{-1}) were discovered to be the most agreeing genetic constitutions and could be advocated as fine recent cultivars for domestic deliver. Such a result could be frequently exercised in the future to investigate barley genetic constitutions and other yields established on regression or estimate of variant models in other regions of the world.

Table 3 shows β_0 was the Y intercept and this value is the value β for the constant. β_0 are 0.578 (2009), 0.649 (2010), 0.641 (2011), 0.446 (2012) and 0.620 (2013) and this can be interpreted as meaning that when no gain in harvest of vegetable (when X = 0), the model predicts 578 (2009), 649 (2010), 641 (2011), 446 (2012) and 620 (2013) gain can be achieved. β1 represents the gradient of the regression line which 0.467 (2009), 0.449 (2010), 0.467 (2011), 0.717 (2012) and 0.456 (2013). This value is the slope of the regression line and indicates the shift in the result correlated with a unit shift in the predictor. Therefore, if the predictor variable (harvest of vegetable) is raised by 1 unit, the model predicts 467 (2009), 449 (2010), 467 (2011), 717 (2012) and 456 (2013) extra gain. For an increase in 1000 kg, the model predicts 0.467 (0.467×1000 = 467) (2009), 0.449 (2010), 0.467 (2011), 0.717 (2012) and 0.456 (2013) extra gain. Regression equations are y = 0.578+0.467 (2009), y = 0.649+0.449 (2010), y = 0.641+0.467 (2011), y = 0.456+0.717 (2012) and y = 0.620+0.456 (2013). This is different from Miraj and Ali (2014), who showed that output can be upgraded by utilizing available sources effectiveness with the present technology. The analysis gamma value was 0.80 indicated that 80% variant in the productivity of garlic was due to incapable factors. Findings further showed that seed scale, labor, tractor, farm yard manure utilized in kilogram per ha (FYM) and irrigation have favorable and statistically important consequence on the productivity of garlic. The knowledge of garlic farmers performs a significant function in garlic productivity so ordering of training programs for growers is a plan selection for

improvements of garlic production. Interests of growers to utilize advocate quantity of seed for stronger production of garlic is another suggestion.

CONCLUSION

This study concludes that the regression model overall predicts growers' gain significantly well. The linear regression model results indicated significantly better expectation of growers' gain. However, about 24-55% of the variant in growers' gain cannot be described by harvest of vegetable. Therefore, there must be other variables that have effects as well. The regression line and demonstrating the shift in the result correlated with a unit change in the predictor. The strategy to increase harvest of vegetable is via increasing water use efficiency in vegetable crop production as suggested by Pascale *et al.* (2011). Irrigations arrangement is the method to execute water usage effectiveness strategy because irrigation is a vital element of the agricultural field. It is practiced worldwide on approximately, 270 million ha and it consents to generate 40% of total food. Agricultural water consumption recorded 70% of total freshwater usage. It is becoming a crucial significance to maximize agricultural Water Use Efficiency (WUE) interpreted as the rate of crop harvest across the utilized water. This is needed for optimizing production per unit of water consuming. To optimize WUE, it is essential to preserve water and to encourage optimal yield development.

ACKNOWLEDGEMENT

The research is funded by research Acculturation Grant Scheme (RAGS).

REFERENCES

Field, A., 2000. Discovering Statistics Using SPSS for Windows: Advanced Techniques for Beginners. 1st Edn., SAGE Publications, New Delhi, India, ISBN-13: 978-0761957553, Pages: 512.

Hendrickson, J.A., 2005. Grower to Grower: Creating a Livelihood on a Fresh Market Vegetable Farm. University of Wisconsin-Madison, Madison, Wisconsin, Pages: 51.

Miraj, N. and S. Ali, 2014. Estimation of technical efficiency of garlic farms in district Peshawar, Pakistan: A stochastic frontier analysis. Int. J. Innov. Sci. Res., 9: 140-149.

Mohammadi, M., 2014. Grouping barley genotypes by regression-based and ANOVA-based clustering methods in multienvironments trials. Curr. Opin. Agric., 3: 30-35.

Pascale, D.S., C.L. Dalla, S. Vallone, G. Barbieri and A. Maggio, 2011. Increasing water use efficiency in vegetable crop production: From plant to irrigation systems efficiency. HortTechnol., 21: 301-308.

Sanchez-Garcia, M., C. Royo, N. Aparicio, J.A. Martin-Sanchez and F. Alvaro, 2013. Genetic improvement of bread wheat yield and associated traits in Spain during the 20th century. J. Agric. Sci., 151: 105-118.

Shrout, P.E. and J.L. Fleiss, 1979. Intraclass correlations: Uses in assessing rater reliability. Psychol. Bull., 86: 420-428.

Tey, Y.S., M.N. Shamsudin, Z.A. Mohamed, J. Selamat and A.G. Ramin, 2009. Demand for quality vegetables in Malaysia. Int. Food Res. J., 16: 313-327.

Yusoff, N., 2015. The implementation of food production permanent park and farmers income. Am. Int. J. Res. Humanities Arts Social Sci., 3: 195-200.