AJVAH
e-ISSN: 2735-1165
DOI: https://doi.org/10.53797/ajvah.v2i2.5.2021

Farmers' Intention in Applying Food Waste as Fertilizer: Reliability and Validity Using Smart-PLS

Yaacob, Nurul Aida[1], Ab-Latif, Zahidah[2*], Abdul Mutalib, Asilah[3], & Ismail, Zalina[3]

[1]Institute of Graduate Studies, Sultan Idris Education University, Tanjong Malim, Perak, 35900, MALAYSIA

[2*]Department of Family and Consumer Science, Sultan Idris Education University, Tanjong Malim, Perak, 35900, MALAYSIA

[3]Department of Agricultural Science, Sultan Idris Education University, Tanjong Malim, Perak, 35900, MALAYSIA

*Corresponding author email: zahidah@ftv.upsi.edu.my

Available online 03 December 2021

Abstract: The overflow of food waste as well as other type of waste causes limited place to manage waste. Thus, waste management especially solid food waste can be reuse for crops as compost fertilizer. The objective of this study is to determine which are the major factor that affect farmers' intention to apply food waste in their crops. A combination of Knowledge-Attitude-Practice Model and Theory of Planned Behavior were applied to develop a framework. From these, five adapted constructs were identified namely knowledge, attitude, subjective norm, perceive behavior control and intentions. Results indicated that the initial model proposed in the study was partially supported where farmers' intention was supported by attitude (b= .239, ρ< .05), subjective norm (b= .251, ρ= .05), and perceived behavioral control (b= .519, ρ< .00). However, there were no significant interaction effects of knowledge on attitude (b= .192, ρ= .33) and intention (b= .192, ρ= .33). This study expands the literature on food waste by focusing on farmers' intention from the perspectives of knowledge, attitude, subjective norm, and perceived behavioral control. Overall, this study verified the importance of applying food waste fertilizer since it consists of high moisture with several beneficial nutrients.

Keywords: Food waste, farming, fertilizer, Smart-PLS and Vocational education

1. Introduction

Worldwide, estimated around 1.3 billion tons of the total food production and land that also use to production food is 0.9 million hectares was wasted every year (Magalhaes et al., 2020; Ramirez et al., 2020; Fiore et al., 2017). Almost 17.000 tons of food waste was end up on landfill that could feed twelve million people with thrice a day (Raseetha, 2020; Oswald, 2018). The amount of methane that release was estimated to be 370, 000 tons and the inexpensive option for country especially Malaysia is become a solution to discharge of all types of waste (Mohd-Saleh et al., 2020).

This number gives a big impact to our nation because it creates a lot of environmental problem such as emission greenhouses gas, destruction of jungles and pollution (Innocent et al., 2017). The amount of food waste is increasing amount during festival day. These wastes originated from commercial, industrial and household (Daud et al., 2020). This has become a serious issue to the country that is not only just wasting edible food but also influence the economy growth (Daud et al., 2020; Fazini & Asmida, 2018). The amount of waste generation implies serious issue not only the environment but also human health. Tons of food waste are produces daily in highly populated area. Kitchen waste is usually left-over organic matter from restaurant, hotels and household (Sani et al., 2020). This portion of food waste will produce continuously increase. According to Lim et al. (2016) described food waste as food that wasted, lost or uneaten during agriculture process, industrial process and domestic activities.

*Corresponding author: *zahidah@ftv.upsi.edu.my*

2. Literature Review

2.1 Food Waste

Food waste an unwanted food that ends up in landfills to be decomposed. Some of the food can be unsold food due to past expiry dates that were removed by retailers or unfinished food. Furthermore, Lee (2019), said that decomposing food in landfill is not only smelly but can cause environmental problem and waste of money in producing process. A landfill is an end process of uneaten food was located. Food is wasted at all stages of the value chain from the farm to our plates (Daud et al., 2020; Allian, 2016).

Schanes et al. (2018) stated that food waste occurs when any edible item goes unconsumed as a result of human activity due to unfavorable factor during production, transportation or disposal of used inefficiently. Jessica et al. (2015) defined that food waste as any part of food and inedible food that was removed because of not achieving the standard of the supply chain. Ramirez et al. (2020) mentions that food waste can be separated into five sources which are agriculture production, postharvest handling, storage, processing, distribution and consumption. Then, it will be recovered or disposed into something valuable like compost, crop ploughed, anaerobic digestion or landfill for invaluable waste.

2.2 Composition of Food Waste

One of the factors that should think before deciding to manage food waste is environmental issues. This issue might include Greenhouse gases emission; water use and pollution of water, air and soil systems (Moult et al., 2018; Aitsidou et al., 2019). Approximately 3.3 billion tons of carbon dioxide is equal to greenhouse gases that release into the atmosphere every year and the third-largest country produce food wastage's carbon is China and the United States of America (Suhaimi et al., 2019; Moult et al., 2018). Over 90% of food waste is easy to recycle and biodegradable that consists of organic content (Lim et al., 2018; 2016). Food waste consists of high moisture, several beneficial nutrients and energy value (Kuchel et al., 2019). According to Kuchel et al. (2019), state that compost from household waste contains chlorides, sodium, potassium and phosphorus which are easy to digest into the simplest form. Household wet biodegradable waste also one type of municipal solid waste that can reduce the cost of transportation but also avoid dangerous pollutions (Manu et al., 2019). This kind of waste can produce good quality compost. It is because, phytotoxicity test was measured that plant growth does not affect about 20% when compost from household wet biodegradable waste was mixed with soil (Manu et al., 2019).

2.3 Farmers

Small scale farmer in Malaysia can be divided into scheme or organized small scale farmer and independent small scale farmer. There are 24% of the total planted area is covered by organized small scale farmer. While 14% belong to independent small scale farmers (Majang et al., 2015). Both of small scale farmers have their own characteristic. This character can lead the quality and quantity of production yield. Small scale farmer management has been considered as causes of low agriculture productivity. Comparing with large scale farmer, the income of small scale farmer is stable than large scale farmer. This is because, the small scale farmer needs fewer modern technology and less labor.

3. Model Hypothesis

The theory or model is a combination with Theory of Planned Behavior (TPB) by Ajzen (1991) and Knowledge Attitude Practice (KAP) (Kaliyaperumal, 2004). TPB is commonly used to help the understanding people intention and decision making. This theory suggested that the behavior from one plan action that controlled by attitude, perceive behavior control and subjective norm (Pitchay et al., 2019). The Theory of Planned Behavior was determined the stronger and more favorable towards individual behavior or intention of individual in making a decision. This study is exploring knowledge farmer to measure the understanding in using food waste as fertilizer to apply for their own crops. Attitude is referred to farmers' belief in applying food waste as fertilizer. Perceives behavior is refer as outcomes the farmer action after they know about food waste fertilizer lastly subjective norm refer to the individual perceptions that include friends, families, community and government support. All of that, the hypothesis is proposed as below.

H1: Knowledge will positively affect towards farmers' intention in applying food waste as fertilizer.
H2: Attitude will positively affect farmers' intention to apply food waste as fertilizer.
H3: Attitude mediates the relationship between knowledge and farmers' intention in applying food waste as fertilizer.
H4: Subjective norm will positively affect the farmer intention to apply food waste as fertilizer.
H5: Perceive behavior control will positively affect the farmers' intention to apply food waste as fertilizer.

4. Methodology

4.1 Survey Instrument

The study was conducted at Perak in Malaysia. The sampling frame was included farmers who has 2.48 hectare with any random crop was qualified to participate. The method of survey is face to face and online questionnaire. The survey consists of six parts. The first part is to collect the farmers' background. Next, part is the knowledge (KW) of farmer in food waste fertilizer follow with the data that related with Theory of Planned Behavior. This factor is attitude (ATT), subjective norm (SN), perceive behavior control (PBC) and intention (INT). To fit the scope of this study, the items was adapted and develop from several article.

4.2 Data Analysis

The partial Least Square-Structure Equation Modelling (PLS_SEM) is a tool for statistical analysis. As this is an exploratory study, PLS-SEM is thought to be the best techniques for this sort of research. In order to establish convergent validity, researcher should evaluate the outer loading of the items and the average variance extracted (AVE) Hair et al. (2019). There are two methods for determining discriminant validity which is cross loading and the Fornell-Larcker criterion. Furthermore, another criterion for evaluating discriminant validity is the Heterotrait-Monotrait (Hair et al., 2019). The path coefficient and coefficient of determination (R2) will be assessed in terms of the structural model.

5. Result and Discussion

5.1 Descriptive Test

The finding indicated that more than more than 46.7 percent are respondent from age below than 30 years old and followed by age of 31 to 40 years old which carries 30 percent. The highest percentage for level of education was 60 percent for the item name of National Public Examination. Most of respondent that participate in this study has their own land status which carries 66.7 percent. The percentage of respondents that has experience less than 10 years in farming was 73.3 percent. After determining the background of respondent, internal consistency reliability was conducted to evaluate the instrument for other variables.

Table 1: Background of farmers (n=30)

Items	Values	Frequency	Percentage
A1 Age	30 years old and below	14	46.7
	31- 40 years old	9	30
	41 – 50 years old	4	13
	51 years old and above	3	10
A2 Education level	National Public Examination	18	60
	Diploma/Foundation/A-Level	5	16.7
	Bachelor/Master/PHD	2	6.7
	Never go to school	5	16.7
A3 Agriculture land status	Landlord/Inherit	20	66.7
	Rent	9	30
	Tax	1	3.3
A4 Farming Experience	Below than 5 years	6	20
	6 – 10 years	22	73.3
	More than 11 years	2	6.7

5.2 Measurement Model Assessment

The objective to test reliability is to identify the internal consistency of the instrument. Reliability test that commonly used is Cronbach's Alpha. According to Taber (2016) state that, a good value of reliability test is above than 0.7. Meanwhile, the composite reliability value should be above than 0.6 was consider reliable (Hair et al., 2019; Crandall et al., 2011). Based on Table 2, all the item was reliable and satisfy with the value that was suggested by scholar. Hair et al. (2019), recommended that the threshold value for factor loading should between 0.5 to 0.7. All the loading factor was above 0.5. Furthermore, the average variance extracted (AVE) is defined as the grand mean value of the squared loadings of the construct-related items, and it is a typical metric for determining convergent validity. When the AVE is 0.5 or above, it means that the construct explains more than half of the variation of its components (Hair et al., 2019). Cronbach's Alpha and composite reliability values are more than 0.7 and AVE values are greater than 0.5, as shown in Table 2. As a result, the constructs' convergent validity is proven.

Table 2: Measurement model result

Construct	Items	Loadings	Cronbach's Alpha	Composite Reliability	Average, Variance, Extracted (AVE)
KW	B3	0.932	0.824	0.884	0.723
	B4	0.647			
	B5	0.939			
ATT	C5	0.738	0.723	0.843	0.642
	C6	0.854			
	C7	0.808			
SN	D2	0.815	0.855	0.910	0.640
	D3	0.922			
	D6	0.896			
PBC	E1	0.687	0.884	0.913	0.640
	E2	0.709			
	E3	0.856			
	E4	0.930			
	E5	0.850			
	E6	0.740			
INT	F1	0.794	0.944	0.955	0.751
	F2	0.910			
	F3	0.801			
	F4	0.951			
	F5	0.815			
	F6	0.890			
	F7	0.893			

The Fornell-Larcker criteria, cross loadings, and the Heterotrait-Monotrait Ratio should all be investigated to determine discriminant validity. The square root of AVE (diagonal value) for each variable should surpass the correlation of latent variables, according to the Fornell-Larcker criterion, which is satisfied in the current study as shown in Table 3. In terms of cross loadings, each indicator's loading should be higher than the loadings of the indicators of its related variables. From Table 4, that the cross loadings condition has been met.

Table 3: Fornall-Larcker criterion result

	ATT	INT	KW	PBC	SN
ATT	**0.801**				
INT	0.757	**0.867**			
KW	0.192	0.137	**0.850**		
PBC	0.579	0.834	0.072	**0.800**	
SN	0.850	0.82	0.136	0.699	**0.879**

Table 4: Cross loading result

	ATT	INT	KW	PBC	SN
B3	0.162	0.119	**0.932**	0.104	0.102
B4	0.029	0.077	**0.647**	-0.144	-0.011
B5	0.218	0.139	**0.939**	0.091	0.173
C5	**0.738**	0.619	-0.12	0.324	0.566
C6	**0.854**	0.656	0.433	0.52	0.714
C7	**0.808**	0.533	0.06	0.543	0.77
D2	0.726	0.541	0.311	0.449	**0.815**
D3	0.824	0.729	0.055	0.621	**0.922**
D6	0.705	0.84	0.054	0.725	**0.896**
E1	0.332	0.476	0.075	**0.687**	0.356
E2	0.550	0.608	0.206	**0.709**	0.629
E3	0.411	0.642	0.039	**0.856**	0.451
E4	0.633	0.805	0.049	**0.930**	0.801
E5	0.392	0.737	0.17	**0.850**	0.52
E6	0.425	0.675	-0.178	**0.740**	0.528

F1	0.492	**0.794**	-0.051	0.857	0.631
F2	0.749	**0.910**	0.040	0.873	0.831
F3	0.525	**0.801**	0.198	0.697	0.655
F4	0.746	**0.951**	0.243	0.74	0.738
F5	0.65	**0.815**	0.022	0.557	0.685
F6	0.722	**0.890**	0.23	0.686	0.747
F7	0.683	**0.893**	0.157	0.591	0.657

5.3 Structural Model Assessment

Fig. 1 and Table 5 show the path coefficients and p-values for each hypothesis. It is important to note that three of five hypotheses were supported, implying that all of the pathways between the independent and dependent variable are significant. H1 (*b*= 0.192, *p* = 0.33) explains that the relationship between knowledge and intentions are not supported suggested that knowledge does not improve intention of farmer in applying food waste as fertilizer. The relationship between attitude and intention is shown in H2 (*b*=0.239, *p*=0.03) indicating that attitude influence the farmers' intention in using food waste fertilizer.

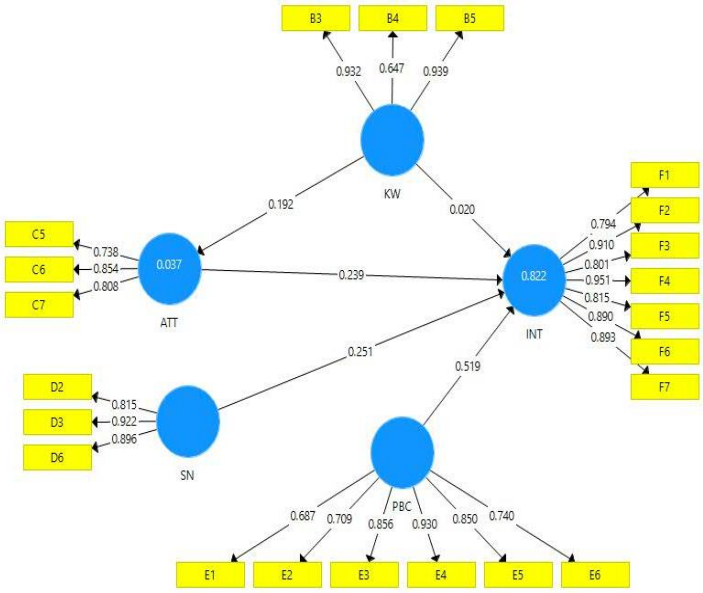

Fig. 1: Path analysis

H3 (*b*=0.1.92, *p*=0.33) is shows the relationship between knowledge and intention, indicating that knowledge does not influence farmers' intention to apply food waste fertilizer. The path analysis between social norm and intention is describe by H4 (*b*=0.251, *p*=0.05), suggesting that social norm has impact on farmers' intention to apply food waste fertilizer. The relationship between perceive behavior and intention demonstrating that perceive behavior control has influence on farmers' intention to used food waste fertilizer.

Table 5: Hypothesis test result

Hypothesis	Path	Path Coefficient	P-Value	Remark
H1	KW → INT	0.192	0.33	Not supported
H2	ATT → INT	0.239	0.03	Supported
H3	KW→ ATT	0.192	0.33	Not supported
H4	SN → INT	0.251	0.05	Supported
H5	PBC → INT	0.519	0.00	Supported

In this study founded that ATT, SN and PBC have a high impact on farmers' intention to apply food waste as fertilizer. In similar study by Rahman et al. (2018) and Daryaei (2014) found that, the influence of knowledge among farmers was similarly poor, thus policymakers, as significant bodies, could provide training or activities to boost farmer knowledge. Aside from that, farmers with limited understanding were willing to engage in bad soil management practices, which could have bad consequences not only for humans but also for animals, the environment, and food security (Phares et al., 2020).

Farmers' attitudes toward safe pesticide use should be improved through extension education to improve their intention and conduct toward safe pesticide handling (Bagheri et al., 2020). Attitude has a favorable and relatively broad impact on farmers' intentions to apply fertilizer. In Daxini et al. (2018), indicate that farmers who are not impacted by policy. Most of them are more likely to follow the practice by their own. If they value, the benefits of doing so more highly than their peers. One possible reason for this finding is that some groups of farmers who voluntarily intend to participate in the activity are more aware of the potential benefits than other farmers in the community. The result on this study also similar with Rashid et al. (2017) said that, farmers' attitude can be improved by explaining the benefits and promote the use of food waste as fertilizer.

6. Conclusion

Using the Theory of Planed Behavior (TPB), this study examined the factor that influence farmers' intention to apply food waste fertilizer. The measurement and structural model are evaluated using the PLS-SEM method. The finding show that subjective norm, attitude and perceive behavior control have impacted on intention among farmer to use organic fertilizer like food waste. The importance of using food waste fertilizer should be applied. Food waste fertilizer food is very good to crop because it consists of high moisture with several beneficial nutrients. The most important nutrient for crop which is Nitrogen, Phosphorus and Potassium was helping plant grow with friendly environment.

A few contributions from this study. Firstly, the combination of theory development. In this study, researcher was combines two theories which is Knowledge-attitude-practice with theory of planned behavior. From two theory, only knowledge was insert in theory planned behavior to make it expend the theory. The study has identified a useful weakness and reasonable hypothesis for potential research direction. For the future research, the qualitative research methodologies should be implements for having a better understanding of farmer intention. The present study involves one mediator which is knowledge that mediate between attitude and intention. It should increase more mediator to creates a gap and expand the theories. Thus, the study could be clear about relationship that related with farmers.

Acknowledgement

The work has carried out at the Sultan Idris Education University (UPSI), Malaysia for fulfilment of the requirements for the Masters of Technical and Vocational. We grateful to the Sultan Idris Education University, Malaysia for the support and providing all the materials and facilities for this research.

References

Aitsidou, V., Michailidis, A., Partalidou, M. & Iakovidou, O. (2019). Household food waste management: socio-ecological dimensions. *British Food Journal, 121(9),* 2163-2178. https://doi.org/10.1108/BFJ-02-2019-0111.

Ajzen, I. (1991). The theory of planned behavior. *Organize Behavioral Human Decision Process*. *50*, 179-211.

Allian, P. (2016). Food waste is an emerging sustainable agriculture issue. *Scribbr*. on October 21, 2019 from https://trilliuminvest.com/food-waste-is-an-emerging-sustainable-agriculture-issue/

Bagheri, A., Emami, N. & Damalas, C. A. (2020). Farmers' behavior towards safe pesticide handling: An analysis with the theory of planned behavior. *Science of the total Environment, 751*. https://doi.org/10.1016/j.scitoten.2020.141709.

Crandall, J., Forman, J., Lessley, D., Lau, A. & Garson, C. (2011). Development and assessment of a device and method for studying the mechanical interactions between shoes and playing surfaces in-situ at loads and rates generated by elite athletes. [Dissertation], Texas Women University.

Daryaei, N. (2014). Factor affecting rice farmer's knowledge about the principle of sustainable agriculture (case study: centre part of noor township in the Azandaran Province, Iran). *Scientific Journal of Crop Science 3(4),* 32-36. https://doi.org/10.14196/sjcs. 3i4.1318.

Daud, Z., Detho, A., Rosli, M.A., Abubakar, M.H., Samo, K.A., Rais, N.F.M., Halim, A.A. & Tajarudin, H.A. (2020). Ammoniacal nitrogen and COD removal from stabilized landfill leachate using granular activated carbon and green mussel *(Perna viridis)* shell powder as composite adsorbent. *Desalination and Water Treatment, 192,* 111-117. https://doi.org/10.5004/dwt.2020.5470.

Daxini, A., O'Donoghue, C., Ryan, M., Buckley, C., Barnes, A. P. & Daly, K. (2018). Which factors influence farmers' intentions to adopt nutrient management planning?. *Journal of environmental management*, 224, 350-360.

Fazini, N.A., & Asmida, A. (2018). Save the food for a better future: A discussion on food wastage in Malaysia. *International Journal of Law, Government and Communication, 10(3),* 12-21.

Fiore, M., Pellegrini, G., Sala, P. L., Conte, A. & Liu, B. (2017). Attitude toward food waste reduction: the case of Italian consumers. *International Journal of Globalization and Small Business, 9(2/3),* 185-201. https://doi.org/10.1504/IJGSB.2017.088921.

Hair J.F., Risher J.J., Sarstedt, M. & Ringle, M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31(1),* 2-24. https://doi.org/10.1108/EBR-11-2018-0203.

Innocent, A.J., Chamhuri, S., Rawshan, A.B. & Basri, A. (2017). Food waste and food security: The case of Malaysia. *International Journal of Advanced and Applied Sciences, 4(8),* 6-13.

Jessica, A.W., Iiona, D.H., Pegah, A., Tino, B. L. & Marjie, O. (2015). Consumer related food waste: causes and potential for action. *Sustainability, 7(6),* 6457-6477.

Kaliyaperumal, K. (2004). Guideline for conducting a knowledge, attitude and practice (KAP) study. *AECS Illumination, 4(1),* 7-9.

Lee, G.B. (2019). Reduce food waste, 15000 tonnes daily is too much. Retrieved on October, 2019 from https://www.thesundaily.my/opinion/reduce-food-waste-15-000-tonnes-daily-is-too-much-CE897613.

Lim, W.J., Chin, N.L., Yusof, A.Y., Yahya, A. & Tee, T.P. (2016). Food waste handling in Malaysia and comparison with other Asian countries. *International Food Research Journal, 23,* 1-6.

Lim, W.J., Chin, N.L., Yusof, A.Y., Yahya, A. & Tee, T.P. (2018). Modelling of pilot-scale anaerobic food waste composting process with dry leaves or cow manure. *Pertanika Science and Technology, 27(1),* 421-442.

Magalhaes, V.S.M., Ferreira, L.M.D. & Silva, C. (2020). Using a methodological approach to model causes of food loss and waste in fruit and vegetable supply chains. *Journal of Cleaner Production,* 1-13. Doi.org/10.1016/j.jclepro.2020.124574.

Majang, R., Sdn, K.M. & Mohd, R. (2015). The impact of RSPO on the livelihood of smallholders.

Manu, M.K., Kumar, R. & Garg, A. (2019). Decentralized composting of household wet biodegradable waste in plastic drums: effect of waste turning, microbial inoculum and bulking agent on product quality. *Journal of Cleaner Production, 226,* 233-241. Doi: 10.1016/j.jclepro.2019.03.350.

Mohd-Saleh, S.N.A., Shaylinda, M.Z.N., Othman, N., Yashni, G. & Norshila, A.B. (2020). Treatebility studies of stabilized leachate via coagulation-flocculation (CF) process using agro-waste (Manihot esculenta peel extract) as coagulant aid. *International Journal of Environmental Science, 1(4),* 26-36.

Moult, J.A., Allan, S.R., Hewitt, C.N. & Berners-Lee, M. (2018). Greenhouse gas emission of food waste disposal options for UK retailers. *Food Policy,* 1-9. Doi: 10.1016/j.foodpol.2018.04.003.

Oswald, T.E. (2018). Tackling food wastage with innovation. Retrieved October 20, 2019. *Scribbr.* https://www.nst.com.my/opinion/letters/2018/11/432303/tackling-food-wastage-innovation.

Phares, C.A., Danquah, A., Atiah, K., Agyei, F.K. & Michael, O.T. (2020). Antibiotics utilization and farmers' knowledge of its effects on soil ecosystem, in the coastal drylands of Ghana. *PLoS One, 15(2).* https://doi.org/10.1371/journal.pone.0228777.

Pitchay, A.B.A., Thaker, M.A.B.M.T., Azhar, Z., Mydin, A.A. & Thaker, H.B.M.T. (2019). Factors persuade individuals' behavioral intention to opt for Islamic bank services: Malaysian depositors' perspective. *Journal of Islamic Marketing.*

Rahman, M.H., Uddin, M.N. & Khan, M.S. (2018). Factor influencing farmer's knowledge on information and communication technology in receiving agricultural information in Bangladesh. *Bangladesh Journal of Extension Education, 28(1),* 13-19.

Ramirez, J.A., Rodriguez, J.F.C. & Marin, R.M.M. (2020). An exploratory study of possible food waste risk in supermarket fruit and vegetable sections. *Food Science and Technology,* 1-7, doi.org/10.1590/fst.27320. *Scribbr.* fromhttps://www.bernama.com/en/thoughts/news.php?id=1844547#:~:text=In%202016%2C%20the%20Food%20Aid, 10.9%20million%20tonnes%20in%202020.

Rashid, M.M., Kattou'a, M.G., Al-Khatib, I.A. & Sato, C. (2017). Farmers' attitude toward treated sludge use in the village of West Bank, Palestine. *Environmental Monitoring and Assessment, 189(7),* 1-14. https://doi.org/10.1007/s10661-017-6074-4.

Sani, U.M., Khadir, A.A., Sulaiman, G.B., Adamu, J.L., Ahmad, S. & Agema, M.A. (2020). Effect of dried kitchen wastemeal as a partial replacement for maize on blood profile of broiler chicken. *Taraba Journal of Agricultural Research, 8(1),* 121-126.

Schanes, K., Dobernig, K. & Gözet, B. (2018). Food waste matters-A systematic review of household food waste practices and their policy implications. *Journal of cleaner production,* 182, 978-991.

Suhaimi, A.H.M.S., Kamaruddin, A., Masdek, M.N.R.N. & Dardak, R.A. (2019). Stakeholder expectations towards green environment: "Malaysia go green" through MY Save Food initiative. *Green Behavior and Corporate Social Responsibility in Asia*, 3-16. https://doi.org/10.1108/978-1-78756-683-520191003.

Taber, K.S. (2016). The use of Cronbach's alpha when developing and reporting research instrument in science education. *Research of Science Education.* 1-24. https://doi.org/10.1007/s11165-016-9602-2.