African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

The Self-consumption of Compost from Household Organic Waste in Market Gardening in South Borgou, Benin.

Auteur 1 : Imourana BONI.
Auteur 2 : Arouna ASSOUMA.
Auteur 3 : Jacob A. YABI.

Imourana BONI;
Laboratory of Analysis and Research on Economic and Social Dynamics, University of Parakou, BP 123 Arafat, Parakou, Benin.

Arouna ASSOUMA;
Laboratory of Analysis and Research on Economic and Social Dynamics, University of Parakou, BP 123 Arafat, Parakou, Benin.

Jacob A. YABI
Laboratory of Analysis and Research on Economic and Social Dynamics, University of Parakou, BP 123 Arafat, Parakou, Benin.

Déclaration de divulgation : L'auteur n'a pas connaissance de quelconque financement qui pourrait affecter l'objectivité de cette étude.

Conflit d'intérêts : L'auteur ne signale aucun conflit d'intérêts.

Pour citer cet article : BONI .I, ASSOUMA .A & A. YABI .J (2026), « The Self-consumption of Compost from Household Organic Waste in Market Gardening in South Borgou, Benin », African Scientific Journal « Volume 03, Num 37 » pp: 0429 – 0447.

DOI : 10.5281/zenodo.21471917

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Abstract

Agricultural production that uses fewer chemicals is increasingly encouraged due to the effects of these chemicals on health, especially for vegetables and fruits. Thus, composting is promoted in market gardening production. This study aims to analyze the determinants of self-consumption of compost from household organic waste in market gardening production in South Borgou, Benin. On a sample of 288 market garden producers selected randomly, a logit regression model was used to analyze the variables that influence this adoption. The results show that factors such as: gender, having agriculture as a main activity, monthly income, having an organic waste management system, the presence of leaves, branches, and other garden waste as the types of organic waste produced in the household, and access to information or local programs that encourage organic waste management (recycling, composting, etc.) significantly influence the integration of compost from household organic waste into one's own vegetable production. Interventions in vegetable production can use these results to guide their policies.

Keywords: agriculture, compost, chemicals, Benin

Introduction

Organic waste disposal methods, particularly landfilling, not only deplete resources but also contribute to environmental challenges (Kharola et al., 2022). Unprecedented population growth, economic growth, and urbanization, particularly in low- and middle-income countries, combined with extreme weather conditions, the high environmental footprint of agricultural practices, and disposal-oriented waste management practices, require significant changes in methods for managing large quantities of organic waste (Surendra et al., 2020). Recent findings underscore the imperative of integrating advanced technologies and holistic environmental considerations into organic waste management. Furthermore, understanding the techno-economic dynamics reveals the potential for sustainable practices, indicating a shift toward circular economies (Sharma et al., 2024). Effective organic waste management is imperative to address global challenges related to waste accumulation, deteriorating environmental conditions, and rising healthcare costs (Kumareswaran et al., 2024).

Food, energy, and water security are increasingly challenging to manage. Composting is one waste management method that offers a plausible approach to address this challenge by reusing organic waste and generating value-added products (Lin et al., 2018). Composting is the controlled conversion of degradable organic products and waste into stable products using microorganisms. It is a technology that has been used for a very long time (Ayilara et al., 2020). By valorizing these organic wastes through composting, waste is better managed, contributing to greenhouse gas mitigation and resource conservation while promoting community engagement and economic development. Integrating composting practices with sustainable agriculture initiatives offers synergistic opportunities to improve ecosystem services, climate resilience, and food security (Bremaghani, 2024). A properly carried-out composting process and stable, mature compost guarantee a supply of macro- and micronutrients, which can replace chemical fertilizers. Compost also has other positive effects, such as the suppression of plant diseases (Sayara et al., 2020).

Various effects, including the suppression of plant diseases, have been observed (Sayara et al., 2020). The increased consumption of fruits and vegetables, driven by their health benefits, has also led to a rise in foodborne outbreaks (Macieira et al., 2021). This increase in health complications, often due to the overuse of agricultural chemicals and the presence of residues exceeding maximum limits, has amplified the demand for organic farming, especially for vegetables due to their short pre-consumption retention period (Singh et al., 2024). Organic farming offers high-quality food while preserving land and environmental sustainability. The

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

adoption of organic vegetable farming is crucial for agricultural sustainability by avoiding the indiscriminate use of synthetic chemicals (Sohail et al., 2021). According to Oyekale (2018), factors such as monthly income, marital status, race, willingness to pay for waste disposal, and the presence of recycling programs positively and significantly influence recycling behavior, while perceptions of financial benefits and the importance of recycling have a negative impact. Furthermore, Ekere et al. (2009) found that gender, peer influence, plot size, household location, and membership in an environmental organization are also influential."

This research aims to fill this gap in the local literature by specifically examining the on-farm use of compost derived from household organic waste in vegetable farming in South Borgou, Benin. The main objective of this study is to analyze the socioeconomic and structural determinants that influence the adoption and integration of this compost by vegetable farmers. To achieve this objective, the remainder of the article is structured as follows: Section 2 presents the theoretical framework; Section 3 describes the empirical methodology applied (study area, sampling, and logit model); Section 4 presents and discusses the results of the estimates; and finally, Section 5 concludes the study and draws policy implications.

2-Theoretical Framework

This study, similar to Ekyaligonza et al. (2024), employs three theories to analyze the factors influencing the integration of compost from household organic waste into vegetable production. Firstly, Ajzen's (1991) theory of planned behavior is used, which posits that intentions to adopt behaviors are predicted by attitudes, subjective norms, and perceived behavioral control, which, in turn, influence actual behavior. Secondly, the technology acceptance model is applied, suggesting that an individual's decision to adopt a technology is based on perceived usefulness and ease of use (Michels et al. 2021). Finally, the rural technology acceptance model is incorporated, which integrates the technology acceptance model with variables like ease of use, social influence, and socio-demographic factors (Moosa, 2009; Tambotoh et al., 2015; Venkatesh & Davis, 1996). These three theories form the foundation for the econometric model and hypothesis formulation in this research.

3-Methodology

3-1 Study Area

This research focuses on three municipalities: Parakou, Tchaourou, and N'Dali. These municipalities were selected for two primary reasons. Firstly, they are significant centers for market gardening. Urban and peri-urban agriculture is a key activity in Parakou, located in

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

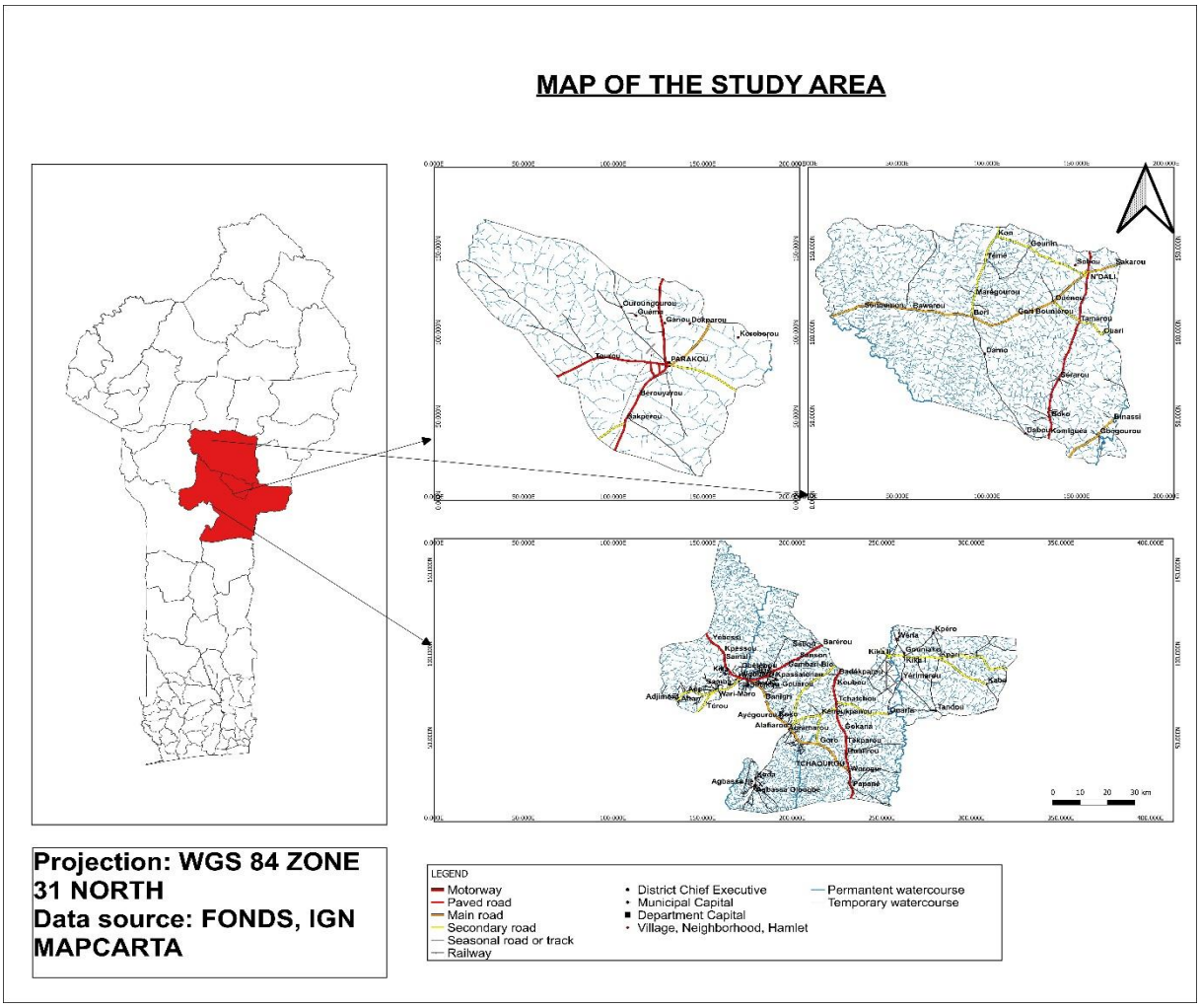
northern Benin (Agossou et al. 2014). Secondly, these municipalities are large urban areas with high organic waste production.

All the three municipalities - Parakou, Tchaourou, and N'Dali - are situated in the Department of Borgou. Parakou is centrally located in Benin, between 9°2' north latitude and 2°36' east longitude. It spans 441 square kilometers, with approximately 30 square kilometers urbanized. It is bordered to the north by N'Dali and to the south, east, and west by Tchaourou. The city experiences a Sudano-Guinean climate, characterized by a rainy season from April to October and a dry season from mid-October to mid-April. Annual rainfall varies between 1,000 mm and 1,500 mm, distributed over 75 to 140 rainy days. The lowest temperatures occur in December and January.

The commune of Tchaourou is located in southern Borgou, northern Benin, between 8°45' and 9°20' North latitude and 2°10' and 3°40' East longitude. It covers an area of 7,256 square kilometers, representing 28% of the Borgou department and 6.5% of the national territory. Tchaourou experiences a Sudanese climate with a single, major rainy season lasting approximately seven months. Annual rainfall ranges from 900 to 1,300 mm.

The commune of N'Dali is also located in the Borgou department of northern Benin. It is bordered to the north by the communes of Bembèrèkè and Sinendé, to the south by Parakou and Tchaourou, to the east by Nikki and Pèrèrè, and to the west by Djougou and Péhunco. The climate is Sudano-Guinean continental, characterized by a rainy season (April to October) and a dry season (October to April). Average rainfall is between 1100 and 1200 mm, but can be as low as 900 mm, making it well-suited for soybean cultivation, particularly considering the temperature.

Figure 1: Map of study area



Data source : FONDS, IGN MAPCARTA

3-2 Sampling

To determine the sample size for this study, the Cochran formula (1997) was adopted to ensure robust results. This formula is:

$$n = \frac{t^2 p(1-p)}{m^2} \quad \text{(Eq. 1)}$$

Where; n: minimum sample size to obtain significant results; t: confidence level (the value corresponding to the 95% confidence level is 1.96); p = estimated proportion of the population that incorporates compost from their household organic waste (when unknown, p = 0.25 can be used, which corresponds to the case where very few market gardeners adopt this practice); m = permissible margin of error (for example, we want to know the actual proportion to within 5%) Thus, to calculate the sample size for this research, with a 95% confidence level, an estimated proportion of 0.25 and a margin of error of 5%.

=288.12

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

3-3 Data

The data were obtained in two stages: an exploratory phase and a detailed survey phase. The survey phase involved market gardeners in the municipalities of Parakou, N'Dali, and Tchaourou, regardless of whether they used compost made from their household organic waste. The data collected were primarily primary data, gathered through the KoboCollect application via face-to-face interviews with the market gardeners included in this research. The interviews with the market gardeners took place between March and April 2025. The questionnaire covered several topics, including socio-demographic characteristics (age, gender, education level, literacy, household size) and economic characteristics of the household, organic household waste management, current household waste management practices, composting adoption, willingness to pay for training and composting adoption, yield estimation and economic impact assessment, and environmental and social perception.

3-4 Data Analysis

To analyze the factors influencing market gardeners' integration of compost from household organic waste, a logit model was adopted in this study. As explained above, the integration of compost depends on the utility the market gardener derives from this adoption; thus, the utility model is relevant. The empirical model can then be specified as follows:

Where yi corresponds to the dependent variable, taking the value 1 when the market gardener integrates compost from the processing of their household organic waste and 0 otherwise. εi corresponds to the error term; β0 to β9 are the parameters to be estimated. The other variables are the explanatory factors defined as follows:

Marital: represents the producer's marital status. This categorical variable has three categories: 0 for single, 1 for married, and 2 for divorced/widowed. Marital status can influence the integration of household-produced compost into market gardening production. Several authors have found that marital status influences the adoption of compost (Ali et al., 2018; Mensah et al., 2018).

Gender: Gender is a variable that can positively or negatively influence the adoption of integrating compost from the market gardener's household waste. This binary variable can take 0 for female and 1 for male. In the literature, authors have used it in their research (Bagagiolo et al., 2022; Kabasiita et al., 2021; Mukai, 2017).

Income: This variable is categorical, with four categories: 1 for incomes below 50,000 CFA francs, 2 for incomes between 50,000 and 100,000 CFA francs, 3 for incomes between 100,000 and 200,000 CFA francs, and 4 for incomes above 200,000 CFA francs. This variable represents

the household's approximate monthly income in CFA francs and can positively or negatively influence the adoption of compost integration from the market gardener's household organic waste. Authors such as Mashi et al. (2025) and Zhou et al. (2018) have also included this variable in their logistic regression models.

Size: This variable indicates the household size. It is also a categorical variable that takes five categories: 1 = 1 person, 2 = 2-3 people, 3 = 4-5 people, 4 = 6-7 people, and 5 = more than 7 people. It can have a positive or negative influence on adoption. Previous research has also used it in models (Mashi et al., 2025; Ullah et al., 2018).

Actprin: The main activity is a factor that may or may not motivate the transformation of household organic waste into compost for use in market gardening. Several types of activities were defined in this research, including: 1 = Farmer, 2 = Trader, 3 = Civil Servant, 4 = Worker, 5 = Craftsman, 6 = Self-employed, and 7 = Unemployed. Bagagiolo et al. (2022) and Kabasiita et al. (2021) also used it in their logistic regression models to identify the determinants of compost adoption from the organic part.

Area: This factor represents the area over which the market gardener applies compost derived from the processing of their household's organic waste. It can positively or negatively influence adoption. Similar to Mashi et al. (2025), this variable will be used in the logistic regression model.

Systems: This variable indicates the household's attitude toward the organic waste management system. It is assigned a value of 0 if the household does not have an organic waste management system. In similar studies, attitude has been considered a variable in studies of the adoption of compost integrated into agricultural production (Rastegari et al., 2023).

Waste Management Training: Training on organic waste management is a factor that can positively or negatively influence the adoption of compost derived from the processing of household organic waste. This training is provided through agricultural extension programs or project interventions (Abebe and Debebe, 2019; Mashi et al., 2025).

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Table 1: empirical review of the variables introduced into the model

Variable	▪ Description	▪ Variable Type	▪ Expected sign
Marital	Marital status		±
Gender	The gender of the person being investigated	Binary (1=man, 0=wife)	±
Income	Provider income		±
Taillm	Household size	Continue	±
Actprin	Principal activity investigated	1= farmer, 2= trader, 3= civil servant, 3= worker, 4= craftsman, 5= self-employed worker, 6= unemployed	±
Principal Activity: Agriculture	Agriculture as your principal activity	Binary (1= yes and 0= No)	±
Professional and Technical Training	Has followed a professional and technical training	Binary (1= yes and 0= No)	±
Area	The area	Continious	±
Systges	Existence of a household waste management system	Binary (1= yes and 0= No)	±
WasteManagement	Access to training on organic waste management	Binary (1= yes and 0= No)	+
Size Household 4-5 Person	The size of the household between 4 and 5	Binary (1= yes and 0= No)	+
Size Houshold 6-7 Person	The size of the household between 6 and 7	Binary (1= yes and 0= No)	+

Source: Investigated data (2025)

4- Results and Discussion

4-1 Socio-demographic Characteristics

Table 2 presents the socio-demographic characteristics of the market gardeners interviewed for this research. According to the table, the sample comprised 38.80% women and 61.20% men. The majority of the sample in this research was men, representing nearly a third of the total. Among these, 87.63% of the men had incorporated compost from household waste into their

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

market gardening production, and 60.78% of the women had also incorporated compost from household waste into their market gardening production. Furthermore, 82.26% of the sample were married, and 17.74% were single. Regarding education, 28.63% reported having completed secondary school, while 71.37% reported having not. Still, regarding the level of education, only 29.21% of producers who have reached secondary level integrate compost from their household waste and market gardening, and 70.79% who have not reached this level of education have also adopted this integration. Next in this table, 76.4% of respondents whose main activity is agriculture use compost from their household waste in market gardening. The presence of a household waste management system is also a socio-demographic characteristic measured in this study. Thus, 66.40% of interviewees have a waste management system, and 33.60% do not. Regarding access to information on the household waste management system, 63.16% of market gardeners reported having this information, while 36.84% did not. Concerning the number of people in the household, 44.31% reported having between 4 and 5 people, and 12.60% reported having between 6 and 7 people. Regarding age, 35.60% of the respondents were in the 30-39 age group. In this sample, 93.93% reported no household waste collection service, while only 6.07% reported having one. Finally, the average sown area in this sample was 1.337 ha.

Table 2: Socio-demographic characteristics

Variable	Modality	Non-Integration of compost	Integration of compost	together
Gender	woman	12.37	87.63	38.80
	man	39.22	60.78	61.20
Maried	No	28.17	13.56	17.74
	Yes	71.83	86.44	82.26
Secondary education Level	No	72.86	70.79	71.37
	Yes	27.14	29.21	28.63
Agriculture as main activity	No	34.72	19.10	23.60
	Yes	65.28	80.90	76.40
Income between 50 and 100 thousand	No	26.39	27.53	27.20
	Yes	73.61	72.47	72.80
Possession of a household waste management system	No	84.06	14.04	33.60
	Yes	15.94	85.96	66.40

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Access to training on the household waste management system	No	47.89	32.39	36.84
	Yes	52.11	67.61	63.16
Food waste produced as garbage of household	No	1.39	2.25	2.00
	Yes	98.61	97.75	98.00
Branch left produced as household waste	No	52.78	9.55	22.00
	Yes	47.22	90.45	78.00
Access to information or programs on household waste management	No	62.50	37.08	44.40
	Yes	37.50	62.92	55.60
Number of people in the household between 4 and 5	No	52.94	56.74	55.69
	Yes	47.06	43.26	44.31
Number of people in the household between 6 and 7	No	92.65	85.39	87.40
	Yes	7.35	14.61	12.60
Age between 30 and 39	No	73.61	60.67	64.40
	Yes	26.39	39.33	35.60
No household waste collection service	No	2.86	7.34	6.07
	Yes	97.14	92.66	93.93
Surface area on which the compost is used		0.0843(0.360)	0.349(1.033)	1.337(3.264)

Source: Investigated data (2025)

4.2. Determinants of Self-Consumption of Compost in Vegetable Production

According to Table 3, the variables introduced in the logit model explain 54.91% of the integration of compost from household organic waste into vegetable production. Therefore, the model is generally significant at the 1% level.

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Variables such as gender; having agriculture as a main activity; an approximate monthly household income (in CFA francs) between CFA francs 50,000 and CFA francs 100,000; living in a household with an organic waste management system (composting, sorting, etc.); living in a household where leaves, branches, and other garden waste are the types of organic waste produced; and having access to information or local programs that encourage organic waste management (recycling, composting, etc.) significantly influence the integration of compost from household organic waste into one's own vegetable production.

Indeed, gender has a negative and significant influence on the integration of compost from household waste into market gardening. More specifically, being a man decreases the probability of adopting the integration of compost from household waste into market gardening by 12.4% at the 1% threshold. Gender has no influence on the integration of compost into market gardening (Bagagiolo et al., 2022).

Main occupation also significantly influences the integration of compost from household waste into market gardening, but in a positive way. According to the results, having agriculture as a main occupation increases the probability of integrating compost from one's waste into one's market gardening field by 11.3 percentage points at the 5% threshold.

On the other hand, having a monthly income between CFA francs 50,000 FCFA and CFA francs 100,000 significantly reduces the probability of adopting compost from the household in one's market gardening by 11.3% at the 5% threshold. Income positively and significantly influences the use of compost in one's market gardening (Kabasiita et al., 2021).

Having an organic waste management system (composting, sorting, etc.) has a significant and positive impact on the adoption of household compost in market gardening. Indeed, having such a system increases the likelihood of this adoption by 27.9% at the 1% threshold. Attitudes toward organic waste management have a positive and significant impact on the use of compost produced from household waste in market gardening (Rastegari et al., 2023).

Producing leaves, branches, and other garden waste also has a positive and significant impact on the integration of household-produced compost into market gardening. This increases the likelihood of integrating household-produced compost into market gardening in South-Borgou by 13.8% at the 1% threshold. Finally, access to information or local programs that encourage organic waste management (recycling, composting, etc.) also significantly and positively influences, at the 5% threshold, the integration of compost produced with household organic waste into market gardening production. Access to this information increases the probability of this integration by 12%. For Rastegari et al. (2023), information has an influence on the

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

integration of compost produced within the household into market gardening production. Contact with projects/programs positively and significantly influences the adoption of compost produced in one's household and its use in one's market gardening operation (Abebe & Debebe, 2019).

Table 3: Determinants of the integration of compost from household organic waste into one's own market gardening production

Use of the compost produced in your garden or for agricultural activities	Coefficient	Marginals effect	Standard Error	z
Gender	-1.616***	-0.124	0.591	-2.730
Marital status: Married	0.470	0.036	0.667	0.700
Secondary education level	0.916	0.070	0.581	1.580
Agriculture as the main activity	1.482	0.113	0.590	2.510
Approximate monthly income of household (in FCFA) 50 000-100 000	-1.473**	-0.113	0.633	-2.330
The household has an organic waste management system (compost, sort, etc.)	3.647***	0.279	0.610	5.980
The household has access to training or information on waste organic management	-1.227	-0.094	0.747	-1.640
Food waste (peeling, food scraps, etc.) as the type of waste product	1.583	0.121	1.753	0.900
Leaves, branches and other garden waste as a type of waste produced	1.800***	0.138	0.577	3.120
Access to information or local programs that encourage the management of organic waste (recycling, composting, etc.)	1.658**	0.127	0.722	2.300
Household constitute from 4 to 5 persons	-0.464	-0.036	0.614	-0.760

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Household constitute from 6 to 7 persons	-0.807	-0.062	1.016	-0.790
Surface area on which the compost is used	0.855	0.065	0.655	1.310
Age of the household chief between 30-39 years hold	0.474	0.036	0.549	0.860
No pickup service of household waste	-1.078	-0.083	1.000	-1.080
Constant	-2.436		2.184	-1.120

Source: Investigated data (2025)

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Conclusion

The objective of this study was to analyze the factors influencing the self-consumption of compost from household organic waste in market gardening in South Borgou, Benin. The results showed that gender and having agriculture as a main activity influenced this self-consumption of compost in market gardening by 1% and 5%, respectively. Also, producing leaves, branches, and other garden waste and having access to information or local programs that encourage organic waste management, such as recycling and composting, had an impact on the use of self-produced compost in market gardening at the thresholds of 1% and 5%, respectively. Future studies could examine the influence of agricultural policies on the adoption of composting in market gardening.

BIBLIOGRAPHY

Agossou, J., Afouda, L., Adédémy, J. D., Noudamadjo, A., Tido, C. N., Ahohoui, E. S., Tovihoudji, P., Mazou, F., Fayomi, B., Akpona, S., Adéothy-Koumakpaï, S., & Ayivi, B. (2014). *Risk of typhoid or paratyphoid fever associated with the use of wastewater in urban and peri-urban agriculture : The case of vegetable production in the city of Parakou* (Benin). Environnement, Risques et Sante, 13(5), 405-416. https://doi.org/10.1684/ers.2014.0735

Ajzen, I. (1991). *The theory of planned behavior. Organizational Behavior and Human Decision Processes*, 50(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Ali, E. B., Awuni, J. A., & Danso-Abbeam, G. (2018). *Determinants of fertilizer adoption among smallholder cocoa farmers in the Western region of Ghana.* Cogent Food Agric. 4, 1–10.

Ayilara, M. S., Olanrewaju, O. S., Babalola, O. O., & Odeyemi, O. (2020). *Waste Management through Composting : Challenges and Potentials. Sustainability,* 12(11), 4456. https://doi.org/10.3390/su12114456

Bagagiolo, G., Vigoroso, L., Pampuro, N., & Cavallo, E. (2022). *The Role of Social Interaction and Personal Characteristics in Affecting the Adoption of Compost from Organic Fraction of Municipal Solid Waste in Italy. Agronomy*, 12(2), 445. https://doi.org/10.3390/agronomy12020445

Bremaghani, A. (2024). *Utilization of Organic Waste in Compost Fertilizer Production : Implications for Sustainable Agriculture and Nutrient Management. Law and Economics*, 18(2), 86-98.

Ekere, W., Mugisha, J., & Drake, L. (2009). *Factors influencing waste separation and utilization among households in the Lake Victoria crescent, Uganda. Waste Management*, 29(12), 3047-3051. https://doi.org/10.1016/j.wasman.2009.08.001

Ekyaligonza, D. M., Tibasiima, T. K., Bwambale, B., Kagorora, J. P. K., & Freyer, B. (2024). *Factors influencing adoption of organic matter management on smallholder farms in the Rwenzori region of Uganda*. Organic Agriculture, 14(3), 307-321. https://doi.org/10.1007/s13165-024-00465-6

Kabasiita, J. K., Malinga, G. M., Odongo, J. C. W., & Opolot, E. (2021). *Factors influencing utilization of municipal solid waste compost among urban farmers in western Uganda*. CABI Agriculture and Bioscience, 2(1), 47. https://doi.org/10.1186/s43170-021-00067-2

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Kharola, S., Ram, M., Goyal, N., Mangla, S. K., Nautiyal, O. P., Rawat, A., Kazancoglu, Y., & Pant, D. (2022). *Barriers to organic waste management in a circular economy*. Journal of Cleaner Production, 362, 132282. https://doi.org/10.1016/j.jclepro.2022.132282

Kumareswaran, K., Ranasinghe, S., Jayasinghe, G. Y., & Dassanayake, K. B. (2024). *Systematic review on liquid organic waste (LOW) characteristics, processing technologies, and their potential applications* : Towards circular economy and resource efficiency. Journal of Cleaner Production, 447, 141286. https://doi.org/10.1016/j.jclepro.2024.141286

Lin, L., Xu, F., Ge, X., & Li, Y. (2018). *Improving the sustainability of organic waste management practices in the food-energy-water nexus* : A comparative review of anaerobic digestion and composting. Renewable and Sustainable Energy Reviews, 89, 151-167. https://doi.org/10.1016/j.rser.2018.03.025

Macieira, A., Barbosa, J., & Teixeira, P. (2021). *Food Safety in Local Farming of Fruits and Vegetables. International Journal of Environmental Research and Public Health*, 18(18), 9733. https://doi.org/10.3390/ijerph18189733

Mashi, S. A., Inkani, A. I., Jenkwe, E. D., & Idris, K. (2025). *Determinants of urban waste recycling among smallholder farmers in Katsina, Nigeria* : Awareness, adoption, and valorization. Cleaner Waste Systems, 12, 100354. https://doi.org/10.1016/j.clwas.2025.100354

Mensah, M., Villamor, G., & Vlek, P. L. (2018). *Gender specific determinants of inorganic fertilizer adoption in the semi-arid region of Ghana*. West African Journal of Applied Ecology, 26, 179-192.

Michels, M., Hobe, C.-F. von, Ahlefeld, P. J. W. von, & Musshoff, O. (2021). 91. *An extended technology acceptance model for the adoption of drones in German agriculture*. Brill. https://doi.org/10.3920/978-90-8686-916-9_91

Moosa, L. (2009). *An information technology adoption model for the rural socio-cultural context in developing countries*.

Mukai, S. (2017). *Data on farmers' determinants of manure and inorganic fertiliser use in the semi-arid Ethiopian Rift Valley.* Data in brief, 14, 804-812.

Oyekale, A. S. (2018). *Determinants of households' involvement in waste separation and collection for recycling in South Africa. Environment, Development and Sustainability*, 20(5), 2343-2371. https://doi.org/10.1007/s10668-017-9993-x

Rastegari, H., Nooripoor, M., Sharifzadeh, M., & Petrescu, D. C. (2023). Drivers and barriers in farmers' adoption of vermicomposting as keys for 5 000 / 5 000

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Abebe, G., & Debebe, S. (2019). Factors affecting use of organic fertilizer among smallholder farmers in Sekela district of Amhara region, Northwestern Ethiopia. *Cogent Food & Agriculture*, *5*(1), 1669398. https://doi.org/10.1080/23311932.2019.1669398

Agossou, J., Afouda, L., Adédémy, J. D., Noudamadjo, A., Tido, C. N., Ahohoui, E. S., Tovihoudji, P., Mazou, F., Fayomi, B., Akpona, S., Adéothy-Koumakpaï, S., & Ayivi, B. (2014). Risk of typhoid or paratyphoid fever associated with the use of wastewater in urban and peri-urban agriculture : The case of vegetable production in the city of Parakou (Benin). *Environnement, Risques et Sante*, *13*(5), 405-416. https://doi.org/10.1684/ers.2014.0735

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Ali, E. B., Awuni, J. A., & Danso-Abbeam, G. (2018). *Determinants of fertilizer adoption among smallholder cocoa farmers in the Western region of Ghana. Cogent Food Agric. 4, 1–10*.

Ayilara, M. S., Olanrewaju, O. S., Babalola, O. O., & Odeyemi, O. (2020). Waste Management through Composting : Challenges and Potentials. *Sustainability*, *12*(11), 4456. https://doi.org/10.3390/su12114456

Bagagiolo, G., Vigoroso, L., Pampuro, N., & Cavallo, E. (2022). The Role of Social Interaction and Personal Characteristics in Affecting the Adoption of Compost from Organic Fraction of Municipal Solid Waste in Italy. *Agronomy*, *12*(2), 445. https://doi.org/10.3390/agronomy12020445

Bremaghani, A. (2024). Utilization of Organic Waste in Compost Fertilizer Production : Implications for Sustainable Agriculture and Nutrient Management. *Law and Economics*, *18*(2), 86-98.

Ekere, W., Mugisha, J., & Drake, L. (2009). Factors influencing waste separation and utilization among households in the Lake Victoria crescent, Uganda. *Waste Management*, *29*(12), 3047-3051. https://doi.org/10.1016/j.wasman.2009.08.001

Ekyaligonza, D. M., Tibasiima, T. K., Bwambale, B., Kagorora, J. P. K., & Freyer, B. (2024). Factors influencing adoption of organic matter management on smallholder farms in the Rwenzori region of Uganda. *Organic Agriculture*, *14*(3), 307-321. https://doi.org/10.1007/s13165-024-00465-6

Kabasiita, J. K., Malinga, G. M., Odongo, J. C. W., & Opolot, E. (2021). Factors influencing utilization of municipal solid waste compost among urban farmers in western Uganda. *CABI Agriculture and Bioscience*, *2*(1), 47. https://doi.org/10.1186/s43170-021-00067-2

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 37 Août 2026

Kharola, S., Ram, M., Goyal, N., Mangla, S. K., Nautiyal, O. P., Rawat, A., Kazancoglu, Y., & Pant, D. (2022). Barriers to organic waste management in a circular economy. *Journal of Cleaner Production*, *362*, 132282. https://doi.org/10.1016/j.jclepro.2022.132282

Kumareswaran, K., Ranasinghe, S., Jayasinghe, G. Y., & Dassanayake, K. B. (2024). Systematic review on liquid organic waste (LOW) characteristics, processing technologies, and their potential applications : Towards circular economy and resource efficiency. *Journal of Cleaner Production*, *447*, 141286. https://doi.org/10.1016/j.jclepro.2024.141286

Lin, L., Xu, F., Ge, X., & Li, Y. (2018). Improving the sustainability of organic waste management practices in the food-energy-water nexus : A comparative review of anaerobic digestion and composting. *Renewable and Sustainable Energy Reviews*, *89*, 151-167. https://doi.org/10.1016/j.rser.2018.03.025

Macieira, A., Barbosa, J., & Teixeira, P. (2021). Food Safety in Local Farming of Fruits and Vegetables. *International Journal of Environmental Research and Public Health*, *18*(18), 9733. https://doi.org/10.3390/ijerph18189733

Mashi, S. A., Inkani, A. I., Jenkwe, E. D., & Idris, K. (2025). Determinants of urban waste recycling among smallholder farmers in Katsina, Nigeria : Awareness, adoption, and valorization. *Cleaner Waste Systems*, *12*, 100354. https://doi.org/10.1016/j.clwas.2025.100354

Mensah, M., Villamor, G., & Vlek, P. L. (2018). Gender specific determinants of inorganic fertilizer adoption in the semi-arid region of Ghana. *West African Journal of Applied Ecology*, *26*, 179-192.

Michels, M., Hobe, C.-F. von, Ahlefeld, P. J. W. von, & Musshoff, O. (2021). *91. An extended technology acceptance model for the adoption of drones in German agriculture*. Brill. https://doi.org/10.3920/978-90-8686-916-9_91

Moosa, L. (s. d.). *An information technology adoption model for the rural socio-cultural context in developing countries*.

Mukai, S. (2017). Data on farmers' determinants of manure and inorganic fertiliser use in the semi-arid Ethiopian Rift Valley. *Data in brief*, *14*, 804-812.

Oyekale, A. S. (2018). Determinants of households' involvement in waste separation and collection for recycling in South Africa. *Environment, Development and Sustainability*, *20*(5), 2343-2371. https://doi.org/10.1007/s10668-017-9993-x

Rastegari, H., Nooripoor, M., Sharifzadeh, M., & Petrescu, D. C. (2023). Drivers and barriers in farmers' adoption of vermicomposting as keys for sustainable agricultural waste

management. *International Journal of Agricultural Sustainability*, *21*(1), 2230826. https://doi.org/10.1080/14735903.2023.2230826

Sayara, T., Basheer-Salimia, R., Hawamde, F., & Sánchez, A. (2020). Recycling of Organic Wastes through Composting : Process Performance and Compost Application in Agriculture. *Agronomy*, *10*(11), 1838. https://doi.org/10.3390/agronomy10111838

Sharma, P., Bano, A., Singh, S. P., Varjani, S., & Tong, Y. W. (2024). Sustainable Organic Waste Management and Future Directions for Environmental Protection and Techno-Economic Perspectives. *Current Pollution Reports*, *10*(3), 459-477. https://doi.org/10.1007/s40726-024-00317-7

Singh, S. K., Krishna, H., Sharma, S., Singh, R. K., Tripathi, A. N., & Behera, T. K. (2024). Organic Farming in Vegetable Crops : Challenges and Opportunities. *Vegetable Science*, *51*, 1-10. https://doi.org/10.61180/vegsci.2024.v51.spl.01

Sohail, S., Gondal, A. H., Farooq, Q., Tayyaba, L., Zainab, D. E., Ahmad, I. A., Zafar, A., Khosa, S. Y., Usama, M., Sohail, S., Gondal, A. H., Farooq, Q., Tayyaba, L., Zainab, D. E., Ahmad, I. A., Zafar, A., Khosa, S. Y., & Usama, M. (2021). Organic Vegetable Farming; A Valuable Way to Ensure Sustainability and Profitability. In *Vegetable Crops—Health Benefits and Cultivation*. IntechOpen. https://doi.org/10.5772/intechopen.101095

Surendra, K. C., Tomberlin, J. K., van Huis, A., Cammack, J. A., Heckmann, L.-H. L., & Khanal, S. K. (2020). Repenser la bioconversion des déchets organiques : Évaluer le potentiel de la mouche soldat noire (*Hermétie illucens* (L.)) (Diptères : Stratiomyidae) (BSF). *Waste Management*, *117*, 58-80. https://doi.org/10.1016/j.wasman.2020.07.050

Tambotoh, J. J. C., Manuputty, A. D., & Banunaek, F. E. (2015). Socio-economics Factors and Information Technology Adoption in Rural Area. *Procedia Computer Science*, *72*, 178-185. https://doi.org/10.1016/j.procs.2015.12.119

Ullah, A., Khan, D., Zheng, S., & Ali, U. (2018). Factors influencing the adoption of improved cultivars : A case of peach farmers in Pakistan. *Ciência Rural*, *48*(11), 20180342.

Venkatesh, V., & Davis, F. D. (1996). A Model of the Antecedents of Perceived Ease of Use : Development and Test. *Decision Sciences*, *27*(3), 451-481. https://doi.org/10.1111/j.1540-5915.1996.tb01822.x

Zhou, Y., Zhou, Q., Gan, S., & Wang, L. (2018). Factors affecting farmers' willingness to pay for adopting vegetable residue compost in North China. *Acta Ecologica Sinica*, *38*(6), 401-411. https://doi.org/10.1016/j.chnaes.2018.04.001