Turnitin

by An. Dr. Surya Darma

Submission date: 21-Nov-2021 09:37AM (UTC-0600)
Submission ID: 1683095331
File name: Output_Turnitin_Dr._Surya_Darma.pdf (791.85K)
Word count: 6436
Character count: 34688

The Productivity of Wineries – An Empirical in Moldova

Surya Darma
Department of Agroecotechnology, Faculty of Agriculture,
Universitas Mulawarman, Samarinda – Indonesia
Corresponding Email: surya_darma@faperta.unmul.ac.id

Dirga Lestari
Department of Management, Faculty of Economics and Business,
Universitas Mulawarman, Samarinda – Indonesia
Email: dirga.lestari@feb.unmul.ac.id

Dio Caisar Darma
Department of Management, Sekolah Tinggi Ilmu Ekonomi Samarinda,
Samarinda – Indonesia
Email: diocaisar@stiesam.ac.id

Abstract:. Wine has a historical importance to the Moldovan economy. Since the 18th century, it is noted, this commodity has contributed to revitalizing the export market and has prospered many workers. It's not enough to stop there. Wine also plays a role in lifting Moldova's status because it is an inspiration for other countries that have similar potential in rural areas. The goal of this researchwas to identify how large the land size, seed, and labor for the productivity of wineries in Moldova with 2 models. We intend to examine and explain the relationship between independent and dependent variables using panel data in 5 regional units (Bălţi, Chisinau, Bender, Gagauzia, and Transnistria). The analytical tool used is a multiple regression through SPSS software. Empirical findings produced are that there is a positive-significant influence on land size and labor on productivity, while the seed has a negative-significant effect. This discovery also resulted in an important experience, which is regulation to stimulate the productivity and potency of wine through the relaxation of the agrarian sector.

Keywords: Land size; Seed; Labor; Productivity; Wineries; Multiple regression; Moldova.

1. Introduction

. The major key to answer the challenges of food security and climate change is to highlight the productivity of the agricultural sector. To start this idea, it is necessary to maximize the concrete opportunities to meet the exponentially high demand side of the world population for food production (Ullah et al., 2017).

A small country called Moldova, which is included in the Eastern European region, may rarely hear echoing, but this country has agricultural and wine products that are actually driven by developed countries. The poorest country in Europe is often told to have poor infrastructure (Stratan et al., 2015).

We know Moldova for having low hills; the plain is always well lit by the sun, many rivers flow, and the moderate climate formed by the Black Sea provides all the ideal conditions needed to grow grapes. In fact, wine from Moldova is the most famous and is so calculated throughout Eastern and Western Europe. The tradition of winemaking in Moldova has started thousands of years ago. Fossil evidence shows that grapes grew naturally 25 million years ago. Meanwhile, agriculture and winemaking grew at least 4,000 to 5,000 years ago.

Wine farming in Moldova is very encouraging. These vines number tens of hectares beautifully maintained and become a special attraction. Besides wine farming, there is something equally amazing about wine in the underground part of the country. There is a vast underground warehouse with miles long, shaped tunnels of wine (for example Ahrendsen et al., 2016; Bedek and Njavro, 2016).

One of the most famous wine cellars in the world and located in Moldova, such as Miletii Mici. This place is included in the largest wine cellar in the world. It holds up to 2 million bottles stretching 200 kilometers, even though only about 55 kilometers are actually used. In order not to be confused, each location is given a street name to help people navigate, and visitors can drive their cars and bicycles, in a very large underground city. The tunnel originally belonged to one of the old limestone mining companies (Goncharuk and Figurek, 2017). When the mine closed in the late 1960s, caves were turned into Miletii Mici's wine cellars. Limestone galleries remain at high humidity (85-95%) and cold temperatures (12-14°C) throughout the year which ultimately become ideal conditions for storing old red wine (Scrimgeour et al., 2015).

In 2006, the demand for the wine sector caused an increase in the aggregate national economy. Even wine production affected 80% of Moldova's total GDP in 2005. We estimated that for 2007, the contribution from this sector was around 2.3%. Through policies in the wine's development industry (legal framework, rules, and brands), can increase the income of small and large-scale producers. In addition, something indirectly integrated it into the tourism sector, business development, and creating new job opportunities (Pîşchina, 2018).

Long before the wineries business developed as it is today, it did to meet daily food needs, but along with the times seeing the conditions that this business can bring in income, then there is a shift besides just meeting daily needs can also be income for winegrowers. Seeing this reality, wine productivity is trying to develop

a business with various efforts or steps such as intensification so that farming can increase from time to time (Ryś-Jurek, 2009).

Weight or volume usually measures agricultural products. Ironically, an urgency has arisen regarding the crucial step to combine the excess volumes of unequal agricultural products. A realistic approach when faced with crop problems is to process them into common physical units, such as rice and sorghum (for example Dubock, 2017; Knaus et al., 2017).

Separately, in calculating the performance of the agricultural sector in monetary terms, the formula is the overall reduction of agricultural sector production by the amount of inputs sourced from non-cash transactions (e.g. self-consumption, small trade, and barter) as well as cash transactions as the final product. Then, the meaning of the final output differs from agricultural GDP because it does not reduce the input output from the non-agricultural sector (Antara and Sumarniasih, 2017). Then, the final product focused on the sum of the availability of agricultural output as part of GDP. On the one hand, agricultural GDP aims to measure the net contribution to GDP.

There is a mismatch between productivity and tenure measures in case studies on certain lands. The negative evidenced of land productivity on farm size evidences this in many fields in Russia (Visser et al., 2014). In Indonesia, they impress that the traditional agricultural operator factor that applies inputs excessively affects decreasing agricultural productivity. This trend is considered not ideal because the resulting output is also smaller (Suyatno et al., 2018). So far, the aspect of labor in the agricultural sector, which is supported by families, has proliferated, so its size has also decreased (Bloome, 2014).

Obasi (2007), Chen et al. (2011), as well as Rahman and Rahman (2009) confirm important investigations into the relationship between productivity and land size. From Nigeria, productivity is largely determined by land area. The quality of the input has helped small farmers there, although not optimally. In China, practices in technologically advanced agricultural areas have linked productivity with land size, where there is a unidirectional effect. In developing areas, the relationship is reversed. Observing the dynamics of agriculture in Indonesia, they tried to adopt an agricultural system that has been successfully implemented in Nigeria and China.

The factors of land area and fertilizer production positively and significantly affect farmer's income. Seed production factors have a significant effect on rice production, while labor production factors are not significant in rice production (Noormansyah and Cahrial, 2020).

In the long-term, all stakeholders have benefited from productivity growth in the agricultural sector. Of course this is very promising, because the farmers

themselves get an increase in income, encourage enthusiasm for employment, a more dynamic supply chain or distribution system, the affordability of cheaper food prices, and a multiplier effect on tax revenues to the government (Krištić et al., 2016). Thath (2016) highlights positive progress on agricultural productivity growth in Southeast Asia and East Asia, except for countries with small landmasses such as Singapore, Hong Kong, and Brunei Darussalam because they are more focused on industrialization.

It should maximize the decision to organize work. For example, specific coordination supports technical parameters in agriculture related to work processes that consider economic factors. The flexibility of work in agriculture highly depends on labor resources and applying a set of tools (technology). Otherwise, it will all end in vain (Peake et al., 2019).

Conradie et al. (2006) revealed that growing organic and other types of grapes in South Africa has attracted the attention of academics. They reduced losses and stimulating sustainable efficiency. This part is inseparable from their focus on being more selective in applying the location or spacing of plants, the use of irrigation through electricity, maximum harvest percentage, education, age, and of course holding special training for farmers regularly. Another positive note is that it combines technology with productivity, so that the efficiency of the winery is consistently improving. That fact is a contrast between Spain and Italy. Many wineries cannot adapt to the technology because they did manually some of the work.

Regarding inputs, the three productive factors in the wine industry are the number of employees as representatives of workers, the level of wine equity (reserve capital), and the amount of debt (short and long term) as a fundamental dimension of international competition (Viviani, 2008). For example, Seller and Alampi-Sottini (2016) proved that manager support is important to improve and enhance the competitiveness of wine in Italy. In addition, József and Péter (2014) advocates efficiency related to several economic factors such as financial development, systems, interconnected wine per capita consumption, and quality of human capital in the best wine-producing countries (America, South Africa, and Oceania).

The allocation of labor in each pattern of land ownership is divided by the type of labor (in the family and outside the family) and the stages of farming, namely land clearing, soil management, seedbed, seedling, planting, weeding, fertilizing, spraying, and harvest. Next to find out whether there are differences in the allocation of labor in the farming of owners, tenants, and dents farmers (Forbord et al., 2014).

The scale of business highly depends on the expansion of land, which is linked to efficiency in the agricultural sector (Yu and Wu, 2018). The area of land that resulted in efforts to take actions that lead to the aspect of efficiency will be reduced because of the weak supervision of production factors such as seeds, fertilizers, medicines, and labor. In addition, the limited supply of labor around the area, which in turn affects the efficiency of the agricultural business.

Since ancient times, agriculture has supported the lives of many people, especially in India, China, Babylon, and Egypt. Silagadze (2018) recognized that today still have the instincts, precious relics, and abundant resources to manage agriculture. However, in the modern era, we forget and are insensitive to cultivate this sector.

Seeing this condition, this happens because the management of the land done improperly, this may be because of the area of land, the price of seeds, expensive labor costs, and the use of technology is still simple, so that in management it will cost a very large production cost compared to modern land management and costs can reduce (Anggraini et al., 2020). Therefore, the aspect of efficiency must get serious attention in order to get the desired product, so that it can cover the costs incurred during the production process with income after the grape harvest. The goal of the research is to find out how big is the impact of land size, seed, and labor in influencing the productivity of wineries in Moldova.

Referring to the arguments, perspectives, and complexity described previously, we planned the research into 5 attributes, including introduction, model conception and method, empirical data and analysis, discussion, and conclusion and suggestion.

2. Model Conception and Method

We planned the foundation of this study with a quantitative-associative approach. Specific provisions to test causality between variables empirically between land size, seed, and labor on the productivity of wineries in 5 regions (Bălţi, Chisinau, Bender, Gagauzia, and Transnistria) in Moldova. Data is implemented for the period 2011-2019.We apply the data panel as a parameter in the regression scale that relates the cross-section and time series data (Fitrianto and Musakka, 2016). There are several benefits got by using panel data estimates. First, increasing the number of observations (samples), and second, getting variations between different units according to space and variations according to time (Lau and Baharumshah, 2006). In the panel data, there is little colinearity between variables, so it is very unlikely that multicollinearity will occur (Azzoni et al., 2011). Panel data applied by pooling least square (common effect) for 2019. We

apply parameters in exploration of the panel data with Ordinary Least Square (OLS).

To find out the extent of the effect of using land size, seed, and labor on productivity, multiple regression was used. The assumptions for the equation function are formulated with the following specifications:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots + \beta_n Xn_{it} + e_{it} \qquad (1)$$

Where: Y_{it} (dependent variable), X_{it} (independent variable), i (entity), and t (period). To use the equation model based on the above description, then the equation is converted into multiple regression techniques forms by mathematical translation (Siregar, 2013). An equation function can be written:

$$Ln\ P = \beta_0 + \beta_1 Ln\ LS + \beta_2 Ln\ S + \beta_3 Ln\ L + e^u \qquad (2)$$

Where: Ln (the natural logarithm), P (productivity), LS (land size), S (seed), L (labor), B_0 (constant), $\beta_1\beta_2\beta_3$ (productivity elasticity coefficient), and e (error terms).

The normal distribution scale uses 1% and 5% as probabilities that represent the population mean. For extra conditions, standard deviation applies to get the calculation threshold, so that if it exceeds the threshold, both are rejecting the hypothesis (e.g. Wijaya et al., 2021; Leys et al., 2013).

3. Empirical Data and Analysis

It must meet the closeness of the relationship or the correlation coefficient between variables with basic assumptions or requirements when we use partial correlation tests to analyze research data. Some requirements are because each research variable uses ratio or interval scale data and because the test is part of parametric statistics, the data must normally distribute (Sujarweni, 2014).

Table-1. Pearson correlation matrix

Variables	P	LA	S	L
P	1.000	0.832	0.724	0.778
LS	0.832	1.000	0.919	0.754
S	0.724	0.919	1.000	0.904
L	0.778	0.754	0.904	1.000

(**Source:** author's using SPSS)

Table 1 reveals that the closeness of the relationship to productivity, the land size variable which has a strong correlation coefficient (0.832), and the land size,

the seed variable with a correlation value reaches 0.919 or strong. For the seed variable, the land size, which is classified as strong, is 0.919 and for Labor, the variable that has the strongest correlation coefficient is the seed (0.904).

In Table 2, collinearity diagnostics because of the linear regression test, we also note the eigenvalue and condition index values. In this SPSS output, the eigenvalue values of each variable are 0.306, 0.058, and 0.010 or greater than 0.01 (value > 0.01). Even though collinearity diagnostics from panel data for each variable is 3.439, 7.898, and 18.745, which are less than the statutory requirement.

Table-2 . Collinearity diagnostics

Variables	Eigenvalue	Condition Index
Constans	3.625	1.000
LS	0.306	3.439
S	0.058	7.898
L	0.010	18.745

(**Source:** author's using SPSS)

To determine the independent variable that is dominantly influencing changes in the dependent variable in a linear regression model, the results of the beta coefficient used. For the standardized beta coefficient, it standardized each coefficient of the independent variable through the model. Then, by comparing each of the beta coefficients, the largest beta coefficient can chosen as an indicator of the dominant variable. In this method, we found the greatest standardization of beta coefficients in variables. Table 2 presents in models 1 and 2, some variables have the lowest coefficient values, namely seed (-0.033 and -2.207). The constant quantities are 21.903 and 16.455, while the two other independent variables (land size and labor) have a positive impact on productivity.

Table-3. Regression results

Components	Model 1	Model 2
Constant	(21.903)	(16.455)
	0.037*	0.021**
LS	(0.001)	(1.786)
	0.040*	0.037**
S	(-0.033)	(-2.207)
	0.083*	0.043**
L	(0.015)	(1.426)
	0.061*	0.043**
R^2	0.999	0.956
Adj. R^2	0.995	0.987
F-test	256.839	249.470
DW	2.345	2.602
N	25	25

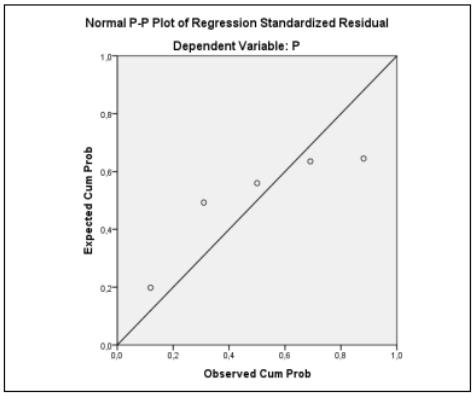
(**Source:** author's using SPSS. Notes: p <0.05**, p <0.01*)

For the probability level, we use 2 research models (0.01 and 0.05), which can explain that in model 1, all independent variables have a significant effect on productivity, where the most dominant is the land size of 0.040. Model 2, showing land size, seed, and labor, also has a significant impact on productivity. For the most dominant variable, land size (0.037).

The decision in the coefficient of determination (R^2) between 0 to 1, which interprets the strength of the model variance (ZA et al., 2021).Based on Table 3, R^2 figures of 0.999 (model 1) and 0.956 (model 2) are obtained. As a result, land area, seed, and labor explicitly affect productivity with a notch of 99.9% and 95.6% of the dependent variable variations. Meanwhile, the remaining 0.1% (model 1) and 4.4% (model 2) are influenced or explained by other variables not included in the panel model.

Zarkasyi et al. (2021) popularized Adjusted R^2 as an item of R^2 to examine the closeness of the relationship in the model, the lack of causality of the two variables. To complement the weaknesses of R^2, we can use R squared adjusted. In this adjusted R^2, we have considered the number of sample data and the number of variables used. So, we can know that models 1 and 2 of this study have used, because the error value is 0.005 (5%) and 0.013 (1.3%).

Figure-1. Normality test results



(**Source:** author's using SPSS)

In the procedure of detecting autocorrelation problems, the Durbin-Waston quantity is used (Suparjo et al., 2021). With a sample size of 5 out of 4 overall variables, from models 1 and 2, the DW-test results were 2.345 and 2.602. Durbin-Watson values below 4 (du <d <4) concluded that there was no autocorrelation. Thus, the two models do not have autocorrelation problems. It showed the results of the autocorrelation test in Table 3.

Regression equations to be good if they have independent variable data and the bound variable data are near normal or normal (Sunyoto, 2010). From Figure 1,

you can see the form of dividing a diagonal straight line that illustrates the actual data that will follow the diagonal line. The forming of the Productivity variable data has a normal distribution.

4. Discussion

Empirical findings suggest that of the two models used, land size and labor both have positive-significant effects on productivity. The partially variable seed has a negative-significant effect on productivity in the wineries. This is inseparable from the panel data (5 regions) in Moldova which have characteristics of land size, seed use, labor force, and grape production variance. As for developments in 2019 (see Table 4).

During 2019, the NBS of the Republic of Moldova recorded an area of up to 55,399 ha of plantations with the use of 3,325 tons of seed, and a workforce of 318,053 people could produce 180.78 quintals of grape production. As additional information, from that number, Chisinau as an area with the largest plantation area, among others, namely 30,801 ha, grape seed reached 1,423 tons, can employ 97,988 people, to produce 48.17 quintals of grape production. Meanwhile, the Bender region (at least) produces around 26.50 quintals of grapes, where the plantation area is only 2,513 ha, done by 11,056 people with grapes of 76 tons.

Table-4. Land size, seed, labor, and productivity of wineries in Moldova, 2019

Autonomous Regions	Land Size (ha)	Seed (tons)	Labor (manpower)	Productivity (quintal)
Bălți	4,531	289	60,605	39.34
Kishinev	30,801	1,423	97,988	48.17
Bender	2,513	76	11,056	26.50
Gagauzia	6,324	522	61,675	33.65
Transnistria	11,230	1,015	86,729	33.12
Total	55,399	3,325	318,053	180.78

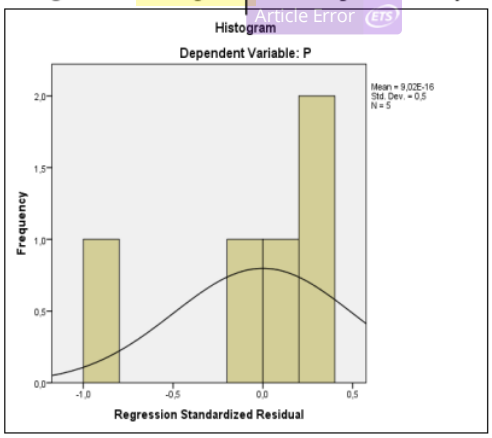
(**Source:** National Bureau of Statistics of the Republic of Moldova, 2020)

A histogram is a graph that contains a summary of the distribution (dispersion or variation) of a data and displays the frequency of the data. Using histogram charts has widely applied in statistics. The number of data points in a range of values (classes) easily interpreted using a histogram. It described data frequency in each class using a bar or column graph. Figure 2 calculates the histogram frequency value on the dependent variable forming Productivity, i.e. land size, seed, and labor with data distribution (5 units) of 9,024 and the standard deviation are 0.5.

Based on the pattern of ownership, it divided farmland into 3 types, namely: self-owned land, leased land, and land for profit sharing (Adenuga et al., 2021).

Therefore, this discussion on land management patterns is important in efforts to achieve food security and farmers' welfare.

Figure-2. Histogram chart of productivity



(**Source:** Author's using SPSS)

Contract labor is a substitute for family labor, while hired labor is complementary labor for family labor, it has also identified this relationship in the structure of agricultural labor in France (Dupraz and Latruff, 2015). The production sharing system as a form of informal farming partnership between farmers and landowners is the best economic choice for landowners. This research suggests that to improve their welfare, farmers need to be facilitated to own their land (Rondhi and Adi, 2018).

The results of the previous analysis explained that the land size factor has a positive-significant effect on productivity. This proves that as land size increases, it will increase the productivity of the wineries. In agriculture, land tenure for the community is the most important element to improve their welfare. The extent of land tenure for farm households will affect the production of farming, which will determine the level of exports (Holden and Otsuka, 2014).

The suitability of these findings is consistent with what was done by Wickramaarachchi and Weerahewa (2018). They have questioned the discrepancy between land productivity and plot size in Sri Lanka. Noted, there is an inverse relationship between the two caused by the land area has exceeded a certain limit. The good news is a comprehensive workforce capacity supported that agricultural productivity.Empirical findings show that the seed factor has a negative-not significant effect on productivity. This proves that the increase in the seed will reduce the productivity of the wineries. Besides the land area, seeds also influenced grape production. Agricultural production will affect the inputs that will used in the production process (Darma et al., 2020). The input used is a seed. Using seeds

causes changes in yield quickly and more productive results. Using seeds by garden owners depends on the area of land in use. As the area of land use, the number of seeds given will increase. Besides the area of land, the use of the seed, the productivity of grapes will also depend on the labor used.

In the process of wine production, it divided capital of 2 types (fixed capital and non-fixed capital). We define fixed capital as costs incurred in the production process that is not used up in a single production process such as land, buildings, and machinery. Meanwhile, non-permanent capital is the cost incurred in the production process and used up in one production process, for example, production costs incurred to purchase seeds, fertilizers, and pesticides.

Our results appear to contradict previous studies by Ramya and Muruganandham (2016). Their exploration concluded that agricultural mechanisms managed by individuals and organizations have a simultaneous effect on agricultural production inputs and outputs. It required strict supervision to ensure the quality of the workforce, which includes machine repair, maintenance, servicing, and driving.Statistical testing found that labor had a positive-significant impact on productivity. We can interpret this factor that as labor increases, it will increase productivity. Wine production factors, such as labor, is an important factor and need to be considered in the production process because a competent workforce means that the production process can run smoothly. In the end, it can lead to increased production, such as wineries. They need a competent workforce in the process of wine cultivation, ranging from land management, planting, maintenance, harvesting, to post-harvest grapes (Imogie et al., 2017).

The relationship between labor and productivity from this research is in harmony with previous studies did what. Barman and Deka (2019) pioneered research revealing declining trends in productivity in agriculture and animal husbandry with different accounts of increasing workgroups. Increasing employment opportunities is in line with the capacity of land size, so that it has a broad impact on production value.

We have reviewed various studies in other countries on how strategies implemented to realize the productivity of vineyards in various countries that are known for producing the best wines in terms of management and technology. Specifically for this study, we used 3 different components such as land size, seed, and labor to explore the extent of their impact on wine productivity in Moldova. The vital difference lies in the indicator. The resulting novelty are the three variables in this study as a special combination involving an important input to wine productivity. Grapes can grow if an area has cold temperatures, where rainfall is 800 mm - 3,500 mm per year for the class, the intensity of sunlight is >75%, and the altitude reaches 0 m - 1,000 m above sea level.

5. Conclusion and Suggestion

Referring to the results of research and discussion statistically, we can make several important points. In this section, we know that land size and labor are both positive-significant influences on the productivity of wineries. On one hand, the seeds have a negative-significant effect on the productivity of wineries in Moldova.

Changes in managing economic resources that are no longer oriented only to efforts to increase production, but also to efforts to increase income and welfare of the community reflect changes in the agricultural structure. The transformation process needs to be encouraged by increasing the ability of wine growers and fixing their shortcomings on all fronts. In the end, in carrying out activities, farmers are more independent, skilled, dynamic, efficient, proportionate, and able to take advantage of market opportunities (an environment that is preserved and sustainable).

The size or minimum yield of an agricultural business will affect the income of farmers who have an area, the use of labor, and seeds, which will get a lot of results, so get a lot of results too. For farmers who have a few of these factors, the production level is also small, and get a low income (Juliyanti and Usman, 2018).

For future research agendas, the theoretical and practical contributions of this research emphasize the expansion of case studies that can be developed with more varied indicators. In addition, we expect it to be more expansive in highlighting phenomena that relevant to agricultural problems so that they provide useful meaning for many parties.

Acknowledgments

There are no internal or external grants (sponsors) in this study. All authors contributed, including conceptualization, draft writing, data collection, data analysis and interpretation, validation, and manuscript revision. We are also very grateful to the reviewers at Journal of Agriculture and Crops for their positive comments and constructive recommendations.

References

Adenuga, A. H., Jack, C., & McCarry, R. (2021). The case for long-term land leasing: a review of the empirical literature. *Land,* 10(3): 238. https://doi.org/10.3390/land10030238

Anggraini, R. I., Sudarnika, E., Pisestyani, H., Wicaksono, A., & Sudarwanto, M. (2020). Manpower planning in the application of teat dipping to control sub clinical mastitis in the small dairy farms. *Jurnal Manajemen & Agribisnis,* 17(1): 26-32. https://doi.org/10.17358/jma.17.1.26

Ahrendsen, B. L., Bielik, P., & Horská, E. (2016). Organic food sourcing, processing and distribution: a case of satisfying a growing market. *Applied Studies in Agribusiness and Commerce,* 10(1): 5-10. https://doi.org/10.22004/ag.econ.244438

Antara, M., & Sumarniasih, M. S. (2017). Role of tourism in economy of Bali and Indonesia. *Journal of Tourism and Hospitality Management,* 5(2): 34-44. https://doi.org/10.15640/jthm.v5n2a4

Azzoni, C. R., Kalatzis, A. E., & Bassetto, C. F. (2011). Multicollinearity and financial constraint in investment decisions: a Bayesian generalized ridge regression. *Journal of Applied Statistics,* 38(2): 287-299. https://doi.org/10.1080/02664760903406462

Barman, S., & Deka, N. (2019). Effect of farm mechanization in human labour employment. *International Journal of Agricultural Science,* 4: 16-22. https://www.iaras.org/iaras/filedownloads/ijas/2019/014-0003(2019).pdf

Bedek, Ž., & Njavro, M. (2016). Risks and competitiveness in agriculture with emphasis on wine sector in Croatia. *Applied Studies in Agribusiness and Commerce,* 10(1): 11-18. https://doi.org/10.19041/APSTRACT/2016/1/1

Bloome D. (2014). Racial inequality trends and the intergenerational persistence of income and family structure. *American Sociological Review*, 79(6): 1196–1225. https://doi.org/10.1177/0003122414554947

Chen, Z., Huffman, W., & Rozelle, S. (2011). Inverse relationship between productivity and farm size: the case of China. *Contemporary Economic Policy,* 29(4): 580-592. https://doi.org/10.1111/j.1465-7287.2010.00236.x

Conradie, B., Cookson, G., & Thirtle, C. (2006). Efficiency and farm size in Western Cape grape production: pooling small datasets. *South African Journal of Economics,* 74(2): 334-343. https://doi.org/10.1111/j.1813-6982.2006.00061.x

Darma, S., Maria, S., Lestari, D., & Darma, D. C. (2020). An agroforestry consortium: a multiderminant in instituting an agrisilviculture system to improve welfare. *Virtual Economics,* 3(1): 95-111. https://doi.org/10.34021/ve.2020.03.01(5)

Dubock, A. (2017). An overview of agriculture, nutrition and fortification, supplementation and biofortification: golden rice as an example for enhancing micronutrient intake. *Agriculture & Food Security,* 6(59): 1-20. https://doi.org/10.1186/s40066-017-0135-3

Dupraz, P., & Latruffe, L. (2015). Trends in family labour, hired labour and contract work on French field crop farms: the role of the common agricultural policy. *Food Policy,* 51: 104–118. https://doi.org/10.1016/j.foodpol.2015.01.003

Fitrianto, A., & Musakka, N. F. (2016). Panel data analysis for Sabah construction industries: choosing the best model. *Procedia Economics and Finance*, 35: 241-248. https://doi.org/10.1016/S2212-5671(16)00030-7

Forbord, M., Bjørkhaug, H., & Burton, R. J. (2014). Drivers of change in Norwegian agricultural land control and the emergence of rental farming. *Journal of Rural Studies,* 33: 9-19. https://doi.org/10.1016/j.jrurstud.2013.10.009

Goncharuk, A.G., & Figurek, A. (2017). Efficiency of winemaking in developing countries: evidence from the Ukraine and Bosnia and Herzegovina. *International Journal of Wine Business Research,* 29(1): 98-118. https://doi.org/10.1108/IJWBR-02-2016-0007

Holden, S. T., & Otsuka, K. (2014). The roles of land tenure reforms and land markets in the context of population growth and land use intensification in Africa. *Food Policy,* 48: 88-97. https://doi.org/10.1016/j.foodpol.2014.03.005

Imogie, A. E., Ogeh J. S., Ugbah M. M., Inikio, S. E., Uhribo, F., & Uche C. O. (2017). Effect of time of tapping on raphia hookeri palm wine production and sugar content at Otegbo, Delta State, Nigeria. *Journal of Agriculture and Crop*s, 3(5): 36-39. https://arpgweb.com/journal/14/archive/05-2017/5/3?ic=search

József, T., & Péter, G. (2014). Is the new wine world more efficient? factors influencing technical efficiency of wine production. *Studies in Agricultural Economics,* 116: 95-99. https://doi.org/10.7896/j.1411

Juliyanti, J., & Usman, U. (2018). Pengaruh luas lahan, pupuk dan jumlah tenaga kerja terhadap produksi padi gampong matang baloi [The effect of land area, fertilizer and the number of workers on the production of baloi ripe gampong rice]. *Jurnal Ekonomi Pertanian Unimal,* 1(1): 31-39. https://doi.org/10.29103/jepu.v1i1.501

Knaus, F., Bonnelame, L. K., & Siegrist, D. (2017). The economic impact of labeled regional products: the experience of the UNESCO Biosphere Reserve Entlebuch. *Mountain Research and Development*, 37(1): 121-130. https://doi.org/10.1659/MRD-JOURNAL-D-16-00067.1

Krištić, I. R., Družić, I., & Tica, J. (2018). Impact of the transition on the total factor productivity in Croatia. *Zbornik Radova Ekonomskog Fakultet au Rijeci,* 34(2): 271-308. https://doi.org/10.18045/zbefri.2016.2.271

Lau, E., & Baharumshah, A. Z. (2006). Twin deficits hypothesis in SEACEN Countries: A panel data analysis of relationships between public budget and current account deficits. *Applied Econometrics and International Development,* 6(2): 213-226. https://www.usc.gal/economet/reviews/aeid6215.pdf

Leys, C., Ley, C., Klein, O., Bernard, P., & Licata, L. (2013). Detecting outliers: Do not use standard deviation around the mean, use absolute deviation around the median. *Journal of Experimental Social Psychology,* 49(4): 764-766. https://doi.org/10.1016/j.jesp.2013.03.013

National Bureau of Statistics of the Republic of Moldova. (2020). Statistica Moldovei. *Agriculture*. http://statistica.gov.md/pageview.php?l=en&idc=430

Noormansyah, Z., & Cahrial, E. (2020). Efficiency of production factors and constraints of organic rice farming at rainfed rice. *IOP Conference Series: Earth and Environmental Science,* 466: 012027. https://doi.org/10.1088/1755-1315/466/1/012027

Obasi, P. C. (2007). Farm size - productivity relationship among arable crops in Imo State, Nigeria. *International Journal of Agriculture and Rural Development,* 9(1): 97-105. https://doi.org/10.4314/ijard.v9i1.2673

Peake, M. D., Burdine, K. H., Mark, T. B., & Goff, B. M. (2019). Factors affecting hay prices at auction: a hedonic analysis. *Agronomy Journal,* 111(2): 736-740. https://doi.org/10.2134/agronj2018.08.0524

Pîşchina, T. (2018). Economic growth though competitive advantage and specialization: the example of winemaking in Moldova. *European Journal of Economics and Business Studies,* 4(1): 150-155. https://doi.org/10.2478/ejes-2018-0015

Rahman, S., & Rahman, M. (2009). Impact of land fragmentation and resource ownership on productivity and efficiency: the case of rice producers in Bangladesh. *Land Use Policy,* 26(1): 95-103. https://doi.org/10.1016/j.landusepol.2008.01.003

Ramya, P., & Muruganandham, V. (2016). Impact of agricultural mechanization on production, productivity and employment of labour. *Shanlax International Journal of Commerce,* 4(3): 216-222. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.511.5214&rep=rep1&type=pdf#:~:text=To%20sum%20up%2C%20agricultural%20mechanization,the%20productivity%20of%20farm%20labour

Rondhi, M., & Adi, A. H. (2018). The effects of land ownership on production, labor allocation, and rice farming efficiency. *AGRARIS: Journal of Agribusiness and Rural Develpoment Research,* 4(2): 101-110. https://doi.org/10.18196/agr.4265

Ryś-Jurek, R. (2009). The relations between the output, income and stock in agricultural farms. *Journal of Agribusiness and Rural Development,* 14(4): 135-148. https://www1.up.poznan.pl/jard/index.php/jard/article/view/1038

Scrimgeour, N., Nordestgaard, S., Lloyd, N. D., & Wilkes, E. (2015). Exploring the effect of elevated storage temperature on wine composition. *Australian Journal of Grape and Wine Research,* 21: 713-722. https://doi.org/10.1111/ajgw.12196

Sellers, R., & Alampi-Sottini, V. (2016). The influence of size on winery performance: evidence from Italy. *Wine Economics and Policy,* 5(1): 33-41. https://doi.org/10.1016/j.wep.2016.03.001

Sellers-Rubio, R., Alampi-Sottini, V., & Menghini, S. (2016). Productivity growth in the winery sector: evidence from Italy and Spain. *International Journal of Wine Business Research,* 28(1): 59-75. https://doi.org/10.1108/IJWBR-05-2015-0019

S

Silagadze, A. (2018). From the history of agrarian thought. *Annals of Agrarian Science,* 16(2): 213–217. https://doi.org/10.1016/j.aasci.2018.04.010

Siregar, S. (2013). *Metode penelitian kuantitatif: dilengkapi perbandingan perhitungan manual & SPSS [Quantitative research methods: equipped with manual comparisons & SPSS comparisons]*. Jakarta: Kencana Prenada Media Group.

Stratan, A., Fala, A., & Clipa, V. (2015). Risks to the agri-food sector of Republic of Moldova associated with restrictions imposed by the Russian Federation on Moldovan imports. *Procedia Economics and Finance,* 32: 324–331. https://doi.org/10.1016/S2212-5671(15)01400-8

Sujarweni, V. W. (2014). *SPSS untuk penelitian [SPSS for research]*. Yogyakarta: Pustaka Baru Press.

Sunyoto, D. (2010). *Uji chi kuadrat & regresi untuk penelitian [Chi square test & regression for research]*. Yogyakarta: Graha Ilmu.

Suparjo, S., Darma, S., Kurniadin, N., Kasuma, J., Priyagus, P., Darma, D. C., & Haryadi, H. (2021). Indonesia's new SDGs agenda for green growth – Emphasis in the energy sector. *International Journal of Energy Economics and Policy,* 11(3): 395-402. https://doi.org/10.32479/ijeep.11091

Suyatno, A., Imelda, I., & Komariyati, K. (2018). The effect of tractor utilization on revenue and use of labor on rice farming in Sambas Regency. *AGRARIS: Journal of Agribusiness and Rural Development Research,* 4(2): 91-100. https://doi.org/10.18196/agr.4264

Thath, O. (2016). The impact of agricultural land and labor productivity on poverty: The case of rice farming households in Cambodia. *MPRA Paper No. 70920*. Faculty of Development Studies, Royal University of Phnom Penh. http://mpra.ub.uni-muenchen.de/70920/

Ullah, R., Shivakoti, G., & Helmi, H. (2017). Managing dynamic natural resources in 21st century in Asia. *Redefining Diversity & Dynamics of Natural Resources Management in Asia,* 1: 371-385. https://doi.org/10.1016/B978-0-12-805454-3.00020-7

Visser, O., Spoor, M., & Mamonova, N. (2014). Is Russia the emerging global 'breadbasket'? re-cultivation, agroholdings and grain production. *Europe-Asia Studies,* 66(10): 1589-1610. https://doi.org/10.1080/09668136.2014.967569

Wickramaarachchi, N. C., & Weerahewa J. (2018). Relationship between land size and productivity: Empirical evidence from paddy farms in irrigation settlements of Sri Lanka. *Sri Lanka Journal of Economic Research,* 5(2): 125-142. http://doi.org/10.4038/sljer.v5i2.52

Wijaya, A., Kasuma, J., Tasenţe, T., & Darma, D. C. (2021). Labor force and economic growth based on demographic pressures, happiness, and human development: Empirical from Romania. *Journal of Eastern European and Central Asian Research,* 8(1): 40-50. https://doi.org/10.15549/jeecar.v8i1.571

Yu, J., & Wu, J. (2018). The sustainability of agricultural development in China: The agriculture–environment nexus. *Sustainability,* 10(6): 1776. https://doi.org/10.3390/su10061776

ZA, S. Z., Amalia, S., Darma, D. C., & Azis, M. (2021). Spurring economic growth in terms of happiness, human development, competitiveness, and global innovation: The asean case. *ASEAN Journal on Science and Technology for Development,* 38(1): 1–6. https://doi.org/10.29037/ajstd.653

Zarkasyi, M. R., Kurniawan, D. A., & Darma, D. C. (2021). Urgensity of "halal tourism": religiosity, awareness, and interest from stakeholders. *Journal of Environmental Management and Tourism,* 12(4): 968 - 976. https://doi.org/10.14505/jemt.v12.4(52).11

Turnitin

ORIGINALITY REPORT

4%	3%	3%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.tandfonline.com Internet Source	1%
2	cesmaa.org Internet Source	<1%
3	ejournal.umm.ac.id Internet Source	<1%
4	www.agba.us Internet Source	<1%
5	Submitted to University of Central Lancashire Student Paper	<1%
6	J.R. McAlpine, D.F. Freyne. "Land Use Change and Intensification in Papua New Guinea 1975–1996", Asia Pacific Viewpoint, 2003 Publication	<1%
7	Syaharuddin Yijo, Asnawati Asnawati, Surya Darma, Gusti Noorlitaria Achmad et al. "Social Experiments on Problems from Tomato Farmers during Covid-19 -Indonesia Case", SAR Journal - Science and Research, 2021 Publication	<1%

8	journal.uwks.ac.id Internet Source	<1%
9	journal.seisense.com Internet Source	<1%
10	unece.org Internet Source	<1%
11	Z Noormansyah, E Cahrial. "Efficiency of Production Factors and Constraints of Organic Rice Farming at Rainfed Rice", IOP Conference Series: Earth and Environmental Science, 2020 Publication	<1%
12	ideas.repec.org Internet Source	<1%
13	publishing-widyagama.ac.id Internet Source	<1%
14	Guisado-González, Manuel, Mercedes Vila-Alonso, and Manuel Guisado-Tato. "Radical innovation, incremental innovation and training: Analysis of complementarity", Technology in Society, 2016. Publication	<1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	On		

Turnitin

PAGE 1

Article Error You may need to remove this article.

Article Error You may need to use an article before this word. Consider using the article **the**.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to remove this article.

PAGE 2

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Proofread This part of the sentence contains a grammatical error or misspelled word that makes your meaning unclear.

Missing "," You may need to place a comma after this word.

S/V This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

Missing "," You may need to place a comma after this word.

Possessive You may need to use an apostrophe to show possession.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

PAGE 3

Article Error You may need to remove this article.

Missing "," You may need to place a comma after this word.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Confused You have used **a** in this sentence. You may need to use **an** instead.

Article Error You may need to use an article before this word. Consider using the article **the**.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Proofread This part of the sentence contains a grammatical error or misspelled word that makes your meaning unclear.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Article Error You may need to remove this article.

Proofread This part of the sentence contains a grammatical error or misspelled word that makes your meaning unclear.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Missing "," You may need to place a comma after this word.

Article Error You may need to remove this article.

Missing "," You may need to place a comma after this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Run-on This sentence may be a run-on sentence. Proofread it to see if it contains too many independent clauses or contains independent clauses that have been combined without conjunctions or punctuation. Look at the "Writer's Handbook" for advice about correcting run-on sentences.

Frag. This sentence may be a fragment or may have incorrect punctuation. Proofread the sentence to be sure that it has correct punctuation and that it has an independent clause with a complete subject and predicate.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Proper Noun If this word is a proper noun, you need to capitalize it.

Proofread This part of the sentence contains a grammatical error or misspelled word that makes your meaning unclear.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Article Error You may need to use an article before this word. Consider using the article **the**.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to use an article before this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Frag. This sentence may be a fragment or may have incorrect punctuation. Proofread the sentence to be sure that it has correct punctuation and that it has an independent clause with a complete subject and predicate.

Verb This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

Article Error You may need to remove this article.

Article Error You may need to remove this article.

Article Error You may need to use an article before this word. Consider using the article **the**.

Article Error You may need to use an article before this word. Consider using the article **the**.

Frag. This sentence may be a fragment or may have incorrect punctuation. Proofread the sentence to be sure that it has correct punctuation and that it has an independent clause with a complete subject and predicate.

Article Error You may need to remove this article.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Verb This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

Article Error You may need to remove this article.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to remove this article.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

PAGE 9

S/V This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

Run-on This sentence may be a run-on sentence. Proofread it to see if it contains too many independent clauses or contains independent clauses that have been combined without conjunctions or punctuation. Look at the "Writer's Handbook" for advice about correcting run-on sentences.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Article Error You may need to use an article before this word.

Missing "," You may need to place a comma after this word.

PAGE 10

Article Error You may need to use an article before this word.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Verb This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

PAGE 11

Article Error You may need to use an article before this word. Consider using the article **the**.

Wrong Form You may have used the wrong form of this word.

S/V This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

Article Error You may need to remove this article.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

PAGE 12

Confused You have used **to** in this sentence. You may need to use **two** instead.

Confused You have used **to** in this sentence. You may need to use **two** instead.

PAGE 13

PAGE 14

PAGE 15