Seasonal grass production and carrying capacity of buffalo grazing area in Paminggir, South Kalimantan

Abstract. The population and performance of Kalimantan swamp buffalo are declining. Diminishing grazing area and pasture biomass availability, especially in the rainy season, contribute to inadequate buffalo feed consumption. This study was conducted to investigate the seasonal productivity of palatable native grasses and to estimate the carrying capacity of the swamp grazing area. One year of observation indicated that kumpai banta and sumpilang had higher dry matter production in the deep-water season, whereas kumpai minyak was in the shallow-water season, and padi hiyang had similar production in both seasons. Dry matter production in the deep-water season was higher than in the shallow-water season (5.18 vs 4.61 ton DM/ha/month) as well as for the carrying capacity of swamp grazing area (15.5 vs 13.6 AU/season). It is concluded that the swamp grazing area in the Paminggir sub-district could carry higher than the existing buffalo population.

Keywords: Carrying capacity, Seasonal production, Swamp buffalo, Swamp grazing area

1. Introduction

Kalimantan swamp buffalo (*Bubalus bubalus carabanensis*) is one of the Indonesian swamp buffalo breeds that are widely distributed in South, Central and East Kalimantan Provinces. This swamp buffalo breed mainly raises in a non-tidal swamp area, even though a significant population of it can be found in hilly and forest areas of Kalimantan [1]. The swamp buffaloes are mainly used for agricultural labour, as a meat source and also kept as additional income for farmers [2]. Local swamp buffalo population and their productivity become more important since shortages in red meat sources urge Government to look at swamp buffalo as a potential red meat producer, especially in certain areas in which cattle farming is not feasible. In recent years, the volume of imported buffalo meat has been steadily increasing to reach 80,000 tonnes in 2021 [3].

However, the Indonesian swamp buffalo population kept on decreasing over the decade, including the Kalimantan buffalo in South Kalimantan province which declines 63%; from 44,603 heads in 2009 to only 16,556 in 2019 [4]. This decline is suspected due to calve rearing management and reproductive issues [5] and also due to the decrease in feed resources and grazing areas [6].

The previous study reported that there was a decrease in the area for buffalo grazing due to the change in land allocation to the residential, paddy field and oil palm plantations. Other research reported there are declines in the availability and productivity of native grasses species that are palatable for buffalo.

These resulted in high mortality of buffalo calves due to lack of feed, especially in the deep water season [5]. In addition [1] stated that the buffalo's body weight decreased even though the physical measurements were not significantly different from the previous report, where this was suspected because of a lack of feed intake and nutrition.

However, there is no data available for seasonal swamp grass production to estimate the carrying capacity of grazing areas for swamp buffalo in South Kalimantan. Therefore, this study was conducted to observe seasonal dry matter production in the swamp grazing area in Paminggir Sub-district, Hulu Sungai Utara District, South Kalimantan Province. Paminggir is a sub-district which has the highest population of Kalimantan swamp buffalo in South Kalimantan province and experienced a decline in buffalo population.

2. Methods

The study was conducted in Paminggir Sub District, Hulu Sungai Utara District, South Kalimantan Province, Indonesia. A sampling plot of 0.25 m² was placed in the buffalo grazing area, marked and surrounded by wood fencing thus the buffalo was unable to reach the grass inside the sampling plot. There are 7 villages in the Paminggir sub-district whereas three sampling plots were established in the buffalo grazing area of each village. Thus, there were 21 sampling plots established for the study. Buffalo farmers were interviewed to collect information on grazing practices, grass availability and fluctuation among seasons.

Grass production was measured once a month for 12 months (one year of observation). In every observation, grass species were recorded and weighed. According to local people knowledge, months were categorized into two seasons, namely shallow-water season (July, August, September, October and November) and deep-water season (December, January, February, March, April, May and June). The dry matter of the grass sample of each observation was determined in the laboratory according to the AOAC procedure.

Data were analysed to calculate seasonal dry matter production and its carrying capacity. The Swamp area carrying capacity was calculated as follows:

$$Carrying\ Capacity = \frac{Cumulative\ DM\ production \times proper\ use\ factor\ (\%)}{Animal\ needs(kg\ DM\ /\ AU\ /\ days) \times days\ in\ a\ season}$$
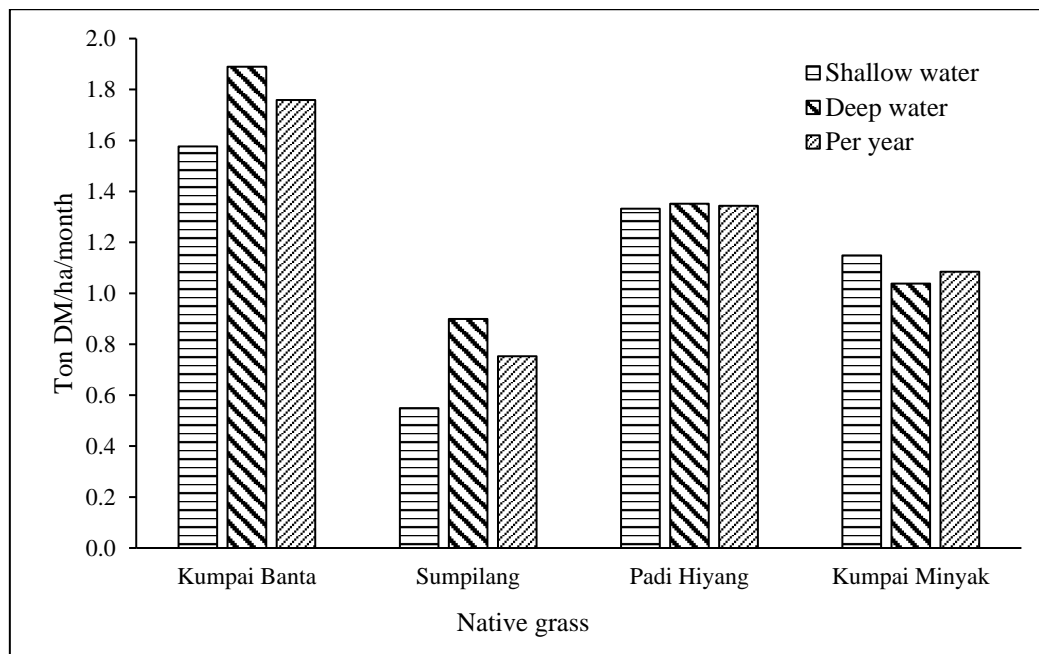
where:
DM   : dry matter
Proper use factor   : 68%
AU (buffalo BW)   : 300 kg
DM need/day   : 2.5% BW

3. Results

3.1 Seasonal Native Grass Production

The results showed that there are only 4 palatable grass species found in the sampling plots, namely Kumpai banta (*Paspalum sp*), sumpilang (*Cynodon dactylon*), Padi hiyang (*Oryza rofipogon*) and Kumpai minyak (*Hymenachne amplexicaulis*). Previous research stated that these four species of native grass are swamp grasses that have a high frequency of presence and are palatable by swamp buffalo [7]. Seasonal production from these grasses is presented in Figure 1 while the fluctuation of production over the season is presented in Figure 2.

This study indicated that there is a fluctuation in the production of palatable grasses for buffalo, whereas there are grass species that have higher dry matter production in the deep-water season than in the shallow-water season, namely Kumpai banta and Sumpilang. However, there are palatable grass species that have similar dry matter production in both seasons (Padi hiyang) or decrease during the deep-water season (Kumpai minyak).
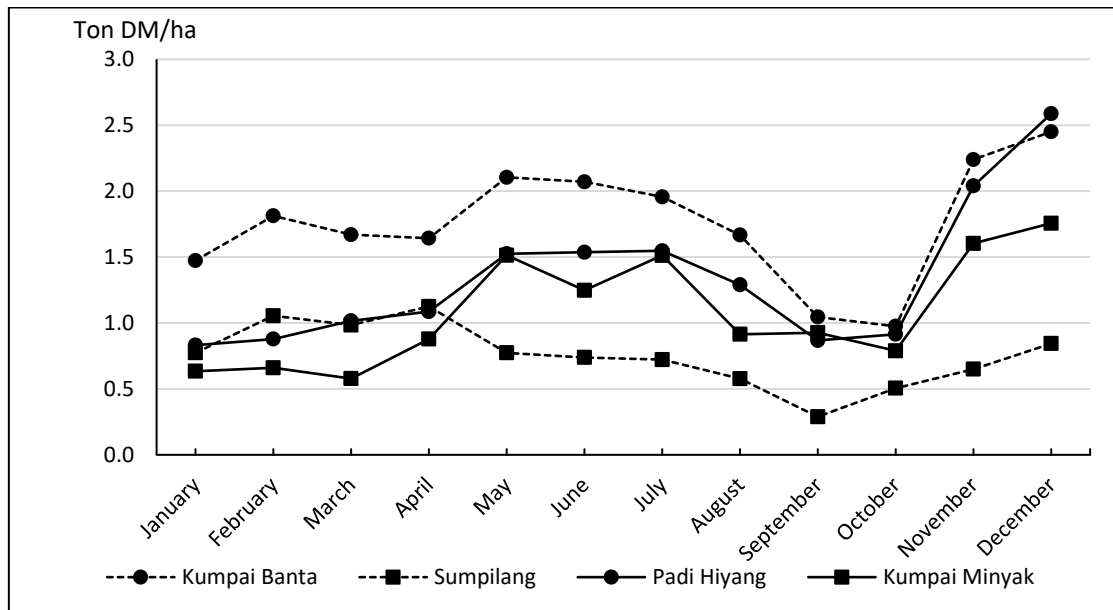
Figure 1. Seasonal production of native grass in Paminggir swamp grazing area.

Based on the height of the water, the Kalang buffalo production system is divided into two practices, namely deep-water and shallow-water season practices. In deep-water season management practices, adult buffalo are released in the morning to graze in the swamp and return to the Kalang in the afternoon. Respondents stated that in deep-water season, the availability of grass is reduced and buffaloes have to swim further to find palatable grass. In addition, buffalo calves that are not yet strong enough to swim in search of feed will be left behind and experience a lack of feed, especially buffalo calves that are still lactating. This is suspected to cause high mortality in buffalo calves and adversely affect the buffalo's reproductive performance [5].

During the shallow-water season, buffaloes and buffalo calves will be released into the swamp for grazing. Buffaloes do not return to the Kalang at night during the shallow-water season, because the low water level makes it difficult for the buffalo to step up back to the Kalang. During shallow-water season, the respondents stated that palatable grass is more available and buffalo mating more possibly occurs because male and female buffalo can interact better during the day and night.

This study found grass dry matter production more likely increases in the deep-water season. This finding is contrary to respondents' perception that during the deep-water season, less grass is available in the buffalo grazing area. This can be caused by the frequency of grass with high production during the deep-water season being lower than the frequency of grass with low production during the deep-water season. In their study, [7] showed that the relative frequency and relative density of Kumpai minyak decrease in the rainy season. Furthermore, respondents explained that some types of grass will sink when the water level increase but some other types of grass withstand and grow following the level of water surface. In deep-water season, the pols of some grass species will be washed away and can still grow following the water flow. Therefore, further research is needed to study the characteristics of native grass species according to the water level or season.

Figure 2. Monthly fluctuation of native grass production in the Paminggir swamp grazing area.

3.2. Seasonal Grassland Production and Carrying Capacity
This study showed dry matter production and carrying capacity of swamp grazing area is higher in the deep-water season (Table 1).

Table 1. Seasonal production and carrying capacity of Paminggir swamp grazing area.

Season	Productivity (Ton dry matter/ha/month)	Carrying Capacity (Animal Unit/season)
Shallow-water (July-November)	4.61	13.6
Deep-water (December-June)	5.18	15.5
Per Year	4.94	14.7

Respondents generally assumed that feed availability decreases in the deep-water season. However, as shown in Figure 2, there was a monthly fluctuation in grass production over the seasons. Despite the production is very high at the beginning of the shallow-water season, the lowest production occurs at the end of the shallow-water season (November) and then increases to the highest at the beginning of the deep-water season (December). This was because the grass grows well when it is not completely submerged, so it will grow well during the shallow-water season. But at the end of the shallow-water season, the availability of water decreases and lowers the productivity of the grass. Therefore, at the beginning of the deep-water season, grass production will be very high.

The carrying capacity of swamp grazing area in the Paminggir sub-district is relatively high (14.7 AU/ha/year) when compared to the report [7] on swamps in Pampangan District, South Sumatra Province (3.7 AU/ha/year). The production of dry matter and the carrying capacity of swamp grazing areas seem to be higher than dry land grazing areas, as reported by [8] who estimated the carrying capacity of grassland in Sumba island to be 1.01/ha/year as well as compared to the well-managed grasslands in Padang Mangatas estimated to 5 AU/ ha/year [9].

The carrying capacity of the Paminggir grazing area can still meet the needs of the existing buffalo population. Based on data [10], the Paminggir sub-district has an area of 196,780 ha with a buffalo population of 8,994 head. The ratio of the availability of fodder for each animal unit compared to the needs of each animal unit in the Paminggir swamp grazing area is estimated to be > 1 (463), which shows that the number of livestock is less than the amount of feed available from pasture [11]. However,

in other swamp areas of South Kalimantan, it was reported to have declined in feed availability due to swamp conversion into oil palm plantation, water pollution by domestic wastes or palm oil plantation, and golden snail (*Pomacea canaliculate*) invasion [6] [12].

4. Conclusion

Dry matter grass production and carrying capacity of swamp grazing area in the Paminggir is fluctuating along seasons, but it reached the highest at the beginning of each season. In general, grass availability, dry matter production, and carrying capacity were higher in the deep-water season. However, buffaloes had to swim further for grazing. This study reveals that the amount of feed available in the Paminggir grazing area exceeds the current buffalo population.

Acknowledgements

References

[1] Sumantri I, Widi T S M, Widyas N, Habibah and Albana H 2022 Morphometrics and carcass production of Kalimantan swamp buffalo under extensive production system (kalang) *Livestock Research for Rural Development* **34**, Article #15. Retrieved September 18, 2022, http://www.lrrd.org/lrrd34/3/3415isuma.html

[2] Pineda P S, Flores E B, Herrera J R V and Low W Y 2021 Opportunities and challenges for improving the productivity of swamp buffaloes in Southeastern Asia *Front. Genet.* **12** 629861. doi: 10.3389/fgene.2021.629861

[3] Sumantri I and Chang H S 2021 Impact of imported Indian buffalo meat on red meat supply and demand in South Kalimantan, Indonesia *IOP Conf. Ser.: Earth Environ. Sci.* **902 012033** https://iopscience.iop.org/article/10.1088/1755-1315/902/1/012033/pdf

[4] DGLS (Directorate General of Livestock and Animal Health Services) 2020 Livestock and Animal Health Statistics 2020 (Jakarta: DGLAHS, Indonesian Ministry of Agriculture) p 236

[5] Widi T S M, Pratowo S, Sulaiman A, Hulfa R and Sumantri I 2021 Reproductive characteristics of female swamp buffalo reared under Kalang production system in South Kalimantan *IOP Conf. Ser.: Earth Environ. Sci.* **902 012041** https://iopscience.iop.org/article/10.1088/1755-1315/902/1/012041

[6] Hilmawan F, Subhan A and Hamdan A 2020 Kerbau rawa di Kalimantan Selatan: potensi dan permasalahannya *Proc. Sem. Teknologi dan Agribisnis Peternakan (Purwokerto)* vol 7 (Purwokerto: Faculty of Animal Science, UNSOED) pp 175-183

[7] Muhakka, Suwignyo R A, Budianta D, Yakup 2019 Vegetation analysis of non-tidal swampland in South Sumatra, Indonesia and its carrying capacity for Pampangan buffalo pasture *Biodiversitas* **20** 1077-1086

[8] Hae V, Kleden M dan Temu S 2020 Produksi, komposisi botani dan kapasitas tampung hijauan pada padang penggembalaan alam awal musim kemarau *Jurnal Nukleus Peternakan* **7(1)** 14-22 https://doi.org/10.35508/nukleus.v7i1.2299

[9] Muhajirin, Despal dan Khalil 2017 Pemenuhan kebutuhan nutrien sapi potong bibit yang digembalakan di Padang Mengatas *Buletin Makanan Ternak* **104(1)** 9-20

[10] BPS-Satistick 2022 *Hulu Sungai Utara District in Figure* (Amuntai: BPS of HSU District) p 9-232

[11] Kleden M M., Ratu M R D, and Randu M D S 2015 Feed forage carrying capacity in coffee plantation areas and natural pasture of East Flores District of East Nusa Tenggara *Jurnal Zootek* **35(2)** 340-350

[12] Agusliani E and Dharmaji D 2017 Biodiversity of the swamp of Danau Panggang Hulu Sungai Selatan District. *EnviroScienteae* **13(3)** 187

PAPER NAME

Seasonal grass production and carrying capacity of buffalo grazing area in Paminggir, South Kalimantan

AUTHOR

-

WORD COUNT

2364 Words

CHARACTER COUNT

12671 Characters

PAGE COUNT

6 Pages

FILE SIZE

311.8KB

SUBMISSION DATE

Oct 23, 2022 6:52 AM GMT+7

REPORT DATE

Oct 23, 2022 6:54 AM GMT+7

● 26% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

- 21% Internet database
- Crossref database

- 15% Publications database
- 0% Submitted Works database

Seasonal grass production and carrying capacity of buffalo grazing area in Paminggir, South Kalimantan

I Sumantri[1], T S M Widi[2], S Prastowo[3] and Hanafi[1]

[1]Faculty of Agriculture, University of Lambung Mangkurat, Banjarbaru, South Kalimantan
[2]Faculty of Animal Science, Universitas Gadjah Mada, Yogyakarta
[3]Faculty of Agriculture, Universitas Sebelas Maret, Surakarta, Central of Java

E-mail: isumantri@ulm.ac.id

Abstract. The population and performance of Kalimantan swamp buffalo are declining. Diminishing grazing area and pasture biomass availability, especially in the rainy season, contribute to inadequate buffalo feed consumption. This study was conducted to investigate the seasonal productivity of palatable native grasses and to estimate the carrying capacity of the swamp grazing area. One year of observation indicated that kumpai banta and sumpilang had higher dry matter production in the deep-water season, whereas kumpai minyak was in the shallow-water season, and padi hiyang had similar production in both seasons. Dry matter production in the deep-water season was higher than in the shallow-water season (5.18 vs 4.61 ton DM/ha/month) as well as for the carrying capacity of swamp grazing area (15.5 vs 13.6 AU/season). It is concluded that the swamp grazing area in the Paminggir sub-district could carry higher than the existing buffalo population.

Keywords: Carrying capacity, Seasonal production, Swamp buffalo, Swamp grazing area

1. Introduction

Kalimantan swamp buffalo (*Bubalus bubalus carabanensis*) is one of the Indonesian swamp buffalo breeds that are widely distributed in South, Central and East Kalimantan Provinces. This swamp buffalo breed mainly raises in a non-tidal swamp area, even though a significant population of it can be found in hilly and forest areas of Kalimantan [1]. The swamp buffaloes are mainly used for agricultural labour, as a meat source and also kept as additional income for farmers [2]. Local swamp buffalo population and their productivity become more important since shortages in red meat sources urge Government to look at swamp buffalo as a potential red meat producer, especially in certain areas in which cattle farming is not feasible. In recent years, the volume of imported buffalo meat has been steadily increasing to reach 80,000 tonnes in 2021 [3].

However, the Indonesian swamp buffalo population kept on decreasing over the decade, including the Kalimantan buffalo in South Kalimantan province which declines 63%; from 44,603 heads in 2009 to only 16,556 in 2019 [4]. This decline is suspected due to calve rearing management and reproductive issues [5] and also due to the decrease in feed resources and grazing areas [6].

The previous study reported that there was a decrease in the area for buffalo grazing due to the change in land allocation to the residential, paddy field and oil palm plantations. Other research reported there are declines in the availability and productivity of native grasses species that are palatable for buffalo.

These resulted in high mortality of buffalo calves due to lack of feed, especially in the deep water season [5]. In addition [1] stated that the buffalo's body weight decreased even though the physical measurements were not significantly different from the previous report, where this was suspected because of a lack of feed intake and nutrition.

However, there is no data available for seasonal swamp grass production to estimate the carrying capacity of grazing areas for swamp buffalo in South Kalimantan. Therefore, this study was conducted to observe seasonal dry matter production in the swamp grazing area in Paminggir Sub-district, Hulu Sungai Utara District, South Kalimantan Province. Paminggir is a sub-district which has the highest population of Kalimantan swamp buffalo in South Kalimantan province and experienced a decline in buffalo population.

2. Methods

The study was conducted in Paminggir Sub District, Hulu Sungai Utara District, South Kalimantan Province, Indonesia. A sampling plot of 0.25 m^2 was placed in the buffalo grazing area, marked and surrounded by wood fencing thus the buffalo was unable to reach the grass inside the sampling plot. There are 7 villages in the Paminggir sub-district whereas three sampling plots were established in the buffalo grazing area of each village. Thus, there were 21 sampling plots established for the study. Buffalo farmers were interviewed to collect information on grazing practices, grass availability and fluctuation among seasons.

Grass production was measured once a month for 12 months (one year of observation). In every observation, grass species were recorded and weighed. According to local people knowledge, months were categorized into two seasons, namely shallow-water season (July, August, September, October and November) and deep-water season (December, January, February, March, April, May and June). The dry matter of the grass sample of each observation was determined in the laboratory according to the AOAC procedure.

Data were analysed to calculate seasonal dry matter production and its carrying capacity. The Swamp area carrying capacity was calculated as follows:

$$Carrying\ Capacity = \frac{Cumulative\ DM\ production \times proper\ use\ factor\ (\%)}{Animal\ needs(kg\ DM\ /\ AU\ /\ days) \times days\ in\ a\ season}$$

where:
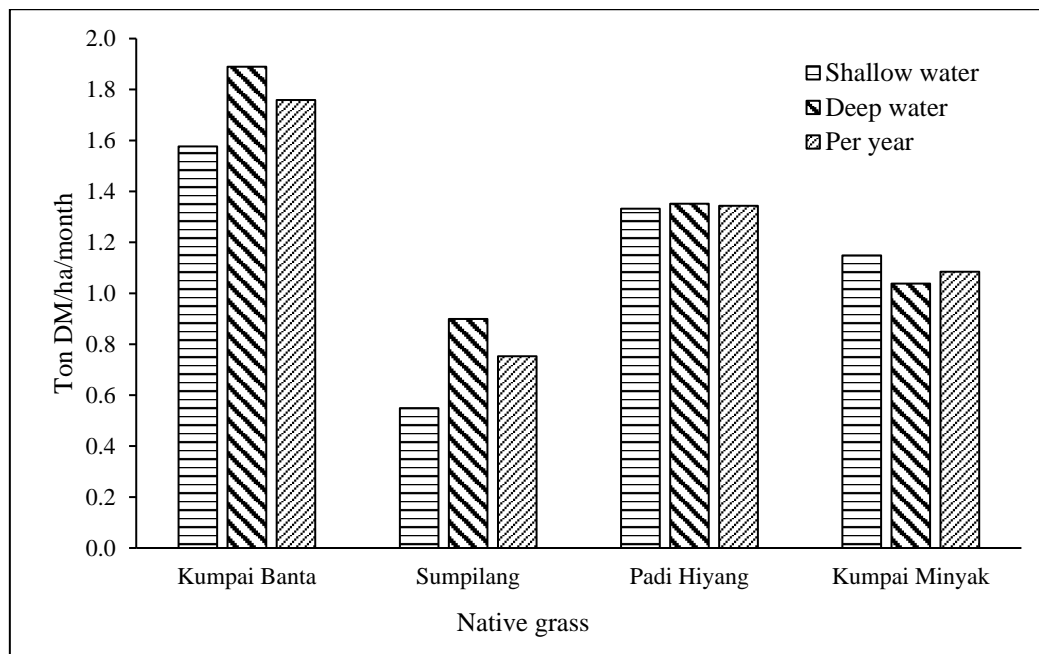DM   : dry matter
Proper use factor   : 68%
AU (buffalo BW)   : 300 kg
DM need/day   : 2.5% BW

3. Results

3.1 Seasonal Native Grass Production

The results showed that there are only 4 palatable grass species found in the sampling plots, namely Kumpai banta (*Paspalum sp*), sumpilang (*Cynodon dactylon*), Padi hiyang (*Oryza rofipogon*) and Kumpai minyak (*Hymenachne amplexicaulis*). Previous research stated that these four species of native grass are swamp grasses that have a high frequency of presence and are palatable by swamp buffalo [7]. Seasonal production from these grasses is presented in Figure 1 while the fluctuation of production over the season is presented in Figure 2.

This study indicated that there is a fluctuation in the production of palatable grasses for buffalo, whereas there are grass species that have higher dry matter production in the deep-water season than in the shallow-water season, namely Kumpai banta and Sumpilang. However, there are palatable grass species that have similar dry matter production in both seasons (Padi hiyang) or decrease during the deep-water season (Kumpai minyak).
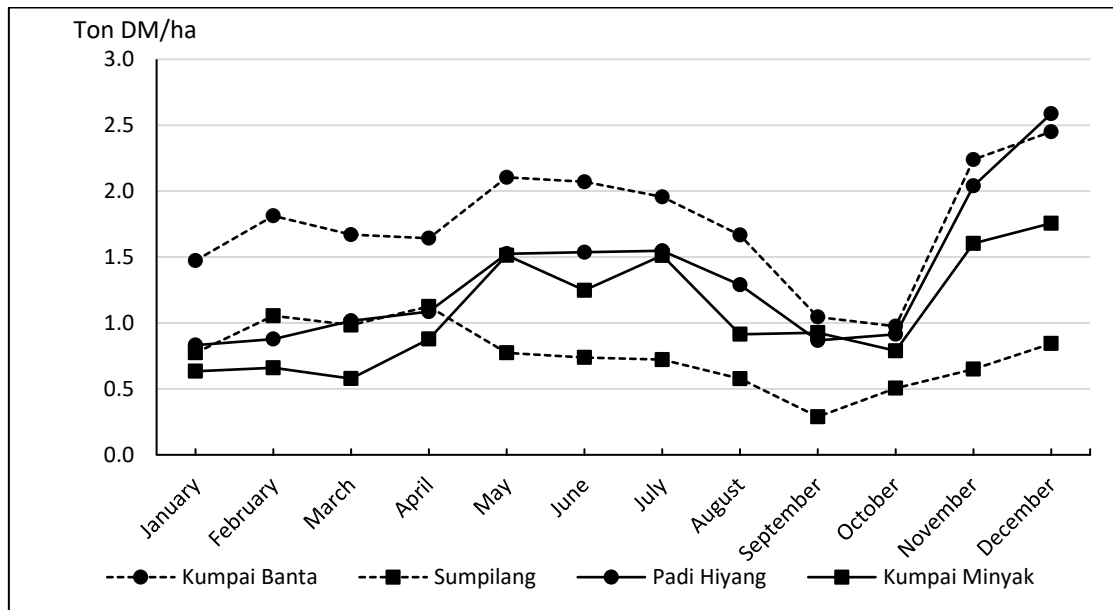
Figure 1. Seasonal production of native grass in Paminggir swamp grazing area.

Based on the height of the water, the Kalang buffalo production system is divided into two practices, namely deep-water and shallow-water season practices. In deep-water season management practices, adult buffalo are released in the morning to graze in the swamp and return to the Kalang in the afternoon. Respondents stated that in deep-water season, the availability of grass is reduced and buffaloes have to swim further to find palatable grass. In addition, buffalo calves that are not yet strong enough to swim in search of feed will be left behind and experience a lack of feed, especially buffalo calves that are still lactating. This is suspected to cause high mortality in buffalo calves and adversely affect the buffalo's reproductive performance [5].

During the shallow-water season, buffaloes and buffalo calves will be released into the swamp for grazing. Buffaloes do not return to the Kalang at night during the shallow-water season, because the low water level makes it difficult for the buffalo to step up back to the Kalang. During shallow-water season, the respondents stated that palatable grass is more available and buffalo mating more possibly occurs because male and female buffalo can interact better during the day and night.

This study found grass dry matter production more likely increases in the deep-water season. This finding is contrary to respondents' perception that during the deep-water season, less grass is available in the buffalo grazing area. This can be caused by the frequency of grass with high production during the deep-water season being lower than the frequency of grass with low production during the deep-water season. In their study, [7] showed that the relative frequency and relative density of Kumpai minyak decrease in the rainy season. Furthermore, respondents explained that some types of grass will sink when the water level increase but some other types of grass withstand and grow following the level of water surface. In deep-water season, the pols of some grass species will be washed away and can still grow following the water flow. Therefore, further research is needed to study the characteristics of native grass species according to the water level or season.

Figure 2. Monthly fluctuation of native grass production in the Paminggir swamp grazing area.

3.2. Seasonal Grassland Production and Carrying Capacity
This study showed dry matter production and carrying capacity of swamp grazing area is higher in the deep-water season (Table 1).

Table 1. Seasonal production and carrying capacity of Paminggir swamp grazing area.

Season	Productivity (Ton dry matter/ha/month)	Carrying Capacity (Animal Unit/season)
Shallow-water (July-November)	4.61	13.6
Deep-water (December-June)	5.18	15.5
Per Year	4.94	14.7

Respondents generally assumed that feed availability decreases in the deep-water season. However, as shown in Figure 2, there was a monthly fluctuation in grass production over the seasons. Despite the production is very high at the beginning of the shallow-water season, the lowest production occurs at the end of the shallow-water season (November) and then increases to the highest at the beginning of the deep-water season (December). This was because the grass grows well when it is not completely submerged, so it will grow well during the shallow-water season. But at the end of the shallow-water season, the availability of water decreases and lowers the productivity of the grass. Therefore, at the beginning of the deep-water season, grass production will be very high.

The carrying capacity of swamp grazing area in the Paminggir sub-district is relatively high (14.7 AU/ha/year) when compared to the report [7] on swamps in Pampangan District, South Sumatra Province (3.7 AU/ha/year). The production of dry matter and the carrying capacity of swamp grazing areas seem to be higher than dry land grazing areas, as reported by [8] who estimated the carrying capacity of grassland in Sumba island to be 1.01/ha/year as well as compared to the well-managed grasslands in Padang Mangatas estimated to 5 AU/ ha/year [9].

The carrying capacity of the Paminggir grazing area can still meet the needs of the existing buffalo population. Based on data [10], the Paminggir sub-district has an area of 196,780 ha with a buffalo population of 8,994 head. The ratio of the availability of fodder for each animal unit compared to the needs of each animal unit in the Paminggir swamp grazing area is estimated to be > 1 (463), which shows that the number of livestock is less than the amount of feed available from pasture [11]. However,

In other swamp areas of South Kalimantan, it was reported to have declined in feed availability due to swamp conversion into oil palm plantation, water pollution by domestic wastes or palm oil plantation, and golden snail (*Pomacea canaliculate*) invasion [6] [12].

4. Conclusion

Dry matter grass production and carrying capacity of swamp grazing area in the Paminggir is fluctuating along seasons, but it reached the highest at the beginning of each season. In general, grass availability, dry matter production, and carrying capacity were higher in the deep-water season. However, buffaloes had to swim further for grazing. This study reveals that the amount of feed available in the Paminggir grazing area exceeds the current buffalo population.

Acknowledgements

References

[1]   Sumantri I, Widi T S M, Widyas N, Habibah and Albana H 2022 Morphometrics and carcass production of Kalimantan swamp buffalo under extensive production system (kalang) *Livestock Research for Rural Development* **34**, Article #15. Retrieved September 18, 2022, http://www.lrrd.org/lrrd34/3/3415isuma.html

[2]   Pineda P S, Flores E B, Herrera J R V and Low W Y 2021 Opportunities and challenges for improving the productivity of swamp buffaloes in Southeastern Asia *Front. Genet.* **12** 629861. doi: 10.3389/fgene.2021.629861

[3]   Sumantri I and Chang H S 2021 Impact of imported Indian buffalo meat on red meat supply and demand in South Kalimantan, Indonesia *IOP Conf. Ser.: Earth Environ. Sci.* **902 012033** https://iopscience.iop.org/article/10.1088/1755-1315/902/1/012033/pdf

[4]   DGLS (Directorate General of Livestock and Animal Health Services) 2020 Livestock and Animal Health Statistics 2020 (Jakarta: DGLAHS, Indonesian Ministry of Agriculture) p 236

[5]   Widi T S M, Pratowo S, Sulaiman A, Hulfa R and Sumantri I 2021 Reproductive characteristics of female swamp buffalo reared under Kalang production system in South Kalimantan *IOP Conf. Ser.: Earth Environ. Sci.* **902 012041** https://iopscience.iop.org/article/10.1088/1755-1315/902/1/012041

[6]   Hilmawan F, Subhan A and Hamdan A 2020 Kerbau rawa di Kalimantan Selatan: potensi dan permasalahannya *Proc. Sem. Teknologi dan Agribisnis Peternakan (Purwokerto)* vol 7 (Purwokerto: Faculty of Animal Science, UNSOED) pp 175-183

[7]   Muhakka, Suwignyo R A, Budianta D, Yakup 2019 Vegetation analysis of non-tidal swampland in South Sumatra, Indonesia and its carrying capacity for Pampangan buffalo pasture *Biodiversitas* **20** 1077-1086

[8]   Hae V, Kleden M dan Temu S 2020 Produksi, komposisi botani dan kapasitas tampung hijauan pada padang penggembalaan alam awal musim kemarau *Jurnal Nukleus Peternakan* **7(1)** 14-22 https://doi.org/10.35508/nukleus.v7i1.2299

[9]   Muhajirin, Despal dan Khalil 2017 Pemenuhan kebutuhan nutrien sapi potong bibit yang digembalakan di Padang Mengatas *Buletin Makanan Ternak* **104(1)** 9-20

[10] BPS-Satistick 2022 *Hulu Sungai Utara District in Figure* (Amuntai: BPS of HSU District) p 9-232

[11] Kleden M M., Ratu M R D, and Randu M D S 2015 Feed forage carrying capacity in coffee plantation areas and natural pasture of East Flores District of East Nusa Tenggara *Jurnal Zootek* **35(2)** 340-350

[12] Agusliani E and Dharmaji D 2017 Biodiversity of the swamp of Danau Panggang Hulu Sungai Selatan District. *EnviroScienteae* **13(3)** 187

● **26% Overall Similarity**

Top sources found in the following databases:

- 21% Internet database
- Crossref database
- 15% Publications database
- 0% Submitted Works database

TOP SOURCES

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	**lrrd.org** Internet	**9%**
2	**T S M Widi, S Pratowo, A Sulaiman, R Hulfa, I Sumantri. "Reproductive ...** Crossref	**6%**
3	**smujo.id** Internet	**3%**
4	**ejurnal.undana.ac.id** Internet	**3%**
5	**repository.agrosavia.co** Internet	**1%**
6	**iopscience.iop.org** Internet	**1%**
7	**ijicc.net** Internet	**<1%**
8	**jnp.fapet.unsoed.ac.id** Internet	**<1%**
9	**Goromela, Ezekiel Hamisi. "Feeding and Management Strategies for Ru...** Publication	**<1%**

PANDUAN REVISI
REVISION GUIDELINES

*Harap ikuti formatnya dengan tepat, termasuk **jenis font, perataan teks, ukuran font, inden kiri dan kanan, serta spasi sebelum dan sesudah***.
Please follow the format precisely, including **the font type, the text alignment, the font size, the left and right indent, and the before and after spacing**.

*Block seluruh tulisan. Periksa **Page Layout** dengan setting margin halaman sebagai berikut:*
Block all text. Check **Page Layout** with page margin settings as follows:

Margin	A4 ONLY – DO NOT USE US LETTER
Top	4.0 cm
Bottom	2.7 cm
Left	2.5 cm
Right	2.5 cm
Gutter	0 cm
Header	0 cm
Footer	0 cm
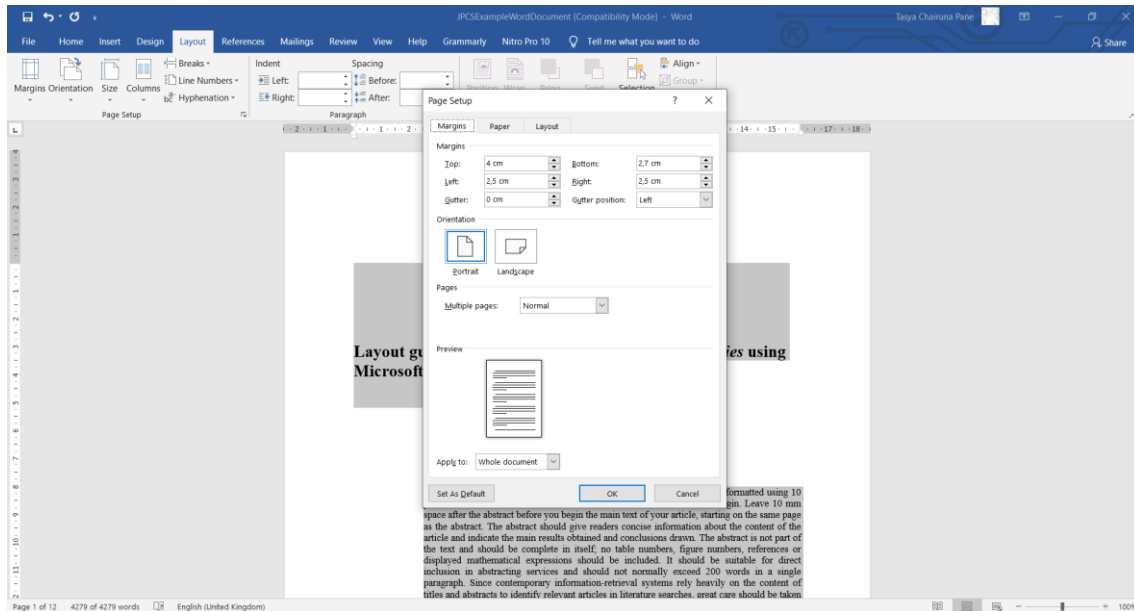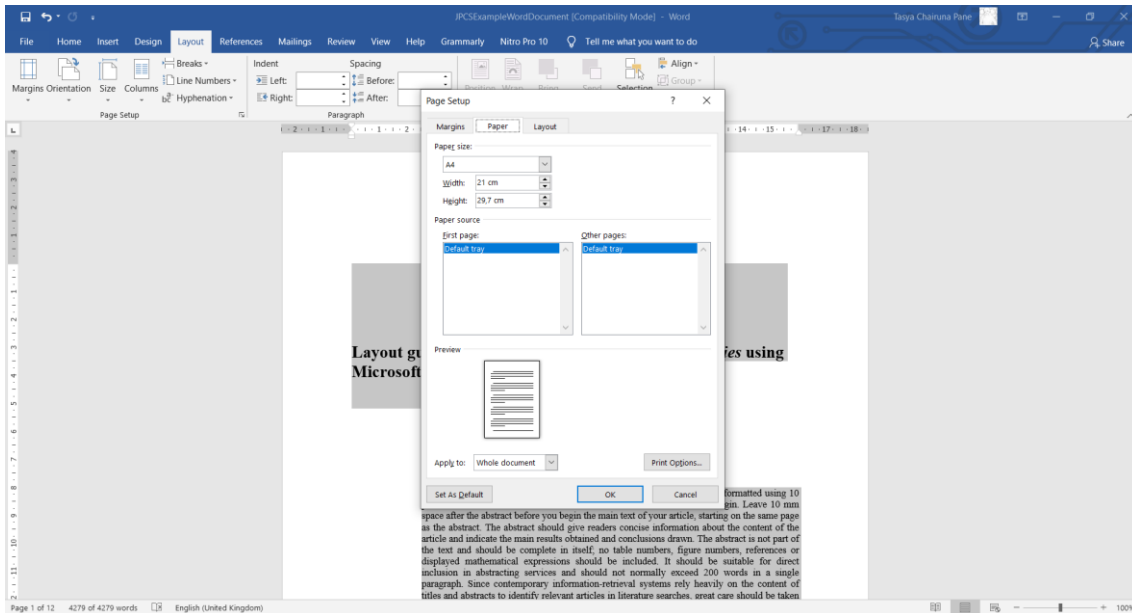
*Seluruh tulisan harus ditulis dengan **Orientasi Potrait** (tidak ada halaman yang landscape) pada **kertas ukuran A4**.*

All text must be written in **Portrait Orientation** (no landscape pages) on **A4-size paper**.

*Block seluruh tulisan untuk mengatur **Font Type** menjadi **Times** atau **Times New Roman***

Block all text to set the **Font Type** to **Times** or **Times New Roman**
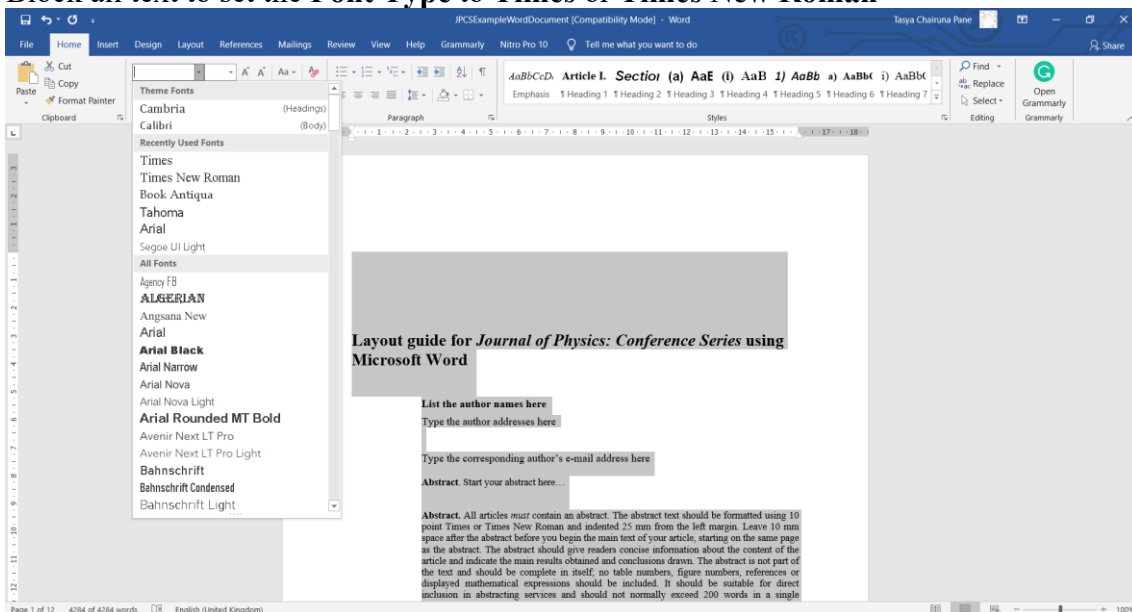
*Block seluruh tulisan. Periksa bagian **Line and Paragraph Spacing**, atur **Line Spacing Options** dan pastikan **Don't add space between paragraphs of the same style tidak tercentang atau tertandai** dan **pengaturan Line spacing: Single**.*

Block all text. Check the **Line and Paragraph Spacing** section, set the **Line Spacing Options** and make sure **Don't add space between paragraphs of the same style is unchecked or unbulleted** and the **Line spacing setting: Single**.
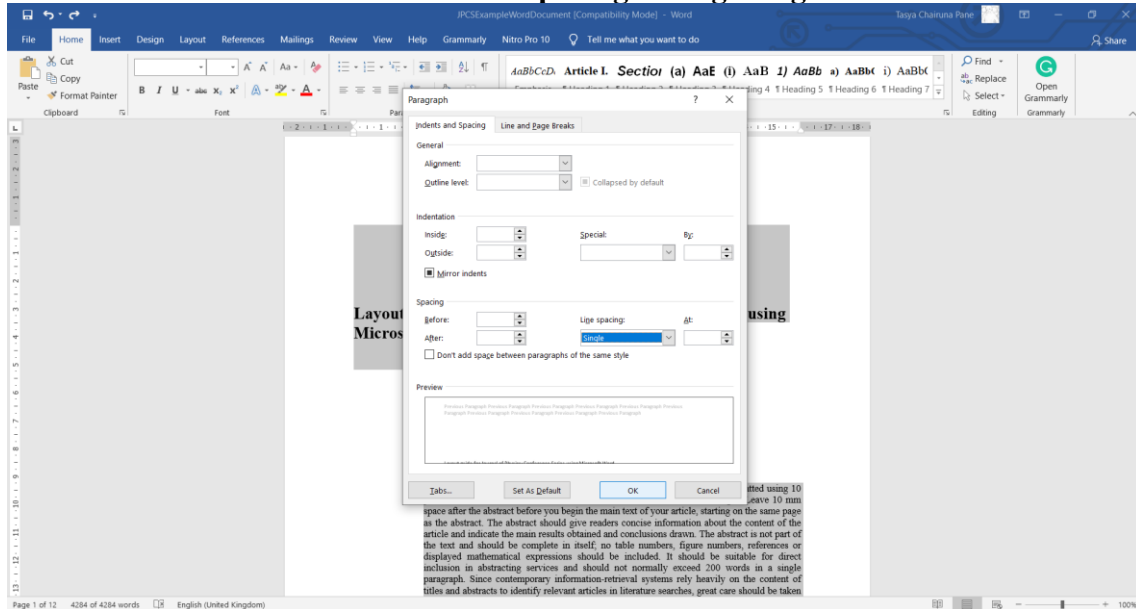
*Block seluruh tulisan. Klik bagian jenis Bahasa di bawah, Artikel ditulis dalam **English United Kingdom** atau **English United States**.*

Block all text. Click on the Language type section below, Articles are written in the **English United Kingdom** or the **English United States**.
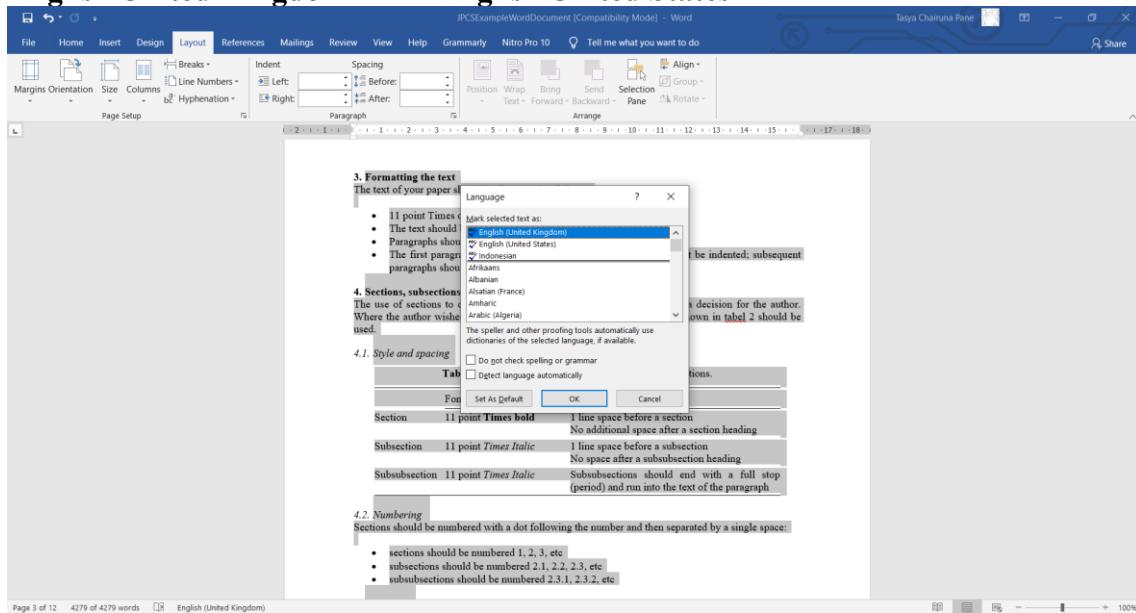
Mohon diperiksa ulang pengetikan kata atau frasa yang bergaris merah atau biru di Word dengan mengklik kanan pada kata atau frasa yang digarisbawahi.
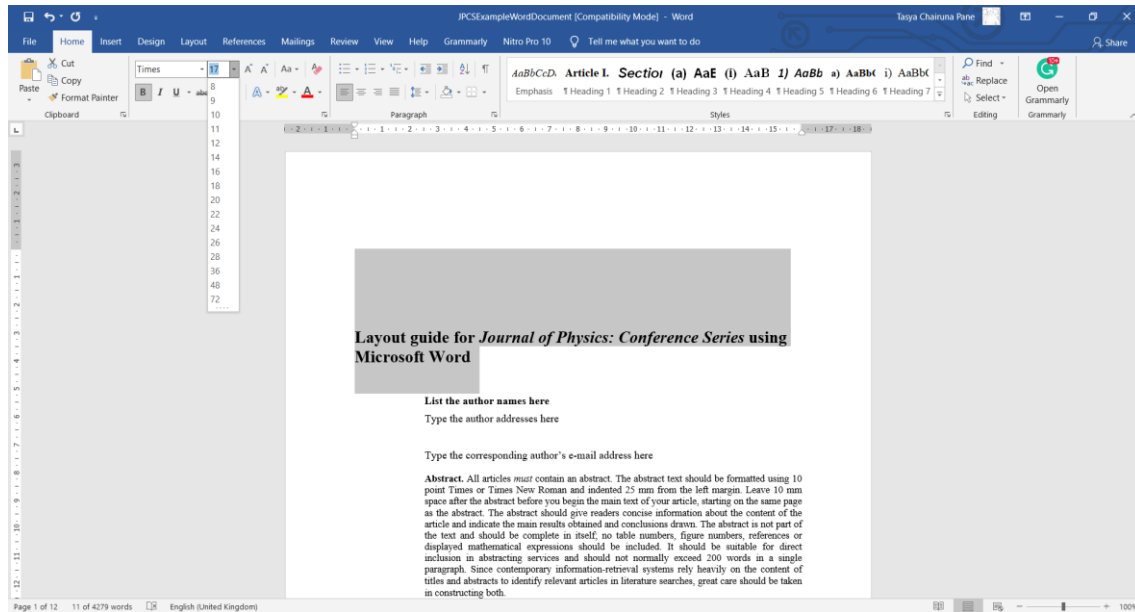Please double-check the typing of the words or phrases underlined in red or blue in Word by right-clicking on the underlined words or phrases.
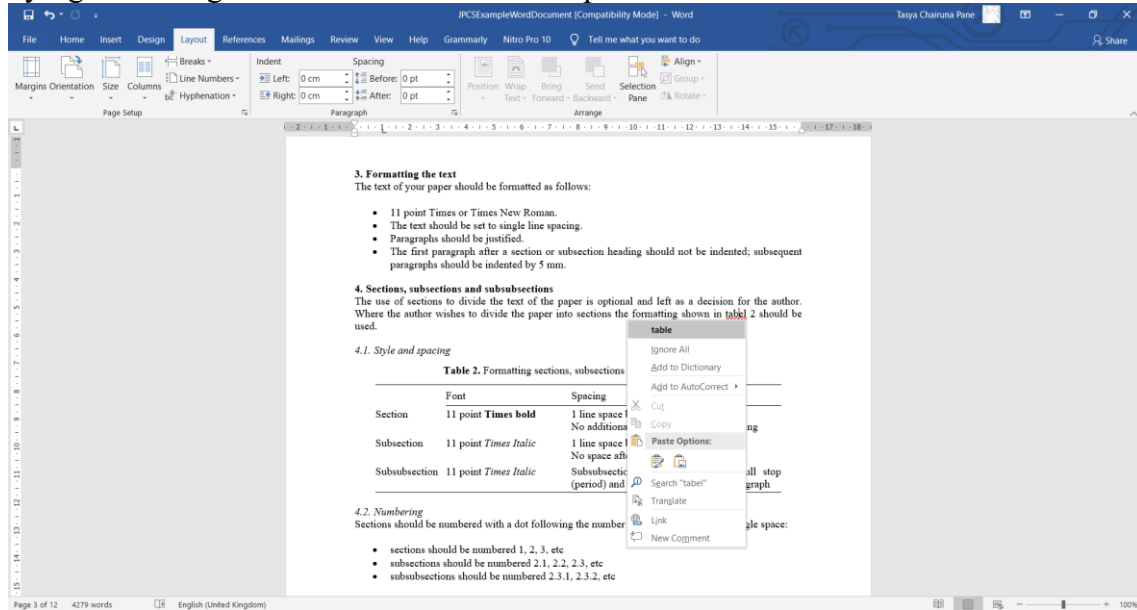

*Untuk mengatur **Perataan Teks***
To set the **Text Alignment**
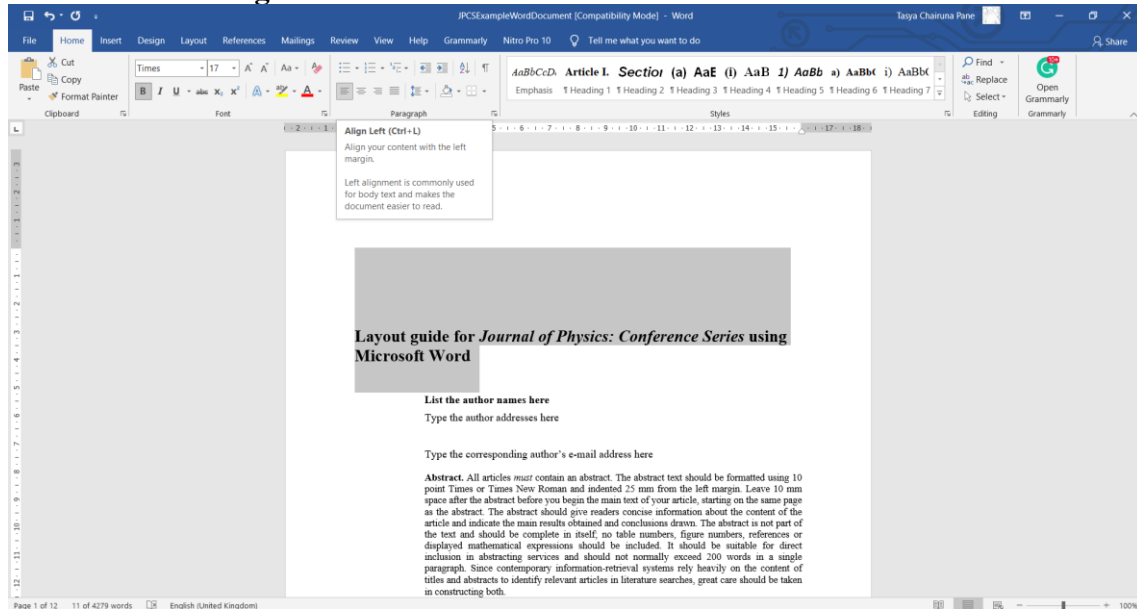
*Untuk mengatur **Font Size***
To set the **Font Size**

Huruf *pada seluruh isi artikel adalah **Times** atau **Times New Roman dengan Ukuran 11**, kecuali **Judul 17**, dan **Abstrak 10**.*
The **font** for the entire contents of the article is **Times** or **Times New Roman** with **size 11**, except for the **title 17** and the **abstract 10**.

*Untuk mengatur **Inden Kiri dan Kanan***
To set the **Left and Right Indent**
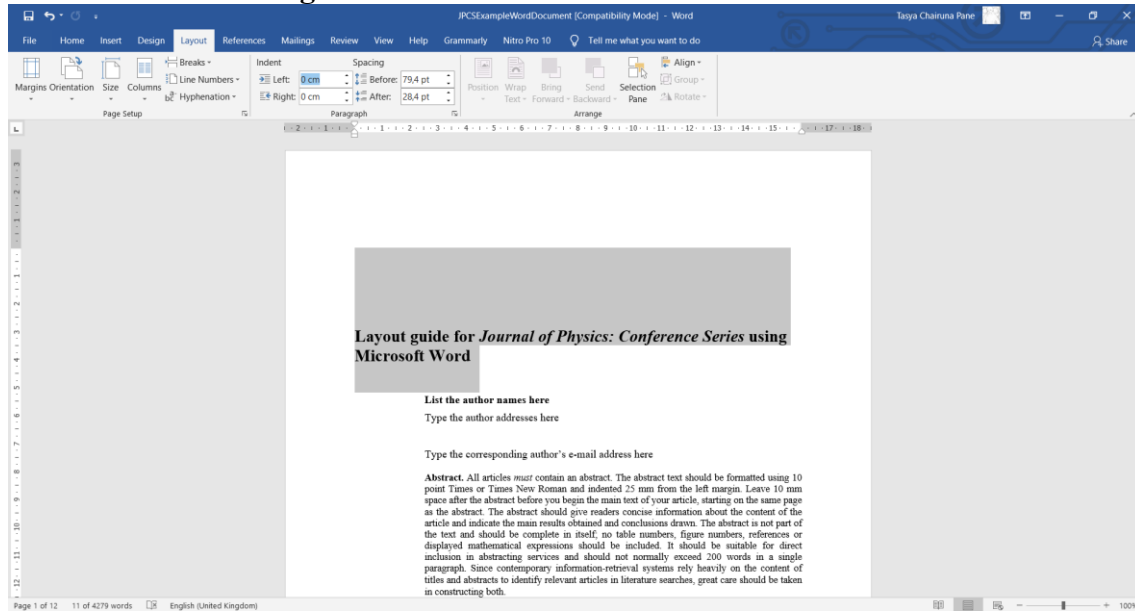
*Untuk mengatur **Spasi Sebelum dan Sesudah***
To set the **Before and After Spacing**
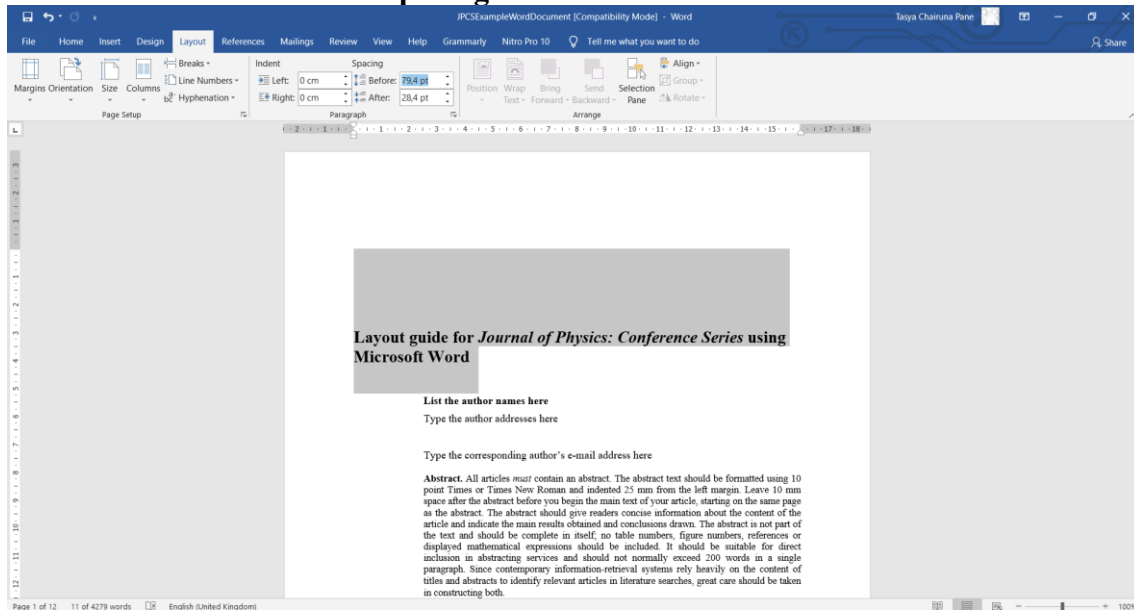
*Gunakan pengaturan **Spasi Sebelum dan Sesudah** untuk mengatur jarak ke bawah atau ke atas antar bagian daripada memberikan spasi berupa baris kosong tambahan dengan menekan **Enter** berulangkali secara manual.*
Use the **Before and After Spacing** settings to set the downward or upward spacing between sections instead of inserting additional blank lines by pressing **Enter** manually.

*Persentase kesamaan (Turnitin) maksimal **15% (di luar Daftar Pustaka), jika lebih akan dikembalikan ke author untuk diperbaiki lagi sampai turun menjadi <= 15%.***
The maximum percentage of similarity (Turnitin) is **15%** (Bibliography excluded), if more will be returned to the author to be corrected again until it drops to <= 15%.

*Sangat penting bahwa Anda **tidak menambahkan header, footer, atau nomor halaman apa pun ke manuskrip Anda**; ini akan ditambahkan selama proses produksi di IOP Publishing.*
It is *vital* that you **do not add any headers, footers or page numbers to your manuscript**; these will be added during the production process at IOP Publishing.

Setelah selesai direvisi sesuai komentar reviewer, periksa ulang file revisi, klik bagian **Review** *kemudian pastikan* **Accept All Changes in Document**, *matikan* **Track Changes**, *dan* **Delete All Comments in Document**.

After completing the revision according to the reviewers' comments, double-check the revision file, click the **Review** section then make sure **Accept All Changes in Document**, turn off **Track Changes**, and **Delete All Comments in Document**.
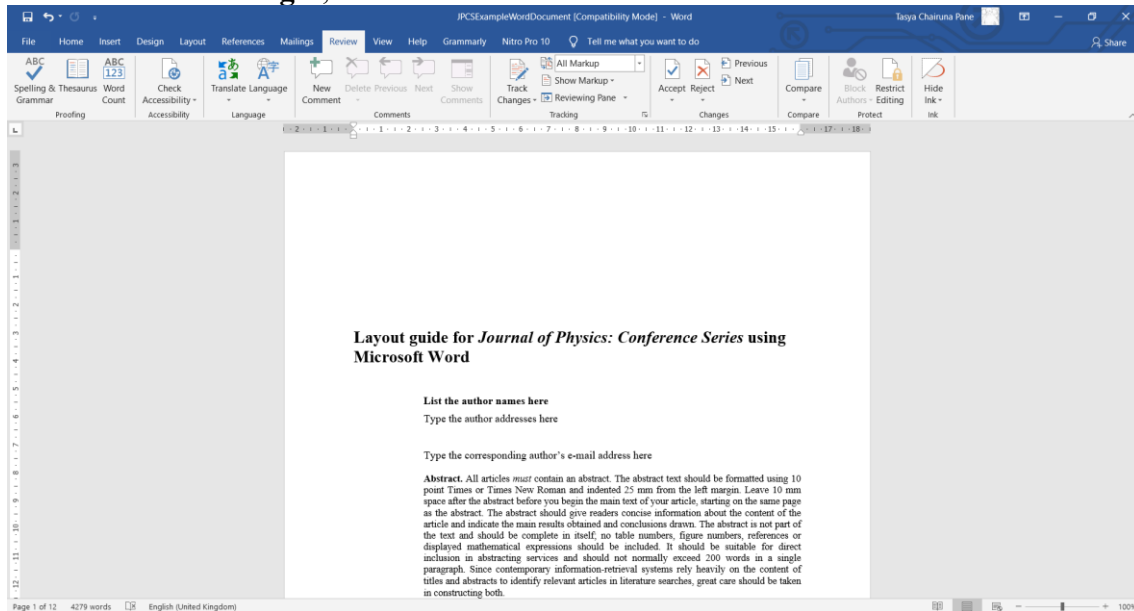
GENERAL COMMENTS
KOMENTAR UMUM

1. Make sure to use a Manuscript's structure which consists of an Introduction, Methods, Results and Discussion, Conclusions, References, and Acknowledgement (optional).
   Pastikan gunakan struktur Manuskrip yang terdiri dari Introduction, Methods, Results and Discussion, Conclusions, References, and Acknowledgement (optional).
2. Make sure to follow the Manuscript's template dan guidelines of the IOP Conference Series.
   Pastikan gunakan template dan panduan penulisan naskah dari IOP Conference Series.
3. Your paper is no longer than 8 pages.
   Paper agar tidak lebih dari 8 halaman.
4. Please have your paper proofread to increase the readability level and correct grammatical errors.
   Lakukan proofreading untuk memperbaik-i kualitas keterbacaan bahasa Inggris dan memperbaiki kesalahan terutama pada aspek grammar dan spelling.
5. Please follow IOP referencing style.
   Pastikan gunakan style penulisan daftar pustaka IOP.
6. The minimum number of your references is 10 and 80% should be international journals.
   Jumlah minimal referensi adalah 10 item dan 80% harus berupa jurnal internasional.
7. Make sure that all tables and figures have a good readability level.
   Pastikan seluruh tabel dan gambar harus dapat terbaca dengan jelas.
8. As this is an international publication, local aspects need to be discussed from a global perspective.

Karena manuskrip ini merupakan publikasi internasional, maka penulis agar membahas isu dari perspektif global.

JUDUL

*Ditulis dalam **bentuk kalimat (Sentence case)**, huruf besar hanya pada awal judul dan awal kata yang membutuhkan huruf besar (seperti nama daerah, nama spesies, dll), bukan besar pada setiap kata (Capitalize each word). **Teks rata kiri (Align text to the left)**, **Ukuran huruf 17**, dengan **setting Indent: Left 0 cm, Right 0 cm**, dan **Spacing: Before 79.4 pt, After 28.4 pt**, tanpa titik di akhirnya.*
Misalnya

Layout guide for *Journal of Physics: Conference Series* using Microsoft Word

TITLE

Written in **sentence form (Sentence case)**, capital letters are only at the beginning of the title and the beginning of words that require capital letters (such as regional names, species names, etc.), not capital letters on each word (Capitalize each word). **Left aligned text (Align text to the left)**, **Font size 17**, with **Indent settings: Left 0 cm, Right 0 cm**, and **Spacing: Before 79.4 pt, After 28.4 pt**, without full stop at the end.
For example

Layout guide for *Journal of Physics: Conference Series* using Microsoft Word

DAFTAR NAMA PENULIS

*Teks rata kiri (Align text to the left), Ukuran huruf 11, dengan **setting Indent: Left 2.5 cm, Right 0 cm**, dan **Spacing: Before 0 pt, After 5.7 pt**, tanpa titik di akhirnya. **Setelah nama Corresponding author** harus ditandai dengan **bintang (*)**. **Nama depan dan tengah harus disingkat**.*
Misalnya
Tasya Chairuna Pane, Muhammad Khaliqi, R. B. M. Ibrahim Fatoni, and Putri Chandra Ayu harus ditulis **T C Pane, M Khaliqi*, R B M I Fatoni and P C Ayu**

LIST OF AUTHORS' NAMES

Align text to the left (Align text to the left), **Font size 11**, with **Indent settings: Left 2.5 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 5.7 pt**, without full stop at the end. **After the Corresponding author's name** must be marked with an **asterisk (*)**. **First and middle names should be abbreviated**.
For example
Tasya Chairuna Pane, Muhammad Khaliqi, R. B. M. Ibrahim Fatoni, and Putri Chandra Ayu should be written **T C Pane, M Khaliqi*, R B M I Fatoni and P C Ayu**

DAFTAR AFILIASI PENULIS

***Teks rata kiri (Align text to the left)**, Ukuran huruf 11, dengan **setting Indent: Left 2.5 cm, Right 0 cm**, dan **Spacing: Before 0 pt, After 0 pt**, dengan titik di akhirnya, khusus untuk **afiliasi yang paling bawah Spacing: Before 0 pt, After 24 pt**. Jika para penulis berasal dari afiliasi yang berbeda atau mencantumkan lebih dari 1 afiliasi, urutan dan penomoran harus berurut dari afiliasi penulis pertama hingga penulis terakhir. Misalnya*

T C Pane[1,2], M Khaliqi[3]*, R B M I Fatoni[2,4] and P C Ayu[1,3]

[1]Universitas …..
[2]Badan …..
[3]Institut …..
[4]Balai …..

Khusus penulis yang berafiliasi USU, afiliasi terdiri atas **Departemen (Boleh ada atau Tidak), Fakultas, Universitas Sumatera Utara, Medan, Indonesia.**
Contoh:
Faculty of Agriculture, Universitas Sumatera Utara, Medan, Indonesia.

AUTHORS' AFFILIATION LIST

Left aligned text (Align text to the left), **Font size 11**, with **Indent settings: Left 2.5 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 0 pt**, with full stop at the end, specifically for the **lastest (very bottom) affiliation, Spacing: Before 0 pt, After 24 pt**. If the authors come from different affiliations or include more than 1 affiliation, the order and numbering must be sequential from the first author's affiliation to the last author. For example

T C Pane[1,2], M Khaliqi[3]*, R B M I Fatoni[2,4] and P C Ayu[1,3]

[1]Universitas …..
[2]Badan …..
[3]Institut …..
[4]Balai …..

Especially for authors who are affiliated with USU, the affiliation consists of **Departments (May have or Not), Faculties, Universitas Sumatera Utara, Medan, Indonesia.**
Example:
Faculty of Agriculture, Universitas Sumatera Utara, Medan, Indonesia.

E-MAIL CORRESPONDING AUTHOR

Teks rata kiri (Align text to the left), Ukuran huruf 11, dengan setting Indent: Left 2.5 cm, Right 0 cm, dan Spacing: Before 0 pt, After 12 pt, tanpa titik di akhirnya. Sebelum alamat E-mail Corresponding author harus ditandai dengan bintang (*).
Misalnya
E-mail: *muhammadkhaliqi@usu.ac.id

CORRESPONDING AUTHOR'S E-MAIL

Align text to the left (Align text to the left), **Font size 11**, with **Indent settings: Left 2.5 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 12 pt**, without full stop at the end. **Before the Corresponding author's E-mail address** must be marked with an **asterisk (*).**
For example
E-mail: *muhammadkhaliqi@usu.ac.id

ABSTRAK

*Tulisan **Abstract** ditulis **Tebal (Bold)** dan diakhiri dengan **titik**. Kemudian setelah titik langsung disambung dengan isi abstrak **(tidak ditulis Tebal) maksimal 200 kata**, dan ditulis **tanpa menambahkan kata kunci**. **Teks rata kanan-kiri (Justify)**, Ukuran huruf 10, dengan **setting Indent: Left 2.5 cm, Right 0 cm**, dan **Spacing: Before 0 pt, After 22.7 pt**.*
Misalnya
Abstract. All articles must contain an abstract…………………………………………

ABSTRACT

Abstract text is written in **Bold** and ended with a **full stop**. Then after the full stop is directly followed with abstract content (**not written in bold**) a **maximum of 200 words**, and written **without adding keywords**. **Align text to right-left (Justify)**, **Font size 10**, with **Indent settings: Left 2.5 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 22.7 pt**.
For example
Abstract. All articles must contain an abstract…………………………………………

JUDUL BAGIAN DAN PARAGRAF
*Artikel terdiri dari **judul bagian** sebagai berikut:*
1. Introduction
2. Materials and methods
3. Results and discussion
4. Conclusions and suggestions
References
Acknowledgements *(hanya jika dibutuhkan ucapan terima kasih)*

*Selain **judul bagian**, artikel boleh memiliki **sub bagian** dan **sub sub bagian**.*
*Seluruh **judul bagian, sub bagian, dan sub sub bagian** ditulis dalam **bentuk kalimat (Sentence case)**, dengan huruf besar hanya pada awal judul dan awal kata yang membutuhkan huruf besar (seperti nama daerah, nama spesies, dll), bukan besar pada setiap kata (Capitalize each word). **Teks rata kanan-kiri (Justify), Ukuran huruf 11**, dengan **setting Indent: Left 0 cm, Right 0 cm**, dan **Spacing: Before 12 pt, After 0 pt**.*

***Paragraf pertama** setelah **judul bagian** dan **sub bagian**, baris pertamanya tidak menjorok masuk ke dalam. **Seluruh paragraf setelah paragraf pertama (paragraph kedua dan seterusnya)** harus ditulis dengan baris pertama **menjorok masuk ke dalam (first line indent) 2 ketuk (0.5 cm)**. **Teks rata kanan-kiri (Justify), Ukuran huruf seluruh teks isi paragraph 11**, dengan **setting Indent: Left 0 cm, Right 0 cm**, dan **Spacing: Before 0 pt, After 0 pt**.*

***Judul bagian** ditulis dengan **Tebal (Bold)**, antara **nomor judul bagian** dengan **judul bagian masuk 2 ketuk (0.5 cm)**, tanpa titik di akhirnya. **Isi paragraf** ditulis **dibawah judul bagian**.*
Contoh:
1. Introduction
The 1st paragraph text………………………………………………………………
    The 2nd paragraph text………………………………………………………………

***Judul sub bagian** ditulis dengan **Miring (Italic)**, antara **nomor judul sub bagian** dengan **judul sub bagian masuk 3 ketuk (0.75 cm)**, tanpa titik di akhirnya. **Isi paragraf** ditulis **dibawah judul sub bagian**.*
Contoh:
1.1. Introduction
The 1st paragraph text………………………………………………………………
    The 2nd paragraph text………………………………………………………………

***Judul sub sub bagian** ditulis dengan **Miring (Italic)**, antara **nomor judul sub sub bagian** dengan **judul sub sub bagian masuk 4 ketuk (1 cm)** dan diakhiri dengan titik. Kemudian setelah titik langsung **disambung dengan isi paragraf** (isi paragraph **tidak ditulis Miring**).*
Contoh:
1.1.1. Introduction. The 1st paragraph text follows on from the subsubsection titles but should not be in italic.
    The 2nd paragraph text………………………………………………………………

SECTION TITLES AND PARAGRAPH
The article consists of the following **section titles**:
1. Introduction
2. Materials and methods
3. Results and discussion
4. Conclusions and suggestions
References
Acknowledgements (only if acknowledgements are needed)

In addition to **section** titles, articles may have **sub-sections** and **sub-sub-sections**.
All **section**, **sub-section**, and **sub-sub-section titles** are written in **sentence form (Sentence case)**, with capital letters only at the beginning of the title and the beginning of words that require capital letters (such as area names, species names, etc.), not capital letters on each word (Capitalize each word). **Align text to right-left (Justify)**, **Font size 11**, **with Indent settings: Left 0 cm, Right 0 cm**, and **Spacing: Before 12 pt, After 0 pt**.

The **first paragraph** after the **section** and **sub-section titles,** the first line is not indented. The **rest paragraphs after the first paragraph (second paragraph and so on)** must be written with the **first line indented (first line indent) 2 taps (0.5 cm)**. **Align text to right-left (Justify)**, the **size of the entire text in paragraph 11**, with the **Indent setting: Left 0 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 0 pt**.

Section titles are written in **Bold**, between the **number of the section title** and the **section title click 2 taps (0.5 cm indent)**, without full stop at the end. The **contents of the paragraph** are written **below the section titles**.
Example:
1. Introduction
The 1st paragraph text……………………………………………………………………
    The 2nd paragraph text……………………………………………………………………

Sub-section titles are written in **Italic**, between the **number of the sub-section title** and the **sub-section title click 3 taps (0.75 cm indent)**, without full stop at the end. **The contents of the paragraph** are written **under the sub-section titles**.
Example:
1.1. Introduction
The 1st paragraph text……………………………………………………………………
    The 2nd paragraph text……………………………………………………………………

The **sub-sub-section titles** are written in **Italic**, between the **numbers of the sub-sub-section title** and the **sub-sub-section title click 4 taps (1 cm indent)** and end with a full stop. Then after the full stop **directly followed with the contents of the paragraph (not written in Italic)**.
Example:
1.1.1. Introduction. The 1st paragraph text follows on from the subsubsection titles but should not be in italic.
    The 2nd paragraph text……………………………………………………………………

RUMUS ATAU PERSAMAAN

Satu baris kosong *harus ditambahkan* **antara paragraf dengan persamaan di bawahnya**, *dan* **antara persamaan dengan persamaan/keterangan persamaan/paragraf di bawahnya**. *Seluruh spasi dan persamaan ditulis dengan* **setting Indent: Left 0 cm, Right 0 cm**, *dan* **Spacing: Before 0 pt, After 0 pt**.
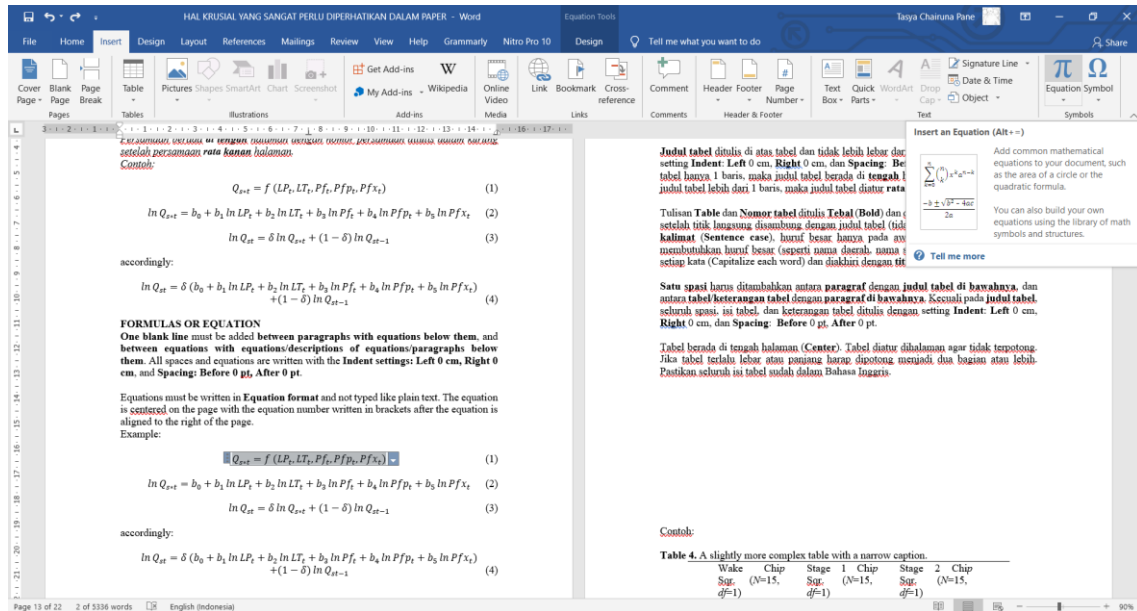
Persamaan harus ditulis dalam **format Equation** *dan tidak diketik seperti teks biasa. Persamaan berada di tengah halaman dengan* **nomor persamaan ditulis dalam kurung setelah persamaan rata kanan** *halaman.*

Contoh:

The before paragraph text…………………………………………………………………

$$Q_{s*t} = f\ (LP_t, LT_t, Pf_t, Pfp_t, Pfx_t) \tag{1}$$

$$ln\ Q_{s*t} = b_0 + b_1\ ln\ LP_t + b_2\ ln\ LT_t + b_3\ ln\ Pf_t + b_4\ ln\ Pfp_t + b_5\ ln\ Pfx_t \tag{2}$$

$$ln\ Q_{st} = \delta\ ln\ Q_{s*t} + (1 - \delta)\ ln\ Q_{st-1} \tag{3}$$

accordingly:

$$ln\ Q_{st} = \delta\ (b_0 + b_1\ ln\ LP_t + b_2\ ln\ LT_t + b_3\ ln\ Pf_t + b_4\ ln\ Pfp_t + b_5\ ln\ Pfx_t)$$
$$+ (1 - \delta)\ ln\ Q_{st-1} \tag{4}$$

Descriptions:
Descriptions of the formulas …………………………………………………………………

The after paragraph text…………………………………………………………………

FORMULAS OR EQUATION

One blank line must be added **between paragraphs with equations below them**, and **between equations with equations/descriptions of equations/paragraphs below them**. All spaces and equations are written with the **Indent settings: Left 0 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 0 pt**.
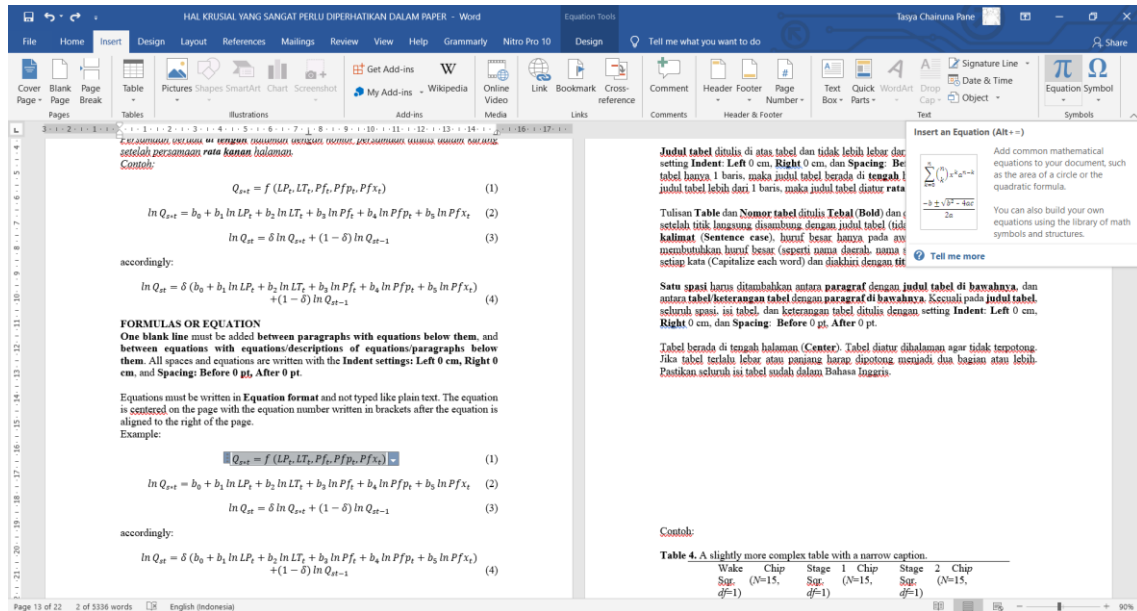
Equations must be written in **Equation format** and not typed like plain text. The **equation is centred** on the page with the **equation number written in brackets after the equation is aligned to the right** of the page.

Example:

The before paragraph text……………………………………………………………

$$Q_{s*t} = f\ (LP_t, LT_t, Pf_t, Pfp_t, Pfx_t) \tag{1}$$

$$ln\ Q_{s*t} = b_0 + b_1\ ln\ LP_t + b_2\ ln\ LT_t + b_3\ ln\ Pf_t + b_4\ ln\ Pfp_t + b_5\ ln\ Pfx_t \tag{2}$$

$$ln\ Q_{st} = \delta\ ln\ Q_{s*t} + (1 - \delta)\ ln\ Q_{st-1} \tag{3}$$

accordingly:

$$ln\ Q_{st} = \delta\ (b_0 + b_1\ ln\ LP_t + b_2\ ln\ LT_t + b_3\ ln\ Pf_t + b_4\ ln\ Pfp_t + b_5\ ln\ Pfx_t) \\ + (1 - \delta)\ ln\ Q_{st-1} \tag{4}$$

Descriptions:
Descriptions of the formulas ……………………………………………………………

The after paragraph text……………………………………………………………

PENULISAN ANGKA DAN MATA UANG

Seluruh angka harus ditulis dalam format internasional dengan koma (,) sebagai pemisah antar ribuan dan titik (.) sebagai pemisah ke desimal.

Contoh: 1,000.5 (seribu koma lima)

Perlu dicatat bahwa seluruh mata uang harus ditulis dalam istilah internasional, misalnya Rupiah (Rp) harus ditulis Indonesian Rupiah (IDR).

WRITING NUMBERS AND CURRENCY

All numbers must be written in international format with a comma (,) as a separator between thousands and a dot (.) as a separator for decimals.

Example: 1,000.5 (one thousand point five)

It should be noted that all currencies must be written in international terms, for example Rupiah (Rp) must be written Indonesian Rupiah (IDR).

TABEL

*Pastikan seluruh tulisan dan rincian dalam tabel sudah dalam Bahasa Inggris. **Tabel berada di tengah halaman (Center)**. Perlu diperhatikan penulisan **Tabel** dengan **Table**, jangan sampai lupa menerjemahkan tulisan **Tabel** (Bahasa Indonesia) menjadi **Table** (Bahasa Inggris). Pastikan nomor tabel dan isi tabel berurutan. Tabel diatur di halaman agar tidak terpotong. Jika tabel terlalu lebar atau panjang harap dipotong menjadi dua bagian atau lebih. **Table Properties settings, Alignment: Center, Text Wrapping: None,** kemudian klik **Row, jangan centang Allow row to break across pages** dan **Centang Repeat as header row at the top of each page**.*

Judul tabel ditulis di atas tabel dan tidak boleh lebih lebar dari tabel dan ditulis dengan **setting Indent: Left 0 cm, Right 0 cm**, dan **Spacing: Before 0 pt, After 6 pt**. Jika judul tabel **hanya 1 baris**, maka judul tabel **berada di tengah halaman (Center)**. Namun jika judul tabel **lebih dari 1 baris**, maka judul tabel **diatur rata kanan-kiri (Justify)**.

Tulisan **Table** dan **Nomor tabel** ditulis **Tebal (Bold)** dan diakhiri dengan titik. Kemudian setelah titik langsung disambung dengan **judul tabel (tidak ditulis Tebal)** dalam bentuk **kalimat (Sentence case)**, dengan huruf besar hanya pada awal judul dan awal kata yang membutuhkan huruf besar (seperti nama daerah, nama spesies, dll), bukan besar pada setiap kata (Capitalize each word), dan diakhiri dengan **titik (.)**. Jika ada **keterangan table**, **Ukuran hurufnya 10 dan ditempatkan di bawah tabel**.

Satu baris kosong harus ditambahkan antara **paragraf** dengan **judul tabel di bawahnya**, dan antara **tabel/keterangan tabel** dengan **paragraf di bawahnya**. **Kecuali pada judul tabel, seluruh isi tabel, dan keterangan tabel** ditulis dengan **setting Indent: Left 0 cm, Right 0 cm**, dan **Spacing: Before 0 pt, After 0 pt**.

Contoh:

The before paragraph text………………………………………………………………

Table 4. A slightly more complex table with a narrow caption.

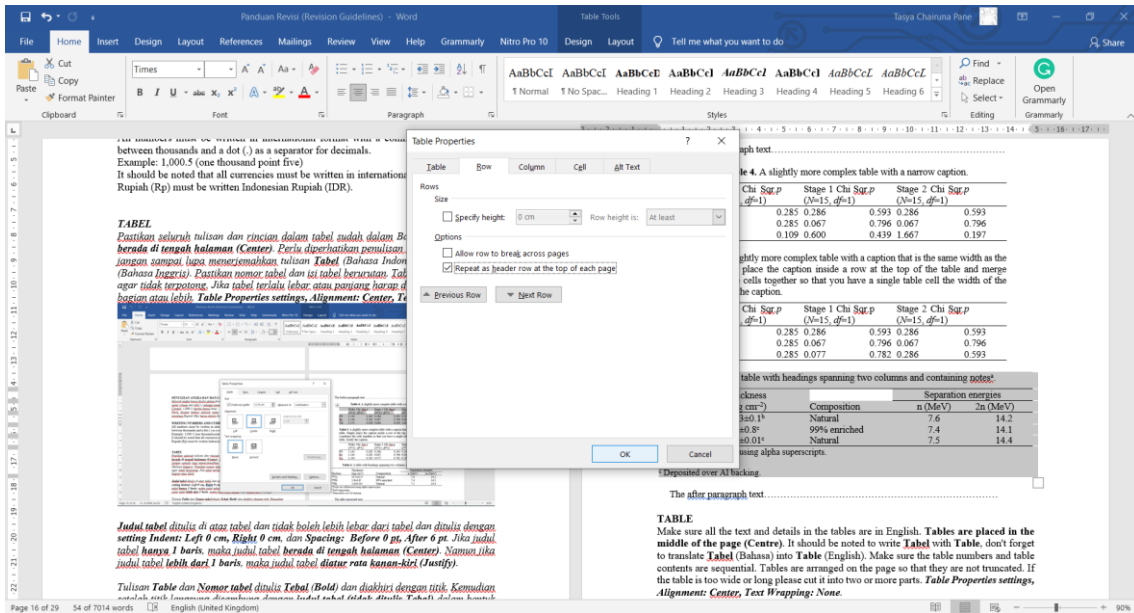|	Wake Chi Sqr.p (N=15, df=1)		Stage 1 Chi Sqr.p (N=15, df=1)		Stage 2 Chi Sqr.p (N=15, df=1)	
F3	1.143	0.285	0.286	0.593	0.286	0.593
Fz	1.143	0.285	0.067	0.796	0.067	0.796
C4	2.571	0.109	0.600	0.439	1.667	0.197

Table 5. A slightly more complex table with a caption that is the same width as the table. Simply place the caption inside a row at the top of the table and merge (combine) the cells together so that you have a single table cell the width of the table. Justify the caption.

	Wake Chi Sqr.p (N=15, df=1)		Stage 1 Chi Sqr.p (N=15, df=1)		Stage 2 Chi Sqr.p (N=15, df=1)	
F3	1.143	0.285	0.286	0.593	0.286	0.593
Fz	1.143	0.285	0.067	0.796	0.067	0.796
Cz	1.143	0.285	0.077	0.782	0.286	0.593

Table 6. A table with headings spanning two columns and containing notes[a].

Nucleus	Thickness (mg cm^{-2})	Composition	Separation energies	
			n (MeV)	2n (MeV)
^{181}Ta	19.3±0.1[b]	Natural	7.6	14.2
^{208}Pb	3.8±0.8[c]	99% enriched	7.4	14.1
^{209}Bi	2.6±0.01[c]	Natural	7.5	14.4

[a] Notes are referenced using alpha superscripts.
[b] Self-supporting.
[c] Deposited over Al backing.

The after paragraph text……………………………………………………………………

TABLE

Make sure all the text and details in the tables are in English. **Tables are placed in the middle of the page (Centre)**. It should be noted to write **Tabel** with **Table**, don't forget to translate **Tabel** (Bahasa) into **Table** (English). Make sure the table numbers and table contents are sequential. Tables are arranged on the page so that they are not truncated. If the table is too wide or long please cut it into two or more parts. ***Table Properties settings, Alignment: Center, Text Wrapping: None,*** *then click* **Row, uncheck Allow row to break across pages** *and* **check Repeat as header row at the top of each page**.
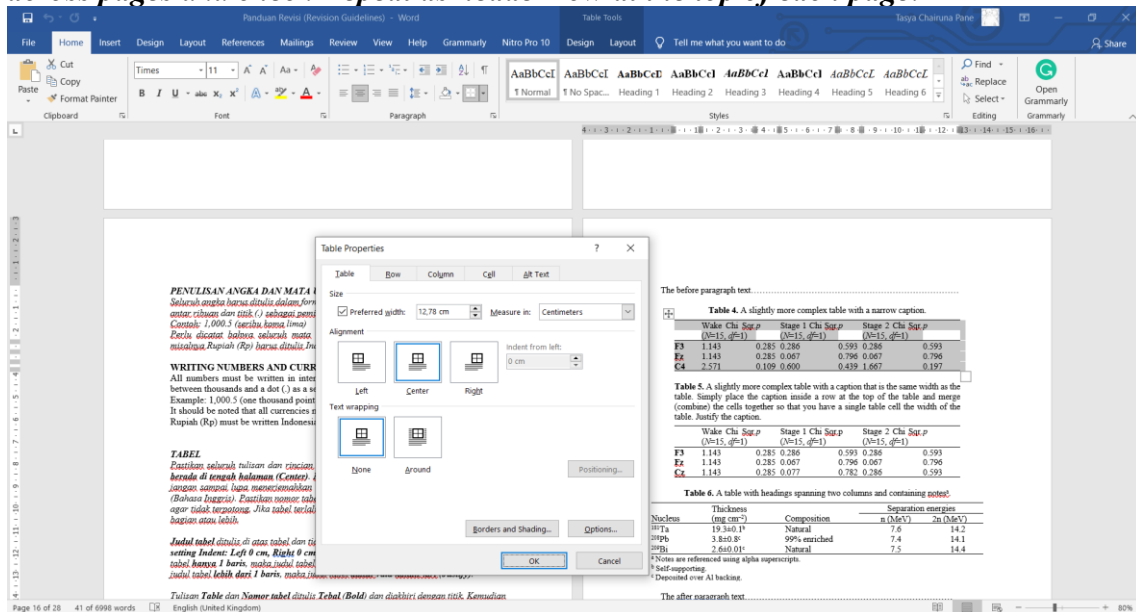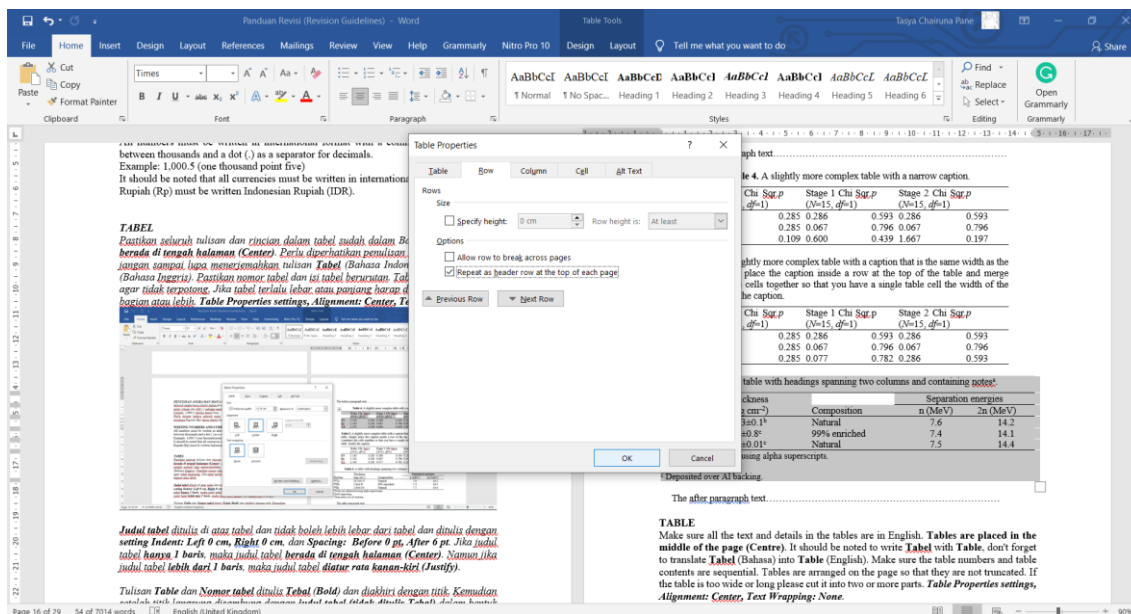
Table titles are written above the table and cannot be wider than the table and are written with **Indent settings: Left 0 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 6 pt**. If the table title is **only 1 line**, then the table title is **in the middle of the page (Centre)**. However, if the table title is **more than 1 line**, then the table title is **aligned to right-left (Justify)**.

Table text and **table numbers** are written in **Bold** and ended with a full stop. Then after the full stop is directly followed with the **table title (not written in Bold)** in a **sentence form (Sentence case)**, with capital letters only at the beginning of the title and the beginning of words that require capital letters (such as area names, species names, etc.), not capital letters on each word (Capitalize each word), and ended with a **full stop (.)**. If there are **table descriptions**, the **font size is 10 and placed below the table**.

One blank line must be added between the **paragraph** with the **table title below it**, and between the **table/table description** and the **paragraph below it**. **Except for table titles, all table contents and table descriptions** are written with **Indent settings: Left 0 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 0 pt**.

Example:

The before paragraph text…………………………………………………………………

Table 4. A slightly more complex table with a narrow caption.

	Wake Chi Sqr.p (N=15, df=1)		Stage 1 Chi Sqr.p (N=15, df=1)		Stage 2 Chi Sqr.p (N=15, df=1)	
F3	1.143	0.285	0.286	0.593	0.286	0.593
Fz	1.143	0.285	0.067	0.796	0.067	0.796
C4	2.571	0.109	0.600	0.439	1.667	0.197

Table 5. A slightly more complex table with a caption that is the same width as the table. Simply place the caption inside a row at the top of the table and merge (combine) the cells together so that you have a single table cell the width of the table. Justify the caption.

	Wake Chi Sqr.p (N=15, df=1)		Stage 1 Chi Sqr.p (N=15, df=1)		Stage 2 Chi Sqr.p (N=15, df=1)	
F3	1.143	0.285	0.286	0.593	0.286	0.593
Fz	1.143	0.285	0.067	0.796	0.067	0.796
Cz	1.143	0.285	0.077	0.782	0.286	0.593

Table 6. A table with headings spanning two columns and containing notes[a].

Nucleus	Thickness (mg cm^{-2})	Composition	Separation energies	
			n (MeV)	2n (MeV)
^{181}Ta	19.3±0.1[b]	Natural	7.6	14.2
^{208}Pb	3.8±0.8[c]	99% enriched	7.4	14.1
^{209}Bi	2.6±0.01[c]	Natural	7.5	14.4

[a] Notes are referenced using alpha superscripts.
[b] Self-supporting.
[c] Deposited over Al backing.

The after paragraph text……………………………………………………………

GAMBAR

*Gambar harus tetap terlihat jelas dan tidak pecah meskipun artikel diperbesar 300%. Pastikan seluruh tulisan dan rincian dalam gambar (terutama gambar peta) sudah dalam Bahasa Inggris. **Gambar berada di tengah halaman (Center)**. Perlu diperhatikan penulisan **Figur** dengan **Figure**, jangan sampai lupa menerjemahkan tulisan **Figur** (Bahasa Indonesia) menjadi **Figure** (Bahasa Inggris). Pastikan nomor gambar dan isi gambar berurutan. **Layout Options: In Line with Text.***
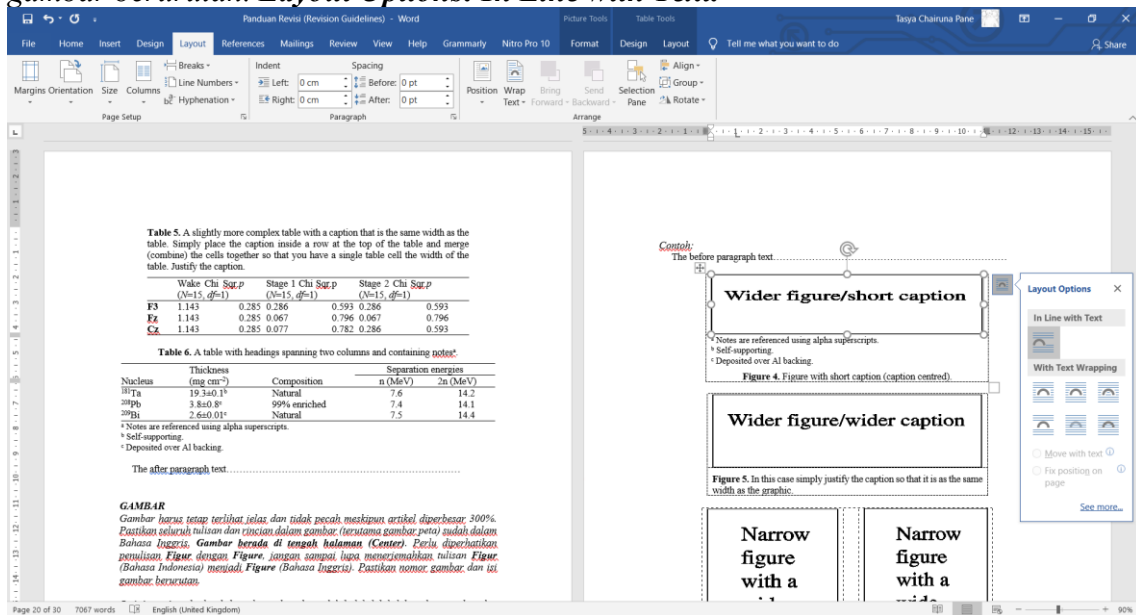
Judul gambar ditulis di bawah gambar dan tidak boleh lebih lebar dari gambar dan ditulis dengan **setting Indent: Left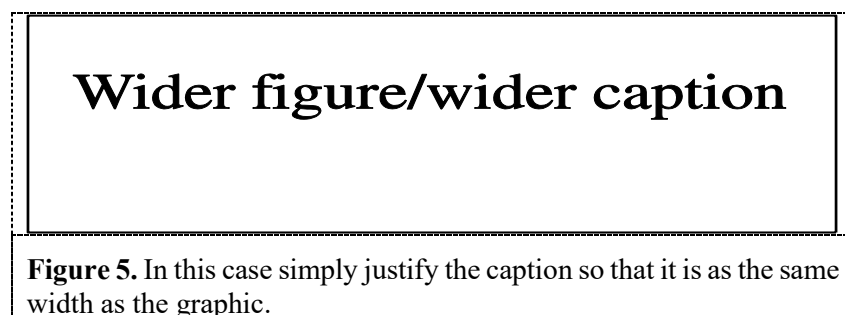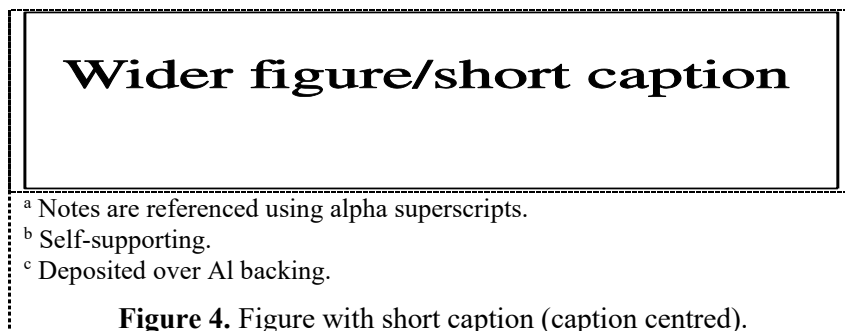 0 cm, Right 0 cm**, dan **Spacing: Before 6 pt, After 0 pt**. Jika judul gambar hanya **1 baris**, maka judul gambar berada **di tengah halaman (Center)**. Namun jika judul gambar **lebih dari 1 baris**, maka judul gambar **diatur rata kanan-kiri (Justify)**.
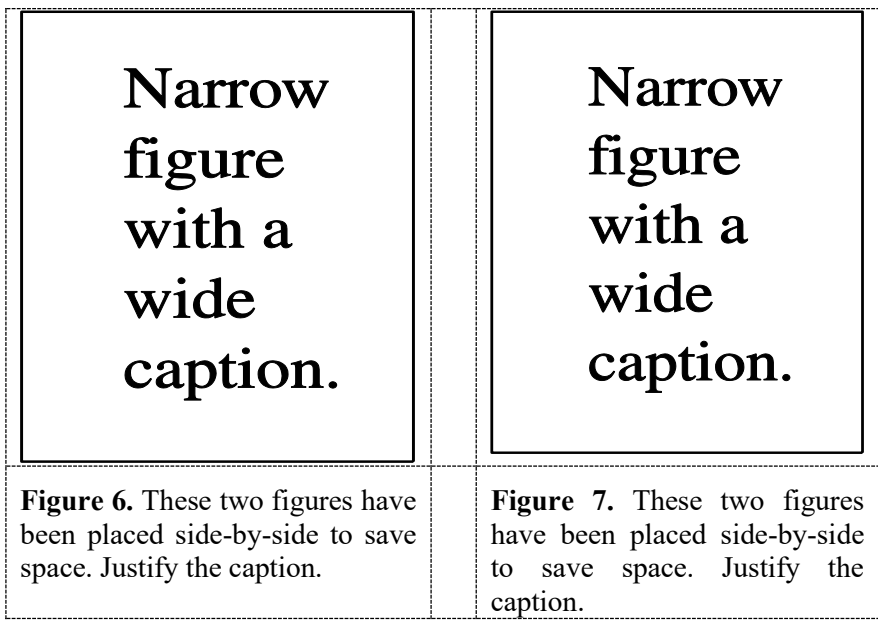
Tulisan **Figure** dan **Nomor gambar** ditulis **Tebal (Bold)** dan diakhiri dengan titik. Kemudian setelah titik langsung disambung dengan **judul gambar (tidak ditulis Tebal)** dalam bentuk **kalimat (Sentence case)**, dengan huruf besar hanya pada awal judul dan awal kata yang membutuhkan huruf besar (seperti nama daerah, nama spesies, dll), bukan besar pada setiap kata (Capitalize each word), dan diakhiri dengan **titik (.)**. Jika ada **keterangan gambar**, **Ukuran hurufnya 10 dan ditempatkan antara gambar dan judul gambar**.

Satu baris kosong harus ditambahkan antara **paragraph** dengan **gambar di bawahnya**, dan antara **judul gambar** dengan **paragraph di bawahnya**. Kecuali pada **judul gambar, seluruh gambar, dan keterangan gambar** ditulis dengan **setting Indent: Left 0 cm, Right 0 cm**, dan **Spacing: Before 0 pt, After 0 pt**.

Contoh:
The before paragraph text…………………………………………………………

ª Notes are referenced using alpha superscripts.
ᵇ Self-supporting.
ᶜ Deposited over Al backing.

Figure 4. Figure with short caption (caption centred).

Figure 5. In this case simply justify the caption so that it is as the same width as the graphic.

| Narrow figure with a wide caption.	Narrow figure with a wide caption.
Figure 6. These two figures have been placed side-by-side to save space. Justify the caption.	**Figure 7.** These two figures have been placed side-by-side to save space. Justify the caption.

The after paragraph text……………………………………………………………

FIGURE

Figures must remain clear and unbroken even if the article is enlarged to 300%. Make sure all the text and details in the figures (especially map figures) are in English. **Figures are placed in the middle of the page (Centre)**. It should be noted to write **Figur** with **Figure**, don't forget to translate **Figur** (Bahasa) into **Figure** (English). Make sure the figure numbers and figure contents are sequential. ***Layout Options: In Line with Text.***
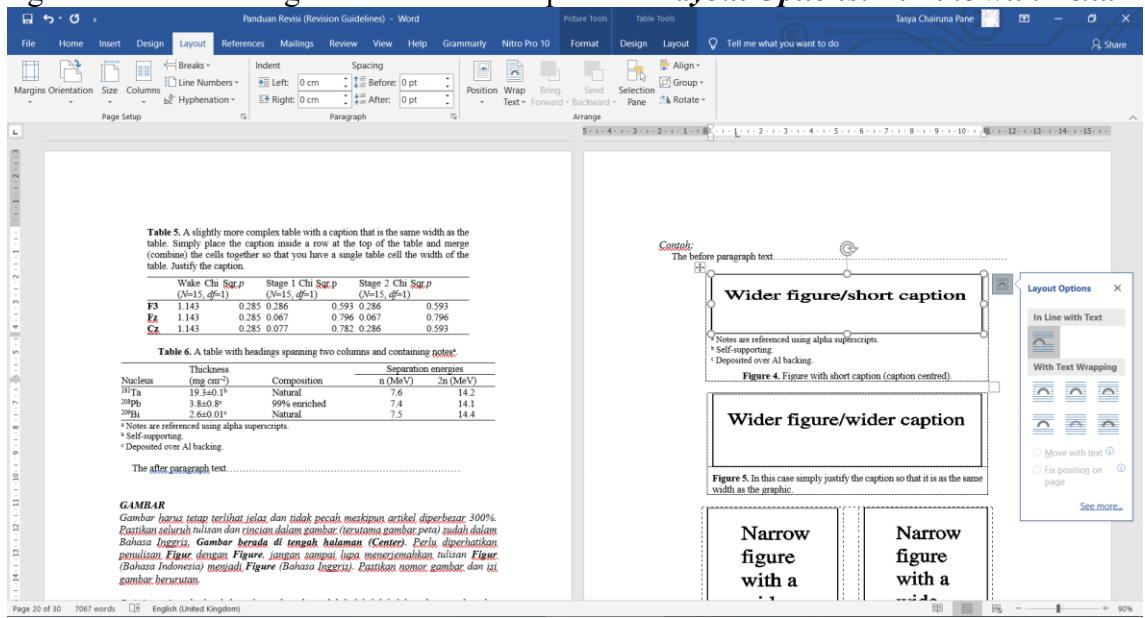
Figure titles are written below the figure and cannot be wider than the figure and are written with **Indent settings: Left 0 cm, Right 0 cm**, and **Spacing: Before 6 pt, After 0 pt**. If the figure title is **only 1 line**, then the figure title is **in the middle of the page (Centre)**. However, if the figure title is **more than 1 line**, then the figure title is **aligned to right-left (Justify)**.

Figure text and **figure numbers** are written in **Bold** and ended with a full stop. Then after the full stop is directly followed with the **figure title (not written in Bold)** in a **sentence form (Sentence case)**, with capital letters only at the beginning of the title and the beginning of words that require capital letters (such as area names, species names, etc.), not capital letters on each word (Capitalize each word), and ended with a **full stop (.)**. If there are **figure descriptions**, the **font size is 10 and placed between the figure and the figure title**.

One blank line must be added between the **paragraph** with the **figure below it**, and between the **figure title** and the **paragraph below it**. **Except for figure titles, all figures and figure descriptions** are written with **Indent settings: Left 0 cm, Right 0 cm**, and **Spacing: Before 0 pt, After 0 pt**.

Example:
The before paragraph text…………………………………………………………

ᵃ Notes are referenced using alpha superscripts.
ᵇ Self-supporting.
ᶜ Deposited over Al backing.

Figure 4. Figure with short caption (caption centred).

Figure 5. In this case simply justify the caption so that it is as the same width as the graphic.

Narrow figure with a wide caption.	Narrow figure with a wide caption.
Figure 6. These two figures have been placed side-by-side to save space. Justify the caption.	**Figure 7.** These two figures have been placed side-by-side to save space. Justify the caption.

The after paragraph text……………………………………………………………

KESIMPULAN DAN SARAN

*Kesimpulan dan saran harus ditulis dalam **bentuk paragraf** dan bukan dalam bentuk poin.*

CONCLUSIONS AND SUGGESTIONS

Conclusions and suggestions should be written in **paragraph form** and not in bullet points.

REFERENSI

*Referensi (daftar pustaka) ditulis dengan Vancouver Style. Referensi ditulis dengan urutan penomoran. Untuk memudahkan disarankan menggunakan aplikasi **Mendeley**.*

Contoh menulis referensi dalam paragraf:
1st paragraph [1].
2nd paragraph [2,3].
3rd paragraph [4-10].
4th paragraph [5,8-17].
5th paragraph [11-14,16,18-20].
6th paragraph [5,8,15-17,21].

Jangan memasukkan daftar pustaka yang tidak disebutkan dalam isi artikel.
Seluruh bahan pustaka yang disitasi sebaiknya dapat dicari secara online, kecuali mungkin buku cetak yang tidak ada versi online-nya.
Untuk daftar pustaka yang berbahasa Indonesia harus tetap ditulis dalam Bahasa Indonesia dengan menuliskan terjemahan ke Bahasa Inggris-nya di dalam kurung [...] setelah Bahasa Indonesia-nya.

*Untuk bahan pustaka dari jurnal dan prosiding bereputasi, maka judul jurnal dan prosiding tersebut dituliskan menggunakan singkatan resminya. Harap dicari singkatan resminya di internet dengan kata kunci "**Nama Lengkap Jurnal atau Prosiding abbreviation**".*
*Contoh: Ketikkan "iop conference series earth and environmental science abbreviation", maka akan muncul singkatan resmi **IOP Conference Series: Earth and Environmental Science**, yaitu **IOP Conf Ser Earth Environ Sci***

*Perhatikan dalam penulisan halaman jurnal atau prosiding yang disitasi, misal **halaman 116-129** akan ditulis **pp 116-29**, **halaman 933-941** akan ditulis **pp 933-41**, **halaman 120-128** akan ditulis **pp 120-8**, **halaman 1254-1259** akan ditulis **pp 1254-9**.*

REFERENCES
References (bibliography) are written in Vancouver Style. References are written in the order of numbering. For convenience, it is recommended to use the **Mendeley** application.

Examples of writing references in paragraphs:
1st paragraph [1].
2nd paragraph [2,3].
3rd paragraph [4-10].
4th paragraph [5,8-17].
5th paragraph [11-14,16,18-20].
6th paragraph [5,8,15-17,21].

Do not include a bibliography that is not mentioned in the body of the article.
All cited library materials should be searchable online, except maybe printed books where there is no online version.
For references in Bahasa, they must still be written in Bahasa by writing the translation into English in brackets […] after the Bahasa.

For reference materials from reputable journals and proceedings, the title of the journal and proceedings is written using the official abbreviation. Please look for the official abbreviation on the internet with the keywords "**Full Name of Journal or Proceedings Abbreviation**".
Example: Type "iop conference series earth and environmental science abbreviation", the official abbreviation for the **IOP Conference Series: Earth and Environmental Science** will appear, namely **IOP Conf Ser Earth Environ Sci**

Pay attention in writing the cited journals or proceedings pages, for example pages 116-129 shall be written pp 116-29, pages 933-941 shall be written pp 933-41, pages 120-128 shall be written pp 120-8, pages 1254-1259 shall be written pp. 1254-9.

Contoh Penulisan
Writing Example

Jurnal dan Prosiding:
Journals and Proceedings:
Nama Belakang Inisial Nama Depan Tahun Judul Artikel *Judul Jurnal/Prosiding* **Volume**(Nomor) p atau pp halaman
Last Name Initial First Name Year Title of Article *Title of Journal/Proceedings* **Volume**(Number) p or pp of pages

Arif S and Sidek S 2015 Application of Halalan Tayyiban in the Standard Reference for Determining Malaysian Halal Food *Asian Soc Sci* **11**(17) pp 116–29
Said M, Hassan F, Musa R and Rahman NA 2014 Assessing Consumers' Perception, Knowledge and Religiosity on Malaysia's Halal Food Products *Procedia - Soc Behav Sci* **130** pp 120–8

Jurnal dan Prosiding belum publish:
Unpublished Journals and Proceedings:
Nama Belakang Inisial Nama Depan Tahun Judul Artikel *Judul Jurnal/Konferensi* (Kota, Negara: Penerbit) p atau pp halaman Status Presented/Accepted
Last Name Initial First Name Year Title of Article *Title of Journal/Conference* (City, Country: Publisher) p or pp of pages Status Presented/Accepted

Pane TC and Khaliqi M 2019 The effect of religiosity level on the perceptions of young Muslim consumers towards Halal food criteria in Indonesia *International Conference on Agriculture, Environment, and Food Security (AEFS) 2019* (Medan, Indonesia) Accepted

Buku:
Books:
Nama Belakang Inisial Nama Depan Tahun *Judul Buku* (Kota, Negara: Penerbit) p atau pp halaman
Last Name Initial First Name Year *Title of Book* (City, Country: Publisher) p or pp of pages

Lunneborg CE 2005 Jonckheere – Terpstra Test *Encyclopedia of Statistics in Behavioral Science* (John Wiley & Sons, Ltd.) p 252
Soesilowati ES 2009 *Peluang Usaha Produk Halal di Pasar Global: Perilaku Konsumen Muslim dalam Konsumsi Makanan Halal [Business Opportunities for Halal Products in Global Markets: Muslim Consumer Behaviors in Halal Food Consumption]* (Jakarta, Indonesia: Pusat Penelitian Ekonomi, Lembaga Ilmu Pengetahuan Indonesia [Centre for Economic Research, Indonesian Institute of Sciences]) pp 1–164
Ghozali I 2016 *Aplikasi Analisis Multivariate dengan Program IBM SPSS 23 [Multivariate Analysis Application with the IBM SPSS 23 Program]* (Semarang, Indonesia: Badan Penerbit Universitas Diponegoro)

Bab Buku:
Book Chapters:
Nama Belakang Inisial Nama Depan Tahun Judul Bab *Judul Buku* (Kota, Negara: Penerbit) p atau pp halaman
Last Name Initial First Name Year Title of Chapter *Title of Book* (City, Country: Publisher) p or pp pages

Pasaribu S M and Sudiyanto A 2016 Agricultural risk management: Lesson learned from the application of rice crop insurance in Indonesia *Climate Change Policies and Challenges in Indonesia* (Tokyo, Japan: Springer) pp 31-8
Press W H, Teukolsky S A, Vetterling W T and Flannery B P 2007 Chapter 14. Statistical Description of Data *Numerical Recipes in C: The Art of Scientific Computing* pp 20-9

Buku Online:
Online Books:
Nama Belakang Inisial Nama Depan Tahun *Judul Buku* (Kota, Negara: Penerbit) p atau pp halaman Available from: Website
Last Name Initial First Name Year *Title of Book* (City, Country: Publisher) p or pp of pages Available from: Website

Badan Pusat Statistik Indonesia [BPS-Statistics of Indonesia] 2018 *Sensus Penduduk 2010: Penduduk Menurut Kelompok Umur dan Agama [2010 Population Census: Population by Age Groups and Religions]* (Jakarta: Badan Pusat Statistik Indonesia [BPS-Statistics of Indonesia]) Available from: https://sp2010.bps.go.id

Bab Buku Online:
Online Book Chapters:
Nama Belakang Inisial Nama Depan Tahun Judul Bab *Judul Buku* (Kota, Negara: Penerbit) p atau pp halaman Available from: Website
Last Name Initial First Name Year Title of Chapter *Title of Book* (City, Country: Publisher) p or pp of pages Available from: Website

Artikel Koran/Majalah:
Newspaper/Magazine Articles:
Nama Belakang Inisial Nama Depan Tahun Judul Artikel *Judul Koran/Majalah* **Volume**(Nomor) p atau pp halaman
Last Name Initial First Name Year Title of Article *Title of Newspaper/Magazine* **Volume**(Number) p or pp of pages

Artikel Koran/Majalah Online:
Online Newspaper/Magazine Articles:
Nama Belakang Inisial Nama Depan Tahun Judul Artikel *Judul Koran/Majalah* **Volume**(Nomor) p atau pp halaman Available from: Website

Last Name Initial First Name Year Title of Article *Title of Newspaper/Magazine* **Volume**(Number) p or pp of pages Available from: Website

Tesis atau Laporan:
Thesis or Reports:
Nama Belakang Inisial Nama Depan Tahun *Judul Thesis/Laporan* (Kota, Negara: Afiliasi) p atau pp halaman
Last Name Initial First Name Year *Title of Thesis/Report* (City, Country: Affiliation) p or pp of pages

Artikel Online:
Online Articles:
Nama Belakang Inisial Nama Depan Tahun *Judul Artikel* (Penerbit) Available from: Website
Last Name Initial First Name Year *Article Title* (Publisher) Available from: Website

Pujiyanto 2017 *BPJPH Diresmikan, Menag: Peran MUI Tetap Penting [BPJPH Officially Opened, Minister of Religious Affairs: MUI's Role is Still Important]* (Kementerian Agama Republik Indonesia [Minister of Religious Affairs of the Republic of Indonesia]) Available from: https://kemenag.go.id/berita/read/505865/bpjph-diresmikan--menag--peran-mui-tetap-penting

Contoh referensi:
References
[1] Arif S and Sidek S 2015 Application of Halalan Tayyiban in the Standard Reference for Determining Malaysian Halal Food *Asian Soc Sci* **11**(17) pp 116–29
[2] Abd Rahman A, Asrarhaghighi E and Ab Rahman S 2015 Consumers and Halal cosmetic products: knowledge, religiosity, attitude and intention *J Islam Mark* **6**(1) pp 148–63
[3] Golnaz R, Zainalabidin M and Mad Nasir S 2012 Assessment of consumers' confidence on Halal labeled manufactured food in Malaysia *Pertanika J Soc Sci Humanit* **20**(1) pp 33–42
[4] Jamal A and Sharifuddin J 2015 Perceived value and perceived usefulness of Halal labeling: The role of religion and culture *J Bus Res* **68**(5) pp 933–41
[5] Badan Pusat Statistik Indonesia [BPS-Statistics of Indonesia] 2018 *Sensus Penduduk 2010: Penduduk Menurut Kelompok Umur dan Agama [2010 Population Census: Population by Age Groups and Religions]* (Jakarta: Badan Pusat Statistik Indonesia [BPS-Statistics of Indonesia]) Available from: https://sp2010.bps.go.id
[6] Elson RE 2010 Nationalism, Islam, "secularism" and the state in contemporary Indonesia *Aust J Int Aff* **64**(3) pp 328–43
[7] Mohamed Z, Shamsudin MN and Rezai G 2013 The Effect of Possessing Information About Halal Logo on Consumer Confidence in Malaysia *J Int Food Agribus Mark* **25**(1) pp 73–86
[8] Pujiyanto 2017 *BPJPH Diresmikan, Menag: Peran MUI Tetap Penting [BPJPH Officially Opened, Minister of Religious Affairs: MUI's Role is Still Important]*

(Kementerian Agama Republik Indonesia [Minister of Religious Affairs of the Republic of Indonesia]) Available from: https://kemenag.go.id/berita/read/505865/bpjph-diresmikan--menag--peran-mui-tetap-penting

[9] Delener N 1990 The effects of religious factors on perceived risk in durable goods purchase decisions *J Consum Mark* **7**(3) pp 27–38

[10] Mukhtar A and Butt MMB 2012 Religiosity and Muslim consumers *J Islam Mark* **3**(2) pp 108–20

[11] Soesilowati ES 2009 *Peluang Usaha Produk Halal di Pasar Global: Perilaku Konsumen Muslim dalam Konsumsi Makanan Halal [Business Opportunities for Halal Products in Global Markets: Muslim Consumer Behaviors in Halal Food Consumption]* (Jakarta, Indonesia: Pusat Penelitian Ekonomi, Lembaga Ilmu Pengetahuan Indonesia [Centre for Economic Research, Indonesian Institute of Sciences]) pp 1–164

[12] Cetrez ÖA 2011 The next generation of Assyrians in Sweden: Religiosity as a functioning system of meaning within the process of acculturation *Ment Heal Relig Cult* **14**(5) pp 473–87

[13] Cleveland M and Chang W 2009 Migration and materialism: The roles of ethnic identity, religiosity, and generation *J Bus Res* **62**(10) pp 963–71

[14] Cnaan RA, Gelles RJ and Sinha JW 2004 Youth and religion: The gameboy generation goes to "church" *Soc Indic Res* **68**(2) pp 175–200

[15] Diehl C, Koenig M and Ruckdeschel K 2009 Religiosity and gender equality: Comparing natives and Muslim migrants in Germany *Ethn Racial Stud* **32**(2) pp 278–301

[16] Mukhtar A and Butt MM 2012 Intention to choose Halal products: The role of religiosity *J Islam Mark* **3**(2) pp 108–20

[17] Said M, Hassan F, Musa R and Rahman NA 2014 Assessing Consumers' Perception, Knowledge and Religiosity on Malaysia's Halal Food Products *Procedia - Soc Behav Sci* **130** pp 120–8

[18] Ryan TP 2013 *Sample Size Determination and Power* (Hoboken, New Jersey: John Wiley & Sons, Inc.)

[19] Awan HM, Siddiquei AN and Haider Z 2015 Factors affecting Halal purchase intention - evidence from Pakistan's Halal food sector *Manag Res Rev* **38**(6)

[20] Regenstein JM, Chaudry MM and Regenstein CE 2003 The Kosher and Halal Food Laws Compr *Rev Food Sci Food Saf* **2**(3) pp 111–27

[21] Jonckheere AR 1954 A Distribution-Free k-Sample Test Against Ordered Alternatives *Biometrika* **41**(1) pp 133–45

[22] Terpstra JT and Magel RC 2003 A new nonparametric test for the ordered alternative problem *J Nonparametr Stat* **15**(3) pp 289–301

[23] Chen YI and Wolfe DA 1990 A Study of Distribution-free Tests for Umbrella Alternatives *Biometrical J* **32**(1) pp 47–57

[24] Choi K and Marden J 1997 An approach to multivariate rank tests in multivariate analysis of variance *J Am Stat Assoc* **92**(440) pp 1581–90

[25] Hill NJ, Padmanabhan AR and Puri ML 1988 Adaptive Nonparametric Procedures and Applications *J R Stat Soc Ser C Appl Stat* **37**(2) pp 205–18

[26] Lin FA and Haseman JK 1978 An Evaluation of Some Nonparametric Multiple Comparison Procedures by Monte Carlo Methods *Commun Stat - Simul Comput* **7**(2) pp 117–28

[27] Mahrer JM and Magel RC 1995 A comparison of tests for the k-sample, non-decreasing alternative *Stat Med* **14** pp 863–71

References
[1] Fuseini A, Knowles TG, Hadley PJ, Lines JA and Wotton SB 2016 Halal stunning and slaughter: Criteria for the assessment of dead animals *Meat Sci* **119** pp 132–7
[2] Golnaz R, Zainalabidin M and Mad Nasir S 2012 Assessment of consumers' confidence on Halal labeled manufactured food in Malaysia *Pertanika J Soc Sci Humanit* **20**(1) pp 33–42
[3] Jamal A and Sharifuddin J 2015 Perceived value and perceived usefulness of Halal labelling: The role of religion and culture *J Bus Res* **68**(5) pp 933–41
[4] Mohamed Z, Shamsudin MN and Rezai G 2013 The Effect of Possessing Information About Halal Logo on Consumer Confidence in Malaysia *J Int Food Agribus Mark* **25**(1) pp 73–86
[5] Said M, Hassan F, Musa R and Rahman NA 2014 Assessing Consumers' Perception, Knowledge and Religiosity on Malaysia's Halal Food Products *Procedia - Soc Behav Sci* **130** pp 120–8
[6] Badan Pusat Statistik Indonesia [BPS-Statistics of Indonesia] 2018 *Sensus Penduduk 2010: Penduduk Menurut Kelompok Umur dan Agama [2010 Population Census: Population by Age Groups and Religions]* (Jakarta, Indonesia: Badan Pusat Statistik Indonesia [BPS-Statistics of Indonesia]) Available from: https://sp2010.bps.go.id
[7] Mukhtar A and Butt MM 2012 Intention to choose Halal products: The role of religiosity *J Islam Mark* **3**(2) pp 108–20
[8] Pujiyanto 2017 *BPJPH Diresmikan, Menag: Peran MUI Tetap Penting [BPJPH Officially Opened, Minister of Religious Affairs: MUI's Role is Still Important]* (Kementerian Agama Republik Indonesia [Minister of Religious Affairs of the Republic of Indonesia]) Available from: https://kemenag.go.id/berita/read/505865/bpjph-diresmikan--menag--peran-mui-tetap-penting
[9] Mukhtar A and Butt MMB 2012 Religiosity and Muslim consumers *J Islam Mark* **3**(2) pp 108–20
[10] Delener N 1990 The effects of religious factors on perceived risk in durable goods purchase decisions *J Consum Mark* **7**(3) pp 27–38
[11] Soesilowati ES 2009 *Peluang Usaha Produk Halal di Pasar Global: Perilaku Konsumen Muslim dalam Konsumsi Makanan Halal [Business Opportunities for Halal Products in Global Markets: Muslim Consumer Behaviors in Halal Food Consumption]* (Jakarta: Pusat Penelitian Ekonomi, Lembaga Ilmu Pengetahuan Indonesia [Centre for Economic Research, Indonesian Institute of Sciences]) pp 1–164
[12] Elson RE 2010 Nationalism, Islam, "secularism" and the state in contemporary Indonesia *Aust J Int Aff* **64**(3) pp 328–43
[13] Cleveland M and Chang W 2009 Migration and materialism: The roles of ethnic identity, religiosity, and generation *J Bus Res* **62**(10) pp 963–71
[14] Cnaan RA, Gelles RJ and Sinha JW 2004 Youth and religion: The gameboy generation goes to "church" *Soc Indic Res* **68**(2) pp 175–200
[15] Diehl C, Koenig M and Ruckdeschel K 2009 Religiosity and gender equality: Comparing natives and Muslim migrants in Germany *Ethn Racial Stud* **32**(2) pp 278–301

[16] Fleischmann F and Phalet K 2012 Integration and religiosity among the Turkish second generation in Europe: A comparative analysis across four capital cities *Ethn Racial Stud* **35**(2) pp 320–41

[17] Pane TC and Khaliqi M 2019 The effect of religiosity level on the perceptions of young Muslim consumers towards Halal food criteria in Indonesia *International Conference on Agriculture, Environment, and Food Security (AEFS) 2019* (Medan, Indonesia) Accepted

[18] Ryan TP 2013 *Sample Size Determination and Power* (Hoboken, New Jersey: John Wiley & Sons, Inc.)

[19] Awan HM, Siddiquei AN and Haider Z 2015 Factors affecting Halal purchase intention - evidence from Pakistan's Halal food sector *Manag Res Rev* **38**(6)

[20] Regenstein JM, Chaudry MM and Regenstein CE 2003 The Kosher and Halal Food Laws *Compr Rev Food Sci Food Saf* **2**(3) pp 111–27

[21] Jonckheere AR 1954 A Distribution-Free k-Sample Test Against Ordered Alternatives *Biometrika* **41**(1) pp 133–45

[22] Terpstra JT and Magel RC 2003 A new nonparametric test for the ordered alternative problem *J Nonparametr Stat* **15**(3) pp 289–301

[23] Choi K and Marden J 1997 An approach to multivariate rank tests in multivariate analysis of variance *J Am Stat Assoc* **92**(440) pp 1581–90

[24] Lunneborg CE 2005 Jonckheere – Terpstra Test *Encyclopedia of Statistics in Behavioral Science* (John Wiley & Sons, Ltd.) p 252

[25] Lin FA and Haseman JK 1978 An Evaluation of Some Nonparametric Multiple Comparison Procedures by Monte Carlo Methods *Commun Stat - Simul Comput* **7**(2) pp 117–28

[26] Mahrer JM and Magel RC 1995 A comparison of tests for the k-sample, non-decreasing alternative *Stat Med* **14** pp 863–71

[27] Neuhäuser M 2012 *Nonparametric statistical tests: A computational approach* (New York: Taylor & Francis Group, LLC) pp 1–248

# Tutorial on How To Resubmit Your Manuscript

1. Open your morressier account. You will see a notificitation from the administrator to change you your paper. Click.
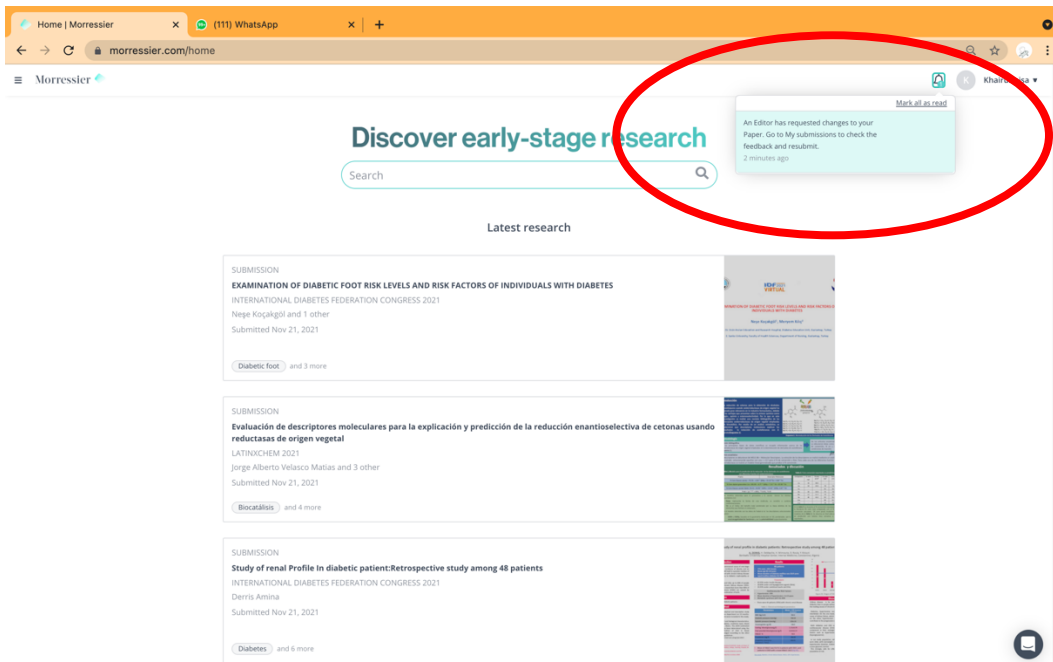

2. You will be directed to your paper account. Click "check feedback" to check the reviewer suggestion.
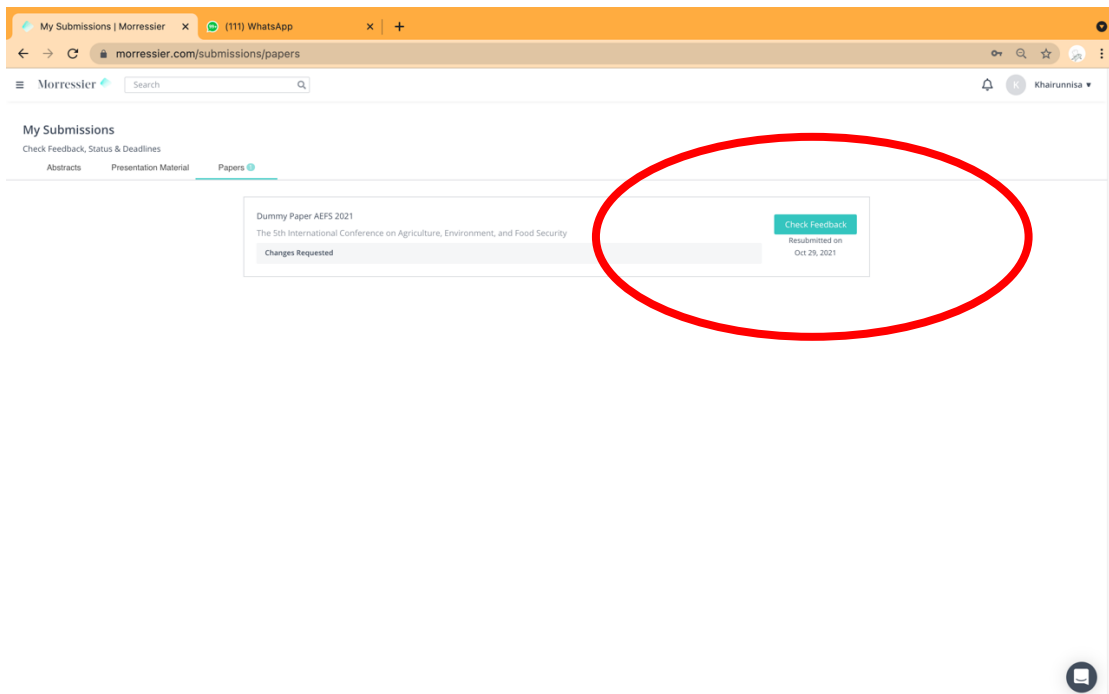
3. You will see the "Implement feedback and resubmit" window. Check the reviewer suggestion and scroll down to find the resubmit menu.
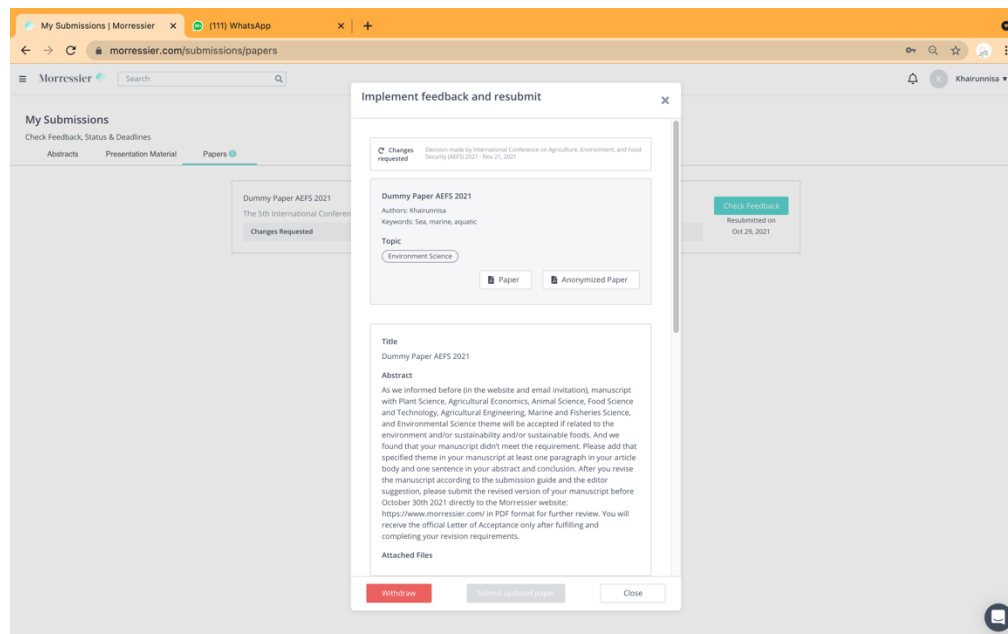
4. After you read the reviewer comments, please revise your manuscript according to the reviewer suggestion. Upload your revised paper in the "Your Resubmission" menu. For files, you need to upload 2 files in PDF Format. The first file is the full manuscript and the second file is your anonymous manuscript (your full paper without your name, email, and institution).
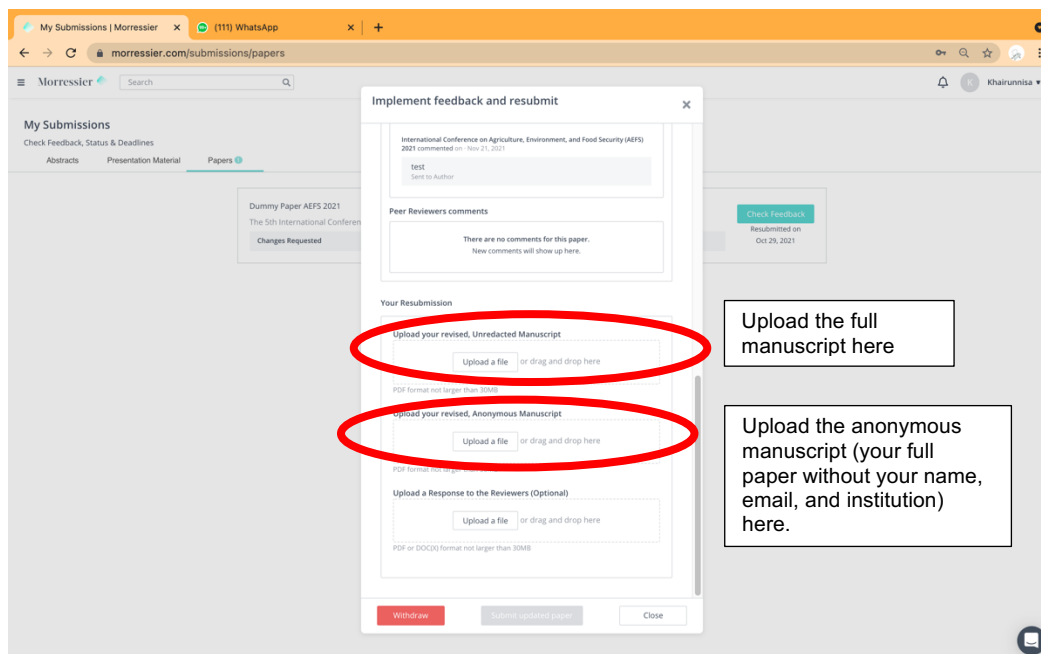
5. After you uploaded your files, click "submit updated paper"
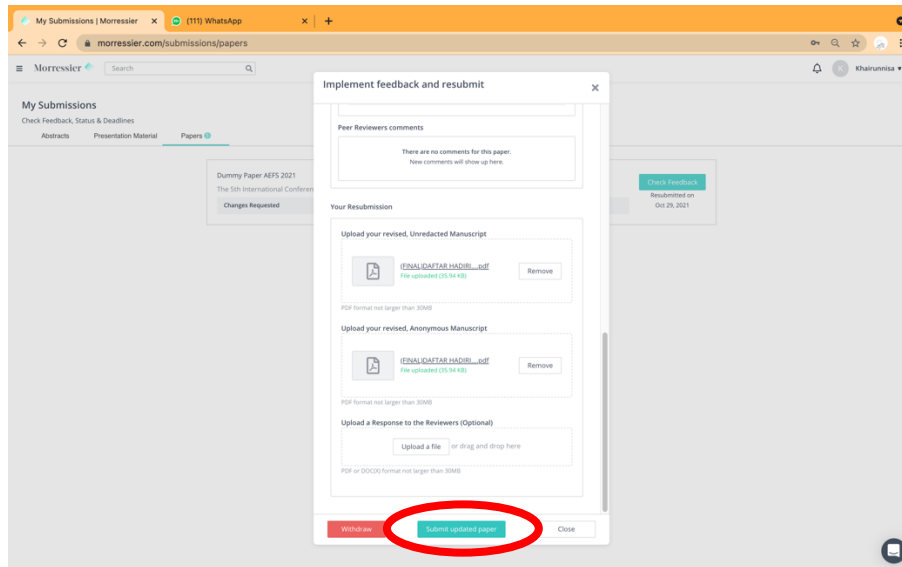
6. Now, your paper has been successfully re-submitted.