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Overview of Fly Density at Mojorejo Sukoharjo Landfill 2023

Diah Siwi Rahayu[1*], Nine Elissa Maharani[2], Farid Setyo Nugroho[3]

[1,2,3]Prodi Kesehatan Masyarakat, Fakultas Kesehatan Masyarakat dan Ilmu Kesehatan, Universitas Veteran Bangun Nusantara Sukoharjo

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ABSTRACT

Introduction: The final waste processing site is a breeding location for flies, and the density of flies in an area usually indicates poor sanitation. Fly density numbers were measured using a fly grill to determine the number of fly densities in the Mojorejo Landfill as a basis for analyzing preventive measures. **Method:** This research is a quantitative-descriptive-research. The population was all flies in the active and passive zones in the landfill. Samples were taken using accidental sampling techniques and carried out in two different areas in the Mojorejo Landfill (passive zone and active zone) which could be reached by researchers, namely active zone A cell A1 and passive zone B block B2, then the samples in this study were flies counted from all the flies that landed on the fly grill. **Results:** Flies in the Mojerejo landfill were 14.6 in the passive zone and 26.6 in the active zone. Based on the assessment standards for measuring the density of flies with several 6-20 individuals, it is stated as high/Dense and >21 very high, with a proportion in the passive zone of 35% and the active zone of 65%. Hence, the density of flies in landfills is a concern for fly control measures. **Conclusion:** Control efforts need to be made to reduce fly density levels by improving hygiene, environmental sanitation, and controlling a combination of physical control in the form of landfilling, biological control in the form of natural predators such as bees, and chemical control such as spraying insecticide.

Corresponding Authors: (*)
Prodi Kesehatan Masyarakat, Fakultas Kesehatan Masyarakat dan Ilmu Kesehatan, Universitas Veteran Bangun Nusantara, Sukoharjo, Jl. Letjend Sujono Humardani, Sukoharjo 57521, Indonesia
Email: elissapanjimomo@gmail.com

INTRODUCTION

Diseases transmitted to humans through vectors such as insects or animals are called vector-borne diseases (Rocklöv and Dubrow, 2020). Every year, diseases transmitted by animal vectors infect hundreds of millions of people and pose a threat to public health globally. Diseases commonly transmitted by animal vectors include cholera, diarrhea, malaria, dengue fever, typhus, and leptospirosis. The most common disease-carrying animal vectors in society are arthropods or animals with segmented bodies from the hexapod group, including cockroaches, fleas, flies, and mosquitoes (Fouque and Reeder, 2019). Animal vectors cause more than 17% of all infectious diseases in the world and cause more than 700 thousand deaths every year *(World Health Organization*, 2020). One of the locations for disease transmission through animal vectors is final disposal sites, many of which are located near residential areas. Many workers and scavengers live in the area around the landfill, and this allows disease transmission through vectors. This condition is very likely to happen.

Based on PP RI Number 81 Year 2012, concerning the Management of Household Waste and Waste Similar to Household Waste, stipulates that the final processing place, or landfill, is a location where waste is processed and returned to environmental media (PP RI NO 81, 2012). As carriers of disease and spreaders of disease to humans flies create an environment that supports the proliferation of myasis (Hanifar, 2017). Central Java Province, consisting of 35 cities/districts, has 57 final waste disposal sites using management methods with landfill control and open dumping types. More precise details for landfills in Central Java consist of 9 landfill control landfills and 48 open dumping landfills (Prabowo dkk, 2019). Based on Undang-Undang Number 18 Year 2008 concerning Waste Management, waste is solid residue from natural processes and daily human activities (UU No. 18, 2008). One of the most significant environmental problems today is waste produced by human activities. This condition causes pollution and endangers human health.

Flies are an animal vector that causes disease, and other species carry vectors that cause disease (Ratna Dita et al., 2022). The presence of flies in a location is usually an indicator of poor hygiene and sanitation. The flies that cause this disease are of the order Diptera, one of the most significant insect orders, with many types worldwide (Lau et al., 2016). Most kinds of Diptera have soft bodies and a significant economic influence (DKK Sukoharjo, 2015). House flies constitute almost 95% of the flies around houses and barns. Musca domestica is also called a nuisance insect in the health sector because it is a mechanical vector that causes several diseases (Pertiwi, 2019). The fly life cycle consists of four stages: egg, larva, pupa, and adult (Septiani, 2023).

Flies tend to like places with strong and pungent odors and wet areas. Flies usually prefer natural green colors, such as fresh fruit or vegetables, and brown on stems (Hasanah, 2018). Flies are annoying in appearance or aesthetics and can cause various diseases. Flies can spread pathogenic diseases through food by carrying several commonly carried bacteria, namely *Salmonella, Providencia, Escherichia coli, Shigella dysentriae, Vibrio*, and *Proteus*. Then, this is caused by deplorable environmental hygiene conditions (Putri 2018). Some diseases that fly can transmit through food include anthrax, trachoma, dysentery, cholera, typhoid, diarrhea, and skin itching. The diseases that fly can transmit are mechanical, using microorganisms that cause disease to attach to the skin and dirty feet, which then stick to food. Then, all parts of the fly's body, namely the body, hair on the hands and feet, and feces and vomit, can transmit disease (Septiani, 2023). Diarrhea is a disease carried by flies and is a global problem, especially in developing countries like Indonesia. One of the diseases that these flies can transmit is diarrhea. This diarrhea is the second cause of death in children under the age of five, with the number of deaths reaching 370,000 in 2019 (World Health Organization,2020). According to data from the Indonesian Ministry of Health in 2018, diarrhea was the 13th leading cause of death, contributing 3.5% of total deaths. The prevalence of diarrhea in Central Java in 2018 reached 132,565 cases (Kemenkes RI, 2018). This high level of diarrhea is closely related to poor environmental sanitation, especially in waste management, which is a breeding ground for fly vectors. The higher the density of flies, the higher the possibility of spreading diarrheal disease.

A fly grill is a simple tool made from pieces of wood that is used to measure the density of flies. The width of the fly grill is 2 cm, with a thickness of 1 cm and a length of 80 cm for each piece of wood. The way this tool works to measure fly density is quite simple. One of the advantages of a fly grill is that it is made from materials that are easy to find. Making a fly grill is relatively cheap and easy. Measuring fly density numbers with a fly grill is quite thorough and accurate because the calculation method pays attention to the grill block. Fly grills can be colored in various colors with the aim that when using fly grills with better colors, they can be used to measure fly density more accurately (Mulasari and Thamarina 2022). Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 50 of 2017 concerning Environmental Health Quality Standards and Health Requirements for Vectors and Disease-Carrying Animals and Their Control, it explains that physical, biological, and chemical control of flies is necessary if the number of flies exceeds the established quality standard, namely >2 (Kemenkes RI 2017). This control can reduce the rate of fly increase and the level of fly density in a place.

The presence of rubbish around us can impact health problems for the community because it is a source and means of spreading and transmitting disease. The influence that waste has on health that we are not directly aware of can be in the form of diseases carried by vectors that live or live in rubbish heaps, and in the process of breeding, flies can use heaped rubbish as nests (Kristanti et al., 2021). Fly control should be part of the health program in every area (Valentine and Nurbayati 2023). Community fly control is a fly control process that involves community participation (Yasril and Nur, 2018). With the long-distance flies (around 6-9 km), independent fly control efforts will be challenging. Therefore, this program requires the participation of many people in the community (Valentine and Nurbayati, 2023).

Based on research conducted by Pituari et al (2019), active zone 1 has the highest level of fly density, with the five highest averages being 35 individuals, the active zone 24.2 individuals, and the passive zone 18.52 individuals. *Musca domestica* (house flies) 73.56 percent and *Calliphora vomitoria* (green flies) 26.44 percent of the flies caught, and active zone 1, active 2, and passive zone were very dense (Pituari, Dirhan, and Murtiningsih 2021). The fly density level in both landfills is in the very high category. Disny Prajnawita, in his research, stated that in Pakusari landfills, the highest density was 44.4 individuals per 30 seconds (point 1) and 42.4 individuals per 30 seconds (point 1). In Ambulu, the highest density was 34.4 individuals per 30 seconds (point 6) and 31.4 individuals per 30 seconds (point 1). Pakusari landfills and Ambulu landfills significantly differed in fly density levels (p=0.000). Most flies (81% of the total) are house flies (Musca Domestica) (Prajnawita, Moelyaningrum, and Ningrum 2020). Based on research conducted by Masyuhada et al (2017), the results obtained from all flies caught were that the highest density of flies was found in the active zone 1 area. The proportion of flies caught in the active zone 1 area was 63%, the active zone 2 area was 29%, and the proportion lowest fly density was found in the passive zone area at 8%. The fly species in the Jatibarang Waste Landfill were Chrysomya megacephala (66%), Musca domestica (22%) and Lucilia sericata (12%) (Masyhuda dkk, 2017).

Fly studies that include density are rarely carried out because fly density figures are commonplace for landfills because they are waste heap locations and final waste disposal locations (Prayogo and Khomsatun, 2015). Based on researchers' observations and interviews with Mojorejo Landfill managers, research on fly density has never been carried out, so the condition of flies in Mojorejo Landfill has not been treated further, resulting in a lack of data regarding fly density, fly activity, and fly types which is very necessary for controlling the fly population so that both the public and related institutions and the landfill can know how to effectively and efficiently control the density of flies. This data cannot be collected to provide information on the landfill because there is no routine research on fly density.

This research aims to determine the description of the density of flies in the Mojorejo Landfill, where the role of the landfill, which is not far from residential areas, is closely related to the spread of diseases caused by flies, then complete data regarding fly density figures which can be used to formulate methods for controlling fly density. To analyze preventive measures, researchers will measure and describe the density of flies at the Mojorejo Landfill using fly grill media.

LITERATURE REVIEW

Flies from the suborder *Cyclorrapha* of the Diptera order usually have two wings: one real and one small used for standing when flying (Sebayang and Sinaga, 2021). Flies also tend to choose natural colors like brown on stems and green on plants or fruit, such as apples and mangoes. Flies like wet places, materials from living creatures or organic materials, human and animal waste, wet rubbish, and rotten plants. Flies and fly larvae like dirt accumulating cumulatively, while scattered dirt is used as a fly breeding ground. Flies are an insect with wings and a disease vector whose presence is alarming to the environment in terms of aesthetics and health.

Flies are a species of insect that undergo complete metamorphosis through the egg stage, larval stage (larvae), pupa stage, and adult stage. It takes ten to twelve days to grow from egg to adult, and after four to seven days, the mature larvae will choose a dry place to develop into pupae. After three days, the young adult flies are ready to mate in twelve or three hours. During her life, each female fly can lay up to 2,000 eggs. Then, the flies lay eggs in groups of 75 to 100 eggs. The life span of flies in nature is around two weeks (Kemenkes RI, 2017).

Flies are a species of insect that undergo complete metamorphosis through the egg stage, larval stage (larvae), pupa stage, and adult stage. It takes ten to twelve days to grow from egg to adult, and after four to seven days, the mature larvae will choose a dry place to develop into pupae. After three days, the young adult flies are ready to mate in twelve or three hours. During her life, each female fly can lay up to 2,000 eggs. Then, the flies lay eggs in groups of 75 to 100 eggs. The life span of flies in nature is around two weeks (Emerty dan Mulasari, 2020). House flies (*Musca domestica*), green flies (*Calliphora megacephala* dan *Lucilia sp.*), blue flies (*Calliphora vomituria*), and latrine flies (*Fannia canicularis*) are several types of flies that cause a lot of harm to humans (Fadhila dkk, 2022). Green flies breed in liquid or semi-liquid materials such as meat, fish, carrion, animal waste, and soil containing animal waste. Houseflies also like chicken droppings (manor), feces, and rotting and damp organic waste.

High fly density rates can endanger human health worldwide and are responsible for spreading disease pathogens (Adinata, 2023). Flies can spread pathogenic diseases through food by carrying several commonly carried bacteria, namely *Salmonella, Providencia, Esterichia coli, Shigella dysentriae, Vibrio* and *Proteus,* then this is caused by deplorable environmental hygiene conditions (Putri 2018). Some diseases that fly can transmit through food include anthrax, trachoma, dysentery, cholera, typhoid, diarrhea, and skin itching. Flowers can transmit mechanical diseases using microorganisms that cause disease to attach to the skin and dirty feet, which then stick to food (Septiani, 2023). The fly density figure is a quantitative measure used to evaluate the level of fly density in an area. The higher the fly density, the worse the environmental sanitation in the area.

The tool used to measure the density of flies in a location is called a fly grill (Al-Irsyad dan Deniati, 2021). The fly grill is made using wooden slats painted white with a width of 1.9 cm, a thickness of 1.5 cm, and a length of 82 cm. These wooden slats are arranged parallel and 2.2 cm apart in the existing wooden frame. To make it easy to disassemble, the wooden slats must be attached to the frame with screws. The way to use this fly grill is to place it at the location to be measured, then make observations for 30 seconds and repeat ten times at each observation point. The five highest values are taken from the ten observations and then averaged and recorded in the results card calculation.

METHOD

This quantitative descriptive research focuses on finding and calculating the density of flies in the Mojorejo Landfill. Researchers carry out measurements and collect instantaneous data according to the conditions or circumstances at the research location without further procedures. The population studied in this research were all zones in the landfill, including passive zones and active zones in the Mojorejo Landfill, with details of 4 active zones and two passive zones. The passive zone in this research is the zone in the landfill that is no longer in use or is not being actively disposed of. Then, the waste has started to be landfilled and has been passive; it is not allowed to add or stockpile new waste. Then, the active zone in this research is the zone that is still used for new waste disposal and stockpiling. Samples were taken using accidental sampling, which was carried out at two points in the passive zone and active zone areas that researchers could reach, namely active zone A cell A1 and passive zone B block B2. Then, the samples in this study were all flies that landed on the fly grill. Fly density measurements were carried out using a fly grill, hand counter, stopwatch, fly flight recording form, and stationery.

The procedure for calculating fly density is based on the Republic of Indonesia Minister of Health Regulation No. 50 of 2017, namely, determining the place to count fly density, removing the fly grill, observing the conditions around the fly grill, and placing the fly grill at a predetermined sampling point flat in a sleeping position, then observing and count the flies that land on the fly grill for 30 seconds, once finished, move to another location with a distance of 1 to 3 meters in each area by adjusting the location that is reachable or safe for taking measurements on the pile of rubbish in that zone. Measurements were performed ten times to measure fly density; the five highest results were considered average and finally categorized based on the fly density index (Kemenkes RI, 2017).

According to DITJEN PPM and PLP (1991), the interpretation of the results of measuring the fly population index at each location (Grill Block) is as follows:

0–2	:	Low or not a problem
3–5	:	Moderate and necessary to protect fly breeding places
6–20	:	High/dense and need to protect fly breeding sites and, if possible, plan to control them
>21	:	Very high / very dense, and it is necessary to safeguard fly breeding places and fly control measures

RESULT AND DISCUSSION

Mojorejo Landfill is one of the landfills in Mojorejo Village, Bendosari District, Sukoharjo Regency (Dyschasari, 2019). The Mojorejo Landfill area is 4.5 hectares. landfill Mojorejo was established in 1994 and was initially held by the DPU. However, since 2017, it has been held by DLH. The waste entering the Mojorejo Landfill is around 187 tons/day. The Mojorejo Landfill is included in the Landfill Controller landfill and is a waste storage facility. To reduce environmental disturbances, the landfilled waste is covered with a layer of soil. The distance between the landfill and residential areas is around -+ 500 meters (Larasati dkk, 2019). In 2020, organic waste contributed to 61% of the waste at the Mojorejo Landfill, followed by plastic waste (15%) and paper waste (8%). The rest was rubber/leather, metal, and wood (Pamungkas dan Tamara, 2022). Community activities such as workplaces and industrial and residential areas are among waste producers. In Sukoharjo Regency, communal waste collection is carried out indirectly. At the Mojorejo Landfill, waste is transported by 8 m3 and 10 m3 dump trucks and 3-4 rit armroll trucks daily. The fleet used is a dump truck and an arm roll truck. The dump truck fleet carries a minimum of 2 trucks/day, and the armroll truck transports 3-4 trucks daily. Garbage trucks must pass through a weighbridge before entering the landfill and deposit waste in the active zone (Larasati, 2019).

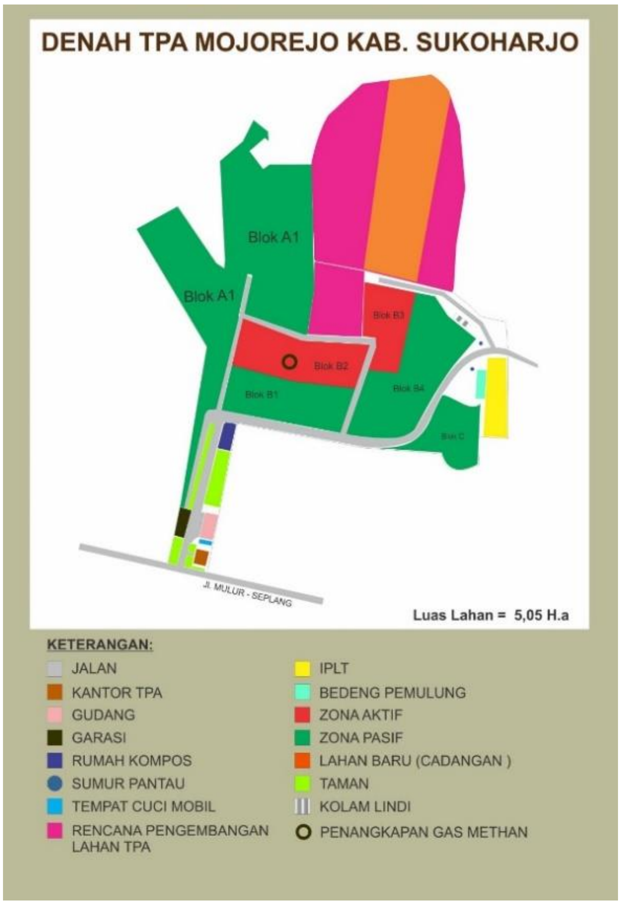

Figure 1. Plan of the Mojorejo Landfill

Fly density measurements were carried out in each area (passive and active zone) using a fly grill from 10.00 to 13.00.

1. Passive Zone

Table 1. Measurement results for 10 points in the passive zone

Calculation Point Location	**Time Period (30 seconds)**										**Total**
	P.1	P.2	P.3	P.4	P.5	P.6	P.7	P.8	P.9	P.10	
Number of Flies	9	12	4	4	6	29	8	0	15	4	85

Note: P = Passive (code of the point in the passive zone which is the calculation point)

Table 2. Five highest points in the passive zone

Calculation Point Location	**P.1**	**P.2**	**P.6**	**P.7**	**P.9**	**Total (+)**
Number of Flies	9	12	29	8	15	73

The average density of flies from the calculation results of the five highest points in this passive zone is: Average Flies = $\frac{73}{5} = 14{,}6$

2. Active Zone

Table 3. Measurement Results for 10 points in the Active zone

Calculation Point Location	**Time Period (30 seconds)**										**Total**
	A.1	A.2	A.3	A.4	A.5	A.6	A.7	A.8	A.9	A.10	
Number of Flies	20	48	0	0	0	0	28	22	9	15	142

Description: A = Active (code of the point in the active zone which is the calculation point)

Table 4 . Five Highest Points in the Active zone

Calculation Point Location	**A.1**	**A.2**	**A.7**	**A.8**	**A.10**	**Total (+)**
Number of Flies	20	48	28	22	15	133

The average density of flies from the calculation results of the five highest points in this active zone is: Average Flies = $\frac{133}{5} = 26.6$.

The average results obtained from the 5 highest points of the active zone and passive zone, for the distribution or proportion of fly density in the Mojorejo Landfill are:

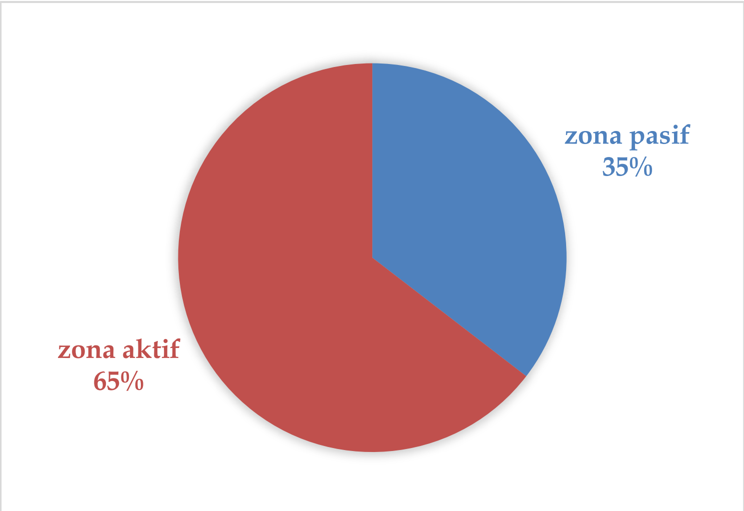

Figure 2. Proportion of Fly Density

A *fly grill* is a tool used to measure the density of flies at a location (Al-Irsyad and Deniati, 2021). Fly Grills are made from wood and made into thin blades with a width of 1.9 cm, a thickness of 1.5 cm, a length of 82 cm, and 21 cm. Then, the colors used usually vary, such as blue, white, red, yellow, black, and even not painted, but in this study, the researchers used red and yellow. These wooden slats are arranged parallel and in a row with a distance of 2 cm from the prepared wooden frame, and the slats must be attached with screws so they can be disassembled. Then, this tool is placed at the location to be measured and counted using a hand counter for 30 seconds to count the number of flies that land on it. Ten calculations were carried out at each location. From the five calculations, the results of the fly that landed on the fly grill with the highest number were averaged and recorded on the calculation results card.

The average of these calculation results will be used to indicate the fly density index at a location (Al-Irsyad dan Deniati, 2021). Interpretation of the results of measuring the fly population index at each location (Grill Block), which has been determined by the Directorate General of PPM and PLP (1991), is as follows:

0–2	:	Low or not a problem
3–5	:	Moderate and necessary to protect fly breeding places
6–20	:	High/dense and need to protect fly breeding sites and, if possible, plan to control them
>21	:	Very high / very dense, and it is necessary to safeguard fly breeding places and fly control measures

Based on the results of measuring fly density numbers and the average of the five highest points, the fly density rate at the Mojerejo landfill is 14.6 in the passive zone and 26.6 in the active zone. Let us look at the assessment standards for measuring fly density, namely 6-20 in the high/dense category and >21 in the very high category. The condition of fly density in the landfill is a concern for fly control measures. The condition of the landfill, which is almost overloaded, full of organic waste, and dirty, is the main reason why flies like to congregate and is also a breeding location for flies. The difference in fly density levels in the passive zone and the active zone is influenced by the condition of the area in the Mojorejo Landfill, where the passive zone is a zone that is no longer used as a waste disposal location and has also been landfilled so that organic waste and the foul smell that flies like are less found in the zone. This condition is passive, but there is still a condition that this location is dense with flies because the location is next to the active zone. Then, the active zone becomes the location for dumping piles of rubbish that are still in use so that the rubbish is mixed and has a strong smell, and the wet conditions in the rubbish make flies like to gather and breed at that location.

Passive Zone

Passive zones are areas covered with a layer of soil to allow tree planting and the creation of green spaces or tourist attractions (Sinta, 2019). Conditions in this passive zone still contain several piles of wet waste, which occurred because it was only converted into a passive zone about one month ago and also due to rubbish falling from trucks transporting rubbish. However, in this zone, there is no waste disposal activity. The proportion of fly measurements in this passive zone is 35% of the proportion in the Mojorejo Landfill. The location of the passive zone adjacent to the active zone is the reason why there is still a high proportion of flies found then because these two areas are still connected to one drainage stream, so leachate flowing from the active zone area next to the passive zone also flows into the passive zone and invites flies. Piles of rubbish at final disposal sites (landfill) will release liquid with a high organic substance content when it rains (Harjanti dan Anggraini, 2020).

Active Zone

The active zone is a new waste accumulation zone that comes from various locations in Sukoharjo Regency, with the waste conditions being dominated by organic waste, resulting in flies being attracted to find food sources and breed. Active zone conditions encourage flies to look for food and breed because of the large amount of physical waste, mostly new waste and organic material. Fly eggs are laid in moist organic material that rots quickly. Each time they reproduce, a fly lays around 120 eggs (Hanifar, 2017). The proportion of fly measurements in the active area is 65% of the proportion of fly measurements in the Mojorejo Landfill. In this active zone area, the physical condition of the existing waste is a type of wet waste because this is a zone area that has just been made into a new active zone, so the composition of waste in this zone is dominated by organic or wet waste compared to non-organic types of waste. This condition significantly affects the density of flies in the zone. Flies are attracted to human foods, such as foods or drinks with high protein, such as meat or milk, then sweet foods, such as sugar and honey, and other foods, feces excreted by animals and humans, rotting vegetables, and fruit. Every day in the active zone, rubbish piles are evenly distributed and compacted, delivered by rubbish trucks using excavators, bulldozers, and several other heavy equipment that start operating in the morning around 07.00-08.00. Because heavy equipment activity disturbs fly activity at the best times, this waste management activity also affects fly density.

The breeding habits of flies (house flies and other synanthropic flies) prefer media containing many disease agents, so flies play an essential role in the mechanical transmission or transmission of disease-causing agents to humans and livestock (Wahyuni dkk, 2021). Diseases transmitted by fly vectors include cholera, typhus, hepatitis, diarrhea, and other digestive disorders, which are also related to poor environmental sanitation conditions. Hence, other diseases, such as worms, occur in humans and animals where these flies attack wound tissue. Moreover, lay eggs in these wounds so that maggots appear; this disease is better known as myiasis or maggots (Rahim dkk, 2020). Residential areas, schools, village offices, and the landfill canteen are relatively close to the Mojorejo Landfill because the distance is less than 300 m from the landfill location. The existence of settlements and public institutions that are very close to the landfill is a location that is very vulnerable and easily infected by diseases carried by flies because of the range of flying distance of flies, which can reach a distance of 10-20 km from their breeding location.

The density of flies in the Mojorejo Landfill is in the high and very high-density categories, so control efforts need to be made to reduce the level of fly density. Based on research from Kartini (2019) shows that the results of measuring fly density are low 68% (17 houses), medium 0% (0 houses), and high 32% (8 houses), with the results of environmental sanitation measurement control environmental presentation excellent 12 %, promising 40%, fair 44%, poor 4%, physical control adequate 12%, poor 48%, chemical control excellent 52%, poor 48%. This result shows that sanitation and physical and chemical controls are very influential in controlling fly density numbers (Kartini, 2019). Then, referring to the Technical Instructions for Eradicating Flies, several ways that can be done are collecting data or measuring flies periodically from the landfill, improving hygiene and environmental sanitation, and controlling a combination of physical control in the form of landfilling, biological control in the form of natural predators such as bees and chemical control, like spraying insecticide (DITJEN PPM dan PLP 1991). These four methods are essential steps to overcome the development of fly populations in landfill areas, residential areas, and public institutions. Apart from being simple and not costing much money, this method is expected to be compelling enough not to avoid causing other impacts that affect the environment by reducing or eliminating fly breeding places. The community needs to be aware of reducing waste from the household sphere so that the accumulation of waste in the Mojorejo Landfill can be slightly resolved. Then, there needs to be other treatment, especially for organic waste, which can be used to produce compost because of the density of flies in landfills. Mojorejo is relatively high; we suggest that the food processing location and also the canteen be further from the location because it can contaminate and spread disease pathogens to the food in the canteen, which is basically at the Mojorejo Landfill, the location of the canteen is following to the Mojorejo Landfill.

CONCLUSION

The research concludes that based on the results of the fly density measurements that the researchers carried out, it was found that the density of flies in the Mojerejo Landfill was in the passive zone, it was in the high/dense category, while in the active zone, it was in the very high/very dense category with a proportion of 35% in the passive zone and 65% in the active zone. Safeguarding and further action against fly breeding sites can be immediately planned to effectively control them through 4 methods, namely regular data collection or measurement of flies from the landfill, improving hygiene, environmental sanitation, and controlling a combination of physical control in the form of landfilling and biological control in the form of predators. Natural conditions such as bees and chemical control such as spraying insecticide and keeping food processing locations and canteens away from the Mojorejo Landfill area and it would be best for the implementation of waste processing at the Mojorejo Final Disposal Site (landfill) to switch to implementing the sanitary landfill method. In the sanitary landfill method, the waste is thrown away, covered with soil, and compacted using heavy equipment to make it denser. The following layers of rubbish and soil are poured in layers until they are finally level with the ground surface to minimize the generation of rubbish where fly vectors can breed.

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