

Identification Types of Insect Pests that Damage Rice Crops (*Oryza sativa. L*) in, Suco Lifau, Posto Administrativo Vemasse Municipio Manatuto

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Abstract: The aim of this research is to determine the types of insect pests that damage rice grains (*Oryza sativa. L*) and how to control insect pests that damage rice plants. This research was conducted in the rice fields of Klalerek Mutin, Suco Lifau, Posto Administrativo Vemasse, Municipio Manatuto, on June 28 to July 29, 2025 with a research area of 1.3 ha. The method used by researchers in conducting research is the exploration method with the following steps: walking exploring the entire research area, to identify the types of insect pests, then the specimens found at the location were given scientific names and also took photos of the specimens as documentation. The data analysis strategy used to analyze the data through 4 ways, namely; Matching the characteristics of the original specimen with the images in the source book or through the website, identifying the morphological characteristics of the specimen and matching them with the characteristics in the source book or through the website, creating an insect pest classification system and creating an insectarium. After conducting research in the field, researchers have found 14 species from 12 families of insect pests that damage rice grains, including; namely, Acute leptocoriosis, *Leptocorisa oratorius*, *Atractomorpha crenulata*, *Valanga nigricornis zehntneri*, *Paratenodera sinensis saussure*, *Oxya chinensis*, *Xilocopa violacea*, *Apiss mallifera*, *Lygaeus kalmia*, *Spodoptera Litura* (F), *Plutella Xylostella* (L), *Necrobia rufipes*, *Epilachna sparsa*, And *Senegalensis*.

Keywords: Identification, Insect Pests, Rice Plants.

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I. INTRODUCTION

The people of Timor Leste are generally farmers, but recently, in several areas in Timor Leste, people have often experienced crop failures. This is because the areas used for agricultural land were originally covered in forests and grasses, which were then cut down and burned to make way for agriculture. Initially, the trees and grasses were infested with a large population of insect pests. After being converted into agricultural land, the insect pest population that originally occupied the area eventually moved to the grasses surrounding the rice fields to survive and survive. The insect pest population that roamed the area lived and settled near rivers filled with trees and grasses to wait for the rice to mature and obtain food, (Wartaya Winangun; 2005: 12).

Rice (*Oryza sativa L.*) is a widely cultivated crop in developing countries, including Timor-Leste. Half the world's population consumes rice as a primary food source and carbohydrate source, and rice also serves as a source of livelihood for villagers, particularly in rice paddies. Rice cultivation in tropical climates occurs in both lowlands and highlands. Rice is highly beneficial for the community as a

food source and can be sold to meet community needs. However, due to the community's limited education and knowledge, they are often unaware of the decline in their harvest production. The author observed that in the Klalerek Mutin rice fields, various types of insect pests are found, consistently damaging and causing crop failure, (Surmarmiyati, 2019).

Another thing that causes crop failure is inconsistent and constantly changing rainfall and inadequate irrigation which will result in crop failure because the inadequate irrigation system is very beneficial for the insect pest population to be able to place themselves on the rice plants, because the insect pest population is very dependent on dry environmental conditions to be able to place themselves and lay eggs on the leaves of rice plants, as well as the lack of public knowledge about how to control insect pests that damage rice plants so that the majority of people only use traditional methods to eradicate insect pests that damage rice plants, and also the lack of government attention to the agricultural sector, (Pracaya, 2008; Ahmad, 2020)

The people of Posto Administrativo Vemasse, particularly the Bibileo sub-district, are primarily farmers. Rice is highly beneficial for the community as a food source and can be sold to meet their needs. However, due to their limited education and knowledge, they are often unaware of the decline in their harvest.

Eradicating pests in rice plants (*Oryza sativa* L) in the Klalerek Mutin rice fields is difficult to do optimally because the majority of farmers do not understand the types of pests that attack their rice. Many efforts and traditional control methods have been carried out by the community, but the results are not very satisfactory for the community, because the usual method used by local people is by placing plant leaves which in the local language are called "Bubure'u Raena" in the middle of the rice plants with the aim of repelling insect pests that will occupy themselves on the rice plants because the leaves have a fragrant smell that can reach the stink bugs and caterpillar pests that usually damage the grains of the rice plants, but this effort cannot reach all agricultural land because the insect pest population is so large. Another effort made by the community to control insect pests is by burning owl reeds in the middle of the rice plants, (Untung, 2001; Roja, 2009, Pratama, 2022).

Another effort made by the Vemasse Sub-distrito community to eradicate insect pests in 2022 is by submitting a proposal to the Sub-distrito Administrador regional government with the hope of being able to provide spray tanks and medicines to eradicate the rampant insect pest population, but due to the lack of cooperation between all parties so that there has been no response at all until now, therefore until now the community still uses traditional methods. However, there are already some communities that use insecticides but not all because the spray tanks are few and the cost of buying drugs is too expensive for the community so that until now the community still relies on traditional control methods even though the results are so unsatisfactory, but that is the only method that can be used by

the community, (Natawigena, 1990, Pracaya, 1991, Suhardjo, 2007).

II. RESEARCH METHODOLOGY

The location used to conduct research on the types of insect pests that damage rice plants (*Oryza sativa* L) is the rice field area of Klalerek, Suco Lifau, Posto Administrativo Vemasse, Municipio Manatuto with an area of 1.3 hectares. This research was conducted for one month starting from June 28 to July 29, 2025, with several repetitions and treatments carried out every week.

According to Suharsini (1997:63), a population is the entire object of research. If someone wants to examine all the elements within a research area, then the research is population research. According to Sugiyono (2010:61), a population is a generalization area consisting of objects or subjects with certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn.

In this study, the researcher only used the population because after determining the population area, the researcher used an exploration method to explore the entire research area to capture existing specimens. In the rice fields of Klalerek Mutin, Suco Lifau, Posto Administrativo Vemasse, Distrito Manatuto. The data collection technique used by the researcher was an exploration method. The data analysis technique used by the researcher was a qualitative (non-statistical) data analysis; then making a descriptive and observing the morphological parts.

III. RESULT AND DISCUSION

Based on the research, the researcher succeeded in finding 14 species from 12 insect families that are pests in rice plants in the rice fields of Klalerek Mutin, Klalerek Mutin, Suco Lifau, Posto Administrativo Vemasse, Distrito Manatuto, as listed in table 1. below.

Table 1 Types of Insects Found During Research

No	Type Name	order	Family	Mouth Type
1	Acute leptocoriasis thunb	Hemiptera	Alydidae	Piercing and Sucking
2	Leptocorisa oratorius	Hemiptera	Alydidae	Piercing and Sucking
3	Atractomorpha crenulata	Orthoptera	Pyrgomorphidae	Chewing
4	Avalanche nigricornis zehntneri	Orthoptera	Locustidae	Biting and chewing
5	Paratenodera sinensis	Orthoptera	Mantidae	Biting and chewing
6	Oxya chinensis	Orthoptera	Acrididae	Biting and chewing
7	Xylocopa violacea	Hymenoptera	Apidae	Sucking
8	Apis mellifera	Hymenoptera	Apidae	Sucking
9	Lygaeus kalmia	Hemiptera	Lygreidae	Bite
10	Spodoptera litura	Lepidoptera	Noctuidae	Sucking and biting
11	Plutella xylostella	Lepidoptera	Plutellidae	Biting and chewing
12	Necrobia rufipes	Coleoptera	Curculionidae	Biting and chewing
13	Epilachna sparsa	Coleoptera	Coccinellidae	Bite
14	Senegalensis	Odonata	Coenagrionidae	Biting and chewing

Source: Observation data, June 28 to July 29, 2025.

Table 2 Types of Insects, Pests and Rice Plant Organs that are Attacked

No	Type Name	Organs of rice plants that are attacked
1	Acute leptocoriasis thunb	Milk ripe rice ore
2	Leptocorisa oratorius	Milk ripe rice ore
3	Atractomorpha crenulata	Half-cooked rice ore
4	Avalanche nigricornis zehntneri	rice flower
5	Paratenodera sinensis	rice flower
6	Oxya chinensis	Simple rice ore
7	Xylocopa violacea	rice flower
8	Apis mellifera	rice flower
9	Lygaeus kalmia	Simple rice ore.
10	Spodoptera Litura (F)	rice flower
11	Plutella Xylostella (L)	Simple rice ore
12	Necrobia rufipes	Rice ore
13	Epilachna sparsa	Rice flower and simple ore
14	Senegalensis	rice flower

Source: Observation data, June 28 to July 29, 2025.

IV. DISCUSSION

In general, there are various ways to control insect pests and all of them are modern, it is the government's responsibility to be able to provide services to the community in dealing with insect pests that damage the community's crops, but this situation is the opposite and does not occur in the community in the area, because every year for example in 2022 and 2023 there was a massive crop failure in Suco Lifau, this is one example of the lack of government attention to local communities, because until now the community still uses traditional methods to control insect pests that damage their crops.

➤ *Acute leptocoriasis thunb (Alydidae)*

The characteristics of this specimen are a greenish-brownish color, with three pairs of legs and one pair of long antennae, each consisting of four segments. The mouthparts are piercing-sucking.



Fig1 Leptocorisa Acuta Thunb

This pest attack can cause symptoms such as milky, ripe rice grains being sucked dry, leaving them hollow (gabug) or underdeveloped. Rice infested by brown rice bugs is usually

attacked by the Helminthosporium fungus, which is characterized by the rice grains initially turning white and turning brown or blackish (GBIF, 2024).

➤ *Leptocorisa orator (Family Alydidae)*

The characteristics of the specimen are leaf green in color, has a slender body compared to *Leptocorisa acuta thunb*, has 3 pairs of legs and 1 pair of long antennae where the antennae consist of 4 segments. The type of mouthparts is piercing-sucking. The eggs of the brown plant hopper are round and flat and brown in color, (Hidayat, 2004).



Fig 2 Leptocorisa Oratorius
(Source: Roland<http://www.sciencephoto.com>)

Symptoms of attack: Rice grains that are ripe are sucked of their fluids until they become hollow (gabug) or their development is poor. Rice that is sucked by brown rice bugs is usually attacked by Helminthosporium fungus, which is characterized by the rice grains initially turning white and then brown or blackish (Borrer et al., 1996).

➤ *Atractomorpha Crenulata* (Famili Pyrgomorphidae)

Atractomorpha crenulata has a body consisting of a caput, thorax, and abdomen, the thorax consists of a pair of compound eyes, a pair of antennae, and a pair of mouthparts (mandibles, maxillae, and labium), the entire body is green. The head is pointed and has setae and a pair of antennae that function as sense organs for smelling.



Fig 3.A. *Atractomorpha Crenulata*
(Source: -[Http://www.fobi.web.id/](http://www.fobi.web.id/))

Symptoms of damage caused by half-ripe rice grains being eaten until they break and become empty (Harahap, 1993).

➤ *Avalanche nigricornis zehntneri* (Family Locustidae)

Characteristics include brownish wings and one pair of antennae. It has three pairs of legs, with the hind legs being larger than the front legs. The abdomen is brownish-white. The underwings are essentially red. Female grasshoppers measure approximately 58-71 mm from head to tail, while males measure approximately 49-63 mm.



Fig 4. *Avalanche Nigricornis Zehntneri*
(Source: <http://www.kuatmi2012>)

This pest attack causes symptoms of damage which are the flowers falling easily so that they do not bear fruit (Utami, 2014).

➤ *Paratenodera sinensis* (Family Mantidae)

This specimen is characterized by its yellowish-green color, three pairs of legs, with the front legs larger than the back legs, used for catching prey. It has one pair of antennae. Its head can move freely. Its body length is approximately 80-90 mm.



Fig 5 *Paratenodera Sinensis*
(Source: <http://shared.com.html>)

The symptoms of the damage caused are the flowers falling when the brown planthopper is hunting (Utomo, 2007).

➤ *Oxya Chinensis* (Famili Acrididae)



Fig 6 *Oxya chinensis*
(Source: [http, www.insect](http://www.insect) *Oxya chinensis*)

The characteristics of the specimen are that it has a brownish-green body, has a pair of antennae, has three pairs of legs, namely the lower legs are small and the upper ones are very large, has a mouth that functions to chew the leaves it eats. Symptoms of damage are that the rice grains that it eats become spots, (Harnowo et al., 2011).

➤ *Xylocopa Violacea* (Family Apidae)



Fig 7.A.Xylocopa Violacea
(Source: [Http://Www. Xylocopa+Violacea](http://www.Xylocopa+Violacea))

The characteristics of this specimen have 2 pairs of brown wings. Large oval-shaped black abdomen. Thick, yellow-haired black thorax. Has 3 pairs of hairy legs. A pair of short antennae. Chewing, Larvae are usually legless, the antennae are only one segment and the ocelli are absent. The damage caused is the drying of flowers because when sucking flowers, the flowers become wilted, generally as pollinators but because of the condition of its body is so large that it has caused rice flowers to wilt when this insect approaches it.

➤ *Apis Mellifera* (Family Apidae)



Fig 8 Apis Mellifera
(Source: <http://www.google./Apismellifera>)

Characteristics include two pairs of transparent wings. The abdomen is brownish-yellow on the ventral side while the dorsal side is black, consisting of six segments. The thorax is black and hairy. It has three pairs of legs and a pair of short antennae. The mouthparts are piercing-sucking. Symptoms of damage include wilting of rice flowers (Jumar, 2000).

➤ *Lygaeus Kalmii* (Order Heteroptera; Lygreaidae).



Fig 9 Lygaeus Kalmii
(Source: <Http://Www.Bugmilkweed>)

The characteristics of the specimen are black wings with red stripes. It has 3 pairs of legs and a pair of antennae consisting of 3 segments. The mouthparts are piercing-sucking. The snout (rostrum) is long. When resting, the snout is hidden under the body. The wings cover its back with the tips closing together. The front wings (elytra) are thickened at the base, while the tips are thin as a membrane. While large insects can reach 10 cm. Symptoms of damage are easily eaten rice grains until they become empty.

➤ *Spodoptera Litura* (Family Noctuidae)



Fig 10 Spodoptera litura
(Source <http://www.google.com/Spodoptera>)

The characteristics of the specimen are a dark brown to blackish body color. It has two pairs of wings (4) that are blackish brown. One pair of antennae and two pairs of legs. The mouthparts are piercing-sucking that can be rolled up. A pair of antennae and two pairs of legs of the armyworm attack, robbing, and eating plants at night. The armyworm caterpillars and moths only come out at night and hide during the day. This pest makes holes in the leaves and fruit. Symptoms of damage are rice flowers that are easily affected by it and become wilted (Ahmad, 2020).

➤ *Plutella Xylostella* (L) (Family Plutellidae).



Fig 11.A.Plutella Xylostella (L)
(Source: <Http://www.XylostellaL>)

The characteristics of the specimen are pale green, with white spots mixed with gray on the ventral part of its body (back). The body is segmented. Tritis moths live by sucking

nectar and flowers. The color of the wings is gray-brown. The shape of the eggs is oblong. Newly hatched caterpillars are pale green, while older adult caterpillars have a paler head color with brown spots or lines, (Pracaya, 2010).

Symptoms of attack: Rice seedlings or unflowered rice plants turn reddish-yellow or reddish-brown when attacked. If the husk of the affected rice dries out, the leaves will tear and appear full of holes.

➤ *Necrobia Rufipes* (Family Curculionidae)



Fig 12 *Necrobia Rufipes*
(Source: <http://introductionhtm>)

The characteristics of the specimen are a shiny blue color. The abdomen is segmented and consists of 3 segments. It has 3 pairs of legs and a pair of antennae. The mouthparts are biting and chewing. 2 pairs of wings. Symptoms of damage are that the rice grains become empty due to the sharp odor, (Kastasapoetra, 1991).

➤ *Epilachna scattered* (Order Coleoptera; Family Coccinellidae)



Fig 13 *Epilachna Scattered*
(Source : <http://henosioctopunctata>)

The characteristics of the specimen are having black (circular) spots on the wings totaling 26 pieces. The type of mouth is biting and chewing. Classified into the subclass Pterygota. Its shape is almost like a predatory javelin. The difference is that this javelin has fine hairs. Young larvae are gray, the eggs are yellow. Their shape is oval with a length of 0.5 mm. The pupa is rectangular with black spots. Symptoms

of damage are flowers and rice seeds that are easily landed on will be empty, (Utami, 2014).

➤ *Senegalensis* (Ordo odonata, Famili Coenagrionidae)



Fig 14 *Senegalensis*
(Source: <http://www.typesofdragonflies>)

The characteristics of the specimen are black mixed with yellow with white stripes on the tail, have three pairs of legs and a pair of wings, the type of mouthparts chew and bite, have three pairs of legs and a pair of wings, the type of mouthparts chew and bite. Symptoms of damage are that the rice flowers will wilt because when preying on the brown planthopper it will affect the growth of the rice flowers because the brown planthopper is always above the rice flowers, (Roja, 2009).

Factors that influence the growth process of rice plants (*Oriza Sativa L*) include two factors, namely; abiotic factors and biotic factors. Abiotic factors that influence the growth process and formation of rice grains are: Climate, Light, Temperature, wind and humidity. Biotic factors that influence the growth process and formation of rice grains are: Insects, Bacteria, diseases, weeds and earthworms. The factors mentioned above are limiting factors in plant growth because they can damage the results expected by farmers.

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