Seminar Nasional Agroteknologi 2023
Volume 2024
http://dx.doi.org/10.11594/nstp.2024.4007

NST Proceedings
OPEN ACCESS

Conference Paper

Identification of Insects on Soybean Planting at UPT Pengembangan Benih Padi dan Palawija Singosari

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ABSTRACT

Corruption obliteration presently focuses on three main issues: prevention, obliteration, and asset recovery. Eradicate corruption not only focuses on preventing and eradicating but also improves the terms of punishing the perpetrators and is also associated with seeking to recover state financial losses from the proceeds of corruption crimes. The provisions in question are of great hope for systematic and comprehensive anti-corruption measures, which feature not only criminal prosecution of corruption crimes but also the protection of national finance, that is, the obligation to return state funds from the perpetrators of criminals. Corruption crimes can be used for national development. Therefore, normatively it would not be excessive if the provisions of Article 18 of Constitution no. 31 of 1999 in conjunction with Constitution no. 20 of 2001 regarding the Obliteration of deceits of corruption can be an effective legal instrument for compensating the State for losses caused by corruption crimes.

Keywords: Corruption crimes, return of state financial losses

Introduction

Soybeans are the third most important commodity after rice and corn. This matters because soybean plants have a high protein content at a relatively cheap price. Soybean production in Indonesia is unable to meet growing domestic consumption needs. Based on FAO data, the rate of soybean imports in Indonesia has reached an average of 200% over the last 52 years so Indonesia is not yet self-sufficient in soybeans. Opportunities to increase national soybean production are quite high but still necessary facing several problems, including (a) physical factors, such as soil and climate, especially bulk rain, rain distribution, and very diverse air temperature; (b) biological factors, especially pests, disease, and weeds; (c) social factors, namely the low adoption of technology by farmers which results diverse management of soybean crops on the farm scale; (d) economic factors include the low profitability of farming and weak soybean competitiveness against other agricultural commodities; and (e) the lack of institutional support for farming soybeans, including seed systems (Hasanuddin et al., 2005). UPT Pengembangan Benih Padi dan Palawija are management, breeding, marketing, distribution, development seeds, and community service. Therefore the quality of seeds managed at UPT Pengembangan Benih Padi dan Palawija must be maintained. However, due to the variety of commodities plants developed at UPT Pengembangan Benih Padi dan Palawija because there are lots of insects in the field. The number of insects that exist can affect the quality of soybean production. Insects that exist in soybean plantations can be classified based on their impact on plants including pests, pollinators, and natural enemies. To find out the kinds of insects that exist in soybean cultivation

How to cite:
Salamah, A. Z. O., & Wuryandari, Y. (2024). Identification of insects on soybean planting at UPT pengembangan benih padi dan Palawija Singosari. *Seminar Nasional Agroteknologi 2023*. NST Proceedings. pages 37-41. doi: 10.11594/ nstp.2024.4007

at UPT Development Rice and secondary crop seeds must be identified according to their characteristic found.

Material and Methods

Plot Determination

Determining the plot is done by taking three points on a plot of soybean land so that it forms a triangle. Each plot is made of 2 m^2. Yellow traps are set diagonally with a total of three traps. Tools used to make yellow traps include bamboo and plastic glass. The materials used to make yellow traps include yellow paint and mouse glue. Yellow trap set for fishing Insects are yellow so you can identify the type of insect present on soybeans.

Plot Observations on Soybean Plants

Plot observations on soybean plants were carried out every three days for three weeks. Observations were made by taking yellow traps in each plot and then replacing them with a new one. This observation is made by observing insects that stick to yellow traps or which are obtained by catching a look directly, identifying the characteristics, and then comparing them with existing literature on the Internet.

Results and Discussion

The first insects found in soybean plantations at UPT Pengembangan Benih Padi dan Palawija are dragonflies (Figure 1). Dragonfly was found when observing one of the plots and then captured manually. The characteristics that were found include a slender body, transparent wings, and a large head. Himabio (2021) states that dragonflies have three body parts, namely the head, thorax, and abdomen. On the head, there are compound eyes, antennae, labium or jaws, forelegs, and vertex. The dragonfly's abdomen consists of 10 segments and the female dragonfly has an ovipositor used for reproduction. On the thorax, there are two transparent wings and legs a means of locomotion for dragonflies. These characteristics are those found in the field. The important role of dragonflies in the soybean ecosystem is predatory insects. Dragonfly is a carnivorous insect that preys on various types of insects and other organisms. If the dragonfly population decreases, there will be an explosion of pests in soybean cultivation. In addition, dragonflies also function as environmental indicators. Before becoming an adult insect, dragonflies spend their lives in good-quality waters because dragonflies are very sensitive to water pollution.

Figure 1. Dragonfly (*Anisoptera*)

The second insect is the green ladybug which was found to have the characteristics of green color and size 1-1.5 cm, pentagonal or shield-shaped (Figure 2). In addition, green ladybugs were also found black with white spots in soybean plants. The characteristics of a green ladybug were found by what was stated by BPTP Yogyakarta (2008) that green ladybugs have a green body, there is yellow on the head, the body is shaped like a shield or pentagon, body length about 1-1.5 cm. Green ladybugs come in a variety of colors depending on the instar it starts with a light brown color then turns black with

white spots the fund changes again to green. Green ladybugs act as major pests for soybean plants. This includes olong borer pests in the nymph and imago stages. Ladybug greens damage young plant pods by piercing and sucking them up shrinks and even falling. Symptoms of pods attacked by green ladybugs are black spots on the outer skin of the pod and rot.

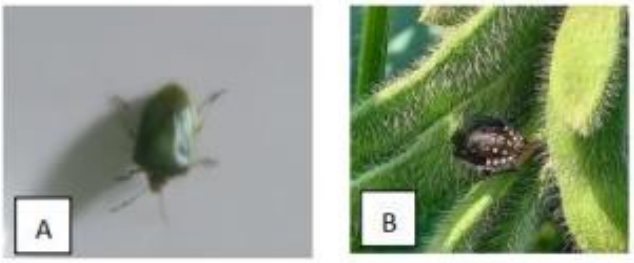

Figure 2. *Nezara viridula*

The third insect is the brown ladybug (*Riptortus linearis F*) which has characteristics including a body brown, there are white-yellowish lines, a size is approx. 13 mm, and the abdomen is enlarged and distended (Fig. 3). These characteristics are by Pustika (2007) the body is brown colored measuring 11-14 mm and there are characteristics that distinguish between females and males, namely the female abdomen bulges while the male abdomen slim.

Figure. 3 *Riptortus linearis F*

The fourth insect is the green grasshopper, which has characteristics including a green body, there is a yellowish-green line in the upper center of the body, and a pair short antenna (Figure 4). The body characteristics of the green grasshopper found are by Gueadi's opinion (2021) regarding the characteristics of green grasshoppers, including green lines yellowish, there is a pair of short antennas that function as mechanosensory and chemosensory, has a pair of compound eyes and three ocelli, has a mouth type chewing biter. Green grasshoppers are pests of soybean plants. This pest eats soybean leaf tissue but it is not completely eaten so the loss of leaves is not significant. Loss of leaves has the potential to reduce soybean crop yields because the photosynthesis process will be disrupted.

Figure 4. Green Grasshoper *Oxya servile*

The fifth insect was a wasp which was found and is thought to be a *Gorytes quadrifasciatus*. This prediction is based on the characteristics seen on the insect's body These include a black face, a striped and slender stomach, antennae, and legs black (Figure 5). This is in accordance with what was mentioned by Schimd-Egger (2002) namely black face, long slender stomach with yellow stripes, black legs, antennae dark, and two wings. Wasps act as pollinators in soybean planting. Sayekti, et al. (2018) stated that wasps as natural pollinators can influence soybean yield. Usually, the number of wasps visiting soybean plantations will be greater if there is a combination of planting (intercropping) with flowering plants. This is appropriate with the statement by Chmura et al. (2013) that more types of flowering plant variety will attract pollinating insects it can increase visits to flowers in the plant community in the ecosystem.

Figure 5. *Gorytes quadrifasciatus*

The sixth insect is *Spodoptera litura* (Figure 6) which has white wings, thin and long antennae, and black eyes. These characteristics correspond to opinion Noma et al. (2010) namely body measuring 2 cm, black eyes, thin and long antennae, the abdomen is covered with fine hairs, the wings are silvery and light yellow. S. larvae litura is called by the name Armyworm. Armyworms are pests for soybeans. Armyworms eat the leaves of soybean plants so that their productivity decreases.

Figure 6. *Spodoptera litura*

Conclusion

Planting the Anjasmoro variety of soybeans at UPT Pengembangan Benih Padi dan Palawija has entered the generative phase in January 2022. There are various insects on planting soybeans of the Anjasmoro variety at UPT Pengembangan Benih Padi dan Palawija, among others: 1. Insect Pests: Green Ladybugs, Brown Ladybugs, Green Grasshoppers, and Moths. 2. Insects Pollinator: Gorytes quadrifasciatus 3. Insect Predator: dragonfly. The diversity of insects present in soybean cultivation is proof that there is a balanced ecosystem in the Indonesia area of the UPT Pengembangan Benih Padi dan Palawija because there are insect pests, pollinator insects, and predator insects.

References

BPTP Yogyakarta. (2008). Teknologi Budidaya Kedelai. *chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://repository.pertanian.go.id/server/api/core/bitstreams/852403e9-bc5a-4178-ad44-baa74f77b5d3/content*

Chmura, D., Adamski, P., & Denisiuk, Z. (2013). How do plant communities and flower visitors relate? A case study of semi-natural Xerothermic Grasslands. *Acta Societatis Botanicorum Polonia, 82*, 99–105

Gueadi. (2021). *Belalang hijau*. https://jenis.net/belalang-hijau/. Diakses pada 14 Juni 2022.

Hasanuddin, A., Hidajat, J. R., & Partohardjono, S. (2005.) *Kebijakan program penelitian kacang-kacangan potensial.* Puslitbangtan. Bogor.

Himabio. (2021). *Buletin Himabio 2021.* http://himabio.student.uny.ac.id/mengenal-capung-lebih-dekat/ Diakses 11 Juni 2022.

Noma, Colunga-Garcia, M., Brewer, M., Landis, J., & Gooch, A. (2010). *Oriental leafworm Spodoptera litura*. Michigan State University's invasive species factsheets.

Pustika, A. B. (2007). *Petunjuk teknis pengendalian hama terpadu tanaman kedelai*. Balai Pengkajian Teknologi Pertanian Yogyakarta.

Schmid-Egger, C. (2002). *Key and new record for the western Palaearctic species of Gorytes LATREILLE 1805 with description of a new species*.