

Test of Some Varieties and Application Pesticides of Cloves Leaves to Eliminate Worm in Corn (*Zea mays* L).

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ABSTRACT

The purpose of this research is to determine the test of several varieties and the application of vegetable pesticides for clove leaves for Eradicating Leaf worms on Corn Plants (*Zea mays* L). From the results of statistical data analysis, the treatment of several varieties showed no significant effect on the parameters of plant height 3, 5, and 9 weeks after planting, diameter 3 and 5 weeks after planting, ear weight per sample, and ear weight per plot, but had no significant effect on the parameters. Plant height at 7 weeks after planting, stem dimensions 7 and 9 weeks after planting, and intensity of leaf caterpillar pests at 3, 5, 7, and 9 weeks after planting. From the results of statistical data analysis, clove leaf vegetable pesticide treatment showed a significant effect on the parameters of plant height at 5 weeks after planting, stem diameter 3, 5, 7, and 9 weeks after planting, but had no significant effect on plant height parameters aged 3, 7 and 9 weeks after planting, ear weight per sample, ear weight per plot and intensity of attack of leaf worm pests aged 3, 5, 7 and 9 weeks after planting. From the results of statistical data analysis, the interaction between the two treatments above shows an insignificant effect on all observed parameters.

Keywords: Varieties, Vegetable Pesticides, Pests, Leaf worms, Insects.

INTRODUCTION

Corn is an agricultural commodity that is very popular, especially by urban residents because it tastes good and sweet, contains lots of carbohydrates, little protein, and fat. Cultivation of maize has a relatively high chance of providing profit if it is cultivated effectively and efficiently. Almost all parts of the maize plant have economic value, some parts of the plant that can be used include young stems and leaves for animal feed, old stems and leaves (after harvest) for green manure/compost, stems, and dry leaves as fuelwood substitutes. , young corn for vegetables, cakes, bakwan (tempura), and various other food preparations (Anonymous, 2011).

Corn has many species, including *Zea mays* forma *tunicate larranhage*, f. *excelles Alef*, f. *microsperm Korniche*, f. *dentiformis Korniche* var. *erythrolepis*, var *amylaceae*, and var, *rugosa*. Crosses between species and between genera of maize produce a variety of new varieties or cultivars (Rukmana, 2002).

Increased productivity and corn production can be triggered by the application of appropriate technology. The low average yield of sweet corn is partly due to the not yet widespread planting of

Superior varieties and not paying attention to the use of quality seeds at the farmer level. Apart from that, the management of plants and the environment in sweet corn cultivation, for example in terms of farming techniques,

fertilization, pest and disease control, are not yet in accordance with the advanced technology packages developed in the field or research results from agricultural experts (Rukmana and Yudirachman, 2005).

Vegetable pesticides (powder or crushed dry clove leaf parts) can be used to control vanilla stem blight caused by *Fusarium oxysporum*. The use of clove oil is quite effective in inhibiting the growth of *Colletotrichum capsici* colonies, the use of clove oil is more effective in eradicating leaf worm pests (Rukmana, Rahmat. 1997).

Through this research, the study of several varieties and application of clove leaf vegetable pesticides to eradicate leaf worms in corn (was studied *Zea mays* L).

This research is expected to be able to provide information about the provision of vegetable pesticides on clove leaves so that they can be used in eradicating leaf worm pests (Aak, Kanisius, 1993).

The purpose of this study was to determine the test of several varieties and the application of clove leaf vegetable pesticides to eradicate leaf worm pests in corn (*Zea mays* L). (Dwidjoseputro. D, 1983).

MATERIALS AND METHODS

This research was conducted in Sihitang, Padangsidempuan City. This research began to be carried out in September 2020 and ended in November 2020.

The plant materials used were Mutiara Variety Sweet Corn Seed, Surya Mentari, and Bonanza F1, Clove Leaf Vegetable Pesticides, Dithane M-45 Fungicide, decis pesticide 35 EC. This research was conducted using a Randomized Block Design (RAK) method with 2 factors, namely: Test Factor Several varieties symbolized by (V) consist of 3 levels, namely: V1 = Pearl Variety, V2 = Surya Mentari Variety, V3 = Bonanza F1 Variety, The factor of giving clove leaf vegetable pesticides symbolized by

(N) consists of 4 levels, namely: N0: Control, N1: 150 g/liter water, N2: 200 g/liter water, N3: 250 g/liter water.

RESEARCH IMPLEMENTATION

The area to be used as a planting area is cleared of grass and plant debris and hoes \pm 30 cm deep, smoothed while leveling, after the land is clean and level, 36 plots of 100 cm x 100 cm are made. as well as making drainage.

Planting is carried out by cutting the planting hole \pm 3 cm deep using a wooden bucket in the plots that have been prepared, with 3 seeds/plant holes with a spacing of 50 cm x 50 cm.

Watering is done twice a day, namely in the morning and evening, if it rains, no watering is done or according to the condition of the land. Insertion is done if there are dead plants or unhealthy growth, it is done with the plants that have been provided. Weeding is carried out by field conditions, namely utilizing weeding by hoeing or scraping shallow soil, then weeding is removed and the soil from which the hoeing or scraping is used is loosened, then stockpiling is carried out by burying the soil near the base of the corn stalks to form small mounds.

The application of botanical pesticides is carried out by spraying all parts of the plant at the age of 1 week after planting, with 1-week intervals until the plant's flower. Parameters observed in this study were plant height, stem diameter, ear weight per sample, ear weight per plot, the intensity of leaf caterpillar attack.

Plant height measurements were carried out when the plants were 2 weeks after planting. Measurement starts from the root neck to the tip of the highest leaf, namely by straightening the plant leaves upwards using a meter, with measurement intervals of 2 times in 1 week, until the male flowers appear. To facilitate measurement, a standard stake with a height of 10 cm from the neck is used.

Stem diameter measurements were carried out at the age of 2 weeks after planting,

at intervals of 2 times a week until the plants produced male flowers. The cob in each sample plant is harvested, then weighed, done at harvest time. The cobs of fruit in each plot are harvested, then weighed, done at harvest time.

RESULTS AND DISCUSSION

Table 1 showed the treatment of several varieties of plant height parameters at 3, 5, 7, and 9 weeks after planting. It can be seen that there is an increase. The highest yield was in treatment V3 (68.27 cm), followed by treatment V2 (66.19 cm), and the lowest was in treatment V1 (54.64 cm), and at the age of 5 weeks after planting the highest yield was found in treatment V1 (169.08

cm), followed by treatment V3 (165.78 cm), and the lowest in treatment V2 (162.42 cm). At the age of 7 weeks after planting the highest results were in treatment V3 (245.58 cm), followed by treatment V1 (239.36 cm), and the lowest was in treatment V2 (237.92 cm). At the age of 9 weeks after planting the highest results were in treatment V2 (200.05 cm), followed by treatment V3 (198.83 cm), and the lowest in treatment V1 (180.38 cm). There was no significant effect on the treatment of these three varieties, presumably because environmental factors were more dominant than genetic factors so that the plant height and stem diameter of the results of this study were almost the same. (Gomez AK and AA Gomez, 1996).

Table 1. Average plant height on the treatment of several varieties at age 3, 5, 7, and 9 weeks after planting.

Treatment Pesticides Vegetable Leaf Clove	High Plant (cm)			
	3 Weeks After Planting	5 Weeks After Planting	7 Weeks After Planting	9 Weeks After Planting
V1	54.64	92.36	169.08	180.38
V2	66.19	111.63	162.41	200.05
V3	68.27	118.77	165.81	198.83

Table 2, Showed the treatment of cloverleaf vegetable pesticides on the parameters of plant height age 3, 5, 7, and 9 weeks after planting showed an increase in plant height at each observation. At the age of 3 weeks after planting, the highest yield was in treatment N2 (63.33 cm), followed by treatment N3 (66.08cm), N0 (62.14 cm), and the lowest was in treatment N1 (63.88cm). Followed by treatment N2 (191.89 cm), followed by treatment N3 (159.92 cm), N1 (158.38 cm), and the lowest was treatment N0 (196.85cm). At the age of 7

weeks after planting the highest results were found in followed by treatment N2 (196.85 cm), followed by treatment N3 (66.08 cm), N1 (58.85 cm), and the lowest was treatment N0 (184.25 cm). At the age of 9 weeks, the highest results were followed by treatment N2 (196.85 cm), followed by treatment N3 (196.70 cm), N1 (194.55 cm), and the lowest was in treatment N0 (184.25 cm). (Gomez AK and AA Gomez, 1996).

Table 2: Average Plant Height in Clove Leaf Vegetable Pesticide Treatment at 3, 5, 7, and 9 weeks after planting.

Treatment Pesticides Vegetable Leaf Clove	High Plant (cm)			
	3 Weeks After Planting	5 Weeks After Planting	7 Weeks After Planting	9 Weeks After Planting
N0	58.85	96.297	152.85	184.25
N1	63.88	106.18	158.40	194.55
N2	63.33	113.96	191.89	196.85
N3	66.08	113.92	159.92	196.70

This is supported by Koswara, J. (1982), which states that the ability of a variety to bring forth the traits it carries depends on the environmental conditions in which it grows. And if the environmental conditions are unfavorable then the properties it carries cannot appear optimally.

Table 2, showed the treatment of several varieties of plant height parameters aged 3, 5, 7, and 9 Weeks After Planting, it can be seen that there is an increase in plant height at each observation, at the age of 3 Weeks After Planting, the highest yield is in treatment V3 (68.27 cm), followed by treatment V2 (66.19 cm), and the lowest was in treatment V1 (54.64 cm), and at the age of 5 Weeks After Planting the highest result was in treatment V1 (169.08 cm), followed by treatment V3 (165.78 cm), and the lowest was in treatment V2 (162.42 cm). At the age of 7 Weeks After Planting the highest yield was in treatment V3 (245.58 cm), followed by treatment V1 (239.36 cm), and the lowest was in treatment V2 (237.92 cm), At 9 Weeks After Planting. if the role of one influencing factor is more dominant than the influence of other factors, so that other factors become depressed and work separately, it will result in an insignificant effect on plant growth. (Allan, R.W, 1995)

Based on Table 3, showed the highest interaction between the two treatments was found in treatment V2N0 (258.79 cm) and followed by treatment V3N1 (258.78 cm), V1N2 (249.22 cm), and V3N2 (248.33 cm). This is also because each variety has a different response to environmental conditions. This difference can occur due to differences in nutrient absorption and efficiency in different plant metabolisms. (Harjadi SS, 1996).

At the age of 7 Weeks After Planting the highest yield was found at 22 followed by N2 treatment (247.07 cm), followed by N3 treatment (242.37 cm), N1 (234.33 cm), and the lowest was at treatment N0 (240.04 cm), at 9 Weeks After Planting the highest result was followed treatment N2 (196.85 cm). Followed by treatment N3 (196.70 cm), N1 (194.55 cm), and the lowest was treatment N0 (184.25 cm). Based on the table above that the interaction of the two treatments, the highest results were found in treatment V2N0 (258.79 cm) and followed by treatment V3N1 (258.78 cm), V1N2 (249.22 cm). There was no significant effect on the treatment of these three varieties, presumably because environmental factors were more dominant than genetic factors so that the plant height and stem diameter of the results of this study were almost the same. (Purwono MS and Rudi Hartono, 2005).

Table 3: Results of Treatment of Several Varieties and Pesticides Vegetable Leaf Clove High on Plant Age 9 Weeks After Planting (cm)

Treatment Some varieties	Treatment Pesticides Vegetable Clove Leaf				
	N0	N1	N2	N3	Mean
V1	229.22	236	249.22	243	239.36ab
V2	258.79	208.22	243.67	241	237.91a
V3	258.78	248.33	243.11	232.11	245.58abc
Average of	240.03ab	234.33a	247.07abc	242.37cb	-

Information: Numbers followed by the same letter in the column and row show a significant difference according to the 5% DMRT test.

At the age of 7 Weeks After Planting the highest yield was found at 22 followed by N2 treatment (247.07 cm), followed by N3 treatment (242.37 cm), N1 (234.33 cm), and the lowest was at treatment N0 (240.04 cm), at 9 Weeks After Planting the highest result was followed treatment N2 (196.85 cm). Followed by treatment N3 (196.70 cm), N1 (194.55 cm), and the lowest was treatment N0 (184.25 cm). Based on the table above that the interaction of the two treatments, the highest results were found in treatment V2N0 (258.79 cm) and followed by treatment V3N1 (258.78 cm), V1N2 (249.22 cm). There was no significant effect on the treatment of these three varieties, presumably because environmental factors were more dominant than genetic factors so that the plant height and stem diameter of the results of this study were almost the same. (Purwono MS and Rudi Hartono, 2005).

CONCLUSION

The results of statistical data analysis that the treatment of several varieties did not show a significant effect on the parameters of plant height 3, 5, and 9 Weeks After Planting, stem diameter at 3 and Weeks After Planting, the

weight of cobs per sample, and weight of cobs per plot, but had no significant effect on parameters. plant height at 7 Weeks After Planting, stem diameter at 7 and 9 Weeks After Planting, and intensity of leaf caterpillar attacks at 3, 5, 7, and 9 Weeks After Planting.

The results of statistical data analysis that the clove leaf vegetable pesticide treatment showed a significant effect on the parameters of plant height at Weeks After Planting, stem diameter at 3, 5, 7, and 9 Weeks After Planting, but had no significant effect on plant height parameters at 3, 7 and 9 Weeks After Planting. Results of statistical data analysis, the interaction between the two treatments above shows an insignificant effect on all observed parameters.

REFERENCES

- Aak. 1993. Teknik Bercocok Tanam Jagung. Yogyakarta : Kanisius. 140 Hal..
- Allan, R.W. 1995. Pemuliaan Tanaman. Diterjemahkan Oleh Manna. Cetakan Kedua
- Anonymous, 2011. SS Ammophos fertilizer. PT. Merauke Tetap Jaya. Field. North Sumatra. Indonesia

- Dwidjoseputro. D, 1983, *Pengantar Fisiologi Tumbuhan*, PT. Gramedia, Jakarta
- Gomez AK and AA Gomez, 1996. *Statistical Procedures for Agricultural Research*. UI-Press. Jakarta. Page: 100-101
- Harjadi SS, 1996. *Introduction to Agronomy*. PT. Gramedia Pustaka Utama. Jakarta
- Koswara, J. 1982. *Budidaya Jagung Manis (Zea Mays Saccharata)*. Fakultas Pertanian IPB. Bogor. 50 Hal.
- Purwono MS and Rudi Hartono, 2005. *Excellent Corn Cultivation*. Self-Help Publishers. Jakarta 37
- Purwono, dan R. Hartono. 2005. *Bertanam Jagung Unggul*. Penebar Swadaya Jakarta
- Rukmana R, 2002. *Budidaya dan Pascapanen Jagung Manis*. Aneka Ilmu. Semarang.
- Rukmana and Yudirachman, 2005. *Cultivated Corn, Postharvest and Food Diversification*. CV. Various knowledge. Semarang