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**Institute of Agriculture  
and Related Sciences**

# **BOOK OF ABSTRACTS**

**A.Y. 2021-2022**



**BOOK of ABSTRACTS A.Y. 2021-2022**  
**Institute of Agriculture and Related Sciences**

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The Book of Abstracts A.Y. 2021-2022 Institute of Agriculture and Related Sciences is an annual publication of Davao del Sur State College that showcases a selection of research studies conducted by students. This publication offers valuable insights into the wealth of knowledge and innovative ideas emerging from the academic work of both students and their mentors.

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*MESSAGE FROM THE OFFICE OF THE PRESIDENT*



The Davao del Sur State College (DSSC) is committed to delivering quality education and fostering impactful research that contributes to community development and improves quality of life. Our research initiatives create opportunities for growth, innovation, and progress.

I congratulate our students for their impactful research and our faculty members for their dedication to mentoring students to become future researchers of integrity and excellence. I also extend my gratitude to Dr. Cherry Ann P. Roxas, RDI Director, and Asst. Prof. Jayson R. Pucot, Head of the Research Publication Office, for their hard work in compiling and documenting our graduate students' thesis abstracts. May this Book of Abstracts inspire future researchers for years to come.

*Congratulations to all involved in this achievement!*

**AUGIE E. FUENTES, Ph.D.**

President

*MESSAGE FROM THE OFFICE OF THE DIRECTOR FOR RESEARCH,  
DEVELOPMENT AND INNOVATION*



Research is a cornerstone of academic excellence, driving students to engage with global challenges and contribute to the creation of new knowledge. It is with great pleasure that I present the Book of Abstracts, highlighting the outstanding theses of students from the Institute of Agriculture and Related Sciences (IARS).

I would like to express my sincere appreciation to our dedicated faculty and Dean, Dr. Juan P. Agudera Jr., for his leadership and support in guiding our students. To the graduates, congratulations on your achievements! May this research experience inspire you to continue exploring, learning, and contributing to the world of knowledge.

**CHERRY ANN P. ROXAS, DBA**  
RDI Director

*MESSAGE OF THE DEAN*



As we face the pressing challenges of sustainable agriculture, food security, and environmental stewardship, the contributions reflected in these abstracts are a testament to the dedication and ingenuity of our academic community. Each project represents not only a step forward in scientific discovery but also a commitment to making a positive impact on both local and global scales.

I commend all our researchers for their hard work and encourage continued collaboration, exploration, and innovation in the pursuit of knowledge. I also extend my heartfelt gratitude to the institute research coordinator, Prof. Jovie Cañada, for her assistance in the compilation of these abstracts. Together, we can shape the future of agriculture and related sciences for the betterment of society and the planet.

**JUAN P. AGUDERA JR., Ph.D.**  
Dean, IARS

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# **Bachelor of Science in Agriculture**

# **DIFFERENT LEVELS OF TRICHODERMA IN THE DECOMPOSITION OF CARDAVA (*Musa Balbisiana*) BANANA PEEL**

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Author: Jhunhasil S. Abenoja

Year: 2022

Adviser: Jade O. Caintic, Ms.

The study was conducted to determine the decomposition rate in cardava banana peel using different levels of *Trichoderma* spp. Composting traditionally takes 4-8 months, but rapid composting methods can reduce the processing time and reduce the waste of banana peels by using fungus to hasten decomposition. Complete Randomization Design (CRD) was applied to the experiment. There were 4 treatments and 3 replication; the following were Treatment 1 (control), Treatment 2 (100 gr. *Trichoderma* solid), Treatment 3 (100 ml. *Trichoderma* liquid), treatment 4 (50 gr. *Trichoderma* solid + 50 ml. *Trichoderma* liquid). Banana peel applied with both *Trichoderma* solid and *Trichoderma* liquid can give positive results in the rapid decomposition of the banana peel and it is recommended that further study by using the banana peel compost in plant as plant fertilizer.

**EFFICACY EVALUATION OF DIFFERENT RATES OF NEEM LEAVES EXTRACT FOR THE CONTROL OF GREEN PEACH APHIDS (*Myzus persicae*) OF EGGPLANT BY USING DECOCTION METHOD**

---

Author: Jacky A. Añabieza

Year: 2022

Adviser: Eddie D. Batocoy, Ph. D.

This study was conducted to evaluate the effect of neem leaves extract by using decoction method for the control of green peach aphids in eggplant. A Randomized Complete Block Designed (RCBD) with six (6) treatments replicated three (3) times. This was conducted from November 2021 - February 2022 at Malalag Davao del Sur. The treatments used were the following: T1 – (Control), T2 – (30ml neem leaves extract/LW), T3 – (50ml neem leaves extract /LW), T4 – (70ml neem leaves extract /LW), T5 – (90ml neem leaves extract/LW), T6 – (Cypermethrin 2ml). Results of the study revealed that the natural occurrence of aphids appeared in no varying days from 24 to 25 days after transplanting. Moreover, neem leaves extract 70ml has the highest efficacy in eliminating green peach aphid based on percentage of aphid infestation, number of aphid colonies, and yield. It is recommended that 70ml/liter of water neem leaves extract by decoction method be used in controlling aphids in eggplant. Furthermore, the same study be conducted on other months of the year to address the fluctuating population of aphids and longer the fermentation period to enhance the aroma of neem leaves extract.

**POTENTIAL OF BITTER GOURD (*Momordica charantia*)  
APPLIED WITH DIFFERENT LEVELS OF DECOMPOSED GOAT  
EXCRETA**

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Author: Karen Jean R. Adaptar

Year: 2022

Adviser: Rogelio R. Tanduyan, Ms

This study was conducted to evaluate the potential of bitter gourd (*Momordica charantia*) applied with different levels of decomposed goat excreta last October 2021 to January 2022 at Barangay Labon, Sulop, Davao Del Sur. The experiment was carried out in a Randomized Complete Block Design (RCBD) with four sample plants per treatment. There were 5 treatments and 3 blocks; the following were T1 (Farmers practice), T2 (25g of goat manure per plant), T3 (50g of goat manure per plant), T4 (75g of goat manure per plant), T5 (1 kg. of goat manure per plant). Parameters that were not significant are marketable yield (Class B) and Unmarketable yield and the parameters that were significant are number of day's first flowering and the parameters with highly significant ii are number of fruits per plot, yield per plot and marketable yield (Class A).

**GROWTH PERFORMANCE OF BROILER CHICKEN USING VARYING LEVELS OF TURMERIC (*Curcuma longa linn*) EXTRACT AS WATER SUPPLEMENT**

---

Author: Gudy F. Agnes

Year: 2022

Adviser: Noel E. Menor, MSc

Supplementation of decocted plant was proven in different function such as nutrient improvement. Turmeric was profound to be its natural nematocide, anti-bacterial, anti-fungal, and rich in antioxidant. This study was conducted to evaluate the growth performance of broiler chicken supplemented with Turmeric extract via drinking water. A total of eight (80) da-old-chick were distributed into four (4) treatments and were replicated five (5) times. The treatment were as follows: T1-Pure water, T2-10ml Turmeric extract/1 litre water, T3-15ml Turmeric extract/1 litre water, and T4-20ml Turmeric extract/1 litre water. The study was conducted from March 06, 2022 to April 09, 2022 at Brgy. Towak, Matanao, Davao del Sur. Based on the result of the study all treatments in terms of final weight, feed intake, livability, feed conversion ratio, and income over feed ii and chick cost has no significant difference. It is concluded that even without the supplementation of Turmeric extract via drinking water of broiler chicken, the performance of Broiler chicken was still the same. The broiler chicken will perform even without the supplementation of Turmeric extract via drinking water. Further study is recommended on the different aspects such as: Study for phytochemical analysis of Turmeric and Blood Analysis of Broiler Chicken and Carcass evaluation and microbial count.

Keywords: *Turmeric Extract, Broiler chicken, water supplementation*

# **SENSORY EVALUATION OF SALTED DUCK (*Anas platyrhynchos*) EGG USING HERBS AND SPICES IN BRINE SOLUTION**

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Author: Jenefer S. Agnes

Year: 2022

Adviser: Carmela Fe Ellaisa N. Flores, MSc.

A shortage and scarcity of food due to the Covid-19 pandemic and more supply of eggs that need to preserve are one of the challenge encountered. Sensory evaluation of salted duck eggs were conducted to determine the color of egg yolk, odor, saltiness, texture and general acceptability were used by herbs and spices in a brine solution. The study was evaluated on February 08, 2022 at Purok Eagle, Kauswagan, Matanao, Davao del Sur. The study was carried out in Complete Randomized Design (CRD) with four (4) treatments replicated three (3) times. One hundred twenty (120) eggs were used. The treatments were T1 Brine Solution (control), T2 100g Star Anise + Brine Solution, T3 100g Lemon grass + Brine Solution and T4 100g Lemon Basil + Brine Solution with the same amount of 250 grams of salt per liter. Based on the result of the study, the use of Brine Solution with Lemon grass for salted duck ii egg were the most acceptable herb and spice for the consumer. Furthermore, in terms of Color of Egg Yolk, Saltiness and General Acceptability, both Lemon grass and Lemon Basil were not significantly difference from each other, there were significant difference in terms of the odor and texture. This recommends that the curing period of salted duck egg in Brine Solution must be prolong in twenty days beyond, utilize other available Philippine exotic herbs and spices and conduct further study on the inclusion rate of herbs and spices.

*Keywords: Salted Duck Egg, Lemongrass, Lemon Basil, Star Anise*

## **FRUIT JUICES FOR THE CONTROL OF BACTERIA AND FUNGAL PATHOGEN IN VITRO**

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Author: Jessa L. Bacornay

Year: 2022

Adviser: Edralyn Catubay, MSc.

This study was conducted to evaluate the fungicidal and bactericidal effect of fruit juices on plant pathogens in vitro. This was conducted in DSSC-RLSC laboratory, DSSC Matti, Digos City from October 2021 to March 2022. These study was two (2) factor arranged in a Completely Randomized Design (CRD). Treatments were as follows A (Fruit Juices): A1 – Lemon Juice, A2 – Kamias Juice, and A3 – Water. Factor B (Plant Pathogen): B1 – *Pectobacterium carotovorum*, B2 - *Ralstonia solanacearum*, B3 - *Fusarium oxysporum* and B4 - *Colletotrichum gleosporioides*. Results revealed a highly significant difference on lemon juice against the target pathogens in terms of DZI 24hrs after incubation. Meanwhile, no significant difference was observed in kamias juice against with target pathogen with means ranging from 4.45 to 7.89 mm. In addition, highly significant difference was observed on the interaction between fruit juices and target pathogen in in terms DZI 24hrs after inhibition. While, degree of effectiveness of the test treatments based on DZI ranged very effective (VE) to not effective (NE).

**THE EFFICACY OF LIQUID TRICHODERMA AGAINST PANAMA WILT (*Fusarium oxysporum*) OF CAVENDISH (*Musa acuminata*) IN CAGAS FARM (PARCEL D), IGPIT, DIGOS CITY**

Author: Kathleen T. Bantilan

Year: 2022

Adviser: Juan P. Agudera Jr., Ph. D

This study was conducted to evaluate the effect of Liquid Trichoderma for the control of *Fusarium oxysporum* f.sp. *cubense* of Cavendish Plant. This study was conducted at Cagas Farm – Parcel D, Igpit, Digos City, Davao Del Sur. It was arranged in a Randomized Complete Block Design with eleven (11) treatments replicated four (4) times. Treatments were the following: T1 – 100 ml Trichoderma: 1 L water, T2 – 200 ml Trichoderma: 1 L water, T3 – 300 ml Trichoderma: 1 L water, T4 – 400 ml Trichoderma: 1 L water, T5 – 500 ml Trichoderma: 1 L water, T6 – 600 ml Trichoderma: 1 L water, T7 – 700 ml Trichoderma: 1 L water, T8 – 800 ml Trichoderma: 1 L water, T9 – 900 ml Trichoderma: 1 L water, T10 – 1000 ml Trichoderma: 1 L water, and T11 – 1000 ml (Untreated control). Results revealed no significant difference among all treatments in terms of the days to symptom appearance (DSA) with means ranging from 0.00 to 84.00, percentage of infection (PI) with means ranging from 0.00 to 100.00, and plant height with means ranging from 13.00 to 45.67. Meanwhile, Trichoderma spp. significantly affect the plant growth of banana applied with 1000ml liquid Trichoderma. Therefore, it is recommended to the farmers to apply 1000ml liquid Trichoderma since its efficacy was observed during the conduct of the study.

# **GROWTH AND YIELD PERFORMANCE OF EGGPLANT (*Solanum melongena*) IN RESPONSE TO VARYING LEVEL OF SUGARCANE PRESSMUD**

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Author: Justin G. Alag

Year: 2022

Adviser: Mara Jean Marielle Calapardo, MSc

The study was conducted to determine the growth and yield performance of eggplant (*Solanum melongena* L.) in response to various levels of sugarcane pressmud. It was carried out in a Randomized Complete Block Design (RCBD) with (4) treatments and three (3) blocks with 6 samples each. The treatments are as follows. T1 (Garden Soil), T2 ( Garden Soil 50% + Pressmud 50%), T3 (Garden Soil 25%+Pressmud 75%), and T4 (Pressmud 100%). Analysis of Variance (ANOVA) was used to determine the significance of treatment and difference among treatments by the Least of Significant Difference (LSD) test. Eggplant plants grown in a media mixture with sugarcane pressmud had significantly influenced the growth and yield performance of eggplant primarily on average plant height, average plant width, average stem diameter, average number of leaves, mean days to the first flowering, and yield. Therefore; the use of garden soil in combination with sugarcane pressmud or in pure combination is recommended for the growth and yield of containerized eggplant plants.

**EFFECTS OF LIQUID TRICHODERMA AGAINST *Fusarium oxysporum f. sp. cubense* (foc) OF CAVENDISH (*Musa Paradisiaca*) PLANT UNDER CAGAS FARM PARCEL I, IGPIT DIGOS CITY DAVAO DEL SUR CONDITION**

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Author: Carissa Mae C. Alcordo

Year: 2022

Adviser: Juan P. Agudera Jr., Ph. D.

This study was conducted to determine the effect of Liquid Trichoderma for the control of *Fusarium oxysporum f. sp. cubense* of Cavendish Plant. This was conducted at Cagas Farm Parcel I, Igpit, Digos City, Davao Del Sur from November 2021 to March 2022. The experiment was laid out in Randomized Completely Block Design (RCBD) with eleven (11) treatments replicated three (3) times. The treatments used in the study were the following: T1 – 100 ml *Trichoderma*: 1 L water, T2 – 200 ml *Trichoderma*: 1 L water, T3 – 300 ml *Trichoderma*: 1 L water, T4 – 400 ml *Trichoderma*: 1 L water, T5 – 500 ml *Trichoderma*: 1 L water, T6 – 600 ml *Trichoderma*: 1 L water, T7 – 700 ml *Trichoderma*: 1 L water, T8 – 800 ml *Trichoderma*: 1 L water, T9 – 900 ml *Trichoderma*: 1 L water, T10 – 1000 ml *Trichoderma*: 1 L water, and T11 – 1000 ml (Untreated control). Results revealed that no significant difference in test plants treated with different level of liquid *Trichoderma* based on the number of days to first symptom appearance. Meanwhile, test plants treated with 400ml and 900ml of *Trichoderma* exhibited lowest PI with a mean of 33.33% comparable to the result of test plants treated with 200ml *Trichoderma* with 66.67% mean. In addition, highest plant height was exhibited by test plants treated with 300ml *Trichoderma* and 800ml *Trichoderma* with a mean of 45.67 and 45.33 respectively. Based on the gathered data, *Trichoderma* effectively suppress panama wilt disease of banana and significantly affect its plant height since it possesses a biocontrol agent mechanism and well known due to its widely used in agricultural application (Galletti et al., 2020).

## **EFFECTIVENESS OF SOLID TRICHODERMA sp. IN COCONUT (*Cocos nucifera*) PRODUCTION**

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Author: Arthur A. Aldo

Year: 2022

Adviser: Juan P. Agudera Jr. Ph. D.

The coconut tree, *Cocos nucifera* L., is grown for a variety of reasons, the most important of which are its nutritional and therapeutic properties. Tender coconut water, copra, coconut oil, raw kernel, coconut cake, coconut toddy, coconut shell and wood-based items, coconut leaves, coir pith, and other coconut products are available. This study was conducted to determine the effectiveness of *Trichoderma* sp. in response to production performance of coconut tree. This was conducted in Leling, Hagonoy Davao del Sur from December 2021 to March 2022. The study was layed-out in a Randomized Completely Block Design (RCBD) with five (5) treatments replicated three (3) times. The treatments were the following: T1 – 500g Solid *Trichoderma*, T2 – 1000g Solid *Trichoderma*, T3 – 1500g Solid *Trichoderma*, T4 – 2000g Solid *Trichoderma*, and T5 – Control (No treatment). ii Results revealed that *Trichoderma* significantly affect the yield of coconut 3 months after treatment application compared to the yield of coconut before *trichoderma* application. Meanwhile, it has significantly increased the weight of yield of coconut after 3 months application of *Trichoderma*. Therefore, based on the result of the study, the application of 2000g solid *Trichoderma* on Coconut is highly recommended for better growth and yield performance. Further studies are recommended for a conclusive report.

**DIFFERENT LEVELS OF LIQUID TRICHODERMA IN ERADICATING FUSARIUM OXYSPORUM F. SP. CUBENSE - CAGAS FARM (*Parcel C*), IGPIT, DIGOSCITY**

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Author: Loel M. Alimento

Year: 2022

Adviser: Jade O. Caintic, MSc.

This study on the "Different Levels of Liquid Trichoderma in Eradicating *Fusarium oxysporum f. sp. cubense*" was undertaken to determine the efficacy of liquid Trichoderma against Fusarium wilt (*Fusarium oxysporum f. sp. cubense*) of Cavendish (*Musa acuminata*) in Igpit, Digos City. Specifically, it sought to answer the percentage of infection, days of symptom appearance, plant growth and the severity of infections. Randomized Complete Block Design (RCBD) was employed wherein 11 treatments with 3 replication. Data gathered were analyzed using Analysis of Variance (ANOVA) of RCBD. Results of the study revealed that the percentage of infection differs in the level of applied liquid Trichoderma. The appearance of symptoms were longer once applied with liquid Trichoderma. Plant growth differs in the level of applied liquid Trichoderma. The severity shows 100% of infection and it was eradicated to measure the discoloration. Lastly, this study shows significant difference in all data gathered. The recommended level to be used for effective application of Liquid Trichoderma was between 600ml and up.

**GROWTH PERFORMANCE OF BROILER CHICKENS (*Gallus gallus domesticus*) SUPPLEMENTED WITH LACTIC ACID BACTERIA SERUM (LABS) VIA DRINKING WATER**

Author: Pee Jay G. Apolonio

Year: 2022

Adviser Carmela Fe Ellaisa Flores, MSc.

The study was conducted to determine the growth performance of Broiler Chicken (*Gallus gallus domesticus*) in terms of Feed intake, Water intake, Live weight gain, Final weight gain, FCR and the IOFCC in response to various levels of Lactic Acid Bacteria Serum (LABS) from November 2021 to December 2021 at Balutakay Hagonoy, Davao Del Sur. The experiment was carried out in a Complete Randomized Design (CRD) with five (5) treatments and three (3) replication. Sixty (60) heads of broiler chickens were used to the study. The treatment were T1 Control (no treatment), T2 Commercial Vetracin gold, T3 10ml of LABS, T4 15ml of LABS, and T5 20ml of LABS per liter of water. Based on the results, the performance of broiler chicken in the production and growth showed significant effects with the supplementation of Lactic Acid Bacteria Serum (LABS) via drinking water on the parameters of the Feed Intake, Water Intake, Live Weight Gain, Final Weight Gain, and also it affects the Feed Conversion Ratio (FCR) of birds. Furthermore, 20ml LABS has the best effect among all treatments. On the other hand, varying levels of LABS given to broiler chickens have higher effects than the T1 (Control).

## **SPICES EXTRACT FOR THE CONTROL OF BACTERIAL AND FUNGAL PATHOGEN IN VITRO**

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Author: Jhon Paul G. Amarilla

Year: 2022

Adviser: Edralyn Catubay, MSc

The study was conducted to determine the the potential effect of spices extract against bacterial and fungal pathogen in terms of the Diameter zone of inhibition and degree of effectiveness. The study was conducted in laboratory at DSSC - RLSC Biological Science Laboratory, Davao del Sur State College - Digos Campus from December 2021 to March 2022. The experiment was laid out in Completely Randomize Design (CRD). Highly significant difference was observed among all treatments in factor A in terms of DZI. While no significant difference among treatments observed in factor B with ranging means from 25.39-33.00mm. Highly significant difference was observed on the interaction between spices extracts and target pathogen in DZI 24hrs. after incubation. Degree of effectiveness of the test treatments based on DZI range from very effective (VE) to not effective (NE).

**GROWTH AND YIELD PERFORMANCE OF TOMATO (*Solanum lycopersicum*) IN RESPONSE TO VARIOUS LEVELS OF SUGARCANE PRESSMUD UNDER KIBLAWAN CONDITION**

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Author: Jenie E. Amarillo

Year: 2022

Adviser: Mara Jean Marielle Calapardo, MSc

This study was conducted to determine the growth and yield performance of 2021 to December 2021. It was carried out in a Randomized Complete Block Design (RCBD) with five treatments and four blocks. The treatments are as follows: T1 (Control), T2 (75 % Garden Soil + 25 % Pressmud), tomatoes (*Solanum lycopersicum*) in response to various levels of sugarcane pressmud at Barangay Sto. Nino, Kiblawan, Davao del Sur from August T3 (50% Pressmud + 50% Garden Soil), T4 (25% Garden Soil + 75% Pressmud), and T5 (Pressmud 100%). Analysis of Variance (ANOVA) was used to determine the significance of treatments, and differences among treatments by the Least Significant Difference (LSD) test. Tomato plants grown in a media mixture of 75% garden soil + 25% sugarcane pressmud had significantly influenced the growth performance of tomatoes primarily on plant height, the number of leaves developed, stem diameter, and plant width. Moreover, in the 2nd and 3rd weeks number of fruits grown in treatment 4 had obtained more produced while in the 4th and 5th weeks treatment 5 had the highest number of fruits per plant produced. Therefore; the use of garden soil in combination with sugarcane pressmud is recommended for the rapid growth performance of containerized tomato plants.

## **EFFECT OF SUPERWORM (*Zophobas morio*) LARVAE MEAL AS FEED SUPPLEMENT FOR LAYING QUAIL**

Author: Dannie Boy T. Arabilla

Year: 2022

Adviser: Noel E. Menor, MSc.

To improve quality, Quail egg farmers are looking for supplementation for such problem, larvae of superworm has a high nutritional content that was ideal for poultry nutrition. This study was conducted to determine the effect of superworm (*Zophobas morio*) larvae meal as feed supplement for layer quail. The study was carried out in a Complete Randomized Design (CRD) with four (4) treatments and a five (5) replication and with a total of 100 birds was used in this study. The treatments used were as follows: treatment 1 with a control diet, treatment 2 with 6 grams of superworm meal diet, treatment 3 with 14 grams of superworm meal diet, and treatment 4 with 20 grams of superworm meal diet in an ad-libitum feeding. The data gathered were on the feed intake, egg weight, egg yolk color, eggshell thickness and ii number of eggs produced per day. This study was conducted in March 2022 to April 2022 at Padillo St., Cogon, Digos City. The result shows significant differences among treatment means in terms of egg weight, eggshell thickness, and number of eggs produce per day, and no significant difference were observed in terms of feed intake and yolk color (DSM). The present experiment indicated that increasing the amount of dietary supplementation of ZM in layer quails diets up to 20 grams could improve the egg weight, eggshell thickness and number of eggs produce. Researcher recommends the supplementation of superworm larvae meal for greater egg weight and quality of egg in layer quails. It is highly recommended to use the treatment (4) with 20 grams of superworm larvae meal because it has a great effect to the layers egg as it is shown in (Table 2, 4, and 5). The higher amount of superworm larvae meal can have a greater effect on the eggs of laying quails.

*Keywords: Quail, Superworm*

**EFFICACY EVALUATION OF PAPAYA LEAF (*Carica papaya*)  
EXTRACT AS CONTROL OF APHIDS IN TOMATO (*Solanum  
lycopersicum*)**

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Author: Jazyne B. Arana

Year: 2022

Adviser: Eddie D. Batocoy, Ph.D.

The study was conducted from July 2021 to December 2021 at Barangay San Miguel Magsaysay, Davao del Sur, to evaluate the efficacy of papaya leaf extract for the control of aphid infestation in tomato and to determine the yield of tomato applied with different rates of papaya leaf extract. The researcher employed a Randomized Complete Block Design (RCBD) with six treatments replicated three times. The different treatments were as follows: T1 - SDW (Untreated Control), T2 - 15ml of papaya leaf extract / L of H<sub>2</sub>O, T3- 30ml of papaya leaf extract / L of H<sub>2</sub>O, T4 - 45ml of papaya leaf extract / L of H<sub>2</sub>O, T5 - 60ml of papaya leaf extract / L of H<sub>2</sub>O, and T6 – 1.5ml Cypermethrin 5EC / L of H<sub>2</sub>O. Results of the study showed that the used of 60ml papaya leaf extract per liter of water significantly reduced the population of aphids ii comparable to synthetic insecticide (chemical check). Furthermore, there were no significant differences among treatments on the number of days to first occurrence of aphids, percentage infestation of aphid and number of aphid colony per plant before treatment applications. However, the Papaya leaf extract responded significantly better after 5 days of treatment application. It is recommended in the study that the used of 60 ml. Papaya leaf extract is effective in controlling aphids in tomato production. It is also recommended that a similar study be conducted on other months of the year to validate the aphid incidence and the effects of papaya leaf extracts. The same study also be conducted to other locations to assess its efficacy.

**MARIGOLD TEA FOR THE MANAGEMENT OF FRUIT FLY  
(*Bactrocera cucurbitae*) in Bitter Gourd (*Momordica  
charantia*)**

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Author: John Kier T. Baliwan

Year: 2022

Adviser: Edralyn Catubay, MSc;

This study was conducted to determine the percentage infestation and average larvae per fruit of Fruit Fly, percentage weight of marketable and non-marketable fruits of bitter gourd applied with marigold tea in Kapoc, Matanao, Davao del Sur. Result shows no significant difference among treatments in terms of percentage infestation of fruit fly in bitter gourd from 1st to 3rd harvest. Similarly, the seven (7) treatments did not significantly vary in terms of the average larvae per fruit of bitter gourd from 1st to 3rd harvest. Moreover, weight of marketable fruits did not significantly differ based on the result from 1st to 3rd harvest. Meanwhile, weight of nonmarketable fruits on the 1st and 3rd harvest did not significantly vary among treatments while significant difference was observed on the 2nd harvest. ii The above findings imply that application of marigold tea against fruit fly in bitter gourd had similar result to chemical and organic check. Thus, use of marigold tea could be a potential alternative to the relatively expensive and hazardous chemical for the control of fruit fly.

**PHYSICO-CHEMICAL CHARACTERISTICS OF JAVA PLUM (*Syzygium cumini*) RAISINS IN RESPONSE TO VARIOUS LEVELS OF COCO SUGAR**

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Author: Eucelle R. Batac

Year: 2022

Adviser: Jade O. Caintic, MS

This study was conducted to determine Physico-Chemical Characteristics of Java Plum (*Syzygium cumini*) Raisins in Response to Various Levels of Coco Sugar. This was conducted in New Bulatukan Makilala North Cotabato from July 2021 to September 2021. The study was carried out using Completely Randomize Design with 5 treatments replicated three times. Treatments were as follows; T1- Control, T2- 1kg of coco sugar in 500 grams of Java plum, T3-1.5kg of coco sugar in 500 grams of Java plum, T4- 2kg of coco sugar in 500 grams of Java plum and T5- 2.5kg of coco sugar in 500 grams Java plum. A significant result was observed in the parameters; texture, odor, color appearance at 7-35 days of fermentation process, TSS, pH, TA and Not Significant in weight loss. Analysis of Variance was used to determine the significant mean differences among treatment. ii It is highly recommended to use T4 as the basis of making Java Plum raisin; however the researcher encourages further conduct of the study about the Java Plum fruit, nutritional analysis, microbial analysis, shelf life using different packaging materials and the use of cabinet drier during the java plum dehydration.

**GROWTH AND YIELD OF CUCUMBER (*Cucumis sativus L.*)  
APPLIED WITH DIFFERENT LEVELS OF GUANO**

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Author: Irene T. Batawang

Year: 2022

Adviser: Rogelio R. Tanduyan MS.

The study was conducted last September to December, 2021 at Purok 2, Poblacion Sulop, Davao del Sur to evaluate the growth and yield of cucumber (*Cucumis sativus L.*) using different levels of guano. The experiment was carried out in Randomized Complete Block Design (RCBD) with an area of 260 sq. meters. The treatment was as follow: T1-(Farmers Practice), T2- (250 g Organic Fertilizer (guano) T3- (300 g Organic Fertilizer (guano), T4- (350 g Organic Fertilizer (guano), T5- (400 g Organic Fertilizer (guano). The result of the study on growth and yield of cucumber revealed a significant difference on the parameters on the number of fruit per plot yield. However, not significant effects were found in parameters of number of days to flowering, marketable quality in class A class B and unmarketable. The result of the study, guano was recommended to use as organic fertilizer because it is effective to the growth and yield of cucumber. And also organic fertilizers guano can improve soil physical properties and further increase the availability and uptake of nutrients by.

**IMPACT OF USING N-PLANT BASE ORGANIC FERTILIZER ON THE GROWTH AND YIELD PERFORMANCE OF EGGPLANT (*Solanum melongena*)**

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Author: Aljon Bautista

Year: 2022

Adviser: Jade O Caintic, MS.

The study was conducted to evaluate the potential of Eggplant (*Solanum melongena*) applied with different Nitrogen organic fertilizer last March 2022 to May 2022 at Guma Zone 1V, Sta. Cruz, Davao Del Sur. The experiment was carried out in a Randomized Complete Block Design (RCBD) with Three sample per treatment. There were 6 treatments and 3 blocks; the following were Treatment 1 (Ipil-ipil extract), Treatment 2 (Kakawate extract), Treatment 3 (Soybean meal), treatment 4 (Corn gluten meal), treatment 5 (Rice husk Ash), and treatment 6 (Urea). Parameters that is not significant is the plant height, followed by significant parameter known as Number of days to flowering, and the parameters that were Highly significant are, the Number. of days to first harvest, Yield per plot, and the Marketable yield of class A and B.

**ROOTING CAPACITY OF CALAMANSI (*Citrofortunella microcarpa*) CUTTINGS APPLIED WITH DIFFERENT TYPES OF ROOTING HORMONES**

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Author: Carla C. Belda

Year: 2022

Adviser: Jade O. Caintic, MS

The study was conducted to test the rooting capacity of calamansi cuttings applied with different types of rooting hormones. This was conducted at La Suerte, Matanao, Davao del Sur on September to November 2021. The study was carried out in a Completely Randomized Design (CRD) with five (5) treatments replicated three (3) times. Treatments were the following: T1- ANAA, T2- Honey, T3- Hormex, T4- Immature Coconut Water and T5- Pure Water (Control). The parameters analyzed in the study were the number of roots, length of longest roots and number of shoots. Results showed that the application of different rooting hormones in calamansi cuttings has a significant effect on the number of roots and length of the longest roots. While the number of shoots applied with ii different types of rooting hormones has no significant effect among all treatment means. After thorough analysis, it was further recommended that the gathering of data should be done after termination within a 60 to 90 days period. Moreover, it was also recommended to use Alpha Naphthalene Acetic Acid ANAA as a rooting hormone.

**GROWTH PERFORMANCE OF MANGROVES (*Rhizophora mangle*) APPLIED WITH DIFFERENT LEVELS OF MAGNETO**

Author: Harold Jay S. Betonio

Year: 2022

Adviser: Rogelio Tanduyan, MS.

The study was conducted to evaluate the growth performance of Mangroves (*Rhizophora mangle*) in response to various levels of Magneto as soil amendment from January 2022 to March 2022 at Zone 3 Sta. Cruz, Davao del Sur. The experiment was carried out in a Randomized Complete Block Design (RCBD) with five sample plants per treatment. There were 5 treatments and 3 blocks; the following were Treatment 1 (Complete fertilizer 14-14-14), Treatment 2 (25 ml magneto /tank load 16L of water), Treatment 3 (50 ml magneto/tank load), treatment 4 (75 magneto/tank load), treatment 5 (100 magneto/tank load). Mangroves applied with different levels of magneto and complete fertilizer shows no significant effect on every parameters. There are only small changes on the Plant width, Plant height and Number of leaves.

## **CACAO PULP TEA AS BIOHERBICIDE FOR THE MANAGEMENT OF PURPLE NUTSEGE (*Cyperus rotundus L.*)**

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Author: Meriam L. Blanco

Year: 2022

Adviser: Edralyn Catubay, MSc.

The study aims to ascertain the effect of cacao pulp tea as bioherbicide on the management of *Cyperus rotundus L.* This was conducted in Palo dos, Ihan, Kiblawan, Davao del Sur from September to October 2021. The study was laid-out in Randomized Complete Block Design (RCBD) consisting of six (6) treatments (CPT fermented one week, CPT fermented two weeks, CPT fermented three weeks, CPT fermented four weeks, Glyphosate for chemical check and Sterile Distilled Water) and three (3) replications. The results of the study revealed that acetic acid produced by cacao pulp can poison *C. rotundus* which recorded a significant difference among all treatments in terms of phytotoxicity, percentage weight loss (%), number of tubers, and number of weeds survived and killed. The results further implies that the length of fermentation affects the amount of the acid content of each treatment resulting to high phytotoxicity on cacao pulp fermented four weeks. Moreover, the cacao pulp tea seems to possess herbicidal properties against *C. rotundus* resulting to zero tubers produced and zero plants survived 14 days after application.

## **COMPETITIVENESS OF SUPER HYBRID RICE SEEDS (SL-20H) TO BARNYARD GRASS (*Echinochloa crusgalli*)**

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Author: Rhonix Jeff B. Blanco

Year: 2022

Adviser: Edralyn Catubay, MSc.

The study was conducted to evaluate the growth and determine the competitive advantage of super hybrid rice (SL-20H) cultivar against barnyard grass in Blocon, Magsaysay, Davao Del Sur from February to April 2022. Specifically, it aimed the following; (1) to determine the plant height of super hybrid rice (SL-20H) in association with barnyard grass, (2) to determine the number of tillers of super hybrid rice (SL-20H) associated with barnyard grass, (3) to determine the fresh weight of shoot and root of both rice and weeds, (4) to determine the dry weight of shoot and root of both rice and weeds and (5) to determine the harvested grains of super hybrid rice (SL-20H) grown with barnyard grass. Significant differences among treatments on plant height was observed on the second, fourth, sixth, twelve weeks after transplanting. While, no significant difference was observed on the eight and tenth ii week. Highly significant difference was observed on the number of tillers, fresh weight of shoot and root of rice, dry weight of shoot and root of rice and yield.

## **GROWTH PERFORMANCE OF MARIGOLD (*Tagetes*) IN RESPONSE TO VARIOUS LEVELS OF VERMICOMPOST**

Author: Nikki L. Bunal

Year: 2022

Adviser: Mara Jean Marielle Calapardo, MSc

The study was conducted at Purok 6, Manggahan Matti, Digos City, Province of Davao del Sur from August, 2021 to October, 2021. The study was conducted to evaluate the growth performance of marigolds in response to different levels of vermicompost. The experiment was laid out in Randomized Complete Block Design (RCBD) with 6 experimental plants per treatment. The treatments were as follows: T1 (Control), T2 (Garden Soil 50% + 50% Vermicast), T3 (Garden Soil 25% + 75% Vermicast), and T4 (Vermicast 100%). Analysis of Variance (ANOVA) was used to determine the significance of treatments, and differences among treatments by the Least Significant Difference (LSD) test. Marigold plants grown in 100% vermicast significantly influenced the average plant height (19.44 cm) at 15 DAT, average stem diameter at 30 DAT (0.07 mm), and a highly significant effect at average plant width ii (44.72 cm) at 60 DAT. However, more or less comparable results were observed in other treatments thus, a range of 75% to 100% vermicast as growing media consistently obtained the highest measurements of other parameters evaluated. Therefore; for the containerized growing of marigold plants, garden soil mixed with 75% vermicast or 100% vermicast is recommended for rapid growth and high-quality flowers.

**EFFECTIVENESS OF LIQUID TRICHODERMA SPP. AGAINST PANAMA WILT (*Fusarium Oxysporum*) OF CAVENDISH BANANA (*Musa acuminata*) Parcel B**

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Author: Al Hafez B. Buat

Year: 2022

Adviser: Juan P. Agudera Jr. Ph. D.

This study on the "Effectiveness of liquid Trichoderma spp. against Panama wilt disease (*Fusarium oxysporum*) of cavendish banana (*Musa acuminata*)" was undertaken to determine the efficacy of liquid Trichoderma against Panama wilt disease (*Fusarium oxysporum* f. sp. cubense) of cavendish banana (*Musa acuminata*) in Brgy. Igpit, Digos City. Specifically, it sought to answer the percentage infection, days to symptom appearance and plant growth(cm). Randomized Complete Block Design (RCBD) was employed with 11 Treatments and Replicated 3x. Data gathered were analysed using the Analysis of Variance (ANOVA) of RCBD. Results of this study shows significant difference on percentage infection, while days to symptoms appearance and plant height show no significant difference. The days to symptoms appearance were longer once applied with 600 to 1000 ml liquid Trichoderma. The recommended level to be used for effective application of liquid Trichoderma was between 600ml up to 1L or more.

## **GROWTH PERFORMANCE OF BROILER CHICKEN (*Gallus gallus domesticus* Linn) SUPPLEMENTED WITH FERMENTED OREGANO (*Plectranthus amboinicus*) PLANT JUICE AS WATER SUPPLEMENT**

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Author: Mark Kain R. Cabrillos

Year: 2022

Adviser: Carmela Fe Ellaisa N. Flores, MSc

Antibiotics are effective in promoting the growth of broilers, but they have a negative effect on humans. This paved the way for the use of fermented herbs as a water additive for broiler production. From February 24th to March 30th, 2022, a study on the growth potential of oreganosupplemented broilers was conducted at Cabrillos Street, Digos City. This study focused on verifying the effect of oregano on broilers and was designed with a Completely Random Design (CRD) with a total of 75 experimental birds in 5 treatments and 3 replications. The treatment were as follows: T1 (control water), T2 (5 ml FO/ L water), T3 (10 ml FO/ L water), T4 (15 ml FO/ L water), and T5 (20 ml FO/ L water). In terms of Average water intake, it has been observed that supplementation of FO showed significant differences in all treatment means according to the result of the Analysis of variance (ANOVA). In Feed Intake (g/bird), ii Treatment 5 (20ml of FO) which has the highest dosage, recorded the highest intake and the lowest intake are those birds which belong to Treatment 1 (control). The ANOVA revealed that there is a significant difference in the Feed Intake of birds in this study. As to the Live Weight Gain (g/bird), the birds Supplemented with 20ml of FO per liter of water gained the highest live weight gain of 578.64 g and the lowest was recorded on Treatment 1 (Control). ANOVA revealed that there is a significant difference between each of the treatment. As to the Feed Conversion Ratio, all the treatments were comparable to each other. As to the IOFCC, treatment 5 (20ml/FO) has the highest income of Php 38.55. Based on the preceding finding mentioned, the performance of broiler chicken in the production and growth was affected by supplementation of FO via drinking water. it can be suggested that Fermented Oregano has the potential to be used as a water supplement on broiler chickens.

Keywords: *Broiler Chickens, Oregano.*

**GERMINATION PERFORMANCE OF COFFEE (*Coffea arabica*)  
SOAKED WITH DIFFERENT LEVELS OF SEAWEEDS ENHANCE  
BIOSTIMULANT**

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Author: Jessa Mae P. Cagas

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

The study was conducted to determine the germination performance of coffee (*Coffea arabica*) soaked in different levels of seaweed enhance biostimulant was conducted from September to December 2021 in Ibo, Malalag, Davao del Sur. The research design followed the Randomized Complete Block Design (RCBD) with six treatments and replicated three times. The treatments were as follows: T1 (Control), T2 (Water alone), T3 (5ml of Seaweed Enhance Biostimulant/liter of water), T4 (10ml of Seaweed Enhance Biostimulant/per liter of water), T5 (15ml of Seaweed Enhance Biostimulant/liter of water) and T6 (20ml of Seaweed Enhance Biostimulant/liter of water). Results of the study revealed no significant differences among treatments in all measured parameters: days to germination, percentage of germination and survival rate.

## **GROWING EGGPLANT (*Solanum melongena*) USING DIFFERENT ORGANIC MULCHES**

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Author: John Paul P. Cahimtong

Year: 2022

Adviser: Mara Jean Marielle Calapardo

The study was conducted at Purok 2, Poblacion, Sulop Province of Davao del Sur from August 2021 to December 2021. The study was conducted to determine the effect of different organic mulches in the growth and yield of eggplant "*Solanum melongena*" using different organic mulches. The experiment was laid out in Randomized Complete Block Design (RCBD) with 6 experimental plants per treatment. The treatment were as follows: T1 (Control), T2 (Coarse sawdust), T3 (Crushed ipil-ipil pods), T4 (Crushed peanut shells). Analysis of Variance (ANOVA) was used to determine the significance of treatments, and differences among treatments by the Least Significance Differences (LSD) test. Based on the statistical analysis results revealed that there were no significant effect found in the plant height, plant width, stem diameter, number of leaves, number of days to flower and yield.

**EFFICACY OF KAMIAS (*Averrhoa bilimbi*) FRUIT EXTRACT AS A WATER SUPPLEMENT TO THE GROWTH PERFORMANCE OF BROILER CHICKEN (*Gallus gallus domesticus*)**

Author: Glaidyl R. Cautivar

Year: 2022

Adviser: Carmela Fe Ellaisa N. Flores, MSc.

This study was conducted to assess and substantiate Kamias Fruit Extract (KFE) effects on the growth performance of seventy-five (75) broiler chicken. It was conducted at Poblacion Magsaysay Davao del sur last November 24 to December 28, 2021. The study had five (5) treatments, three (3) replications, and five (5) birds per replication in a Completely Randomized Design (CRD). The treatments were as follows: T1 - Control, T2- Commercial Multivitamins, T3-5ml. of KFE/L of water, T4-10 ml of KFE/L of water, and T5-15 ml of KFE/L of water. Based on the findings of the study, there are no significant variations in the growth performance of broiler chickens supplemented with KFE in terms of water intake, feed intake, live weight gain, feed conversion ratio, and mortality rate. However, ii treatments with KFE showed the superiority compared to the commercial multivitamin with no supplement added. Treatment means if significant result were further analyzed using least significant differences (LSD). This study revealed that KFE was effective replacement of commercial multivitamins due to its high content of acetic acid and citric acid. It is also being utilized as acidifiers. Because of these acidifiers and organic acids which had been added to poultry diet, it has a better performance (M.Z. Islam, et al.,2008), KFE can be able to replace commercial multivitamins.

*Keywords: Broiler, Kamias Fruit Extract, Growth Performance*

## **OCCURRENCE OF FRUIT BORER IN EGGPLANT INTERCROPPED WITH HERBACEOUS PLANTS**

Author: Lloyd Kim P. Celeste

Year: 2022

Adviser: Edralyn Catubay, MSc.

This study was conducted to evaluate the effects of intercropping herbaceous plants in the occurrence of fruit borer in eggplant. This was conducted at Barangay Kibuaya, Hagonoy, Davao del Sur, from November 2021-February 2022. The study was laid out in Randomized Complete Block Design (RCBD) with seven (7) treatments and three (3) replications with nine (9) plant samples per treatments per replication. The treatments were the following: T1 – Control, T2 – Mayana, T3 – Oregano, T4 – Basil, T5 – Marigold, T6 – Lemongrass, T7 – Citronella. Results revealed no significant difference among all treatments in terms of the number of infested fruits, number of exit holes, and number of larvae per fruit from first to third harvest with a mean of 0.33-2.67, 1.00-6.00, and 0.33-3.00, respectively. Meanwhile, significant difference was observed on the number of exit holes from second to third harvest with results comparable to all herbaceous treatments while control plots afforded the highest number of exit holes. No significant difference was further observed on the average yield and weight of marketable and non-marketable harvest. Numerically, however, plots intercropped with mayana, citronella and lemongrass obtain the highest yield from first to third harvest. Likewise, plant samples intercropped with citronella was observed to be consistent in producing highest marketable and lowest nonmarketable eggplant fruit at harvest.

## **THE EFFECTS OF SOLID TRICHODERMA ON FUSARIUM WILT IN CAVENDISH BANANA**

Author: Kenneth Jomar B. Comahig

Year: 2022

Adviser: Juan P. Agudera, Ph.D

This study was conducted to determine the effects of solid Trichoderma on Fusarium wilt in Cavendish last September 2021 to February 2022 at barangay, Igpit, Digos City, Davao del Sur. The study was laid out in a Randomized Complete Block Design (RCBD) with eleven (11) treatments and five (5) replications per treatment using solid Trichoderma. The treatments used for the study were the following: Treatment 1 - 200 grams of solid trichoderma, Treatment 2 - 400 grams of solid trichoderma, Treatment 3 - 600 grams of solid trichoderma, Treatment 4 - 800 grams of solid trichoderma, Treatment 5 - 1000 grams of solid trichoderma, Treatment 6 - 1200 grams of solid trichoderma, Treatment 7 - 1400 grams of solid trichoderma, Treatment 8 - 1600 grams of solid trichoderma, Treatment 9 - 1800 grams of solid trichoderma, Treatment 10 - 2000 grams of solid trichoderma, Treatment 11 - Control/No Trichoderma. The result of the study revealed that Cavendish banana applied with solid Trichoderma has a high possibility rate to have Fusarium wilt disease and can't possibly survive against Fusarium wilt.

**GROWTH AND YIELD OF BELL PEPPER (*Capsicum annum* Linn.) AS INFLUENCE ON FOLIAR APPLICATION OF KAPPAPHYCUS SEAWEED DRIPPINGS (KSD)**

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Author: Karl Philippe R. Cossid

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

The study entitled Growth and Yield of Bell Pepper (*Capsicum annum* Linn.) as Influence on Foliar Application of Kappaphycus Seaweed Drippings (KSD). Aimed to evaluate the effects of six foliar combination application on the growth and yield of Bell Pepper; and determine which among the six treatments, T1-Control (water), T2-120-90-15 kilograms per hectare, T3-60-45-7.5 kilograms per hectare, T4-60-45-7.5 kilograms per hectare+10ml of KSD/liter water, T5-20ml KSD/liter water, T6 T2-120- 90-15 kilograms per hectare+ T5-20ml KSD/liter water. A statistical analysis of variance (ANOVA) for Randomized Complete Block Design (RCBD) and Tukey's Test HSD were used to test the level of significance of each treatment means at 5% level. The growth in plant height of bell pepper was not affected. However, the application of foliar fertilizer Kappaphycus Seaweed Drippings (KSD) has a significant difference in the number of fruits per plant, weight of fruits per plant, and yield of Bell pepper.

## **GROWTH PERFORMANCE OF COFFEE (*Coffea canephora*) SEEDLINGS APPLIED WITH DIFFERENT PLANT GROWTH ENHANCER**

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Author: Lalaine V. Dagaang

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

The study was conducted to determine the growth performance of coffee (*Coffea canephora*) seedling applied with different plant growth enhancer conducted from September to December 2021 in Ibo, Malalag, Davao del Sur. Research design used a Randomized Complete Block Design (RCBD) with four treatments, replicated three times. The treatments were as follows: Treatment 1 (Control), Treatment 2 (20ml Trichoderma), Treatment 3 (20ml seaweed), Treatment 4 (20ml mycorrhiza). Results of the study revealed no significant differences among treatments in all measured parameters: plant height, number of leaves, and leaf area.

## **THE EFFECT OF DECOMPOSED BANANA PEEL TO THE GROWTH AND YIELD OF BELL PEPPER (*Capsicum annuum*)**

Author: Emerlita O. Dayon

Year: 2022

Adviser: Rogelio R. Tadayon MS.

The study was conducted last September to December, 2021 at Purok 2, Poblacion Sulop, Davao del Sur to evaluate the growth and yield performance of bell pepper (*Capsicum annuum*) using decomposed banana peel. The experiment was carried out in a Randomized Complete Block Design (RCBD) with an area of 260 sq. meters. The treatment was as follow: T1-(Farmers Practice), T2- (500g Decomposed Banana Peel) T3- (750g Decomposed Banana Peel), T4- (1000g) Decomposed Banana Peel), T5- (1250g) Decomposed Banana Peel). The result of the study on growth and yield performance of bell pepper revealed a significant difference on the parameters of plant height, number of days of flowering, numbers of fruit per plot, fruit weight per plot, and yield. However, the marketable quality class B and C were found not significant. As with the result of the study, it is recommended that using decomposed banana peel contributes on the growth and yield of bell pepper and lessen the expenses of bell pepper production.

## **LONGEVITY OF TRICHODERMA IN LIQUID FORMULATION**

Author: Aljade J. Dejan

Year: 2022

Adviser: Juan P. Agudera Jr, Ph. D

This study was conducted to determine the longevity of Trichoderma in liquid formulation last September 2021 to February 2022 at Trichoderma Laboratory of Davao del Sur State College (DSSC) Digos City. The study was laid-out in Completely Randomized Design (CRD) with 2 treatments and 4 Replications per treatments using liquid Trichoderma and Potato Dextrose Agar (PDA) in flat bottles. The treatments used for the study were the following: Treatment 1 Liquid Trichoderma in room temperature and treatment 2 Liquid Trichoderma in chilling temperature. The result of the study revealed that the liquid formulation of the Trichoderma stored in chilling temperature has long (5 days) shelf life than the Trichoderma stored at room temperature.

## **FRUIT JUICES AS PROTECTIVE CONTROL FOR SOFT ROT IN TOMATO CAUSED BY *Pectobacterium carotovorum***

Author: Royce Mae T. Delicano

Year: 2022

Adviser: Edralyn Catubay, MSc.

Tomato is considered to be one of the most profitable crops in the Philippines and the second most important fruit in the country (Altoveros, 2012). Meanwhile, many pathogens invade tomatoes, including fungi, nematodes, bacteria, viruses, and viroid. Bacterial soft rot is one of the most devastating bacterial diseases, destroying many important crops, especially tomatoes. This study was conducted to evaluate the efficacy of fruit juices as protective control for soft rot in tomato caused by *Pectobacterium carotovorum*. This was conducted at DSSC-RLSC Biological Science Laboratory, Matti Digos City Campus from December 2021-March 2022. The test treatments used were the following: T1 – Calamansi Juice (CIJ), T2 – Lemon Juice (LeJ), T3 – Pineapple Juice (PiN), T4 - Kamias Juice (KaJ), T5 – Starfruit Juice (StJ), T6 – Pomelo Juice (PoJ), T7 – Sterile Distilled Water (Control). Significant difference among treatments was observed on the diameter zone of inhibition (DZI) against the pathogen 24 hrs. after incubation. Similarly, results on the degree of effectiveness of treatments based on DZI revealed that the Lemon Juice (LeJ) and Kamias Juice (KaJ) exhibited an effective (E) action while Calamansi Juice (CIJ) exhibit a moderately effective (ME) result against the target pathogen. In addition, percentage infection (PI) and severity of infection (%DI) of the disease significantly varies among test treatments 72 hours after incubation. The protective application of different fruit juices can reduce the %DI of soft rot of tomato caused by *P. carotovorum* with a mean ranging from 8.33 to 29.16%. Further, all treatments exerted highly significant difference in terms of percentage degree of control. Efficacy rating resulted to effective (E) to Very Effective (VE) against *P. carotovorum* causing soft rot of tomato.

# **SYNTHETIC AND BIO-PESTICIDES FOR THE CONTROL OF BACTERIAL WILT IN TOMATO CAUSED BY (*Ralstonia solanacearum*)**

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Author: Marefe P. Dela Rosa

Year: 2022

Adviser: Edralyn Catubay, MSc.

In the Philippines, tomato is one of the most extensively produced vegetables. It is grown for both home and market in almost every community across the country. However, production in the Philippines has been challenged by the devastating soil borne disease bacterial wilt. This study was conducted to evaluate the efficacy of three (3) bio-pesticides (Liquid Trichoderma (LT), Oriental Herbal Nutrient (OHN), and Kappaphycus Drippings (KD)) and three (3) synthetic pesticides (Metalaxyl-M, Copper hydroxide and Cuprous oxide) for the control *Ralstonia solanacearum* causing bacterial wilt of tomato in a naturally infested soil in Marawer, Kapatagan, Digos City, Davao del sur. Results of the study reveal that the test treatments significantly reduced PD count of *R. solanacearum* in a naturally infested soil. While the untreated control soil showed %PD increment after eight (8) cycles application of treatments. Among all treatments only two (2) treatments namely; LT and OHN did not show symptoms of wilting and yellowing of leaves. Meanwhile KD treated plants showed symptoms 73.00 days after treatment application comparable to the result of the three (3) synthetic pesticides with a mean ranging from 73.00 to 77.00 days. Untreated plants exhibited the earliest symptom at 59.00 days with the highest percentage infection of 80%. Moreover, results on the severity of infection based on the vascular discoloration of the longitudinally sectioned stem of tomato reveal significant difference among all treatment with a mean ranging from 4.44 to 92.96 with untreated control being the highest and Liquid Trichoderma (LT) being the lowest. Likewise, percentage degree of control was exerted by all test treatments with degree of effectiveness ranging from less effective (LE), to very effective (VE) against target pathogen, *R. solanacearum* after eight (8) cycles application of synthetic and bio- pesticides at seven (7) days interval.

**GROWTH AND YIELD OF SWEET CORN (*Zea mays* Linn.) AS INFLUENCE ON FOLIAR APPLICATION OF KAPPAPHYCUS SEAWEED DRIPPINGS (KSD)**

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Author: Jerry C. Dinoy, Jr

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

The Study aimed to evaluate the effects of six foliar combinations on the growth and yield of Sweet Corn; determine which among the six foliar combinations application provided optimum growth and yield of Sweet Corn. This was conducted from May 10 to August 5, 2021 at the Davao Del Sur State College Campus Matanao Extension, Brgy. Kapoc, Matanao, Davao del Sur. Results showed that Kappaphycus Seaweed Drippings either applied above or in combination with organic fertilizer produced taller plants than control. Number of ears, average weight of corn ears with or without husk, dry biomass and projected yield results were not significantly different from control.

**EFFECTS OF DIFFERENT LEVELS OF FISH BEAN (*Tephrosia vogelii*) EXTRACT AS BIOPESTICIDE AGAINST BEAN APHID (*Aphis craccivora*)**

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Author: Jenric Lloyd I. Edullantes

Year: 2022

Adviser: Juan P. Agudera Jr., PhD.

The study was conducted to determine the effect of different levels of fish bean as biopesticide control. A Completely Randomized Design (CRD) with six (6) treatments replicated three (3) times was used in this study. The treatments used were the following: T1 – SDW (Control), T2 – RR of chemical insecticide (a, ideltamethrin), T3 – 10ml extracts/100 ml of water, T4 – 15ml extracts/100 ml of water, T5 – 20ml extracts/100 ml of water, T6 – 30ml of extracts/100 ml of water. Data gathered were on percent mortality of aphids in 1 minute, mortality of aphids in 5 minutes, mortality of aphids in 10 minutes, mortality of aphids in 15 minutes, and mortality of aphids in 30 minute.. Result showed highly significant differences among treatments with different levels of fish bean as biopesticide control against bean aphid. The result revealed that T2 (RR Insecticide) gather 90% mortality which is comparable to the other treatments.

## **EVALUATION OF DIFFERENT ORGANIC ROOTING HORMONE ON PROPAGATION OF POMELO (*Citrus maxima*) CUTTINGS**

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Author: Charlene C. Empas

Year: 2022

Adviser: Jade O. Caintic, MS.

This study was conducted to evaluate the different organic rooting hormone on propagating of Pomelo (*Citrus maxima*) Cuttings. at Davao del sur state college (DSSC) Mati, Digos City Davao del Sur from February 18 to April, 2022. Completely Randomized Design (CRD) as used in the study with six (6) treatments such as; T1 – Control (pure water), T2 – Pure honey, T3 – aloe vera, T4 – Pure immature coconut water, T5 – cinnamon powder and T6 – Alpha Naphthalene Acetic Acid (ANAA). All treatments replicated three (3) times. The parameters analyzed in the study were total number of primary roots, root length and number of shoots. Results showed and was observed from week 1 to week 8 that there were no primary roots and root length formation among all treatments of cuttings. There are few calluses developed in seven and eight weeks in treatment ANAA and there was no root length to measure. However, the result indicated in number of shoots throughout from Week 1 to week 8 study period the highest number was observed from T6 which is the ANAA. After thorough analysis, it was further recommended that the cuttings treated with different organic rooting hormone especially ANAA must be under the observation of week 8 to week 20 to produce roots and root length to be measured. It was further suggested that instead of using sand as medium it's better to use a mixture of equal parts of peat, sawdust and sand for the satisfactory for rooting pomelo cuttings. And it was also recommended to consider several factors that can affect the rooting potential of stem cuttings.

**EVALUATION OF PESTICIDAL PROPERTY OF AZADIRACHTIN FROM LEAVES OF NEEM TREE (*Azadirachta indica*) USING DIFFERENT EXTRACTION METHODS FOR THE CONTROL OF FRUIT AND SHOOT BORER (*Leucinodes orbonalis*) OF EGGPLANT**

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Author: Maryflor O. Endrina

Year: 2022

Adviser: Eddie D. Batoctoy, Ph.D.

The study was conducted to investigate the efficacy and potency of Neem tree (*Azadirachta indica*) for the control of Fruit and Shoot Borer (*Leucinodes orbonalis*) of Eggplant (*Solanum melongena*). The experimental area is located at Brgy. Buri, Matanao, Davao del Sur. The study was conducted from August to December 2020. The study was laid out in a Randomized Complete Block Design (RCBD) with 6 treatments replicated three (3) times. The treatments were as follows: Treatment 1- Control, Treatment 2- 10ml of macerated Neem leaves per liter of water, Treatment 3- 10ml of boiled Neem leaves per liter of water, Treatment 4- 10ml of fermented Neem leaves per liter of water, Treatment 5- 10ml of water immersed Neem leaves per liter of water, and Treatment 6- 1.9ml of 20% Chlorpyrifos per liter of water. Based on the results of the study the use of Azadirachtin from different extraction methods did not contribute to any significant difference on the following parameters: days to first shoot borer damage, percentage of shoot borer damage both 30 and 45 DAT, percentage of fruit borer damage, number of larvae per fruit, number of exit holes per fruit, and yield in kilograms per plot. However, Chlorpyrifos had shown a high significant difference in terms of yield in kilograms per plot as comparison to both control and Azadirachtin treatments with an average of 46 percent difference in yield of eggplants. Data reveals that during the vegetative stages, experimental plants that were treated with Chlorpyrifos had the least amount of stress due to fruit and shoot borer infestation, which resulted to a higher yield.

## **LEMONGRASS TEA AS BIOPESTICIDE FOR THE CONTROL OF APHIDS (*Aphis Fabae*) IN STRING BEANS**

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Author: Zaldie L. Esperanza

Year: 2022

Adviser: Edralyn Catubay, MSc.

This study was conducted to determine the population percentage of aphids, average yield of string beans and weight of marketable and non-marketable pods at harvest applied with lemongrass tea as potential biopesticide for the management of *Aphis fabae*. Results revealed no significant difference among treatments in terms of the percentage population of the target pest from first to third harvest, average yield (g), and weight of marketable and non-marketable pods from first to third harvest. Consequently, application of lemongrass tea afforded similar result to that of KD foliar fertilizer (organic check) and Methomyl (synthetic check). Lemongrass tea prepared thru boiling seems to possess biopesticidal property that could be a potential alternative to the use of synthetic check which is relatively expensive and hazardous for the management of insect pest like bean aphid.

**EFFICACY EVALUATION OF TRICHODERMA IN COMBINATION OF SEAWEED EXTRACT AGAINST (*Ralstonia solanacearum*) CAUSING BACTERIAL WILT OF POTATO IN VITRO**

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Author: Danica R. Fulgencio

Year: 2022

Adviser: Eddie D. Batocoy, Ph.D

The study was conducted to evaluate the effect of Trichoderma in combination with Seaweed extract against *Ralstonia solanacearum* causing bacterial wilt of potato. This was conducted at Davao Sur State College (DSSC) laboratory, Mati, Digos City from October to January 2022. The experiment was laid out in Completely Randomized Design (CRD) with seven (7) treatments replicated four (4) times. Treatments were as follows: T1-SDW, T2-20ml of seaweed extract/L, T3-20ml of Liquid Trichoderma/L, T4-10ml seaweeds extract + 10ml Liquid Trichoderma/L, T5-20grams Solid Trichoderma/L, T6-10ml seaweeds extract + 10grams Solid Trichoderma/L, and T7- Dupont kocide (Chemical check). Results revealed that based on the number of the colony of pathogen after 72 hrs of incubation, T3 (Liquid Trichoderma), T4 10 ml Seaweed Extract + Liquid Trichoderma), T5 (20 g Solid Trichoderma), and T6 10 ml (Seaweed Extract + 10 g Solid Trichoderma) showed moderately effective (ME) to very effective (VE) result with means 11.35, 26.68, and 58.35 respectively exhibited a mean ranging 0.00-9.29. In terms of the diameter zone of inhibition of *R. solanacearum*, T3 (20ml Liquid Trichoderma) and T5 (20g Solid Trichoderma) showed Moderately Effective to Effective inhibitory action against *R. solanacearum* with DZI mean of 11.35mm and 26.68mm respectively significantly lower compared to T7 (Chemical check) with DZI mean of 58.35mm hence rated Very Effective (VE). Therefore, Trichoderma is Effective test treatments than Seaweed Extract, and the Trichoderma and Seaweed Extract should not to be mixed so that we could identify which one is the effective one. It is recommended that the use of solid Trichoderma In Vitro at the rate of 20g/liter was found effective in suppression the growth of *Ralstonia solanacearum*.

## **GROWTH AND YIELD PERFORMANCE OF OKRA (*Abelmoschus esculentus*) GROWN IN DIFFERENT FORMULATED ORGANIC FERTILIZER**

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Author: Justine B. Gonzaga

Year: 2022

Adviser: Jade O. Caintic, MS

The study was conducted in determining the growth and yield performance of Okra grown in different organic fertilizers. This was conducted at Purok 8 Batasan, Makilala, Cotabato last November to February 11, 2022. The study was carried out using Randomized Complete Block Design with four treatments replicated thrice. Treatments were as; T1- 100% RR Urea, T2- 100 grams Vermicast +50% (RR) Urea, T3- 100 grams Vermicast + 20 ml KD/LH<sub>2</sub>O, T4- 50% (RR) Urea + 20ml KD/LH<sub>2</sub>O. Based the result of the study within all parameters measured, revealed not significant in the growth and yield of Okra in terms in plant height, number of leaves, days of first flowering as well as the weight of fruits as applied with different formulated organic fertilizers. ii Upon the result of the study, all treatments have the same effects on plants but base on the treatment 2 which uses 100 grams vermicast + 50% Urea, and treatment 1, 100% RR Urea got the highest average mean of all the parameters, also both of the treatments gain better yield and profit. In addition, T1 that uses 100% RR of urea can compete among all treatments. Therefore, the researcher recommends using Treatment 2, 100 grams of Vermicast + 50% (RR) Urea. Since it has the same outcome as all treatments besides using vermicast and Urea gains better yield and can gain profit. Finally, the study's findings revealed comparable effects across treatments, implying that synthetic fertilizers in okra production can be replaced with organic fertilizer to minimize and prevent soil and environmental destruction.

## **EFFICACY OF *TRICHODERMA spp.* ON THE GROWTH AND YIELD OF TOMATO (*Lycopersicon esculentum*)**

Author: Ian Ray M. Hilapon

Year: 2022

Adviser: Jade O. Caintic, MSc.

This study was conducted to determine the efficacy of *Trichoderma spp.* on the growth and yield of Tomato (*Lycopersicon esculentum*). It was conducted on the mountainous area of Balutakay, Managa, Davao del Sur from February 15 to May 15, 2022. This study sought to answer if there is significant difference between untreated control and treated with *Trichoderma spp.* on the plant height of Tomato in centimeters at 15 to 75 days, stem girth of Tomato plant in diameter, number of days to first flowering of Tomato plant, number of days to first harvest of Tomato plant, number of Tomato fruits per Tomato plant, number of Tomato fruits per kilogram, and number of Tomato fruits on the day of termination. The study was laid-out in a Randomized Complete Block Design (RCBD) with five (5) treatments replicated three (3) times with 30 samples of plants per treatment. Treatment 1 – control, treatment 2 – 5ml *Trichoderma spp.*, treatment 3 – 10ml *Trichoderma spp.*, treatment 4 – 15ml *Trichoderma spp.*, and treatment 5 – 20ml *Trichoderma spp.* were the treatment used. Statistical analysis showed significant result on the height of Tomato plant, number of Tomato fruits per Tomato plant, number of Tomato fruits on the day of termination, and highly significant result on the number of Tomato fruits per kilogram while on stem girth, number of days to first flowering of Tomato plant, and number of days to first harvest of Tomato plant, no significant difference were observed.

## **ORGANIC BASED PESTICIDES FOR THE CONTROL OF FRUIT BORER IN EGGPLANT (*Solanum melongena*)**

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Author: John Paul S. Jainar

Year: 2022

Adviser: Edralyn Catubay, MSc.

This study was conducted to evaluate the effect of organic based pesticides for the control of fruit borer in eggplant. This was conducted at Barangay Caputian, Malalag, Davao del Sur, from August to December 2021. It was laid out in Randomized Complete Block Design (RCBD) with six (6) treatments and four (4) replications with nine (9) plant samples per treatments per replication. The treatments were the following: T1–Untreated Control, T2 – Fermented Plant Juice (FPJ), T3 – Liquid Trichoderma (LT), T4 – Kappaphycus Drippings (KD), T5 – Oriental Herbal Nutrient (OHN), T6 – Malathion (Chemical check). Results of the study revealed significant difference in all treatments in terms of the number of infested fruit at first harvest while no significant difference among treatment observed on the number of infested fruit at second to third harvest. No significant difference was further observed on the number of larvae and number of exit holes of fruit borer in eggplant applied with organic based pesticides. Meanwhile, average yield of eggplant at first to third harvest showed no significant difference among treatments. Numerically, however, test plants applied with different OBF's obtain the higher yield compared to the yield gained of untreated plants after eight (8) cycles application of treatments at seven (7) days interval.

**SEED GERMINATION EVALUATION ON TOMATO  
(*Lycopersicon esculentum*) AS INFLUNCE BY DIFFERENT  
ORGANIC GROWING MEDIA**

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Author: Kenneth L. Labitigan

Year: 2022

Adviser: Jade O. Caintic, MSc.

This study was conducted to determine the Seed Germination of Tomato as influenced by different organic growing media. This was conducted in Bagumbuhay, Igpit, Digos city, Davao del sur. The study was carried out using Completely Randomize Design with 4 treatments replicated three times. Treatments were as follows; T1- Control, T2- 50% of Garden soil+50% of rice straw, T3-50% of Garden soil + 50% of coco husk and T4- 50% of garden soil + 50% of vermicast. A significant result was observed in the days of emergence and not significant on percent germination and shoot length. Analysis of variance was used to determine the significant mean differences among treatment. It is highly recommended to use T2 in germinating tomato seedlings. On the study treatment 2 has the fastest day of emergence ii ii compared to other treatment, therefore the researcher recommended to use treatment 2 T2- 50 % Garden Soil + 50% Rice straw.

**GROWTH AND YIELD OF CAULIFLOWER (*Brassica oleracea* var. *botrytis*) AS INFLUENCE ON FOLIAR APPLICATION OF KAPPAPHYCUS SEAWEED DRIPPINGS (KSD)**

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Author: Shermen Y. Lajarani

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

This study, entitled "Growth and Yield of Cauliflower (*Brassica oleracea* var. *botrytis*) as Influence on Foliar Application of Kappaphycus Seaweed Drippings (KSD)" aimed to evaluate the effects of four (4) treatments on the growth and yield of cauliflower; determine which among the four treatments will provide optimum growth and yield of cauliflower. This was conducted from May 10 to September 13, 2021 at the Davao Del Sur State College Campus Matanao Extension, Brgy. Kapoc, Matanao, Davao del Sur. Based on the results of the study for Cauliflower in four (4) different treatments, the application of 120-90-15 kg/ha and 20ml KSD /liter of water, were best supported in highest leaf length, leaf diameter, leaf area, curd weight, curd diameter, and yield.

## **CONTROL OF EARLY BLIGHT (*Alternaria solani*, *Lycopersicon esculentum*) USING FERMENTED CABBAGE AT VARYING LEVEL**

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Author: Arlemie A. Lanticse

Year: 2022

Adviser: Eddie D. Batoctoy, Ph.D.

This study was conducted From March 2022 to May 2022 at Prk.1 Brgy, Colorado, Digos City, Davao del Sur to evaluate the efficacy of fermented cabbage as biological control against *A. solani* in tomato. The experiment was laid out in Randomized Complete Block Design (RCBD) with six treatment replicated three times. The different treatments were as follows: T1- SDW (untreated control), T2- 50ml/Li. Of FEC, T3- 60ml/Li. Of FEC, T4- 70ml/Li. Of FEC, T5- 80ml/Li. Of FEC, and T6- benomyl (chemical check). Result revealed Significant differences among treatments were observed in terms of number of days percentage infection, severity infection. 50ml/L, 70ml/L of FEC showed comparable effect with SDW (control) in terms of the number of days to symptom appearance significantly lower comparable to 80ml/L of FEC. However, Benomyl ii (Chemical check) showed no infection. In terms of percentage infection, plants applied with 50ml/L and 60ml/L of FEC showed similar effect with SDW (chemical check) significantly higher compared to plants applied with 70ml/L and 80ml/L of FEC. Benomyl (Chemical check) completely suppressed the growth of *A. solani*. Plants applied with 80ml/L of FEC showed comparable effect with Benomyl (Chemical check) in terms of Severity infection (% DI) significantly lower compared to other treatments. In terms of degree of control (% DC) and degree of effectiveness of the test treatments, results showed that 50ml/L, 60ml/L, and 70ml/L of FEC not afforded effective (NE) while 80ml/L of FEC afforded Effective (E) action against the target disease. Benomyl (Chemical check) showed Very effective (VE) result. Based on the findings of the study, recommended that the use of Fermented cabbage in Vivo at the rate of 80ml/L was found effective in suppression the growth of causing early blight of Tomato.

Key words: *fermented cabbage*, *Early blight*, *Tomato*, and *Alternaria solani*

**ALLEVIATING BLACK SIGATOKA (*Mycosphaerella fijiensis*) OF CAVENDISH BANANA (*Musa acuminata*) USING TRICHODERMA IN BALUTAKAY, BANSALAN, DAVAO DEL SUR**

Author: Krisville S. Laroza

Year: 2022

Adviser: Eddie D. Batoctoy, Ph.D.

The study was conducted to alleviate black sigatoka (*Mycosphaerella fijiensis*) of Cavendish (*Musa acuminata*) using Trichoderma. This was conducted at Balutakay, Bansalan, Davao del Sur from October 2021 to February 2022. The study was carried out in a Randomized Complete Block Design (RCBD) with five (5) treatments and three (3) replications with nine (9) sample plants per treatment. The test treatments are as follows T1 (Water), T2 (200g Solid Trichoderma), T3 (200ml/1L of water Liquid Trichoderma), T4 (200g Solid Trichoderma + 200ml/1L of water Liquid Trichoderma and T5 (Chemical Check). The result revealed in %P1, only Chlorotalonil (Chemical Check) afforded the lowest %PI with a mean value of 77.77% while 200g Solid Trichoderma, 200ml of Liquid Trichoderma/1L water, 200 Solid Trichoderma + 200ml of Liquid Trichoderma/1L water were found ii comparable to Water (Untreated Control) with a mean %PI of 100. %DI based on the severity of lesioned leaf tissue of black sigatoka of banana caused by *M. fijiensis* were significantly reduced by the test treatments except for Water (Untreated control) 135 days after first treatment applications. Percentage degree of control (%DC) was significantly exerted by all test treatments. Efficacy rating resulted to not effective (NE), less effective (LE), effective, moderately effective (ME), effective (E) and very effective (VE) action against the target pathogen *M. fijiensis*. There is a highly significant difference among test treatments in %DI and %DC. Liquid Trichoderma through foliar application is more effective than Solid Trichoderma through broadcast method application in alleviating black sigatoka of banana.

## **MACROSOMATIC PROPAGATION OF RAMBUTAN (*Nephelium lappaceum*) USING DIFFERENT COMBINATION OF NATURAL HORMONES**

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Author: Jessa Mae B. Lopez

Year: 2022

Adviser: Jade O. Caintic, MSc.

The study was conducted to determine the macrosomatic spread of rambutan using different combinations of natural hormones. The study includes six (6) treatments repeated three (3) times and the experimental design used in this study was the randomized control block design (RCBD) consisting of 18 experimental materials tested and the significant difference was analyzed at the using an analysis of variance (ANOVA). It was conducted at Clonal, Davao del Sur State College, Matti, Digos City, Davao del Sur. Cuttings were taken from mature rambutan plants in the early morning, avoided desiccation, cut into 4-6 nodes and kept in an open nursery under intermittent fog and sand and medium river soil, bagged and placed in bed or rooting chamber. The treatments I used are different combinations of natural hormones like (T1- T2 control- 15ml honey + 20g ii cinnamon powder T3- 40g cinnamon powder + 20ml aloe vera T4- 20 ml honey + 30 ml aloe vera T5- 40 ml aloe vera + 20 ml apple cider vinegar T6- 30 ml honey + 20 ml apple cider vinegar). 3 repetitions were made with 8 cuttings for each treatment (24 cuttings), making a total of 144 cuttings in 56 days.

## **GROWTH PERFORMANCE OF SUGARCANE (*Saccharum Officinarium*) USING DIFFERENT BIOSTIMULANT**

Author: Marjun B. Magallanes

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

This study evaluated the Growth Performance of Sugarcane (*Saccharum officinarum*) using different Biostimulant. A Randomized Complete Block Design (RCBD) was used in this study with 4 treatments replicated 4 times with 10 samples per treatment, per replication. The treatments were as follows: T1 – Control; T2 – Trichoderma; T3 – Seaweed Extract; and T4 – Mycorrhiza. Based on the results, there was highly significant difference among treatments at 15 and 30 days on plant height and stem diameter while results from number of leaves and leaf area index were comparable.

**POSTHARVEST QUALITY AND STORABILITY OF TOMATO  
(*Lycopersicon Esculentum*) SOAKED IN DIFFERENT LEVELS  
OF SEAWEED POWDER**

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Author: Milfred S. Mancera

Year: 2022

Adviser: Jade O. Caintic, MSc.

The goal of the study was to find out how long does tomato could last if it is applied with seaweed powder. From April 17 to May 15, 2022, it was held in Balutakay Managa Bansalan, Davao del Sur. To evaluate levels of seaweed powder as agent to prolong the parameters of Visual Quality Rating, Color Index, Weight loss, Firmness, Disease Incidence, Storage Life, and Total Soluble Solid. The study was carried using Complete Randomized Design (CRD) with five (5) treatments replicated four (4) times with five (5) samples per replication. The following are the treatments were T1 (control), T2 (5gSP), T3 (10gSP), T4 (15gSP) and T5 (20gSP). Highly significant result in Storage Life and Total Soluble Solid. Visual Quality Rating, Color Index, Firmness were significant. The Weight loss and Disease Incidence were no significant differences.

**THE EFFICACY OF LIQUID TRICHODERMA AGAINST PANAMA WILT (*Fusarium oxysporum*) OF BANANACAVENDISH (*Musa paradisiaca*)**

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Author: Kenth Jasper S. Manimog

Year: 2022

Adviser: Juan P. Agudera, Jr., Ph.D.

This study was conducted to evaluate the percentage of infection of fusarium wilt of banana using *Trichoderma* spp.; determine the days of symptoms appearance and the plant height (cm). From January 2021 to May 2022, Cagas farm Parcel E in Igpit, Digos City. The study was Randomized Complete Block Design (RCBD) with eleven (11) treatments replicated three times (3). Results of the study showed that the percent infections were significant among treatments. Plants without *Trichoderma* afforded the highest result with a mean of 100 and was not comparable to other treatment, T2 (200ml) to T10 (1,000ml). In the days to symptom appearance, the result of the study showed no significant difference with means ranging from 87.67 to 144.67. ii It recommends that treatment two (2) showed the most efficient result to use as a biological control of fusarium wilt. As to the plant height result showed that there is no significant difference among the treatment. However, T10 (1L *Trichoderma* / 1L water) numerically received the highest mean at 91.66. In terms of disease severity severity result showed significant difference among the treatments. T11 (untreated/control) showed highest severity of the disease.

**GROWTH PERFORMANCE OF RABBIT (*Oryctolagus cuniculus*)  
USING DIFFERENT LEVELS OF FERMENTED BANANA  
PSEUDOSTEM AS WATER SUPPLEMENT**

Author: Hanna L. Manonggireng

Year: 2022

Adviser: Carmela Fe Ellaisa N. Flores, MSc

In today's generation, organic concoction or fermentation as a water additive supplemented to animal/livestock that is locally available in the farm, to ensure the growth performance in less time of raising, readily available, in expensive, organic and easy to exploit in rabbit production. To balance the commercial supplementation that are available to the market, evaluation and utilization of alternate source of water supplements from plant sources such as Banana Pseudostem were tested in this study. Evaluation of water intake, feed intake, feed conversion ratio, live weight gain and mortality rate. The study was carried out in Complete Randomized Design (CRD) with four treatments replicated three times. Thirty-six experimental rabbits were selected and assigned to the following treatments: T1- (Pure Water), T2- Commercial Vitamins, T3- 10mlFBP+990ml of water and T4- 20mlFBP+980ml of water. Highly significant result of feed intake and live weight gain, while on water intake and feed conversion ratio has no significant differences were observed. Vitamins and minerals supplements must be added in feeds rather than water.

Keywords: *Growth performance, rabbit, water intake banana pseudostem*

## **APPLIED WITH KD FOLIAR FERTILIZER AND FIRSTLINE FOLIAR FERTILIZER**

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Author: Rande D. Marfil, Jr

Year: 2022

Adviser: Rogelio Tanduyan

This study was conducted at Purok 2, Poblacion, Sulop Province of Davao Del Sur from September 2021 to December 2021. The study was conducted to determine the different organic levels in the —QUANTITATIVE CHARACTERISTICS OF BOTTLE GOURD (*Lageraria siceraria*) APPLIED WITH KD FOLIAR FERTILIZER AND FIRSTLINE FOLIAR FERTILIZER. The experiment was laid out in Randomized Complete Block Design (RCBD) with 3 experimental plants per treatment. The treatment were as follows: T1 (Control), T2 -25 ml first line T3-50ml first line T4 -75ml first line T5 -100ml first line T6 - 20ml KD foliar fertilizer Analysis of Variance (ANOVA) was used to determine the not significance of treatments, and differences among treatments by the Least highly Significance Differences (LSD) test. Based on the statistical analysis results revealed that there were no significant number of fruit harvested, marketable yield class b, highly significant, number of days to flowering, number of fruit develop.

## **EFFICACY EVALUATION OF IODIZED SALT FOR THE CONTROL OF APHIDS IN EGGPLANT (*Solanum melongena*)**

Author: Lara Claire C. Narvasa

Year: 2022

Adviser: Eddie D. Batocoy, Ph.D

This study was conducted to evaluate the growth and yield performance of Eggplant (*Solanum melongena*) applied with different rates of Iodized salt as organic insecticide that control aphids. This was conducted at Purok Doñaluz, Cabacungan, Bulacan, Malagal Davao del Sur from February - May 2022. It was arranged in a Randomized Complete Block Design (RCBD) with 6 treatments replicated 3 times. The treatments were the following: T1- Control (no treatment), T2- 10 grams of Iodize salt per liter of water, T3- 20 grams of Iodize salt per liter of water, T4- 30 grams of Iodize salt per liter of water, T5- 40 grams of Iodized salt per liter of water, and T6- 5ml Cypermethrin 5EC (Chemical Check). The results revealed that all treatments shows highly significant effect on deterring aphids attacking eggplant in terms of the data ii gathered. Meanwhile, aphids occur in test plants 25-26 days after transplanting which shows no long time difference of pest occurrence. Moreover, salt spray helps lessen infestation of aphids in eggplant in various rate level. The use of salt spray significantly affect the colonies of aphids attacking eggplant samples. Further, based on the average yield at harvest, there was an improved production on yield of plant samples applied with salt spray in varying level.

## **GROWTH AND YIELD OF TOMATO (*Solanum lycopersicum*) AS INFLUENCE BY DIFFERENT LEVELS OF VERMICAST TEA**

Author: Nizi Louise Obas

Year: 2022

Adviser: Jade O. Caintic, MSc.

The study was conducted at Purok 8. Dolo, Bansalan, Davao Del Sur from February to May 2022. The study was conducted to evaluate the growth and yield of tomato (*Solanum lycopersicum*) as influenced by different levels of vermicast tea. The experiment was laid out in Randomized Complete Block Design (RCBD) with 5 plants per plot. There were 4 treatments and 3 Blocks; the following were T1 - diluted complete synthetic fertilizer 1kg of 16-16-16/50L H<sub>2</sub>O, T2 - 100ml of vermicast tea/L H<sub>2</sub>O, T3 - 200ml of vermicast tea/L H<sub>2</sub>O, T4 - 300ml of vermicast tea/L H<sub>2</sub>O. The data gathered were plant height, number of days to flowering, weight of fruit per treatment, marketable quality, cost and return analysis, and yield. The study revealed no significant difference among treatments on plant height, number of days to first flowering, and weight of fruit per treatment. However, the total yield per hectare and marketable quality class A show significant results with treatments 1, 3, and 4 having comparable effects. Though, not significant for class B and unmarketable quality.

**GROWTH AND SEX EXPRESSION OF BITTER GOURD  
(*Momordica charantia*) APPLIED WITH DIFFERENT LEVELS  
OF KD SEAWEED BIOSTIMULANT**

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Author: Frederick B. Orcajada

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

The study was conducted to determine the growth and sex expression of Bitter gourd (*Momordica charantia*) applied with different levels of KD seaweed biostimulant. A total of seventy-two (72) ampalaya seeds were randomly distributed into six (6) treatments and were replicated four (4) times. The treatment were as follows; T1 (10ml of KD) T2 (15ml of KD) T3 (20ml of KD) T4 (25ml of KD) T5 (30ml of KD) and T6 (35ml of KD). There are no significant differences among treatment means in terms of vine length, number of leaves, sex ratio, number of male flowers and number of female flowers. The days of first male flower emergence was fifty (50) days and the days of first female flower emergence was fifty-three (53) days. This study was conducted at Brgy. Bunot Kiblawan, Davao del Sur, from February to April 2022. Over-all results in all parameters showed no significant differences among Treatments.

Keywords: *Growth, Sex expression*

**GROWTH PERFORMANCE OF BROILER CHICKEN (*Gallus gallus domesticus*) SUPPLEMENTED WITH CALABASH (*Crescentia cujete*) FRUIT JUICE VIA DRINKING WATER**

Author: Zalrose P. Padernal

Year: 2022

Adviser: Noel E. Menor, MSc.

This study was conducted at Brgy. Poblacion, Malunogn, Province of Sarangani, from January to February, 2022. The study was conducted to evaluate the growth performance of Broiler chicken (*Gallus gallus domesticus*) Supplemented with Calabash (*Crescentia cujete*) fruit juice via drinking water. A total of sixty-four (64) day-old chicken were randomly distributed into four (4) treatments and were replicated four (4) times, a total of four (4) birds per replication. The treatments were as follows; T1 (No CFJ) T2 (15ml of CFJ) T3 (30ml of CFJ) T4 (45ml of CFJ). No significant differences among treatment means were observe in terms of final weight, fee intake, water intake, feed conversion efficiency and livability. The Income Over Feed and Chick Cost (IOFCC) of birds the highest in terms of income of Chicken was obtained by Treatment 1 (No Treatment) with Php 14.14. It is concluded that with or without supplementing of Calabash Fruit juice, there were no significant differences among treatment means, also it is recommended to further study on the increase of dosage amount of Calabash fruit juice.

Keywords: *growth performance, calabash fruit*

# **SURVEY ON THE INCIDENCE AND SEVERITY OF RICE BLAST CAUSED BY *Pyricularia oryzae* IN MAGSAYSAY DAVAO DEL SUR**

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Author: Dona M. Padulip

Year: 2022

Adviser: Edralyn Catubay, MSc

This study aimed to evaluate the incidence and spatial distribution of *Pyricularia oryzae* in Magsaysay Davao Del Sur. This study was limited only on survey of incidence and severity of Rice blast and socio demographic profile of rice growers as well as disease management and cultural practices of the farmers. This study was conducted in Magsaysay Davao del Sur from January to March 2022 where respondents are farmers engaged in rice farming from different 10 chosen Barangays. Percentage infection of Rice Blast in Magsaysay Davao del Sur ranges from 46-54% while severity of infection reaches to 54% where it was found disturbing by the farmers engaging in rice farming production. Most of the farmers interviewed in the locality belongs to the age bracket 51-60 (77%) with household size 7-8 (47%) on high school level (37%), married (85%), 1-2 ha farm size (76%), tenant (70%) with 25,000-30,000 monthly gross income (70%), in 16-20 years in farming (80%), and monocropping mode of planting (88%). Factors affecting rice productivity are occurrence of Rice Blast disease considered as the most important disease in rice, climate change or the environmental factors, which are major issues and concerns of rice farmers in Magsaysay Davao Del Sur. Almost 100% of the rice farmers interviewed still adopting cultural practices of agriculture and practicing effective and efficient disease management practices.

**EFFECTIVENESS OF BRASSICA PLANTS AS BIOFUMIGATION AGAINST *Ralstonia solanacearum* CAUSING BACTERIAL WILT OF TOMATO (*Lycopersicon esculentum L.*)**

Author: Kevin Jeff M. Petalino

Year: 2022

Adviser: Eddie D. Batocoy, Ph.D

This study was conducted to evaluate four (4) brassica plants as biofumigation against *R. solanacearum* causing bacterial wilt of tomato, determine which among treatment is effective in managing *R. solanacearum* of tomato and determine the efficacy usage of effective test treatments against the target pathogen. This study was conducted at Purok Pag-asa Tres de Mayo, Digos City. It was laid out in Randomized Complete Block Design (RCBD) with six (6) treatments and four (4) replications. The treatments were the following: T1 -SDW (Untreated Control), T2 – Cabbage, T3 – Chinese cabbage, T4 – Radish, T5 – Petchay and T6 – Dupont Kocide (Chemical check). Out of the four (4) test treatments, Chinese cabbage exhibited no symptoms of wilting appeared comparable to the Cabbage, Radish, Petchay with means ranging from 75 to 77 days. In terms of the Percentage Infection, Chinese cabbage showed no infection with the same effect afforded by the Dupont kocide (Chemical check). Cabbage, Radish and Petchay with a means ranging from 12.50 to 37.50 were found comparable to Dupont Kocide (Chemical check). Meanwhile, based on the disease severity, Chinese cabbage afforded the same effect with Dupont Kocide (Chemical check) significantly lower compared to the SDW (Untreated control). Moreover, all of the treatments namely, Cabbage, Chinese cabbage, Radish and Petchay exhibited Moderately Effective (ME), to Very Effective (VE) action against *R. solanacearum* causing bacterial wilt of Tomato comparable to Dupont Kocide (Chemical check).

*Keywords: Biofumigation, Bacterial wilt, Tomato, Ralstonia solanacearum.*

# **SURVEY ON THE INCIDENCE AND SEVERITY OF RICE BLAST CAUSED BY *Pyricularia oryzae* IN MAGSAYSAY DAVAO DEL SUR**

Author: Dona M. Padulip

Year: 2022

Adviser: Edralyn Catubay MSc.

This study aimed to evaluate the incidence and spatial distribution of *Pyricularia oryzae* in Magsaysay Davao Del Sur. This study was limited only on survey of incidence and severity of Rice blast and socio demographic profile of rice growers as well as disease management and cultural practices of the farmers. This study was conducted in Magsaysay Davao del Sur from January to March 2022 where respondents are farmers engaged in rice farming from different 10 chosen Barangays. Percentage infection of Rice Blast in Magsaysay Davao del Sur ranges from 46-54% while severity of infection reaches to 54% where it was found disturbing by the farmers engaging in rice farming production. Most of the farmers interviewed in the locality belongs to the age bracket 51-60 (77%) with household size 7-8 (47%) on high school level (37%), married (85%), 1-2 ha farm size (76%), tenant (70%) with 25,000-30,000 monthly gross income (70%), in 16-20 years in farming (80%), and monocropping mode of planting (88%). Factors affecting rice productivity are occurrence of Rice Blast disease considered as the most important disease in rice, climate change or the environmental factors, which are major issues and concerns of rice farmers in Magsaysay Davao Del Sur. Almost 100% of the rice farmers interviewed still adopting cultural practices of agriculture and practicing effective and efficient disease management practices.

## **OCCURRENCE OF FRUIT BORERS (*Helicoverpa armigera*) ON TOMATO SPRAYED WITH ORGANIC BASED FORMULATIONS (OBFs)**

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Author: Emily C. Quiñones

Year: 2022

Adviser: Edralyn Catubay MSc.

The study was conducted to evaluate the efficacy of organic based formulation for the management of tomato fruit borer determine the population and percentage infestation of TFB on tomato applied with OBFs and determine the yield of tomato applied with OBFs. This was conducted in Davao Del Sur State College, Kapok Extension Campus, Matanao Davao Del Sur. Results of the study revealed that application of organic based formulations significantly affects the percentage infestation, number of larvae per fruit and number of exit holes of the target insect pest, tomato fruit borer. Similarly, organic based formulations significantly affect the yield of the harvested tomato as well as the weight of marketable and non-marketable harvest. Effects of the organic formulations used revealed similar results to that of synthetic check (Malathion). Hence, the use of organic-based formulations could be a safe and eco-friendly alternative to synthetic pesticide for the management of insect pest like fruit borer in tomato.

**EFFICACY OF SODIUM BICARBONATE WITH NEEM OIL AS A CONTROL FOR GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) OF TOMATO**

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Author: Joyce A. Quiriquio

Year: 2022

Adviser: Eddie D. Batocoy, Ph.D

This study was conducted to evaluate the efficacy of Sodium Bicarbonate combined with Neem Oil as a control for tomato greenhouse whitefly (*Trialeurodes vaporariorum*). This was conducted at Malalag, Davao Del Sur from November 2021 - February 2022. The test treatments used were the following: T1 – SDW (Control), T2 – 5ml sodium bicarbonate + 5ml (neem oil)/L.(H<sub>2</sub>o), T3 – 10ml sodium bicarbonate + 10ml (neem oil)/L.(H<sub>2</sub>o), T4 – 15ml sodium bicarbonate + 15ml (neem oil)/L.(H<sub>2</sub>o), T5 – 1.5 Tbsp. (Cypermethrin 5EC). Results of the study revealed that the 15ml sodium bicarbonate + 15ml neem oil obtained the highest efficacy rating based on observation for percentage infestation. Moreover, Sodium bicarbonate combined with neem oil has the same effect with chemical check based on researcher's observation. It was observed that the test treatments used in the study were capable in controlling whitefly infestation and colony. In addition, all the test treatments obtained higher yield compared to untreated control during 1st - 3rd harvest.

# **GROWTH PERFORMANCE OF BROILER CHICKEN (*Gallus gallus domesticus*) AS AFFECTED BY DIFFERENT LITTER MATERIALS**

Author: Khemin L. Regidor

Year: 2022

Adviser: Carmela Fe Elaisa Flores, MSc.

The study was conducted to determine the growth performance of Broiler chicken (*Gallus gallus domesticus*) as affected by different litter materials from January 26, 2022 to February 08, 2022 at Paligue, Hagonoy, Davao Del Sur. The experiment was laid out in a Complete Randomized Design (CRD). Treatments means of significant results were further analyzed using Least Significant Difference (LSD). The four treatments were T1 (No Litter Material), T2 (100% Rice Hull), T3 (100% Rice Straw), and T4 (50% Rice Hull + 50% Rice Straw) and were replicated four times with 5 samples per replication. The result shows that rice straws have contributed to the growth performance of broiler chicken and it has potential benefits with this litter material. These litter materials are nontoxic to the birds, free of contaminants, and absorbent with a short drying time and readily available and relatively expensive. Rice straw soak up the moisture and give up the moisture to the ventilation system that it stays dry. The floor temperature on the other hand has the biggest impact on the growth performance of the broiler chicken in brooding stage. Its main goal is to maintain chicks within their comfort zone, which is where they are not using their energy to gain or lose heat to maintain body temperature.

Keywords: *Rice straw, litter materials, floor temperature, rice hulls*

**QUANTITATIVE-QUALITATIVE CHARACTERISTICS OF IPIL-IPIL (*LEUCAENA LEUCOCEPHALA*) APPLIED WITH DIFFERENT LEVELS OF ENHANCED KD FERTILIZER AS BIOSTIMULANT**

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Author: Cris John C. Saagundo

Year: 2022

Adviser: Rogelio R. Tanduyan, MS

The purpose of this study was to examine the characteristics of Ipil-ipil (*Leucaena leucocephala*) when it was sprayed with different quantities of improved KD fertilizer as a Bio-Stimulant from September to December 2021 in Luparan, Sulop Davao del Sur. The study had five (5) treatments, three (3) replications, and three (3) samples per replication in a completely randomized design (CRD). T1 (Control), T2- (20ml KD fertilizer L of H<sub>2</sub> O), T3 - (30ml KD fertilizer L of H<sub>2</sub> O), T4- (0ml fertilizer L of H<sub>2</sub> O), T5-(0ml fertilizer L of H<sub>2</sub> O) (50ml KD fertilizer L of H<sub>2</sub> O). The results demonstrated that the parameters Length of branch, Fresh weight, and Dry weight were very significant differences across all treatments sprayed with varied doses of KD fertilizer, whereas the number of branches was significant. Ipil-ipil (*Leucaena leucocephala*) had a significant difference in statistical tool analysis. As a result, the effect of different levels of KD fertilizer employed in the study on Ipil-ipil growth is variable. Various levels of KD fertilizer aid in the Ipil-ability ipil's to maintain nutrients during the study.

## **GROWTH AND YIELD PERFORMANCE OF OKRA (*Abelmoschus esculentus*) USING DIFFERENT ORGANIC FERTILIZERS**

Author: Mailyln A. Sabanate

Year: 2022

Adviser: Alexander M. Campaner, Ph.D

The study was conducted covering the period September 20 to November 9, 2021 at San Isidro, Kiblawan, Davao del Sur to evaluate the growth and yield performance of okra using different organic fertilizers. The experiment was carried out in 400 sq. meters using Randomized Complete Block Design (RCBD). The treatments were as follows: T1- (commercial fertilizer), T2- (vermicast) T3- (cocopeat), T4- (chicken manure) and T5- (mudpress). The result of the study on growth and yield performance of okra revealed a significant differences of the following parameters such as plant height, stem diameter, volume of fruits, number of days to flowering and surface leaf area shows no significant difference on the parameters of germination rate and number of leaves. The results of T1 and T3, were consistently showing a pattern inferior to the data obtained in T2; T4 and T5. Hence the use of vermicast, mudpress and chicken manure could be used in okra production as organic fertilizer. The use of cocopeat depends on the maturity of the material as the substrate is acidic when immature and post no good affect to growth. Moreover, the use of commercial fertilizer in T1 as revealed in the results being inferior with any of the organic fertilizers introduced. The ROI of the five treatments using the volume of fruits harvested in 400 sq. meters' area presents a remarkably higher rate of 270.83% (T4); 235.10% (T5) and 32.22% (T2) compared to treatment 1 with 18.97% and T3 with 5.57% both lower than the existing bank rate of 24%. Capitalizing the results of the study, it is safe to recommend the use of any organic fertilizers tested in the study on okra production with careful assessment of the maturity of the compost when prepared and intention of use.

**THE EFFECTS OF FERMENTED GINGER JUICE FOR THE CONTROL OF COTTON BOLLWORM (*Helicoverpa armigera*) IN MUNG BEAN (*Vigna radiata*)**

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Author: Fatima Jean P. Sanoh

Year: 2022

Adviser: Eddie D. Batocoy, Ph.D.

This study was conducted to evaluate the growth and yield performance of Sweet potato (*Ipomoea batatas*) in response to different levels of Banana peel compost as organic fertilizer from January 2022 to March 2022 at Purok Tagolilong, Sulop, Davao del Sur. The experiment was laid out in Randomized Complete Block Design (RCBD). There were five (5) treatments and three (3) blocks; the following were Treatment 1 (control), Treatment 2 (20g of complete fertilizer), Treatment 3 (500g of banana peel compost), Treatment 4 (250g of banana peel compost +10g of complete 16 fertilizer), Treatment 5 (100g of banana peel compost + 15g of complete 16 fertilizer). Based on the results of the study it shows that there were no significance differences among all treatments means in terms of Vine Length (cm), Number of Nodes, Number of Vines, Leaf area (cm), Weight of Storage roots, Number of Storage roots, Yield (kg/ha) and Cost and Return Analysis.

## **HYDROPONICS PROPAGATION OF LETTUCE (*Lactuca sativa* L.) USING THE DIFFERENT LEVELS OF ORGANIC VERMI TEA**

Author: Cherry Mae M. Senente

Year: 2022

Adviser: Jade O. Caintic, MS

This study was conducted to determine Hydroponics Propagation of Lettuce (*Lactuca sativa* L.) Using the Different Levels of Organic Vermi Tea. This was conducted in Sitio Kitakal Malalag Cogon Malungon Sarangani Province from September 2021 to November 2021. The study was carried out using Randomized Completely Block Design with 4 treatments replicated three times. Treatments were as follows; T1- 10ml Organic Vermi Tea 10ml + 1ml Nutsol/L H<sub>2</sub>O, T2- 20ml Organic Vermi Tea + 1ml Nutsol/L H<sub>2</sub>O, T3- 30ml Organic Vermi Tea + 1ml Nutsol/L H<sub>2</sub>O, T4- Nutsol 2ml/L H<sub>2</sub>O. The Analysis of Variance method was used to determine the significant mean differences among treatments. The study revealed significant results on the volume of roots and weight per plant. However, the number of leaves and marketable yield (class A and class B) were found not significant. The cost and return analysis revealed that the highest ratio was observed in T4 (Nutsol 2ml/L H<sub>2</sub>O) at 1: 0.64, which signifies that in every 1 peso invested in the hydroponic lettuce production there are 64 centavos in return or has an ROI (Return on Investment) of 64%.

**CARCASS YIELD AND SENSORY EVALUATION OF RABBIT  
(*Oryctolagus cuniculus*) SUPPLEMENTED WITH SUPER  
NAPIER GRASS ON THE DIET**

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Author: Jeanneil C. Siarot

Year: 2022

Adviser: Noel E. Menor, MSc

Rabbits are multipurpose type of animal, able to utilize their skin as articles of clothing, extravagance things additionally the rabbit itself as a pet in any family. This study was conducted to evaluate the taste, aroma, juiciness, appearance and overall acceptability as well as the effect of Super Napier Grass on the carcass yield of the rabbit. A total 12 rabbits were used in the study randomly selected from the treatment of T1 – Control 100% Commercial feeds, T2 – 75% Commercial feeds + 25% Super Napier Grass, T3 – 50% Commercial feeds + 50% Super Napier Grass, and T4 – 25% Commercial feeds + 75% Super Napier Grass with a 10 tester/respondents. The study was conducted on November 26, 2021 at Brgy. Kapoc, Matanao, Davao del Sur. Rabbits are multipurpose type of animal, able to utilize their skin as articles of clothing, extravagance things additionally the rabbit itself as a pet in any family. This study was conducted to evaluate the taste, aroma, juiciness, appearance and overall acceptability as well as the effect of Super Napier Grass on the carcass yield of the rabbit. A total 12 rabbits were used in the study randomly selected from the treatment of T1 – Control 100% Commercial feeds, T2 – 75% Commercial feeds + 25% Super Napier Grass, T3 – 50% Commercial feeds + 50% Super Napier Grass, and T4 – 25% Commercial feeds + 75% Super Napier Grass with a 10 tester/respondents. The study was conducted on November 26, 2021 at Brgy. Kapoc, Matanao, Davao del Sur. Based on the result of the study in terms of Carcass yield and Sensory evaluation it is recommended that supplementing Super Napier Grass can improve the meat quality in terms of odor, juiciness, texture, appearance and Overall acceptability of the Rabbit. All data gathered of the carcass yield and sensory evaluations were organized, tabulated and analyzed statistically using ANOVA in a simple Complete Randomized Design (CRD).

**THE EFFECTS OF FERMENTED GINGER JUICE FOR THE CONTROL OF COTTON BOLLWORM (*Helicoverpa armigera*) IN MUNG BEAN (*Vigna radiate*)**

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Author: Cyndy A. Saladpon

Year: 2022

Adviser: Eddie D. Batocoy, Ph.D.

This study was conducted to evaluate the effects of fermented ginger juice for the control of cotton bollworm, determine the optimum rate of application and to evaluate the yield of mung bean applied with different levels of fermented ginger juice against cotton bollworm. This was conducted at Barangay San Miguel, Digos City from February to April 2022. The study was conducted on a Randomized Complete Block Design (RCBD), with 6 treatments replicated three times. The treatments were T1- Control, T2- 40 ml, T3- 60 ml, T4- 80 ml, T5- 100 ml of fermented ginger juice per liter of water and T6- 1.5 ml Cypermethrin. The parameters gathered were Leaf Injury Rating, Percent Infestation, Number of Eggs per plant, Number of Larvae per plant and the Yield from first to third harvest. Results of the study revealed highly significant in all parameters used and comparable to chemical insecticides. It is recommended that the use of 80 ml of fermented ginger juice per liter of water to control cotton bollworm in mung bean. Moreover, it was further recommended to test to other insect pests of various crops to validate its efficacy.

**OCCURRENCE OF FRUIT FLY (*BACTROCERA CUCURBITAE*) IN BITTER GOURD SPRAYED WITH ORGANIC BASED FORMULATIONS (OBF's)**

Author: Cherry Ann B. Veloria

Year: 2022

Adviser: Edralyn Catubay, MSc.

This study was conducted to evaluate the effect of OBF's to control fruit fly in bitter gourd. The study was conducted from November to February 2022 in Dalagbong, Bulacan, Malalag Davao del Sur. It was laid out in Randomized Complete Block Design (RCBD) with seven (7) treatments and three (3) replications. The treatments used were the following: T1- Kappaphycus Dripping (KD), T2- Fish Amino Acid (FAA), T3- Fermented Plant Juice (FPJ), T4- Oriental Herbal Nutrients (OHN), T5- Jadam, T6- Liquid Tricoderma (LT), and T7- Malathion (Synthetic Check). Statistically, the result revealed that there was no significant difference among all treatments on the occurrence of fruit fly in Bitter Gourd in terms of the number of days to first occurrence, percentage infestation, number of larvae per fruit, and weight of marketable and non-marketable fruit at harvest and average of yield (g). However, it was observed that ii the use of OBF lessen the infestation of the target pest and improve the yield production of the crop with an average yield ranging from 10.66 – 26.00g, 60.33 – 183.33g, and 137.33 – 293.00g from first, second and third harvest, respectively.

## **EFFICACY OF DIFFERENT LEVELS OF ORGANIC SUGARCANE WASTE ON THE GROWTH AND YIELD OF YOUNG CORN (*Zeamays*)**

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Author: Vonivie T. Sonsona

Year: 2022

Adviser: Jade O. Caintic, MS

The study was conducted to evaluate the growth and yield performance of young corn (*Zea mays*) in response to various levels of organic sugarcane waste as foliar fertilizer from November 2021 TO January 2022 at Tagolilong, Sulop Davao Del Sur. The experiment was carried out in a Randomized Complete Block Design (RCBD) with sixteen sample plants per treatment. There were four treatments and three blocks; the following treatments were: Treatment 1 (20g urea/L H<sub>2</sub>O), Treatment 2 (100ml molasses+ 20g urea/L H<sub>2</sub>O), Treatment 3 (200ml molasses/L H<sub>2</sub>O) and Treatment 4 (200ml of molasses+ 20g urea/L H<sub>2</sub>O). Based on the result of the study, the plant height at 15 days after planting, plant height after harvest, leaf area, weight of young corn per plot, number of days from planting to tasseling of corn, yield and dry weight of young corn are not significant. However, the difference between fresh weight and the dry weight of the young corn revealed a significant difference in Treatment 3 which means that plants using treatment 3 have higher biomass compared to other treatments.

## **GROWTH AND YIELD PERFORMANCE OF MARIGOLD (*Tagetes*) IN RESPONSE TO VARIOUS LEVELS OF FERMENTED FRUIT JUICE (FFJ)**

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Author: Wowie G. Talabucon

Year: 2022

Adviser: Mara Jean Marielle Calapardo, MSc

The study was conducted at Purok 3 Mangga, Balabag, Digos City, Province of Davao del Sur from August, 2021 to October, 2021. The study was conducted to evaluate the growth and yield performance of marigolds in response to various levels of fermented fruit juice (FFJ). The experiment was laid out in Randomized Complete Block Design (RCBD) with 6 experimental plants per treatment. The treatments were as follows: T1 (Control), T2 (Fermented fruit juice 20 ml / L of Water), T3 (Fermented fruit juice 30 ml / L of Water), and T4 (Fermented fruit juice 40 ml / L of Water). The parameters were as follows; plant height, plant width, stem diameters, number of leaves, number of days to flowering and number of flowers. Based on the statistical analysis used, results indicated that there was no significant effect found in the plant height, plant width, stem diameter, number of leaves, number of days to flower and number of flower, thus further study is recommended for a conclusive report.

**GROWTH AND YIELD OF JOB'S TEAR (*Coix lacryma-jobi*)  
USING DIFFERENT TYPES OF FERTILIZER UNDER MATTI,  
DIGOS CITY, DAVAO DEL SUR CLIMATIC  
CONDITIONS**

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Author: Larrah Jane B. Tintim

Year: 2022

Adviser: Noel E. Menor, MSc.

The study on the growth and yield of Job's tear (*Coix lacryma-jobi*) using different types of fertilizer under Matti, Digos City, Davao del Sur climatic condition was successfully conducted at the experimental area of Davao del Sur State College on November 08, 2021 and it was terminated on January 21, 2022. A Randomized Complete Block Design (RCBD) was used in the study with four treatments replicated three times. The treatments were: T1-control, T2 (0.25g urea/hill), T3 (0.25g complete/hill), T4 (0.25g vermicast/hill). No significant difference among treatment means was observed in terms of plant height, leaf area, number of tillers, fresh and dry weight, however, on the % dry matter (DM) of Job's tears revealed that there was a significant difference among treatment means. And it was indicated that treatment 2 gave the highest range and significantly affected by the application of 0.25g urea/hill. Based on the result of the study, 0.25g of urea per hill will give a highest range and improve the % dry matter (DM) of Job's tear (*Coix lacryma-jobi*).

Keywords: *growth, yield, Job's tears*

**RESISTANCE OF SEVEN VARIETIES OF STRING BEANS TO  
APHIDS (*Aphis fabae*) IN KIBLAWAN, DAVAO DEL SUR**

Author: Jun Jun S. Tomarong

Year: 2022

Adviser: Edralyn Catubay, MSc

The study was conducted at Kiblawan, Davao Del Sur, from January to March 2022. This study was limited only to screen resistance of seven (7) varieties of string beans against aphids specifically to determine the population and percentage infestation of aphids on the seven (7) varieties of string beans. Results showed that the native variety of string beans afforded the highest mean population and percentage infestation from first to fourth which was further related as moderately susceptible against the target insect pest. Highly significant difference was observed on population percentage of aphids to string beans in first to fourth harvest. No significant difference was observed on the average yield of the seven (7) varieties of string beans with means ranging from 226.67g and 383.3 g.

# **GROWTH AND YIELD OF GREEN CHILI PEPPER (*Capsicum annuum*) APPLIED WITH DIFFERENT LEVELS OF VERMI COMPOST**

Author: Maribel C. Vale

Year: 2022

Adviser: Rogelio R. Tanduyan, MS.

The study was conducted to determine the growth and yield performance of green chili pepper as applied with different levels of vermi compost at Purok 2 Poblacion Sulop, Davao del sur from September to December 2021. This study was designed in a complete randomized design (CRD) with five treatments such as; T1 – Control, T2 – 25grms Organic fertilizer (Vermi Compost), T3 – 50grms Organic fertilizer (Vermi Compost), T4 – 75grms Organic fertilizer (Vermi Compost), T5 - 100grms Organic fertilizer (Vermi Compost). All treatments replicated three (3) times. The parameters analyzed in the study were Plant height, Number of days to flowering, Number of days to harvest and Total of yield (Kg)/Pot. Based on the statistical analysis the growth and yield of green chili pepper as applied with different levels of vermi compost was proved as an effective way in alternative farming. The result of this study extends knowledge to other researchers on how to manage using the different levels of vermi compost as Organic Fertilizers and to approach the farmers about the effective results for applying the different levels of vermi compost as fertilizers in the green chili pepper production. The researcher highly recommends to the farmers, to adopt this organic fertilizer such as vermi compost to produce green chili pepper. Applied vermi compost fertilizers by BASAL procedure before transplanting for fertigation techniques. Including applied the different levels of vermi compost per plant. Using with different levels by grams of vermi compost. T1-control, T2-25gram of vermi compost, T3-50grams of vermi compost, T4-75grams of vermi compost, T5-100grams of vermi compost.

**EFFICACY EVALUATION OF DIFFERENT RATES OF PANYAWAN/MAKABUHAY SOLUTION FOR THE CONTROL OF BROAD MITES IN BELL PEPPER (*Capsicum annuum*)**

Author: Banisa, R. Zapanta

Year: 2022

Adviser: Eddie D. Batoctoy, Ph.D.

The study was conducted from July 2021 to December 2021 at Prk. 4-Lambada, San Roque, Digos City, Davao del Sur, to evaluate the effects of different rates of panyawan/makabuhay extracts for the control of broad mites in bell pepper and to determine the yield of bell pepper applied with different rates of panyawan/ makabuhay extracts. The researcher employed a Randomized Complete Block Design (RCBD) with 6 treatments and replicated 3 times. The different treatments were as follows: T1-SDW (Untreated Control), T2-15 ml. Makabuhay solution per liter of water, T3-30 ml. Makabuhay solution per liter of water, T4-45 ml. Makabuhay solution per liter of water, T5-60 ml. Makabuhay solution per liter of water, and T6-1.5 ml. Cypermethrin 5EC per liter of water. Results of the study showed that the highest reduction of broad mites was from T6, a chemical check, while T1, the untreated control, had no reduction of broad mites. On the used on Makabuhay Solution, T5 with the highest rate of 60 ml. Makabuhay solution had the highest reduction of broad mites and T2 with the lowest rate of 15 ml. Makabuhay solution had the least reduction of broad mites. Furthermore, results of Statistical Analysis revealed that there were no significant difference on the number of days to first occurrence of broad mites, percentage of broad mites infestation and number of broad mites per plant before treatment applications. However, the Makabuhay solution responded significantly better after 5 days of treatment application and on the average yield per plot of collected fruits. It is recommended in the study that the use of 60 ml. Makabuhay solution is effective in controlling broad mites in bell pepper production. It is also recommended that a similar study be conducted on other months of the year to validate the pest incidence and the effects of the Makabuhay extracts. The same study also will be conducted in other locations to assess its efficacy.

**BACHELOR OF SCIENCE IN  
AGROFORESTRY**

**EFFECTS OF COASTAL TEMPERATURE ON MANGROVE SPECIES DISTRIBUTION AND COMPOSITION IN FRAGMENTED FOREST OF BATO, STA. CRUZ DAVAO DEL SUR**

Author: Ed Dwayne Balir C. Alcover

Year: 2022

Adviser: Ralf O. Melencion M.S

This study was entitled "Effects of Coastal Temperature on Mangrove Species Distribution and Composition in Fragmented Forest of Bato, Sta. Cruz Davao del Sur". It was conducted to determine the effects of temperature to the species composition and species diversity. Nested plot design of sampling was used in the study where in 20m x 20m main plot was established for the canopy layer. Subplot was established with the dimension of 10m x 10m for the sapling shrub layer and another subplot for fern-herb layer with the dimension of 5m x 5m.

Based on the data gathered, there were four (4) species recorded with the total number of 418 individuals within the sample plots. Among the four species, *Sonneratia alba* recorded as the dominant species that recorded 185 individual and the least was the *Avicenna marina* with 3 species individual. The dominant number of *A. marina* species contributed to the species community structure as the highest importance value of 163.17. As mentioned by Numbere & Camilo, 2017 that  $>35^{\circ}$  is the temperature limit started to affect the root structure, seedling establishment, and photosynthesis. The result implies that the recorded highest temperature of  $33.5^{\circ}$  of the mangrove could not affect the distribution and composition of *S. alba*. However, some other species that had lesser importance value might have not affected by temperature but in some other environmental factors. Further, the effect of present species composition and distribution of Bato, Sta., Cruz, Davao del Sur recorded the species richness of 1.05 or categorize as very low and its species evenness was categorized as high with the value of 0.71.

## **AGRONOMIC CHARACTERISTIC ENHANCEMENT OF ARABICA COFFEE AT JUVENILE STAGE UNDER DIFFERENT FERTILIZER GRADIENT**

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Author: Jewey E. Hetotoa  
Adviser: Jovie D. Cañada

Year: 2022

The study was conducted to determine the agronomic characteristic enhancement of Arabica coffee in juvenile stage under different fertilizer gradient. This was conducted in the second semester of school year 2021-2022. A Randomized Complete Block Design (RCBD) with three (3) treatments replicated three (3) times. The treatments were T1- control, T2- organic fertilizer and T3- inorganic fertilizer. The parameters used for the valuation on the growth of juvenile coffee were the following: plant height increment; days to new shoot increment; stem diameter increment; chlorophyll count; and number of lateral branches. Data disclosed that there were no significant difference on the plant height increment, stem diameter increment, chlorophyll count, and number of lateral branch.

# **WATER AND SOIL SALINITY IN THE DIVERSITY OF MANGROVE FOREST IN LAWIS, BATO, STA. CRUZ, DAVAO DEL SUR**

Author: Joeselle B. Marimon

Year: 2022

Adviser: Ralf O. Melencion

This study was entitled "Water and Soil Salinity in the Diversity of Mangrove Forest in Lawis, Bato, Sta. Cruz, Davao del Sur". It was conducted to determine the effects of salinity levels on the species composition and species diversity. Belt transect methods of sampling were used in the study wherein a 20mx20m main plot was established for the canopy layer. A subplot was established with the dimension of 10mx10m for the sapling shrub layer and another subplot with the dimension of 5mx5m for the fern herb layer. Based on the data being gathered, there were (5) species recorded with a total number of 1,340 individuals within the sample plots. Among the five species, *Avicennia marina* was recorded as the dominant species recording 608 individual trees, and the least was the *Nypa fruticans* with 7 species individual. The dominance of *A. marina* species contributed to the species community structure as the highest importance value index of 125.3353. The mangrove forest recorded the highest soil salinity of 35 ppt, ii while water salinity recorded the highest of 13.26 ppt as the highest across the fragmented area. This implied that some mangroves can able to grow in soils that reach salinities up to 75 parts per thousand (ppt), about two times the salinity of ocean water, and the effects of salinity on mangrove species are capable of growing under extreme environmental conditions such as medium or high salinity levels. Further, the effect of present species composition and distribution of Lawis, Bato, Sta. Cruz, Davao del Sur recorded the species richness of 1.175 or categorize as very low and its specie evenness was categorized as high with 0.6408.

# **ANTHURIUM SEEDLINGS GROWTH RAISED UNDER TRICHODERMA MIXED GROWING MEDIA APPLIED WITH ENHANCED SEAWEEDBIOSTIMULANT UNDER LOWLAND CONDITION**

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Author: Jeah E. Peliño

Year: 2022

Adviser: Jovie D. Cañada, Ms

This study evaluated the potential of Trichoderma and Seaweed as Biostimulant on Anthurium in terms of Stem Growth, Stem Diameter, Leaf Length, Leaf Width. A Randomized Complete Block Design (RCBD) was used in this study in a single factor with 4 treatments replicated 3 times with 5 samples per treatment. The treatment were as follows: T1-Control (No Trichoderma + No Biostimulant) T2- 100% RR-Biostimulant (20ml/L H<sub>2</sub>O) T3-100% RR-Trichoderma (20ml/L H<sub>2</sub>O) T4- 50% RR Trichoderma + 50% RR Biostimulant (10 ml Trichoderma + 10ml Biostimulant/ L H<sub>2</sub>O) Based on the results, T2- 100% RR-Biostimulant had a highest mean in stem growth and T4(50%RR-Trichoderma + 50%RR-Biostimulant) had a lowest mean, in the leaf length, T3-100% RR-Trichoderma had a highest mean and the T4(50% RR-Trichoderma + 50% RR-Biostimulant) had a lowest mean. In terms of the leaf width, T1-Control (No Trichoderma + No Biostimulant) had a highest mean and the lowest mean is T3-100% RRTrichoderma. In stem diameter, T1-Control (No Trichoderma + No Biostimulant) had a highest mean and T2- 100% RR-Biostimulant had a lowest mean and there is no significant difference compared to other treatments.

## **TRENDS AND FEATURES OF GROWING VEGETABLES IN SLOPING AREAS IN KAPATAGAN, DIGOS CITY**

Author: April Joy S. Talaboc.

Year: 2022

Adviser: Rogelio R. Tanduyan, Ms

The study of trends and features of growing vegetables in sloping areas in Kapatagan, Digos City was conducted last February-March 2022.

Random sampling was used to identify the respondents, there were 35 respondents as a sample of the study. Prepared questionnaires had been used to interview the respondents to obtain the desired data according to the study. Based on the result, 41- 50 (42%) years old have the capability to manage their farms and most of the farmers are male while 90% of them are married, based on the survey most of them have did not complete their secondary education attainment has 37% of the result.

Based on the farmer's capability and experience in farming, 51% worked on-farm for more than 16 years. This means that majority of the respondents has a long-term experience and had a capability in farming. While 17% of the farmers gain their additional source of income from member working off-farm. During the actual interview it was derived that the community of Barangay Kapatagan is using organic fertilizers to maintain the nutrients of the soil.

Keywords; *trends, features, slopes*

**BACHELOR OF SCIENCE IN  
AGRICULTURE MAJOR IN  
HORTICULTURE**

**EFFECTS OF FERMENTED PLANT JUICE (FPJ) ON THE GROWTH AND YIELD PERFORMANCE OF TOMATO (*Solanum lycopersicum*) UNDER CABLIGAN, MATANAO, DAVAO DEL SUR CONDITION**

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Author: Jessica C. Baron

Year: 2022

Adviser: Mara Jean Marielle Calapardo, Msc.

The study was conducted to evaluate the effects of Fermented Plant Juice (FPJ) in response to the growth and yield performance of tomato (*Solanum lycopersicum*) at Brgy. Cabligan, Matanao, Davao del Sur, from August to November 2021. The study was laid out in a Randomized Complete Block Design (RCBD) with four treatments and three blocks having six sample plants per treatment. The treatments were as follows: Treatment 1 (Control), Treatment 2 (15 ml of FPJ/L of water), Treatment 3 (30 ml of FPJ/L of water), Treatment 4 (60 ml of FPJ/L of water).

Results of the study revealed that treatment 3 (30 ml of FPJ/L of water) showed significant effects on the number of fruits produced per plant in the 3rd week and average yield at the 1st harvest. Therefore, for the containerized growing of tomatoes, application of fermented plant juice at 30 mL/L of water as bio-organic nutrients at the flowering stage is recommended as it helps increase the number of fruits and yield produced but not on the growth performance of tomato plants.

## **GROWTH AND YIELD ASSESSMENT OF OKRA (*Abelmoschus esculentus*) USING DIFFERENT LEVELS OF VERMI TEA AS FOLIAR FERTILIZER**

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Author: Sheryn L. Belloso

Year: 2022

Adviser: Jade O. Cantic, Ms

This study was conducted to determine the growth and yield assessment of okra using different level of vermi tea as foliar fertilizer. It was conducted at Ibo, Malalag, Davao del Sur last September 1 to November 12, 2021. The study was laid out in a Randomized Complete Block Design (RCBD) with four (4) treatments and replicated three (3) times. Treatments were as follows: T1- Control (19-19-19 Foliar Fertilizer), T2- (20 ml VCT/L of water), T3- (30 ml VCT/L of water), T4- (40 ml VCT/L of water). Base on the study it shows that there result revealed no significant difference among treatments in terms of the width of leaves, length of leaves, Plant height (cm), number of leaves, stem diameter (cm), Number of days from transplanting to flowering, Yield per plot, and Marketable 1 ii quality (kg). However, there were significant differences between treatments in terms of the number of days from transplanting to harvest.

## **GROWTH PERFORMANCE OF MARIGOLD (*Tagetes*) IN RESPONSE TO VARIOUS LEVELS OF VERMICOMPOST**

Author: Nikki L. Bunal

Year: 2022

Adviser: Mara Jean Marielle Calapardo, Msc.

The study was conducted at Purok 6, Manggahan Matti, Digos City, Province of Davao del Sur from August 2021 to October, 2021. The study was conducted to evaluate the growth performance of marigolds in response to different levels of vermicompost. The experiment was laid out in Randomized Complete Block Design (RCBD) with 6 experimental plants per treatment. The treatments were as follows: T1 (Control), T2 (Garden Soil 50% + 50% Vermicast), T3 (Garden Soil 25% + 75% Vermicast), and T4 (Vermicast 100%). Analysis of Variance (ANOVA) was used to determine the significance of treatments, and differences among treatments by the Least Significant Difference (LSD) test. Marigold plants grown in 100% vermicast significantly influenced the average plant height (19.44 cm) at 15 DAT, average stem diameter at 30 DAT (0.07 mm), and a highly significant effect at average plant width ii (44.72 cm) at 60 DAT. However, more or less comparable results were observed in other treatments thus, a range of 75% to 100% vermicast as growing media consistently obtained the highest measurements of other parameters evaluated. Therefore; for the containerized growing of marigold plants, garden soil mixed with 75% vermicast or 100% vermicast is recommended for rapid growth and high-quality flowers.

# **EFFICACY EVALUATION OF ORGANIC BANANA STALK DRIPPINGS ON THE PRODUCTIVITY OF CUCUMBER (*Cucumis sativus*)**

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Author: Nova Mae V. Cabanban  
Adviser: Jade O. Caintic, MS.

Year: 2022

This study was conducted to determine the efficacy of organic banana stalk drippings on the productivity of cucumber. It was conducted at Purok 2, Tamlangon, Matanao, Davao del Sur last April to May 31, 2022. The study was laid out in a Randomized Block Design (RCBD) with (4) treatments, (3) replications, and (3) sample per plot with a total production of 36 plants. The treatments were as follows: T1-Control (no BSD), T2- 10ml BSD/L of water, T3-20ml BSD/L of water and T4-40ml BSD/L of water. Data gathered were Number of days first flowering, weight of fruit/plant (g) in 6 harvest, marketable quality (kg) and yield per hectare 15,000 of plant /has. (kg). Based on the result of the study it shows that there is no significant differences among all treatment means in terms of Weight of fruit/plant (g) in 6 harvest, Marketable Quality (kg) and Yield per plant ii (kg). Other treatment resulted significant among treatments in terms of Number of days to Flowering. This finding syndicates application of the T3-20ml BSD/L of water shorten the number of days from transplanting to first flowering in cucumber.

## **ROOTING PERFORMANCE OF ROSE (*Rosa hybrid*) USING NATURAL ROOT HORMONE SOURCES**

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Author: Daisy An L. Cawag

Year: 2022

Adviser: Graciela L. Caballero. Ph.D.

This study evaluated the potential of various natural rooting hormones sources for Rose cuttings with the following parameters: days to root emergence, length of roots, and number of roots per cutting. The design used was Randomized Complete Block Design (RCBD) in a factorial arrangement with 5 treatments replicated 4 times. The treatments were as follows: T1 Control (untreated), T2 15ml aloe vera +7 liters of water, T3 15ml of potato +7 liters of water, T4 10ml Molasses +7 liters of water and T5 10ml of synthetic root hormone (ANAA) +7 liters of water. Results in the study revealed that rose cuttings soaked in 10ml molasses/ 7L water developed length of roots and showed comparable results in the number of roots to other treatments. Rose soaked in T2 (15ml aloe vera gel/7L water) developed greater number of roots. Therefore, T4 and T2 are recommended to other plants producing roots.

**GERMINATION PERFORMANCE OF POTATO (*Solanum tuberosum*) APPLIED WITH DIFFERENT LEVELS OF ENHANCED SEAWEED BIO-STIMULANT**

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Author: Veronica P. Crodua

Year: 2022

Adviser: Graciela L. Caballero. Ph.D.

They evaluated the Germination performance of Potato (*Solanum tuberosum*) Applied with Different Levels of Enhanced Seaweed Bio stimulant. The study was laid out in a Randomized Complete Block Design (RCBD) with six treatments and replicated four (4) times with six samples per treatment. The treatments were as follows: T1 (Control); T2 (Water); T3 (5ml Enhanced Seaweed Bio-stimulant); T4 (10ml Enhanced Seaweed Bio-stimulant); T5 (15ml Enhanced Seaweed Bio-stimulant); and T6 (16ml Enhanced Seaweed Bio-stimulant). Overall results showed no significant differences among treatments on the gathered parameters on days to shoot emergence, number of shoots germinated per tuber, disease incidence of potato tuber and percentage of tuber set not germinated.

## **GROWTH AND POSTHARVEST LIFE OF LETTUCE (*Lactuca sativa*) APPLIED WITH DIFFERENT LEVEL OF SEAWEED BIOSTIMULANT**

Author: Joshua C. Facturan

Year: 2022

Adviser: Graciela L. Caballero. Ph.D.

The aim of the study was to determine the Growth and Postharvest Life of Lettuce (*Lactuca sativa*) applied with different level of seaweed bio stimulant. A Randomized Complete Block Design (RCBD) was used with 6 treatments replicated 3 times at 10 samples per treatment, per replication. The treatments were as follows: T1 – Control (4.5g Urea + 27g superphosphate); T2 – Control (0-0-0); T3 – (4.5g Urea + 27g superphosphate) + 5ml RR Bio stimulant/li of water; T4 – (4.5 grams Urea + 27 grams superphosphate) + 10ml RR Bio stimulant/li of water; T5 – (4.5g Urea + 27g superphosphate) + 15ml RR Bio stimulant/li of water; and T6 – (4.5g Urea + 27g superphosphate) + 20ml RR Bio stimulant/li of water.

Results revealed significant differences among measured parameters on plant height, leaf length, leaf breadth and number of ii leaves with control. Lettuce applied with 5ml of Seaweed Bio stimulant had the tallest plants, most number of leaves, longest leaf length, widest leaf breadth and highest mean yield at 20.83 cm, 29.13 pcs, 19.37 cm, 16.17 cm and 188.8 grams/plot.

All parameters showed significant effect except root length, water content, weight loss, color index, shelf life and disease.

The combination of soil analysis and seaweed bio stimulant as foliar application was a good practice to produce good quality lettuce plants.

## **MACROSOMATIC PROPAGATION OF RAMBUTAN (*Nephelium lappaceum*) USING DIFFERENT COMBINATION OF NATURAL HORMONES**

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Author: Jessa Mae B. Lopez

Year: 2022

Adviser: Jade O. Caintic, MSc

The study was conducted to determine the macro somatic spread of rambutan using different combinations of natural hormones. The study includes six (6) treatments repeated three (3) times and the experimental design used in this study was the randomized control block design (RCBD) consisting of 18 experimental materials tested and the significant difference was analyzed at the using an analysis of variance (ANOVA). It was conducted at Clonal, Davao del Sur State College, Matti, Digos City, Davao del Sur. Cuttings were taken from mature rambutan plants in the early morning, avoided desiccation, cut into 4-6 nodes and kept in an open nursery under intermittent fog and sand and medium river soil, bagged and placed in bed or rooting chamber. The treatments I used are different combinations of natural hormones like (T1- T2 control- 15ml honey + 20g ii cinnamon powder T3- 40g cinnamon powder + 20ml aloe vera T4- 20 ml honey + 30 ml aloe vera T5- 40 ml aloe vera + 20 ml apple cider vinegar T6- 30 ml honey + 20 ml apple cider vinegar). 3 repetitions were made with 8 cuttings for each treatment (24 cuttings), making a total of 144 cuttings in 56 days.

**EFFECTS OF FERMENTED PLANT JUICE ON THE GROWTH AND YIELD PERFORMANCE OF MUNG BEAN (*Vigna radiata*) UNDER BOLTON MALALAG, DAVAO DEL SUR CONDITION**

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Author: Khey S. Montañez

Year: 2022

Adviser: Mara Jean Marielle Calapardo, MSc.

The study was conducted to evaluate the growth and yield performance of Mung bean (*Vigna radiata*) in response to various levels of Fermented Plant Juice (FPJ) as foliar fertilizer from August 2021 to November 2021 at Bolton Malalag, Davao Del Sur. The experiment was carried out in a Randomized Complete Block Design (RCBD) with six sample plants per treatment. There were 5 treatments and 4 blocks; the following were Treatment 1 (control), Treatment 2 (15 ml of FPJ/L of water), Treatment 3 (30 ml of FPJ/L of water), treatment 4 (60 ml of FPJ/L of water), treatment 5 (90 ml of FPJ/L. of water). Mung bean plants applied with 15 mL FPJ/L of water significantly influenced all parameters evaluated. The bio-organic fertilizer induced the development of the tallest plants, the greatest number of leaves, stem diameter, plant width, and yield.

## **EFFICACY OF ORGANIC BANANA STALK DRIPPINGS ON THE PRODUCTIVITY OF EGGPLANT (*Solanum melongena*)**

Author: Rosemarie Joy T. Prada

Year: 2022

Adviser: Jade O. Caintic, MSc

This study was conducted to determine the efficacy of organic banana stalk drippings on the productivity of eggplant. It was conducted at Purok 4, Malalag Cogon, Malungon, Sarangani Province last July 30 to December 18, 2021. The study was laid out in a Randomized Complete Block Design (RCBD) with (4) treatments, (3) replications, and (5) sample per plots with a total production of 60 plants. The treatments were as follows: T1-Control (20ml KD/L), T2-20ml KD+20ml BSD/L, T3-20ml BSD/L and T4-40ml BSD/L of water. Based on the result of the study it shows that there are no significance differences among all treatment means in terms of Number of Leaves, Plant Height (cm), Number of days to Flowering, Number of fruits per Plant, Length of Fruits (cm), Diameter of Fruits (cm), Marketable Quality (kg) and Yield per plant (kg). The researcher recommends banana stalk drippings (BSD) at 40ml/L of water since it shows highest mean in terms of the yield compared to other treatments. Further study on the use of BSD on other crops to confirm the effectiveness of BSD.

# **GROWTH AND YIELD PERFORMANCE OF BELL PEPPER (*Capsicum annuum*) IN RESPONSE TO DIFFERENT SOIL AMENDMENTS**

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Author: Meryll S. Torres

Year: 2022

Adviser: Mara Jean Marielle Calapardo, MSc.

The study was conducted to determine the growth and yield performance of bell pepper (*Capsicum annuum*) in response to different soil amendments were conducted from September to December 2021 in Km.69, Brgy. Sinawilan Matanao, Davao del Sur. A Randomized Complete Block Design (RCBD) with four treatments and three blocks having six sample plants per treatment. The treatments were as follows: Treatment 1 (Control), Treatment 2 (Garden Soil 50% + Vermicast 25% + Carbonized rice hull 25%), Treatment 3 (Garden Soil 50% + Carbonized rice hull 50%), Treatment 4 (Garden Soil 25% + Vermicast 25% + Carbonized rice hull 50%). Analysis of Variance (ANOVA) was used to determine the significance of treatments, and differences among treatments by the Least Significant Difference (LSD) test. ii Results of the study revealed that treatment 2 (Garden Soil 50% + Vermicast 25% + Carbonized rice hull 25%) showed significant effects in terms of number of leaves, plant width, stem diameter, days to first flowering, number of fruits, and yield. Generally, the findings of this study lead to some proposition in using (Garden Soil 50% + Vermicast 25% + Carbonized rice hull 25%) as a soil amendment in planting bell pepper.

## **GROWTH AND YIELD OF *Lactuca sativa* AT DIFFERENT LEVELS OF ENHANCED SEAWEED BIO-STIMULANT UNDER HYDROPONICS SYSTEM**

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Author: Jendel Grace P. Vallecera

Year: 2022

Adviser: Graciela L. Caballero, Ph.D.

The study was laid out in a Randomized Complete Block Design (RCBD) with six treatments, replicated four (4) and with six samples per treatment. The treatments were as follows: T1 (Control); T2 (20ml KD Foliar RR); T3 (4ml SNAP + 15ml Enhanced Seaweed Bio-stimulant); T4 (8ml SNAP + 10ml Enhanced Seaweed Bio-stimulant); T5 (12ml SNAP + 5ml Enhanced Seaweed Bio-stimulant); and T6 (16ml SNAP Solution). Result of the study revealed that 8ml of SNAP+10ml Enhanced Seaweed Bio-stimulant showed highly significant effects in terms of leaf length, head size formation and weight at harvest. Therefore, for the growing of lettuce, the application of 8ml of SNAP+10ml Enhanced Seaweed Bio-stimulant as organic nutrient at the flowering stage is recommended as it help to increase the yield produced but not on the growth performance of lettuce plants.

**GROWTH AND YIELD PERFORMANCE OF BELL PEPPER (*Capsicum annuum*) IN RESPONSE TO VARIOUS LEVELS OF SEAWEED EXTRACT TEA UNDER ALTAVISTA, BANSALAN, DAVAO DEL SUR**

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Author: Honey Jane P. Villarin

Year: 2022

Adviser: Mara Jean Marielle Calapardo, MSc.

The study was conducted to determine the growth and yield performance of bell pepper (*Capsicum annuum*) in response to various levels of seaweed extract tea. It was conducted from September to December 2021 in Brgy. Altavista, Bansalan Davao del Sur. A Randomized Complete Block Design (RCBD) with 4 treatments and three blocks having six (6) samples per treatment. The treatments were as follows: Treatment 1 (Control), Treatment 2 (15 mL seaweed extract tea/L of water), Treatment 3 (20 mL seaweed extract tea/L of water), and Treatment 4 (25 mL seaweed extract tea/L of water). Analysis of Variance (ANOVA) was used to determine the significance of treatments, and differences among treatments by the Least Significant Difference (LSD) test.

The result of the study revealed that treatment 4 (25 mL seaweed extract tea/L of water) showed significant effects in terms of plant height, number of leaves, plant width, days to first flowering, number of fruits, and yield. Therefore, this study leads to some proposition in using 25 mL of sea weed extract tea per liter of water as bio stimulant

**BACHELOR OF SCIENCE IN  
DEVELOPMENT  
COMMUNICATION**

## **FARMERS OF BANSALAN SCHOOL ON THE AIR PROGRAM**

Author: Cyril A. Abuloc

Year: 2022

Adviser: Rolando A. Licudine

This research delved into the case of the School on the air (SOA) program of the Department of Agriculture broadcasted in Bansalan Davao del Sur. Such programs have been released in many parts of Africa, and South Asia, and have been studied as well. The SOA has been broadcasted in many parts of the Philippines as well, but none have studied the after effect of the program in the municipality of Bansalan. Through semi-structured questions in an in-depth interview, the researcher have been enlightened by the opinions of the selected participants, stating that the SOA program have more of less helped improved their lives in general. Certain aspects such as, economic, traditional practices and current knowledge have been altered and changed for the better. It has been found out that many of the participants experienced an increase in their agricultural profits and although it may not be very conspicuous due to the world market's inflation, there are still visible changes. Participants have also conveyed their desire for more of such programs to be released by the government and NGOs alike, as it had been nothing but helpful.

# **SOCIO-DEMOGRAPHIC CHARACTERISTICS AND FAMILY COMMUNICATION PATTERNS AMONG FIRST-YEAR DEVELOPMENT COMMUNICATION STUDENTS IN DAVAO DEL SUR STATE COLLEGE**

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Author: Samson King P. Andales

Year: 2022

Adviser: Cherry B. Corpin

This study attempted to determine the significant difference between socio-demographic characteristics and the level of family communication patterns in terms of conformity orientation and conversation orientation among the first-year Development Communication students at Davao del Sur State College. Quantitative research was conducted using survey research with data through Google form collection from 68 respondents. The variables in the study include the independent variables of respondents' profile background along with an intervening variable: family communication patterns (conversation and conformity orientations). The statistical tool used were mean, variance of ANOVA, frequency count, and percentage to analyze the data generated. All of the null hypotheses were tested at a  $p \leq 0.5$  level of significance.

The results revealed that the respondent's socio-demographic characteristics have no significant difference in the family communication patterns. Therefore, socio-demographic profile characteristics do not matter in family communication patterns in both conversation and conformity orientations. Additionally, the level of family communication patterns from the respondents were both high in conversation and conformity orientations. Therefore, these results are inlined with the "consensual families" type of family communication pattern. This is a combination of open communication, uncontrolled, and a preference for the traditional family hierarchy. Respondents are more in discussions about the various amount of topics in which they are encouraged to voice their opinion but still want to maintain the hierarchy.

*Keywords: Family Communication Patterns, Consensual Families, Socio- Demographic Profile Characteristics*

## **THE USE OF RADIO FOR AGRICULTURAL EXTENSION SERVICES AMONG RICE FARMERS IN BARANGAY TUBOD, BANSALAN DAVAO DEL SUR**

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Author: Jaika Banawa

Year: 2022

Adviser: Rae Katherine D. Adona, MDC

This quantitative study was designed and conducted at Barangay Tubod, Bansalan Davao del Sur and aimed to explore the use of radio for agricultural extension services among rice farmers. 86 rice farmers from Tubod, Bansalan participated as respondents of the study. After exploring the farmers perceptions, extent of using radio and also their problems in using questionnaire in receiving agricultural extension services, the results indicate that 69.3% of the respondents owns a radio. The majority strongly manifested the use of radio in receiving agricultural information and the need to hear more of this agricultural program aired in this traditional media. Further results revealed that most of them strongly affirmed the importance of having radio in their homes. Further, the research revealed that rice farmers felt discomfort in going to other people's house just to listen to radio in order to access agricultural extension services Furthermore, radio remains an important aspect of development and farming systems; and that agricultural education intervention programs that are broadcast over the radio are still considered effective.

*Keywords: the use of radio, agricultural communication, agricultural extension services*

## **THE EFFECT OF MEDIA IN THE PROLIFERATION OF INVESTMENT SCHEMES**

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Author: Honeylen M. Cahulogan

Year: 2022

Adviser: Rolando A. Licudine

A study was conducted at the two barangays of Sulop, Davao del Sur which is Mckinley, and Tala-o with the KAPA members as respondents to know the Effect of Media in the Proliferation of Investment Schemes in terms of convincing. As a way of gathering data, I used the questionnaire for a survey to get their socio-demographic profile and how they joined the said investment or what media platform was used for convincing. Using the percentage and mean, the null hypothesis was answered. The study shows that a media platform has no effect in the proliferation of investment schemes.

**INFORMATION SEEKING BEHAVIOR AND ADOPTION OF ORGANIC RICE PRODUCTION OF FARMERS IN BARANGAY LOWER MALIANO, PADADA, DAVAO DEL SUR**

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Author: Kristine Mae D. Herana

Year: 2022

Adviser: Rae Katherine D. Adona, MDC

The study was conducted at Barangay Lower Malinao, Padada Davao del Sur, specifically to learn how farmers' seek information on organic rice farming. It is essential to inform farmers about the existence of many sources of information on various elements of organic rice farming in order to enrich their information seeking behaviour. One hundred twenty-two (122) respondents answered the survey questionnaire through face-to-face interaction observing health protocols. The study revealed that the majority of the respondents had a high extent of information seeking behavior. Moreover, results showed that majority of the respondents used radio and television as their source of information. The correlation analysis indicated that the prescribed practices of organic rice farming showed significant and positive relationship with the farmer-respondents' information seeking behavior.

Keywords: *information seeking behavior, organic rice farming*

## **TRAINING MEDIUM PREFERENCES OF SELECTED COFFEE FARMERS IN BANSALAN, DAVAO DEL SUR**

Author: Rhona May M. Hilis

Year: 2022

Adviser: Rolando Licudine

The study aimed to determine the preferences on medium and format of trainings of selected coffee farmers in Bansalan, Davao del Sur which focused only on the documentation of the socio-demographic and the preferred medium of training which was conducted last May 2022. Fifty respondents were the sources of data which was gathered using an adapted validated survey questionnaire. Data were analyzed using frequency, mean, percentage and Pearson-r for correlation of variables. Only 42% of coffee farmers were aged below 30, while some are 30-39 years old (34%), majority of them are female, belongs to Klagan tribe and are mostly married. Some of the respondents are elementary level (34%), and high school level (30%). Most preferred television and radio, while some preferred mobile phones (54%). Some preferred print such Brochure, booklets, leaflets and manuals. Furthermore, some preferred as video cd's, and nonpreferred computer and internet. The respondents preferred lecture and discussion formats for trainings via television, VCD and for trainings to be conducted over the radio, while for Printed materials such as Brochure, booklets, leaflets and manuals, all of them preferred self-explanatory and highly-technical format. It has been observed also that the choice for mobile phone and print as medium of trainings, has low positive correlation to respondents' ethnicity while there is a moderate positive correlation between the preference for demonstration format in television and VCDs to the educational attainment of the respondents.

**ACCESS TO COMMUNICATION PLATFORMS ON LIVELIHOOD PROGRAMS OF THE GOVERNMENT DURING THE COVID-19 PANDEMIC: THE CASE OF SMALLHOLDER FARMERS IN BARANGAY CORONON, STA. CRUZ DAVAO DEL SUR**

Author: Carla Janna B. Octora

Year: 2022

Adviser: Rolando Licudine

Due to new restricted protocols, smallholder farmers had limited access to communication platforms on livelihood programs from the government. This qualitative case study explored the experiences of the participants on how to gain access to communication platforms that gives information about livelihood programs from the government during the Covid-19 pandemic. Ten (10) smallholder farmers were purposively chosen from barangay Coronon, Sta. Cruz Davao del Sur. In-depth Interviews (IDI) or Key Informant Interview (KII) were used to gather credible information. The findings of the study revealed that smallholder farmers were economically affected because of the pandemic. They experienced a decrease in the number of consumers purchasing their products, as well as food scarcity caused by lack of income, difficulty in finding job, a lack of financial assistance, limited planting materials, fertilizers, seedlings, and delayed processing of assistance. Furthermore, the results of the study also revealed that effectiveness of communication platforms of the government on the livelihood programs for barangay Coronon smallholder farmers were restricted and limited. Personal information from barangay officials and chieftain was restricted, personal approach from government offices was strictly limited, limited visitation to smallholder farmers to be personally informed about livelihood programs, television was typically effective, radio transmission of information was slow, the use of cellphone was ineffective in providing information about livelihood opportunities, and flyers were ineffective since it were not available in barangay Coronon. The results are discussed to describe on how smallholder farmers gain access to communication platforms that gives information about livelihood programs during the Covid-19 pandemic.

*Keywords: Access, case of smallholder farmers, communication platforms, covid-19 pandemic, livelihood programs of the government*

## **COMMUNICATION BEHAVIOR AND ENTREPRENEURIAL TRAITS OF LOGO PISKAY GROUP IN LUNGAG, DIGOS CITY**

Author: Cristian John F. Teorima

Year: 2022

Adviser: Rolando Licudine

The primary purpose of this study was to determine the communication behavior and entrepreneurial traits of Logo Piskay Group in Lungag, Digos city. This study identifies the possible risks that hinders to achieved success of the members of the Logo Piskay Group, comprehend them and made recommendations for possible solution. Eighty-three (83) respondents answered the survey questionnaire through face-to-face interaction observing health protocols. The study revealed that the communication behavior pointed that most of the respondents rely on radio as their primary medium when acquiring information and communication. In addition, with regard to Entrepreneurial traits results revealed the respondents rely on Persistence, Opportunity seeking, Persuasion and Networking, and Systematic planning and Monitoring, this indicates that 2 they are adapting highly as their traits for a suitable, productive reliable, and even a useful tool as member of the Logo, Piskay Group. Findings of correlation that there is no significant deference between the Personal Entrepreneurial Competencies (PECs) and the respondents' educational background.

*Keywords: communication behavior and entrepreneurial traits, Personal Entrepreneurial Competencies (PECs)*

**RELATIONSHIP BETWEEN FARMER'S PROFILE AND PREFERRED AGRICULTURAL EXTENSION COMMUNICATION CHANNEL OF RICE FARMERS IN NEW VISAYAS, MATANAO, DAVAO DEL SUR**

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Author: Judit A. Valencia

Year: 2022

Adviser: Rae Katherine D. Adona, MDC

The study was conducted at barangay New Visayas, Matanao Davao del Sur. The study aims to investigate the relationship between the socio-demographic characteristics of rice farmers and their preferred agricultural extension communication channel.

Using a self-made questionnaire, the researcher administered the survey through face-to-face interaction. The study employed complete enumeration, where 101 rice farmers responded. Results revealed that most rice farmers still own and have access to radio as a medium. Rice farmers in Matanao prefer radio among other media devices since it is very convenient, especially in accessing agricultural information.

Moreover, the study revealed no significant relationship between farmers' profiles and non-interpersonal communication channels as their preferred sources.

Furthermore, there is a significant relationship between farmers' profiles and interpersonal communication channels such as the farmer field school and training workshops in acquiring agricultural information. The study results can be a baseline for extension agents in crafting and implementing a strategic communication plan to reach the rice farmers.

*Keywords: agricultural extension, interpersonal communication, non-interpersonal communication, communication channels*



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