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and Related Sciences**

BOOK OF ABSTRACTS

A.Y. 2019-2020



BOOK of ABSTRACTS A.Y. 2019-2020
Institute of Agriculture and Related Sciences

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The Book of Abstracts A.Y. 2019-2020 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 OF THE COLLEGE 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 OF THE RESEARCH, DEVELOPMENT AND INNOVATION
DIRECTOR*



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

EFFECTS OF NATURAL ROOTING HORMONES ON THE PROPAGATION OF RED ROSE (*Rosa indica* L.) FROM CUTTINGS

Author: Edgar O. Aclao Jr.

Year: 2020

Adviser: Rogelio R. Tanduyan, MS

This study was conducted from February 17 to April 1 2020 at Matti, Digos City, Davao del Sur to evaluate the natural rooting hormones in red rose cuttings. The experiment was carried out in Complete Randomized Design (CRD) replicated three (3) times. The treatments were as follow: T1 (aloe vera), T2 (cinnamon), T3 (honey), T4 (apple cider vinegar), and T5 (water) by using deep method. Data gathered were number of roots, number of bud eye, and length of longest root.

Based on the findings of the study the number of root and number of bud eye are not significant while the length of longest root was highly significantly with the mean value of 2.53. Cytokinins are signaling hormonal molecules that may play an essential role in regulating cytokinesis, growth and development in plants. in an intact plant, the living cells in both root and the shoot are capable of producing CKs 4 (Miyawaki et al., 2004; Nordstorm et al., 2004; Aloni et al; Tanaka et al., 2005).

The use of natural rooting hormones in red rose cuttings is not promising. Among the treatments that showed positive effect on the red rose is apple cider vinegar. Therefore, it recommended using any rose cuttings could be used as planting materials.

QUALITY OF ARABICA COFFEE (*Coffea arabica*) UNDER DIFFERENT AMOUNT OF MOLASSES AND FERMENTATION DURATION

Author: Aizza Mae A. Agton

Year: 2020

Adviser: Edralyn Catubay, L. Agr.

The study was conducted to determine the potential effect of different amount of molasses and fermentation duration on the quality of Arabica coffee. This was conducted at Brgy. Balutakay, Bansalan, Davao del Sur, from January 2020- June 2020. The experiment was laid out in Completely Randomize Design (CRD) in two factors with nine (9) treatments replicated three (3) times.

Based on the result, in terms of fragrance, aftertaste, Acidity, uniformity, clean cups and sweetness quality showed no significant difference among treatments.

In terms of flavour, body, balance and overall quality, results showed significant difference.

On the effect of method of fermentation and fermentation duration, best cupping was observed on Arabica coffee under 100g of molasses added and 24 hours" fermentation duration.

EFFECTS OF ORGANIC FERTILIZATION ON THE GROWTH AND YIELD OF BELL PEPPER (*Capsicum annuum*) IN DOLO, BANSALAN, DAVAO DEL SUR

Author: Al Kenneth M. Cusilit

Year: 2020

Adviser: Edralyn Catubay, L. Agr.

The study to evaluate the growth and yield of bell pepper (*Capsicum annuum*) was conducted at Brgy. Dolo Davao del Sur from December to March 2019 - 2020. It was laid out in a Randomized Complete Block Design (RCBD) with seven (7) treatments and three (3) replications.

The result shows no significant difference among all organic fertilizer (KD foliar fertilizer, Algifol, Humus, Effective microorganism, AZ41 and MPQ) and synthetic check (Crop Giant) in terms of plant height, percentage weight of small, medium and large fruits at 1st, 2nd and 3rd harvests as well as yield of bell pepper 100 days after transplanting.

Application of these organic fertilizer for eight (8) cycles at seven (7) days interval is safer and eco-friendly alternative to synthetic fertilizer for the optimum growth and yield of bell pepper (*C. annuum*).

GROWTH PERFORMANCE OF BROILERS SUPPLEMENTED WITH DIFFERENT LEVELS OF SWEET POTATO FLOUR

Author: Rose Ann G. Amarilla

Year: 2020

Adviser: Alexander M. Campaner, Ph.D

This study was focused on the growth performance of broilers supplemented with different levels of sweet potato flour. The study was conducted from February to March 2020 at Matti, Digos City, Davao del Sur. This experiment was conducted to determine the growth performance of broiler chicken supplemented with different levels of sweet potato flour. This aims to test the difference in weight gain, feed intake, water intake, feed conversion rate of broilers supplemented with different levels of sweet potato flour and to determine the fresh sweet potato to flour ratio. The temperature and relative humidity were also recorded throughout the duration of the study.

The study was laid out in a Complete Randomized Design (CRD) with 5 treatments and 2 replications, all data gathered was statistically analyzed using Analysis of Variance (ANOVA) and significant data were further analyzed using Duncan's Multiple Range Test (DMRT). The treatments were as follows: Treatment 1-100% commercial feeds (control), Treatment 2- 5% substitution rate, Treatment 3- 10% substitution rate, Treatment 4-15% substitution rate, and Treatment 5- 20% substitution rate.

Statistical analysis revealed no significant results on the weight gain, feed intake and feed conversion rate supplemented with different levels of sweet potato flour. Moreover, data has also revealed that supplementation of sweet potato flour in broilers feeds also had a significant effect on the reduction of water intake. Based on the result of the study, it was found out that there was no significant difference on weight gain among treatments. But in order to lessen the cost of formulated feeds for broilers expenses, sweet potato flour and commercial feeds combination is recommended to use as feedstuff for birds. It is recommended to conduct follow up study to adding other substitute feeds for the birds.

ROOTING CAPACITY OF UF-18 CACAO (*Theobroma cacao*) CUTTINGS APPLIED WITH DIFFERENT TYPES OF ROOTING HORMONE

Author: Angelyn C. Jayme

Year: 2020

Adviser: Rogelio R. Tanduyan, MS

The study was conducted to test the Rooting capacity of UF-18 cacao applied with different rooting hormones. This was conducted at Blocon Magsaysay Davao del sur on April to May 2020.

The study was carried out in a Completely Randomized Design (CRD) with Five treatments replicated three times. Treatment was the following: T1-ANAA, T2-Mature coconut water(350ml), T3-Honey, T4-Immature coconut water(350ml) and T5-Control (pure water). It was limited to the determination of Number of roots and Length of longest root 45 days after planting, the Tukey's test was used to test significant treatment means.

Overall results showed in number of roots T1-ANAA got the highest mean of 1.40 followed by T4-1.27, T2-1.07, T3-0.87 and T5-0.67 respectively, ANOVA revealed that there is a significant effect among all treatment.

Among all treatment in Root length T4 got the highest mean of 1.05 followed by T1-0.99, T5-0.66, T2-0.60 and T3 got the lowest mean of 0.38

The results of the study showed that the Treatment 1 (ANAA) and T4 (immature coconut water) respectively got the highest means among treatments.

GERMINATION PERFORMANCE OF CACAO (*Theobroma cacao* L.) APPLIED WITH DIFFERENT LEVELS OF CALCIUM NITRATE AND METHODS OF SOWING

Author: Janette T. Belarmino

Year: 2020

Adviser: Alexander M. Campaner, Ph.D.

The study was conducted at Matti, Digos City to evaluate on the germination performance of cacao

(*Theobroma cacao* L.) applied with different levels of calcium nitrate and methods of sowing. The experiment was laid out in 2x4 completely randomized design (CRD) replicated three (3) times. There were two methods of sowing and each applied with 1 gram, 3 grams and 5 grams of calcium nitrate. Data gathered were rate of germination, number of leaves, length of stem, diameter of stem, length of root, diameter of root, and leaf surface area, including some environmental factors such as: temperature, relative humidity and light intensity.

Based on the findings of the study, the number of leaves, diameter of stem, length of roots, leaf surface area, and number of roots were not significantly different among treatments of the two methods while diameter of root was significant. On the other hand, rate of germination with the value of 100% and length of stem with the value of 6.62 cm, revealed highly significant difference among treatments.

GROWTH PERFORMANCE OF BROILER CHICKENS FEED WITH DIFFERENT LEVEL OF FERMENTED COFFEE PULP JUICE AS FEED ADDITIVE

Author: Christian F. Olaguir

Year: 2020

Adviser: Rogelio R. Tanduyan M.S

The study was conducted at Brgy. Matti Davao del Sur from February 20 to March 21, 2020 and was laid out in a Randomized Complete Block Design (RCBD). Further test of significant difference among treatments was done using Tukey's. The four treatments namely T1- (vetracin) 1.5 grams per liter of water, T2- 10 ml of fermented coffee pulp per liter of water, T3- 15 ml of fermented coffee pulp per liter of water, T4- 20 ml of fermented coffee pulp per liter of water were replicated three times.

Results showed that in terms of feed intake, live weight gain and feed conversion efficiency of the broiler chicken have no significant effect on the growth performance by the different levels of fermented coffee pulp juice as feed additive.

GROWTH PERFORMANCE OF BROILER USING DIFFERENT LEVELS OF PINEAPPLE (*Ananas comosus*) FRUIT JUICE AS WATER SUPPLEMENT

Author: Reynaldo D. Cuaresma III

Year: 2020

Adviser: Alexander M. Campaner, Ph.D

This study was focused on the growth performance of broiler using different levels of pineapple (*ananas comosus*) fruit juice as water supplement. Experimental area is located at Brgy. San Agustin, Digos City, Davao Del Sur with bearing coordinates of 6°45'54"N 125°19'14"E with an elevation of 30 meters above sea level. The study was conducted from February to March 2020 with a recorded average temperature of 30°C and an average relative humidity of 64% during the time of experiment.

This experiment was conducted to determine the growth performance of broiler chicken using different levels of pineapple fruit juice as water supplement. Specially, this aims to (1) To test the difference in weight gain of broilers supplemented with different levels of pineapple fruit juice (2) To test the difference in feed intake of broilers supplemented with different levels of pineapple fruit juice (3) To test the ii difference in water intake of broilers supplemented with different levels of pineapple fruit juice (4) To determine the feed conversion ratio of broilers supplemented with different levels of pineapple fruit juice (5) To determine the fresh to juice ratio of pineapple and (6) Daily record of temperature and relative humidity of the study area.

The study was laid out in a Completely Randomized Design (CRD) with 5 treatments and 2 replications, all data gathered was statistically analyzed using Analysis of Variance (ANOVA) and significant data where further analyzed using Least Significant Difference (LSD). The treatment was as follows: Treatment 1 Commercial practice (1.5g Vetracin per liter of water), Treatment 2- 5% substitution rate, Treatment 3- 10% substitution rate, Treatment 4-15% substitution rate, and Treatment 5- 20% substitution rate.

Based on the results the use of different levels of pineapple (*Ananas comosus*) fruit juice as water supplement in raising broiler chickens showed that there was no significant difference in terms of feed conversion ratio due to the protein concentration of commercial feeds. However, it showed significant effects in terms of feed intake, water intake, and weight gain due to the alteration of pineapple fruit juice as water supplement.

GROWTH PERFORMANCE OF PLYMOUTH ROCK CHICKEN FED WITH DIFFERENT LEVELS OF AZOLLA (*Azolla caroliniana*) MEAL

Author: Ian Vanessa G. Dagit

Year: 2020

Adviser: Rogelio R. Tanduyan, MSc

Poultry farmers encountered many problems in raising poultry animals especially high cost of feeds, hence the study was conducted to determine the growth performance in terms of height, length of wings, length of legs, feed conversion ratio, feed intake, and the weight gain of Plymouth rock chicken fed with different levels of azolla (*Azolla caroliniana*) meal. The present study was carried out in Randomized Completely Blocked Design (RCBD) with five (5) treatments and replicated three (3) times. Treatments were as follow: T1 – Control (Corn Bran), T2 – 50 grams Azolla Meal + 25 grams Corn Bran, T3 – 50 grams Azolla Meal, T7 – 75 grams Azolla Meal, T5 – 100 grams Azolla Meal.

The experiment was conducted at Brgy. Mabuhay, Bansalan, Davao del Sur from October 2019 to January 2020. This study for Growth Performance Of Plymouth Rock Chicken Fed With Different Levels Of Azolla (*Azolla caroliniana*) Meal, the 100 grams Azolla Meal best supported the optimum growth and performance of Plymouth rock chicken affording the height (cm), length of wings (cm), length of legs (cm), feed intake (g), feed conversion ratio (kg), weight gain (kg).

The researcher suggested that optimum supplementation ratio of 100 grams Azolla meal used as an alternative to other commercial feeds for the optimum growth of Plymouth rock chicken.

**ROOTING CAPACITY OF ARABICA COFFEE (*Coffea arabica*)
APPLIED WITH DIFFERENT TYPES OF ROOTING HORMONE**

Author: Daisybelle D. Nalasa

Year: 2020

Adviser: Rogelio R. Tanduyan, MSc

The study was conducted to test the Rooting capacity of Arabica coffee Applied with different rooting hormones. This was conducted at DSSC, Clonal nursery on March to April 2020.

The study was carried out in a Completely Randomized Design (CRD) with Five treatments replicated three times. Treatment were the following: T1-ANAA, T2-Mature coconut water(350ml), T3-Honey, T4-Immature coconut water(350ml) and T5-Control(pure water). It was limited to the determination of Number of roots, Length of longest root and Number of Bud eyes 45 days after planting. ii

The results of the study showed that the Treatment 3 (honey) and Treatment 4 (immature coconut water) respectively has a highest mean among treatments.

PHENOTYPIC CHARACTERIZATION OF BLACK-SKINNED ("PATANI") CHICKEN POPULATION IN DAVAO DEL SUR

Author: Dan Fanklin T. Aznar

Year: 2020

Adviser: Proceso B. Barola Jr. M.S.

This study was conducted to benchmark information on black-skinned chicken production in 9 Municipalities (Kiblawan, Matanao, Magsaysay, Padada, Hagonoy, Bansalan, Sulop, Malalag and Sta. Cruz) and city of Digos all in the province of Davao del Sur. The survey was conducted in June - December 2018. The study specifically sought to know the physical and morphometric characteristics of black-skinned chicken including the production practices of the respondents.

Results of the survey shows the physical features of the black-skinned chicken consists of plumage pattern and color, shank and skin color, earlobe and iris color, and comb type.

In terms of plumage pattern of patani chicken the respondents claimed dominantly plain (62.16%) comparable to common native chicken grown by the locals in the area as observed during the conduct of the survey and barely 32.43% and 5.41% mottled and laced, respectively. While the color of the plumage was dominantly black (59.46%) followed by wheaten (24.32%) and white (16.22%). The shank color also presented only black color of 100% and the skin color was also observed to follow same pattern of the shank as it presented the only black color of 100% from the total enumerated narratives and actual chicken observation during the survey.

The color of the earlobe of patani seemed to coincide with the shank and skin color as observed in the study only color black (100%). This observation is attributed in fact of the unique physical features of the patani chicken as term apply and observed by the respondents of the study.

In terms of comb type, it was generally pea type (56.76%) followed by single type (37.84%) and double type (5.41%).

Moreover, the color of the iris of patani seemed to present a percentage of 100% color black that was usual to other breeds of native chicken raised in the survey area. On morphometric attributes of black-skinned in the study area, specifically the quantified details of the body in terms of weight, height, length, chest circumference, wingspan and shank length are comparable with native breeds of chicken in the locality. The body weight at usual marketing and slaughtering age is 1 kilogram on the average which similar with native chicken grown in the area unless it is allowed to be raised for longer period of time.

In terms of production practices, the growing of blackskinned chicken in the study area was similar to native chicken production which are generally free-range and not specifically intended for commercial production there was only one existing grower that raised solely black-skinned chicken in the study area and the respondents know the potential of blackskinned chicken in terms of medicinal and economic value.

With this result of the study there is a need to formulate a technical assistance program particularly on culture practices for black-skinned chicken production in the area including interventions to upgrade the existing breeds to increase yield and in the long run profit for the grower not only for food availability as well as processing of farm waste as feed sources need to be studied to reduce the cost of feeds and ensure maximum utilization of agricultural products available in the area.

**DRESSING PERCENTAGE AND ORGANOLEPTIC
PROPERTIES OF BROILER CHICKENS SUPPLEMENTED WITH
BLUE TERNATE (*Clitoria Ternatea*) EXTRACT**

Author: Airyz Vine B. Demotica

Year: 2020

Adviser: Augie E. Fuentes Ph.D

This study was conducted to evaluate the dressing percentage and organoleptic properties in terms of color, odor, tenderness, and juiciness of broiler chicken supplemented with blue ternate (*Clitoria ternatea*) extract. The study was carried out in Randomized Completely Block Design (RCBD) with four (4) treatments and replicated three (3) times. Treatments were as follows; T1-Control (Vetracin), T2- 5 Blue ternate, T3- 7 Blue ternate, T4- 9 Blue ternate. The experiment was conducted at Brgy. Goma, Digos City, Davao del Sur from February to March 2020. There were 5 parameters identified as the basis for the sensory evaluation of the study such as dressing percentage, color, odor, juiciness and tenderness.

Result showed that in terms of dressing percentage, data revealed that the highest means was observed in T2 (5 flowers/L) 65.56%, while the lowest mean value was T3 (7 flowers/L) of 58.57%. As to meat color, the result revealed that T2 (5 blueternate/L) got the highest mean of 3.19%(white), while T1 (vetracin) obtained the lowest mean which is 2.89%(yellowing). As to odor, the result revealed that T4 (9 blue ternate/L) got the highest means of 3.21% (moderately like), while T1 (vetracin) obtained the lowest mean which is 2.58% (like).

In terms of juiciness, it is evident that T4 (9 blue ternate/L) has the highest mean which is 3.38% (slightly juicy) and the lowest mean was obtained in T1 (vetracin) which is 2.78% (juicy). In tenderness, the result revealed that T4 (9 blue ternate/L) got the highest mean which is 3.13%

(slightly tender) while obtained the lowest mean which is 2.91% (tender). These parameters did not show significant difference among treatments.

BIOCHEMICAL PROFILING OF JUICE EXTRACT FROM DIFFERENT FLESHY FRUITS

Author: Guia Mae Endrina

Year: 2020

Adviser: Alexander M. Campaner, Ph.D

The study was conducted at Davao del Sur State College, Mati, Digos City from February 2020-March 2020. On the evaluation of the juice content of *Mangifera indica*, *Spondias purpurea*, *Citrullus lanatus*, *Annona muricata*, *Ananas comosus*, to determine the total soluble solids, pH, pulp to juice ratio, juice color, volume and weight of the fruits. The experiment was laid out in Completely Randomized Design (CRD) composed of five treatments with three replications.

Statistical analysis revealed the mean difference in pH values in day initial of selected freshy fruits ranging from 3.705-60. In day 7 recorded the mean difference in pH values of ranging from 3.43-4.30. In day 14 shows the mean difference in pH values ranging from 3.17-4.03. In total soluble solids shows the mean difference in day initial ranging from 1.021-06. In day 7 shows the mean difference in total soluble solids in day 7 ranging from 1.01-1.03. The mean difference in total soluble solids in day 14 shows ranging from 1.00-1.03. In Fruit Pulp Juice, shows the mean difference of selected freshy fruits ranging from 93.67-464.67%. While in Pulp shows the mean difference ranging from 18-165%. In volume shows the mean difference of selected freshy fruits ranging from 42.67-350 ml. In weight recorded the mean difference of selected freshy fruits ranging from 50.67-359g. Analysis of Variance (ANOVA) revealed highly significant among treatment means.

DRESSING PERCENTAGE AND INTERNAL ORGAN WEIGHT OF PLYMOUTH ROCK CHICKEN SUPPLEMENTED WITH AZOLLA MEAL

Author: Jonel P. Gonzales

Year: 2020

Adviser: Rogelio R. Tanduyan, MSc

The study was conducted to aimed to evaluate the effects of five (5) different levels of azolla meal; determine which among different level of azolla meal will provide optimum dressing percentage and Internal Organs weight of Plymouth Rock Chicken. An experimental bird in this study are those birds under the study of Ms. Ian Vanessa G. Dagit, a 4th year Agriculture Student, an experimental bird in every treatment will be subjected to dressing to get the dressing percentage and weight of internal organ (consumable). The experiment was conducted on January 2020 at the Davao del Sur State College, Mati, Digos City.

Based on the results of the study for Dressing Percentage, Carcass, and Internal Organ Weight of Plymouth Rock Chicken Supplemented with Azolla Meal. 100 grams Azolla Meal best supported the Dressing Percentage (%), Weight of Internal Organs (Small Intestine, Liver, Heart and Gizzard).

The 100 grams Azolla meal should be used as an alternative to other commercial feeds for the optimum growth of Plymouth rock chicken.

GROWTH AND YIELD OF LETTUCE (*Lactuca sativa*) IN RESPONSE TO ORGANIC BASED NUTRIENT SOLUTION IN NONCIRCULATING HYDROPONIC SYSTEM

Author: Jhon Rey C. BELARMINO

Year: 2020

Adviser: Edralyn L. Catubay Agr.

The study was conducted to evaluate on the growth and yield of lettuce (*Lactuca sativa*) in response to organic based nutrient solution in noncirculating hydroponic system. The experiment was laid out in Randomized Complete Block Design (RCBD) with seven (7) treatments replicated three (3) times.

The result of the study revealed that application of organic nutrient solution such as Lactic Acid Bacteria Serum (LABS), Fish Amino Acid (FAA), Fermented Fruit Juice (FFJ), Fermented Plant Juice (FPJ), KD Foliar Fertilizer, significantly affects the growth and yield of lettuce 30 days after transplanting.

The different organic solution significantly affects the number of leaves, by size, length of roots, yield of lettuce and dry leaf, yield of fresh roots and leaf area index of the lettuce at harvest after fifteen (15) cycle application at two days interval.

CHARACTERIZATION OF INTERNAL PARASITES OF BROILER FEED WITH SWEET POTATO FLOUR AND PINEAPPLE FRUIT JUICE AS WATER SUPPLEMENT

Author: John Vidal Estrera Jr.

Year: 2020

Adviser: Alexander M. Campaner, Ph.D.

The study was conducted at Brgy. San Agustin, Digos City, Davao Del Sur with bearing coordinates of 6°45'54"N 125°19'14"E with an elevation of 30 meters above sea level. The study was conducted from February to March 2020 with a recorded average temperature of 30°C and an average relative humidity of 64% during the time of experiment. The samples were analyzed at APO PET Veterinary Clinic at 23 March, 2020 and the study was Descriptive research. Sample 1. Commercial practice (water, commercial feeds), Sample 2. Pineapple fruit juice (*Ananas comosus*) (20% substitution rate) and Sample 3. Sweet potato flour (20% substitution rate). Level (20%) of pineapple fruit juice as water supplement, parasite found *Heterakis gallinarum*, the pathogenicity of this parasite is mild. Level (20%) of sweet potato flour as feed, the parasites found *Heterakis gallinarum* and *Tetrameres americana*. The pathogenicity of *Tetrameres americana* is moderate to severe. Commercial practice the two kinds of parasites found *Heterakis gallinarum* and *Tetrameres americana*.

Observations were formulated to distinguish the characterization of internal parasite of broiler feed with sweet potato flour and pineapple fruit juice as water supplement. The results were summarized as follows.

In maximum level (20%) of pineapple fruit juice as water supplement, the Veterinarian found a parasite *Heterakis gallinarum*, the pathogenicity of this parasite is mild, but transmits agent of histomoniasis.

In maximum level (20%) of sweet potato flour as feed supplement, the veterinarian found two kinds of parasites *Heterakis gallinarum* and *Tetrameres americana*. The pathogenicity of *Tetrameres americana* is moderate to severe.

In commercial practice (water, commercial feeds), the veterinarian found two kinds of parasites *Heterakis gallinarum* and *Tetrameres americana*.

EFFECT OF BUTTERFLY PEA (*Clitoria ternatea*) AS WATER SUPPLEMENT TO BROILER CHICKENS

Author: Donna Jean M. Loque

Year: 2020

Adviser: Augie E. Fuentes, Ph.D

The study is entitled "Effect of Butterfly Pea (*Clitoria ternatea*) as Water Supplement to Broiler Chickens" was conducted to determine the effects of Butterfly Pea extract on the performance of broiler chickens in terms of Feed Intake, Water Intake, Weight Gain and Feed Conversion Ratio. The study was conducted at Brgy. Goma, Digos City Davao del Sur from March 10, 2020 to March 31, 2020 and was laid out in a Randomized Complete Block Design (RCBD). Results were tested using LSD to determine the significant difference among treatments. The four treatments were namely; T1 (Vetracin) as positive control, T2 (5 flowers/L), T3 (7 flowers/L) and T4 (9 flowers/L) replicated three times.

Results showed that in terms of feed intake, data revealed that the highest means was observed in T4 (9 flowers/L) with the mean 111.58g, while the lowest value was T3 (7 flowers/L) with mean of 108.23g. Statistically, results showed no significant difference.

In terms of water intake, data showed highest in T1 (Vetracin) with a mean of 243.35ml and the lowest was obtained in T2 (5 flowers/L) with mean of 235.54ml.

Statistically, there was no difference among treatment means. As to weight gain, the highest was noted in T4 (9 flowers/L) with the mean of 1028.67 g, while the lowest among the treatments is T2 (5 flowers/L) with the mean of 946.00 g. On feed conversion ratio, the lowest mean was observed in T4 (9 flowers/L) with the mean of 2.17g/kg and the highest among the treatments is T2 (5 flowers/L) with the mean of 2.30g/kg. These parameters also do not show significant difference among treatments.

PHENOTYPIC CHARACTERIZATION OF BLACK-SKINNED ("PATANI") CHICKEN POPULATION IN DAVAO OCCIDENTAL

Author: Metchico A. Acquio

Year: 2020

Adviser: Proceso B. Barola Jr. M.S.

This study was conducted to benchmark information on black-skinned chicken production in the four municipalities of Davao Occidental. The survey was conducted on MayOctober 2018. The study specifically sought to know the physical and morphometric characteristics of black-skinned chicken including the production practices and population.

There were 4 respondents interviewed personally to gather the necessary data. One respondent in every municipality. Data gathered were analyzed using the frequency counts and percentages.

The physical features of the patani chicken as per data gathered in the study generally coincides with the attributes per structure of the questionnaire prepared and used during the survey. The details of the plumage pattern of patani chicken remarkably plain and mottle (46.15%) comparable to common native chicken grown by the locals in the area as observed during the conduct of the survey and barred (7.69%), respectively. While the color of the plumage was dominantly black and wheaten (38.46%) followed by white color (23.08%).

The shank color also presented the dominant black of 84.62% and grey-blue 15.39%. And the skin color as indicated in the study it presented a dominantly black color of 100% and white 5% the enumerated narratives and actual chicken observation during the survey.

The color of the earlobe of patani seemed to coincide with the shank and skin color as observed in the study which dominantly black equivalent to 100%. In terms of comb type, it was generally pea type (53.85%) with observed deviant single comb of 30.77%. While the color of the iris of patani seemed to present significant variation from the observed color of the other head features like earlobe and comb which was observed to be dominated by black color (84.62%) with red of 15.39% respectively.

The morphometric attributes of patani breeds grown in the study area provided some quantitative values representing body and biological information relative to growth parameters. The quantified details of the body in terms of weight, height, length, chest circumference, wing span and shank length generally are comparable with native breeds of chicken in the locality and in many parts of the country as measured during the conduct of the study. Data on sex

describes that there is dominantly female patani chicken (61.54%) that remains in the existing flock of grower respondents.

The body weight at marketing and slaughtering age ranges from 1 to 1.5 kilogram on the average which is similar with native chicken grown in the area. The height on the average is recorded 32 cm with body length of 34 cm. The height values remarkably higher due the extended measurement attribute of the shank with an average 15 centimeters. Moreover, the chest circumference of patani chicken measured an average of 33 cm while the wing span recorded an average of 33 centimeters. These values are comparable to native chicken found in the research area.

In terms of housing and support facilities, it was recorded in the survey that all respondents (100%) did not construct intentionally a house for the raised chicken including the native breeds and are just allowed to keep their shelter at night on fruit trees around their homes. Feeds and feeding practices of the growers as observed in the study simply follow the method self-formulation using available raw materials from the farm particularly corn bran since corn is the common crop grown in the area covered in the study (100%).

DRESSING PERCENTAGE AND PALATABILITY OF BROILER CHICKEN FED WITH DIFFERENT LEVELS OF BANANA PEEL MEAL

Author: Jenie P. Gavito

Year: 2020

Adviser: Augie E. Fuentes, Ph.D

The study entitled "Dressing Percentage and Palatability of Broiler Chicken Fed with Different Levels of Banana Peel Meal" was conducted to determine the significant difference on the sensory evaluation of the broiler meat and determine the dressing percentage of the broiler chicken fed with different levels of banana peel as feed. This study was laid in Complete Randomized Design (CRD), of which study were further test by LSD of significant difference among treatments. The four treatments were namely; T1

(commercial feeds) as positive control, T2 (5% banana peel), T3 (10% banana peel) and T4 (15% banana peel) were replicated 3 times. There were 5 parameters identified as the basis for the sensory evaluation of the study such as Dressing percentage, color, odor, juiciness and tenderness. Data gathered were analyzed statistical tool through the analysis of variance (ANOVA).

Results revealed that there is no significant difference observed among treatments in terms of odor, juiciness and tenderness. However, in terms of color statistical analysis revealed significant difference among treatments. Further as to dressing percentage, statistical analysis showed significant difference among treatments. Highest dressing percentage was noted in T4 with mean of 76.09%.

UTILIZATION OF BANANA PEEL AS FED IN BROILER CHICKEN

Author: Jayson L. Banuelos

Year: 2020

Adviser: Augie E. Fuentes, Ph.D

The study entitled "Utilization of Banana Peel as Fed in Broiler Chickens" was conducted to determine the performance of broiler chickens fed with banana peel meal and measured in terms of feed intake, weight gain and feed conversion ratio. The study was conducted at Pob. Sulop Davao Del Sur from Feb 25, 2019 to March 26, 2019. It was laid out Complete Randomized Design (CRD). Results were tested by LSD to determine the significant difference among treatments. The four treatments namely T1 (control), T2 (5% of banana peel), T3 (10% banana peel), and T4 which is (15% banana peel) replicated three times.

Result showed that in terms of weight of broiler chicken, data revealed that the highest means was observed in T1 (control) commercial feed with the mean of 890.53, while the lowest value was obtained in T3 (commercial feeds) with a mean of 648.67. Statistically, results showed significant difference among treatments. In terms of feed intake, data showed highest in T1 (commercial feds) with a mean of 571 and the lowest among the treatments is T3 (10% banana peel) with a mean of 369.33.

Further as to feed conversion ratio (FCR), the lowest among the treatments is T2 (5% banana peel) with a mean of 7.51. These two parameters showed no significant difference among treatments.

**GROWTH RESPONSES OF BROILER CHICKENS
SUPPLEMENTED WITH MAYANA (Plectranthus
scutellarioides) EXTRACT**

Author: Princess M. Villarmia

Year: 2020

Adviser: Augie E. Fuentes, Ph.D

The study entitled "Growth Responses of Broiler Chickens Supplemented with Mayana (*Plectranthus scutellarioides*) Extract" was conducted to determine the growth of broiler chickens as affected with different levels of Mayana (*Plectranthus scutellarioides*) leaf extract. This was laid out in a Randomized Complete Block Design (RCBD) with four treatments namely T1- (control) commercial supplement, T2- 1tbsp/liter of water of mayana extract , T3-2tbsp/liter of water of mayana extract, T4- 3tbsp/liter of water of mayana extract were replicated three times.

Data were analyze using Analysis of variance and further tested using LSD (Least Significant Difference) to determine the growth of broiler chickens as affected with levels of Mayana (*Plectranthus scutellarioides*) leaf extract. Results showed that in terms of feed intake, a bird can consume feed with 90 grams per day. As to live weight gain, the highest mean was observed in T4- (3 tbsp/liter of water) with a mean of 1053.33 grams while based on feed conversion ratio, T2- (1 tbsp /liter of water) gave the lowest mean at of 3.49, Statistical analysis revealed no significant effect on the growth responses of broiler chickens supplemented with mayana (*Plectranthus scutelarioides*) as supplement.

GERMINATION PERFORMANCE OF POMEGRANATE (*Punica granatum*) USING DIFFERENT LEVELS OF CALCIUM NITRATE AND METHODS OF SEED PREPARATION

Author: Rogeza R. Selma

Year: 2020

Adviser: Alexander M. Campaner, Ph.D.

The study was conducted at Matti, Digos City from February 2020 to April 2020. The study was conducted to evaluate the germination performance of pomegranate (*Punica granatum*) using different levels of calcium nitrate and methods of seed preparation. The experiment was laid out in 2x4 completely randomized design (CRD) replicated three (3) times. There were two methods of seed preparation and each applied with 1 gram, 3 grams, and 5 grams. Data gathered were rate of germination, number of leaves, length of stem, diameter of stem, length of root, diameter of root, number of roots, leaf surface area including some environmental factors such as: temperature, relative humidity and light intensity.

Based on the findings of the study, the rate of germination, length of stem, length of root, number of roots, and leaf surface area are not significant while number of leaves, diameter of stem, and diameter of root was significant at 1% level.

The data revealed highly significant results in number of leaves with the mean value of 14.67, diameter of stem with 2.1mm, and diameter of root having 2.3mm. Germination differ because it was attributed to the biological nature of pomegranate having a recalcitrant seed, drying and preserving it at a longer period of time may reduce the chance of survival (Singh et al., 2010).

PREVENTION AND CONTROL PRACTICES OF *Dermanyssus gallinae* OF NATIVE CHICKEN GROWERS IN MALALAG, KIBLAWAN AND PADADA, DAVAO DEL SUR

Author: Ramil Balatero

Year: 2020

Adviser: Alexander M. Campaner, Ph.D.

This study was focused on the assessment of prevention and control practices of *Dermanyssus gallinae* among native chicken growers in Malalag, Kiblawan and Padada located at the southern part of the of Davao del Sur.

The survey was conducted during the period covering January to March 2020. The study specifically sought to answer determine the following : (1) demographic profile of small-scale native chicken growers; (2) strains of the native chicken grown by the respondents of the study and stage of growth of chicken that *Dermanyssus gallinae* is prevalent; (3) the prevention and control practices of growers for *Dermanyssus gallinae*; and (4) the common problems encountered by native chicken growers in the study area. This Study was carried out through the descriptive survey method in getting the important data of the study. Relative frequency distribution formula was used in calculating the sample size of the study. Purposive sampling technique was employed in getting the number respondents for each area of the study. There were 25 respondents interviewed personally to gather the necessary data. Data gathered were analyzed using the frequency counts and percentages.

The demographic profile of respondent raisers of native chicken in the study in terms of age the range of age from the youngest of 17 years old and the oldest was 76 years old. Most of the respondents are within the age bracket of 3050 years old with 52% and the rest are just below 20 % each. The respondents are dominantly male (60%) while only 40% are female and 80% are married with a family of 5 (84%) which seems to depict that raising native chicken becomes part of the household as backyard raisers (100%) routine activity to sustain food for the table as well as some amount of money proceeds from sale when needed.

The educational attainment of the respondents ranges from elementary level/graduate (28 %) , high school level/graduate (48%) to college level/graduate (24%). Almost 75% of the respondents are having educational attainment up to high school graduate only. This may be the reason that productivity and efficiency of raising native chicken by these respondents may be low due to the fact that they may not be able to know the latest technique in raising native chicken unless some outreach works of the government equip them with

necessary information and if available it could not be difficult for them to engage because they can just communicate using the local dialect since all the respondents are cebuanos.

The common strain of chicken raised by the respondents' growers in the area dominantly showing the characteristic traits using the physical and morphometric attributes of native chicken. Some introduced improved breed are also observed raised by the respondents. As the common practice the chickens are grown free-range meaning to hunt and peck whatever grows or crawls about in that fenced backyard. In some areas, they aren't even fenced in. Shelter from the sun and from night-time predators is most often provided.

The most sensitive age for *Dermanyssus gallinae* disease outbreak in native chicken is at laying period where it invade the laying nests causing low productivity in egg yield and affect the number of chicks that hatched and worst may result to failure of hatching. The traditional practice of the growers when the laying performance of chicken is affected by the *Dermanyssus gallinae* the hens are just subjected to bathing and disinfection of the nest or changing the nest to make sure that the pest is eliminated. Then the hen is again allowed for mating to start laying. The small-scale native chicken growers in the study area having experienced high incidence of bunhok during the laying period of the animals and the common site of attached are the laying nests and due to the occurrence of the pests the practices of the growers as an alternative either the use of synthetic chemicals /pesticides while others used locally-available herbal plants as part of their prevention and control practices. Table respondents dominantly use herbal medicines (ranked 1) of which the use of dried lemon grass leaves put in place in the nest to prevent and control the attack of bunhok. Others use mayana and chilli extract and sprayed in the nest. There are also practices on using available pesticides used in farming like fungicide which is not appropriate for the kind of target pest which belong to arthropods group. This means some of the respondents are not aware of the proper use of pesticides and this could be attributed to their limited knowledge of the technology in growing native chicken. This perhaps the entry point for any extension works of the government to address this observed condition. The respondent growers of native chicken growers in the study area follow the common practices related to the concern for sanitation and proper disposal of waste in the farm as well as vaccination. It could be noted that they also manage the farm wastes particularly the manure as fertilizers in their plants.

The problems encountered by the respondents in relation to their care and maintaining as well as operating a small-scale native chicken. It was found out that all of the respondents were aware about the problems due to climate change particularly unpredictable occurrence of long period of drought and followed by rainy season causing their animals unable to adjust the effect of high temperature which caused dehydration and low temperature at night during rainy periods since their chickens were just allowed to rest on branches of trees only few of them practiced having shed for the chicken to stay at night. The respondents also cited primary problems was the high cost of synthetic medicines and they lack financial capacity to purchase when they needed it most including the source of improved breeds.

Results of the study indicates the need for technical assistance particularly on general disease prevention and control practices to improve the production efficiency of native chicken growing and promoting the use of herbal medicine as well as dispersal of initial stocks of improved breeds of chicken in encouraged.

CHARACTERIZATION OF MEAT QUALITY OF BROILER FED WITH DIFFERENT LEVEL OF TARO (*Colocasia esculenta*) FLOUR

Author: Rommel L. Gumanan

Year: 2020

Adviser: Alexander M. Campaner, Ph.D.

This study was focused the characterization of broiler fed with different level of taro (*Colocasia esculenta*) flour on the. Experimental area is located at Brgy. San Agustin, Digos City, Davao Del Sur. The study was conducted from February to March 2020.

This study was conducted to determine the meat quality of broiler fed with different levels of taro flour. Specifically, this present study was able to determine mean the different weight in carcass, feathers, visceral organs and waste of broiler fed with different levels of taro flour; to determine the dressing percentage of the broiler meat fed with different levels of taro flour; and to determine the sensory characteristics of broiler meat fed with different levels of taro flour: palatability, texture, color, odor and appearance. The study was laid out in a Completely Randomized Design (CRD). Further test of significant difference among treatments was done using Duncan multiple range test (DMRT). The five treatments namely T1- commercial feeds (control), T2- 5% Taro + 95% commercial feeds, T3- 10% + 90% commercial feeds, T4- 15% + 85% commercial feeds and T5 – 20% + 80% commercial feeds were replicated two times.

The study revealed that all samples measure such as weight carcass, feathers weight, visceral organs, palatability, texture, color, odor, appearance that shows no significant. Except the dressing percentage that show significant on the study.

GROWTH PERFORMANCE OF BROILER USING DIFFERENT LEVELS OF TARO (*Colocasia esculenta*) FLOUR AS FEED SUPPLEMENT

Author: Rowendale S. Lao

Year: 2020

Adviser: Alexander M. Campaner, Ph.D.

The study was conducted to investigate the nutritive value of taro (*Colocasia esculenta*) flour as feed supplement to the growth performance of commercially reared broiler chickens (*Gallus gallus domesticus*). Experimental area is located at Brgy. San Agustin, Digos City, Davao Del Sur with bearing coordinates of 6°45'54"N 125°19'14"E with an elevation of 30 meters above sea level. The study was conducted from February to March 2020 with a recorded average temperature of 30°C and an average relative humidity of 64% during the time of experiment.

The study was laid out in a Complete Randomized Design (CRD) with 5 treatments and 2 replications, all data gathered was then statistically analyzed using Analysis of Variance (ANOVA) and significant data where further analyzed using Duncan's Multiple Range Test (DMRT). The treatment were as follows: Treatment 1-100% commercial feeds (control), Treatment 2- 5% substitution rate, Treatment 3- 10% substitution rate, Treatment 4-15% substitution rate, and Treatment 5- 20% substitution rate. The study had scientifically observed the following parameters: Weight Gain, Feed Intake, Water Intake, and Feed Conversion Ratio (FCR).

The study revealed that the mean difference in weight gain of Broilers supplemented with different levels taro (*Colocasia esculenta*) flour has no significant effect. Although, numerically it shows the Treatment 5- 20% substitution rate has attained the highest value. In addition, supplementation of different levels of taro (*Colocasia esculenta*) had no significant contribution the feed conversion ratio of broilers. In fact, Treatment 4- 15% substitution rate has attained the highest numerical value among treatments.

Furthermore, data shows that supplementation of taro (*Colocasia esculenta*) flour to broilers feeds had a highly significant result in their feed intake, statistically it shows that Treatment 5 – 20% substitution rate had attained the highest value among all treatments, with more than 50% increase in feed intake compared to Treatment 1 – which utilizes 100% commercial feeds. Moreover, data has also revealed that supplementation of taro (*Colocasia esculenta*) in broilers feeds also had a high significant effect on the reduction of water intake. Wherein, statistics shows that Treatment 1 with 100%

commercial feeds has the highest amount of water intake compared to Treatment 4 – 15% substitution rate which has the lowest amount of water intake.

GROWTH PERFORMANCE OF PLYMOUTH ROCK CHICKEN SUPPLEMENTED WITH DIFFERENT LEVELS OF AZOLLA (*Azolla caroliniana*) JUICE

Author: Alexis D. Santiago

Year: 2020

Adviser: Rogelio R. Tanduyan, Ms

The study is entitled "Growth Performance of Plymouth Rock Chicken Supplemented with Different Levels of Azolla (*Azolla caroliniana*) Juice". The study aimed to determine the performance of Plymouth Rock Chicken in terms of Water Intake and Weight Gain. The study was conducted at Brgy. Goma, Digos City Davao del Sur from March 15, 2020 to April 28, 2020 and was laid out in a Completely Randomized Design (CRD). Results were tested using Tukey's Test to determine the significant difference among treatments. The four treatments namely; T1 (Water) as control, T2 (5ml+500ml), T3 (10ml+500ml) and T4 (15ml+500ml) replicated three times. In water intake, data showed highest in T1 (Water) with a mean of 236.15 ml and the lowest was obtained in T4 (15ml+500ml) with mean of 228.29 ml. Significantly, there was no difference among treatment means.

In terms of weight gain, the highest weight gain was observed in T1 (Water) with a mean of 242.22g. This was followed by T3 (10ml+500ml) and T4 (15ml+500ml) with a mean of 215.26g. However, the lowest weight gain was observed in T2 (5ml+500ml) with a mean of 192.78g. This implies that supplementing with different levels of Azolla in Plymouth Rock Chicken is comparable to the other treatment means on the weight gain of the chicken.

CHARACTERIZATION OF FERMENTED WASTE EXTRACT FROM FIVE (5) POMOLOGY SPECIES

Author: Carlo R. Soriano

Year: 2020

Adviser: Alexander Campaner, Ph.D

The experiment was conducted at Research and Laboratory Services Center of Davao del Sur State College (DSSC) Mati, Digos City on February 25 to March 24, 2020. This study aimed to evaluate the biochemical attributes of five different fruit crops namely; banana, pineapple, papaya, labana, and mango to determine the total soluble solids (TSS), pH and fruit pulp and juice ratio of the fruits. The study was carried out in Completely Randomized Design (CRD) with four (5) samples and level of molasses three (3) times. Test fruits samples were as follows; Banana (*Musa sp.*), Pineapple (*Ananas comosus*), Guyabano (*Annona muricata*), Papaya (*Carica papaya*) and Mango (*Mangifera indica*) (100g Molasses, 50g Molasses and 0 Molasses).

Based on the results of the study in Day 1, Mango was recorded the highest sugar content with 1.065 °Brix. Pineapple was recorded as the highest sugar content with a 1.065 °Brix on Day 7. Day 14, the same observation was recorded that the Pineapple maintained its sugar content as the highest among samples. The results cannot be read because the V1 and V2 has molasses it contains too much sugar while the V3 doesn't have.

The potential hydrogen (pH) in initial day showed significant difference among five (5) pomology species. The highest pH was obtained by Papaya (no molasses added) during the fermentation with 5.53 pH on initial day. On Day 7 and Day 14, Analysis of Variance ANOVA revealed no significant difference Day 7, highest pH value was obtained by banana (100g molasses added) with 4.30 pH. Banana (100g Molasses added) obtained the highest pH with 4.10 on Day 14. Highest fruit pulp and juice was afforded by Banana which was comparable to Papaya.

The researcher suggested that optimum supplementation ratio of Molasses on overripe fruit waste was not established, further research is therefore needed.

EFFECT OF TRICHODERMA HARZIANUM AS BIO STIMULANT ON THE DECOMPOSITION OF SUGARCANE TRASH

Author: Generose O. Tadim

Year: 2020

Adviser: Alexander Campaner, Ph.D

The study was conducted at Guihing, Davao del Sur to evaluate the effect of *Trichoderma harzianum* as bio stimulant on the decomposition of sugarcane trash. The experiment was laid out in completely randomized design (CRD) composed of five treatments (levels of *Trichoderma harzianum*) with five replications: T1 –control, T2 -250grams, T3 -500grams T4 750grams T5-1000grams. Data gathered were NPK content, moisture, texture of compost, color of compost, pH, temperature, relative humidity, and light intensity. Based on the finding of the study the nutrient analysis (NPK), moisture content (%), pH was not significantly different among treatments. While the color and texture of compost was significant at 5% level.

The data revealed significant result in texture with the value of 4.47 number of textures per sample but was comparable to T4,3 and 2 with the mean of 4.37,3.94 and 3.80. and the color which range of 4.40-3.88. and the other revealed not significant result in moisture with the range of 4.45-40.80, pH with the value of 7.58-7.03 and the npk which range of 1.65-3.13%. This finding indicates that the application of *T. harzianum* (1000g) enhance the texture and color of compost.

PHYSICO – CHEMICAL ANALYSIS OF MINERAL BLOCK USING DIFFERENT LEVELS OF FERMENTED FRUIT EXTRACTS

Author: Kevin Karl A. Buit

Year: 2020

Adviser: Alexander Campaner, Ph.D

This study was conducted to evaluate the effectivity of the different level of of fermented fruit extract in mineral block. The study was carried out in Completely Randomized Design and replicated 3 times with the following treatments; T1- (Control), T2- (25 % banana fruit extract), T3(50% banana fruit extract), T4(25% pineapple fruit extract), T5(50% pineapple fruit extract). The experiment was conducted at Davao del Sur State College (DSSC) last March 2020 and the acceptability was conducted at Bansalan, Davao del Sur.

The study revealed that the mean difference in odor of the mineral block using different levels of fermented fruit extract has highly significant effect. The result revealed that T3 (50% banana fruit extract) has a highest result having a mean of 3.20, followed by T5 (50% pineapple fruit extract) having a mean of 2.60, then T4 (25% pineapple fruit extract) having a mean of 2.40, T2 (25 % banana fruit extract) having a mean of 2.13, and lastly T1 (Control (Water 100%) having a mean of 2.06 among treatment.

In the mean difference in Total Soluble Solid (TSS) of the mineral block using different levels of fermented fruit extract has highly significant effect. The result revealed that T5 (50%pineapple fruit extract) and T4 (25 % pineapple fruit extract) have both the highest mean of 1.06, followed by T1Control (100% water) having a mean of 1.03, then T3 (50% banana fruit extract) having a mean of 1.02 and lastly T2 (25% banana fruit extract) having a mean of 1.01 among treatment.

In the mean difference in pH of the mineral block using different levels of fermented fruit extract has a significant effect. The result revealed that T1– Control (Water 100%) has a highest result having a mean of 8.37, followed by T3 (50% banana fruit extract) having a mean of 1.53, then T4 (25% pineapple fruit extract) having a mean of 1.37, T5 (50% pineapple fruit extract) having a mean of 1.33 and lastly T2 (25 % banana fruit extract) having a mean of 1.30 among treatment.

In the result of the acceptability of the animals (cattle and goat) to the mineral block are positivity acceptable because of the ingredients/output that the mineral block made. Ten cattle and ten goats are accepting and swallowed the mineral block using different level of fermented fruit extract.

Based on the results, there were significant results in the means of the mineral block using different levels of fermented fruit extract. The researcher concludes that using 25% of pineapple fruit extract was more effective in all treatments after ranking all the treatments in every parameter used in this study.

The researcher recommends the use of another fruit extract to be applied in the production of mineral block for agricultural animals with the same experimentation using lower concentration and higher concentration for the acidity to get the best results. As for this study, it is recommended to use 25% pineapple fruit extract to make animal mineral block for agricultural animals due to favorable results.

EFFECTS OF ORGANIC FERTILIZATION ON THE GROWTH AND YIELD OF TOMATO (*Lycopersicon esculentum*)

Author: Laimar B. Magalona

Year: 2020

Adviser: Edralyn Catubay, Lic, Agri

This study was conducted to evaluate the effects of organic fertilization to determine the growth and yield of tomato (*Lycopersicon esculentum*). The study was carried out in Randomized Completely Blocked Design (RCBD) with seven (7) treatments and replicated three (3) times. Treatments were as follow: T1-KD Foliar Fertilizer, T2-Algifol, T3-Humus, T4-Effective Microorganism, T5-AZ41, T6-MPQ, T7-Synthetic Check. The experiment was conducted at Brgy. Dolo, Bansalan, Davao del Sur from December 2019 to March 2020.

Based on the results of the study for *L. esculentum* applied with seven (7) organic fertilizer, KD Foliar Fertilizer best supported the optimum growth and yield of *L. esculentum* affording the highest plant height, average yield of tomato on first harvest and second harvest, average weight of small tomato fruit on its second harvest, average weight of large tomato fruit on first to third harvest.

KD Foliar Fertilizer should be best used as alternative organic fertilizer for the optimum growth and yield of *L. esculentum*. Optimum fertilizer rates at different growth stages according to the expected yield under growing condition was not established, further research is therefore needed.



Davao del Sur State College
Matti, Digos City

www.dssc.edu.ph

