Organized By :

Book of Abstract
Conference Proceeding

ICAS

3rd
INTERNATIONAL CONFERENCE
FOR APPLIED SCIENCE

SAIGON PRINCE HOTEL
HO CHI MINH, VIETNAM
OCTOBER 14-15, *2019*

Sponsored By :

bank bjb

LPPOM MUI
Lembaga Pengkajian Pangan Obat dan Kosmetika
Majelis Ulama Indonesia

Supported By :

RESEARCH SYNERGY INSTITUTE

Scholar Vein

REVIEWER TRACK

RSF PRESS

Abstract Proceeding Book of

3rd International Conference for Applied Science

(3rd ICAS)

October 14 - 15, 2019

Ho Chi Minh City, Vietnam

Abstracts Proceeding Book

of

3rd International Conference for Applied Science (3rd ICAS)

ISBN:
978-602-5902-39-0

Chief of Editor:
Hendrati Dwi Mulyaningsih

Cover and layout:
Diah Kusumastuti

Publisher:
Yayasan Sinergi Riset dan Edukasi

Office Address:

Komplek Sinergi Antapani

Jl. Nyaman 31, RT01 RW23, Bandung 40291, Indonesia

Contact: (+62) 8112331733

Email: contact@researchsynergy.org

First publication, October 2019

FOREWORD

Universitas Djuanda Bogor, as top 100 universities in Indonesia, has agreed on a vision of "Becoming a Research University Unified in Monotheism and Recognized Worldwide" with applying *Pancadarma*. To achieve this vision, we encourage lecturers to take part in leading research that is united in monotheism and has a clear and workable range of downstreaming. In line with the development of the *Pancadarma* to reach the position of becoming a Research University 2020, we are determined to become an entrepreneurial University in 2035. Universitas Djuanda Bogor is here to answer the challenges of the education world by raising the flag of the "*Kampus Bertauhid*" (Campus with Tawhid). Djuanda University is committed to producing competent graduates to prepare future leaders who are intelligent intellectually, emotionally, socially and spiritually.

Our Vision:

To become a research university that is united in monotheism and is recognized worldwide

Our Mission:

Carrying out high quality and modern higher education *pancadharma* which includes education, research, community service, professionalism and monotheism to encourage the realization of intelligent intellectual, spiritual, emotional, social, competitive, and entrepreneurial spirits that are beneficial to society and the nation, and become a *rahmatan lil ' alamin.*

Research Synergy Foundation is a digital social enterprise platform that focuses on developing Research Ecosystem towards outstanding global scholars. We built collaborative networks among researchers, lecturers, scholars, and practitioners globally for the realization of knowledge acceleration. We promote scientific journals among countries as an equitable distribution tools of knowledge. We open research collaboration opportunities among countries, educational institutions, organizations and among researchers as an effort to increase capabilities.

Known as a catalyst and media collaborator among researchers around the world is the achievement that we seek through this organization. By using the media of International Conference which reaches all researcher around the world we are committed to spread our vision to create opportunities for promotion, collaboration and diffusion of knowledge that is evenly distributed around the world

Our Vision:

As global social enterprise that will make wider impact and encourage acceleration quality of knowledge among scholars.

Our Mission:

First, developing a research ecosystem towards outstanding global scholars. Second, Promoting scientific journals among countries as an equitable distribution tools of knowledge. Third, opening research collaboration opportunities among countries, educational institutions, organizations and among researchers as an effort to increase capabilities. Fourth, creating global scientific forum of disciplinary forums to encourage strong diffusion and dissemination for innovation.

TABLE OF CONTENTS

ORGANIZING COMMITTEE

Advisory board
Dr. H. Martin Roestamy, SH, MH
Hj. R. Siti Pupu Fauziah, M.Pd.I

Chief of Coordinator
Dr. Ir. Dede Kardaya, M.Si

Conference Chair
Dr. Widyasari, M.Pd

Co-Conference Chair
Dr. Hendrarti Dwi Mulyaningsih

Secretary
Mas Nur Mukmin, M.Ak

Finance
Megan Asri Humaira, M.Hum

Publication and Documentation
Muhammad Encep, S.Kom
Nurul Annisa Yuniarti, S.Pd
Wahyudin, SE

Conference Coordinator
Santi Rahmawati
Ani Wahyu Rachmawati

Conference Support
Diah Kusumastuti
Astri Amanda

Information and Technology Support by Scholarvein Team

SCIENTIFIC REVIEW COMMITTEE

Head of Scientific Review
Dr. Ir. Mohd. Ali Fulazzaky, CES., DEA

Reviewer

Prof. H. M. Winugroho
Badan Litbang Pertanian, Indonesia

Prof. Herdis
Badan Pengkajian dan Penerapan Teknologi, Indonesia

Prof. Hanafi Nur, M.Si
Universitas Djuanda Bogor, Indonesia

Dr. Elis Dihansih, M.Si
Universitas Djuanda Bogor, Indonesia

Dr. Aldricho Alpha Pollardo
Sungkyunkwan University, South Korea

Dr. Varsha Kanojia
Sher-e-kashmir university of agricultural sciences and technology Shalimar Srinagar Kashmir, India

Prof. Tenepalli JaiSai
National Institute of Construction Management and Research – NICMAR, India

Dr. Md. Rakibul Hasan
Khulna University of Engineering & Technology, Bangladesh

Dr. Muthia Elma
Lambung Mangkurat University, Indonesia

Dr. Sathaporn Monprapussorn
Srinakharinwirot University, Thailand

Ir. Christina Wirawan, M.T
Universitas Kristen Maranatha, Indonesia

Elty Sarvia, S.T, M.T
Universitas Kristen Maranatha, Indonesia

CONFERENCE CHAIR MESSAGE

We are delighted to welcome you to the 3rd International Conference for Applied Science (3rd ICAS) by Universitas Djuanda Bogor and Research Synergy Foundation as official partner held on October 14-15, 2019 at Saigon Prince Hotel, Ho Chi Minh City, Vietnam.

The theme of Conference is Capacity Empowerment of Local Resources in the Era of Industrial Revolution 4.0. 3rd ICAS 2019 International Conference shows up as a cutting-edge Engineering, Technology and Science Research platform to gather presentations and discussions of recent achievements by leading researchers in academic research.

It has been our privilege to convene this conference. Our sincere thanks, to the conference organizing committee; to the Program Chairs for their wise advice and brilliant suggestion on organizing the technical program and to the Program Committee for their through and timely reviewing of the papers. Recognition should go to the Local Organizing Committee members who have all worked extremely hard for the details of important aspects of the conference programs and social activities.

We welcome you to Ho Chi Minh City, Vietnam and hope that this year conference will challenge and inspire you, and result in new knowledge, collaborations, and friendships.

Best regards,

Dr. Widyasari, M.Pd
Chair of 3rd ICAS 2019

KEYNOTE SPEAKER

Dr. Dede Kardaya was born in Ciamis-West Java on July 24th 1961. He earned his bachelor's degree in animal science in 1986 at Universitas Padjajaran. He accomplished his master's degree at IPB University and earned the PhD degree in 2010 at IPB University as well.He has been lecturing since 1989 and became The Dean for Faculty of Agriculture from 2001 to 2005 at Universitas Djuanda. He worked as the Director for Research and Community Empowerment Department for three years since 2011. In 2014, He worked for the position of Universitas Djuanda Vice-Rector in Academic until 2016. Currently, He is The Rector of Universitas Djuanda since 2018. His current academic position is Lektor Kepala (Associate Professor).

Along his career as a lecturer, he has recognized for several awards and appreciations, such as, The Best Graduate in PhD Program, the Second Winner in Scientific Paper Award of Media Peternakan in 2012 Incentive Program for Internationalization of Scientific Journal, Satyalancana Karya Satya (loyalty and dedication for over 30 years) from President of Indonesia and YPSPIAI. His research in Animal Science, Livestock, and Poultry farming has been recognized by The Ministry of Research, Technology, and Higher Education of Indonesia through research grants for years. Plenty of publications both in national and international journal, has he been doing it since 2009. His current publication is "Effects of three slow-release urea inclusions in rice straw-based diets on yearling Bali bull performances" published in Q2 Scopus and WoS indexed journal. As a lecturer, he also does several community empowerments by becoming the expert team for various project especially in Livestock program, conducted by The Government of Private Sectors.

Summary Speech :

Morphometric and Body Condition Score of Preweaning Pasundan Calves Under Extensive Grazing Fed Flushing Ration

The preweaning period is a critical period for calves that are extensively grazed in the tropics because calves are very susceptible to various heat stresses and ectoparasites. The provision of flushing rations on the pre-weaning calves are expected to improve the calf performance. Research on the provision of flushing ration aims to improve the performance of pre-weaning calves that are maintained extensively. The study used 15 male Pasundan pre-weaning calves and 15 female pre-weaning Pasundan calves. Three of each male or female calf was randomly selected and allocated to the following three treatments: 1) calves are allowed to graze without feeding flushing rations, 2) calves are allowed to graze and fed flushing rations-1, 3) calves are allowed to graze and fed flushing-2 ration. The measured variables consisted of morphometric variables (chest girth, chest depth, body length, and body height), body condition score, and body weight gain. The collected data were analysed by multivariate analyses (IBM SPSS Statistics 22). The results showed that feeding of flushing ration increased ($P < 0.05$) body weight gain and improved ($P < 0.05$) body condition score of the pre-weaning calves but did not affect the morphometric variables. Limitation of our study relates to the expected amount of preweaning calves that fulfil the homogenous ages. We formulated the flushing ration consisted of some agriculture by-products supplemented with chromium organic and urea-impregnated zeolite fed to preweaning calves reared under extensive grazing.

KEYNOTE SPEAKER

Prof. Abdul Razak Alimon was a Professor at Universiti Putra Malaysia since 2004 (before he retired in 2015 from the university. He later joined Universitas Gadjah Mada as an Adjunct Professor from 2016 until present. As a lecturer at UPM since 1980, he teaches courses in animal sciences, particularly nutrition, nutritional physiology, animal production (cattle, goats, sheep, poultry). Throughout his teaching career, he supervised more than 30 postgraduate (Masters and Ph.D. students), with student coming from Indonesia, Thailand, Myanmar, Bangladesh, Iran, Iraq, and China.

His research interests include the utilization of oil palm by-products, palm kernel expeller, palm fatty acids in animal nutrition, and herbs as growth promotants in animals. Other interests include utilization of amino acids as supplement in poultry diets. He has published more than 150 research papers in international and local journals, and presented numerous papers in international and local conferences. He has been invited as plenary and keynote speaker at several international conferences. He has vast experience in consultation work for more than 20 years for government agencies and private firms. He is also a director of the MSAP Biz Venture Sdn Bhd (a business arm of the Malaysian Society of Animal Production), which is involved in training and providing short courses related to animal production, for farmers, government officers, and students.

KEYNOTE SPEAKER

Mr. Winai Dahlan is a founding director of the Halal Science Center of Chulalongkorn University, the Vice President of the Central Islamic Council of Thailand, Chairman of the Halal Standard Institute of Thailand (HSIT) and a member of University Council at Fatoni University. He is also lecturer at Chulalongkorn University and a visiting professor at Mahidol University, Burapa University, Chiangmai University, and Srinakarin Wiroj University, and in Indonesia; Universitas Djuanda, Universitas Muhammadiyah Prof.Dr.Hamka and Universitas Muhammadiyah Yogyakarta. He holds a Ph.D. in Applied Medical Biology at Universite Libre de Bruxelles, Belgium, and Master in Nutrition Science at Mahidol University, Bangkok. He is currently a member of the National Reform Committee in Social and the National Board of Education. He was also appointed as Dean of Faculty of Allied Health Sciences in 1998-2000 and Deputy Dean on Planning and Development in 1993-1996 at Chulalongkorn University, Head of the Food and Nutrition Research Unit in 1991-1993 at Ramkhamhaeng University, and Nutrition Advisor on Special Menus on some national or regional sports events. Apart from his academic career, he became a member of national and advisory board at the Ministry of Foreign Affairs, Ministry of Education, Ministry of Commerce, and Office of Prime Minister. He has joined scientific training and visit in 46 countries and had plenty of research published in the field of science, technology, food, and nutrition.

Mr. Winai Dahlan has won several National Awards and Honours, such as Best Innovative Civil Services, the Bravery Medal, Knight Grand Cordon of the Most Noble Order of the Crown of Thailand, The Chakrabarti Mala Medal, Best Innovation Awards at World Halal Research Summit, Recognized as “the 500 Most Influential Muslims” by the Royal Islamic Strategic Studies Centre, Jordan and many more achievements.

Summary Speech :

The Role of Muslims as a Thailand's Minority Population in Promoting the Country's Economy of 4.0 Era.

Thailand accounts for 11.4% of the land of ASEAN region (513,000 vs 4,481,000 sq.km), population 10.4% (69 vs 661 m), GDP 16.7% (520 vs 3,118 bil.USD). This region, despite Muslims accounts for 39.8% of the population (263 vs 660 mil), but Thailand has only 4.3% of Muslims in the country (3 vs 69 mil). However, the Muslims of Thailand play a high role in promoting the economy through the Islamic Halal economy. In fact, Halal is not only for Muslims but for everyone. Most of the beneficiaries of the Halal economy in ASEAN are not in Muslim hands. Thailand is a good example in such case. More than 95%, including entrepreneurs, business people, employees, factory workers, farmers who benefit from the Halal economy are not Muslims. Despite Muslims make up 24 percent of the world's population, but they only create 17 percent of the Halal food value, reflecting Muslims consume less. However, when considering non-Muslim markets, one may find that non-pork and liquor products are worth up to 89 percent.

These latter products have the potential to be considered as untapped potential of the Halal market if the production process is made safe for Muslims, which means safe for everyone. According to Al Qur'an, Halal is for All not specific to only Muslims. Therefore, in order for Thailand to reach the afore-mentioned point, the Thai government has formulated a halal food strategy that "Thailand Diamond Halal" is committed to developing Halal products and services to the diamond level and safe for all consumers. Moreover, it is to develop a marketing system to build confidence in the country's Halal brand at the level of Branding. This activity, the Halal Science Center in collaboration with the Halal Standards Institute of Thailand (The agency under the Central Islamic Council of Thailand or CICOT) has been assigned to carry out the mission.

The activities are aimed to upgrade the Halal products ranging from the development of information technology platforms, such as SPHERE: for the creation of Halal networks through relevant departments and enterprises; HAL-Q: Halal Standardization System; HAL Plus: in order to create The Halal Entrepreneur Network leads to the development of business matching systems between each other; Halal Blockchain: in order to connect operators into the security system by having a Big Data of verified Halal raw materials and chemicals to support industry; Halal Route Platform: which will be used for supporting Halal tourism events, etc. The various systems that integrate into these networks helps reduce the cost to entrepreneurs for increasing market opportunities and the competitive advantage. The final result is expected to build up confidence leading to brand making of the Halal mark as well as products.

CONFERENCE PROGRAM

Day 01- Monday | October 14, 2019
Venue : Grand Suite
Saigon Prince Hotel – Ho Chi Minh City, Vietnam

Time	Duration	Activities
07.35 – 08.35	60'	**Welcome Reception and Registration**
08.35 - 08.40	5'	**Welcoming MC**
08.40– 08.50	10'	**Global Research Ecosystem Introduction**
		Santi Rahmawati, S.T., MSM
		Founder & Director of Global Operation and Network Research Synergy Foundation
08.50 - 09.00	10’	**Welcome Remarks**
		Dr. Widyasari, M.Pd
		Conference Chair 3rd ICAS 2019, 3rd ICSS 2019
09.00 - 09.10	10’	**Opening Speech**
		Dr. H. Martin Roestamy, S.H., M.H.
		Chancellor of Universitas Djuanda, Indonesia
09.10 – 09.20	10’	**Coffee Break and Grand Networking**
09.20 – 11.10		**Keynote Speakers (Panel session)** Moderator: Mas Nur Mukmin, M.Ak
	20’	**Keynote Speech 3rd ICSS 2019**
		Prof. Mohamad Ali Fulazzaky
		Universitas Djuanda, Indonesia

	20’	**Keynote Speech 3rd ICSS 2019**
		Assoc. Prof. Dr. Novel Anak Lyndon
		University Kebangsaan Malaysia, Malaysia
	20’	**Keynote Speech 3rd ICAS 2019**
		Dr. Ir. Dede Kardaya, M.Si
		Rector of Universitas Djuanda, Indonesia
	20’	**Keynote Speech 3rd ICAS 2019**
		Prof. Abdul Razak Alimon
		Universiti Putra Malaysia, Malaysia
	20’	**Keynote Speech 3rd ICAS 2019**
		Prof. Winai Dahlan
		Halal Science Center, Chulalonkorn University, Thailand
11.10 – 11.40	30’	**Keynote Panel Session for Discussion and Q&A**
11.40 – 12.00	20'	**Award Ceremony & Group Photo**
12.00 – 13.00	60'	**Lunch Break**
13.00 – 17.15	255'	**Parallel Session**
17.15 – 17.25	10'	**Closing Speech**
		Dr. Widyasari, M.Pd
		Conference Chair 3rd ICAS 2019, 3rd ICSS 2019
17.25 – 17.45	20'	**Award Ceremony**
17.45 – 17.50	5’	**Closing MC**

Day 01

Deluxe 1

Monday, October 14, 2019
Session 1 : 13.00 – 15.00
Session Chair : Prof. Abdul Razak Alimon and Prof. Mohamad Ali Fulazzaky

Track Aquaculture and fisheries, Agriculture

Paper ID	Author	Media	Paper Title
CAS19106	Mohamad Natsir	Oral Presentation	A Study of Visualizing the Resource Distribution In Bali Strait Using Smartphone Applications for Purse Seine Fishery
CAS19105	Oktavianus Lumban Tobing	Oral Presentation	Increase Growth and Production of Curly Chili Pepper through the Extracts of Banana Hump and Mimba Leaves
CAS19110	Nida Fitriasari	Oral Presentation	Aponic (Android Hydroponic) : Controlled Hydroponic System
CAS19109	Wini Nahraeni	Oral Presentation	The Implementation of Good Agricultural Practices (GAP) in Development of Farm Sustainable Pamelo in Magetan District East Java Province Indonesia
CAS19112	Yanyan Mulyaningsih	Poster presentation	Concentration Effect of Neem Leaves and Various Banana Variety Tubers on Growth and Yield of Chili
CAS19114	Arifah Rahayu	Oral Presentation	Growth of Sweetleaf Plants (Sauropus androgynus (L.) Merr.) on Various Composition of Organic Nitrogen Fertilizers
CAS19127	Ita Novita	Oral Presentation	The Supply Chain Performance of Herbal Medicine for Farmer's Support
CAS19102	Freza Riana	Virtual Presentation	expert system for risk level detection fusarium wilt disease in banana plants using dempster shaper

Afternoon Coffee Break : 15 Minutes

Day 01

Deluxe 1

Monday, October 14, 2019
Session 2 : 15.15 – 17.15
Session Chair : Prof. Abdul Razak Alimon and Prof. Winai Dahlan

Track Soil and Environmental Sciences, Technology and raw materials for food production, Poultry farming, Halal Food, Food Sciences

Paper ID	Author	Media	Paper Title
CAS19104	Muhammad Hariansyah	Oral Presentation	Installation of solar panels capacity of 4 kWp as Suplay electrical power in the plastic waste processing production machine become Paving block
CAS19107	Mohamad Ali Fulazzaky	Oral Presentation	A review of the applicability of the mass transfer factor models (or the modified mass transfer factor models) for different uses
CAS19113	Anggraeni	Oral Presentation	Composition Of Fatty Acid in Meat Local Duck By Giving Salam (Sizygium plyanfhum (Wight) Walp) Leaf Extract In Drinking Water
CAS19115	Elis Dihansih	Oral Presentation	Fat content and fatty acids profiles of rejected ducks fed nonconventional ration with natural hydroxy citrate {(-)-HCA} addition
CAS19116	Miftakhul Amalia Rizky	Oral Presentation	Process Analysis of Halal Certification in Restaurant "Sederhana" East Jakarta Region
CAS19111	Wilna Iznilillah	Virtual Presentation	Edible Flower Candies "Krispol Candy": Candy Herbal Preparations Chrysanthemum And Spices Cardamom
CAS19117	Nurmaida	Virtual Presentation	Optimization of pumpkin flour processing by response surface methodology (RSM)
CAS19108	Taufik Rahmat	Oral Presentation	Analysis of Agricultural Sectors on Economic Growth In Bogor Regency, West Java Province

List of Conference Attendees and Invitation

ID	Attendee / Invitation	Field of Study	Affiliation
CAS19118	Himmatul Miftah	Agriculture	Universitas Djuanda, Indonesia

Day 02

Tuesday (October 15, 2019)

City Tour and Shopping Day

All respective guests are free to conduct their own sightseeing and tour. The second day of the event is reserved for this memorable purpose

INCREASE GROWTH AND PRODUCTION OF CHILI PEPPER THROUGH THE EXTRACTS OF BANANA HUMP AND MIMBA LEAVES

Oktavianus Lumban Tobing[1], Yanyan Mulyaningsih[1a], Nani Yulianti[1]

Jurusan Agroteknologi, Ketua dan Aggota Tim Peneliti Hibah Riset dan Teknologi Fakultas Pertanian Universitas Djuanda Bogor Jalan Tol Ciawi No.1 Kotak Pos 35 Bogor 16720
Korespondensi: Oktavianus Lumban Tobing Telp: 081328789829; E-mail: oktavianuslumbantobing@gmail.com

ABSTRACT

The growth and production of curly chili pepper plants are determined by some of the main variables, namely: cultivation techniques, among others from the administration of banana hump extract and Mimba leaf extract as well as pest and disease attacks. Another determining mediation is local weather conditions in Taman Sari District Bogor West Java. The research on Chili pepper is still limited, whereas most people in Indonesia from Sabang to Merauke consume chili in large quantities. The writing of this research article aims to explore the diversity of Indonesia's contribution to Indonesian, among others, the stage of banana and Mimba leaf extracts that can stimulate the growth and results of curly chili peppers. Data analysis uses a group's random design with two variables and 3 times the repetition. The first variable of banana hump extract consists of 4 levels: 0%, 15%, 30%, 45% and the second variable of Mimba leaf extract consists of 4 levels: 0%, 15%, 30%, 45%. Mimba leaf extract provides positive mediation on heading diameters, while the Mimba leaf extract and banana hunk provide positive mediation on diameters of headers, leaf area and the number of productive branches. Both of these variables do not provide positive mediation on the production of wet and dried fruit weights due to research taking place in the dry season long from March to July 2019, where rainfall is low and the temperature is relatively high, resulting in Evaporation on the high fruit. The results of this study were supported by previous research stating the 20 to 90% of chili peppers were determined by moisture content. Major diseases and pests are low, the results of the research are supported by previous research that Mimba leaf extract can act as a mediation of pests and diseases.

Keywords: growth and production of chili, extracts, banana hump, and Mimba leaves

INTRODUCTION

Chili peppers include fruit vegetables which are an additional flavoring ingredient with a spicy flavor. Almost all people need chili sauce after being processed from chili raw material. This condition causes the demand for chili pepper to occur in continuity. Chili cultivation often gets the problem of the presence of major pest attacks aphid and diseases of anthracnose in chili Peppers caused by *Colletotrichum capsici* fungus.

The decline in chili pepper production can be caused by many factors, among them, caused by some adverse fungi that are anthracnose chili peppers caused by *Colletotrichum capsici* and other fungi spotting chili leaves (*Cercospora capsici*) , Fusarium wither (*Fusarium oxysporum* F. SP Capsici), the cause of nursery disease (*Sclerotium rolfsii*) (Yanti et al., 2019). The production of chili pepper can be drastically decreased by both of the body of the bully, so in this study sought an alternative in pressing the attack through the administration of banana hump and mimba leaves. The level of national chili needs to be increased from April to June 2019. Based on the Ministry of Agriculture's record, the level of national chili needs in April 2019 reached 73,999 tons, in May 75,877 tons, and in June around 77,755 tons. Meanwhile, when compared to the national average production level, these needs are still relatively met. Ismail noted, the national average chili production rate per month reached more than 100 thousand tons. The details of national production were recorded, in April 2019 amounting to 110,707 tons, in May 113,032 tons,while in June it reached 115,357 tons (Damayanti dan Nidia , 2019).

Research on the Chili Planting Movement program has not provided results against the demand for household-level chili, which is seen from: (1) There is no difference in the volume of purchase of chili pepper between before and after the chili Planting movement in the recipient group, and (2) Absence of difference in purchase volume of chili pepper after the program period between the recipient group and no receiver. The main cause of many dead chili plants, which are distributed not by consumer preferences, and chili pepper is an inelastic commodity. This program can take place, if: (1) The type of chili in the program is tailored to the consumer's liking, and (2) the development of systems and institutional order to ensure the sustainability of the program includes the seed sharing system, Group determination Recipient, pre-and post-division mentoring, as well as the technical supply of

cultivation to the recipient group (Nugrahapsari et al., 2019). The development of the export volume of processed chili during the period 2006-2014 increased with an average value of 43.55% per year. The number of exports of Indonesian chili pepper was increased from 1.54 thousand tons 2006 to 14.35 thousand tons in 2015 although in 2011 was decreased to 8.6 thousand from 2010 that is as much as 8.7 thousand tons. While on the other hand, the development volume of imported chili peppers during the period 2006-2015 experienced an increase in the average value of 12.97% per year (Yanuarti Astri Ridha and Mudya Dewi Afsari 2016). The prevention of the main pest and disease of chili Peppers with synthetic pesticides can decrease the level of attack, but the residue negatively affects the environment, such as water, soil, and air. An alternative to overcome the danger of residue through the use of vegetable pesticide origin of plants. Plant-based vegetable fungicide is environmentally friendly so it is not harmful to humans, easily degradable. The use of vegetable pesticides is relatively inexpensive, easy to obtain and easy to use (Suleiman 2010; Andani 2017).

The combination of Mimba leaves (*Azadirachta indica*) with cayenne pepper (Capsicumshot frutescens) gives the result of green tick mortality (*Aphis gossypii*). The concentration of a combination of mimba leaves with chili pepper against Green Flea mortality (*Aphis gossypii*) The best result of 15% concentration obtained nymph mortality 85% (Rajab, 2019).

The use of pesticides in agriculture has begun several centuries ago that began with the use of organic substances derived from plants such as pyrethrum and nicotine, and other crops. The Mimba leaf extract test with concentration (0, 0.5, 1, 1.5, 2, 2.5)% against the golden Conch gives the following results: 1. The highest mortality at a concentration of 2.5%, 2. The higher the concentration of given Mimba leaf extract will be high-level Mortality, 3. The lower the concentration of a given mimba leaf extract will increase the breakdown of rice crops (Karyadi, 2018). The liquid formulation of Azadirachta seed extract Indica 50 EC is more toxic compared to the formulation of liquid extract Kalanchoe pinnata 50 EC against the Spodoptera larva Oriental. Also, the liquid formulation of seed extract A. Indica 50 EC resulted in decreased larvae weight and feed consumption, extending the time of development of larvae, and lowering the success rate of larvae evolved into a pupa and Imago (Paramita et al., 2018).

Test result Mimba leaf extract 0%, 1%, 5%, 10%, 15%, 20% against the colony diameter Colletotrichum capsid of the Potato dextrose to obtain the lowest diameter *C. Capsici* at a concentration of 20% is 44.25 mm from other concentrations. Classification of *C. Capsici*,

Ningsih (2013) as follows: Divisio: Ascomycota Class: Pyrenomycetes order: Sphaeriales Familia: Polystigmataceae Genus: Colletotrichum species: Colletotrichum capsici.

Conidia *C. Capsici*, symptoms of anaphorical disease, and chilies that are affected by the disease in the field are shown in picture one. While the conidia and setae *Colletotrichum capsici* a microscope's field of view 10x10, and the life cycle is shown in picture two.

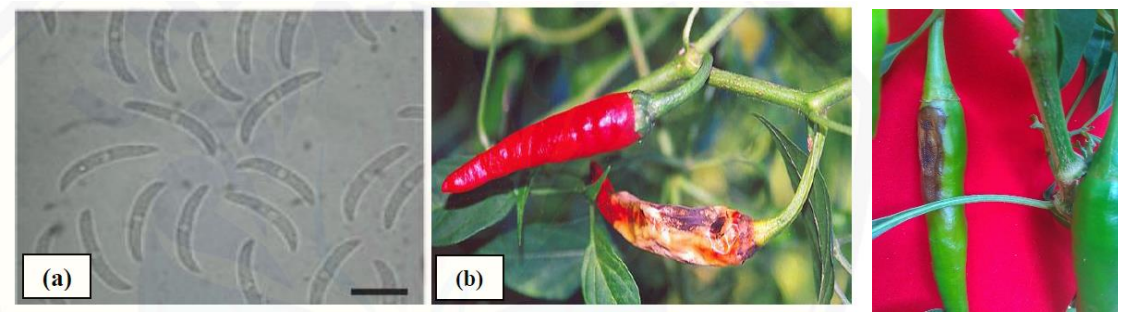

Figure: 1a. Conidia *C. Capsici* (Than et al. 2008), 1b. Symptoms of anaphorical diseases that are said to be *C. Capsici* (Prakash, 2000), 1c. Chili Peppers affected by antrnosa disease.

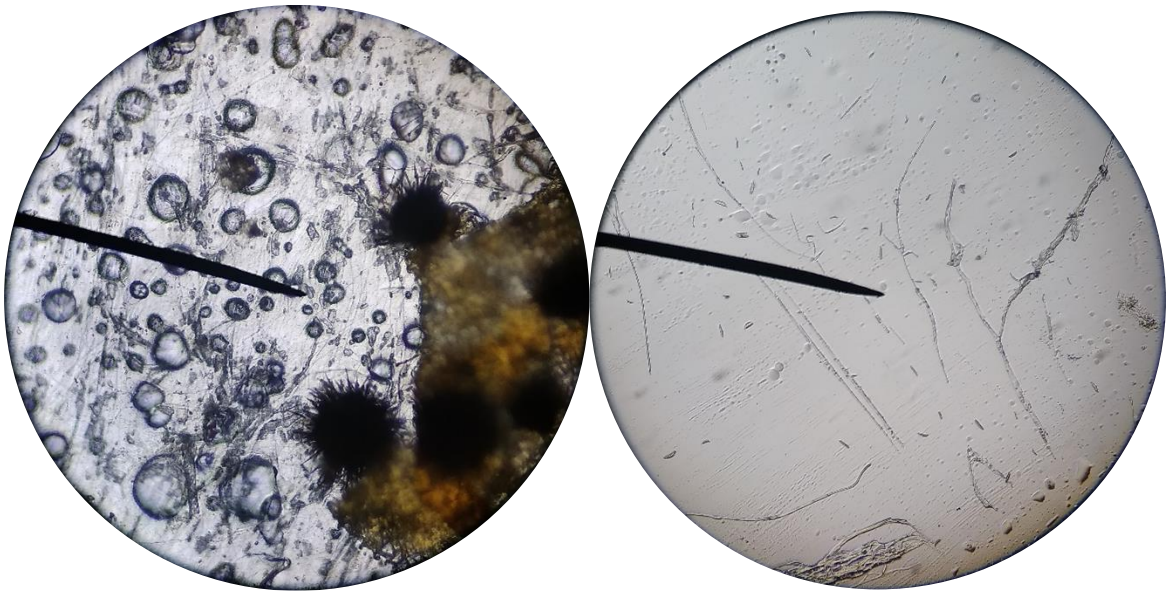

Figure: 2a Image of Conidia and setae *Colletotrichum capsici* observations on the field of view microscope 10 x 10

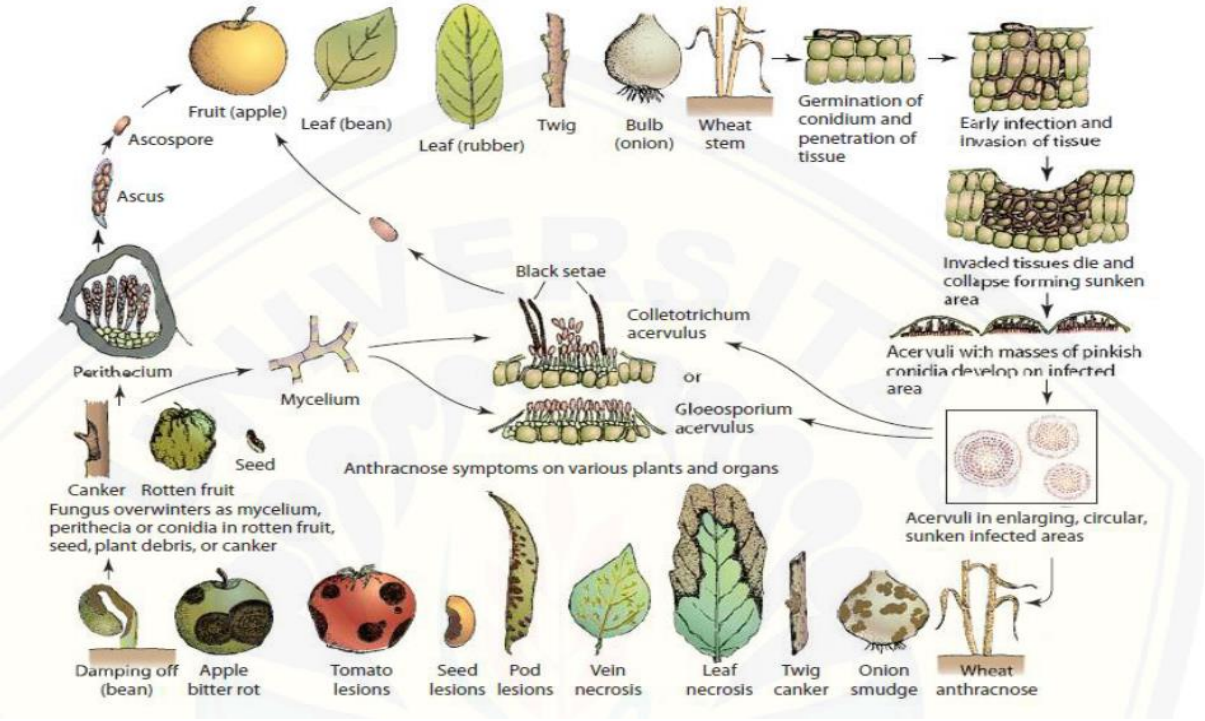

Figure: 2b of the cycle of anthracnose disease caused by *Glomerella cingulata* and Colletotrichum or *Gloeosporium* sp. (Agrios, 2015).

The growth and production of chili pepper can be stimulated through the provision of natural growth regulator of the banana hump extract and the result contains Giberelin and cytokine. According to Alfandi and Deden (2016), the combination of regulator growth of Giberelin (0, 50, 100, 150) ppm and mole (10, 20, 30) ML/L is a real effect on the fruit quantity per polybag and fruit weight per chili pepper plant. The concentration of the cuffs 10 ml/l gives a noticeable effect on the high level of chili plants aged 20 HSPT and the average height of 10.56 cm at 60 HSPT. The flowering phase of the beans is also susceptible to abortion, so to prevent from the preventing flower can be applied plant regulating substances, a type of hormone gibberellin (GA3). Gibberellin hormone can stimulate the growth of flowers and the formation of the fruit and strengthen the stem condition of the plant beans. In addition to the flowering phase, the Giberelin hormone also has a role in preventing the loss of interest (Senja, 2019).

MATERIALS AND METHODS

The research starts from March to July 2019 in Gapoktan Repeh Rapih Land, Sukamantri village, Tamansari District, Bogor Regency, West Java. Farmer groups strive to plant around the research land by planting a type of red chili, long beans, Petsai, and Keladi Bogor. Pests

and anaphylactic diseases are available as a natural source of the snake. The research land used in chili pepper plants in the preparation of polybag 15 cm x 25 cm Unuk Place of seedbed further planting chili seed varieties, the preparation of Polybag media 40 cm x 45 cm for planting, the preparation of Mimba leaf extract and the cuffs of tillers Banana Sword of Kepok, analysis of the type and content of each extract. The observed changes include: height of the plant (cm), Diameter of the stem (cm), leaf area (cm2), number of fruit cropping, wet and dried fruit crop (g), the weight of wet and dried plants (g): For the sacrificial plant 4 times the observation and plant samples 1 observation at the end of the study, percentages/events (%) and intensity/severity (%) From pests and diseases. The Data on the termination of the treatment is analyzed using a random design of factorial group with two factors, Mimba leaf extract consists of four levels: 0% (MO), 15% (M1), 30% (M2), 45% (M3), and banana hump extract consists of four levels: 0% (PO), 15% (P1), 30% (P2), 45% (P3). The Data obtained at any time of the change is to be determined in the future if there is a difference in the 5% level tested in advanced using Duncan Multiple Range Test. Linear method of Design random (RAK) Group of factorial are:

$$Yijk = \mu + Ai + Bj + (AB)ij + Ck + \varepsilon ijk$$

Yijk: The response value of the i-mimba extract of the b-banana hump extract of the k-j group

μ: General Middle Value

Ai : Te effect of mimba extract i

Bj : The effect of banana hump extract j

(AB)ij: The interaction effect of the i-mimba extract of j-banana hump extract

Ck: the influence of the k-th group

Ɛijk: Trial errors at the age of the mimba extract i and the k-banana hump extract.

RESULTS AND DISCUSSION

A. Results

Table 1. Average height of plants

Average plant height of the day after planting (cm)						
Treatmen	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	24,94	37,29	42,26	44,80	46,28	47,27
M1	25,41	38,30	44,64	47,92	49,79	50,19
M2	24,24	37,20	41,78	44,83	45,89	47,90
M3	22,79	35,42	40,52	45,06	46,64	46,87
Banana Hump Extract						
P0	23,07	35,54	40,17	43,39	45,33	46,74
P1	23,57	36,87	43,10	45,42	47,27	47,65
P2	25,49	38,04	42,79	46,30	47,41	48,09
P3	25,24	37,76	43,14	47,48	48,59	49,76

Based on table 1 indicates that the extract treatment of mimba leaves or extracts Banana hump for all treatments do not give results, but the average height of the plant for each of the treatment of Mimba leaf extract and banana hump extract ranging from the age of 14 DAP , 24 DAP, 34 DAP, 44 DAP, 54 DAP, 64 DAP occurs Higher crop rise. This is due to the content of active ingredients found in Mimba leaf extract and banana hump extract can stimulate crop height growth. According to WEA (2018) Application of organic fertilizer liquid block banana saba concentration 10%, 20%, 30% does not affect the height of plant stem okra.

Table 2. Average diameter of plant stem

Average stem diameter of the day after planting (cm)						
Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	0,44	0,50	0,64	0,71	0,78	0,83
M1	0,45	0,52	0,64	0,74	0,83	0,88
M2	0,41	0,51	0,63	0,72	0,82	0,89
M3	0,42	0,48	0,63	0,74	0,83	0,88
Banana Hump Extract						
P0	0,41	0,47	0,59	0,70	0,78	0,84
P1	0,43	0,51	0,66	0,74	0,83	0,88
P2	0,45	0,52	0,64	0,74	0,81	0,86
P3	0,44	0,51	0,65	0,73	0,84	0,91

Average diameter of the plant stem for each Mimba leaf extract treatment and banana hump extract at all ages did not provide results, but the average diameter of the stem for each of the Mimba leaf extract treatment and banana hump extract Starting from age 14 DAP, 24 DAP, 34 DAP, 44 DAP, 54 DAP, 64 DAP rise steadily. The compound content of Mimba leaf extract and banana hump extract can stimulate the addition of stem diameters.

Table 3. Average diameter heading

Average canopy diameter of the day after planting (cm)						
Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	23,97	32,09	35,00	38,13a	40,41a	36,51
M1	25,02	33,23	38,94	43,69b	43,77b	39,68
M2	23,43	33,94	36,21	41,52b	39,70a	38,24
M3	22,80	31,79	34,15	41,96b	40,07a	37,91
Banana Hump Extract						
P0	23,50	30,92	33,69	39,83	39,62	37,77
P1	23,64	34,67	36,75	40,66	40,51	37,59
P2	24,58	32,88	38,06	41,48	41,54	37,66
P3	23,50	32,58	35,81	43,32	42,28	39,33

Description: The average value in the same row followed by the same letter does not differ according to the DMRT test at 5% level

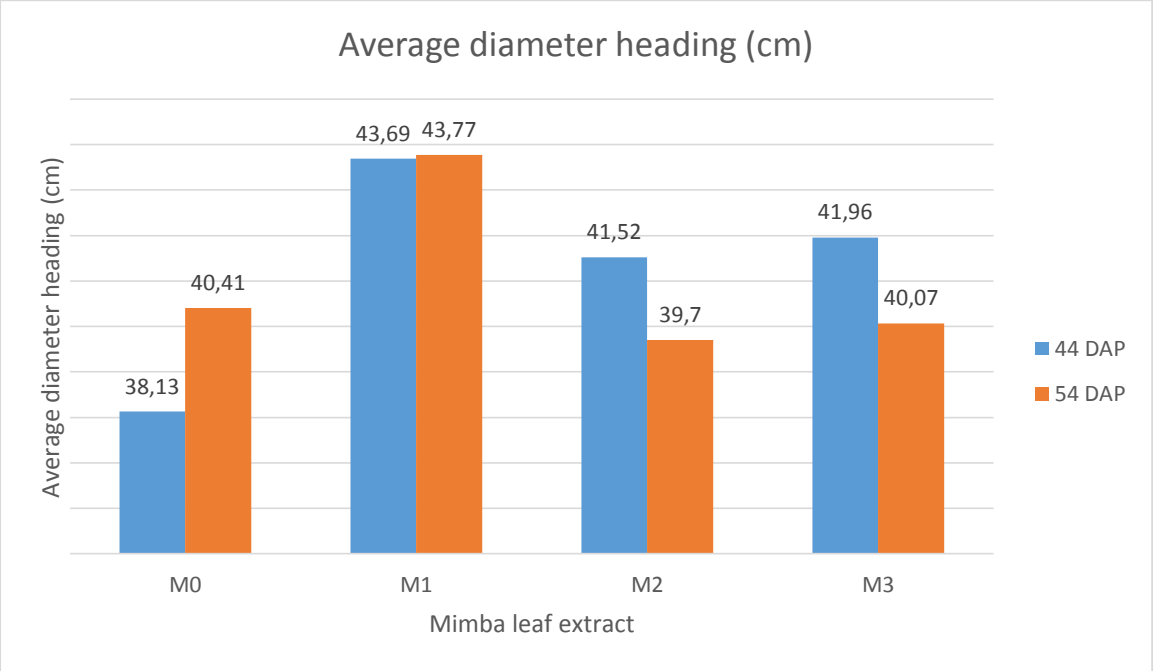

Figure 3: The average diameter of the heading is 44 and 54 days after planting

The average result of a mimba leaf extract treatment for the diameter of the heading's head diameters 44 DAP and 54 DAP Ascendant for other ages there is no difference, while the average banana hump extract treatment is no different. The compound content of Mimba leaf extract and banana hump extract stimulated at the age.

Table 4 Average area of plant leaves

Average leaf area the day after planting (cm^2)						
Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	18,40	20,38	31,09	34,66	26,83	25,35b
M1	17,89	21,60	29,89	33,01	26,71	25,74b
M2	17,77	19,99	29,67	35,06	27,85	22,82a
M3	15,77	20,37	28,71	34,03	27,45	21,28a
Banana Hump Extract						
P0	16,72	20,81	30,44	33,74	27,57	17,25a
P1	17,04	18,69	28,95	35,11	27,71	24,40b
P2	17,64	22,00	31,03	33,31	26,86	24,92b
P3	18,43	20,83	28,95	34,60	26,70	28,62c

Description: The average value in the same row followed by the same letter does not differ according to the DMRT test at 5% level

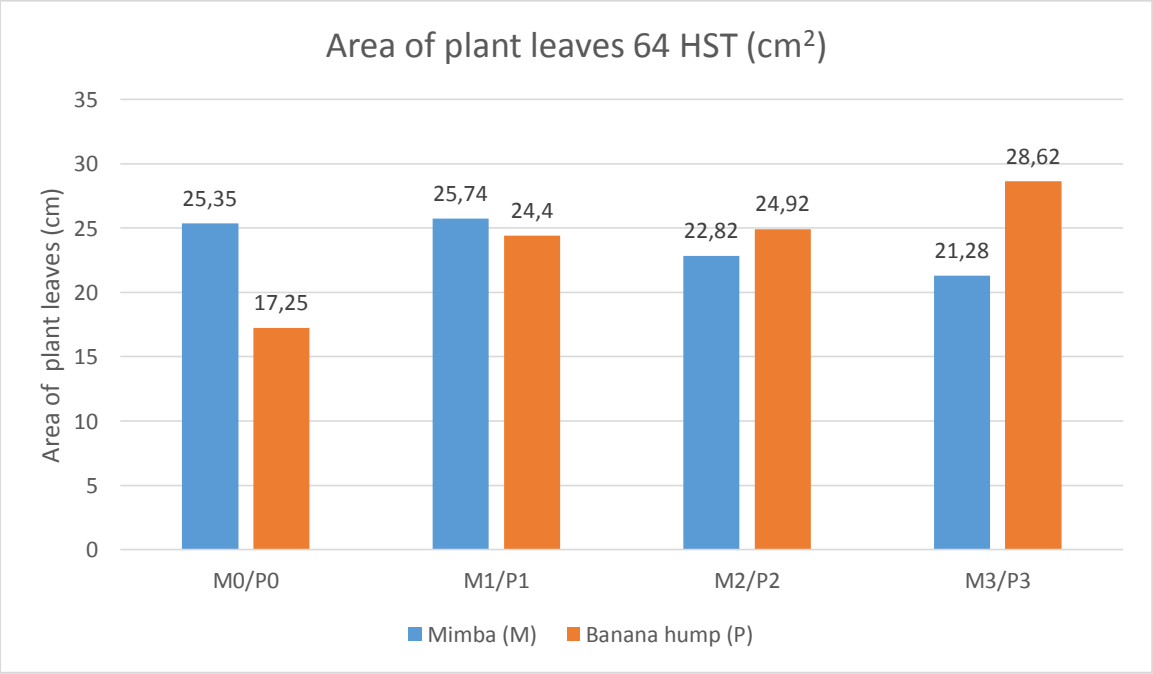

Figure 4: The average leaf area is 64 days after planting

The average self-treatment of Mimba leaf extract and a prominent banana hump extract on the area of the Leaf age 64 DAP. The compound content of Mimba leaf extract and banana hump extract stimulated the leaf area at age 64 DAP.

Table 5. Average interaction of leaves area of plants

Average interaction of leaves area of plants (cm^2)					
	Treatment	P0	P1	P2	P3
Age 44 DAP	M0	33,64abcd	28,99a	35,80bcde	40,21de
	M1	33,17bcde	30,98ab	34,70bcde	31,17ab
	M2	33,11abc	39,75cde	31,11ab	36,27bcde
	M3	33,03ab	40,70e	31,61ab	30,77ab
Age 64 DAP	M0	20,83b	22,91bcd	23,58bcde	34,08h
	M1	21,07b	20,98b	31,25gh	29,65fgh
	M2	15,34a	26,40cdef	22,16bc	27,39efg
	M3	11,17a	27,29defg	22,69bc	23,35bcd

Description: The average value in the same row followed by the same letter does not differ according to the DMRT test at 5% level

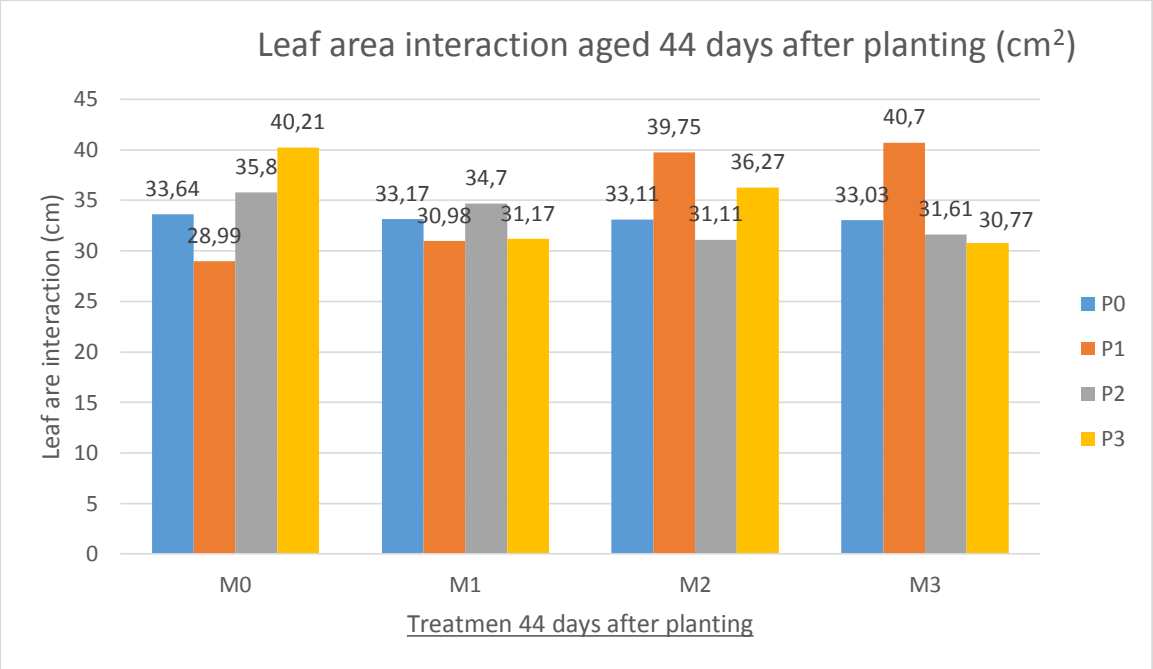

Figure 5: The average interaction leaf area of the plant is 44 days after planting

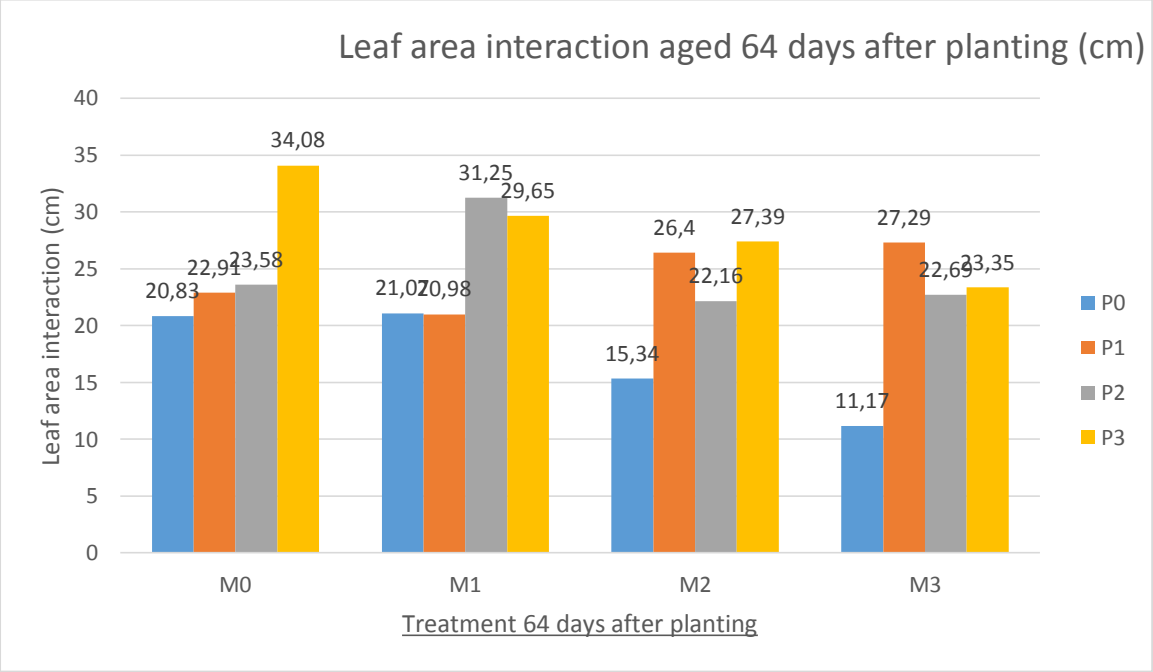

Figure 6: The average interaction leaf area of the plant is 64 days after planting

On average, the treatment of Mimba leaf extract and banana hump extract shows the interaction of real difference at the age of 44 DAP and 64 DAP. The content of compounds found in Mimba leaf extract and an influential banana hump at age 44 DAP and 64 DAP.

Table 6. Average number of fruits

Average number of fruits (g)			
Treatment	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract			
M0	4,86	8,78	5,14
M1	5,97	11,61	8,19
M2	4,89	8,94	6,36
M3	5,44	10,08	6,58
Banana Hump Extract			
P0	4,44	9,39	6,44
P1	5,42	9,72	6,31
P2	5,47	8,19	5,28
P3	5,83	12,11	8,25

The average treatment of Mimba leaf extract and banana hump extract on the amount of fruits for all ages does not indicate a difference.

Table 7. Average main branch

Average main branch						
Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	2,47	7,83	24,42	39,14	47,53	30,17
M1	2,94	9,22	27,94	47,56	57,17	34,06
M2	1,67	8,67	21,33	33,89	50,72	28,06
M3	1,69	8,39	23,56	40,94	45,44	28,83
Banana Hump Extract						
P0	1,89	7,22	21,00	36,67	43,94	30,83
P1	2,03	8,33	24,50	37,22	47,06	25,05
P2	2,58	9,89	25,64	39,58	50,75	31,17
P3	2,28	8,67	26,11	48,06	59,11	34,06

The average treatment of Mimba leaf extract and banana hump extract on average main branches for all ages does not give different results.

Table 8. Main branch interactions

Main branch interactions					
	Treatment	P0	P1	P2	P3
54 DAP	M0	40,00ab	48,00abc	43,00abc	59,11bc
	M1	36,67ab	66,89c	41,33ab	83,77d
	M2	52,22bc	40,00ab	67,33c	43,33abc
	M3	46,89abc	33,33a	51,33abc	50,22abc

Description: The average value in the same row followed by the same letter does not differ according to the DMRT test at 5% level

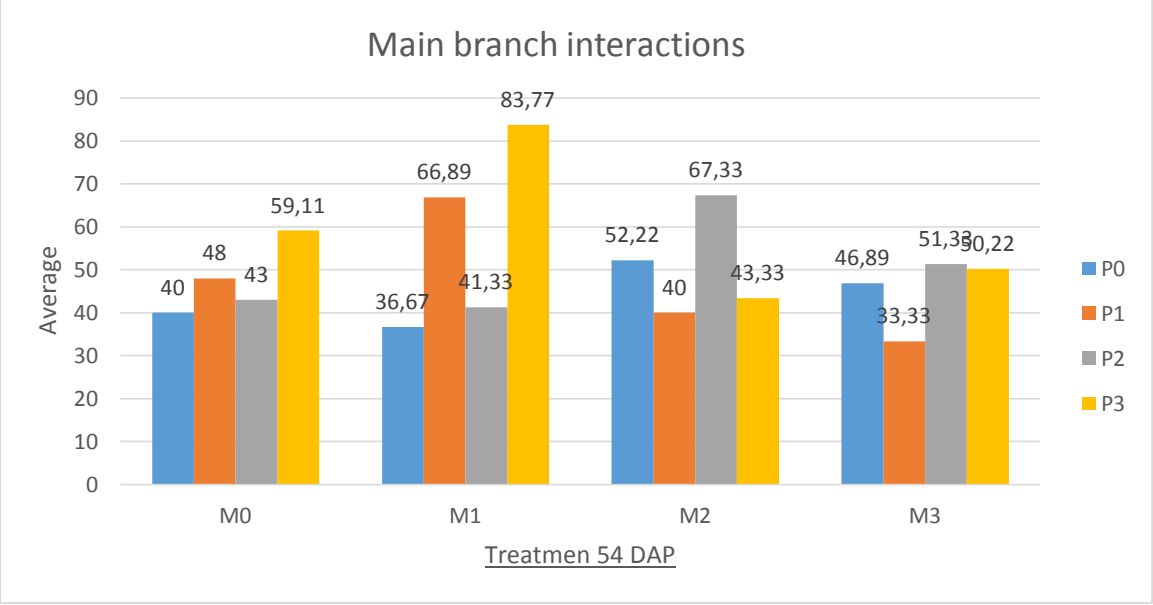

Figure 7. Main Branch Interactions

Table 9 Average fruit dry weight and fruit wet weight

	Average fruit dry weight				Average fruit wet weight			
Treatment	44 DAP	54 DAP	64 DAP	74 DAP	44 DAP	54 DAP	64 DAP	74 DAP
Neem extract								
M0	21,63	13,68	13,42	6,33	26,63	18,04	16,00	11,96
M1	20,79	22,74	17,94	9,69	24,42	26,40	21,88	16,60
M2	16,31	21,31	16,10	9,92	20,53	25,76	20,40	17,29
M3	22,63	15,07	15,00	9,38	26,74	19,74	19,14	18,50
Banana hump extract								
P0	17,51	19,61	12,67	11,32	22,10	24,81	16,74	19,60
P1	22,17	19,40	16,79	8,00	26,54	23,72	20,13	14,83
P2	22,04	16,47	16,17	7,92	26,81	20,17	20,18	14,58
P3	19,63	17,32	16,83	8,08	22,86	21,25	20,38	15,33

The average treatment of Mimba leaf extract and banana hump extract does not give different results for all the wet weight of the fruit and dry weight of the fruit. The compound content in both extracts on average treatment does not stimulate the results on the wet and dry weight of the fruit.

Table 10 Average root dry weights and root wet weights

	Average root dry weights				Average root wet weights			
Teatment	44 DAP	54 DAP	64 DAP	74 DAP	44 DAP	54 DAP	64 DAP	74 DAP
Neem extract								
M0	0,33	1,73	2,22	3,42	3,35	5,67	7,08	9,08
M1	0,36	1,78	2,08	3,67	3,58	6,50	6,50	11,42
M2	0,47	1,81	2,59	3,75	4,95	6,58	8,08	10,83
M3	0,49	1,85	2,22	4,33	4,99	7,25	6,75	12,00
Banana hump extract								
P0	0,40	2,01	2,13	3,42	4,25	6,83	6,50	10,25
P1	0,41	1,50	2,21	3,75	3,98	6,67	7,67	10,67
P2	0,39	2,00	2,71	3,75	4,21	6,33	7,42	10,42
P3	0,45	1,67	2,07	4,25	4,44	6,17	6,83	12,00

The average self-treatment of Mimba leaf extract and banana hump extract does not affect all root dry-weight changes and root wet weights.

Table 11 Average crown dry weight and crown wet weight.....

	Average crown dry weight				Average crown wet weight			
Treatment	44 DAP	54 DAP	64 DAP	74 DAP	44 DAP	54 DAP	64 DAP	74 DA
Neem extract								
M0	1,90	10,69	7,53	10,44	18,20	29,42	37,33	37,33
M1	1,75	19,57	9,03	15,03	17,04	40,42	43,75	43,42
M2	2,14	15,38	9,64	12,71	21,60	31,92	46,83	38,67
M3	1,98	13,80	8,57	14,78	19,28	31,17	39,67	44,33
Banana hump extract								
P0	2,00	17,72	7,73	11,68	19,58	41,17	37,08	39,92
P1	1,74	10,33	8,46	14,98	17,08	25,58	42,33	43,75
P2	2,22	16,03	9,38	14,15	21,40	34,75	41,42	39,08
P3	1,82	15,38	9,19	12,17	18,05	31,42	46,75	41,00

Average self-treatment of Mimba leaf extract and banana hump extract does not affect the results of all time observation of header dry weights and heading wet weights.

Table 12. Average incidence of disease in the fruit

	Average incidence of disease in the fruit (%)					
Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	0,00	0,00	0,00	2,55	2,78	5,05
M1	0,00	0,00	0,00	1,85	0,46	1,55
M2	0,00	0,00	0,00	5,09	1,56	0,92
M3	0,00	0,00	0,00	0,00	0,00	2,49
Banana Hump Extract						
P0	0,00	0,00	0,00	6,27	0,63	1,20
P1	0,00	0,00	0,00	0,33	0,00	5,05
P2	0,00	0,00	0,00	1,97	2,78	2,52
P3	0,00	0,00	0,00	0,93	1,39	1,25

The average self-treatment of Mimba leaf extract and banana hump extract has no effect on all time observation of disease events on the fruit.

Table 13. Average interaction of disease events in the fruit

Interaction of disease occurrence in the fruit (%)					
Perlakuan		P0	P1	P2	P3
44 DAP	M0	1,01a	1,31a	4,17a	3,70a
	M1	3,70a	0,00a	3,70a	0,00a
	M2	20,37b	0,00a	0,00a	0,00a
	M3	0,00a	0,00a	0,00a	0,00a

Description: The average value in the same row followed by the same letter does not differ according to the DMRT test at 5% level

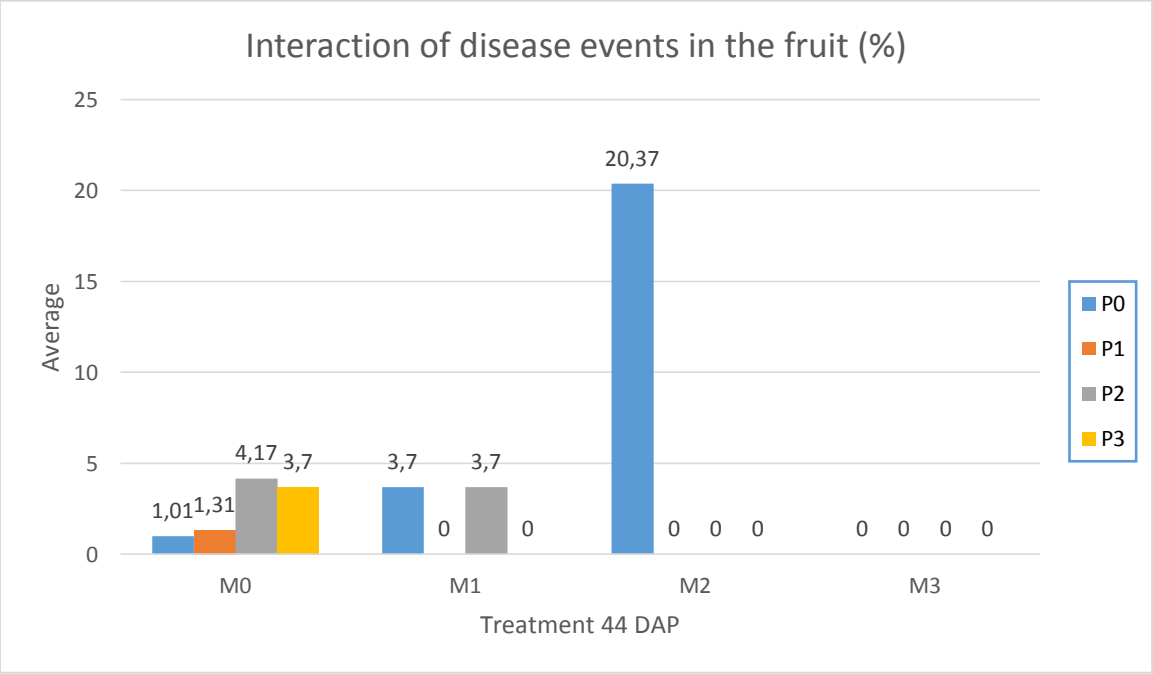

Figure 8: Interaction of disease events on the fruit

The average combination treatment (interaction) of Mimba leaf extract treatment and the extract of a banana's hump affect the incidence of disease at 44 DAP observation.

Table 14. Average-the severity of disease in the fruit

The average response severity of the disease in the fruit (%)

Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	0,00	0,00	0,00	0,88	2,08	3,27
M1	0,00	0,00	0,00	0,46	0,12	1,31
M2	0,00	0,00	0,00	3,70	0,39	0,79
M3	0,00	0,00	0,00	0,00	0,00	1,23
Banana Hump Extract						
P0	0,00	0,00	0,00	4,00	0,16	1,20
P1	0,00	0,00	0,00	0,33	0,00	2,77
P2	0,00	0,00	0,00	0,49	2,08	1,70
P3	0,00	0,00	0,00	0,23	0,35	0,93

The average self-treatment of Mimba leaf extract and banana hump extract has no effect on all time observations of disease severity in the fruit.

Table 15. The average incidence of pest attack

The average incidence of pest attack (%)						
Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Ekstrak mimba						
M0	2,51	3,94	3,72	4,63	6,52	4,94
M1	0,52	1,14	1,24	2,97	3,01	2,95
M2	2,85	4,16	2,64	5,06	4,94	5,01
M3	1,48	2,12	2,35	3,47	5,35	2,94
Banana Hump Extract						
P0	1,60	2,43	2,22	4,84	4,65	4,06
P1	2,94	3,98	3,38	4,12	5,16	3,85
P2	1,66	3,37	2,71	4,09	5,70	4,34
P3	1,17	1,58	1,63	3,07	4,32	3,59

The average self-treatment of Mimba leaf extract and banana hump extract does not affect all the occurrences of pest attack.

Table 16. Average severity of Pest attack

Average severity of Pest attack (%)						
Treatment	14 DAP	24 DAP	34 DAP	44 DAP	54 DAP	64 DAP
Mimba Leaf Extract						
M0	2,51	1,67	6,34	2,33	2,60	2,33
M1	0,52	0,54	0,88	0,85	1,06	1,15
M2	2,85	1,71	2,72	2,21	2,10	2,25
M3	1,48	0,89	3,87	1,62	1,79	1,41
Banana Hump Extract						

P0	1,60	1,03	4,44	2,00	2,10	1,79
P1	2,94	1,54	5,78	1,76	2,14	2,02
P2	1,66	1,55	1,43	2,05	2,16	2,02
P3	1,17	0,68	2,17	1,20	1,15	1,31

The average self-treatment of Mimba leaf extract and banana hump extract does not affect all the severity of pest attack.

Table 17. The average diameter of a mushroom colony *Colletotrichum capsici* on the media PDA days after inoculation (DAI = Days After Inoculation)

The average diameter of a mushroom on a PDA (cm)				
Treatment	2 DAI	4 DAI	6 DAI	8 DAI
Mimba Leaf Extract				
M0	6,79	7,79	8,23	8,37
M1	6,48	6,92	7,17	7,30
M2	6,37	7,27	7,31	7,34
M3	6,75	7,38	7,45	7,45

The average concentration treatment of mimba leaves in the age of the termination of the MO treatment compared with the treatment of M1, M2, M3 occurred the repression of colony diameter, although there is no difference in each treatment. The inhibitory percentage of diametre colonies, according to Kumar (2007) with the formula: THR = (D1-D2)/D1 × 100%, where: THR: The relative resistance level of the test pathogenic colony with treatment D1 = Colony diameter Test at control D2 = Colony diameter on treatment.

Furthermore, the level of isolation of the isolates of *Colletotrichum* spp. On the active ingredient fungicide can be seen from the relative barrier level (THR), Kumar et al. (2007) to determine the criteria: very sensitive (SS): THR > 90%, sensitive (S): 75% < THR ≤ 90%, Medium Resistance (RS): 60% < THR ≤ 75%, resistance (S): 40% < THR ≤ 60%, very resistant (SR): THR ≤ 40%.

Based on the formula obtained inhibitory colony diameter in table 18.

Table 18. Average inhibition of mushroom colony diameter in PDA media

The average inhibition of colony diameter Colletotrichum Capsici on PDA media (CM)						
Treatment	2 DAI	4 DAI	6 DAI	8 DAI	Total	Rata-rata
Ekstrak mimba						
M1	6,19	11,17	12,88	12,78	43,02	10,76
M2	6,37	6,67	11,18	12,30	36,52	9,13

M3	0,59	5,26	9,48	10,99	26,23	6,58

The barrier level relative diameter of the largest colony is ordered starting treatment of M3, M1, M2. The relative resistance levels of the three treatments include the very resistant categories.

B. Discussion

Banana Hump Extract

The results of laboratory analysis of Banana's hump are obtained by a growth regulator consisting of Zeatin and Kinetin, and the regulatory substances grow gibberellin. The growing regulator can stimulate the growth and production of curly chili plants. From the research results, visible self-influence regulators grow the origin of the banana hump that can spur the area of the leaf. There is the influence of the joint treatment (interaction) of regulators growing banana and mimba leaves in the spur of growth in the area of chili pepper. The average treatment of regulator grows cytokine and gibberellin origin of banana hump extract and pesticide origin of Mimba leaf extract can stimulate the growth of the leaf area. The average height of the plant and the diameter of the rod to extract banana hump continues to increase every observation time starting from 14 DAP up to 64 DAP. The average number of fruits rose from 44 DAP to 55 DAP and dropped 66 DAP. The average wet weight of fruit and dry weight of fruit does not affect. According to Sari et al. (2012), the administration of 0%, 8%, 16%, 24%, 32%, 40% mol jackfruit bananas are influential in the production of Rosella flower amount, but have no effect on the wet weight of flowers because the research was conducted in the dry season with the bulk Low rainfall. Furthermore, according to Widiastuti et al. (2004), an increase in light intensity from 75% to 100% resulted in a reduced heading dry weight, with the increased light intensity it would increase the environmental temperature of the plant, resulting in respiration Crop increases. The dry weight of the roots and the wet weight of the roots continues to increase every observation time from 44 DAP to 66 DAP. Average dry-weight headers and wet-weight headers tend to rise from the time of observation. The average number of main branches successfully influenced jointly by the Mimba leaf extract treatment and banana hump extract.

Mimba Leaf Extract

Results of laboratory analysis of Mimba leaf extract obtained natural pesticide compounds. Pesticides found in Mimba leaf extracts can spur the broad growth of the leaves, also affecting the diameter of the plant headers. There is a joint influence (interaction) between

Mimba leaf extract and banana hump extract in spurring the vast growth of chili leaf plants. The wide addition of the leaves is influenced by both treatments because independently of each treatment stimulthreaded the area of the leaf. The addition of the leaf area will spur the rate of crop photosynthesis. The average height of the plant and the diameter of the stem for Mimba leaf extract increases steadily every observation time starting from 14 DAP up to 64 DAP.

The average number of main/productive branch fruits rises from 44 DAP to 55 DAP and down 66 DAP. The average wet weight of fruit and dry weight of fruit does not affect. The dry weight of the roots and the wet weight of the roots continues to increase every observation time from 44 DAP to 66 DAP. Average dry-weight headers and wet-weight headers tend to increase over time of observation.

CONCLUSION

Based on the results of research and discussion can be concluded:

1. The concentration of Mimba leaf extract and banana hump extract stimulates growth but does not stimulate the production of chili Peppers in the dry season
2. The curly chili plants that are given the concentration of Mimba leaf extract and the banana hump extract show different results.
3. Addition of heading diameter, the number of productive branches and broad leaves can be optimized through the administration of Mimba leaf extract and banana hump extract.
4. The concentration of Mimba leaf extract and banana hump extract gives the result of a joint influence on the area of the leaves and productive branches.
5. The wet weight and dry weight of the fruit that is given the concentration of Mimba leaf extract and the banana hump extract has not given the results differently, but tabulated observations 44 DAP higher than observations 54 DAP and 64 DAP.
6. The incidence of disease at the age of 44 DAP is influenced by the concentration of the extract of Mimba leaves and the concentration of extract of banana hump 0% (P0).
7. The severity of the disease in the fruit is not affected by the concentration of Mimba leaf extract and banana hump extract.
8. Administration of Mimba leaf extract concentration and banana hump extract provides fluctuating numbers on the incidence and severity of disease and pest attack.

POLICY IMPLICATIONS

This research by modifying the different variables can be developed collectively in some areas of Indonesia to increase the growth and production of chili plants, especially in the rainy season.

REFERENCES

Agrios, G.N. 2005. *Plant Pathology*. New York: Elsevier Academic Press.

Andani K. 2017. Effectiveness of neem (*Azadirachta indica* Juss.) Leaf extract fraction against anthracnose (*Colletotrichum capsici* Syd.) In red chili (*Capsicum annum* L.) in the field. (Thesis): Bandar Lampung: Faculty of Agriculture, University of Lampung.

Damayanti Imas/Red; Nidia Zuraya. 2019. Price of Chili Farmers Drops, Economist: Big Profit Distributor. (https://republika.co.id/berita/ekonomi/pertanian Apr 2019).

Yanti, Dini Puspita., Trizelia., dan Darnetty. 2019. The effect of soaking time on local chili seeds with *Trichoderma harzianum* on their viability. Journal: *Graha Tani* 05 (1): 720-727.

Yanuarti Astri Ridha and Mudya Dewi Afsari. 2016. Commodity Profile of Staple Goods and Important Goods of Chili Commodity.

Karyadi, arif. 2018. Effect of variations in the concentration of neem leaf extracts (*Azadirachta indica* A. Juss) on the mortality of pest snail (*Pomacea canaliculata* Lamarck). (Thesis): Agrotechnology study program, Faculty of Agriculture, University of Jember.

Kumar AS, Eswara NPR, Hariprasad KR, Devi MC. 2007. Evaluation of functional resistance among *Colletotrichum gloeosporioides* isolates causing mango anthracnose in the Agri Export Zone of Andhra Pradesh India. Plant Pathol Bull. 16 (3): 157-160.

Ningsih, Y. 2013. Effect of neem (*Azadirachta indica*) And jatropha (*Jatropha curcas* L.) leaf extract fraction on the in vitro growth of *Colletotrichum capsici* fungi that cause anthracnose disease in chili (*Capsicum annum* L.). (Thesis): University of Lampung. Bandar Lampung. 30 pp.

Nugrahapsari, Rizka Amalia., Rima Setiani., Sulusi, Prabawati., nFN, Turyono., nfN, Hardiyanto. 2019. The impact of the chilli planting movement program on meeting the needs of household chillies in Bogor and Jakarta (Impact of chilli planting program n chilli self sufficiency at household levels in Bogor and Jakarta. Journal: *Horticulture* 29 (1): 1-10

Paramita Hedi., Puspasari Lindung Tri., Yusuf Hidayat., Rika Meliansyah., Danar dono., Rani Maharani., Unang Supratman. 2018. Bioactivity formulation of leaf extract of *Kalanchoe pinnata* and seed of *Azadirachta indica* against *Spodoptera litura*. Jurnal: *Cropsaver* 1(1): 20-26

Prakash, V.R. 2000. Anthracnose on Chili Peper. http://www.apsnet.org/publication/imageresources/Pages/IW000078.aspx. (9 Januari 2015).

Rajab, Ahmad Mijwad., Ari, Hayati., And Hasan, Zayadi. 2018. The Effect of Combination of Neem (azadirachta indica) Leaves with Rawit (Capsicum Frutescens) Chili on Mortality of Green Leaf Aphids (*Aphis gossypii*) In Vitro. Journal: *Scientific Natural Science (Kown Nature)* 1 (1): 1-6.

Sari, Diana Novita, Surti. Kurniasih and R. Teti Rostikawati. 2012. Effect of Local Microorganism (MOL) administration of jackfruit banana weevil on rosella production (*Hibiscus sabdariffa* L). Journal: *Journal of Biotechnology*. 6 (2): 1-8.

Senja, OC Triwi. 2019. Application of Nitrogen Fertilizer and Gibberelline Hormone to Production of Green Beans (*Phaseolus vulgaris* L.). Url: http://repository.unej.ac.id/handle/123456789/90253 Thesis: Jember University.

Suleiman MN. 2010. Fungitoxic activity of neem and pawpaw leaves extracts on *Alternaria solani*, the causal organism of yam rots. Advances in Environmental Biology. 4 (2): 159-161.

Wea Maria Karolina. 2018. Effect of liquid organic fertilizer kepok banana weevil (*Musa acuminate* L.) on the growth of red okra plants (*Abelmoschus caillei*). (Thesis): Biology education study program Faculty of Teacher Training and Education at Sanata Dharma University Yogyakarta.

Widiastuti, Libria., Tohari, and Endang Sulistyaningsih. 2004. Effect of light intensity and daminoside levels on microclimate and chrysanthemum plant growth in pots. Journal: *Journal of Agricultural Sciences* 11 (2): 35-42