

**SFRN** 2019

Security in  
food,  
renewable  
resources,  
and  
natural  
medicines



# PROCEEDING

**ISBN:978-602-51262-8-4**



**3rd INTERNATIONAL CONFER-  
ENCE ON SECURITY IN FOOD,  
RENEWABLE RESOURCES, AND  
NATURAL MEDICINES 2019  
(SFRN 2019)**

Convention Hall Politeknik Pertanian Negeri Payakumbuh  
INDONESIA



hosted by,  
Politeknik Pertanian  
Negeri Payakumbuh



co-Hosted by,  
Universitas Andalas  
(UNAND)

## **QUANTUM-LEAP OF AGRI-FOOD SYSTEM 4.0 AND DELIVERY OF SUSTAINABLE DE- VELOPMENTS GOALS (SDGS)**

September 25-26, 2019



**PROCEEDING**  
**3rd INTERNATIONAL CONFERENCE ON SECURITY IN**  
**FOOD, RENEWABLE RESOURCES, AND NATURAL**  
**MEDICINES 2019 (SFRN 2019)**

**September 25-26, 2019**  
**Convention Hall Politeknik Pertanian Negeri Payakumbuh**  
**INDONESIA**

*Theme:*  
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**Publisher**  
Politeknik Pertanian Negeri Payakumbuh  
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*Theme:*  
**“QUANTUM-LEAP OF AGRI-FOOD SYSTEM 4.0 AND DELIVERY OF  
SUSTAINABLE DEVELOPMENTS GOALS (SDGS)”**

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**Welcome Message**  
**Executive Chairman of The 3rd International Conference on Security in Food,  
Renewable resources, and Natural Medicines (SFRN) 2019**



Dear Honorable ladies and gentlemen,

Good Morning and Assalamu'alaikum wr.wb

On behalf of the SFRN 2019 organizing committee, I am really honoured and delighted to welcome all of you to the 3rd International Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019 at the State Polytechnic of Agriculture Payakumbuh, West Sumatra Indonesia

Our technical program is rich and varied with 8 keynote speeches and 4 invited talks and more than 170 technical papers split between 8 parallel oral sessions and 1 poster sessions. The speakers and participants came from 8 different countries, consist of Academicians, Scientists, Researchers, Practitioners, Professionals, and Government Officials in multidiscipline branch of knowledge, who gathered here today to share and discuss new findings and applications of innovations for promoting Food Security, Renewable Energy, Sustainable Resources and HealthCare Free for All, in particular for those who in needs. As the chairman of conference 2019 SFRN, I know that the success of the conference depends ultimately on the how many people who have worked in planning and organizing both the technical program and supporting social arrangements. This year, the conference is jointly organized by the Payakumbuh State Agricultural Polytechnic and Andalas University. We also thank to the steering committee for their wise and brilliant advice on organizing the technical program; and also to the the Program Committee, both from the Payakumbuh State Agricultural Polytechnic and Andalas University, for their thorough and timely reviewing of the papers and to the Director of Payakumbuh State Agricultural Polytechnic and the rector of Andalas University, and the Head of the Institute for Research and Community Service of Andalas University, and Payakumbuh State Agricultural Polytechnic. Our recognition should go to the Organizing Committee members who have all worked really hard for the details of the important aspects of the conference programs and social activities, and then we extend our gratitude to our students who bore the arduous burden for preparing this event.

We hope this event is also a good step in gaining strengthened cooperation between our universities as we know that the State Agricultural Polytechnic of Payakumbuh is part of the Andalas University previously, of course the psychological relationship between the State Agricultural Polytechnic and the Andalas University is really close.

Finally on behalf of the committee, we apologize profusely for all the shortcomings and everything that is not properly in organizing this event and hopefully AES-Network contributes significantly to the research and technology for the good of humanity.

Thank you

**Fithra Herdian, S.TP, MP**

**Message from Afro-Eurasia Scientific (AES) Network  
3<sup>rd</sup> International Conference on Security in Food, Renewable resources, and  
Natural Medicines (SFRN) 2019**



Dear Honorable and Distinguished guests,  
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi Wabarakatuh and Good Morning

On behalf of the AES Network, I am honored and delighted to welcome you to the 3<sup>rd</sup> International Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019 at the Agricultural State Poly Technique of Payakumbuh, Indonesia. I believe we have chosen a venue that guarantees a successful technical conference amid the culture, delicacy and scenery of Payakumbuh, the city of "Rendang".

The AES-Network aims to Promote Livelihood Through Food Security, Promote Future Smart and Green Mobility by Using Renewable Energy, Promote Prosperity by Equally Managing and Distributing the Sustainable Resources and Promoting Enjoyable Long-Life by using Natural Medicines With Free Health Care For All. The AES-Network was established in 2018 and already have memberships from 12 countries. Our members consist of Academicians, Scientists, Researchers, practitioners, professionals, and government officials from multidiscipline branch of knowledge, who gathered and contributed their expertise to share and discuss new findings and applications of innovations for promoting Food Security, Renewable Energy, Sustainable Resources and Free Health Care for All. In particular, the network aims to alleviate the condition of those who in dire needs. In the future, we also expect to provide technical demonstrations, and numerous opportunities for informal networking for Promoting Food Security, Renewable Energy, Sustainable Resources and Free Health Care for All. In this opportunity, we invited you to become our members and join our efforts for a better life to all of mankind.

As a team, we acknowledge the existence of mutual interest among university and college educators, researchers, activists, business sector, entrepreneurs, policy

makers, and all society members. We must promote the need to strengthen cooperation for establishing Security in Food, Renewable Resources, and Natural Medicines in Africa, Europe, and Asia.

The AES-Network believe, a firm foundation for mutual collaboration with the spirit of equality and partnership and thereby contribute towards sustainable development in these three regions.

Therefore, through networking, friendships, and joint efforts, the capacity of our network can be enhanced to address major challenges in securing the Food, Renewable Resources, and Natural Medicines in Africa, Europa, and Asia. Our Network goals are to increase the awareness of educators, researchers, scientific community, business sector, entrepreneurs, and policy makers in Africa, Europa, and Asia, that the future of a better world, lies within their responsibilities, and to improve the networking, mobility and mutual collaboration of scientific community, business sector, entrepreneurs, and policy makers in Africa, Europe, and Asia to energize the delivery of Sustainable Development Goals.

Finally, I hope that, by registering our network, you will be provided a common platform and support the exchange of knowledge, while at the same time, we offer constructive dialogue across and within the various interest and stakeholder groups, including the intended beneficiaries, and arrived at the best solutions to our terminal goal, Promoting Food Security, Renewable Energy, Sustainable Resources and Free Health Care based on scientific evidence in Africa, Europa, and Asian region.

Thank You for Joining us!

**President**

**Assoc. Prof. Dr. Eng. Muhammad Makky**



**Welcome Message**  
**Head of Institute for Research and Community Service**  
**Universitas Andalas**



Dear Honorable and Distinguished guests,  
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi Wabarakatuh and Good Morning

It is with great pleasure that I welcome the participants of the SFRN 2019 in Payakumbuh, the city of “Rendang”, the prime of Indonesian delicacy.

In this esteem event, we share the knowledges, and imparted it to the people. The quest for knowledge has been from the beginning of time but knowledge only becomes valuable when it is disseminated and applied to benefit humankind. It is hoped that this conference will become a platform to gather and disseminate the latest knowledge which can be adopted for securing the food, resources, and health for mankind, in Asian, European and African region.

Academics, Scientists, Researchers and practitioners from multidiscipline branch of knowledge who gathered here today will be able to share and discuss new findings and applications of innovations for ensuring food security, in particular for those who reside in developing countries. It is envisaged that the intellectual discourse will result in future collaborations between universities, research institutions and industry both locally and internationally. In particular it is expected that focus will be given to issues on environmental and sustainability. Therefore, we urge to all participants, to establish a scientific network that will voice the needs

Researchers in the multi sectoral aspects related to the benefit of mankind have been progressing worldwide. Food is a basic right, while energy drive the world. Human need a lot of resources so the civilization can be flourished. But human is not immune, and thus, ones need to take care of their health regularly. Modern Agri-food systems is the foundations of a decent life, a sound education and the achievement of

the Sustainable Development Goals. Over the past decade, we have witnessed a chain reaction that threatens the very foundations of life for millions of the world's people. Rising energy prices drove up the cost of food and ate away the savings that people otherwise would have spent on health care or education. Unsustainable plantation management induced forest fire and posed haze hazard to the whole Sumatra island and our neighboring countries.

The human cost of the food and energy crisis has been enormous. Millions of families have been pushed into poverty and hunger. Thousands more suffering from the collateral effects. Over the past year, food insecurity led to political unrest in some 30 countries. Yet because the underlying problems persist, we will continue to experience such crises, again and again -- unless we act now. That is why we are here today.

We must make significant changes to feed ourselves, and most especially, to safeguard the poorest and most vulnerable. We must ensure safety nets for those who cannot afford food, or energy, nor even a health service. We must transform agricultural development, markets and how resources is distributed. We must do so based on a thorough understanding of the issues. That is the only possible way we can meet the Goals of Sustainable Development.

Thank You,

**Assoc. Prof. Dr.-Ing. Uyung Gatot S. Dinata,MT.**

**Opening Ceremony  
Rector of Andalas University**



Dear Honorable and Distinguished guests,  
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi Wabarakatuh and Good Morning

I welcome the opportunity to address you at this important event.

It gives me great pleasure in welcoming you to this 3<sup>rd</sup> Conference on "Security in Food, Renewable resources, and Natural Medicines (SFRN)" 2019. I am delighted that so many have accepted our invitation. I am particularly happy that we have in this room, dedicated individuals from so many stakeholder groups — including our most respected and distinguished guest “The ministry of Agriculture of the Republic of Indonesia”. We also welcome the mayor of Payakumbuh and the Regent of Lima Puluh Kota. We extend our welcome to the civil society, the private sector, international organizations; the science community; and others dedicated to help create an environment in which people can escape food insecurity. Imagine what we can do together if we make the security for all as an our top priority, and pull in the same direction. We can make a difference in the lives of millions.

Food is a basic right. Food security are the foundations of a decent life, a sound education and the achievement of the Sustainable Development Goals Access to medicines - a fundamental element of the right to health. Health is a fundamental human right, indispensable for the exercise of many other rights in particular the right to development, and necessary for living a life in dignity. Moreover, human rights principles and language are being used to support resource access claims as rights-based approaches empower individuals and groups to gain or maintain access to natural resources

Much progress has been made during the last decades but much more needs to be done. Millions of people are Insecure worldwide, meaning that they either starve or they do not know from where their next meal, health care or resources will come.

Much of the progress on security has occurred at the expense of our environment. With business as usual, we foresee that the production improvements during the next decade will be less than the last one, while the environmental degradation will continue, and health will deteriorate significantly. Without available resources to seek, mankind will become endanger species in a very short time.

Solutions to the security problems need to be designed and implemented within a new and rapidly changing environment. Globalization and sweeping technological changes offer new opportunities for solving these problems. A number driving forces or trends must be taken into account in developing appropriate action. Some of the action needed, such as appropriate technology for small farms, is not new but it must be cast in the new and changing global and national environment, taking into account new opportunities and risks. I hope that by providing a forum for knowledge exchange, this conference will help identify the action to be taken. Furthermore, this conference will help to provide constructive dialogue across and within the various interest and stakeholder groups, including the intended beneficiaries, and arrive at the best solutions.

In conclusion, even if those responsible give high priority to achieving sustainable security for all and back it up with action, the world may not achieve the goal by 2030. But we will be much closer than with business as usual. I urge all of us to provide the strongest support for this event, to enable securing the food for all in the closest time possible. It is my sincere optimism that through the accomplishment of the objectives of this event, we will come to an important step nearer to secure the food for all.

Finally, I would like to thank the organizing committee who have spent their utmost efforts to prepare and manage this event successfully. Let me conclude my remarks by wishing our guests happiness, good luck and great success in the conference.

May I announce now the opening of the “3<sup>rd</sup> International Conference on Security in Food, Renewable resources, and Natural Medicines (SFRN) 2019” in Payakumbuh.

Thank you.

**Rector,**  
**Prof. Tafdil Husni, SE, MBA, PhD**

**Welcome Message**  
**Director of Politeknik Pertanian Negeri Payakumbuh**



Dear Honorable ladies and gentlemen,

Good Morning and Assalamu'alaikumwr.wb

I congratulate to all participants on the invitation and participate at our beloved campus Payakumbuh State Agricultural Polytechnic. I feel really honoured to welcome all of you at our event, the 3rd International Conference on Security in Food, Renewable Resources, and Natural Medicines (SFRN) 2019 at the Payakumbuh State Agricultural Polytechnic, Indonesia.

Food security is a very important aspect in a country's sovereignty. Food also determines the future direction of a nation. Many social and political fluctuation can also occur if food security is disrupted. Food availability that is smaller than its needs can create economic instability. This critical food condition can even endanger economic and national stability. In the current situation, there are many challenges in exteriorize food security, such as climate change, population, limited natural resources and other challenges both locally, regionally and globally.

Renewable resources are also our starting point to start sustainable development. Research on renewable resources is also very important as the solution in meeting the principles of sustainable development. As we know that Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainability is the foundation for today's leading global framework for international cooperation - the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs)

The discovery of treatment based on local culture also contributes greatly to the good of humanity. Unfortunately, there are still many treatments that have not been carried out by scientific research. So, through this conference we hope it can be a trigger to increase in traditional plant-based treatments that not go through complex

chemical processes, so that the effectiveness of the pillars can be further suppressed and also contribute to the community's economy.

Finally, I would like to express my gratitude to all people who involved in organizing this event and to all of stakeholders who have helped to make this event go on successfully. Please accept my apologize for any shortage, Assalamu'alaikumwr.wb.

Thank you

**Ir. Elvin Hasman, MP**

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## Some Perspectives on Food Security For Children: The Case of Rendang For Kids in West Sumatera

**Dessy Kurnia Sari, Donard Games, Atha Raihan Rusdi**  
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**Abstract.** Rendang is known as one of the most famous food in the world. It is linked with spicy ingredients targeting adults. However, this is not always the case. There is now also the available brand of rending, which is targeting children instead of adults.

Consequently, this brand needs to make sure that all elements in the product have also met the perspectives of parents regarding food security for their children. Parents are those who decide on buying foods for their kids. Thus, the objective of this study is to evaluate the concept of food security in the perspective of parents and the positioning of traditional food brands targeting children. This study uses a qualitative approach. Parents' responses on social media and a branding strategy of the brand are evaluated in this research by using Content Analysis and Google Word Cloud Add-On. The findings indicate that there are some elements in food security for children such as non-MSG, halal, natural ingredients, taste, health aspect, flavor (not-spicy food). Perspectives of parents and positioning of food security designed by the brand were discussed. These results suggest that business people need to pay more attention to food security and healthy aspects of their products. Consumers are concern about food security for themselves and their whole family, especially for their kids. A broader study related to food security in a family life cycle would give an additional perspective to these findings.

**Keywords:** Food security, Halal, Healthy food, Natural ingredients, Taste

### INTRODUCTION

Family products are strongly related to the whole family agreement. However, Naumovska and Milenkovska (2017) confirm that family decisions now often rely on digital media that also impact marketing strategy targeting children. Marketers have to pay strong attention to what decision would be made in a family context. Mothers could be the ones who buy daily products for the whole family members; however, children may also have some role as a strong influencer for moms in making a decision.

In terms of food products, moms are considered as the ones that look after their kids. Foods that were designed for kids surely need to meet some standards in parents' perspectives. Food safety can be one of the critical aspects that were considered essential for mom. Food safety defines as the condition of having foods

for an active and healthy life — besides the availability of nutrients that deemed beneficial to kids (Bickel *et al*, 2000).

Rendang is a traditional food from West Sumatera, which is known as one of the most delicious food in the world. It has spicy ingredients targeting adults. Then, how about children? Healthy Food choices for children are needed. Rendang for Kids' products is designed for kids as their target market, which is quite uncommon in traditional food products in Indonesia. On the other hand, the marketing campaign was seemed to be designed for parents as the decision-maker.



Figure 1. Example of Packaging of Food Product Targeting Children

Studies indicated that children are getting more aware of food security because they got more lessons on nutrition, hygiene, and healthiness of foods (Lee *et al*, 2019; Ababio & Lovatt, 2015). However, children's food choices are also strongly related to their parents' habits and knowledge about the healthy aspects of food. Social Media is also becoming the most critical media for marketers in delivering their message (Hoffman and Novak, 2012). The exciting part is to evaluate the perception of parents regarding food safety issues for their kids and whether the packaging of food products targeting children can be considered as a good step. Thus, the objective of this research is to find out factors that are considered essential for parents in their decision and positioning of traditional food brands targeting children.

## METHODS

This study collects information from Instagram of Rendang for Kids as Small Medium Enterprises (SMEs) in Indonesia that was designed their products for kids. This study uses a qualitative approach to analyzing people's comments on a social media page. Comments on Social Media (Instagram) of Rendang for Kids were analyzed by using a Content Analysis and Google Word Cloud Add-On to find out perspectives of parents and business owner related to food security for children. The word cloud generated was analyzed concerning what factors that were considered

essential in parents decision making process related to food products and food safety of the products targeting their children.

## RESULTS AND DISCUSSION

The findings indicate that there are some elements in food security for children in perspectives of parents and business owners such as non-MSG, Halal, natural ingredients, tasty, healthy, not-spicy. Views of parents and positioning of food security designed by Rendang for Kids’ business owner can also be seen in the word cloud in Figure 2.



Figure 2. Cloud mapping on Moms Perspectives about Food for Kids using Indonesian language

Some exciting elements are evaluated in Figure 2. Parents quite frequently mention the Islamic sounds' sentences such as 'halal,' 'mashaAllah,' 'Alhamdulillah' that shows how religious aspects are still their baseline in discussing the choice of food products for their children. Parents who participated in the discussion are seemed to be majority Muslims and feeling secure to use their Islamic phrase in the online discussion. West Sumatran people are also found to have strong religiosity that affects their decision making processes in purchasing products (Sari, 2014).

Figure 2 also shows that there were three most dominant topics of discussion within the parents in social media. There are ingredients (the term is 'bahan'- in Indonesian language), non-MSG and not spicy (the term is "tidak pedas" in Indonesian language). It means that parents really care about food safety and flavor for their children and actively discussing these issues.



children and actively discussing these issues. Islamic approved ingredients are also one of the biggest concerns for parents and need special attention from business owners of food products targeting children in Indonesia and another Muslim country. A broader study related to food security in a family life cycle would give an additional perspective to these findings.

## ACKNOWLEDGMENTS

This research was funded by a research grant from the Faculty of Economics, Andalas University, Indonesia. The author has presented this paper on the Security in Food Renewable Resources and Natural Medicines (SFRN) 2019 in Payakumbuh, Indonesia.

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