

## The Improvement of Food Additives and Good Food Production Method Knowledge on Sumba Island

Noor Erma Nasution Sugijanto<sup>1</sup>

Juni Ekowati<sup>1\*</sup>

Heinrich Dengi<sup>2</sup>

Asri Darmawati<sup>1</sup>

Dewi Isadiartuti<sup>1</sup>

Catur Dian Setiawan<sup>3</sup>

Diajeng Putri Paramita<sup>1</sup>

Melanny Ika Sulistyowati<sup>1</sup>

Putri Hamidah Khairunnisa<sup>1</sup>

Imamatin Nufus Melania<sup>1</sup>

Muhammad Ilham Royyan Nafi<sup>1</sup>

Sugijanto Kartosentono<sup>1</sup>

<sup>1</sup>Department of Pharmaceutical Sciences, Universitas Airlangga, Surabaya, East Java, Indonesia

<sup>2</sup>Indonesian Pharmacist Association Sumba Timur, East Sumba, East Nusa Tenggara, Indonesia

<sup>3</sup>Department of Pharmacy Practical, Universitas Airlangga, Surabaya, East Java, Indonesia

email: [juni-e@ff.unair.ac.id](mailto:juni-e@ff.unair.ac.id)

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### Abstract

*In order to ensure good health and well-being in the community during the pandemic, especially in the food business in Sumba, several problems for MSME partners have been identified, namely related to food production, consumption, and misunderstanding of regulations in the food and beverage business which can be a problem for the health community. The solutions offered to overcome these problems are training in webinars and talk shows on Food Business Production Orders; Knowledge of Food Additives; Good Food Production Methods; Household Food Industry Product Licensing (CPPB-IRT); and Simple Marketing for the Food Business. This community service aims to improve MSMEs' quality and business capacity on Sumba Island, which is increasing and has become a model for similar MSME communities because they have not received similar guidance from any agency. The pre and post-test analysis results showed an increase in knowledge, especially on aspects of the types of food that were not allowed to receive SPP-IRT, food coloring, permitted food additives, how to get Halal certification, and spot tests to find out hazardous materials. The implementation evaluation showed that more than 58% stated that the material was acceptable. More than 99% stated that the registration was carried out well. For delivering materials and discussions, 99% said they were delighted. This webinar activity concludes that the material topics have been as needed, there is an increase in partner knowledge, and the implementation has been carried out well, based on pre-post test evaluation data and evaluation of the implementation of activities agency.*



## INTRODUCTION

At the beginning of human civilization, food was made from natural and fresh ingredients in relatively limited quantities only for family consumption. However, with the increasing role, activity, lifestyle, and for the sake of efficiency as well as practicality, it is necessary to immediately consume food and drink in the form of processed even ready to be served. This encourages the rapid growth of production business in the food and beverage sector, including in micro, small, medium, and large scales. Fast growth in small industries can be observed as in 2014, a number of 1,243,185 businesses increased to 1,614,149 in 2015, which was an increase of 29.84%. Meanwhile, medium and large industries increased from 6,168 (2014) to 6,748 (2015), growing by 6.81%. In 2015, the percentage number of micro and small food and beverage industries was 99.65%, while medium and large industries was 0.35%. This was stated by the Chairman of *Gabungan Pengusaha Makanan Minuman Indonesia* (GAPMMI). The data show that the contribution of Micro Scale Medium Enterprise (MSMEs) to Indonesia's Gross Domestic Product (GDP) always increases from year to year, as reported in 2010, which was worth 3,000 trillion rupiah, approaching 8,000 trillion rupiah in 2018, or 57.8% of Indonesia's GDP in 2018 and to 60% in 2019 (Aladdin et al., 2021). MSMEs have contributed as many as 64,194,057 units or 99% of the total business units, absorbing 116,978,631 workers or 97% of the total workforce. In terms of MSME players in the non-agricultural processing industry, 44.9% is contributed by the Food and Beverage industries (Hajati, 2021).

The data show how important the role of Food and Beverages MSMEs both in absorbing labor, food security, and growing the country's economics. Based on data from the Planning Bureau of the State Ministry of Cooperatives, Small, and Medium Enterprises, Republic of Indonesia, the various contributions of MSMEs including National Investment Creation and National Labor Absorption are able to absorb 97% of the total employment. In this case, it can be stated that MSMEs are the main pillars of the Indonesian economy because of their ability to develop flexible business processes at relatively low costs, so that it is natural that the success of MSMEs is expected to be able to improve the Indonesian economy as a whole (Adrian, 2018). During pandemic, MSMEs contributed more than 60% of GDP, where compared to January 2020, in April 2020 there was 480% jump in online sales. Moreover, the development of e-commerce such as Bukalapak, Go-Food, Grab-Food, and others that also serve food and beverage trade also help improving the economy both on the scale of MSMEs and medium and large industries. If this is related to the government's efforts to increase foreign exchange through Indonesian tourism, the importance of the aspect of providing food and beverages for tourists who meet health, appearance, and taste requirements will be increasingly seen (Tahalele et al., 2021).

The tourism business, especially in Eastern Indonesia, is growing and developing, such as Lombok Island which has won the first rank of International award in terms of Halal Tourism (Taqwim et al., 2020), Komodo Island National Park and Sumba Island which have even attracted international tourists like the Beckham family. This condition needs to be supported by the provision of good quality of food and beverage that can be accepted by domestic and foreign tourists because it is hygienic and healthy, and can be consumed directly or as souvenirs when the visit ends (Jaelani, 2017).

As well known, Sumba Island in East Nusa Tenggara Province, Indonesia is starting to go global as a tourist destination that has various uniquenesses. Its area is 10,710 km<sup>2</sup>. Sumba is bordered by Sumbawa to the northwest, Flores to the northeast, Timor to the east, and Australia to the south and southeast, which is very strategic. The largest city, Waingapu, already has an airport so that it is quite open as one of the tourist destinations that is starting to grow, supported by a sea port that connects Sumba Island with other islands in Indonesia. The Sumba Strait is located in the north of the island. The total population of Sumba Island is ±685,186 people in 2010. Sumba's specialties include Rumpu rampe; Corn rice; Kaparak, Kapu pantunnu, Manggulu, and others. Manggulu, a snack made from banana and nut, is a snack that can be a souvenir when traveling to Sumba (Tandilino & Kabu, 2021).

On the other hand, in the effort to provide food and beverages which also contribute positively to the tourism business, this food sector business needs serious attention. It is hoped that there will be no more MSMEs suspected of practicing improper food manufacturing methods (Atmojo & Fridayani, 2021), for example the use of dangerous substances such as formalin and borax which are prohibited, but using as food preservatives (Isnaeni et al., 2021). There are also problems with the

marketing of expired food, the use of non-food textile dyes, ex rhodamin B (Isnaeni *et al.*, 2021) which are frequent cases and still occur. Also, there are contamination by microbe or chemicals, practices of unhygienic production methods and food ingredients containing pesticide residues (Kapeleka *et al.*, 2020) which can lead to food poisoning in consumers. Another problem is the writing of halal label that is not followed by the fulfillment of certification requirements to ensure that the resulting product is halal and good (Nasution *et al.*, 2020). In connection with these conditions, efforts to prevent things that are detrimental to the consumer community and food and beverage MSME business actors are not only the responsibility of government agencies but the entire community, including universities. One form of higher education services that can be done is to provide education and assistance to the community, both as consumers and producers. Because of various limited information, therefore the importance of education and the resolution of problems that occur in several food MSMEs as mentioned above are necessary to seek solutions in order to improve the quality of human resources as producers and the food and beverage products produced. In this case, the role of higher education institution (Sugiyanto *et al.*, 2020), especially Universitas Airlangga, through the Community Service Program is absolutely necessary, among others, by providing coaching service to encourage increased capacity and quality of UMKM productions.

The goal of the Community Service Program is to help improving the ability both as consumers and producers in partner groups, namely Dharma Wanita members, IPA members, and MSMEs especially on the island of Sumba so that they can understand and deal with problems faced by increasing knowledge about Regulations on Food Production Business; Knowledge of Food Additives, Good Food Production Practices, Licensing of Household Food Industry (CPPB-IRT), and Simple Food Marketing. It is hoped that this will occur increasing understanding of partner UMKM community members about the importance of quality assurance of the products produced in order to expand the marketing of the products produced.

## METHOD

The method used in achieving the objectives was by sharing knowledge in the form of a Webinar from the Faculty of Pharmacy, Universitas Airlangga and a Talk Show with the same materials through Max FM Radio in Waingapu, East Sumba. The materials were presented by the two speakers, Prof. Dr. Sugijanto MS, Apt and Prof. Dr. Noor Erma Nasution, in the form of a presentation. Prof. Dr. Sugijanto MS, Apt explained about Regulations regarding Food Production Business, for example in Law No. 36/2014 concerning Food and Beverages, which stated that those circulated must comply with health standards and/or requirements. Food and Beverages in accordance with Law No. 18/2012 must comply with health standards and/or (Sultana *et al.*, 2014; Bajpai *et al.*, 2012), and sweetener (Mooradian *et al.*, 2017) Good Food Production Practices (Sultana *et al.*, 2014), Licensing of Household Food Industry (CPPB-IRT), use of packaging that meets health requirements, and simple Food Marketing. Materials regarding safety regulations and quality requirements for food products and food damage related to pH (Samaranayake & Sastry, 2013), high water content (Samapundo *et al.*, 2014) and lack of hygiene were also given (Saloko *et al.*, 2014). Food Additives and good food preservation (Kusuma *et al.*, 2015; Stratford *et al.*, 2013), which are preservatives that are prohibited from being used in food and safe ingredients as substitutes, and videos on how to recognize these hazardous materials with simple chemical reactions were socialized. Education on how to increase the marketing of food and beverage products that can be done with attractive packaging and have long expiry date for tourists who come to Sumba Island was also carried out.

Participants consisted of members of the Dharma Wanita Health Office on Sumba Island who acted as consumers and the members of IPA, one of the health professions who acted as a source of information and education related to food and MSMEs especially in Sumba Island as producers. This activity was expected to become a TOT (Training of Trainers), in which participants who took part in this activity could become the agent of change/trainer for the group. Both of these activities could also be followed on the YouTube channel. The results of this activity were expected to be beneficial for the food and beverage producer community and consumers and indirectly increase the tourism growth in Sumba Island.

## RESULTS AND DISCUSSION

One of the obstacles experienced by the implementation team was the existence of the Covid-19 pandemic that caused transportation and health security difficulties for the Community Service Activity Team from Surabaya to Sumba Island. The implementation of this activity was then changed to a Webinar on 24 October 2020 which targeted 50 participants but it turned out to be followed by 379 participants. The talk shows on the same topic were held through MAX FM Radio which can be followed by everyone, especially East Nusa Tenggara residents on 25 October 2020, smoothly accompanied by exciting and weighty questions and answers.

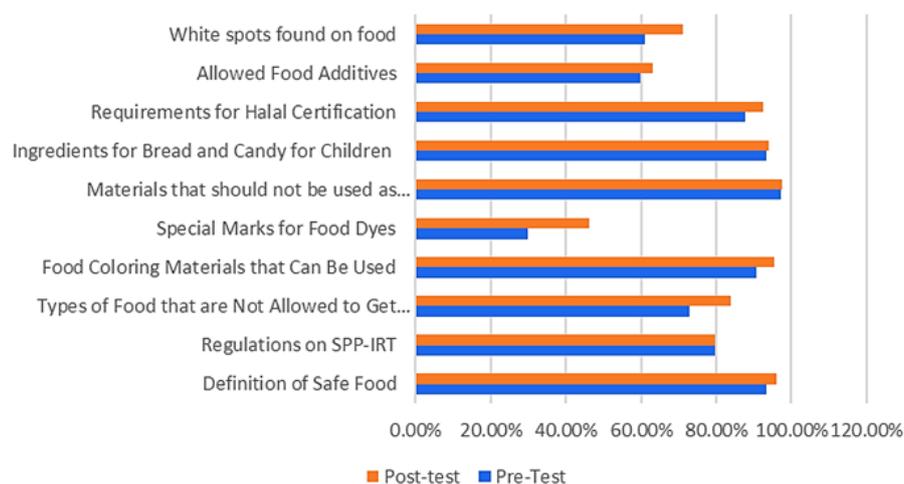
### *Webinar implementation*

The webinar was held on 24 October 2020 through Zoom that could also be followed on the YouTube channel. As many as 390 participants were registered but due to limited Zoom capacity and other reasons, participants who actively participated until the end were recorded as 379 participants. In terms of measuring the initial level of understanding of participants in the implementation of the Webinar, a pretest before the activity and a post-test afterwards were carried out. The results of the pretest and posttest are presented in Table I. The results indicate that there is an increase in the mean post-test scores of the participants. The distribution of the pre-test and post-test scores is shown in Figure 1 which also shows that there is an increase in the scores of participants who answered correctly on the post-test for questions 1-10. All of the data show that there is an increase in participants' understanding after following the webinar material.

**Table I.** The results of pretest and post-test of participants

Topic	Pretest	Post-test
1. Definition of Safe Food	93.5%	96.0%
2. Regulations on SPP-IRT	79.7%	79.8%
3. Types of Food that are Not Allowed to Get SPP-IRT	72.8%	83.9%
4. Food Coloring Materials that Can Be Used	90.6%	95.5%
5. Special Marks for Food Dyes	29.8%	46.2%
6. Materials that should not be used as preservatives	97.3%	97.6%
7. Ingredients for Bread and Candy for Children	93.3%	93.9%
8. Requirements for Halal Certification	87.6%	92.6%
9. Allowed Food Additives	59.7%	63.1%
10. White spots found on food	61.0%	71.2%

The data in Table I shows that there are three topics with the most significant increase in understanding, namely (1) Special signs of food coloring, from 29.8% to 46.2%; (2) The topic of the types of food that were not allowed to obtain SPP-IRT increased from 72.8% to 83.9%; and (3) The question about the presence of white spots on food from 61.0% to 71.2%



**Figure 1.** Percentage of participants who answered correctly on the pretest and post-test for each topic

Furthermore, the pretest and post-test results are not significantly different on the question about the definition of safe food, ingredients that should not be used as preservatives, bread and candy ingredients for children, and SPP-IRT. This can happen because the webinar participants already know about this and some have a background in Pharmacist Education, although it turns out that in some cases, they claim to have increased understanding through this webinar, as shown by the data in Table I. In terms of the characteristics of the background of the institution where they are currently working, the webinar participants are quite diverse, but pharmacies and health centers occupy the most positions, followed by hospitals and clinics as shown in Figure 2 below.

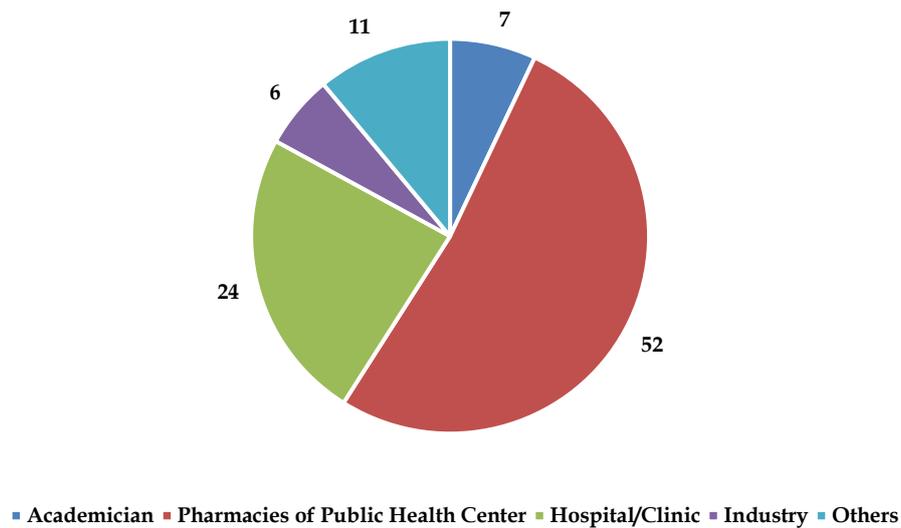


Figure 2. Distribution of webinar participants based on current occupations

Reviewing data on the field of work of participants, which means that 76% of them are in the field of service both at pharmacies and hospitals, then the opportunity to provide education or directions on how to make good food and safe food additives can be carried out in communication, information, and education service activities to the community. Therefore, it is hoped that there will be an increase in understanding among the residents regarding food safety. Furthermore, the distribution of participants based on regional origin obtains three regions with the highest number of participants, respectively, namely Surabaya (East Java Province), Waingapu (East Nusa Tenggara), and Trenggalek (East Java Province). The largest distribution of participants based on their origin (district/city) can be seen in Figure 3.

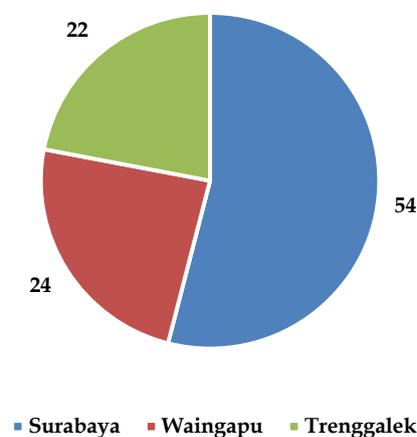
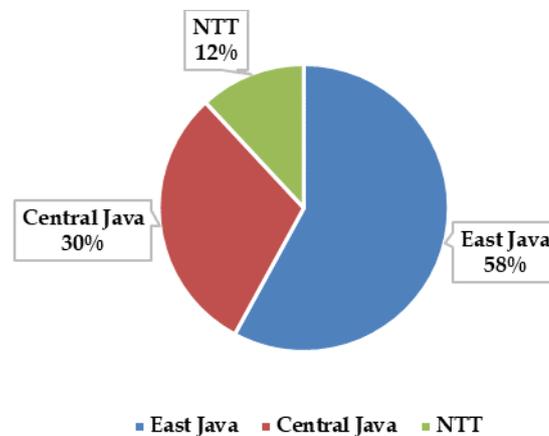


Figure 3. The regions with the highest number of participants (by district/city)

The distribution of participants by province can be seen in Table II and Figure 4. Participants spread from Aceh to Papua covering 23 provinces, this shows that the information on this webinar is quite spread out and of interest, which is something to be grateful for. The most consecutive three participant groups are from the Provinces of East Java, Central Java, and East Nusa Tenggara (NTT).

**Table II.** Distribution of participants from 23 provinces in Indonesia

Origin Province	Number of Participants
East Java	161
Central Java	84
NTT	33
West Java	21
Banten	16
Special Capital Region of Jakarta	12
Yogyakarta	9
East Kalimantan	6
Bali	4
Lampung, West Sumatra, South Sulawesi, Bengkulu, (each)	2
South Kalimantan, Aceh West Kalimantan, Papua South Sumatra, Central Sulawesi, NTB, Riau, Jambi, Kep. Bangka Belitung (each)	1



**Figure 4.** Three provinces with the highest number of webinar participants

#### *Evaluation of webinar implemetation*

Based on the implementation of the webinar from 379 participants, the results of the evaluation were 58.30%, that was considered very clear, 41.20% was quite clear, and 0.5% was unclear, while the flyer design was considered very attractive with 49.35%, quite interesting with 49.9% and unattractive with 1.1%. Based on the data on socialization and flyer design, it can be said that most of the participants responded positively.

In terms of participant registration, 71.8% of the 379 participants rated it as smooth and 27.4% stated it was quite smooth and 0.8% said it was difficult, so it can be concluded that 99.2% stated that the webinar registration process was smooth. In terms of communication network via the internet, 43.8% of the 379 participants rated it as smooth and 48.5% stated it was quite smooth and 7.7% said it was disconnected, so it can be concluded that 92.3% stated that the internet webinar network was smooth. The existence of a substandard internet for 7.7% of the participants is something that is beyond the control of the Community Service Activity Implementation Team.

The presentation of material and discussion during the webinar was considered satisfactory with a total percentage of 99.8% with only 0.2% stating that it was unsatisfactory (Figure 5, left) or unattractive; 66% of material delivery was considered very interesting, 33.8% was quite interesting while the discussion was 52.8% very satisfying and 47% quite satisfying (Figure 5, right). So that overall, it can be concluded that the delivery of the material (presentation) was considered satisfactory by the webinar participants. The material presented was made relevant and up to date by considering changes in regulations that have been in effect recently.

The submission of the information topics discussed and the suitability of the program title with the material presented during the webinar were rated by the participants to be satisfactory to very satisfying with a total percentage of 99.5% and 99.7% respectively and only 0.3% and 0.5% as can be seen in Figure 6 who stated that they did not answer the problem participants or not in accordance with the material presented. In this case, it can be concluded that the delivery of the material was considered satisfactory by the participants. Within the delivery of the topics of information discussed, 68.9% considered to solve participants' problem, while 30.6% considered to solve some of the participants' problem, while the suitability of the program title with the material presented showed 67.8% was very suitable and 31.9% was considered quite appropriate so that it can be concluded that the delivery of the material satisfied the webinar participants, because only 0.3% stated it was not appropriate.

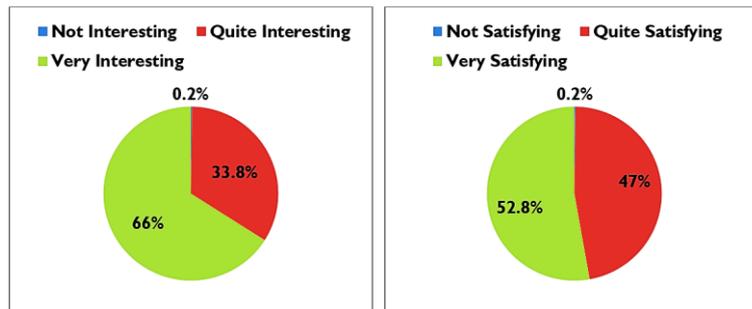


Figure 5. The evaluation of the delivery of webinar materials (Left); The evaluation of the webinar discussion event from 379 respondents (Right)

The responses of the webinar participants to the evaluation of participants' responses to the material presented (Figure 6) showed encouraging results. 98.9% said it was important and clear, 1.1% said it was not important but clear, while no one said it was not important or unclear.

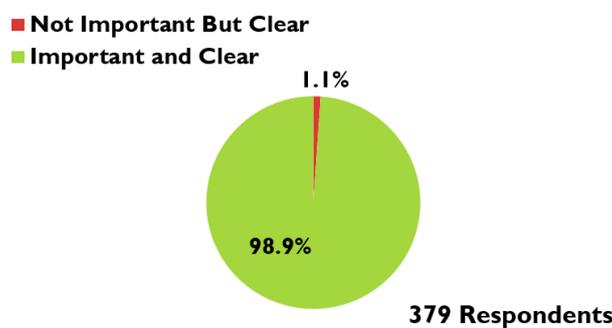


Figure 6. Evaluation of participants' responses to the material presented in the webinar

Based on the results of the evaluation above, it shows that socialization using flyers in the Community Service program received a very clear response of 58.3%, 41.2% quite clear, and only 0.5% of the 379 respondents who answered were not clear. The flyer design received a response of 49.3% very interesting and 49.9% chose quite interesting. This shows a pretty good result for flyer design. In the registration process the participants also received a good response where 71.8% of participants chose the registration process to be smooth. The communication/internet network of the 43.8% participants was very smooth, 48.5% was quite smooth, and 7.7% had problems with disconnection, meaning that from the point of view of preparation for the implementation of this webinar, it was considered quite satisfactory.

Delivery of material was responded with 66% very interesting results, and 33.8% quite interesting, and for discussion events 52.8% of participants felt very satisfying, and 47% of participants chose quite satisfying. The topics/information discussed received 68.9% responses to solve participants' problem, and 30.6% chose to answer some of the participants' problem. The

suitability of the program title with the material presented 67.8% of the participants considered it very appropriate and 31.9% chose quite appropriate. As for the participants' responses to the material presented, 98.9% responded that the material presented was important and clear, 1.1% of participants thought the material was not important but clear, and there were no participants (0%) who answered that the material presented was not important and unclear. Reviewing the results of the participants' assessment of the webinar material showed a positive assessment of up to 98.9%, although it was realized that 1.1% of participants thought the material was not important. However, the Community Service Activity Team was still grateful that this event was quite successful as evidenced by the large interest of participants who registered up to 390 participants and those who were finally able to follow up to completion were 379 people. Given the limited Zoom used so that registration was only open for two days, because it exceeded the Zoom capacity used and even after being closed, the participants' interest was still quite large. This is indicated by the presence of several potential participants who wished to continue registering, but due to limited zoom capacity, this could not be fulfilled. The webinar was held on 24 October from 3:00 p.m. to 5:00 p.m. smoothly.

### ***Results and discussion of talk show implementation***

Meanwhile, for the general public, education was presented in the form of a Talk Show via Radio Max 96.9 FM which was held on 25 October 2020 from 18.30 - 20.00 WIB which could also be followed via YouTube. This implementation was facilitated by Apt. Heinrich Dengi, S.Si. This radio talk show was chosen based on the consideration that the people of NTT are more comfortable listening to radio considering it did not need a computer or cellphone device, did not need to provide credit and, also regard the instability of the internet network when using webinar/Zoom.

The materials for two subjects were presented for 30 minutes each, followed by questions and answers with the listeners. The materials were presented in a language that was easy to understand by ordinary people, accompanied by relevant examples. Audiences who asked questions and had good questions or could answer questions from the committee were given prizes in the form of certain cellphone credit.

Some of the questions were asked by listeners, for example from Mrs. Grace, from the island of Sumba: "What do the informants think if the oil used to process fried food is put in plastic to make it more crispy, and what about fried chicken fried with used cooking oil". Another question was from Mr. Yunus who turned out to be a journalist in Kupang. He questioned, "What is the impact of the Covid-19 outbreak on MSME business activities and the second question is whether Food Additives could cause mass poisoning?". The next question from another listener was, "Is the food sold at school with very striking and attractive colors healthy? If not healthy, what is the solution?".

Questions about the Halal aspects of food were also asked, whether plants fed with animal manure and/or pesticides fertilizers that were Halal or not. There were also questions regarding the government's role in supervising small-scale food and beverage businesses, which was related to the safety of the food they sold. There was a question, "How do the speakers respond about the presence of heavy metal contamination in green mussel meat, and how to overcome it so that it is safe for human consumption?". Answered by the speakers, "For food safety if it is not already at BPOM, for example, it can be reviewed in SNI". It was so exciting and the variety of types of material that the listeners asked about and tried to answer by the speakers, so that the radio broadcast time which was originally allocated 1.5 hours eventually became 2 hours.

It is recommended that this activity should not only stop at Webinar and Talk Show but it needs real action that can be felt by the community directly, for example through coaching and mentoring for MSMEs and the formation of assisted communities by Universitas Airlangga which may be in collaboration with local universities and local governments. Tourism potential in NTT is still very potential considering the beautiful nature and cultural diversity of its people. This activity is further disseminated because it can be followed on YouTube streaming <https://bit.ly/2IVsPxF> or <https://youtu.be/E9brs7ZPA9E> and published on <https://kupang.tribunnews.com/2020/10.26/perlu-ada-socialisasi-kepada-produsen-dan-consumer-about-btp> (Kompas Group) as well as <https://www.waingapu.com/kontribusi-umkm-untuk-pdb-tinggi-namun-still-minim-pem-regulasi/#gsc.tab=0> also Victory News, published in Kupang. The

results of this activity are expected to produce positive benefits for the community and the growth of tourism in Sumba Island in particular.

## CONCLUSION

The Community Service activities through Webinar and Talk Show that help increasing the knowledge and ability of the Dharma Wanita, IPA, and MSME member groups in terms of CPPB-IRT and the use of food additives on Sumba Island, was held on 24 and 25 October 2020. In terms of this can be concluded that community service activities carried out on 24-25 October 2020 bring benefits to participants and it is important to continue because MSMEs contribute largely and significantly for the Indonesian economy, so that it needs to be continuously fostered and improved to realize the Independence of the Indonesian Nation. Participants feel the benefits of this Community Service activity, especially regarding their understanding of food additives, dyes, preservatives and production methods, registration and certification of food products so that they are safe for food according to BPOM Regulation No.11/2019. It is necessary to continue to socialize and understand the use of various food additives for producers and consumers. The rules/regulations are according to BPOM Regulation No.11/2019 to protect consumers/society. Assistance efforts in increasing marketing for MSME products and increasing the understanding of members of the MSME partner community about the importance of seeking to expand marketing with a touch of technology (online sale) for the products produced. This needs to be followed up in a real way in the form of community assistance and assisted villages in collaboration with the Regional Government, the Tourism Office, the Cooperative Office, and the Trade Office, especially on the island of Sumba.

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