Exposure to Agricultural Radio Programmes and Adoption of Improved Farming Practices among Farmers in Kajola Local Government Area, Oyo State, Nigeria

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ABSTRACT

Background: Radio, a powerful communication tool globally, has proven to be the most effective in the development of the agriculture sector, especially in the rural areas. Radio has been recognised as one of the most powerful mass media for the dissemination of agricultural information.
Objective: The study investigated exposure to agricultural radio programmes and adoption of improved farming practices among farmers in Kajola local government area (LGA), a predominantly agricultural zone in Oyo State, Nigeria.
Materials and methods: Focus group discussion (FGD) was adopted as the study design while multi-stage sampling procedure was used to select forty eight (48) discussants. Data were collected with FGD guide and thematically analyzed.
Results: Finding showed that majority of the farmers were always exposed to radio agricultural programmes, although the number of years varied. Majority of the farmers confirmed that exposure to agricultural radio programmes influenced their adoption of improved farming practices.
Conclusion: The study concludes that dissemination of agricultural information through radio programmes is key to the adoption of improved farming practices. The study recommends that agriculture-based research institutes should partner with broadcasting organisations, especially radio stations, in the packaging and delivery of programmes that would provide rural farmers with up-to-date information on improved agricultural practices.

Key words: Agricultural radio programmes, Kajola LGA, Oyo State Nigeria, uses and gratifications theory, adoption of improved farming practices

INTRODUCTION

Radio, a powerful channel of communication, globally has proven to be most effective in the development of the agricultural sector, especially in the rural areas. Scholars (Kakade, 2013, Chapota, Fatch & Mthinda, 2014, Sharma cited in Cubos & Vargas, 2021) also recognised radio as one of the most powerful mass media for the dissemination of agricultural information. Among the three main categories of mass communication tools for agricultural extension such as radio, television and print media, the importance of radio for agricultural information dissemination cannot be denied (Sharma citied in Cubos& Vargas, 2021). It remains the most popular medium for raising awareness and encouraging farmers to adopt improved farming practices (Nabusoba, 2014). Radio acts as a communication medium of rural farmers in accessing agricultural information through radio station agricultural programmes (Cubos & Vargas, 2021).The radio

as a channel of communication breaks the language barrier and allows farmers to multi-task. The radio set is easily moveable, does not always require electricity, and is simple to operate. No doubt, these are endearing and unique features that farmers can easily identify with.

Agricultural radio programmes provide good avenue to connect with farmers, especially those in the rural areas. Most radio stations broadcast agricultural programmes with a view to providing important information that would expand farmers' understanding of farming systems which would ultimately lead to better agricultural production and productivity (Folitse, Osei, Dzandu, & Obeng-Koranteng cited in Oyewole, Ayanrinde, Oyewole & Ayanrinde, 2023). This is understandable considering their potential to reach a large number of farmers, particularly those in remote areas with limited access to sources of information (Hoang, Nguyen, & Drysdale, 2022; Antwi, Tham-Agyekum, Aidoo, Boansi, & Okorley,2022). Beyond their reach, they are also very pivotal in achieving the essence of agricultural communication and development (Njoku, 2016).

Globally, advancements in agricultural technologies are geared towards addressing food insecurity, as well as achieving sustainability in agricultural productivity. Agricultural technologies include all kinds of improved techniques and farming practices which affect the growth of agricultural output (Jain et al. cited in Oyewole et al., 2023). The advantages, among others, include higher crop productivity, reduced impact on natural ecosystems, less runoff of chemicals into rivers and groundwater etc(Raina, 2021).Agricultural radio programmes leverage on advancements in agricultural technologies in order to keep farmers abreast of current developments in the sector.

Food insecurity is a threat to humanity. Sadly, Nigeria is not exempt from the menace of food insecurity. The three drivers (climate change, national economy and conflict) identified by Food and Agriculture Organisation (FAO) play a very significant role in aggravating food security situation in the country (Kralovec cited in Ani, Anyika&Mutambara, 2021). Additionally, the country's food insecurity is threatened by what Oyewole et al. (2023) termed over dependency on traditional technologies which is characterized by poor yield and inefficiency. According to the authors, agricultural development depends, to a great extent, on the willingness and ability of the small-scale farmers to adopt new technology as developed in research laboratories. Improving the agricultural productivity would remain a mirage if agricultural technology adoption rate remains low. Hence, there is an urgent need to adopt the proven agricultural technologies (Yokamo, 2020) for the economic and social well-being of the people involved (Oyewole & Ojeleye, 2015; Sennuga & Oyewole, 2020) and by extension address the menace of food insecurity in the country.

The relevance of agricultural radio programmes in the adoption of improved farming practices informed the focus of this study. It is taken for granted that the relevance is evident. However, Irfan (2014) observed that there is the possibility that many only listen to agricultural radio programmes because radio seems available and accessible to get information without the intention of adopting and applying any improved farming practices that will increase their farm productivity or yields. This observation lends credence to the statement made by Oyewole et al (2023) already cited above on the country's food insecurity caused by over dependence on traditional technologies. Do farmers listen to these programmes with the intention of adopting the practices for improved agricultural outcomes? This possibility resonates well with the central tenet of the uses and gratifications theory which focuses on what the mass media audiences do with media content that they are exposed to. Media users tend to use the media content for different reasons.

Scholars are, therefore, beginning to interrogate the correlation between exposure to radio agricultural programmes and adoption of improved farming practices. Studies conducted within the country (Chinda, Ali &Ali, 2019, Omoghene, Okomo & Okumagba, 2019, Adeyeye et al., 2021, Danjuma, Agir, Zubairu & Agya, 2021) focused on farming communities in other parts of the country in investigating the correlation between radio agricultural programmes and various dimensions of agricultural development in the country. However, to the knowledge of this researcher, no such studies carried out in this study area focused on the variables of interest of this present study. Kajola LGA is made up of eight major farming communities; Okeho, Ilero, Ayetoro-Oke, Ilaji-Oke, Iwere-Ile, Isemi-Ile, IluaandImia. The area is fondly referred to as the food basket of south western Nigeria while agriculture remains the major occupation of the people (Alarima et al., 2020). These peculiarities informed the justification for focusing on this important agricultural community. This study, therefore, investigated exposure to agricultural radio programmes and adoption of improved farming practices among farmers in Kajola local government area, Oyo State. What is the exposure pattern to agricultural radio programmes among the farmers in Kajola LGA? What is the level of adoption of improved farming practices among the farmers in Kajola LGA? What is the relationship between exposure pattern to agricultural radio programmes and adoption of improved farming practices among the farmers in Kajola LGA?

Theoretical Framework

This study was guided by the uses and gratifications theory (UGT). Although the theory was introduced in the 1940s, it has undergone some evolution since its expansion by Katz, Blumler and Gurevitch in 1974 (Laninhun & Olowojebutu, 2021). This theory deals with understanding why mass media users use certain types of media, what needs they meet, and what gratifications they derive from using them (Kasirye, 2022). The UGT relies on two key assumptions which are that mass media audiences are active and they are more aware of the reasons why they choose the particular media (Kasirye, 2022). The implication, therefore, is that mass media audiences make conscious and deliberate efforts in selecting and interpreting media messages which they utilize to gratify perceived individual needs.

The UGT adopts an audience-centred approach by emphasizing on what people do with the media against what the media do to the people. This theory concentrates on why people use particular media rather than focusing on contents as presented by the mass media. According to Azhar (nd) the theory shifted attention from the message makers of the mass communication process to the message receivers, the audience. The UGT has gained great popularity among communication scholars (Perse cited in Laninhun & Olowojebutu, 2021), and in other fields of life (Azhar, nd). Studies (such as Azarian, Hassan &Samah, 2012, Ifejika, Oladosu, Ifejika, Asadu, & Laniran, 2017) have utilized the UGT in investigating agricultural information sought and gratifications obtained by farmers in different agricultural communities in the country. This present study adopted this theory in investigating exposure to agricultural radio programmes and adoption of improved farming practices among farmers in Kajola LGA, Oyo State. The theory is very appropriate in examining the information sought (exposure to agricultural radio programmes) and gratifications obtained (adoption of improved farming practices).

METHODOLOGY

Study design

Focus group discussion (FGD) was adopted as the study design because it allowed the farmers to freely discuss various aspects of their media behaviour in relation to adoption of improved agricultural practices. This design was considered very appropriate because it provided an opportunity to capture the depth and richness of agricultural experiences and practices among farmers in Kajola LGA, Oyo State.

Sampling procedure and sample size

The multi-stage sampling procedure was employed in the selection of the sample for the study. The first stage involved stratification of the study area according to the eight (8) major farming communities in the LGA. The second stage involved appointing a contact person in each of the farming communities to assist in mapping out areas in each community where those farmers who listen to agricultural radio programmes reside. In order to select the discussants, purposive and convenience sampling techniques were utilized in identifying farmers who listen to agricultural radio programmes and were readily available and willing to participate in the FGD. This constituted the final stage. Six(6) discussants were selected from each farming community, making a total of forty-eight (48) farmers.

Data collection

A total of eight (8) focus groups- consisting of four (4) male and four (4)female groups -were constituted. Factors, such as age and level of education were considered in constituting the groups. This was done in order to ensure that the discussants enjoy some level of freedom in their contributions and interactions with each other during the sessions. The sessions were held in serene and conducive environments devoid of noise that could constitute a great distraction. Six (6) discussants participated in each session which lasted between 30-45 minutes. Data collection lasted for a period of two weeks.

Method of data analysis

The qualitative data generated from the FGD discussions were transcribed. The data were analyzed thematically. Excerpts that represented the opinions of the discussants were also utilized in the analysis of the data.

RESULTS

Socio-demographic characteristics

A total of forty eight (48) farmers participated in the study. Majority of the discussants (n=32; 66.6%) and (n=37; 77.1%) were between 31-63 years old and had formal education (at primary, secondary and tertiary levels) respectively.

Exposure pattern to agricultural radio programmes

All the farmers said they have been exposed to agricultural radio programmes. However, majority of them were always exposed to such programmes. For instance, a55year-old less educated female farmer

said, "I always listen to these programmes, anytime they are being aired on radio". Another 40year-old educated male farmer said, "there are some of these programmes I listen to that they broadcast daily and there are some they broadcast weekly. So, I always listen to them when they broadcast them".

The finding also revealed the different agricultural radio programmes that the farmers listened to. These programmes include, Ege Dola, Ege D'oro, Oro Agbe, Oba L'agbe, Asejere, Isokan Agbe Agbe Lere, Agbe Dotun, Ise Agbe Daa, Agbe L'oba, Oke-Ogun Crops, Agbe D'oro, and IrorunAgbe. For instance, an 80 year-old educated male farmer, who liste ned to these programmes said that, "I always sit to listen to farming programmes like Ege D'ola, Asejere, Isokan Agbe, Irorun Agbe everytime they are being aired on radio".Also, a 66 year-old educated male farmer said that:

> I always listen to programmes like Oro Agbe on Oke-Ogun FM, AgbeL'oba also on Oke-Ogun FM, Ege D'ola, Oke-Ogun Crops, and some other programmes on farming on radio stations within my reach. For instance, I listened to Ege D'ola yesterday (March1,2023), on Oke-Ogun FM 96.3, and if I can recollect, I have been listening to these programmes for the past six years.

Likewise, a 64year-old educated male farmer stated that:

> I always listen to EgeD'oro andEgeD'olathatOluyoleFM98.5 and Oke-Ogun FM 96.3 broadcast. I also listen to Agbe Loba on Oke-Ogunradio FM 96.3wheretheybroadcastagriculturalprogrammes on how to plant and cultivate improved varieties of yam, maize, cassava, and so on.

The number of years that the farmers have listened to various programmes varied. Majority have listened to different programmes over a 3-4yearsperiod while a few have listened to different programmes for more than 7years.

Level of adoption of improved farming practices

The finding revealed a high level of adoption of improved farming practices among the farmers. Almost all the farmers said that they have always adopted improved farming practices such as the application of improved fertilizer, chemicals, mixed cropping, crop varieties and farm equipment. These are further discussed separately.

Improved Fertilizers

Majority of the farmers have adopted improved fertilizers in their farming practices. The fertilizers utilized by the farmers include: urea, (both liquid and solid variants), inorganic fertilizers—NPK, NPK-50:50, 15:15:15, 20:10:10, and organic fertilizer-SuperGro. For instance, a 40 year-old educated man said that, "it is from these radio programmes I heard about different types of fertilizers such as NPK, urea fertilizer that we call "oniyo" (salty), organic and inorganic fertilizers, liquid and solid and some other ones I can't remember". Furthermore, some of the farmers based on the information they got are able to take decisions

based on the cost effectiveness of the fertilizers. For instance, a 70 year-old educated male farmer said that:

> Super Gro fertilizer, which is liquid, is not so expensive, compared to Urea and some other ones, but they are improved farming practices I adopt and apply to my farms to make my crops grow.

Majority of the farmers have mastered the correct fertilizer application procedures that enhance plants' optimal growth. For instance, according to a 73 year-old less educated male farmer stated, "when I apply maize fertilizer like NPK and Urea, I don't let it get to the root, because if itdoes, the maize dies and it would be a wasted effort". Another 36year-old educated young female farmer confirmed that, "when I apply fertilizer to my maize, it won't go near to the root of the maize, because it will end up dying". Also, an 80 year-old educated male farmer stated that:

> NPK15:15:15 and NPK 20:10:10 (Nitrogen, Phosphorus, and Potassium) fertilizer is first applied to maize the day it's being planted, and after 2-3 weeks of planting, another NPK fertilizer is applied. Then, Urea fertilizer is applied to moist soil after 6 weeks of planting the maize. This will make it strong and healthy. Also 50:50 fertilizer is applied during the root development of any crop.

Again, a 45year-old educated young female farmer stated that:

> If it were to be then, I used to apply fertilizer directly to my maize. I will just spray it on the leaves and leave it there, but now, I have heard in these radio programmes that we have to dig the ground beside the planted maize to apply the fertilizer, and if it rains, it won't be swept away, instead, the fertilizer will sink into the soil and fertilizes the maize.

However, a few farmers are opposed to the application of the improved fertilizer in their farms. For instance, a 55 year-old educated male farmer stated, "I don't adopt some of these practices like fertilizers for maize because my land doesn't require fertilizers".

Improved Chemicals

Majority of the farmers adopt the application of chemicals in their farms because of their effectiveness in controlling weeds and pests infestation without constituting any threats to their crops. Some of the systemic herbicides for controlling weeds identified by the farmers include Paraquat, Simazine, Glyphosate, Confront, Weedoff, Guardforce, Maestro, Atrazine, Arrow, Halosulfuron (Striker), Nicosulfuron, 2.4-D (dinitrophenylhydrazine), and 2.4-D hormone. The farmers also identified DD force, Rocket, Match, Lara force as insecticides for preserving their farm produces. The implication of this result is that most of the farmers adopt systemic herbicides and insecticides as improved chemicals in their farming practices. Further probing showed that the farmers understood the intricacies of chemical usage which has times and seasons of application. For instance, a 38 year-old educated male farmer stated that:

> Glyphosate and 2.4-D herbicides are used for zero tillage, that is, at the beginning of the year before cultivation, and after planting, and Atrazine mixed with Paraquat are used for grains maize to help the plant germinate and also desiccate plants.

Mixed Cropping

Mixed cropping was a common practice among the farmers. The reasons for adopting this practice include reduction of soil erosion, and increase in crop yield and soil fertility. Among the mixed cropped are maize and cassava, maize and soybean, maize and groundnuts, maize and guinea corn, beans (Ife Brown) and maize, pigeon pea and yam, vegetables and yam. But a few farmers who have some reservations about the practice frowned at the financial implications and difficulty in managing the mixed cropping practice. For instance, a 60 year-old educated male farmer said that, "mixed cropping, is sometimes difficult to manage if the land is large, but if the land is not large enough, one can practice it". Also, a 59 year-old educated female farmer said that:

> I see to it that I adopt this mixed cropping method farming into my farm. For example, I listen to certain farm crops that we can plant together, something like cassava and maize, and guinea corn, but you see when I plant certain crops separately, I don't spend (money) much on cultivating and managing them, compared to when I do this mixed cropping. Planting separately also makes my plants grow well, but I'm not condemning it.

Improved Crop Varieties

The improved crop varieties commonly adopted by the farmers are maize and cassava. The maize varieties are Oba Super-6, and Machala, SC727, SC719, SC 649, and SC637 while the companies that produced them are Premier, Pioneer, and SeedCo. For instance, a 38year-old educated female farmer said that, "these improved maize varieties are plenty. But the ones I plant here that I can remember are "Oba Super-6, Machala, SeedCo seeds, such as SC719, SC649". A 46 year-old educated male farmer stated that, "I know that different companies produce hybrid maize seeds. I know Premier, Pioneer, SeedCo, but the common one we usually do plant here are SeedCo seeds because they are drought resistant and always give us high yields". Another farmer, a 32year-old educated male confirmed that, "I planted a maize variety last year, that was ObaSuper-6, it is drought resistant. It was from the farming programme I heard about it". A 54 year-old less educated female farmer said, "for instance, the improved maize seedlings are less stricken with farm diseases unlike the seeds I was used to planting before".

Findings revealed that farmers adopt new breeds of cassava. Majority of the farmers identified BetterLife, Okọ (newgroom), ẸgeDudu (blackcassava), 419, Arubiẹlu, 0505 (sweetcassava), Yellow cassava, as the new breeds of cassava they adopt and plant in their farms compared to the" Odongbo and Olalumi" varieties of cassava they are used to planting. The farmers stated that they get information on the new breeds of cassava from the radio programmes. For instance, a 53year-old educated female farmer stated that, "through these programmes, we have known about new breeds of cassava such as BetterLife, OkọIyawo (new groom), 0505 (sweet cassava), 419, Arubiẹlu, and so on". The majority of the farmers said that they adopt these new breeds of cassava because they are easy to manage and have early maturity dates. For instance, a 67 year-old less educated male farmer stated that, "the breeds of

cassava like "Odongbo" and "Olalumi" that we used to plant before do take time to grow and be ready for harvest". Another 41year-old educated male farmers stated:

> Then, when our forefathers plant cassava, sometimes, it used to last for 3 years before it can be ready for harvest, because they spend much time cultivating, controlling the weeds, and applying manual fertilizers, but now that I have been exposed to these programmes, I have known about new breeds of cassava such as BetterLife, Ẹgẹ Dudu (black cassava, Okọ (newgroom), Arubieḷu, 0505 (sweet cassava), Yellow cassava and the likes.

Improved Farm Equipment

Majority of the farmers adopted combination of improved farm equipment in their farming practices. The improved farm equipment commonly mentioned are planters, measuring tapes, tractors, harvesters, and shellers. For instance, a 50 year-old educated female said, "I can now control more than 3 acres of land when I plant since I am now aware of the modern farm machines such as tractor, measuring tape, harvester, and planter to cultivate". However, majority of the farmers stated that some of the farm equipment are not only expensive to acquire but are not readily available. A 40year-old educated male farmer stated:

> Before I started listening to these programmes, I used to clear the farm with hands and make ridges with hoe and cutlass, and also plant, like maize, with hands and legs, and by the time I harvest, the produce is always small. So, ever since I started listening to the programmes on radio, I have got to know about tractor, planter, harvester, and sheller. However, this farm equipment is expensive to get and they are no longer freely available for use again, because government no longer supply them to us.

Also, a 59 year-old educated female farmer said:

> … for instance, I now make use of planter for planting maize. For cassava, before, I cut it directly to the ground, but now, there is now a measuring tape for measuring the cassava stem before cutting and planting it. Over the years, since I started listening to these programmes, I have realized that the old way of planting cassava wastes the cassava and sometimes, some may end up not growing, or getting spoilt at the end.

Exposure to agricultural radio programmes and adoption of improved farming practices

Majority of the farmers confirmed that exposure to agricultural radio programmes have influenced their adoption of improved farming practices. Specifically, the farmers through the agricultural radio programmes gained more knowledge which helped them adopt improved farming practices based on their perceived individual needs. According to a 70 year-old less educated male farmer, "Ah, exposure to these programmes has opened my eyes to different types of chemicals for

controlling weeds, eradicating insects, and making my land fertile for crop plantation". Another 67 year-old educated male farmer stated:

> My exposure to these informative agricultural programmes on the radio has been useful to my farming. Er, I have been planting melon, soybeans, potato and pigeon pea on my farms for like 3years now and this has been making my lands fertile. So, I can say that exposure to these agricultural radio programmes has been greatly enhancing my adoption of improved farming practices.

According to a 41year-old educated female farmer:

> When I was still young, about 15 years ago, the way my father and I used to cultivate our farm lands are now different. Now we have farm insects that infest our farm crops, but the exposure to these programmes and improved practices have made me know different ways of controlling and killing these insects. If it were to be then, I would have no choice than to leave them because there was no way of preventing or controlling them.

Also, 65year-old educated male farmer explained:

> The major reason I have been adopting and applying these practices to my farm is because of the farming practices the radio programmes have exposed me to. For instance, herein Ilua, before, I didn't know what 'soybean' is. It was from one of these farming radio programmes I heard about it and I have realised that soybean plantation produces higher yields. So, different improved farming practices are what I practice and adopt now because I have been exposed to them.

Discussion

The major finding of this study revealed that the farmers in Kajola LGA are always exposed to agricultural radio programmes. It is not surprising that farmers in these areas have good access to agricultural radio programmes because radio has a wider reach that gets to farmers who are rural dwellers. Masso and Saleem (2020) stated that agricultural radio programmes are widely recognized as a popular means of disseminating helpful agricultural information to farmers. Similarly, Emovwodo (2019) considered radio as a potent communication tool, specifically in rural areas, where it has demonstrated remarkable effectiveness in promoting agriculture and facilitating development, particularly as a tool for delivering timely information efficiently. The fact that majority of the farmers were not only able to identify a lot of the agricultural programmes aired on some radio stations but as well obtained useful information on improved farming practices showed a level of interaction they have with the programmes.

Literature is replete with evidence which shows that farmers who regularly listen to agricultural radio programmes are more likely to adopt new technologies and practices (Msoffe & Ngulube, 2016,

Maurice, Ali & Ali, 2019, Anaglo, Antwi, Manteaw & Kwapong, 2020, and Salik*et al.,* 2021). The high level of adoption of improved farming practices among the farmers may have been borne out of the dire need to achieve greater efficiency and productivity with a view to contributing towards addressing the food insecurity both globally, and in Nigeria. Scholars (Kinuthia & Mabaya, 2017, Uzonna & Qijie, 2013) have averred that the adoption of improved farming practices is a key means to achieving higher productivity. This current study reveals that almost all the farmers always adopted improved farming practices such as the application of improved fertilizer, chemicals, mixed cropping, crop varieties and farm equipment. The implication is that agricultural radio programmes are effective in disseminating information and promoting the adoption of new farming practices in Nigeria (Maurice et al., 2019).

The other finding of this study revealed a relationship between exposure to agricultural radio programmes and the adoption of improved farming practices. This finding corroborates a similar study finding of Irfan (2014) which showed that exposure to agricultural radio programmes influence farmers' decision to adopt new methods of farming and technologies in their farms in order to increase their farm outputs. This current study supports the key assumption of the uses and gratifications theory that mass media users are active in their selection of media fares which they ultimately use in gratifying their needs. This is an indication that the farmers were deliberate in their exposure to agricultural radio programmes and adoption of improved farming practices gained from such programmes. It is likely that the farmers may have realized that successful farming depends on application of modern knowledge which according to them "surpassed the traditional knowledge passed down by their fathers and forefathers". Farming practices have long moved from the "primitive" ways of doing things to modern and sophisticated ways.

Conclusion and recommendation

Advancements in agricultural technologies are geared towards addressing food insecurity and achieving sustainability in agricultural productivity. The findings of this study confirm that farmers adopt improved agricultural practices based on the information they get from agricultural radio programmes. Therefore, dissemination of agricultural information through radio programmesis key to the adoption of improved farming practices.

Furthermore, agriculture-based research institutes should partner with broadcasting organizations, especially radio stations, in the packaging of programmes that would provide rural farmers with up-to-date information on improved agricultural practices. Over dependency on traditional technologies which is characterized by poor yield and inefficiency (Oyewole et al. (2023) is a serious threat to food sufficiency of the country. Consequently, it is important to equip the rural farmers with information that would enhance and improve their agricultural practices. This would contribute immensely towards ameliorating food insecurity in the country.

Ethical clearance

Some ethical issues were considered during the course of this study. Before the commencement of each session, framers were briefed on the objectives of the study. Their consent to participate in the study was sought and obtained. They were assured that a level of anonymity and confidentiality was to be maintained, hence a unique identifier code was assigned to each discussant in order to track their contributions.

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