

IMPACT OF COVID 19 ON HOUSEHOLD FOOD SECURITY IN NORTHERN TARABA STATE

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Abstract

COVID-19 has posed a great challenge to different societal institutions, ranging from health, education, food and economic institution across the globe, it has affected both the advanced countries as well as the third world countries. Prior to COVID-19 a lot of countries especially in the Third world countries like Nigeria were faced with hunger and food insecurity. The research investigate how the Virus affects food security in Northern part of Taraba State. Descriptive research designed was used were the information were obtained via the instrument of questionnaire. The study discovered that, unavailability of money to buy foodstuff, increase in foodstuff prices and panic buying were the effects of COVID-19 pandemic. Majority of the respondents were not able to receive any form of intervention and the study recommends that the government and relevant bodies should come up with an encompassing intervention to rescue the vulnerable households.

Keywords: COVID 19, Food Security, Pandemic, Household, Northern Taraba State.

Introduction

A global pandemic is not a new scenario for mankind, since there are several examples of different pandemics; Spanish flu 1918-1919, Asian flu 1957-1958, Hong Kong flu 1968-1970, HIV / AIDS 1981 to present. The world's human activities and economic growth have been affected by each pandemic. We are presently facing COVID-19 (2019 coronavirus disease). COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). At the epicenter of the coronavirus outbreak in Wuhan, the first reported case of COVID-19 was detected. The disease spreads among people at an unprecedented pace because of the novelty of the virus strain, taking a significant toll on people's lives and well-being, initiating a set of steps for restraint and prevention. Some policies, such as restricting people's movement and the temporal closure of roads, ports,

factories, airports, commerce, and financial institutions, almost put the global economy to a close (Bahadur Poudel et al., 2020).

The movement constraints associated with the COVID-19 pandemic could, at critical seasonal times, break down supply chains for agricultural inputs, limiting workers' ingress to farmland, and thus both their salaries and land area, and limit the flow of products to plants and markets for processing. The pandemic may also impact livestock supply chains, and major consequences for pastoralist families, while poor farmers who are into fishery may find it extremely difficult to sell their products, leading to severe losses in revenue and thus earnings, decreasing diets in the face of health crises and general pliability (Dennison Himmelfarb & Baptiste, 2020)

Since the declaration by WHO of COVID-19 on 11 March as a universal pandemic, Individual distancing steps have been implemented by governments across regions, stringent limits on mobility of individuals, regulations, including absolute closure in some cases. Businesses, financial institutions, commercial centers, public facilities, and educational institutions have closed in whole or in part, thereby putting an end to economic life. This has resulted in substantial sales and employment losses and business failure threats, especially among small and medium-sized enterprises (SMEs). ('COVID-19 Food Security Effect. How to Respond to Near East North Africa?' 2020)

The virus is now impacting food security through its effects on food availability and sufficient demand. Incidentally, via reducing real wages, food generation, and distribution, including boosting care tasks, both of these would have various effects on the disadvantaged and vulnerable and have a more significant impact on them. The pandemic's repercussions are particularly vulnerable to countries with existing humanitarian crises, both directly impacting people's health and lives, where health systems are already poor and overburdened, where hunger levels are high. There are indirect impacts, such as destruction of livelihoods, food supply chains, food distribution, essential services, and humanitarian assistance. (In 2020, Dennison Himmelfarb & Baptiste).

Statement of the Problem

Food security is essentially an apparent reference to the availability and accessibility of a reasonable amount of healthy food. Owing to a decline in international trade, food supply chain disruption, and food production, food insecurity could arise. The FAO has stated that it can be difficult for small-scale farmers and fishers to sell their products, leading to a decline in their income and purchasing power. Food insecurity caused by COVID-19 would significantly affect the poorer parts of the population and the most disadvantaged. (Bahadur Poudel and others, 2020) In a time when hunger or undernourishment continues to increase, COVID-19 hits.

According to FAO et al. (2020), an additional 83 million people will go hungry in 2020, and possibly as many as 132 million, due to the global crisis caused by the pandemic. Compared with the 690 million currently hungry individuals. At the same time, 135 million people suffer from acute food insecurity and desperately need humanitarian help.

According to the World Bank, approximately 100 million people may be driven into extreme poverty due to the effects of the virus economically. In both developed and developing countries, increasing unemployment rates, loss of income, and rising food prices are jeopardizing food access and would lead to lasting impacts have on food security. The pandemic could also push national economies into recession, and countries should take immediate steps to minimize the long-term effects on food systems and food security (FAO's 2020).

Developing countries are particularly at risk in Sub-Saharan Africa, where most countries experience food shortages and where the pandemic is spreading at critical times for both farmers and herders since COVID-19 would lead to a decrease in the labor force and affect incomes and livelihoods as well as labor-intensive forms of production (2020, Ragasa & Lambrecht).

The first COVID-19 case was registered in Nigeria on February 27, 2020. Since then, Nigeria's economy and the agricultural and food sectors have been affected by it. A United Nations report has ranked the world's ten most at-risk countries for a famine; five are in Africa, and among them is Nigeria. This "hunger pandemic" would potentially trigger more deaths than COVID-19 itself. It is projected that agriculture, which accounts for about 20 percent of Nigeria's GDP, will decrease by 12 percent or more due to the pandemic (2020, AGRA).

The first case of Covid-19 was recorded in Taraba State on Monday, 28th April, as the Nigeria Center for Disease Control (NCDC) confirmed six coronavirus cases. The six cases were the first to be confirmed in Taraba since the outbreak of the virus. (*Tension in Taraba as NCDC Confirms 6 Coronavirus Cases* -, n.d.) Some non-pharmaceutical interventions, such as the closure of all clubs, schools, churches, markets, and other social events known as lockdown, were accompanied by confirmation of the dreaded virus.

The primary job of the people of the state of Taraba is agriculture. Among the state-produced cash crops are coffee, tea, groundnuts, and cotton. Crops such as maize, rice, sorghum, millet, cassava, and yam are also cultivated in commercial quantities. Also, cattle, sheep, and goats are raised in large numbers, especially on the Mambilla Plateau and Benue and Taraba's valleys. Similarly, people perform other livestock production activities on a relatively large scale, such as poultry production, rabbit breeding, and pig farming (Group & State, 2015).

There are studies on how food security has been affected by the COVID-19, most of which are review ("COVID-19 Impact Food Security. Near East North Africa How to Respond?," 2020; Daniel et al., 2020; Fadele et al., 2020; Hossain, 2020; Jám bor et al., 2020; Seleiman et al., 2020). However, this empirical research seeks to investigate the influence of COVID-19 on food safety among households in the state of Northern Taraba. This will allow policymakers and related stakeholders to understand the harm caused to individuals at this time by the dreaded coronavirus pandemic to have clear measures, in particular on food security.

Research Objectives

1. To find out how Food security has been affected by COVID-19 in Northern Taraba State
2. To examine the interventions towards reducing the effects ushered in by COVID-19 on the food security of households in Northern Taraba state
3. To proffer a solution to ameliorate the effects of COVID-19 on household food security in Northern Taraba State.

Conceptual clarifications

Food Security

Food security refers to "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (Fawole & Özkan, 2017). This happens when all individuals have unlimited access to an adequate diet that satisfies their nutritional requirements and food choices for an active and balanced life. (1996 World Food Summit) Food security was recently redefined in 2001, shortly after the announcement of the Millennium Development Goals (MDGs), which recognized food security as a global concern, in the face of growing world food insecurity, especially in developing countries as "a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Fawole & Özkan, 2017)

According to Pan American Health Organization et al. (2009), Food protection in a society relies on three key pillars: availability of food, access to food, and use of food.

The availability of food implies that enough food for the whole population is physically available. It is cultivated, in markets and stores, on farms or in-home gardens, or has arrived due to food aid.

Food access: means that people have access to food. In several ways, households can access food: rising, purchasing, trading, or through gifts, welfare services, or food assistance. Food access is ensured when households have enough resources to obtain sufficient quantities of nutritious food, such as land, money, or social connections.

Food Utilization: refers to how people's bodies will use the food they consume. Making the best use of food depends on proper storage and processing of food, overall nutrition, and health status, availability of safe drinking water, and adequate facilities for health and sanitation.

COVID-19

The first human cases of COVID-19, the disease caused by the novel coronavirus causing COVID-19, subsequently named SARS-CoV-2, were first recorded by officials in Wuhan City, Hubei Province in China on November 17, 2019, according to the South Morning China Post. (Global & Alert, 2020). Since then the number of infections and casualties has risen exponentially worldwide. COVID-19 is an infectious disease that, in more serious cases,

causes respiratory problems with cough, fever, and difficulty breathing. This disease spreads mainly by contact. (Agusi et al., 2020)

The disease has developed across the world and appears to be a dire emergency. On 11 March 2020, WHO declared COVID-19 a pandemic meeting the > 100,000 infected individuals' epidemiological criterion in not less than 100 countries (Callaway, 2020) cited in (Ohia et al., 2020). When an Italian national arriving in Nigeria via Lagos Airport tested positive for the virus on 27 February 2020, the first confirmed COVID-19 incident in Nigeria was revealed. A second case of the virus was registered in Ogun State on March 9, 2020, when a Nigerian citizen on transit from Milan to Lagos came into contact with an Italian citizen. However, an increase in recorded cases and consequent mortality has been registered. (Agusi and others, 2020)

Empirical Review

Data from the Food Agriculture Organization (FAO), the World Health Organization (WHO), and scientific and technical records were used to analyze the effect of COVID-19 disease-related events on agriculture; Siche (2020) found that ample evidence existed to determine the effects of COVID-19 on agriculture.

In a similar report, Jám bor et al. (2020) analyze global newspaper articles and blogs to summarize the early facts published up to 10 April 2020 on the impacts of COVID-19 on agriculture, revealing that agricultural-related pandemic effects caused by the virus can be classified into Supply, production, labor, protection of food, the safety of food, commerce, and other impacts.

Also, Abdul, (2020) on a study to analyze the effect of Covid-19 and lockdown on agriculture in Nigeria, reveals that the more stressful the number of lockdown days and restrictions on movement between states, the more seriously it affects the level of the economy (food prices skyrocket, rise in transport costs, marketer hoardings, rise in post-harvest lost at both farms.

Bahadur Poudel et al. (2020) also in his study on the effect of global pandemic COVID -19 on food and agriculture around the globe, discovered that the pandemic protocols and provisions of Covid-19 interfere the supply chain of the market with disrupted production and distribution, accompanied with lack of labor and supply of inputs. According to the report, this has a significant effect on livestock, poultry, fisheries, and milk production. It is not possible to plant spring crops such as corn, sunflower, spring wheat, barley, canola, and open field vegetables amid a pandemic. Consequently, due to manipulating the supply chain that the government needs to fix rapidly, the pandemic has had a significant effect on food security.

Similarly, (Anagah, 2020) Nigeria found that paltry progressive farmers were affected in its analysis to evaluate the impact of COVID-19 on paltry progressive farmers in Rivers State as they market their goods and made huge profits with no loss.

The effect of the coronavirus pandemic on agricultural activities and food availability in Nigeria was examined by Daniel et al. (2020). Study data were derived from official

government records and subjected to regression analysis to determine their correlations. The study concluded that the long-term impact of COVID-19 on agricultural activities and the availability of foodstuffs was positive as expected, indicating that the unit increase in the index of consumer prices in Nigeria is due to an increase in COVID-19. It also recommended that efforts to curb the spread and impact of the virus should be intensified by the government to promote a healthy environment where agricultural activities can continue. Furthermore, Monotorium should be given to some farmers, SMEs, agro-allied industries, businesses to help their business sprout again.

In his paper, Hossain (2020) highlighted the possible challenges posed by COVID-19 on agro-food sectors and highlighted each member's coping strategy to resolve the impending famine and ways to prevent hunger. The public's available knowledge was consolidated, and observations were gathered from 19 people who work in both the public or private sectors or academia in areas that have to do with agro-food areas in APO member countries. The study found that member countries face different threats posed to them by COVI-19 ranging from imminent, medium- and long-term food security. However, the study recommends that essential agricultural inputs be available to farmers, such as fertilizers and healthy, quality seeds.

Methodology

The research was carried out in the northern part of Taraba,(6° 301 and 9°361 N; 9°101 and 11°501 E) which is situated in north-eastern Nigeria. It consists of six local government areas, namely Ardo Kola, Jalingo, Karim Lamido, Lau, Yorro, and Zing. In selecting respondents for the study, a multi-stage sampling technique was used where three local government areas, namely Lau, Ardo-Kola, and Yorro local government areas, were randomly selected. To pick a total of 16 villages, a proportionate random sampling technique was used. And finally, systematic sampling was used to select eight households from each of the 16 villages. In all, 120 households were sampled for the study, and there was 100% returned. The data was analyzed through the Social Science Statistical Package (SPSS)

Presentation of Data

Table 1: Socio-Demographic Data of Respondents

Variables	Frequency	Percentages (100%)
Age(Years)		
18-25	11	9.2
26-35	21	17.5
36-45	50	41.7
46+	38	31.7
Total	120	100%
Sex		
Male	87	72.5
Female	33	27.5
Total	120	100%
Marital Status		
Single	12	10

Married	85	70.8
Divorced	9	7.5
Widowed	14	11.7
Total	120	100%
Educational Qualification		
No Formal Education	27	22.5
Primary Education	52	43.3
Secondary Education	31	25.8
Tertiary Education	10	8.3
Total	120	100%
Occupation		
Farming	77	64.2
Civil Servant	8	6.7
Trading	11	9.7
Unemployed	18	15
Student	6	5
Total	120	100%
Household Size		
1-5	23	19.7
6-10	69	57.5
11+	28	23.3
TOTAL	120	100%

Source: Field survey, 2020

The socio-demographic data of the participants' can is represented in Table 1 above. The study reveals that 9.2 percent of respondents were in the 18-25 age group, and 17.5 percent were in the 26-35 age range. 41.7% were between the ages of 36-45, while 31.7% were 46 years and above. This suggests that the bulk of respondents were in the 36-45 age range. 72.5% of the participants were men, the majority, while 27.5% were women.

The respondents' marital status showed that 10 percent were single, 70.8 percent were married, and 7.5 percent were divorced, while 11.7 percent were widows. This suggests that the bulk of the respondents are married. 22.5 percent of respondents have no formal education in terms of educational qualifications, 43.3 percent have primary education, and 25.8 percent have secondary education, while 8.3 percent have tertiary education.

The respondents' occupational status indicates that 64.2% are farmers, 6.7% are civil servants, 9.7% are merchants, and 15% are unemployed, while 5% are students. This means that farmers were the bulk of the respondents.

The respondents' household size also indicates that 19.7 percent are 1-5, 57.55 are between 6-10, and 23.3 percent are 11 and above, which indicates that in terms of household size, most respondents are between 6-10.

TABLE 2: The Impacts of COVID-19 on Household Food Security

Factors	Frequency	Percentage
Unavailability of foodstuff in the markets due to COVID-19		
Strongly Agreed	31	25.8
Agreed	59	49.2
Strongly Disagreed	23	19.2
Disagreed	7	5.8
Total	120	100%
Increase in prices of foodstuff in the market due to COVID-19		
Strongly Agreed	35	29.2
Agreed	68	56.7
Strongly Disagreed	9	7.5
Disagreed	8	6.7
Total	120	100%
Lack of fund to buy foodstuff due to COVID-19		
Strongly Agreed	44	36.7
Agreed	61	50.8
Strongly Disagreed	11	9.2
Disagreed	4	3.3
Total	120	100%
Panic buying as a result of COVID-19		
Strongly Agreed	52	43.3
Agreed	47	39.2
Strongly Disagreed	18	15
Disagreed	9	7.5
Total	120	100%

Source: Fieldwork, 2020

The Effects of COVID-19 on household food security are shown in Table 2 above. According to the table, with 49.2 percent, the majority of the respondents accepted that there was no availability of food on the market due to COVID-19. It was backed by 25.8 percent who strongly agreed, as opposed to 19.2 percent of respondents who strongly disagreed and 5.8 percent who also disagreed. This suggested that the unavailability of food on the market was one of the consequences of COVID-19 for household food safety.

The table shows that 29.2 percent of respondents strongly agreed that 56.7 percent agreed with the same opinion. In comparison, 7.5 percent and 6.7 percent of respondents strongly disagreed and disagreed respectively on whether the rise in food prices on the market as a

result of Covid-19 is also an effect of Covid-19 on household food security. This means that one of the impacts of COVID-19 on household food security is a rise in food prices.

The table also reveals that 36.7% of respondents strongly agreed that the absence of food procurement funds is also an effect of COVID-19 on household food welfare, and 50.8% agreed with the same opinion. In comparison, 9.2% strongly disagreed and were endorsed by 3.3% of respondents who disagreed. Thus, indications suggest that most of the respondents accepted that one of the impacts of COVID-19 on household food safety is the lack of funds to buy food.

The table also reveals that 43.3% of respondents strongly agreed that panic buying is one of the effects of COVID-19; 39.2% of the same respondents also agreed with the same opinion. However, 15% of respondents strongly disagreed that panic buying is one of the effects of COVID-19 on adolescents' household food protection. However, 10.9% also disagreed. The highest respondents were also in favor of panic buying as one of the impacts of COVID-19 on food security for households. This means that one of the impacts of COVID-19 on household food security is panic purchasing.

TABLE 3: Intervention by the Government and Non-Governmental Organization

	Frequency	Percentage (100%)
Federal Government	7	5.8
State Government	11	9.2
Local government	0	0
Philanthropist	16	13.3
Religious Organizations and NGOs	37	30.8
Did Not Receive Any Form of Intervention	49	40.8
Total	120	100%

Source: Fieldwork, 2020

The views of respondents on government and NGO initiatives is presented in Table 3 above. Five percent of the respondents received intervention from the federal government, 9.2% from the state government, and none of the respondents received intervention from the local government. On the other hand, 13.3 percent of the respondents received intervention from philanthropists, 30.8 percent from religious organizations and NGOs, while an overwhelming 40.8 percent did not receive any sort of government, religious, and NGO intervention. The majority of respondents, by default, did not receive any sort of interference.

TABLE 4: Solutions to Reduce the Impacts of COVID-19 on Household Food Security

Recommendation	Frequency	Percentage
The government should provide Incentives & Grants	78	65
Non-Collateral And Interest-Free Loan	31	25.8
Tax Waiver	11	9.2
Total	120	100%

Source: Field Work, 2020

65 percent of respondents proposed the government offer benefits and grants, 25.8 percent thought the teenagers should abstain from premarital sex with non-collateral and interest-free loans, 10.4 percent prescribed the use of condoms, and 20.8 percent advised teenagers to avoid bad businesses.

Conclusion

Many countries, states and nations have taken many initiatives since the outbreak of the coronavirus (COVID-19) pandemic disease, including shutting down their economic activities and borders, including ordering their people to remain indoors and following preventive steps as recommended by the WHO in mitigating the transmission of pandemic disease. This research analyzed the effect of the COVID-19 pandemic on households' food security knowing completely that certain non-health institutions of society have been affected to monitor their spreads. Findings have shown that the COVID-19 pandemic has primarily affected the food security of households. Most households have been affected by the unavailability of food on the markets, increasing food prices on the market, panic buying, and the lack of food purchasing funds, leading to food insecurity. The disturbances caused by the pandemic pose a significant threat to food security in households. The majority of respondents, as well as NGOs and religious bodies, could not have access to any action offered either by the federal, state, or local government. The consequence of this is that it is important to protect the mos and within the households and to provide the necessary assistance to resolve the pandemic. In this context, the study aims to include the following recommendations:

1. A comprehensive intervention should be established by the government, relevant authorities and NGOs to support the masses, especially vulnerable households, to cushion suffering ushered in by COVID-19 on food security of households.
2. There should be non-collateral and an interest-free loan from the relevant authorities and development partners other relevant bodies to enable the business-oriented households to reduce the impacts posed by the pandemic to their food security
3. This is also the best time for companies to waive taxes and other money spent on such public services such as light, water, and subscription fees for other social services.

References

- Abdul, I. M. (2020). Food & Agribusiness Management (FABM) COVID-19, LOCKDOWN AND TRANSITORY FOOD INSECURITY IN NIGERIA. *Food & Agribusiness Management (FABM)*, 1(1), 31–35. <https://doi.org/10.26480/fabm.01.2020.31.35>
- AGRA. (2020). *Policy Response for Tanzania Impact of COVID-19 in Tanzania*. JUNE, 1–4.

- Agusi, E. R., Ijoma, S. I., Nnochin, C. S., Njoku-achu, N. O., Ignatius, C., & Meseko, C. A. (2020). *Commentary The COVID-19 pandemic and social distancing in Nigeria : ignorance or defiance*. 35(Supp 2), 1–3. <https://doi.org/10.11604/pamj.2020.35.2.23649>
- Anagah, F. I. (2020). Effect of Covid-19 Lockdown on Farmers in Rivers State, Nigeria: Positive Perspective. *Asian Journal of Agricultural Extension, Economics & Sociology*, 38(5), 56–59. <https://doi.org/10.9734/ajaees/2020/v38i530347>
- Bahadur Poudel, P., Ram Poudel, M., Gautam, A., Phuyal, S., Krishna Tiwari, C., Bashyal, N., & Bashyal, S. (2020). COVID-19 and its Global Impact on Food and Agriculture. *J Biol Today's World*, 9(5), 221. <https://doi.org/10.35248/2322-3308.20.09.221>
- COVID-19 and the impact on food security in the Near East and North Africa: How to respond? (2020). In *COVID-19 and the impact on food security in the Near East and North Africa: How to respond?* <https://doi.org/10.4060/ca8778en>
- Daniel, E., Nnabuihe, E. C., & Millicent, C. (2020). *Implications of corona virus pandemic on agricultural activities and food availability in Nigeria Abstract :August*.
- Dennison Himmelfarb, C. R., & Baptiste, D. (2020). Coronavirus Disease (COVID-19). *Journal of Cardiovascular Nursing, Publish Ah*. <https://doi.org/10.1097/jcn.0000000000000710>
- Fadele, O. K., Amusan, T. O., Ariyo, C. O., Afolabi, A. O., & Onwuegbunam, N. E. (2020). *Sustainable Agricultural Mechanization in Nigeria in Context of COVID-19*. 26(7), 53–59. <https://doi.org/10.9734/JSRR/2020/v26i730284>
- FAO. (2020). *Q&A: COVID-19 pandemic – impact on food and agriculture | FAO | Food and Agriculture Organization of the United Nations*. <http://www.fao.org/2019-ncov/q-and-a/impact-on-food-and-agriculture/en/%0Ahttp://www.fao.org/2019-ncov/q-and-a/en/>
- Fawole, W. O., & Özkan, B. (2017). Comprehensive Review of Growing Food Insecurity in Africa in Terms of Causes, Effects and Solutions: The Nigerian Example. *Turkish Journal of Agriculture - Food Science and Technology*, 5(6), 629. <https://doi.org/10.24925/turjaf.v5i6.629-636.1113>
- Global, T., & Alert, O. (2020). *Coronavirus disease 2019 (COVID-19)*. 2019(April).
- Group, P., & State, T. (2015). *The Journal of Social Sciences Research An Assessment of the level of Farmers Awareness and Adaptation to Climate Change in Northern Taraba State , Nigeria*. 1(7), 79–85.
- Hossain, S. T. (2020). Impacts of COVID-19 on the agri-food sector: Food security policies of Asian productivity organization members. *Journal of Agricultural Sciences - Sri Lanka*, 15(2), 116–132. <https://doi.org/10.4038/jas.v15i2.8794>
- Jámbor, A., Czine, P., & Balogh, P. (2020). The impact of the coronavirus on agriculture: First evidence based on global newspapers. *Sustainability (Switzerland)*, 12(11), 1–10. <https://doi.org/10.3390/su12114535>
- Ohia, C., Bakarey, A. S., & Ahmad, T. (2020). International Journal of Infectious Diseases COVID-19 and Nigeria : putting the realities in context. *International Journal of Infectious Diseases*, 95, 279–281. <https://doi.org/10.1016/j.ijid.2020.04.062>
- Pan American Health Organization, Center for Disease Control and Prevention (CDC), AI.COMM, Stop Avian Influenza, Technal Assistance for NGO's (TANGO), & LinksMedia. (2009). Food Security in a Pandemic. *Leadership in a Pandemic: What Your Municipality Can Do*. http://pdf.usaid.gov/pdf_docs/Pnadt651.pdf
- Ragasa, C., & Lambrecht, I. (2020). COVID-19 and the food system: setback or opportunity for gender equality? *Food Security*, 12(4), 877–880. <https://doi.org/10.1007/s12571-020-01089-w>

Seleiman, M. F., Selim, S., Alhammad, B. A., Alharbi, B. M., & Juliatti, F. C. (2020). Will novel coronavirus (COVID-19) pandemic impact agriculture, food security and animal sectors? *Bioscience Journal*, 36(4), 1315–1326. <https://doi.org/10.14393/BJ-v36n4a2020-54560>

Siche, R. (2020). What is the impact of COVID-19 disease on agriculture? *Scientia Agropecuaria*, 11(1), 3–9. <https://doi.org/10.17268/sci.agropecu.2020.01.00>

Taraba State - Wikipedia. (n.d.).

Tension in Taraba as NCDC confirms 6 coronavirus cases -. (n.d.).