

Effects of 2023 Naira Redesign Policy on Selected Dry Season Vegetable Farming Along River Banks of River Benue in Makurdi Local Government Area of Benue State, Nigeria.

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ABSTRACT

This study was conducted to analyze the effect of Naira redesign policy on selected dry season vegetable farmers along river banks of river Benue in Makurdi Local Government Area of Benue State, Nigeria. Simple random sampling technique was used to select one hundred respondents. Primary data were collected using a structured questionnaire. Descriptive statistics such as frequency, percentages and mean scores were used, Gross margin analysis was used to analyze cost and returns while logistic regression was used as inferential statistical tools in analyzing effects of Naira redesign policy on selected dry season vegetable farming in the study area. Findings revealed that the mean age of the farmers was about 37years, very many (65.0%) were females, 68.0% were married, and 77.0% had formal education. The mean household size was 7 persons, an average annual income of ₦180935.00 and mean farming experience was about 10 years. The study revealed that dry season vegetable is profitable in the study area. Increase in income, increase in output, damage of produce and increase sales were significantly affected during naira redesign policy in the study area. The result of constraints revealed that certain factors such as poor marketing, lack of storage facilities, lack of access to credit facilities, and cost of pesticide were the major challenge facing dry season vegetable in the study area. The study recommended that Federal government and Central Bank of Nigeria should ensure availability of new notes before recalling the old notes next time when redesign policy is to be made, farmers and other individuals should come together to form cooperatives that will enable them access credit from banks and other financial institutions that will help in efficient production.

Key Words: effects, Naira, redesign, riverbank, vegetables, farmers

INTRODUCTION

Pepper, tomato and African spinach are known to enrich some diets with nutrients including lipids, carbohydrates and vitamins (Komolafe *et al.*, 2010). Pepper, tomato and African spinach crops are important for almost every household. According to Dittoh (2012), Pepper, tomato and African spinach add flavor to the food and also provide considerable protein, vitamins and minerals. Most Pepper, tomato and African spinach are low in starch content and are a good source of phytonutrients. They serve as roughage, which promotes digestion and prevents constipation. Pepper, tomato and African spinach crops not only improve the nutritional quality of diets, the production of Pepper, tomato and African spinach under

irrigation and their marketing provides many people with employment in the dry season. Pepper, tomato and African spinach constitute a major component of the country's food sector. Though not a staple in most areas of Nigeria, the commodity occupies a significant position in the total per capita calorie intake of most Nigerians. It is estimated that about 70% of the Pepper, tomato and African spinach produced in Nigeria are marketed and consumed fresh (Danso *et al.*, 2013).

Pepper, tomato and African spinach play an important role in income generation and subsistence. Recent surveys carried out by the Natural Resources Institute in Nigeria provide evidence that Pepper, tomato and African spinach offer a significant opportunity for the poorest people to earn a living, as producers and /or traders, without requiring large capital investments. They are important items for poor households because their prices are relatively affordable when compared to other food items (Schippers, 2014).

There are two distinct seasons in Nigeria. These are the rainy (April to October) and the dry (November to March) season. Farmers are usually less busy on the farm during the dry season; therefore, irrigation farming serves as an alternative employment and additional source of income during the period. Irrigation farming practice has increased tremendously because of increasing demand for Pepper, tomato and African spinach and other food items during off-farm season. Nigeria has a great potential for the production of high value Pepper, tomato and African spinach during the dry season. This is because the country is endowed in underground water reserves.

first major predominant currency reform in Nigeria was undertaken, during the pre-colonial era following ordinance of 1880 which introduced the shillings and pence as legal tender where different cultures used a variety of items as means of exchange, which include cowries, manilas, beads, bottles and salt amongst others, from 1912 to 1959, the West African Currency, currency Board (WACB) issued the first set of bank notes and coin in Nigeria, Ghana, Sierra Leone. The highest banknote denomination was one pound and the one shilling coin was the highest in coin denominations, on July 1st, 1959 CBN issued Nigerian currency Banknotes and coins were withdrawn. It was until 1962 that the currency was changed to reflect the country's "republican status" away from its initial inscription of "Federation of Nigeria to bear "Federal Republic of Nigeria" inscription. The Notes were again change in 1968 following the intense abuse of the currencies banknotes that bedeviled Nigeria Civil- war, also the decision by the government to change her currency digit from the metric to decimal, the name of the Nigeria currency was changed in January 1973 from the major unit of currency of £1 ceased to exist and one naira equivalent of ten shilling became the major unit, while the minor units was called the Kobo; which hundreds of it made one naira. David and Wagba, (2022)

METHODOLOGY

The Study Area

The study area is Makurdi Local Government Area (LGA), Benue State, which also serves as Benue State capital. Makurdi LGA is situated between the Eastern Agricultural Zone (Zone B) with an area of 820 km², the LGA has a population of 300,377 [NPC (2006)]. The study area has a geographic coordinate of latitude 7° 20' N and longitude 8° 45' E. It shares boundaries with Guma Local Government Area to the North-East, Gwer East Local Government Area to the South, Gwer West Local Government Area to the West and Doma Local Government Area of Nasarawa State to the North-West.

Makurdi Local Government Area has a tropical climate with dry and cold windy harmattan weather from November to March and rainy / wet season from April to October. The average temperature range is between 32°C and 35° C with an annual rainfall of 1500mm-1800mm (Iorpuu, 2010). Relative humidity varies with the period of the year.

Farming is the major occupation of the people with about 75% of the population engaged in farming activities, which is mostly subsistence in nature (Ezekiel, 2008). Other occupations are fishing, civil service, artisan and trading. Makurdi LGA has a vast and fertile landmass, which is used by the farming population that treasure agriculture as the bedrock of its livelihood (Tersoo, 2009). The major crops produced include rice, maize, sorghum, yam, soybean, sorghum, Pepper, tomato and African spinach, and melon with tree crops, such as mango, citrus, cashew. Livestock such as goats, sheep, pigs and poultry are extensively reared as well. The Local Government Area also boasts of the longest river systems in the country with great potential for a viable fishing industry, dry season farming through irrigation and for inland water ways (Tersoo, 2009).

Makurdi Local Government is dominated by the Tiv ethnic group who are the original indigenes of the area. Other major ethnic groups include; Idoma, Igede, Igala, Jukun, Hausa/Fulani and Igbo interacting in different occupation and activities.

Population and Sampling Procedure

The population of this study consists of all dry season Pepper, tomato and African spinach farmers in Makurdi Local Government Area of Benue State. Purposive sampling technique will be used to select the sample size. Firstly, five (5) dry season riverine farming communities will be purposively selected based on the predominance of dry season Pepper, tomato and African spinach farmers. 10% of the farmers will be randomly selected from each riverine community, the total from all the riverine communities to give the sample size of 100.

Sample Size Selection Plan

| S/N | Communities | Sampling Frame | Sample Size |
|--------------|--------------------|----------------|-------------|
| 1 | New Kanshio Layout | 170 | 17 |
| 2 | Wurukum | 300 | 30 |
| 3 | North Bank | 190 | 19 |
| 4 | Agbough | 180 | 18 |
| 5 | Azoo | 160 | 16 |
| Total | | 1000 | 100 |

Source; Field Survey, 2023

Method of Data Collection

Data for the study were collected from primary source. The data will be generated through the use of a well-structured questionnaire designed to capture the objectives of this study. The questionnaire will be administered to the one hundred sampled farmers across the study area.

Model Specification

Logistic regression for effect of naira redesign policy dry season Pepper, tomato and African spinach farming

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + U_i$$

Where

Y is effect of naira redesign policy.

β =the slope

X_1 =Increase in income

X_2 = Sales loss

X_3 =Increase opportunities

X_4 =Increase in cost of input

X_5 = Damage of Pepper, tomato and African spinach

X_6 =Increase sales

X_7 =Inability to access farm

U_i =regression residual

Gross margin analysis

$$GM = TR - TVC$$

Where,

GM is gross margin (Naira/hectare)

TR is total revenue (Naira/hectare)

TVC is total variable cost (Naira/hectare).

RESULT AND DISCUSSION

Socio-economic Characteristic of Dry Season Vegetable Farmers in Makurdi

The result of age of respondent is presented in table 2. The mean age was 37 years indicating that averagely respondents are in their productive age. Specifically, 11.0% were between 1-20 years; 56.0% were between 21-40 years; 14.0% were between 41-50 years; 16.0% were between 51-60 years; 3.0% were ≥ 60 ; this implies that dry season pepper, tomato and african spinach farmers belong to productive age group. This finding agrees with the findings of Ogbe *et al.*, (2017).

The result on sex shows that majority of the respondents (65.0%) were female while 35.0% were male. This result agrees with Bawa *et al.*, (2010) findings who reported similar results. The difference in gender could be as a result of the belief in some part of Africa that pepper, tomato and african spinach farming are female affair.

The result of marital status show that majority of the respondents were married (68.0%); this indicates that married people are more active in the production of dry season pepper, tomato and african spinach crops. Specifically, 11.0% of the respondent were single, 11.0% of the respondent were divorced and 10.0% were

widowed. This implies that majority of the respondents have families, hence greater involvement in dry season pepper, tomato and african spinach production in order to ensure household food security.

The result of the farming experience also revealed that mean years of farming experience is 10 years, more specifically 2.0% of the respondents have between 1-10 years of farming experience; 29.0% have 11-20 years farming experience; 40.0% have 2-3 years of farming experience; 54.0% have 4-6 years of farming experience, 1.0% have 7-9 years of farming experience, while 43.0% have >7 years farming experience This implies that majority of the respondents have enough experience in farming, having engaged for a long period of time. The findings of this study agree with Ajani and Agwu (2012) who stated that most of the pepper, tomato and african spinach farmers in Anambra state have been involved in agricultural production for a long period.

The result of educational level shows that mean education is 8 years, specifically it revealed that majority of the respondents (55.0%) attended secondary school, 12.0% attended primary school, 10.0% attended tertiary education and 23.0% had no formal education. This finding is an indication that farmers are literate enough to adopt new technology. Adebo and Ajiboye (2014) stress the role of education in increasing the adoption of improved agricultural technologies.

The result of annual non-farm income shows that the mean annual non-farm income of the respondents is N180935.00. Specifically, 71.0% have annual non-farm income of N50001-N150000; 12.0% have annual non-farm income of N150001-250000; 8.0% have annual non-farm income of N250001-350000; 7.0% have annual non-farm income of N350001-450000; while 2.0% have N 450001-N550000 annual non-farm income annual non-farm income. This implies that farmers in the study area makes great returns from non-farming activities and that will enable them to go into more production because the resources will be channel to farm operation.

The result of household size revealed that, the mean household size is 7 persons. Specifically, 4.0% have household size of 1-3; 41.0% have household size of 4-6; 36.0% have household size of 7-9, while 19.0% have household size of above 9 persons. This shows that the respondents had a large household size. Members of the household could serve as source of labour used in carrying out farming activities. The finding confirmed Ibeawuchi (2015) who observed that rural households in Nigeria are characterized by large family size with high dependency ratio.

The result on major occupation revealed that majority (79.0%) of the respondent are farmers while 21.0% had other engagement as their major occupation. The result of extension contact revealed that majority (86.0%) of the respondent do not have extension contact while about 14.0% have extension contact.

Table 2: Socio-economic Characteristics of the Respondents

| VARIABLES | FREQUENCY | PERCENTAGE % | MEAN |
|------------|-----------|--------------|--------------|
| Sex | | | |
| Male | 35 | 35.0 | |
| Female | 65 | 65.0 | |
| Age | | | 37.54 |
| 1-20 | 11 | 11.0 | |
| 21-40 | 56 | 56.0 | |
| 41-60 | 14 | 14.0 | |
| 51-60 | 16 | 16.0 | |
| ≥61 | 3 | 3.0 | |

| | | | |
|---------------------------|----|------|------------------|
| Marital Status | | | |
| Single | 11 | 7.0 | |
| Married | 68 | 68.0 | |
| Divorced | 11 | 11.0 | |
| Widowed | 10 | 10.0 | |
| Farming Experience | | | 9.89 |
| 2-3 | 2 | 2.0 | |
| 4-6 | 54 | 54.0 | |
| 7-9 | 1 | 1.0 | |
| >9 | 43 | 43.0 | |
| Education | | | 8.03 |
| No formal education | 23 | 23.0 | |
| Primary school | 12 | 12.0 | |
| Secondary | 55 | 55.0 | |
| Tertiary | 10 | 10.0 | |
| Annual non-income | | | 180935.00 |
| 50001-150000 | 71 | 71.0 | |
| 150001-250000 | 12 | 12.0 | |
| 250001-350000 | 8 | 8.0 | |
| 350001-450000 | 7 | 7.0 | |
| 450001-550000 | 2 | 2.0 | |
| Household size | | | 7.49 |
| 1-3 | 4 | 4.0 | |
| 4-6 | 41 | 41.0 | |
| 7-9 | 36 | 36.0 | |
| >9 | 19 | 19.0 | |
| Major occupation | | | |
| Farming | 79 | 79.0 | |
| Non Farming | 21 | 21.0 | |
| Extension contact | | | |
| No | 86 | 86.0 | |
| Yes | 14 | 14.0 | |

Source; Field Survey, 2023

Types of Vegetables Predominantly Produced in the Study Area

The results on the various forms of vegetables predominantly produced in the study area is presented in table (3). The result revealed that majority (72.0) of the respondents produced african spinach in the study area which rank 1st, also 34.0% of the respondents produced pepper in the study area which rank 2nd.

The result further revealed that 28.0% of the respondents produced tomatoes in the study area which rank 3rd, the result further revealed that smaller percentage 18.0% of the respondents produced other vegetables in the study area which rank 4th.

Table 3: Types of Vegetables Predominantly Produced in the Study Area (n=100)

| Variable | Frequency | Percentage (%) | Rank |
|-----------------------|-----------|----------------|------|
| African Spinach | 72 | 72 | 1st |
| Tomatoes | 28 | 28 | 3rd |
| Peppers | 34 | 34 | 2nd |
| Other vegetable Crops | 18 | 18 | 4th |

Source: Field Survey, 2023 ***multiple response

Effect of Naira Redesign Policy on Dry Season Pepper, tomato and African Spinach Farming in Makurdi Local Government Area

Logistic regression was used to test the effect of naira redesign on dry season pepper, tomato and African spinach and the result obtained is presented in Table 4. Out of the seven explanatory variables in the model, only Four were statistically significant; increase income, increase in cost of inputs, damage of produce and increase sales of the respondents.

Increase incomes had a positive coefficient (.260) and was significant (.000) at a 1% level of probability. By implication, as the naira redesign persist, the more income of the farmers increases. This finding is akin to that of Ebewore and Achoja (2013), who found that farmers might likely get more income during naira redesign.

Increase in cost of inputs had a positive e coefficient (3.542) and was significant (.000) at a 1% level of probability. This means that the cost of inputs was increased during naira redesign and impacted farming costs. This could be because scarcity during the period since many businesses were shut down. Damage of produce of also had a positive coefficient (.241) and was significant (.012) at a 5% level of probability. Damage of produce effect was significantly increased during the period. This is because the exchange difficulty and quick sales of produced during the period. Increase sales of had a negative coefficient (-.723) and was significant (.000) at a 1% level of probability. Increase sales was significantly decreased during the period. This is because of lack of physical cash during the period.

The Nagelkerke R^2 for the regression is .782, indicating that the variables tested accounted for 78.2% of the variations in the dependent variable. The chi-square value of the model was 98.718 and was significant at a 1% level of probability.

Table 4: Logistic Regression showing the Effect of Naira Redesign Policy on Dry Season Pepper, tomato and African Spinach Farming

| Socio-Economic Characteristics | B | S.E | Wald | Sig | Exp (B) |
|--------------------------------|--------|-------|--------|---------|---------|
| Increase income | .260 | .039 | 13.041 | .000* | .869 |
| Sales loss | 1.688 | 0.672 | 6.315 | 0.275 | 5.408 |
| Increase opportunities | -0.861 | 0.815 | 1.114 | 0.421 | 0.423 |
| Increase in cost of inputs | 3.542 | 1.328 | 14.135 | 0.000* | 147.325 |
| Damage of produce | 0.241 | 0.15 | 0.957 | 0.012** | 1.159 |
| Increase sales | -0.723 | 0.396 | 1.754 | 0.000* | 1.689 |
| Inability to access farm | 4.354 | 1.328 | 14.135 | 0.223 | 147.325 |
| Constant | -1.64 | 2.225 | 0.543 | 0.461 | 0.194 |

| | | | | | |
|---------------------------|---------|--|--|--|--|
| X ² | 97.514 | | | | |
| Sig | .000 | | | | |
| 2 log likelihood | -66.803 | | | | |
| Nagelkerke R ² | .782 | | | | |

Note: *, ** indicates significant at 1% and 5% level of probability respectively

Cost and Returns of Farmers before Naira Redesign

The cost and return of dry season pepper, tomato and african spinach farming before naira redesign is presented in table 5. The analysis of costs and returns shows that the mean value of cost of seed, cost of fertilizer, cost of herbicide and cost of labour respectively stood at ₦ 1480.88, ₦13210.29, ₦3415.3 and ₦9807.34. Mean of total variable cost stood at ₦41780 with standard deviation of ₦40392.91, Mean of total revenue stood at ₦96370 with standard deviation of ₦ 43207.43 while mean of gross margin stood at ₦82939.91 This implies that with more inputs use there will be increase in the returns of dry season vegetable crops production. The minimum of gross margin stood at ₦ -90000.00; this implies that some farmers are producing at lost even before the naira redesign; which may be due to mismanagement or over use of resource. Since total revenue is high than the total variable cost before naira redesign, dry season pepper, tomato and african spinach farming is profitable in the study area. This result is in agreement with Adebo and Ajiboye (2014) finding who reported that dry season pepper, tomato and african spinach farming is profitable.

Table 5: Cost and Return of Farmers Before Naira Redesign

| Variables | Min | Max | Mean | Std Deviation |
|---------------------|--------|---------|----------|---------------|
| Cost of seed | 0.0 | 20000 | 1480.88 | 2744.275 |
| Cost of fertilizer | 1400 | 35000 | 13210.29 | 8019.940 |
| Cost of herbicide | 0.0 | 1300.00 | 3415.3 | 2739.79275 |
| Cost of labour | 0 | 30000 | 9807.35 | 37943.106 |
| Total variable cost | 7000 | 150000 | 41780 | 40392.91 |
| Total revenue | 60000 | 180000 | 96370 | 43207.43 |
| Gross margin | -90000 | 173000 | 54590 | 65395.78 |

Source: Field survey 2023

Cost and Returns of Farmers during Naira Redesign

The cost and return of dry season pepper, tomato and african spinach farming before naira redesign is presented in table 5. The analysis of costs and returns shows that the mean value of cost of seed, cost of fertilizer, cost of herbicide and cost of labour respectively stood at ₦ 916.67, ₦5420.83, ₦8417.11 and ₦6562.50. Mean of total variable cost stood at ₦51870 with standard deviation of ₦40392.41, Mean of total revenue stood at ₦106735 with standard deviation of ₦ 89805.25 while mean of gross margin stood at ₦86332 This implies that with more inputs use there will be increase in the returns of dry season vegetable crops production, even though what happened was that more inputs were used with less output. The minimum of gross margin stood at ₦ -120000.00; this implies that some farmers were producing at lost during the naira redesign; which may be due to damage of produces as a result of loss of sales during the period. Since total revenue is high than the total variable cost during naira redesign, dry season pepper, tomato and african spinach farming is profitable in the study area. This result is in agreement with Ebewore and Achoja (2013) finding who reported that farmers of dry season pepper, tomato and african spinach made

profit during naira redesign.

Table 6: Cost and Return of Farmers During Naira Redesign

| Variables | Min | Max | Mean | Std Deviation |
|---------------------|---------|---------|---------|---------------|
| Cost of seed | 0.0 | 4000 | 916.67 | 976.425 |
| Cost of fertilizer | 1000 | 14000 | 5420.83 | 4322.9135 |
| Cost of herbicide | 2500.0 | 2800.00 | 8417.11 | 5431.804 |
| Cost of labour | 0 | 38000 | 6562.50 | 9221.092 |
| Total variable cost | 7000 | 160000 | 51870 | 40392.41 |
| Total revenue | 34000 | 373000 | 106735 | 89805.25 |
| Gross margin | -120000 | 280300 | 86332 | 97219.58 |

Source: Field survey 2023

Test of difference between the cost and return of farmers before and during Naira Redesign Policy.

The result of the test of difference between the cost and returns of farmers before and during naira redesign policy is presented in Table 7. The result shows that P value (0.000) was significant at 1% level indicating that there is a significant difference between cost and returns of farmers before and during naira redesign, therefore, the null hypothesis which stated that there is no significant difference in the cost and returns of farmers before and during naira redesign policy is rejected.

Table 7: Test of Difference between Cost and Returns of Farmers before and during Naira Redesign Policy

| Test Type | F | Sig. | t | df | Sig. (2-tailed) |
|--------------------------------------|--------|-------|--------|--------|-----------------|
| Equal variances assumed | 46.993 | 0.000 | -8.310 | 182 | 0.000 |
| Profit 2 Equal variances not assumed | | | -8.310 | 128.78 | 0.000 |

Constraints Faced by the Respondents in the Study Area.

The result of constraints faced by farmers is as shown in table 8. From the results, the problem of lack of storage facilities which was ranked 1st, 93.0% of the respondents identified lack of storage facilities to be their challenge. Furthermore, cost of pesticide was a problem identified in the study area which ranked 2nd. (82.0%). Also, Lack of access to credit facilities was another problem identified in the study area, which ranked 3rd. (66.0%). Another problem identified was lack of poor marketing channel, 78.0% of the respondents were faced with problem of lack of poor marketing channel which ranked 4th. Poor marketing channel will lead to damage and rotten of produce. Also, scarcity of traditional land tenure system was a problem identified in the study area which ranked 5th. (63%), another problem identified was scarcity of water for irrigation which ranked 6th. (54.0%). Problem of shortage of labour (29.0%), cost of labour (19.0%) and cost of irrigation water (13.0%) were ranked 7th 8th 9th respectively. This result is in line with Adebo and Ajiboye (2014) and Olasantan et al (2015) separate findings that dry Season pepper, tomato and african spinach farmers are faced with lots of constraints.

Table 8: Distribution of respondents according to constraints faced

| Variable | Frequency | Percentage | Rank |
|------------------------|-----------|------------|-------------------|
| Poor Marketing Channel | 73 | 73.0 | 4 th . |

| | | | |
|--|-----------|-------------|-----------------|
| Lack of Storage Facilities | 93 | 93.0 | 1 st |
| Lack of Access to Credit Facilities | 74 | 74.0 | 3 rd |
| Scarcity of Water for irrigation | 54 | 54.0 | 6 th |
| Shortage of Labour | 29 | 29.0 | 8 th |
| Traditional Land Tenure System | 63 | 63.0 | 5 th |
| Cost of Labour | 19 | 19.0 | 9 th |
| Cost of Irrigation water | 13 | 13.0 | 7 th |
| Cost of Pesticide | 82 | 82.0 | 2 nd |

Source; field survey 2023, Multiple Responses Allowed.

CONCLUSION

This study is effect of 2023 naira redesign policy on selected dry season vegetables farmers along river banks of river Benue in Makurdi Local Government Area of Benue State. The results revealed that most of the respondent were in their productive age, female, married, educated with availability of family labour. The results found that pepper, tomato, african spinach and other vegetable crops were predominantly produced by farmers in the study area., the result further shows that dry season pepper, tomato and african spinach crop production in the study area is profitable before and during naira redesign; The results also shows that farmers were impacted during naira redesign with increase in income, increase in cost of inputs, damage of produce and increase in sales which were to be significant in the study area. The result shows that farmers were faced with constraints of poor marketing, lack of storage facilities, lack of access to credit facilities, scarcity of water for irrigation, shortage of labour, traditional land tenure system, cost of labour, cost of irrigation water and cost of pesticide.

RECOMMENDATIONS

Based on the findings of this work, the following recommendation were made;

1. Federal government and central bank of Nigeria should ensure availability of new notes in right proportion before recalling the old notes next time when redesign policy is to be made.
2. Farmers and other individuals should come together to form cooperatives that will enable them access credit from banks and other financial institutions that will help in efficient production.
3. Farmers of dry season pepper, tomato and african spinach should seek for more improved production practices so as to improve on level of farming to obtain even higher profits.
4. More male gender are also encouraged to be involved in the business since it is profitable.
5. Government assistance to the farmers is important to enable them purchase farming inputs.

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