Mapping of Tomato Clusters in Northern Nigeria

GEMS4 Wholesale & Retail

UKaid

SUMMARY

With its abundant natural resources, Nigeria can feed itself and generate surplus agricultural products for export. Not only is the country the leading producer of tomato in Africa, it is also ironically the largest importer of tomato paste in the world due to its inability to convert excess production to alternative products with tomato paste being the most popular product. However, poor traditional practices and inefficiency in resource use along the tomato value chain have created a gap between farmers and processing companies. Growth and Employment in States (GEMS4), funded by the United Kingdom Department for International Development (DFID/UKaid) and the World Bank recognizes the need to checkmate the wastages that feature in the movement of fresh tomatoes from farmers to processing companies. Accordingly, GEMS4, following its Linking Farmers to Processors (LFP) Project, embarked on the Mapping of Tomato Clusters in Northern Nigeria.

The mapping was implemented through enumerators' visits to major tomato-producing locations in twelve states, all in northern Nigeria, where farmers were interviewed and cluster locations were captured via global positioning system (GPS). In addition, the exercise also ascertained cultivated area, yield, seasonality and the adoption of modern agronomic and post-harvest practices.

ABBREVIATION AND ACRONYMS

GEMS	Growth and Employment in States
GEMS4	Growth and Employment in States – Wholesale and Retail Sector
DFID/UKaid	United Kingdom Department for International Development
ToR	Terms of Reference
LBA	Licensed buying agents
SWOT	Strength, Weaknesses, Opportunities and Threats
TJFPL	Tomato Jos Farming and Processing Limited
LFP	Linking Tomato Farmers to Processors
CFS	Critical Success Factors

INTRODUCTION

Nigeria has abundant arable land (the country occupies a land area of about 356,700 square miles or 923,770 square kilometres); it is Africa's leading producer of crude oil and the sixth highest producer in the world. Based on its resource endowment, Nigeria should easily meet its own essential needs, especially in agriculture, which is the key ingredient for food security and industrial growth. But for many years before 2014, Nigeria spent N1 billion daily on rice importation and N1.3 trillion yearly to import other basic items such as wheat, sugar and fish.

Nigeria's characteristic inability to meet its local demand for specific agricultural items may seem evident in tomato, whereby despite the country's position as the 14th largest producer in the world (accounting for 10.79 per cent of Africa's production and 1.2 per cent of total world production), it used imported tomato paste worth US$ 360 million. However, after cursory analysis of demand-supply gap, what appears in real term, is not excess demand but on-season excess supply that could not be channeled into production of alternative tomato products. This excess estimated to be about 45 per cent of annual production, is routinely is wasted thereby discouraging sustainable and increasing investment in the sector.

The preponderance of poor traditional practices and general inefficiency in resource use both in primary production and along the supply chain, appear to be the source of the gap between the primary producers and the processing companies. It is clear, therefore, that the on-season excess supply is wasted basically because of the existing poor linkages between the farmers and the few existing processing plants. Should this bottleneck be removed, both the farmers and the processing plants would have increased economic gains by replacing the said paste imports, in the vein, stop the leakage and save the country the hard earned foreign exchange.

Growth and Employment in States (GEMS4), funded by the United Kingdom Department for International Development (DFID/UKaid) and the World Bank recognizes the need to stem the tide of wastages occasioned by inefficiencies in the movement of fresh tomatoes from farmers to the processing companies. Accordingly, GEMS4 recently designed the Linking Farmers with Processors (LFP) Project, aimed at addressing systemic challenges in direct access to markets and unfair pricing of products.

Based on the need for a follow-up initiative, GEMS4 embarked on this project to create direct access of farmers clusters to processing companies and in so-doing, enable farmers claim benefits that have otherwise been lost through wastages or are accruing to middlemen along the supply chain. The enhanced interface between the farmers and processing plants would eventually benefit both parties in terms of increased income for the former and higher quantities of high quality and cheaper fresh tomatoes for the latter.

As a prelude to the attainment of this scenario, it became necessary to undertake a mapping of tomato clusters in northern Nigeria, where the bulk of Nigeria's tomato is produced. An idea aimed to develop supply ranges from proximate tomato clusters around an existing plant or a proposed new plant.

923,770km²

Total land mass of Nigeria

Nigeria is a leading crude oil producer in Africa.

Yet, Nigeria spends

N1bn

daily on importation of rice which can be produced locally

and approximately

N1.3tn

yearly on importation of Fish, wheat and sugar

Nigeria is the 14th LARGEST producer of tomato in the world

This accounts for

10.79%

of Africa's Tomato production

and approximately

1.2%

of total world production.

45%

of Nigeria's annual tomato production is wasted

$360m

as a result Nigeria still imports $360million worth of tomato paste

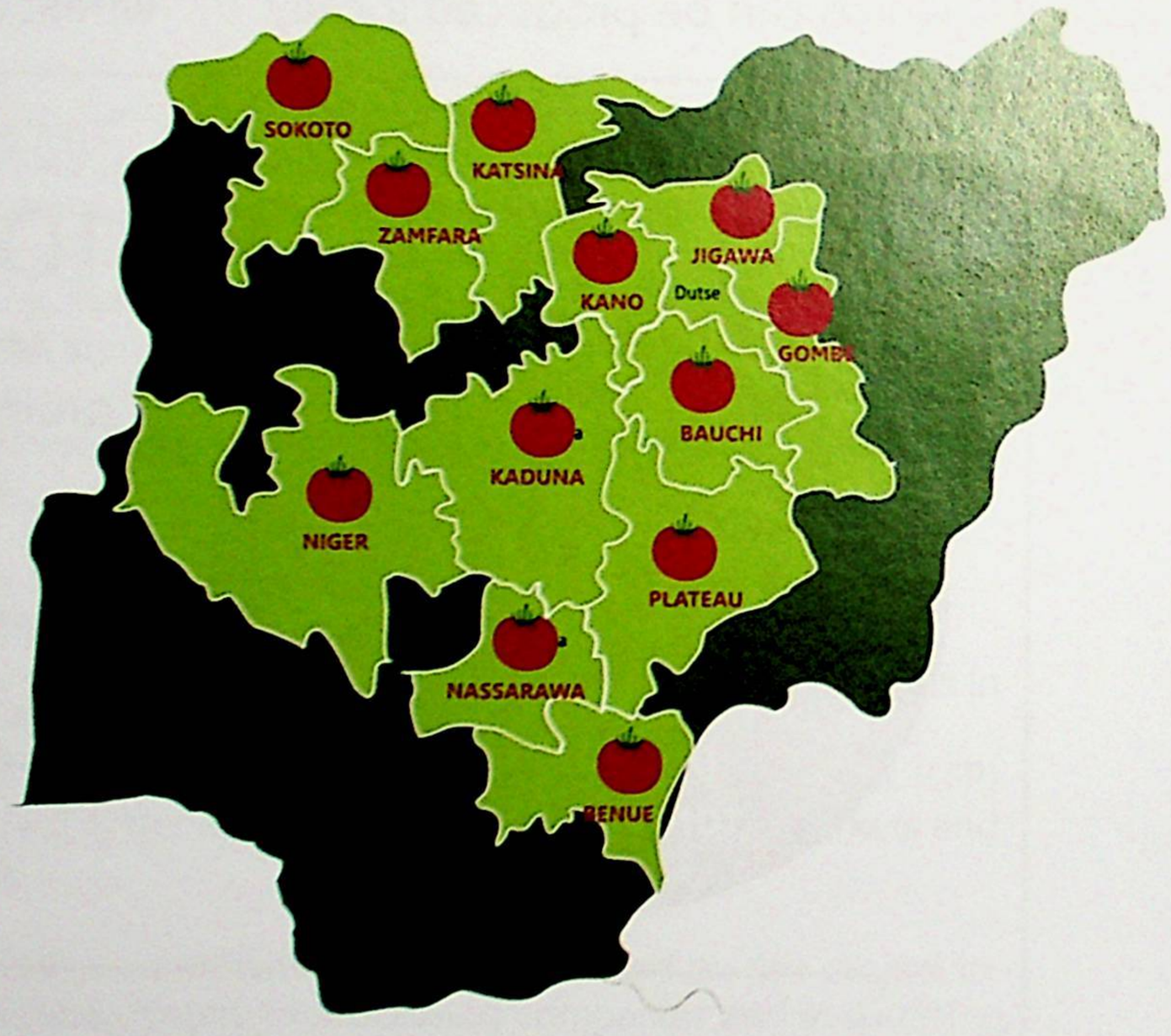
OBJECTIVES OF THE MAPPING EXCERCISE

1. To identify the existing and potential clusters of tomato in twelve tomato-producing states.
2. To identify production locations using the global positioning system (GPS).
3. To highlight key social and demographic features of producers within identified clusters.
4. To ascertain the average hectarage devoted to tomato and/or other crops.
5. To determine the average annual yield per farmer, per cluster and per location surveyed.
6. To identify the existence of seasonality in the farmers' production activities.
7. To determine the extent to which the farmers are aware of, and adopt modern techniques such as the use of improved varieties and good handling practices for fresh fruits.

APPROACH OF MAPPING EXERCISE

12 STATES

were selected for the tomato mapping exercise, based on their rating as the major producing states in Nigeria.

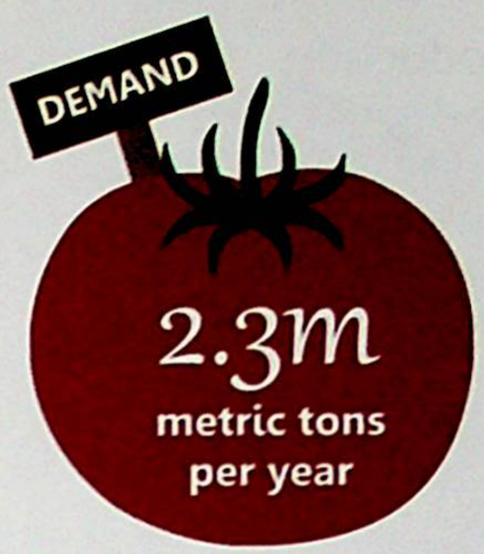


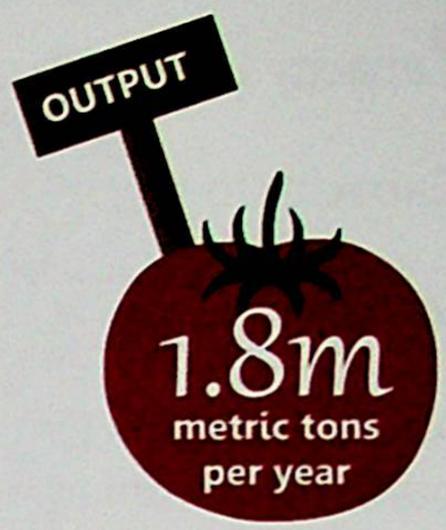
Subsequent to agreeing on the Terms of Reference (ToR), the research team, in co-ordination with the Coffey Nigeria team, designed questionnaires capturing the key aspects of the intended research activities. Thereafter, enumerators were recruited (three per state) on the basis of their experience in data collection, with focus on farmer interviews and knowledge of the terrain and the particular crop on which the assignment was to be carried-out. A full day was devoted to orientation for the enumerators; the activity, which was fully residential and held in Kano, provided the opportunity for the consultants and officials from Coffey Nigeria to enlighten the survey party on the objectives of the mapping exercise, key requirements of the survey process, stages of the exercise and use of hand-held devices for on-site data capturing. The participants also shared personal experiences on what to expect on the field.

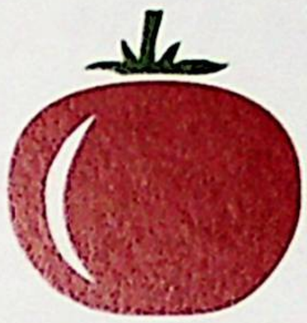
The field work commenced on Wednesday, November 25, 2015 and it was finally concluded on Thursday December 10, 2015. This was followed by post-survey clarifications, data cleaning, coding, analysis, interpretation and report-writing.

BRIEF ASSESSMENT OF TOMATO PRODUCTION IN NIGERIA

Nigeria has a high population that keeps growing thus guaranteeing a huge market.







There is an excess demand of

500,000

metric tons of tomatoes per year in Nigeria

YET **45%**

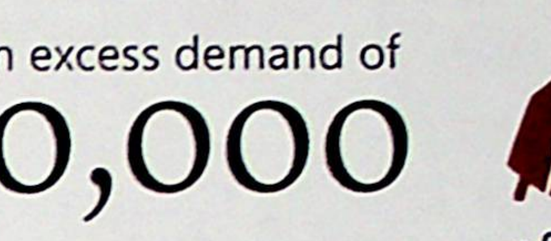
of Nigeria's annual tomato production is wasted.

MARKET POTENTIALS OF LINKING TOMATO FARMERS TO PROCESSORS

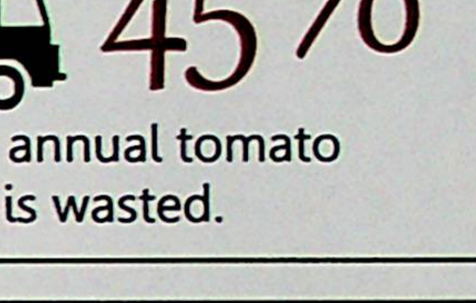
LFP feasible channels:

Use of buying agents

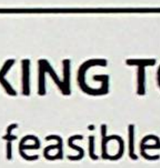
Contract farming scheme (out-growers)



Direct purchase from farmers or producers



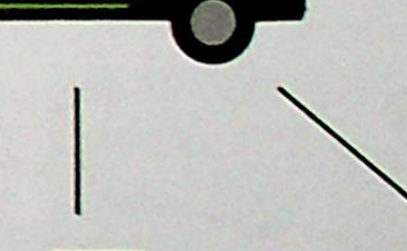
Direct purchase from the market.



Backward integration

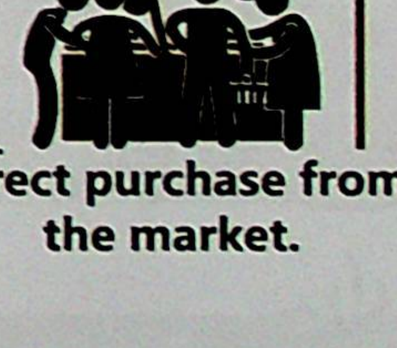
TWO MODELS were developed to provide alternative to fresh tomatoes market and convenience in raw material sourcing to both the farmers and processors

1



DIRECT MODEL

2



AGGREGATOR MODEL

SWOT ANALYSIS OF LINKING FARMERS TO PROCESSOR PROGRAM

STRENGTHS

- Capacity to stretch production.
- Capacity to improve yield on the farms.
- Increase in purchasing power.
- A functional and effective platform for linkages.

WEAKNESS

- Lack of awareness.
- Absence of reliable crops production data.
- Weak cooperation within farmers and traders and weak culture of reliance on verbal agreement.

S W O T

OPPORTUNITIES

- Increase in demand for tomatoes products like tomato paste.
- Creation of jobs and self employment opportunities.
- Proper take off of the farmer-processor linkage program and new pattern of external funding.

THREATS

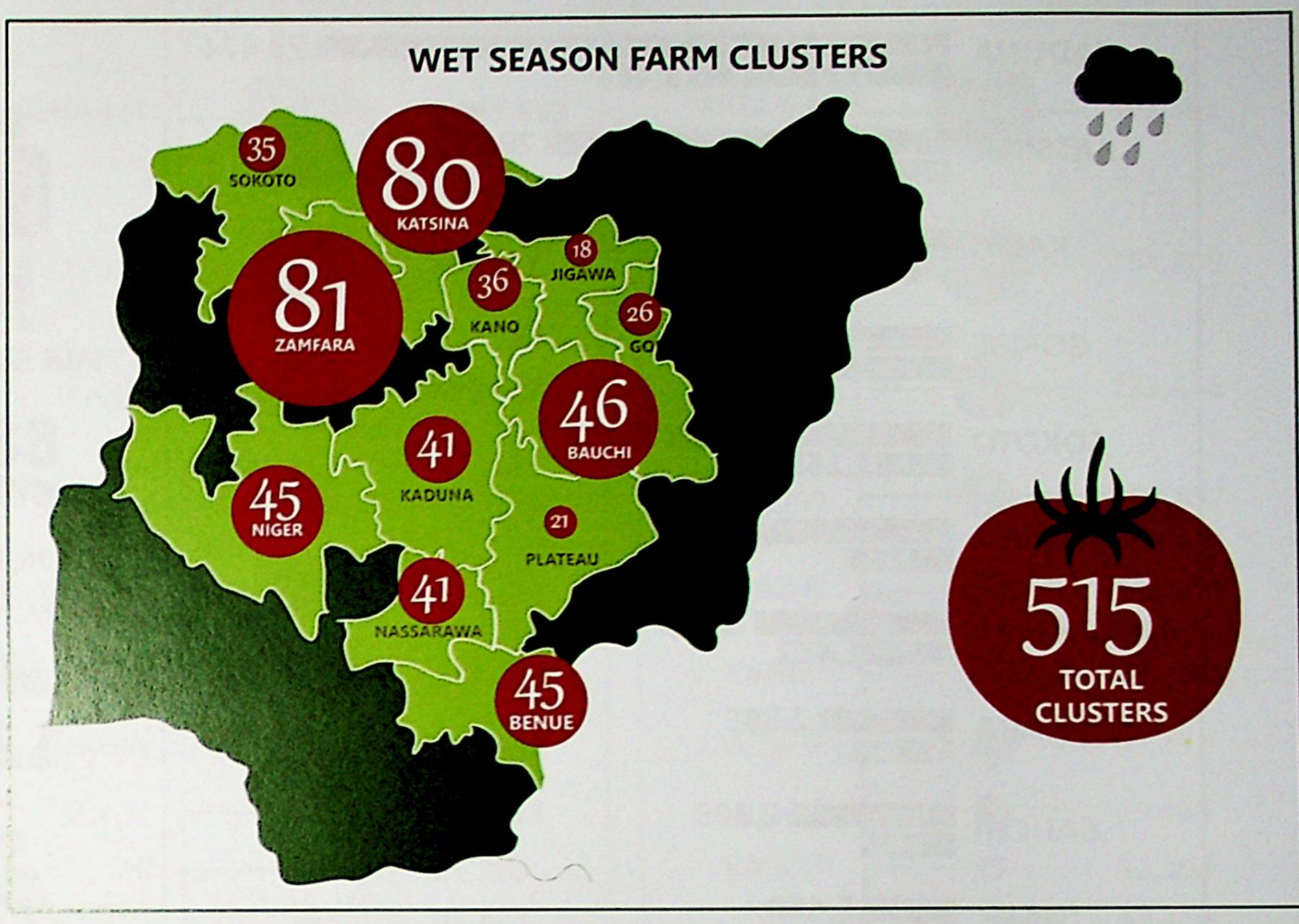
- Low yielding varieties of seeds and lack of local research for new varieties.
- Control of middlemen in fresh tomatoes trading.
- Unfavorable legislation and weak quality control measures.

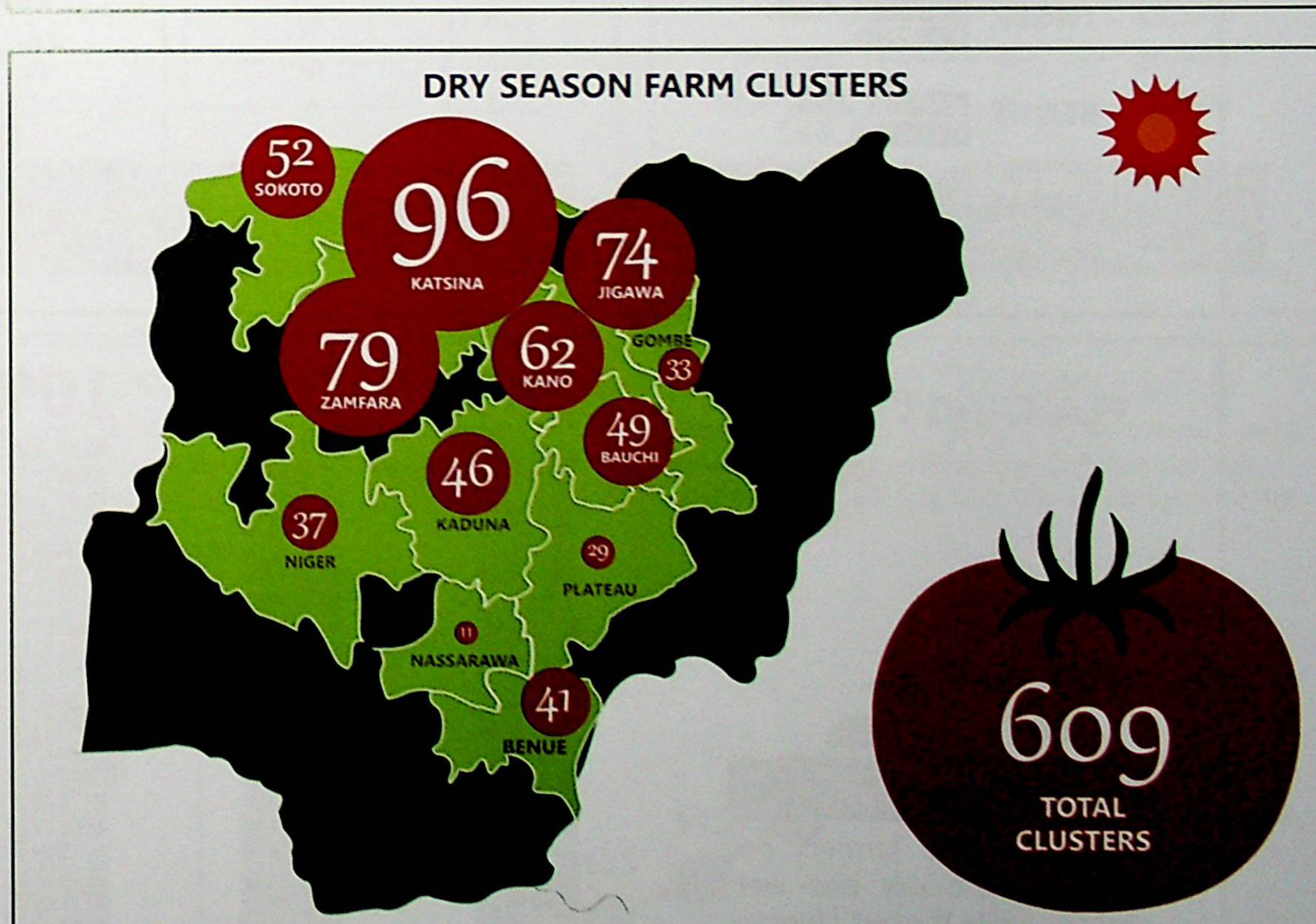
CRITICAL SUCCESS FACTORS FROM THE SWOT ANALYSIS

The Critical Success Factors (CSF) for Linking Farmers to Processors Program identified from the SWOT analysis put emphasis on the following:

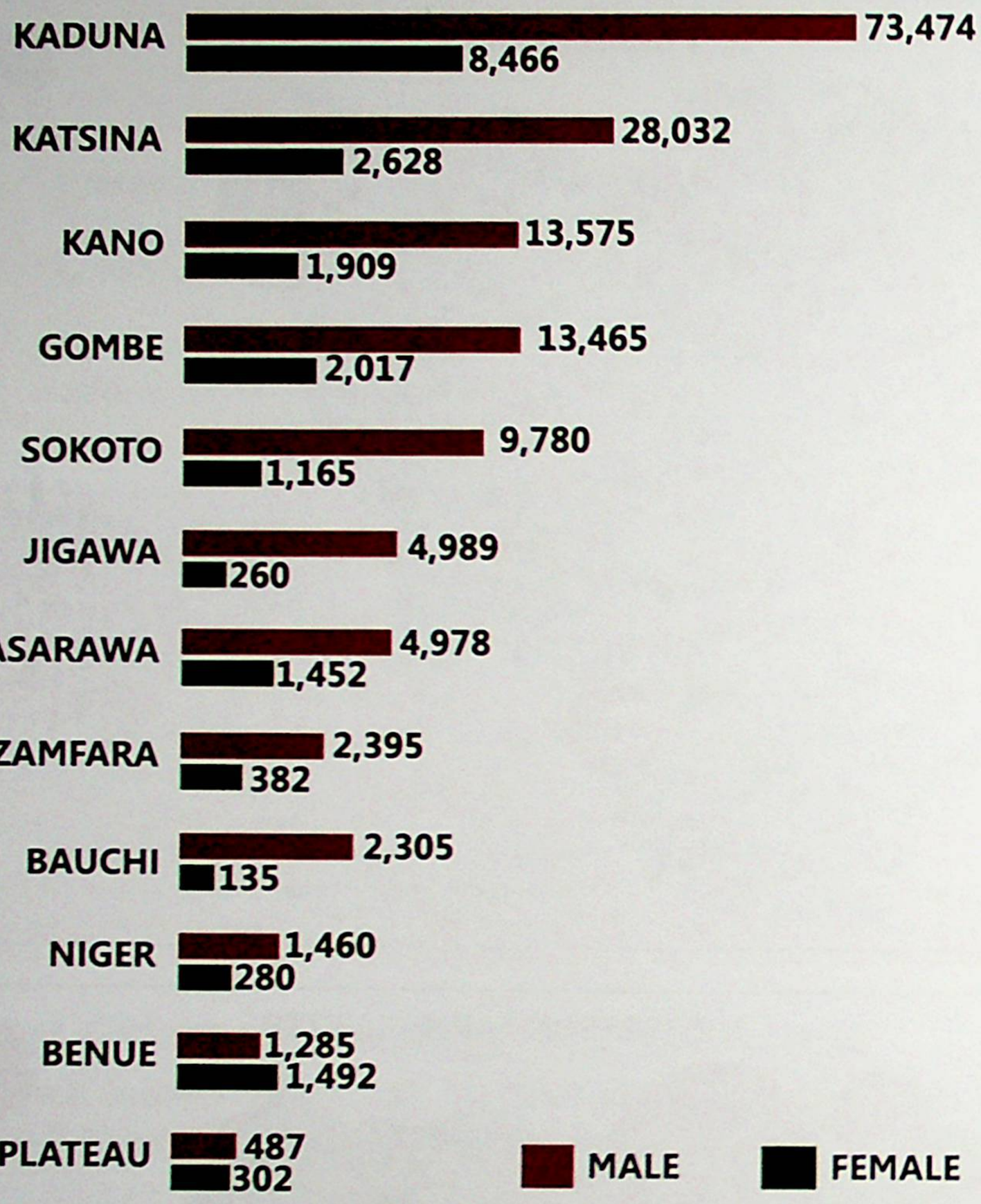
1. Enhance quality of production of tomato to ensure commitment from processors.
2. Farming clusters need to be contigous to enhance and simplify services.
3. Enforcement of a strict selection process of farmer clusters to form the linkages.
4. Implement pricing regimes that ensure farmers are faithful to outgrower agreement.
5. Establishment of extension service facilities.
6. Capacity building by development partners to enhance output quality volume.
7. Progressive financing for farmers and processors to sustain growth.
8. Technology is the key to changing conditions by improving production.

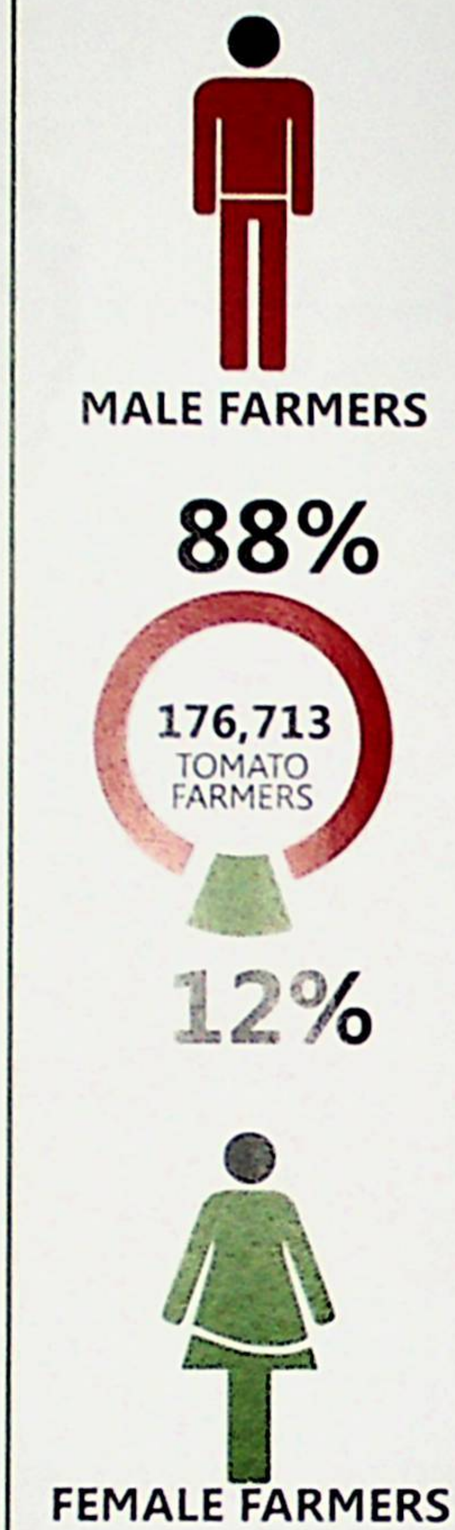
ANALYSIS OF TOMATO CLUSTERS MAPPING RESULTS





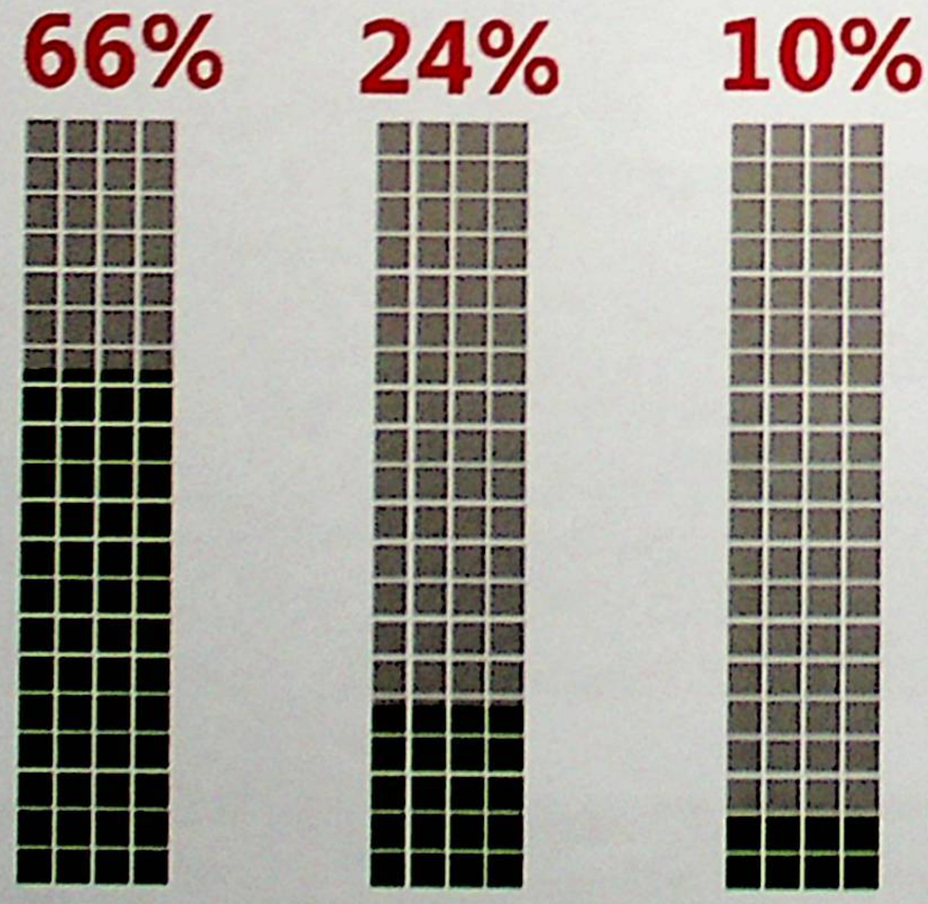
GENDER DISTRIBUTION OF FARMERS



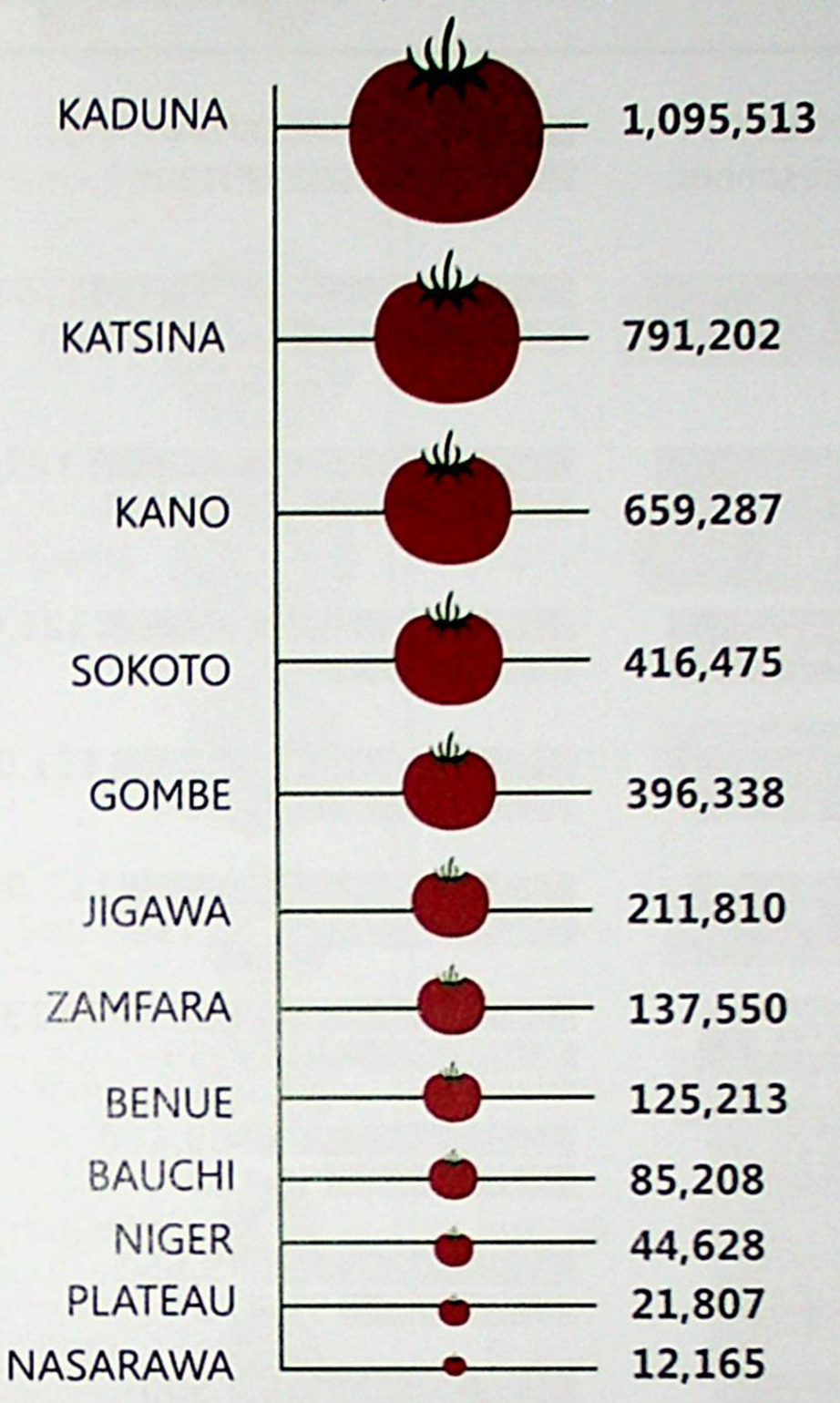


PLANTING CYCLE

Majority of the farmers do plant in both dry and wet seasons while the rest plant in only dry and wet seasons respectively.

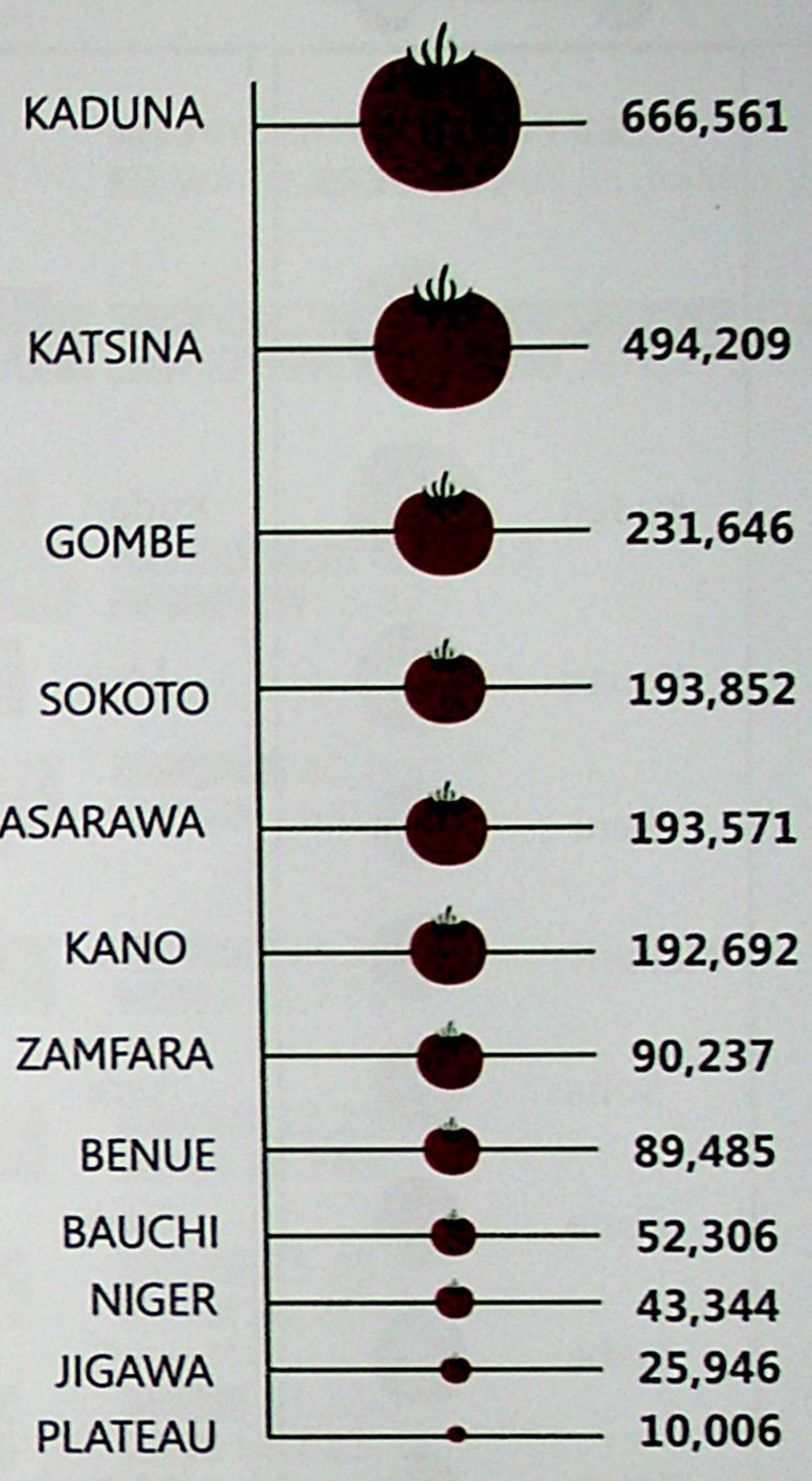


POTENTIAL DRY SEASON OUTPUT
BY STATE (IN TONNES)



TOTAL OUTPUT
3,997,196 tonnes

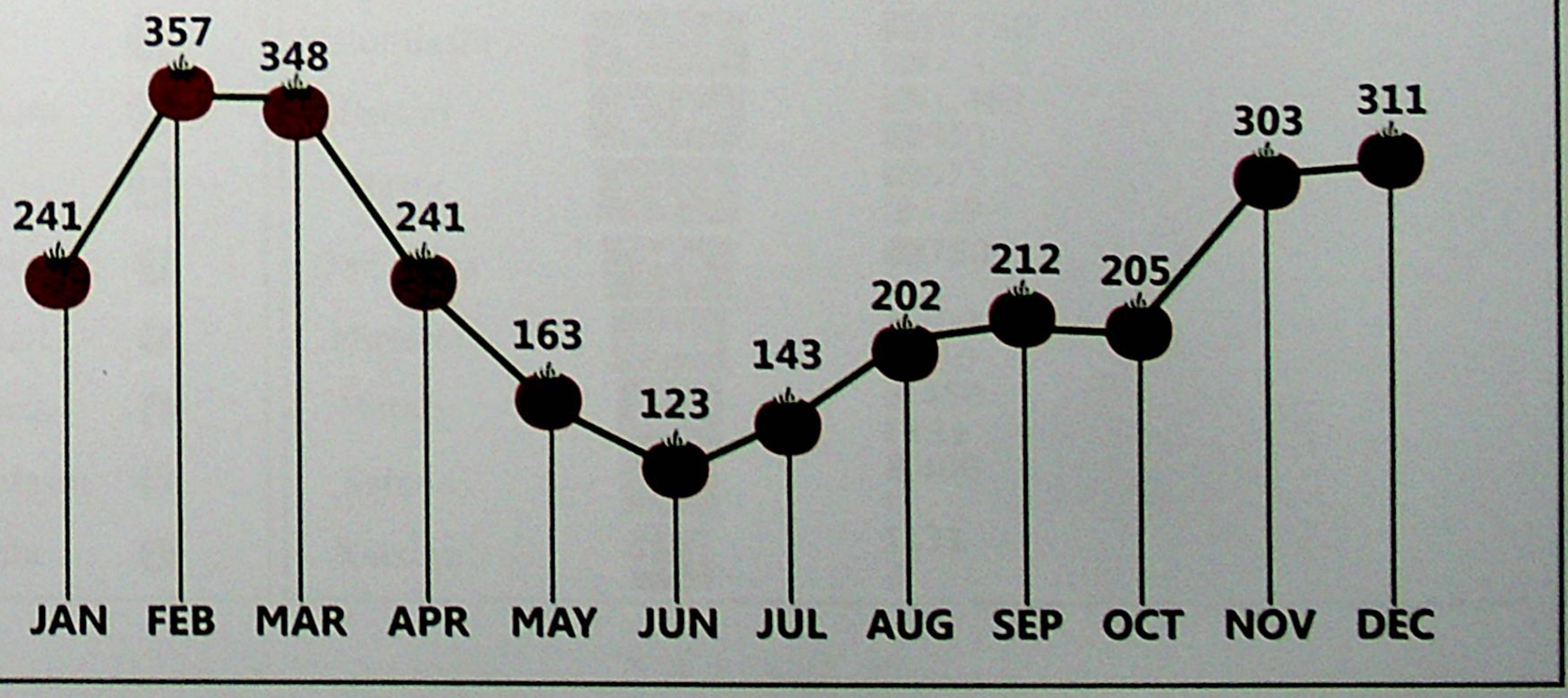
POTENTIAL WET SEASON OUTPUT
BY STATE (IN TONNES)

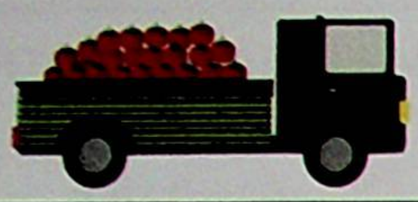


TOTAL OUTPUT
2,283,855 tonnes

HARVESTS ACROSS SEASONS: WET AND DRY SEASON CUMULATIVE

This chart indicates months when tomato fruits are produced in excess as evidenced by the numbers of farm clusters harvesting the fruits per month leading to the wastages thus highlighting periods good for processing intervention. See Appendix iv for harvesting trends across the 12 States studied.

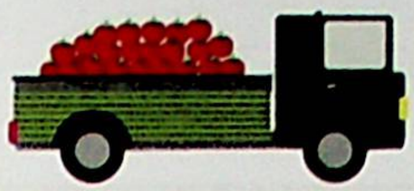




POTENTIAL OUTPUT: LGA's IN KADUNA STATE

LGA	NO. OF CLUSTERS
Giwa	7
Kudan	7
Kubau	6
Ikara	5
Makarfi	5
Soba	5
Zaria	5
Igabi	4
Kaura	1
Kauru	1
Lere	1

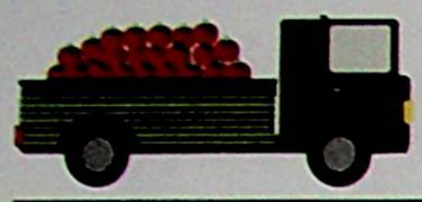
LGA	TOTAL OUTPUT (in metric tonnes)	DRY SEASON OUTPUT VS WET SEASON OUTPUT (in metric tonnes)
Soba	252,038	152,750 / 99,288
Kudan	236,986	147,075 / 89,911
Lere	206,250	125,000 / 81,250
Zaria	193,150	121,000 / 72,150
Kubau	186,491	113,025 / 73,466
Ikara	166,099	105,113 / 60,986
Giwa	147,512	89,400 / 58,112
Makarfi	131,423	79,650 / 51,773
Igabi	93,625	72,500 / 21,125
Kauru	82,500	50,000 / 32,500
Kaura	66,000	40,000 / 26,000



POTENTIAL OUTPUT: LGA's IN KATSINA STATE

LGA	NO. OF CLUSTERS
Rimi	12
Danja	10
Mani	7
Batsari	6
Kafur	6
Batagarawa	5
Jibiya	5
Matazu	4
Musawa	4
Bakori	3
Dandume	3
Sabuwa	3
Funtua	2
Kankara	2
Safana	2
Dan Musa	1
Faskari	1
Katsina	1
Malumfashi	1
Mashi	1

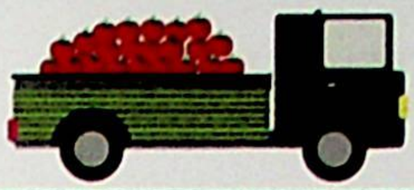
LGA	TOTAL OUTPUT (in metric tonnes)	DRY SEASON OUTPUT VS WET SEASON OUTPUT (in metric tonnes)
Danja	776,025	474,750 / 301,275
Kafur	169,475	110,650 / 58,825
Dandume	66,000	40,000 / 26,000
Sabuwa	55,275	33,500 / 21,775
Faskari	53,213	32,250 / 20,963
Funtua	41,305	25,055 / 16,250
Bakori	35,063	21,250 / 13,813
Mani	25,741	15,600 / 10,141
Jibiya	17,165	9,714 / 7,451
Batagarawa	13,006	8,139 / 4,867
Rimi	12,591	7,275 / 5,316
Kankara	8,250	5,000 / 3,250
Malumfashi	6,188	3,750 / 2,438
Batsari	2,414	1,463 / 951
Mashi	1,114	675 / 439
Dan Musa	750	750 / 0
Musawa	660	400 / 260
Matazu	645	450 / 195
Safana	400	400 / 0
Katsina	131	131 / 0



POTENTIAL OUTPUT: LGA's IN KANO STATE

LGA	NO. OF CLUSTERS
Ajingi	11
Gwarzo	8
Garun Mallam	6
Tudun Wada	5
Dawakin Tofa	4
Karaye	4
Kura	4
Makoda	4
Bichi	3
Bunkure	3
Dambatta	3
Rano	3
Rogo	3
Bagwai	2
Bebeji	1

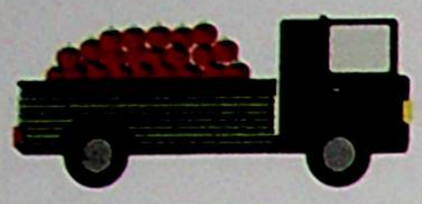
LGA	TOTAL OUTPUT (in metric tonnes)	DRY SEASON OUTPUT VS WET SEASON OUTPUT (in metric tonnes)
Garun Mallam	286,955	285,200 1,755
Bichi	233,325	143,950 89,375
Karaye	93,225	56,500 36,725
Makoda	42,901	26,000 16,901
Rogo	35,228	21,350 13,878
Dawakin Tofa	30,781	18,000 12,781
Bunkure	30,576	30,576 0
Gwarzo	21,802	13,213 8,589
Ajingi	19,437	16,215 3,222
Rano	18,450	15,200 3,250
Kura	16,829	13,595 3,234
Dambatta	9,600	9,600 0
Bagwai	6,497	3,938 2,559
Tudun Wada	5,300	5,300 0
Bebeji	1,073	650 423



POTENTIAL OUTPUT: LGA's IN GOMBE STATE

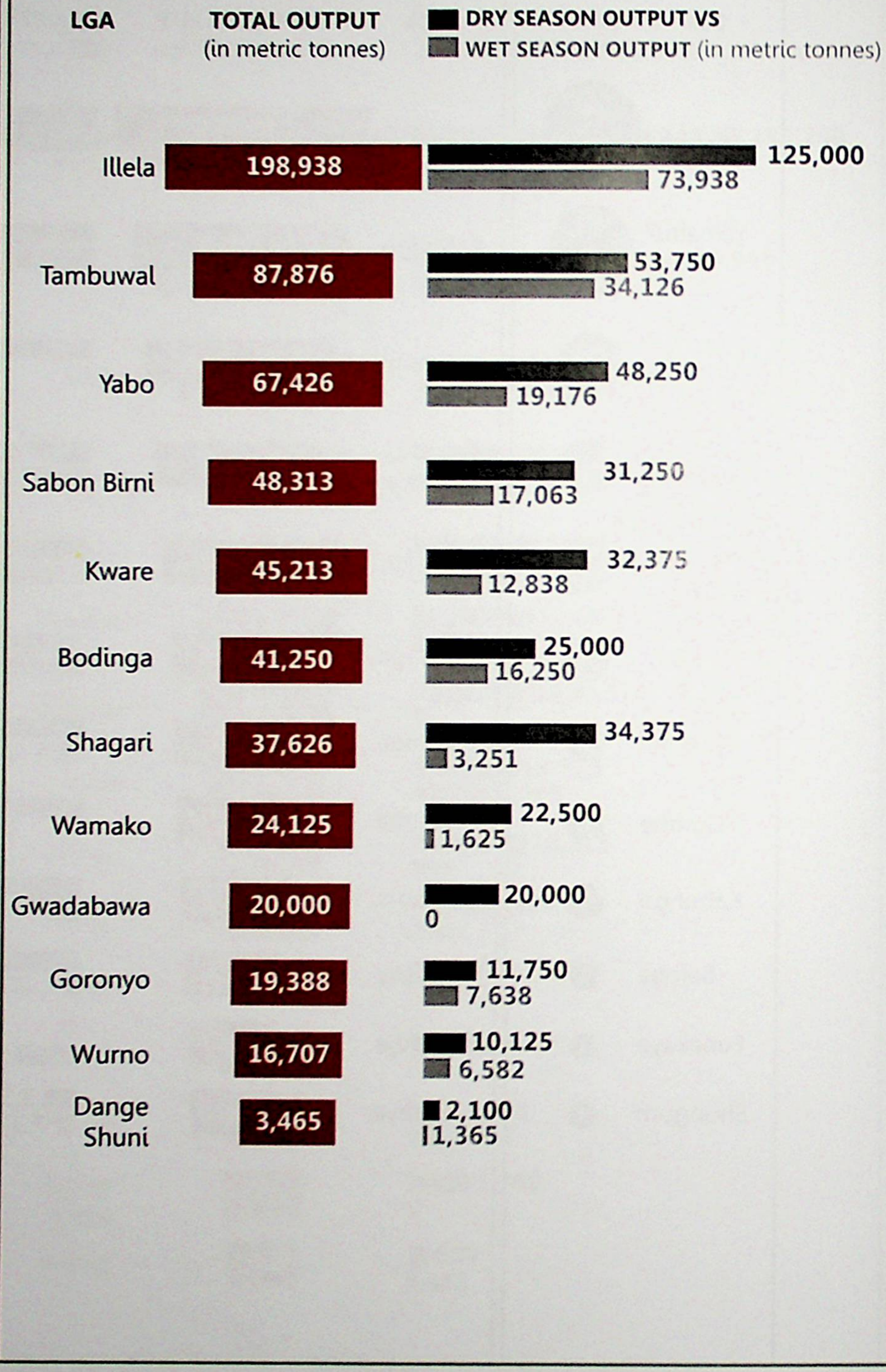
LGA	NO. OF CLUSTERS
Akko	7
Yamaltu/ Deba	6
Billiri	5
Dukku	4
Nafada	4
Kwami	3
Balanga	2
Gombe	2
Kaltungo	2
Bajoga	1
Funakaya	1
Shongom	1

LGA	TOTAL OUTPUT (in metric tonnes)	DRY SEASON OUTPUT VS WET SEASON OUTPUT (in metric tonnes)
Akko	285,989	145,750 140,239
Kaltungo	87,450	53,000 34,450
Kwami	67,500	67,500 0
Yamaltu/ Deba	56,506	42,125 14,381
Billiri	40,838	24,750 16,088
Balanga	23,125	15,000 8,125
Nafada	21,931	17,088 4,843
Bajoga	14,625	14,625 0
Shongom	9,488	5,750 3,738
Dukku	8,956	7,250 1,706
Gombe	5,801	0 5,801
Funakaya	5,775	3,500 2,275



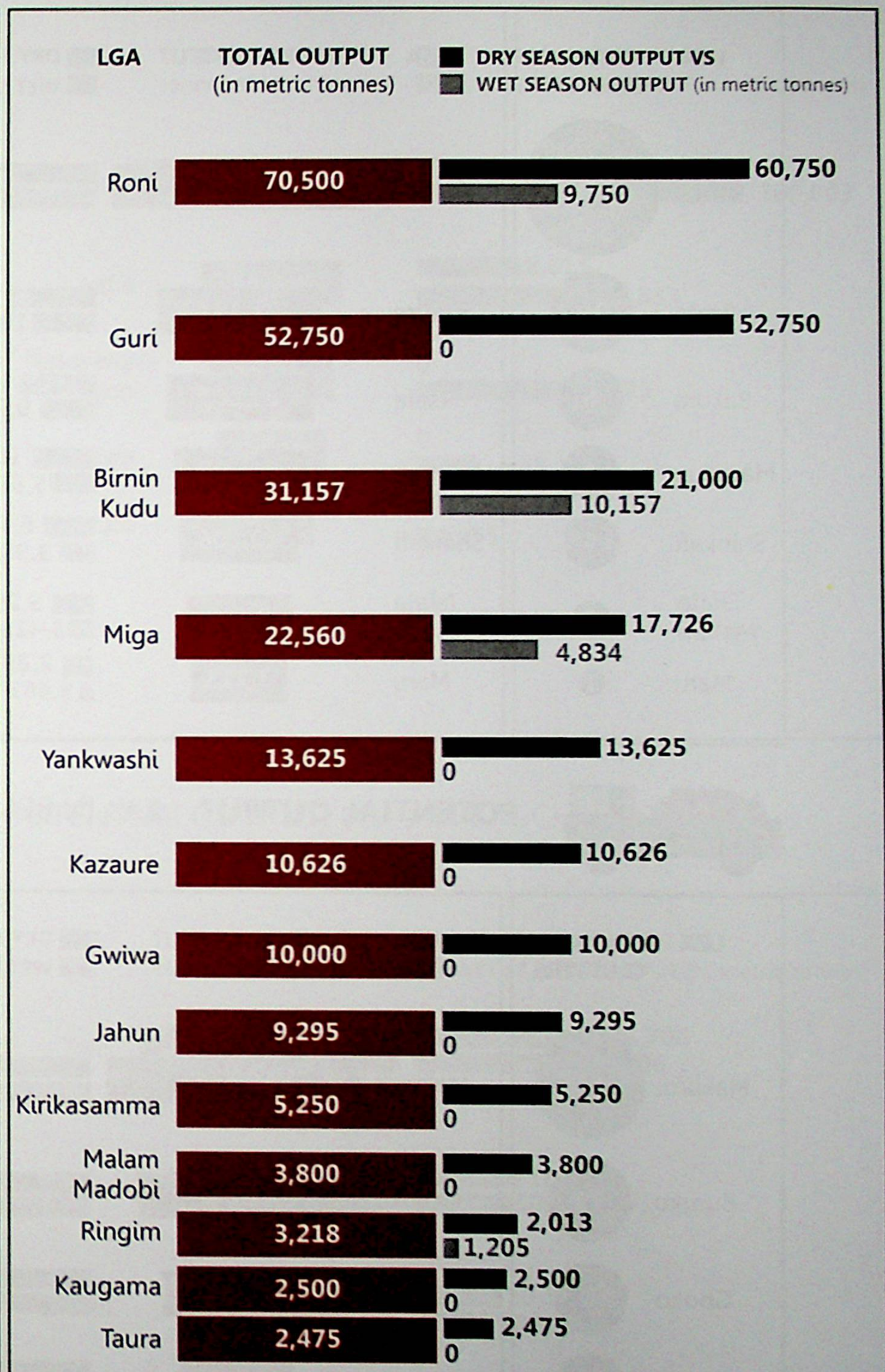
POTENTIAL OUTPUT: LGA's IN SOKOTO STATE

LGA	NO. OF CLUSTERS
Shagari	6
Tambuwal	6
Yabo	6
Goronyo	5
Kware	5
Wurno	5
Gwadabawa	4
Illela	4
Sabon Birni	4
Bodinga	3
Wamako	3
Dange Shuni	2



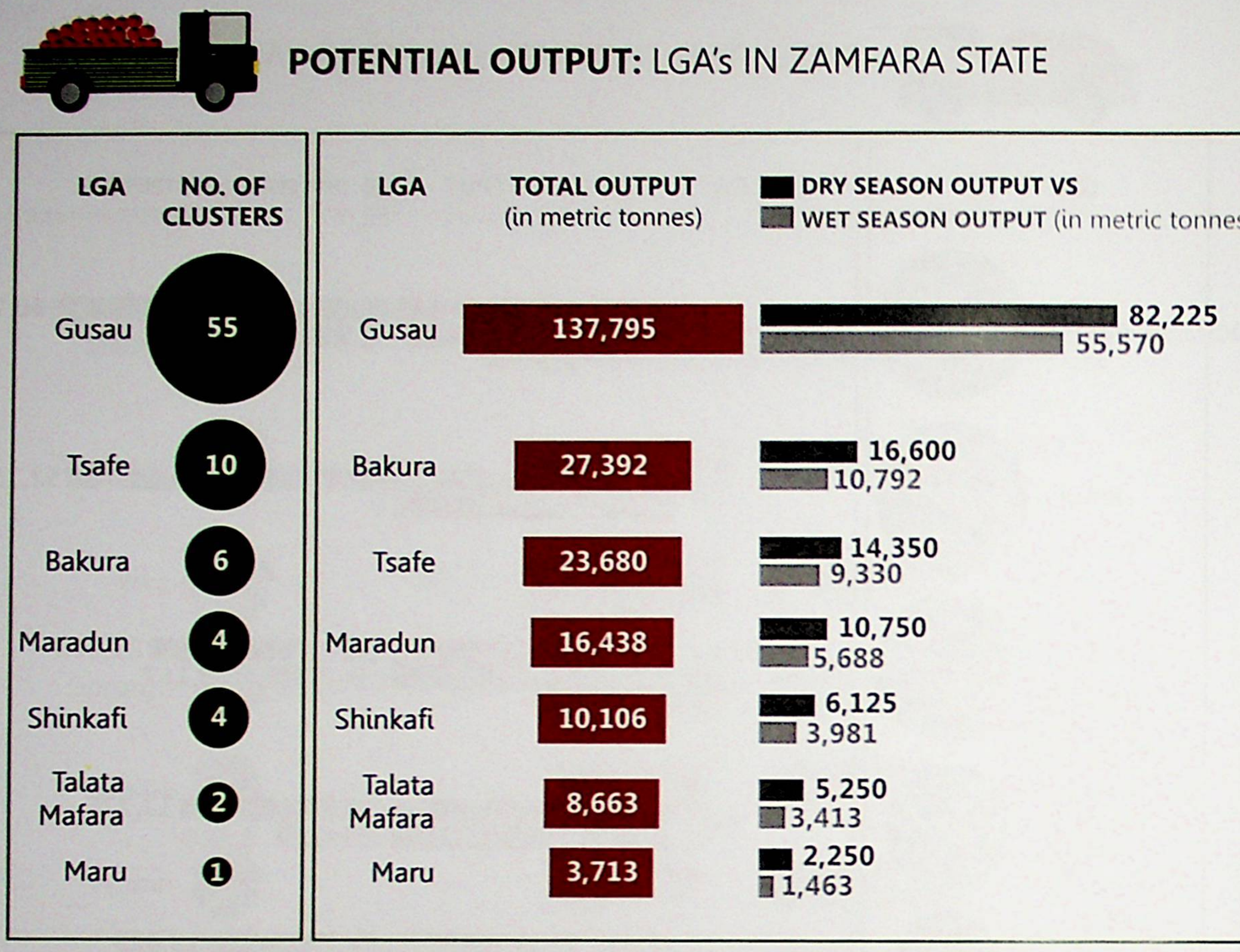
POTENTIAL OUTPUT: LGA's IN JIGAWA STATE

LGA	NO. OF CLUSTERS
Miga	10
Ringim	10
Roni	10
Birnin Kudu	9
Kazaure	8
Guri	6
Yankwashi	5
Jahun	4
Taura	4
Gwiwa	3
Kaugama	2
Malam Madobi	2
Kirikasamma	1



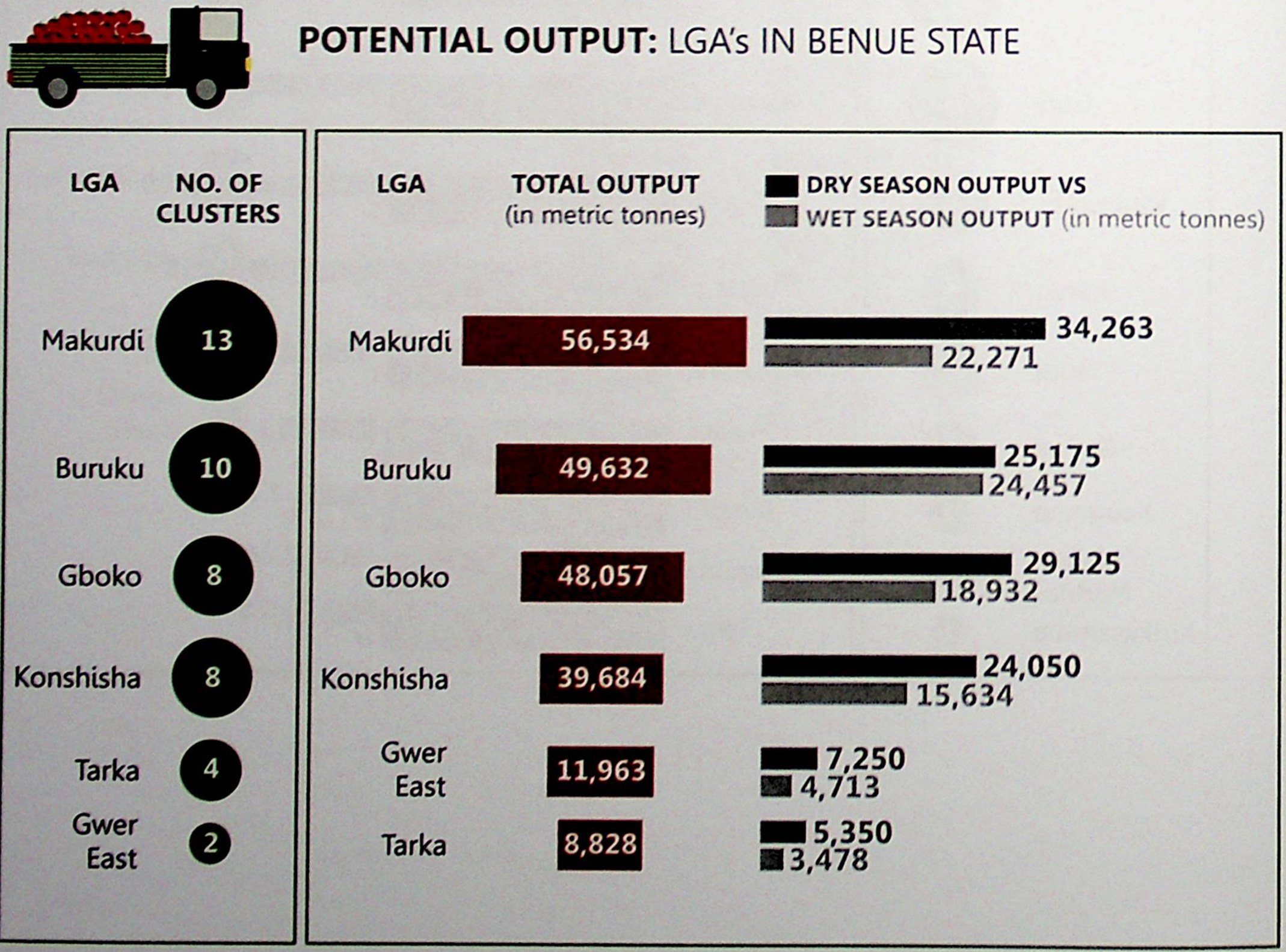
POTENTIAL OUTPUT: LGA's IN ZAMFARA STATE

LGA	NO. OF CLUSTERS
Gusau	55
Tsafe	10
Bakura	6
Maradun	4
Shinkafi	4
Talata Mafara	2
Maru	1



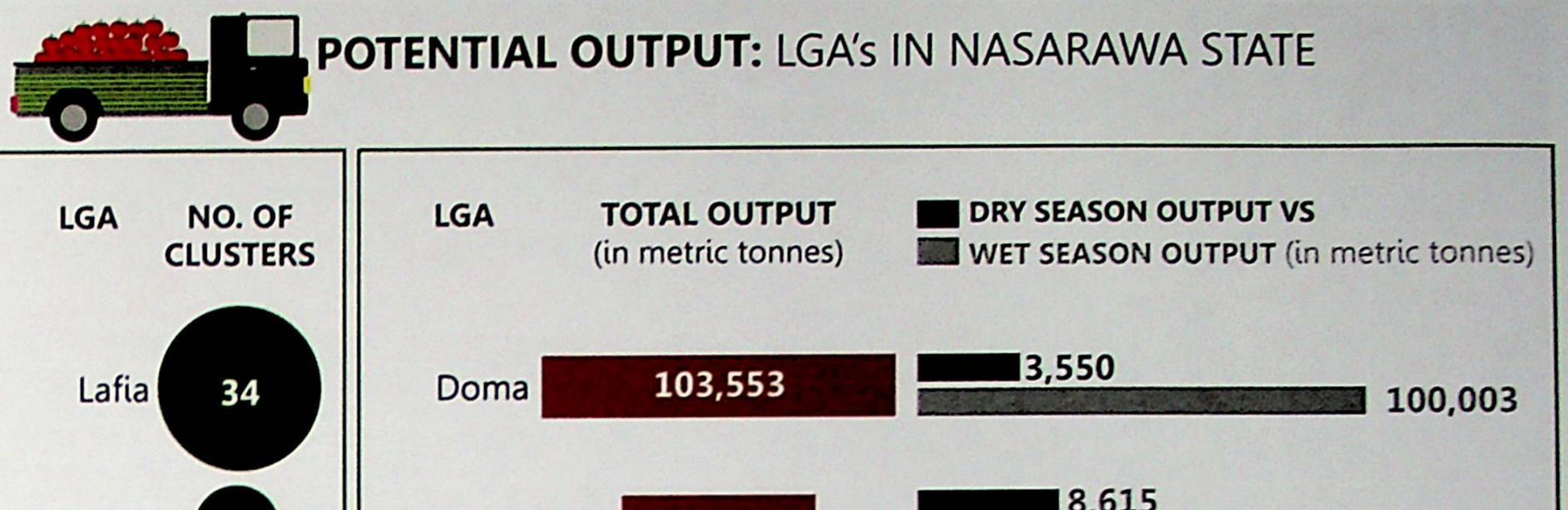
POTENTIAL OUTPUT: LGA's IN BENUE STATE

LGA	NO. OF CLUSTERS
Makurdi	13
Buruku	10
Gboko	8
Konshisha	8
Tarka	4
Gwer East	2



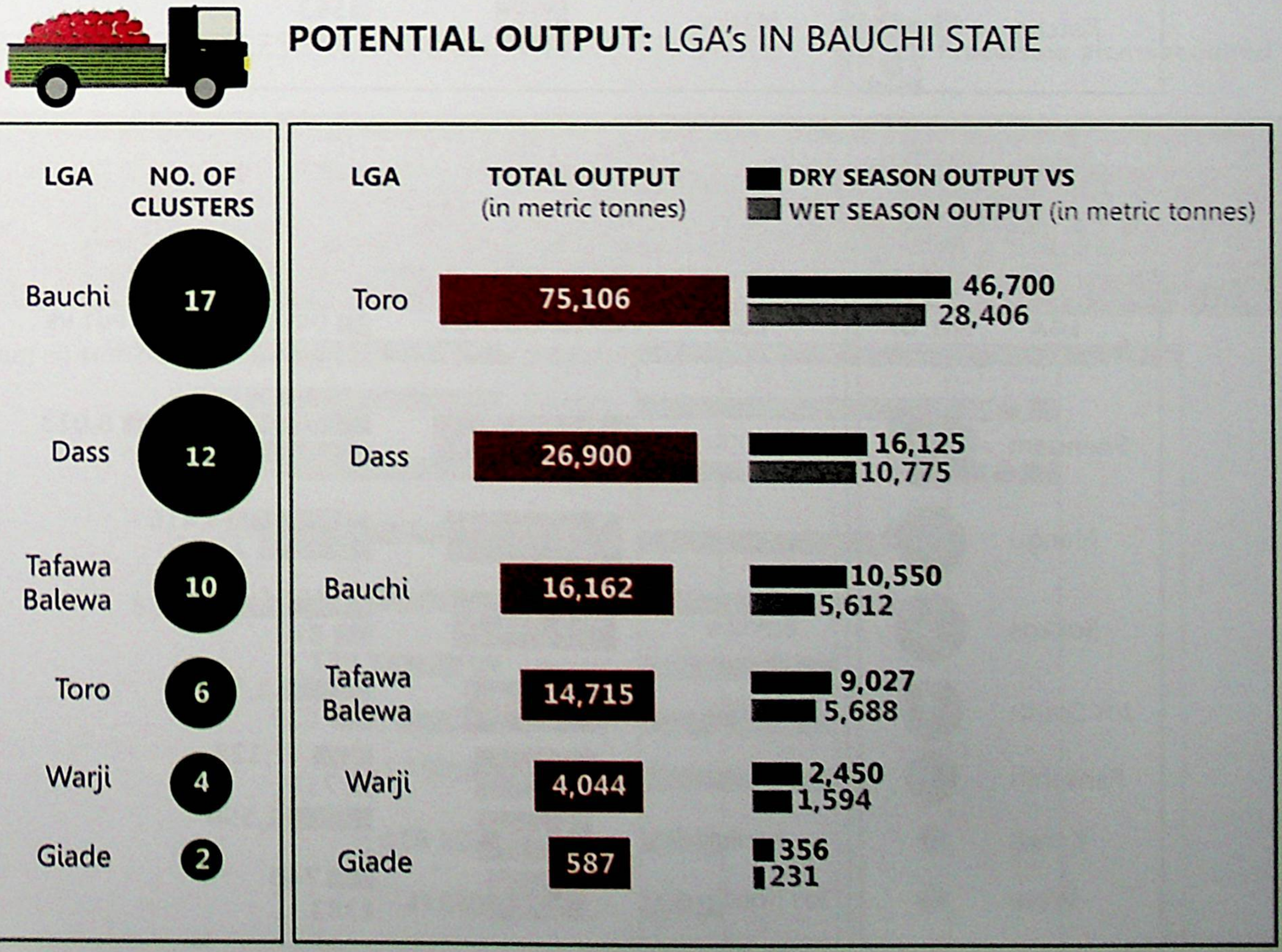
POTENTIAL OUTPUT: LGA's IN NASARAWA STATE

LGA	NO. OF CLUSTERS
Lafia	34
Doma	5
Nasarawa	2
Nasarawa Egon	1
Obi	1



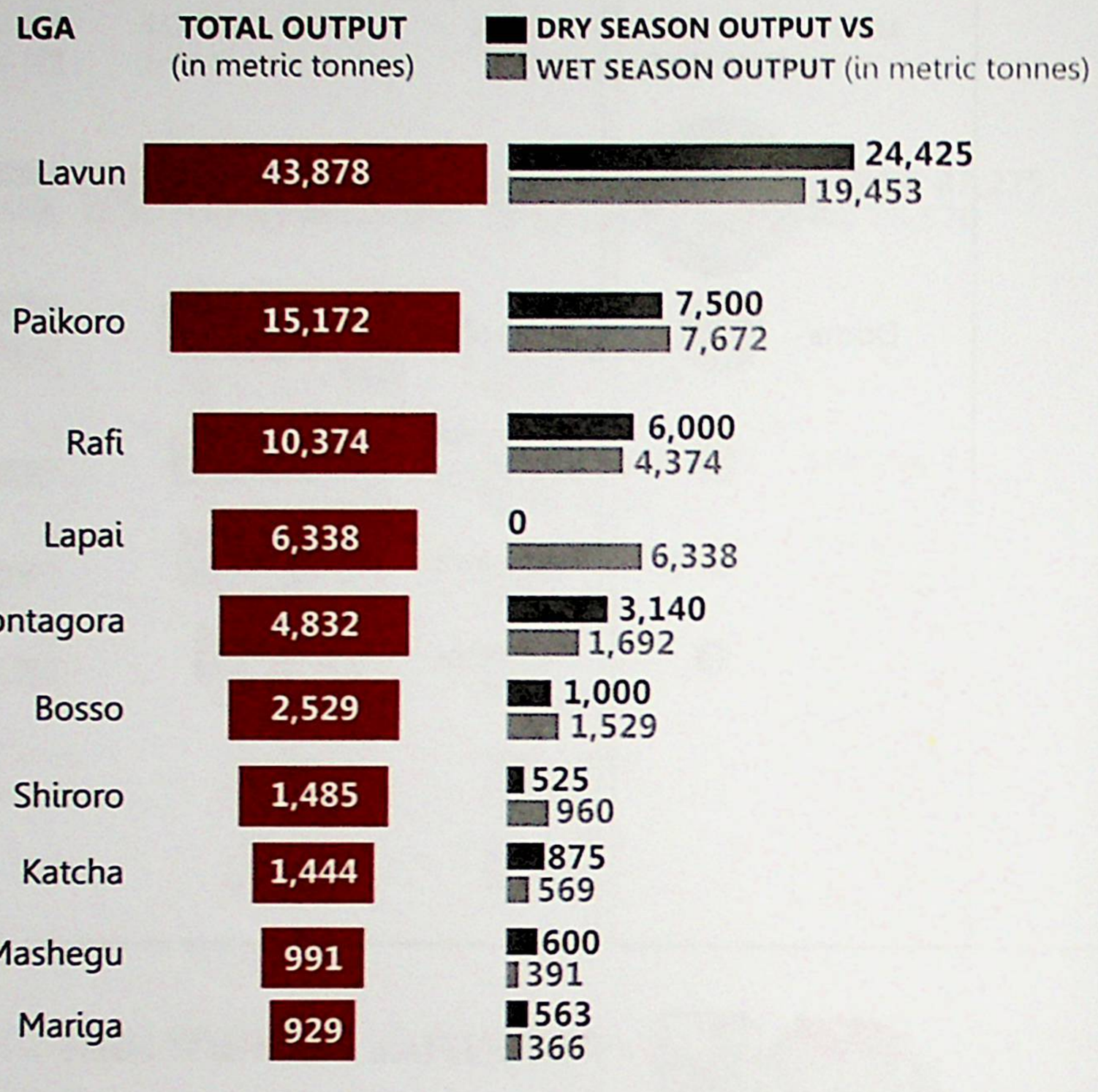
POTENTIAL OUTPUT: LGA's IN BAUCHI STATE

LGA	NO. OF CLUSTERS
Bauchi	17
Dass	12
Tafawa Balewa	10
Toro	6
Warji	4
Giade	2



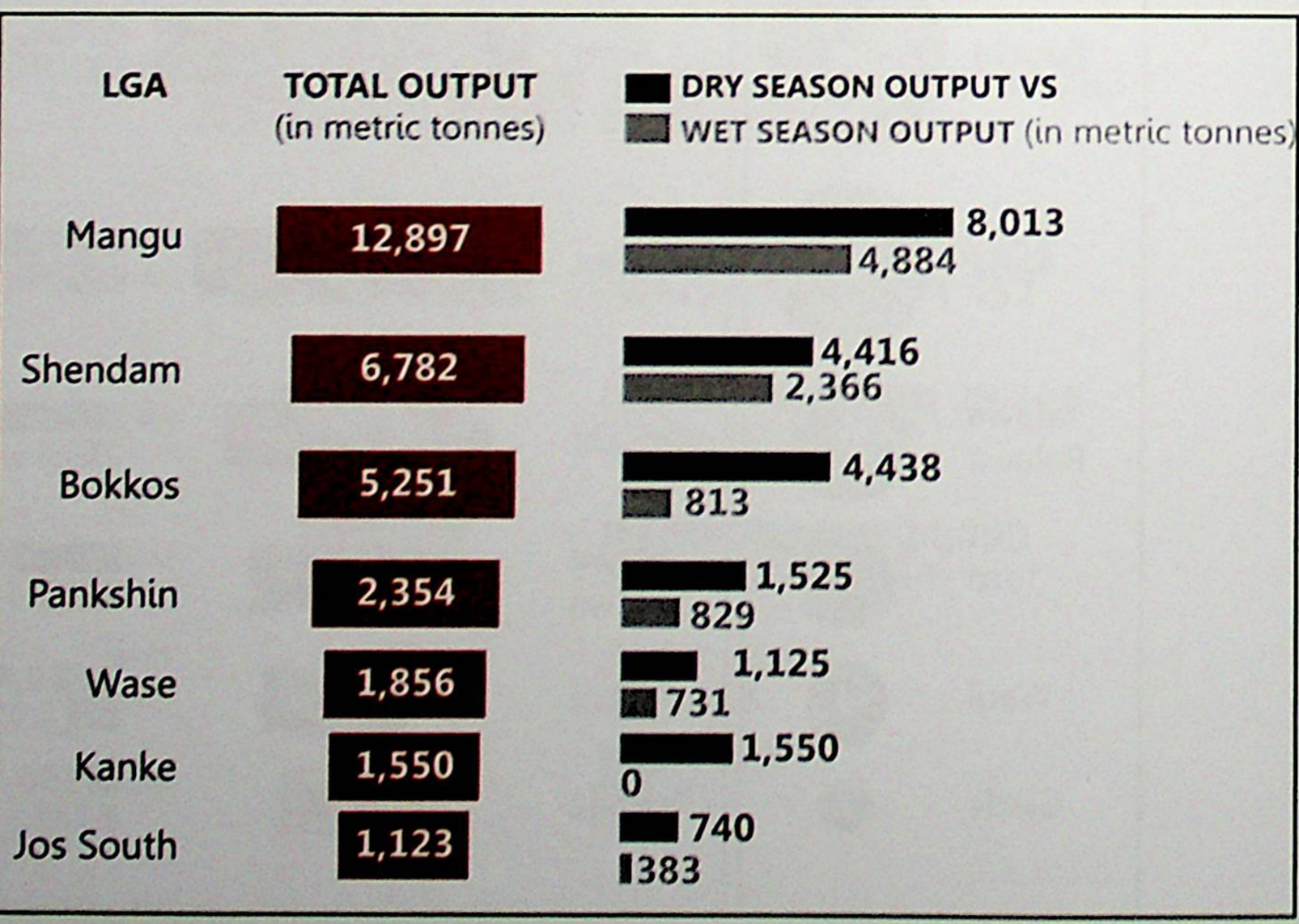
POTENTIAL OUTPUT: LGA's IN NIGER STATE

LGA	NO. OF CLUSTERS
Kontagora	12
Rafi	11
Lavun	8
Paikoro	5
Bosso	4
Shiroro	4
Mariga	3
Lapai	2
Mashegu	2
Katcha	1



POTENTIAL OUTPUT: LGA's IN PLATEAU STATE

LGA	NO. OF CLUSTERS
Shendam	10
Mangu	6
Bokkos	5
Jos South	4
Pankshin	3
Kanke	1
Wase	1



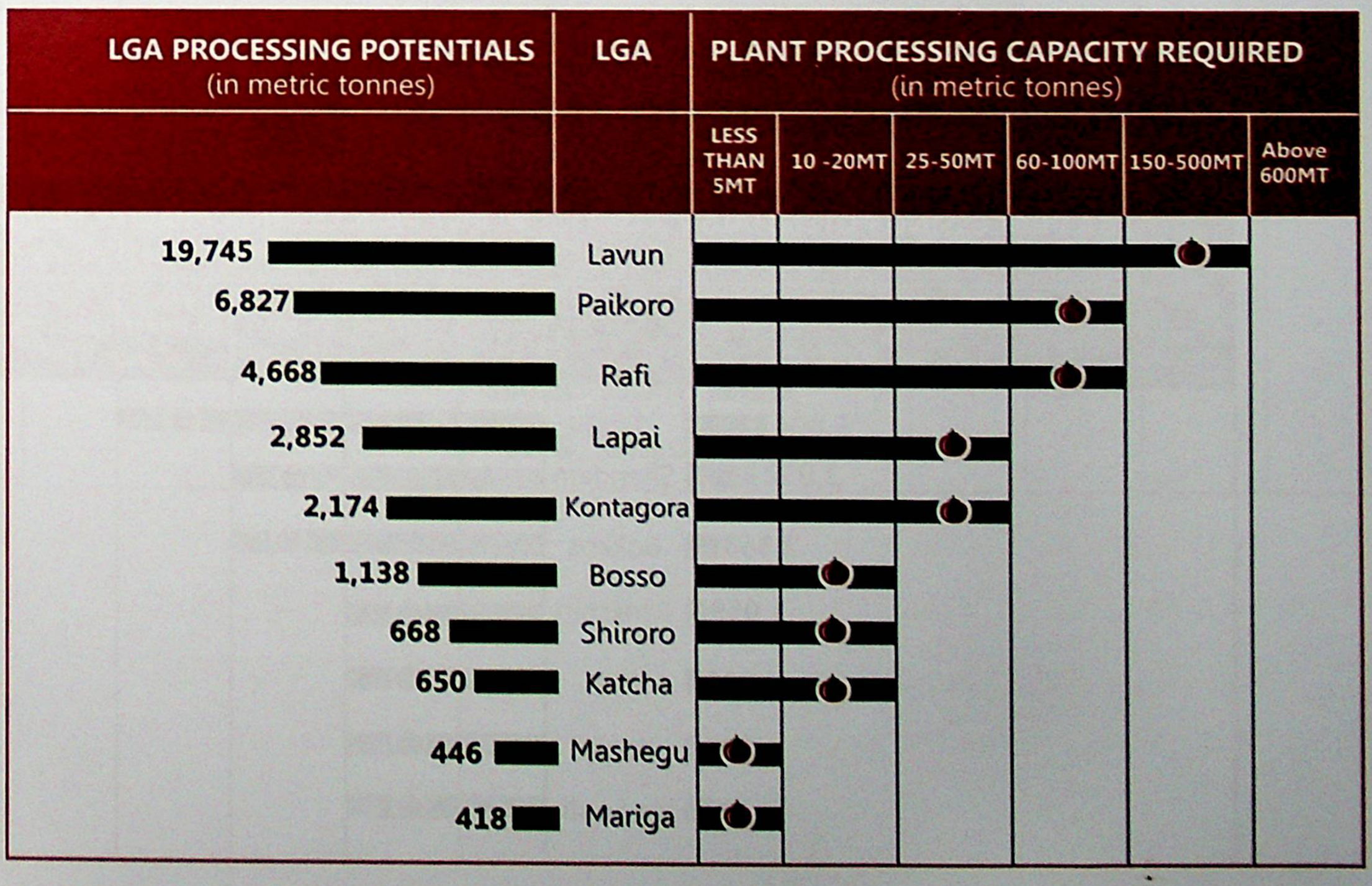
TOTAL PLANT PROCESSING OPTIONS

Breakdown of number of processing plants needed per state and their estimated capacity

STATE	LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT	No. of Plants
KATSINA	5	2	2	3	6	2	20
KANO	0	1	3	3	6	2	15
JIGAWA	0	4	3	2	4	0	13
GOMBE	0	0	4	1	6	1	12
SOKOTO	0	1	0	3	7	1	12
KADUNA	0	0	0	0	3	8	11
NIGER	2	3	2	2	1	0	10
PLATEAU	0	4	2	1	0	0	7
ZAMFARA	0	1	1	2	2	1	7
BAUCHI	1	0	1	2	2	0	6
BENUE	0	0	1	1	4	0	6
NASARAWA	1	1	0	0	2	1	5
TOTAL	9	17	19	20	43	16	124

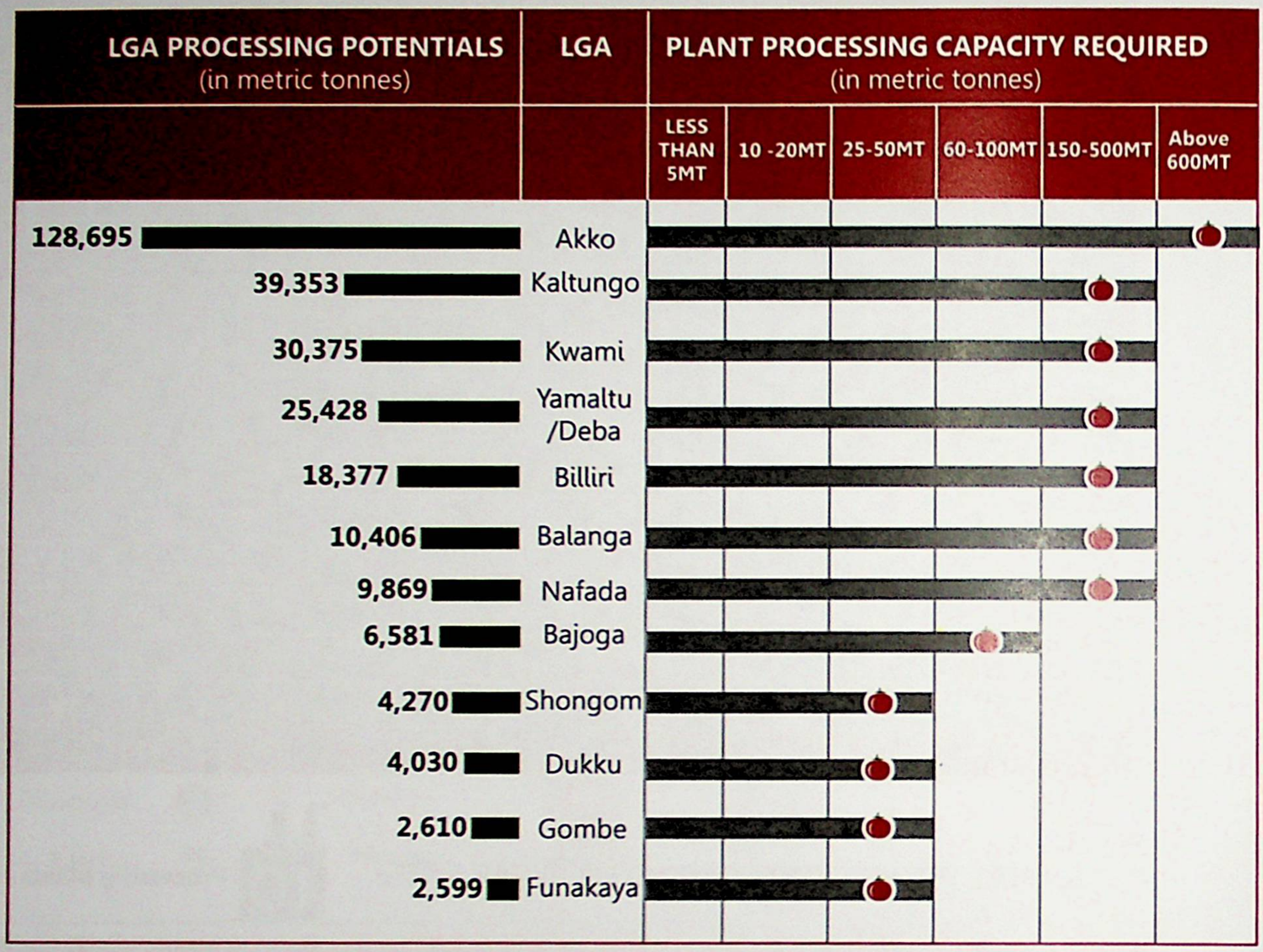
POTENTIAL PROCESSING CAPACITY: NIGER STATE

10 **Processing plants required**



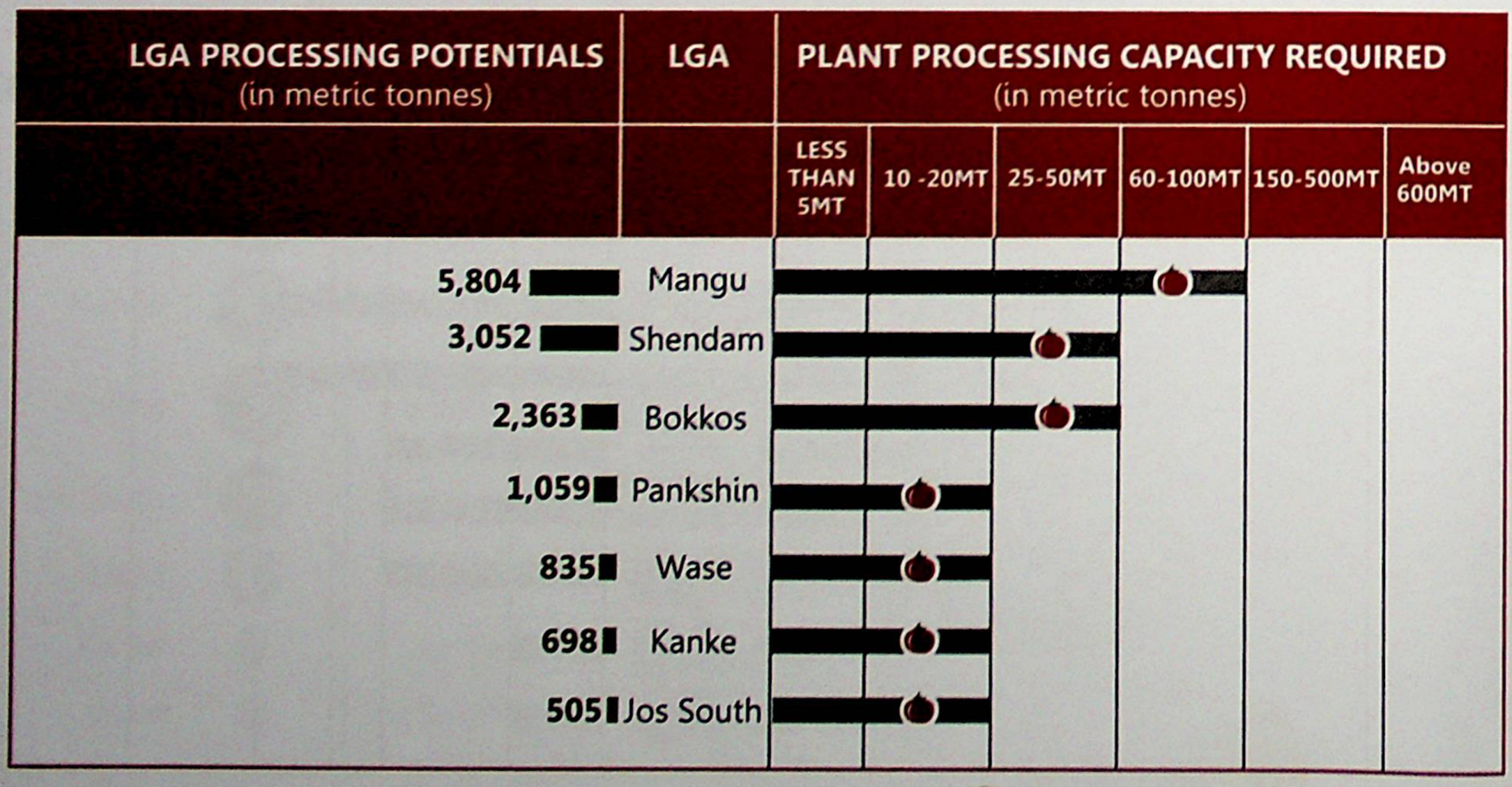
POTENTIAL PROCESSING CAPACITY: GOMBE STATE

12 Processing plants required

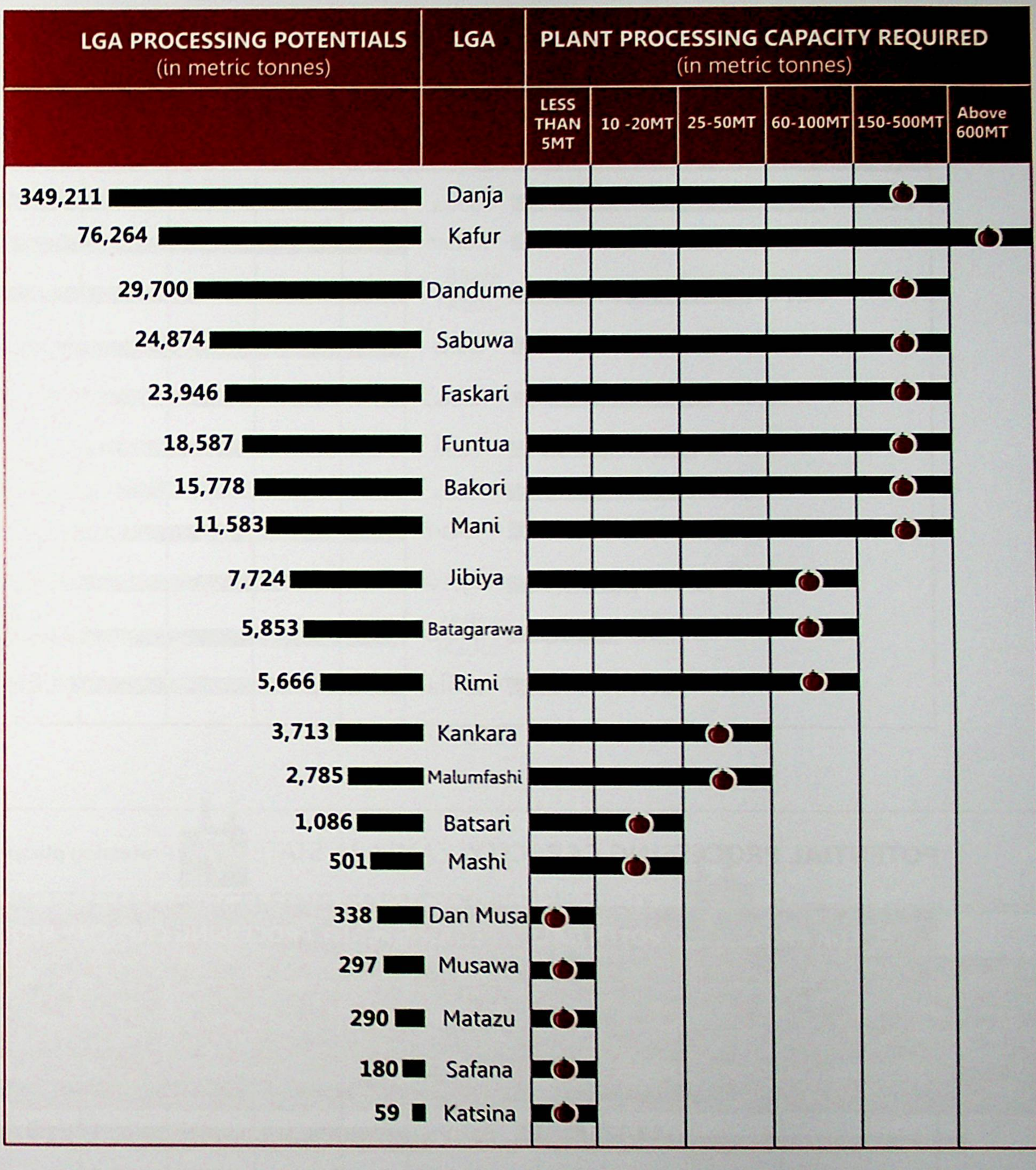


POTENTIAL PROCESSING CAPACITY: PLATEAU STATE

7 Processing plants required



POTENTIAL PROCESSING CAPACITY: KATSINA STATE 20 Processing plants required



POTENTIAL PROCESSING CAPACITY: KADUNA STATE

11 Processing plants required

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
113,417	Soba						●
106,644	Kudan						●
92,813	Lere						●
86,918	Zaria						●
83,921	Kubau						●
74,744	Ikara						●
66,380	Giwa						●
59,140	Makarfi						●
42,131	Igabi					●	
37,125	Kauru					●	
29,700	Kaura					●	

POTENTIAL PROCESSING CAPACITY: ZAMFARA STATE

7 Processing plants required

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
62,008	Gusau						●
12,326	Bakura					●	
10,656	Tsafe					●	
7,397	Maradun				●		
4,548	Shinkafi				●		
3,898	Talata Mafara			●			
1,671	Maru		●				

POTENTIAL PROCESSING CAPACITY: JIGAWA STATE

13 Processing plants required

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
31,725	Roni					●	
23,738	Guri					●	
14,021	Birnin Kudu					●	
10,152	Miga					●	
6,131	Yankwashi				●		
4,782	Kazaure				●		
4,500	Gwiwa				●		
4,183	Jahun				●		
2,363	Kirikasamma				●		
1,710	Malam Madobi			●			
1,448	Ringim			●			
1,125	Kaugama			●			
1,114	Taura			●			

POTENTIAL PROCESSING CAPACITY: BENUE STATE

6 Processing plants required

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
25,440	Makurdi					●	
22,334	Buruku					●	
21,626	Gboko					●	
17,858	Konshisha					●	
5,383	Gwer East				●		
3,973	Tarka				●		

POTENTIAL PROCESSING CAPACITY: KANO STATE

15 Processing plants required

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
129,130	Garun Mallam						●
104,996	Bichi						●
41,951	Karaye					●	
19,305	Makoda					●	
15,853	Rogo					●	
13,851	Dawakin Tofa					●	
13,759	Bunkure					●	
9,811	Gwarzo					●	
8,747	Ajingi				●		
8,303	Rano				●		
7,573	Kura				●		
4,320	Dambatta			●			
2,924	Bagwai			●			
2,385	Tudun Wada			●			
483	Bebeji		●				

POTENTIAL PROCESSING CAPACITY: NASARAWA STATE

5 Processing plants required

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
46,599	Doma						●
29,456	Lafia					●	
14,771	Nasarawa Egon					●	
1,316	Nasarawa		●				
439	Obi	●					

POTENTIAL PROCESSING CAPACITY: SOKOTO STATE

12 **Processing plants required**

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
89,522	Illela						●
39,544	Tambuwal					●	
30,342	Yabo					●	
21,741	Sabon Birni					●	
20,346	Kware					●	
18,563	Bodinga					●	
16,932	Shagari					●	
10,856	Wamako					●	
9,000	Gwadabawa				●		
8,725	Goronyo				●		
7,518	Wurno				●		
1,559	Dange Shuni			●			

POTENTIAL PROCESSING CAPACITY: BAUCHI STATE

6 **Processing plants required**

LGA PROCESSING POTENTIALS (in metric tonnes)	LGA	PLANT PROCESSING CAPACITY REQUIRED (in metric tonnes)					
		LESS THAN 5MT	10 -20MT	25-50MT	60-100MT	150-500MT	Above 600MT
33,798	Toro					●	
12,105	Dass					●	
7,273	Bauchi				●		
6,622	Tafawa Balewa				●		
1,820	Warji			●			
264	Giade	●					

ESTIMATED TOMATO WASTE: (BY LGA)

POTENTIAL DRY WASTAGE VS POTENTIAL WET WASTAGE (in metric tonnes)

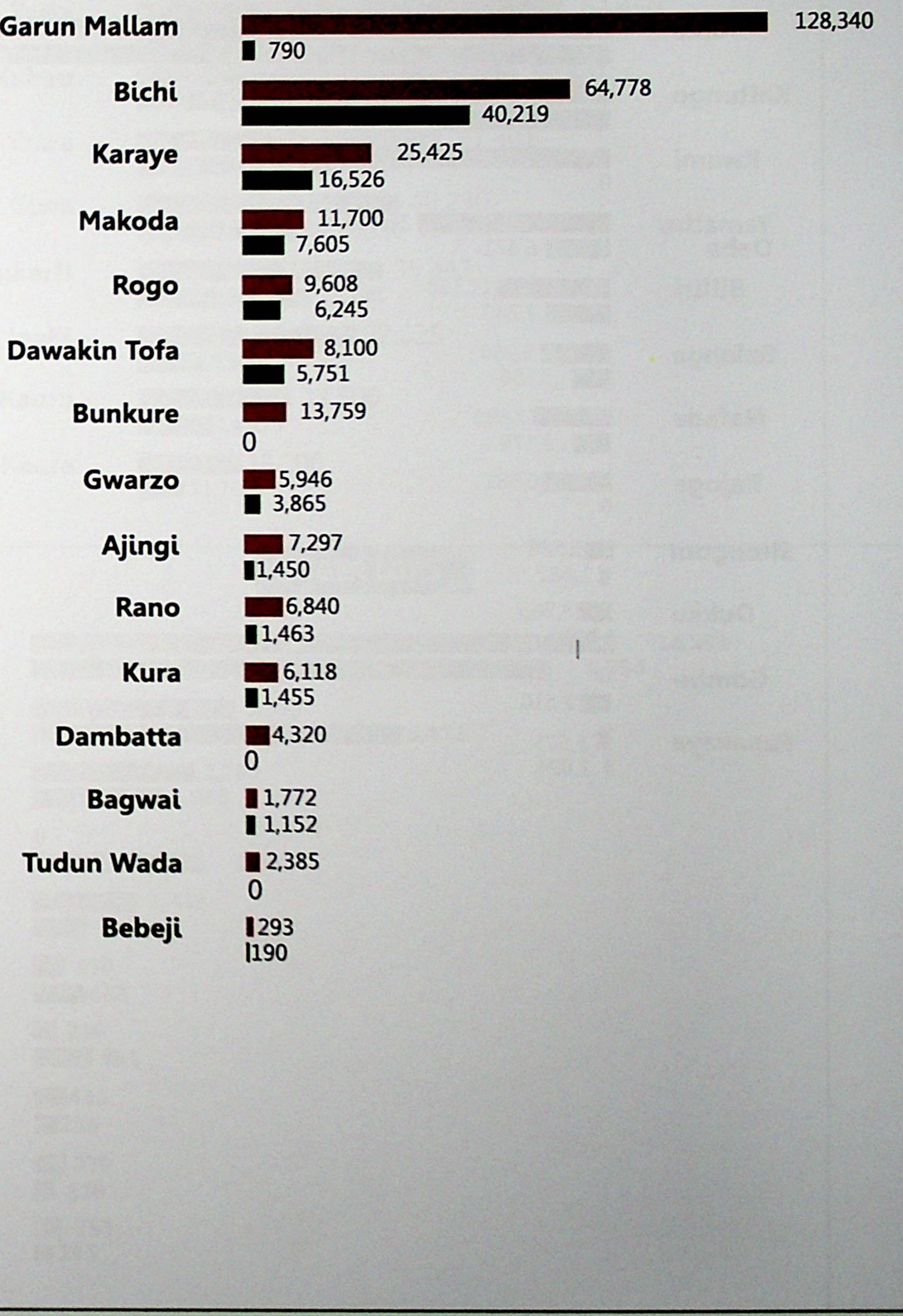
KATSINA LGA's

Danja	213,638	135,574
Kafur	49,793	26,471
Dandume	18,000	11,700
Sabuwa	15,075	9,799
Faskari	14,513	9,433
Funtua	11,275	7,313
Bakori	9,563	6,216
Mani	7,020	4,563
Jibiya	4,371	3,353
Batagarawa	3,663	2,190
Rimi	3,274	2,392
Kankara	2,250	1,463
Malumfashi	1,688	1,097
Batsari	658	428
Mashi	304	198
Dan Musa	338	0
Musawa	180	117
Matazu	203	88
Safana	180	0
Katsina	59	0

ESTIMATED TOMATO WASTE: (BY LGA)

POTENTIAL DRY WASTAGE VS POTENTIAL WET WASTAGE (in metric tonnes)

KANO LGA's



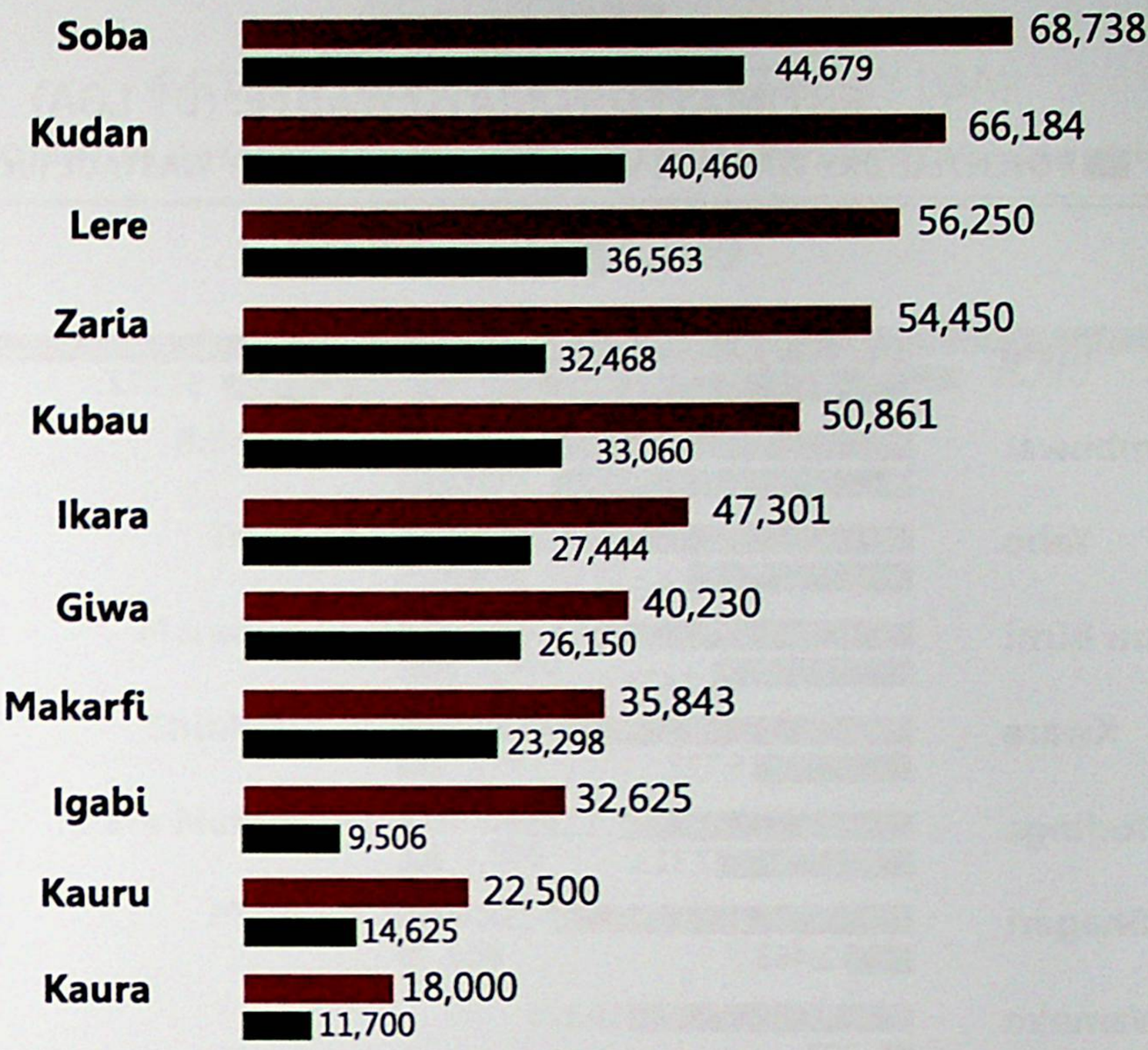
ESTIMATED TOMATO WASTE: (BY LGA)

POTENTIAL DRY WASTAGE VS POTENTIAL WET WASTAGE (in metric tonnes)

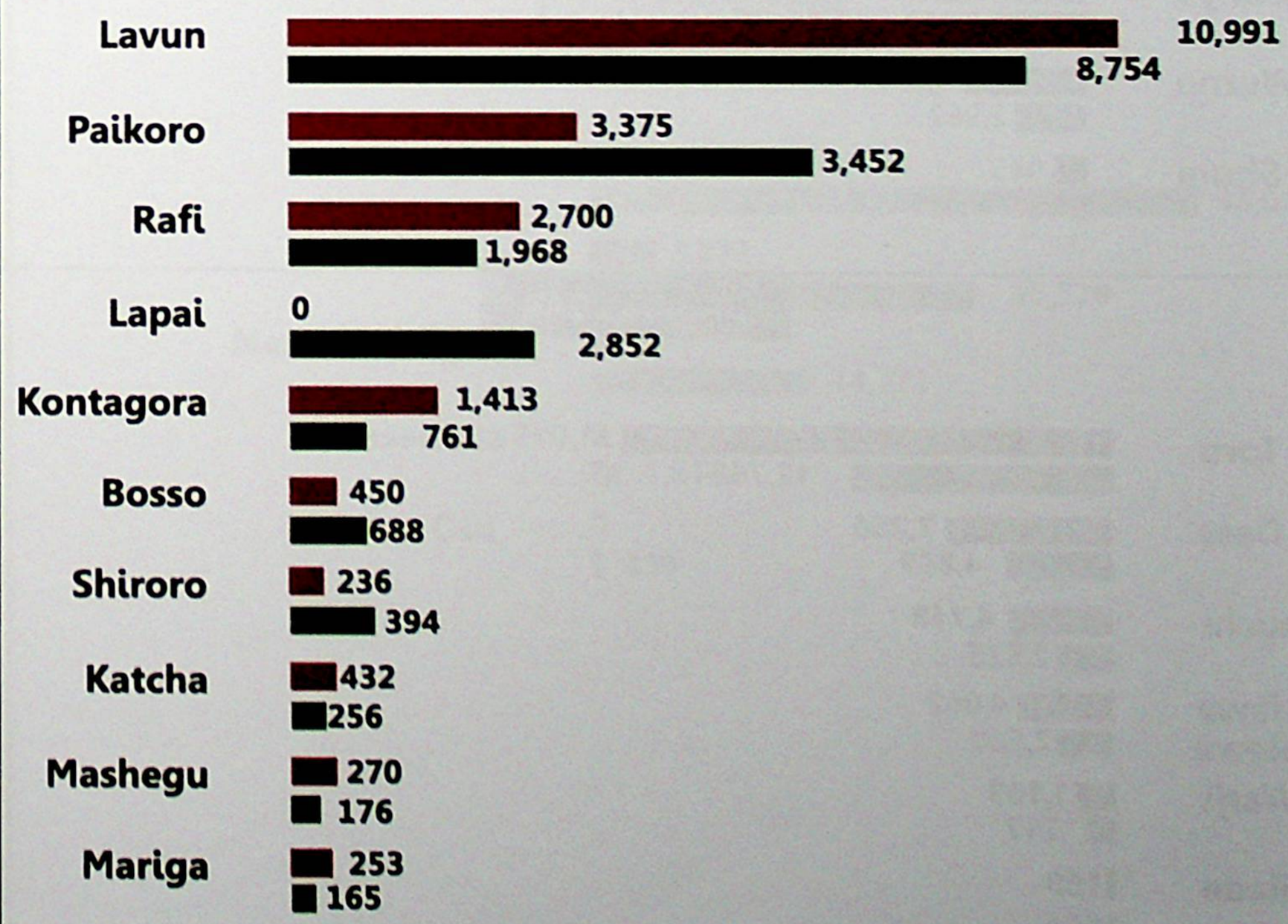
GOMBE LGA's

Akko	65,588	63,108
Kaltungo	23,850	15,503
Kwami	30,375	0
Yamaltu/ Deba	18,956	6,471
Billiri	11,138	7,240
Balanga	6,750	3,656
Nafada	7,690	2,179
Bajoga	6,581	0
Shongom	2,588	1,682
Dukku	3,263	768
Gombe	0	2,610
Funakaya	1,575	1,024

KADUNA LGA's



NIGER LGA's



ESTIMATED TOMATO WASTE: (BY LGA)

POTENTIAL DRY WASTAGE VS POTENTIAL WET WASTAGE (in metric tonnes)

SOKOTO LGA's

Illela	56,250	33,272
Tambuwal	24,188	15,357
Yabo	21,713	8,629
Sabon Birni	14,063	7,678
Kware	14,569	5,777
Bodinga	11,250	7,313
Shagari	15,469	1,463
Wamako	10,125	731
Gwadabawa	9,000	0
Goronyo	5,288	3,437
Wurno	4,556	2,962
Dange Shuni	945	614

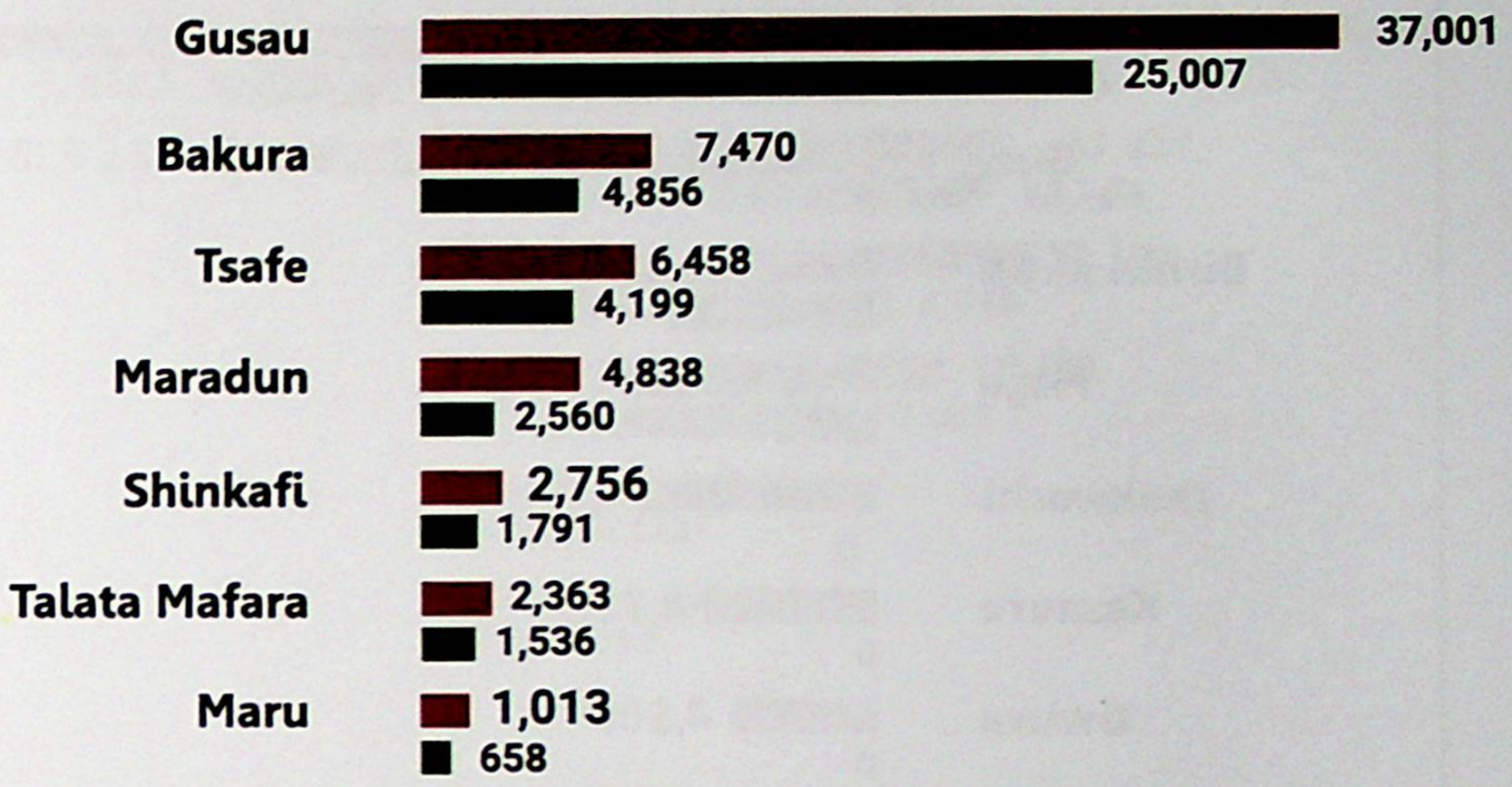
BAUCHI LGA's

Toro	21,015	12,783
Dass	7,256	4,849
Bauchi	4,748	2,525
Tafawa Balewa	4,062	2,560
Warji	1,103	717
Giade	160	104

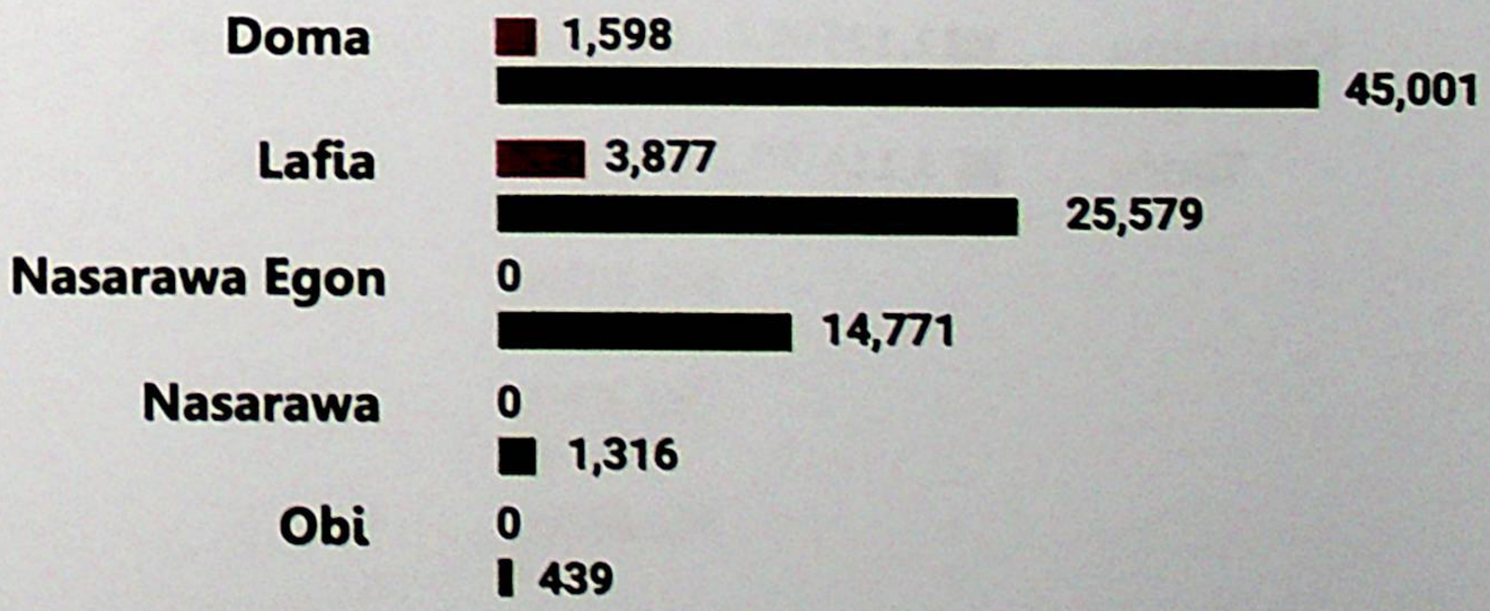
ESTIMATED TOMATO WASTE: (BY LGA)

POTENTIAL DRY WASTAGE VS POTENTIAL WET WASTAGE (in metric tonnes)

ZAMFARA LGA's



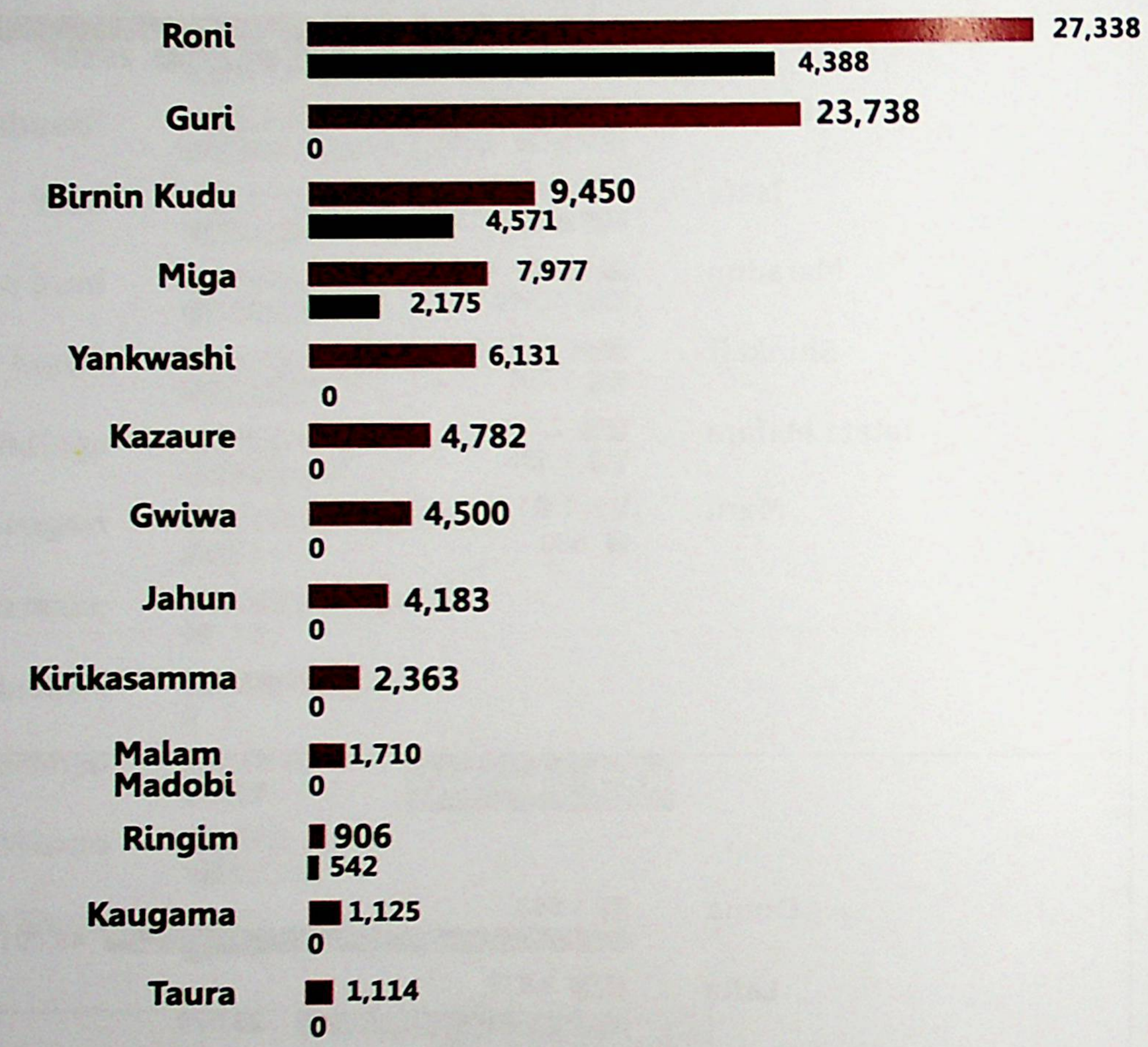
NASARAWA LGA's



ESTIMATED TOMATO WASTE: (BY LGA)

POTENTIAL DRY WASTAGE VS POTENTIAL WET WASTAGE (in metric tonnes)

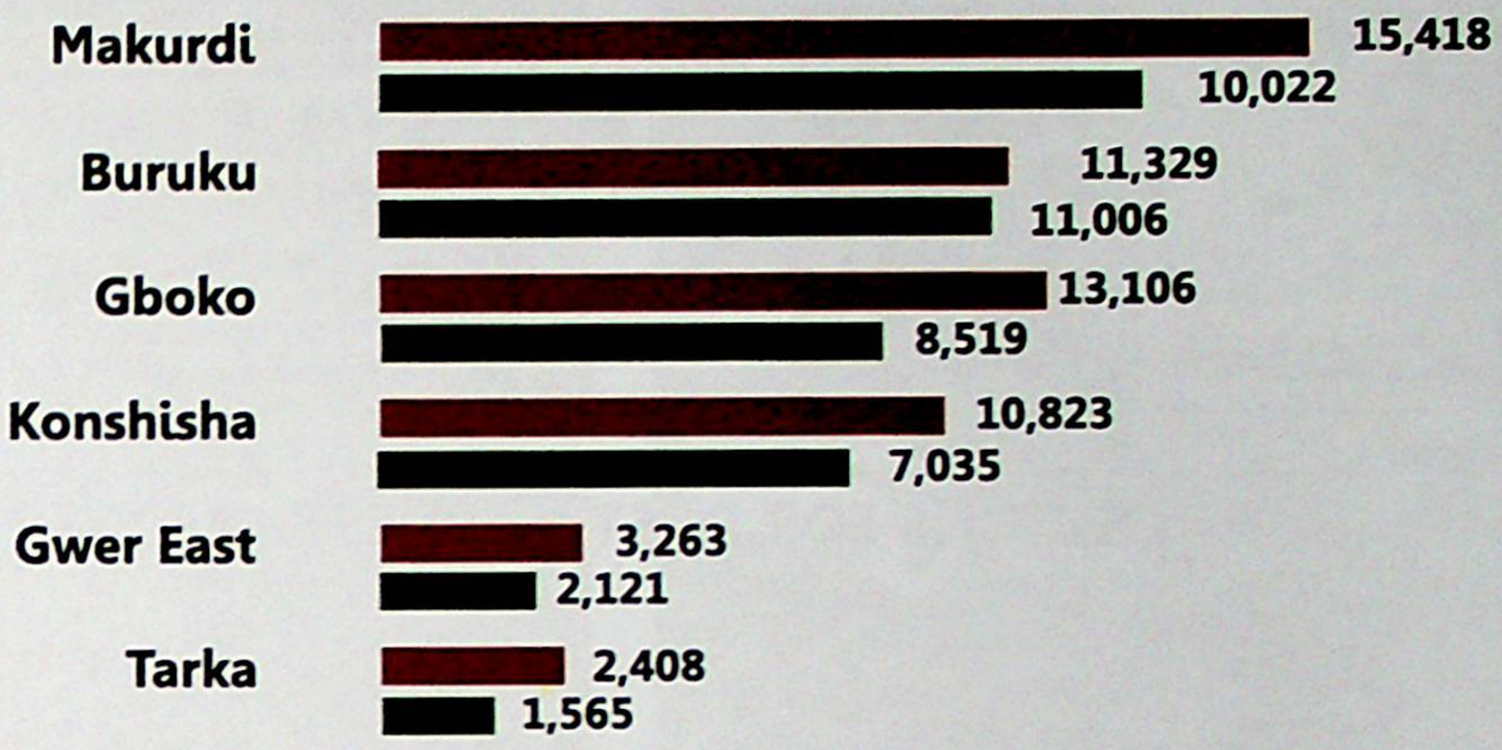
JIGAWA LGA's



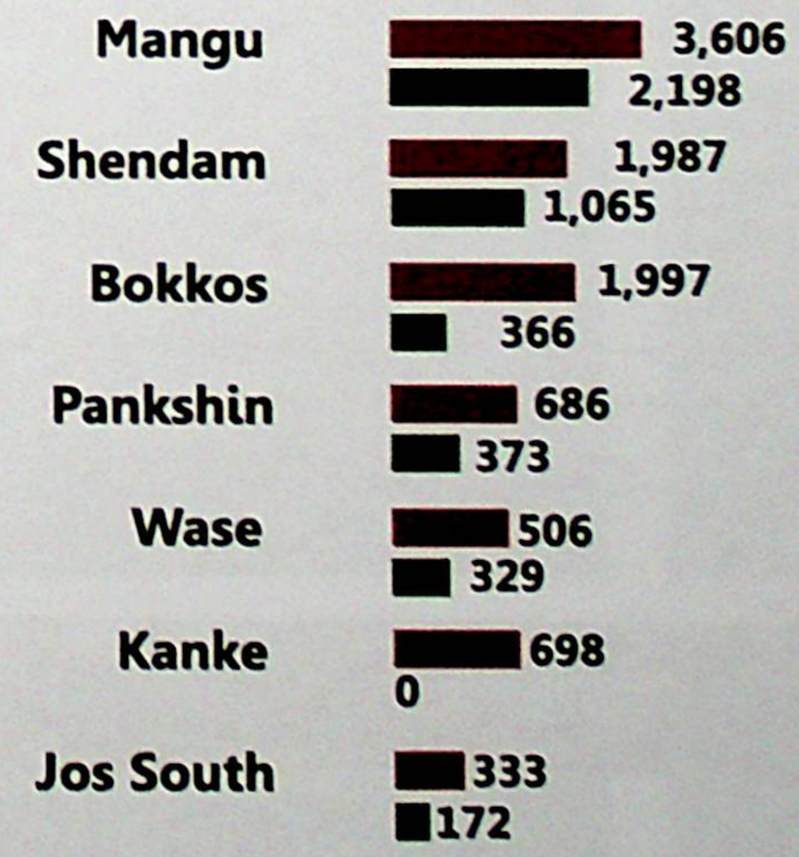
ESTIMATED TOMATO WASTE: (BY LGA)

POTENTIAL DRY WASTAGE VS POTENTIAL WET WASTAGE (in metric tonnes)

BENUE LGA's

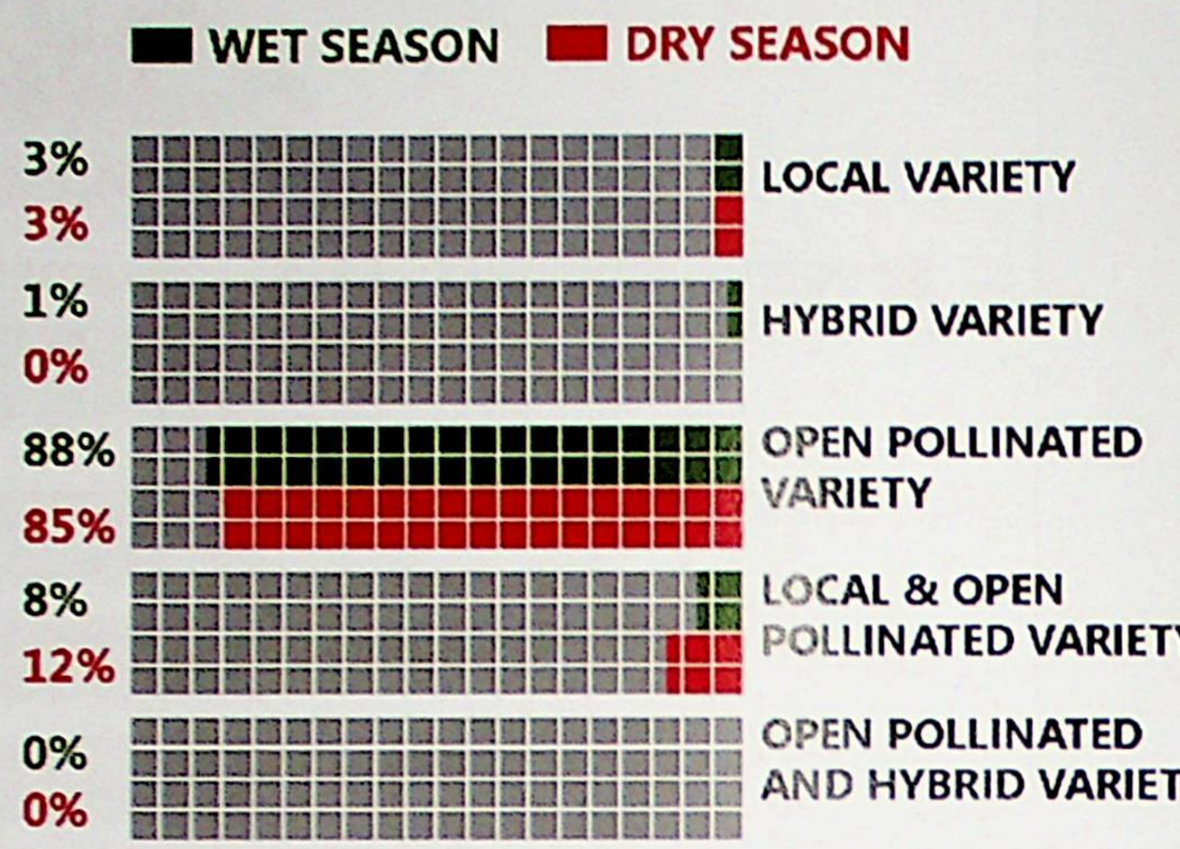


PLATEAU LGA's



FARMLAND USE AND TOMATO VARIETY PLANTED

171,179 HECTARES is used for tomato production across 12 states. This is equivalent to the size of Lagos State alone.



OPTIONS FOR POST HARVEST TRANSFORMATION

TOMATO PASTE

This involves the complete grinding or squeezing of the raw fruits into a smooth and homogenous paste.

TOMATO CANNING

Tomato fruits may be cut into desirable pieces then canned in a way that prevents deterioration.

DRYING

Drying reduces the 95% water content of tomato to a level that reduces growth of micro-organisms.

SEMI-GRINDING

Tomato may be grinded into a coarse and slightly pasty intermediary state.

CHALLENGES

1. Insufficient and intermittently failing electronic devices.
2. The exact dimension of cultivated lands in each tomato cluster were unknown to some cluster leaders.
3. There was challenge of commuting over long distances, this was solved by scheduling of interviews and planning itinerary efficiently.

IMPLICATIONS OF TOMATO CLUSTERS MAPPING FOR STAKEHOLDERS

EXISTING PROCESSING COMPANIES

Companies can now ascertain the locations of clusters, numbers and anticipated yields from various farms. Data from our tomato mapping exercise will help these companies make more informed business decisions.

POTENTIAL INVESTORS

With data on over 176,000 farmers in more than 679 widely-scattered clusters across 12 states, interested investors are now better positioned to make informed decisions about the potential locations for new processing facilities.

GOVERNMENT

Data from the study will guide government on requirement for feeder roads around clusters, enhancement of extension worker-to-farmer ratio etc. There is also potential tax revenue on estimated potential revenue of N125.6 billion per annum from sale of 6.281 million tons.

INTERNATIONAL DONORS

Donors interested in implementing value chain intervention will benefit from data on the high number of tomato clusters and farmers in the twelve states under focus. This will help structure the nature of and effectiveness of the intervention.

RURAL MANPOWER

The labour requirements of tomato cultivation amount to an average of 162 man days per hectare. For the minimum of 171,179 hectares under tomato cultivation in the 12 states mapped, the potential amount of wages payable is over N22 billion.

MANUFACTURERS AND DEALERS OF AGRO-INPUTS

Data on the alternation of wet and dry season cycles and the specific locations where either one season is dominant or both are dominant present a dependable basis for planning inventory, terms of sale and turnover expectations for manufacturers of improved inputs.

FINANCIAL INSTITUTIONS

With a requirement of about N80 Billion in finance, some of the opportunities for financial intermediation include the following: Income from net interest margin, enhanced business for agricultural insurance, creation of risks assets that grow at a staggered pace as inputs are steadily bought on stage-by-stage basis.

CONSUMERS

Consumers get a clearer understanding of seasonality and availability of fresh tomatoes relative to pricing and appreciate the market situation during scarcity.

FINDINGS

1. Tomatoes production in Northern Nigeria is extensive spreading across as many as 679 clusters covering 171,179 hectares of land in 12 States.
2. Most farmers plant in the two seasons; each season spanning not more than 150 days.
3. Wastage of harvested tomatoes led to continuous economic losses for farmers; if this menace is resolved, farmers welfare would increase.
4. The near rudimentary farming system gives opportunity to introduce and enhance farming methods.
5. Clustering around small farm holdings would facilitate channeling of excess fresh tomatoes to plants located in the vicinity of the clusters.
6. Knowledge of uncertain markets that leads to high tomatoes wastage, hence farmers plant other crops.
7. More training, advocacy and improved hygiene conditions are necessary for quality of produce and profitability.

RECOMMENDATIONS

1. Turn excess harvests into different products; post-harvest options highlighted by the study should be explored to accomplish this.
2. Carry out awareness campaigns on the abundant investment opportunities available for stakeholders in the tomato value chain.
3. A plan for plant sizes that can absorb the anticipated excess tomato produced should commence.
4. Special efforts should be made to get the buy-in of the relevant State government.
5. Arrangement to begin to engage the clusters in a farmers-processor symbiosis should commence immediately.
6. Farming methods should be revolutionized to provide constant water supply and make tomato farming generally more sustainable.
7. Hybrid varieties must be introduced and capacity building for both farmer and processor should be made top priority.

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coffey
A TETRA TECH COMPANY

Office: St. James House 167 Cadastral Zone Adetokumbo Ademola Crescent Wuse II, Abuja, Nigeria

www.gems4nigeria.com +234 (0) 9290 1232 info@gems4nigeria.com