

Are vegetables or fruits out of reach in Turkana county, Kenya?

Irmgard Jordan, Irene Induli, Francis Odhiambo Oduor, Céline Termote - Alliance Bioversity and CIAT, Food Environment and Consumer Behaviour Africa Hub, Nairobi, Kenya



Home vendor



Wholesaler



Supermarket



Street Hawker



Open Air Market



Mobile Vendor



Restaurant



Roadside Vendor



Kiosk/ Retail shop

Background

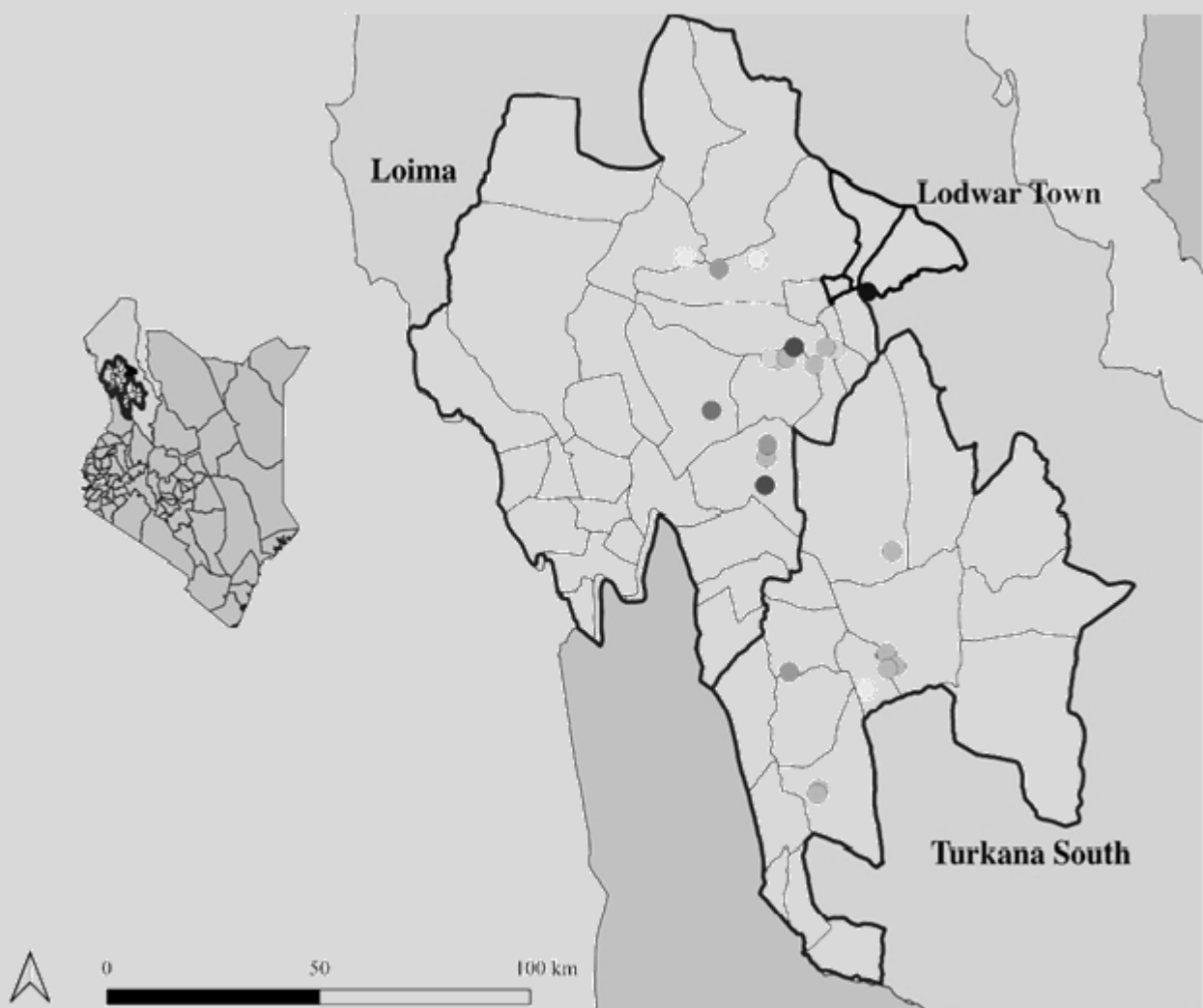
- Food environment = element of food systems = context in which people select , acquire, prepare and consume food
- Food environment determines thus diet quality and nutritional outcomes
- Limited knowledge on food environments in arid and semi-arid areas
- Turkana county (semi-arid and arid area) is characterized by
 - harsh climatic conditions,
 - high poverty levels,
 - remoteness, poor infrastructure, insecurity, and
 - low access to essential services (Republic of Kenya, 2019)

Methodology

- Market and household food environments assessment
- 10 randomly selected Community Units in Turkana South and Loima sub counties in Turkana County.
- Market assessment in Lodwar town (main town of Turkana County)
- Geocoding and mapping of informal and formal food vendors was done
- Applying the Produce-Color-Diversity Tool: a score (max=6) counting the numbers of “colours” of fruits and vegetables sold by the vendors
- 20 in-depth interviews with households selected based on their apparent knowledge of the community ‘s food environment

Results

- 384 food and drink vendors were geocoded - only 44% sold fruits and vegetables, 39% were retailers/kiosks, 92% of the roadside vendors were female vendors (see table)
- Roadside vendors and supermarkets showed the highest color-tool-diversity-score (see table)
- Rural areas recorded fewer vendors in all vendor categories
- Lodwar town is the preferred marketplace because of its diversity at affordable prices
- Households mentioned six main food sources: direct purchase from markets and shops, own farm production, food aid donations, gifts from family and friends, wild food harvesting and barter trade
- Perceived distance to the preferred marketplace (most frequently visited by members of the household to purchase food) = 16 to 210 minutes
- Factory packaged foods are liked because they are considered of good quality, safe, hygienic, and free from contamination



Diversity of fruits and vegetables offered by geocoded vendors

	Share of female vendors (%)	Number of vendors [‡]	TOTAL Color Category Diversity [§] (max 6)	Dark Leafy Green (%)	Green (Other) (%)	Red (%)	Yellow/ Orange (%)	Purple/ Blue (%)	White/ Brown (%)
Home**	0	1	4.0	100	100	100	0	100	0
Wholesale	12	3	2.3	0	0	67	67	0	100
Supermarket	43	4	4.3	25	75	100	75	75	75
Street Hawker	75	6	1.3	0	17	33	50	0	33
Open Air Market	72	7	2.4	29	71	86	29	0	29
Mobile Vendor	35	14	2.2	29	36	71	14	36	36
Restaurant	62	21	2.4	76	33	67	24	24	19
Roadside Vendor	92	51	3.8	65	75	75	82	51	31
Kiosk/Retail shop	62	63	2.7	22	43	81	52	40	35
Total		170	2.9	42	51	75	54	38	34

*ProColor Tool: Kennedy et al. (2019); dark leafy green: e.g. spinach, amaranth, Ethiopian kale; green (other): e.g. avocado, broccoli, peas; red: e.g. beetroot, guava, strawberry, tomato; yellow/ orange: e.g. Carrots , Apricots, Pineapple, Pumpkin, Sweet Potatoes, Yellow Maize; purple/ blue: eggplant, plums, grapes, blueberries; white/ brown: garlic, onions, dates, mushrooms;
** vendor who sold food at his/her home; ‡ all vendors sell any fruit or vegetable; § the number of color categories represented by at least one item (max = 6)
Prevalence above 50% have been highlighted signaling the most offered “colors” by the different vendor types.



Vegetable garden in 2020



... in 2021



drought in 2022



and in 2022



Summary & Conclusion

- Opportunities to purchase different fruits and vegetables are very limited
- Vegetable and fruit production is highly seasonal, affected by precipitation pattern and/or depends on groundwater availability
- All year-round access to vegetables and fruits and thus a diverse diet is very difficult to achieve which increases the risk for malnutrition
- Infrastructure improvements and income opportunities are needed to enhance availability and affordability of fruits and vegetables

Future Research Questions

- What are ecological and social barriers of fruit and vegetable systems in eastern African drylands?
- What are alternatives to e.g., new infrastructure like new wells to improve yields from local fruit and vegetable production (e.g., import of fruit and vegetables from other areas, circular systems based on, e.g., organic fertilizer and climate smart components)?
- What are the ecological and social boundaries of the alternatives and how sustainable are these alternatives?