TIGRAY REGION

Making agriculture nutrition-sensitive

Findings from a study of consumption, production, availability, and affordability of nutritious food

Poor dietary quality is one of the leading causes of premature death and diseases globally.[1] Typically proxied by the diversity of one's diet, dietary quality is a challenge in Ethiopia where household consumption tends to be monotonous. According to the Ethiopian Public Health Institute, adults and children throughout the country get between 60-80 percent of their energy from carbohydrates.[2] This is particularly worrying for Ethiopia given that a carbohydrate intake greater than 60 percent increases an individual's risk of cardiovascular disease—one of the country's most common causes of premature mortality.[3] Micronutrient deficiencies and stunting are another indication of limited dietary quality. Across Ethiopia, 60 percent of children are anemic, one-third are deficient in Vitamin A, and only 14 percent of children meet the World Health Organization's (WHO) standard for diet diversity.[4,5] In an effort to improve dietary quality, the Government of Ethiopia has set out ambitious plans through the National Nutrition Programme to increase the year-round availability, access, and consumption of nutritious foods.[6] At the core of these efforts is the urgent need to transform food systems to support healthier diets throughout Ethiopia.[7]

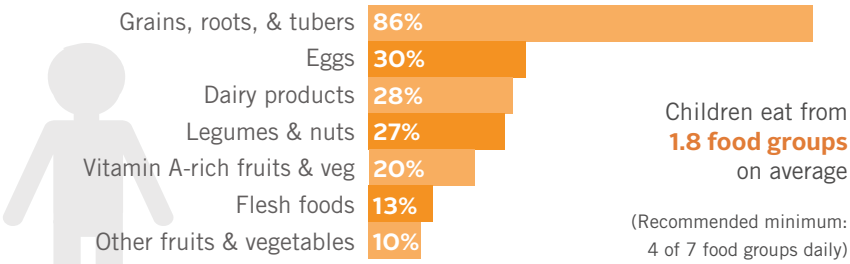
ABOUT THE STUDY

This brief summarizing Hirvonen and Wolle's 2019 report, *Consumption, Production, Market Access and Affordability of Nutritious Foods in the Tigray Region of Ethiopia*, offers insight into the gaps and opportunities where nutrition-sensitive agriculture policies and programs could have the greatest impact on diet diversity.[8]

CONSUMPTION IN TIGRAY

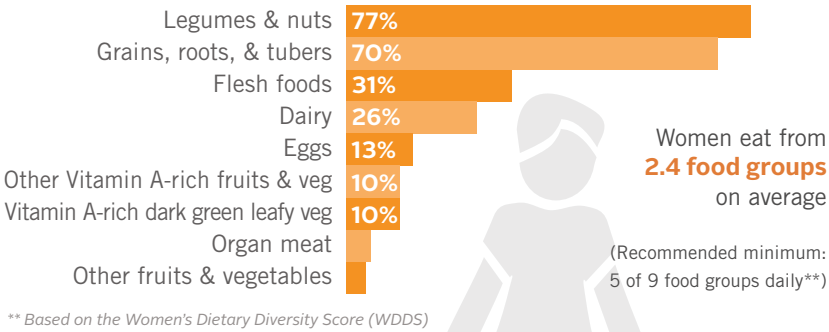
The study looks at consumption in three sample populations within Tigray: children 6-23 months, women in USAID's Feed the Future (FTF) areas, and mothers in chronically food insecure areas where the Productive Safety Net Program (PSNP) operates. Women and children in the region fall far below the recommendations for diet diversity, consuming primarily starchy staples and, for women, legumes and nuts. Only 12.9 percent of children, 4 percent of mothers in the PSNP areas, and 1.5 percent of women in FTF areas consume foods from the recommended number of food groups. The graphs below show the percentage of each demographic that consume the different food groups.

CHILDREN 6-23 MONTHS (DEMOGRAPHIC & HEALTH SURVEY, 2016*)



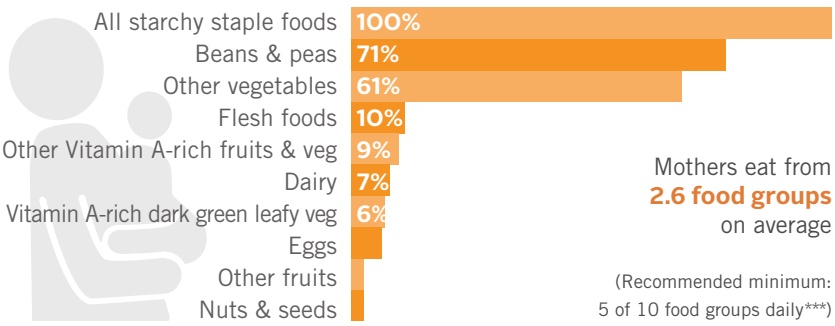
** Sample limited to children who consumed complementary foods*

WOMEN (SURVEY OF FTF AREAS, FIRST PHASE, 2018)



*** Based on the Women's Dietary Diversity Score (WDDS)*

MOTHERS (SURVEY OF PSNP AREAS, 2017)



**** Based on Minimum Dietary Diversity-Women (MDD-W) tool*

PRODUCTION AND AVAILABILITY IN TIGRAY

Total energy production in Tigray increased by 11 percent between 2011 and 2015, driven by the production of grains, roots, and tubers. These staples accounted for 85 percent of all calories produced in 2015, followed by legumes and nuts at 11 percent. The remaining six food groups made up only 4 percent of the total calories produced in the region that year, and the production of Vitamin A-rich fruits and vegetables is particularly low. The market availability of nutritious foods found in the PSNP and FTF areas is shown at right. A variety of different food items are available in Tigray markets. Apart from starchy staples, some of the most common items are:

- Chickpea, horse bean, lentil, fenugreek, and vetch
- Live chicken and eggs
- Spinach, carrot, onion, tomato, green pepper, and lettuce
- Banana, lemon, and orange

ENERGY PRODUCTION PER CAPITA, PER DAY

(2015 KILOCALORIES)

Grains, roots, and tubers:
3,023 KILOCALORIES

All other food groups combined:
518 KILOCALORIES

BREAKDOWN BY FOOD GROUP

Grains, roots, and tubers	3,023
Legumes and nuts	391
Dairy products	96
Eggs	15
Other foods	10
Other fruits and vegetables	3.8
Poultry, fish, and meat	1.9
Vitamin A-rich fruits and veg	0.2
TOTAL	**3,541**

Calculations from Central Statistical Agency (CSA) agricultural sample surveys

AVAILABILITY OF NUTRITIOUS FOOD IN LOCAL MARKETS

FOOD GROUP AND ITEM		PSNP (%)	FTF (%)
Beans and peas	Chickpea	85.9	93.3
	Horse bean	82.8	86.7
	Lentil	81.3	100
	Cowpea	87.5	46.7
	Bean, white	26.6	6.7
	Bean, brown	29.7	0
	Green bean	3.1	0
Nuts and seeds	Fenugreek	89.1	80.0
	Vetch	71.9	80.0
	Groundnut	21.9	13.3
	Sesame	7.8	0
	Groundnut flour	0	0
Dairy	Fresh milk	14.1	73.3
	Yoghurt	14.1	73.3
	Powdered milk	7.8	40.0
	Fermented milk (ergo)	9.4	0
	Cheese	0	0
Flesh foods	Live chicken	92.2	93.3
	Beef meat	14.1	26.7
	Goat meat	4.7	0
	Fresh fish	4.7	0
	Chicken meat	1.6	0
	Dried fish	0	0
	Mutton meat	0	0
	Camel meat	0	0
Eggs	Eggs	100	100
Vitamin A-rich dark green leafy vegetables	Ethiopian Kale	35.9	46.7
	Spinach	90.6	80.0
Other Vitamin A-rich fruits and vegetables	Carrot	98.4	73.3
	Mango	62.5	0
	Papaya	53.1	0
	Pumpkin	9.4	53.3
Other vegetables	Onion	100	100
	Tomato	100	100
	Green pepper	98.4	93.3
	Lettuce	93.8	80.0
	Cauliflower	26.6	0
	Mushroom	0	0
Other fruits	Banana	100	93.3
	Lemon	89.1	86.7
	Orange	62.5	80.0
	Avocado	32.8	6.7
	Melon	14.1	20.0
	Cactus fruit	1.6	0

From 2019 survey of PSNP areas and 2018 survey of FTF areas

KEY TAKEAWAYS

- Overall, Tigray has adequate food production to feed its population.
- While the markets in Tigray are dominated by staples, legumes, and nuts, the availability of nutritious foods does not appear to be an overriding constraint to consumption of a diverse diet.
- The region has done well in increasing production of staple crops from 2011 to 2015. Now, emphasis should also be on diversification to include non-staple food production that supports health and nutrition.

AFFORDABILITY IN TIGRAY

In this analysis, affordability is defined as the share of total income needed to consume the recommended daily amount of the food group. Since Ethiopia is still developing its own nutritional guidelines, the analysis below is based on the EAT-Lancet Commission on Food, Planet, and Health guidelines* that recommend diets rich in plant-based foods based on the needs of a healthy individual.[9] The analysis below calculates the minimum cost to meet the dietary recommendation using the cheapest food item available for each food group to provide a sense of the price of foods relative to household incomes in the region. The seven food groups used in the child dietary diversity measure were used, with the omission of grains, roots, and tubers.

*Children under 2 years and pregnant and lactating women have different dietary requirements

PERCENT OF HOUSEHOLD INCOME NEEDED TO MEET THE RECOMMENDED INTAKE

(FOR HEALTHY INDIVIDUALS 2 YEARS OR OLDER)

FOOD GROUP	ANNUAL HOUSEHOLD INCOME			
	Average *(Birr 10,166)*	Poorest *(Birr 3,853)*	Median *(Birr 8,782)*	Richest *(Birr 24,487)*
Legumes and nuts	7%	17%	8%	3%
Dairy products	12%	32%	14%	5%
Poultry, fish, and meat	27%	71%	31%	11%
Eggs	4%	10%	4%	2%
Vitamin A-rich fruits & vegetables	2%	5%	2%	1%
Other fruits and vegetables	7%	18%	8%	3%
TOTAL	**59%**	**153%**	**67%**	**25%**

Income is proxied by consumption-expenditures from the 2015/16 Ethiopian Household Consumption-Expenditure (HCE) Survey from CSA

KEY TAKEAWAYS

- The poorest households in Tigray cannot afford the recommended intakes for the six food groups because it would require 153% of their household income, and this excludes income needed to purchase food in the grains, roots, and tubers food group. Even the richest would need to spend 25% of their income on the six food groups.
- Increasing consumption of dairy and flesh foods would be difficult due to affordability and the widespread religious practice of fasting.
- Among the animal source foods, eggs are relatively affordable across all income groups.
- One way to diversify diets is to promote the consumption of eggs, fruits and vegetables, and other food groups that are currently lacking in diets and affordable to most income groups.

SUMMARY

Consumption

The diets of mothers and children in Tigray currently lack adequate diversity to meet nutritional needs.

Production

Food production in the region is adequate to meet caloric needs, but primarily through the production of starchy staples. Production needs to focus on a variety of nutritious foods that would support a diverse diet.

Availability

Different nutritious foods are available in markets, suggesting there may be opportunities to promote diet diversity by boosting production and consumption of the most acceptable and affordable items.

Affordability

Plant-based foods and eggs are relatively affordable, while flesh foods are likely to be unaffordable for many households to consume regularly.

CONCLUSION

The most readily available and affordable food groups in Tigray that are lacking in diets include: Vitamin A-rich fruits and vegetables; eggs; and other fruits and vegetables. Making these sub-sectors or value chains a priority—by increasing availability and improving affordability, price stability, and safety in all local food markets—offers promise for moving toward a more diverse diet, when combined with increasing demand for these foods.

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