Ethiopia
Bellmon Analysis 2019/20

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DISCLAIMER

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Table of Acronyms

Abbr	Description	Abbr	Description
CPI	Consumer Price Index	MEWIT	Merchandise Wholesale and Import Trading Enterprise
CRS	Catholic Relief Services	MoALR	Ministry of Agriculture and Livestock Resources
CSA	Central Statistical Agency	MT	Metric Ton
DFSA	Development Food Security Activity	NDRMC	National Disaster Risk Management Commission
DMP	Doraleh Multipurpose Port	NGO	Non-Governmental Organization
ECX	Ethiopian Commodity Exchange	NMA	National Meteorological Agency
EGTE	Ethiopian Grain Trade Enterprise	NPS	Nitrogen Phosphate Sulfur
EIIDE	Ethiopian Industrial Inputs Development Enterprise,	PSNP	Productive Safety Net Program
ETB	Ethiopian Birr	REST	Relief Society of Tigray
ETBC	Ethiopian Trading Businesses Corporation	RFE	Rainfall Estimate
FEWS	Famine Early Warning System	RRA	Rapid Rural Assessment
FH	Food for the Hungry	SFR	Strategic Food Reserve
GDP	Gross Domestic Product	SFRA	Strategic Food Reserve Agency
GoE	Government of Ethiopia	SNNPR	Southern Nations, Nationalities and Peoples' Region
HICE	Household Income Consumption and Expenditure	USAID	United States Agency for International Development
HRP	Humanitarian Response Plan	USDA	United States Department of Agriculture
IDP	Internally Displaced Person	VAT	Value Added Tax
JEOP	Joint Emergency Operations Program	WFP	World Food Program.

Executive Summary

Objective. This study provides the information necessary for USAID to make an accurate Bellmon determination for an anticipated volume of 325,000 MT of Food Aid for distribution in Ethiopia in FY 2020 through Development Food Security Activities (DFSA programs), the Joint Emergency Operations Program (JEOP) and related distribution programs undertaken by the World Food Program (WFP). In order to do so, it describes relevant developments in the Ethiopian economy and provides an overview of the agricultural sector. It provides an overview of government policies affecting food security, before assessing current levels of food production and the state of Ethiopian grain markets including recent price trends. Current and anticipated levels of food security are assessed as well as the impacts of food transfers on production and markets. Beneficiary preferences as to cash or food are discussed. The port, transport and storage capacity available for the importation of the anticipated volumes of Title II commodities are assessed against requirements. In the light of all of the above, recommendations are made to facilitate the final Bellmon determination for FY 2019/20.

Methodology. The methodology adopted for this analysis has been a combination of both primary and secondary data collection. Primary data has been collected from smallholders and traders in both PSNP and non-PSNP woredas using a Rapid Rural Appraisal (RRA) methodology. Altogether 82 woredas were visited, of which 52 were PSNP and 30 were non-PSNP. Focus group discussions were held with smallholders and three or more traders were interviewed in each market. The analysis also interviewed key commercial and public sector stakeholders, as well as Non-Governmental Organizations (NGOs).

Secondary data has been gathered from a number of sources including the market information system of the Ethiopian Grain Trade Enterprise (EGTE), WFP bulk shipping data, National Rainfall Estimates and reports as well as bulletins of the Central Statistical Agency and National Bank of Ethiopia.

Findings. Levels of non-food inflation have been increasing driven in part by the recent devaluation of the Ethiopian Birr against the dollar. Food prices have increased faster than the non-food consumer price index, suggesting that at least in the short term, the supply of food to the market does not meet demand. In the longer term, the value of imports continues to exceed that of exports leading to a substantial balance of payments deficit. Demand for forex exceeds supply, causing distortions in export markets and limiting the private sector's capacity to import wheat and edible oil. Nevertheless, continued economic growth is reflected in increasing rural and peri urban wage rates, to a degree that may offset some of the effects of rising food prices on poor households.

Government policies affecting the food supply continue largely unchanged, including the market stabilization program to constrain bread prices, the importation of sugar and of edible oil. Nevertheless, the importation of both wheat and edible oil appear to have faltered in the last year, leading to an increase in the price of bread in some markets and the reduced availability of edible oil being reported by some smallholders.

Cereal production in 2018/19 was estimated to have decreased slightly relative to the previous year, but this was not uniform and in some areas, especially the more productive zones, production increased, while in the less productive areas, the majority of respondents reported decreased production resulting in increased demand for cereals from outside those areas. Smallholders reported the carryover of considerable cereal stocks (2.4-3.4 million MT) into the 2018/19 production year. These, together with cereal production estimated at 22.1 million MT for the 2018/19 Meher season and 1.4 million MT for the 2019 Belg, and an expected 1.5 million MT of imported cereals will, after accounting for post-harvest losses, be adequate to meet estimated national consumption, seed , industrial use and stock-feed requirements, leaving a surplus of 2.9 million MT to be carried over into the 2019/20 production year.

Early assessment of the current Meher season indicates that it should be no less productive than 2018/19. In the continued absence of unpredictable pests and diseases, the well-distributed rainfall should result in an above average harvest.

The production of pulses and oilseeds continues to stagnate, with areas under production being only 2% greater for pulses and 13% less for oilseeds than they were 10 years ago. This reflects the weakening export market for pulses and the impact of palm oil imports on local production. The national balance sheet for pulses records a reduced surplus for domestically consumed pulses of 79,000 MT, while the balance sheet for edible oils predicts an overall deficit. The latter is however based upon an estimate of consumer demand that is has demonstrated considerable elasticity. A (quite feasible) lower estimate could equally result in the prediction of a surplus.

Market conditions have changed significantly over the last year, with a widely reported reduction in regulation, performance and trust. This can be expected to increase transaction costs but does not yet appear to be constraining business. Prices for all cereals have increased during 2019, but the reasons are not consistent. Teff prices have risen broadly in line with inflation and show little change in real terms. The price of barley has also increased, but the RRA could find no strong reason for this. Prices for maize have exhibited a sharp uptick in the recent past. Traders report that this is mainly due to reduced production in most deficit areas causing an increase in demand. A minority of traders also reported that smallholders were retaining more maize for their own consumption. Sorghum prices have reportedly been driven up by increased export demand from Sudan, while the price of wheat has been affected by a hiatus in the supply of wheat to mills by EGTE. Millers reported that they were operating on a hand-to-mouth basis with negligible wheat stocks and that the monthly allocations of imported from EGTE would not last more than a week. In the absence of foreign exchange, they were unable to import wheat and were forced to compete in the domestic market, pushing up prices. As a result, current domestic prices for wheat exceed import parity levels by a considerable margin.

The near-term outlook for cereal prices is that they will decline as new crops come onto the market from October onwards. Nevertheless, the long-term trend for nominal prices is to increase at rates underpinned by non-food inflation. Given good production in the 2019/20 Meher season, real prices of teff, maize, sorghum and barley may be expected to be stable or to decline slightly, but the price of wheat may well increase driven by increasing urban demand for bread.

Although pulse prices increased over the last year, they have declined in real terms with the exception of lentils, prices for which rose sharply in early 2019. This appears to have been a result of speculation and it can be expected that lentil prices will revert to more normal levels in the coming months. Prices for most pulses in 2016 generally weakened from 2016 onwards as demand in India was increasingly met from domestic production. The volumes of domestically-consumed pulses that are now being exported are much reduced reflecting the reduced international demand and prices have stabilized at an export parity level which reflects that.

Oilseed markets have been weak, mainly due to the import of palm oil, but oilseed prices have remained high and small-scale oil processors would not be profitable if commercially imported oil was more widely available. Nevertheless, the reduced availability of palm oil in rural markets especially has created opportunities for both large-scale and small-scale domestic producers. It may also have stimulated the resurgence of contraband oil into the market, but this trend is not yet confirmed.

The majority of smallholder focus groups reported that household food security had decreased in 2019, although responses varied considerably by Region. Reduced production in the previous Meher season was the most common factor quoted for reduced food security, although a small percentage of PSNP

woredas reported reduced production in the Belg also. In the minority of cases where improved food security was reported, the impact of increased productivity was seen to be the dominant reason for increased food security in both PSNP and non-PSNP areas.

Labor prices and availability trends show changes that suggest the labor market is tightening. Overall, the rate of increase in peri-urban wages over the last year was 30%, and in agricultural areas, 33%. This significantly exceeds the rate of inflation.

Response with regard to changes in consumption were inconsistent. A majority of focus groups reported increased consumption of staple foodstuffs in response to one set of questions, and decreased consumption in response to another set. Increased consumption was most commonly reported to be due to increased own production, while decreased consumption was most commonly reported to be due to increased prices. Significantly fewer groups in non-PSNP areas reported decreased consumption of any staple than did those in PSNP woredas, the implication being that on balance, food security in PSNP areas has been more negatively affected over the last year, than food security in the more productive, non-PSNP areas.

The RRA found that access to markets was adequate. Markets selling teff and maize were available to all respondents at an average distance of 10km, although a small proportion of respondents had to travel outside the area to obtain staple cereals at a reasonable price. Nevertheless, a significant proportion of smallholders reported that teff, pulses and edible oil were too expensive to purchase, which may be of concern, since GoE transfers under the PSNP have cut back on pulses and consumers are expected to be able to source these commodities from markets. These results suggest that this may not be as feasible as expected.

A majority of both traders and smallholders reported noticeable impacts of cash or food distribution upon market prices. As might be expected, food distribution reduced food prices, while cash distribution increased prices. Impacts were generally less than 10% in either direction. Traders and smallholders both reported that after reaching a maximum soon after distribution, impacts declined, and were most commonly negligible within two weeks.

Traders in all Regions, especially in Tigray, reported that some beneficiaries were willing to monetise food aid. The commodity most widely monetized was reported to be wheat. Nevertheless, monetization of edible oil was reportedly more widespread than was observed in 2015. Similarly, smallholders in all regions, reported that traders would purchase food aid commodities, but the volumes monetised were generally small (<10%). Only 3.5% of traders reacted negatively to food transfers, while 96.5% of traders were neutral or positive, the most common response being that food transfers stabilized the markets.

Smallholders reported a marked aversion to cash-only transfers, preferring either food only, or food and cash in the same transfer. Cash transfers were universally considered to be inadequate to purchase food needs. An analysis of price ratios and market trends shows the extent to which prices can vary even after allowing for inflation, Regional differences and seasonality.

Logistical Capacity - A visit to the two ports at Djibouti confirmed past experience that the ports have the capacity to discharge the anticipated volumes of food aid, even of substantial volumes of other commodities might be offloaded simultaneously. A desk survey of four other ports suggested that none of the others have the capacity to replace Djibouti, but Berbera can offset some of the existing load if necessary and might prove to be a viable alternative once it has been upgraded. Given its proximity to Ethiopia, Assab might also prove viable if it could be upgraded.

Inland transport capacity was reviewed and found to have increased significantly since the last survey was undertaken. The condition and availability of the existing fleet is adequate to meet anticipated needs. The rail line from Djibouti to Addis will undoubtedly provide additional freight capacity, but operational constraints remain to be overcome before it can assume the “game changing” status that was originally envisaged for it.

Storage was also assessed. At a national level, permanent storage capacity exceeds 2 million MT and is more than adequate. Cooperating Sponsors have access to sufficient owned or rented storage to comfortably accommodate anticipated volumes of food.

Bellmon Considerations - The analysis concludes that logistical capacity is adequate to import, store and distribute an anticipated volume of 325,000 MT of food.

Disincentive effects generated by food transfers are reported to be small and transitory and a very substantial majority of traders consider such transfers to be beneficial. Hence, disincentives to production and marketing can be considered negligible.

Wheat is currently in particularly short supply at present and it is unlikely that the deficit will be resolved in the near future. Peas, while available in Ethiopia and commonly consumed, are reportedly beyond the reach of many poor households, as is edible oil. For these reasons, all of the above commodities are sound candidates for inclusion in an Ethiopian food distribution program.

While it is recognised that some self-monetization of food transfers does occur. The amounts sold were generally of the order of 10% or less. The frequency of monetization was also low, so that overall, self-monetization volumes were insufficient for traders to report negative impacts.

1. Introduction

A Bellmon analysis is required prior to the use of Title II commodities for development in a recipient country, either through distribution or monetization. The analysis should assess:

1. The adequacy of storage facilities available in the recipient country at the time of the arrival of the commodities.

2. The extent to which the distribution and/or monetization of the commodities in the recipient country might create disincentives to or interference with domestic production and/or marketing in that country.

3. The extent to which the resource transfers for development purposes might have a disruptive impact on the farmers or the local economy of the recipient country.

Currently, Title II food is used in Ethiopia to support both development and emergency assistance. Development assistance programs implemented by selected Partners[1] are multi-year Development Food Security Activities (DFSAs) that parallel the current iteration of the Government of Ethiopia's (GoE) Productive Safety Net Programme (PSNP4), which is due to end in 2020. Through its Partners, USAID Ethiopia supplies DFSA beneficiaries with both food and cash transfers, made to targeted vulnerable households in selected woredas on a predictable basis of six transfers annually. Transfers have either been made directly (to elderly, disabled or orphaned households), or on a conditional basis, most commonly in exchange for work. Food is provided as a monthly ration (15 kg of cereal and 1.5 kg of pulses and 0.45 kg of vegetable oil), while cash is provided as a monthly "wage" that is calculated by the GoE to meet the costs of the monthly cereal ration[2] and varies Regionally according to local prices.

USAID's food contribution (through its DFSA programs) to the PSNP in 2019, comprises 90,917 MT-84,485 MT of wheat, 8,449 MT of pulses (mainly split peas) and 2,535 MT of fortified soya oil, sufficient to meet the needs of 1,362,218 beneficiaries. In addition, a small amount of cash transfers have recently been included in the programs. For 2019 it is anticipated that 99,062 beneficiaries will receive an average of 3.0 monthly cash transfers in 2 out of 45 woredas. Currently, food and cash transfers comprise 99.4% and 0.6% respectively by number of all DFSA transfers.

Under normal conditions, such predictable transfers have been effective in enhancing food security (by approximately 1.25 months per household each year[3]), and especially in preventing the sale of assets that might otherwise be disposed of to secure food. Even under conditions of stress, predictable transfers have prevented destitution, wherever they have been consistently maintained, although they do not provide the additional assistance required for a household to graduate out of poverty.

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[1] DFSA Partners are: World Vision International (WVI), in conjunction with the Organization for Rehabilitation and Development in Amhara (ORDA) and CARE, Catholic Relief Services (CRS), Relief Society of Tigray (REST) and Feed the Hungry Ethiopia (FH).

[2] The DFSA cash component also includes an amount to cover the costs of pulses and oil, equivalent to an extra 29% in addition to the cash equivalent of the cereal component.

[3] Berhane , G., Hoddinott, J., Kumar, N., Tafesse, A., Diressie, M., Yohanes, Y. et al. 2011. Evaluation of Ethiopia's Food Security Program: Documenting Progress in the Implementation of the Productive Saftey Nets Programme and the Household Asset Building Programme. Washington, DC: International Food Policy Research Institute.

Emergency assistance is provided through the Joint Emergency Operation Program (JEOP), implemented by a consortium of Partners[4] coordinated by Catholic Relief Services. JEOP provides a predominantly food-based response (although a limited number of woredas also receive cash transfers) to transitory or acutely food-insecure people according to the caseload identified in the Humanitarian Response Plan (HRP)[5], which may be moderated according to local developments and needs. Food is provided in line with the standard ration, i.e.: a monthly transfer of 15 kgs of wheat, 1.5 kgs of pulses and 0.45 kg of vegetable oil, while cash is supplied according to the GoE "wage rate" prevailing in each Region. Up to eight humanitarian transfers are programmed annually, six were made in 2018 and by mid 2019 only three had been completed. Currently the JEOP supports 1.462 million beneficiaries in 77 woredas through the provision of eight transfers of food aid between March and October 2019. The total volumes to be distributed are expected to be 167,017 MT of wheat, 16,702 MT of pulses and 5,015 litres of fortified soya oil. In addition, USAID Ethiopia provides emergency assistance through the World Food Program's "Hubs & Spokes" operation in Somali region including 26,900 MT to refugee food assistance and 13,000MT to Nutrition Support.

Table 1.1 Summarizes the food aid made available by USAID to different programs in Ethiopia. Altogether USAID is providing 324,103 MT of food in 2109.

Table 1.1: Breakdown of Food provided by USAID to Programs in Ethiopia.

Program	Wheat	Pulses	Edible Oil	Total
DFSA (PSNP)	84,485	8,449	2,535	95,469
JEOP	167,017	16,702	5,015	188,734
WFP Refugee Assistance				26,900
WFP Nutrition Support				13,000
Total				324,103

Source: USAID Ethiopia

The current status of DFSA programs is such that a similar food requirement can be anticipated for these programs in FY 2020. The JEOP requirement is to be determined by the HRDP which will be informed by the need assessments at the end of CY 2019. Based on the current rains' performance, and if IDP numbers decline, the JEOP requirement would be reduced, but these factors are uncertain and on the basis of the precautionary principle, a similar JEOP requirement for 2020 to that for 2019 is anticipated for the purposes of this analysis. WFP refugee support is ongoing and will continue to require more food aid if it could be provided. In short, the total volume of food delivered by USAID through its various partners is unlikely to be any less in FY 2020 than it has been in 2019. This Bellmon is therefore predicated on the assumption that food aid volumes in 2020 will be of the order of 325,000 MT.

This study addresses the three criteria listed above by considering the following:

1. Socio-economic background, including:

[4] JEOP Partners are: WVI, CRS, REST, FH, CARE, Hararge Catholic Secretariat, Meki Catholic Secretariat, and Save the Children.

[5]The latest version of the HRP is available at: https://reliefweb.int/report/ethiopia/2019-ethiopia-humanitarian-response-plan-january-december-2019

   a. Population growth, internal displacement and poverty as well as Ethiopia's current economic performance, including recent growth rates, income levels and poverty trends.
   b. An overview of the agricultural sector, and its main stakeholders.
   c. A description of government policies affecting the agricultural sector and food security.
2. An assessment of current levels of production of staple foods (cereals, pulses, and oilseeds) and the development of a national balance sheet for each.
3. A review of recent market developments for the main cereals, pulses and oilseeds as determined through price movements and through smallholders' and traders' responses.
4. Changes in household food security and current food security levels reported by smallholders.
5. Impacts of food and cash transfers and smallholder preferences for food or cash.
6. The availability of the port, inland transport, and storage capacity necessary to support the effective importation and distribution of Title II food-based assistance in Ethiopia.
7. A summary of the results presented in each of the areas described inform a the Bellmon Determination for FY2020.

Methodology

The methodology adopted for this analysis has been a combination of both primary and secondary data collection. Primary data has been collected from smallholders and traders in both PSNP and non-PSNP woredas using the Rapid Rural Appraisal (RRA) methodology. Non–PSNP woredas were selected on the basis of their productivity for specific staple commodities (as identified by woreda level analysis of CSA data[6]), with preference being given to the most productive areas. Altogether 82 woredas were visited, of which 50 were PSNP and 32 were non-PSNP. Three focus group discussions of between 7 and 10 smallholders were held (altogether 1306 named focus group participants) and three traders were interviewed in each woreda, additional traders were interviewed in larger markets (altogether 309 named traders were interviewed). In addition, 29 cooperatives were also visited to determine their perspectives of the market. The kebeles, woredas and cooperative visited are listed in Annex A. Both focus group discussions and trader and cooperative interviews were guided by a questionnaire covering the key aspects required by the Bellmon analysis. Questionnaires comprise in Annex B.

In addition to the RRA, this Bellmon analysis interviewed key stakeholders including oil processors and millers, pulse and grain merchants, the management of the Ethiopian Grain Trade Enterprise (EGTE), Strategic Food Reserve Agency (SFRA), Merchandise Wholesale and Import Trading Enterprise (MEWIT), National Disaster Risk Management Commission (NDRMC), and Ethiopian Commodity Exchange (ECX), Ministry of Agriculture and Livestock Resources (MoALR), Ministry of Trade and Industry, Commercial Banks, transporters, clearing and freight forwarding agents, stevedoring agents and port authorities, Millers' Association, Central Statistical Agency, and the four Cooperating Sponsors implementing the Development Food Security Activities (DFSAs) that parallel the PSNP: Relief Society of Tigray (REST), World Vision, Food for the Hungry (FH), and Catholic Relief Services (CRS)[7].

[6] Key production woredas for each staple crop have been identified through the reanalysis of CSA data (Warner J, Stehulak T, and Kasa L (2015). Woreda-Level Crop Production Rankings in Ethiopia: A Pooled Data Approach. Research for Ethiopia's Agriculture Ploicy (REAP), International Food Policy Research Institute (IFPRI) Addis Ababa, Ethiopia).

[7] Other USAID partners interviewed for this analysis included CARE, Save the Children International, ACDI-Voca and SNV Netherlands Development Organisation.

Secondary data has been gathered from a number of sources including the commodity market information system of the Ethiopian Grain Trade Enterprise (EGTE) National Customs statistics on imports and exports, WFP bulk shipping data, National Meteorological Agency (NMA) rainfall data and reports as well as the Central Statistical Agency (CSA) bulletins. In addition, this work builds upon data collected from earlier market assessments undertaken annually between 2003 and 20017.

2. Context

This chapter summarizes the current Ethiopian context within which the current Bellmon Analysis has been undertaken, including social economic developments most relevant to food security in Ethiopia, an overview of the Ethiopian agricultural sector and a review of Government policies relevant to agricultural production and food security.

Socio - Economic Background

Population

The last population census was made in 2007 so that extrapolations from that data are becoming increasingly inaccurate. Nevertheless, component-based projections from based on inter-censal population survey data[8] estimate the population as of June 2019 to be 99 million, of which the urban part is 21 million and the rural part is 78 million, growing at 4.1% and 1.8% per annum respectively. The fact that birth rates are substantially lower in urban than in rural areas[9] suggests that the increase in urban growth is due almost entirely to migration from rural areas. This phenomenon has significant implications for both urban and rural food security.

Internal Displacement

In early 2019, the number of internally displaced people (IDPs) in Ethiopia reached exceeded 3 million. This was the highest ever recorded and was due to a range of factors, including drought, ethnic tension and outright conflict, occurring simultaneously in different parts of the country. The sudden expansion of the IDP population in late 2018/early 2019 was largely unexpected and has placed an additional burden on the NDRMC. While reports in July 2019 suggested that many IDPs were continuing to return home, the situation cannot be said to be completely stable and the possibility of further conflicts and displacement remains.

Economic Growth

Over the last ten years, Ethiopia has reported rapid economic growth averaging close to 10%. Reported per capita income by 2018 has risen to US$ 883 in 2018 at official rates[10] and US$ 1794[11] in terms of purchasing power parity. At the beginning of this period, the agriculture sector the largest contributor to Gross Domestic Product (GDP) but its contribution has consistently diminished as first the service sector, and more recently industry and manufacturing, have assumed increasing importance. Agriculture now contributes 35% of GDP but continues to underpin the income of 79% of the population. Nevertheless, rates of growth are now

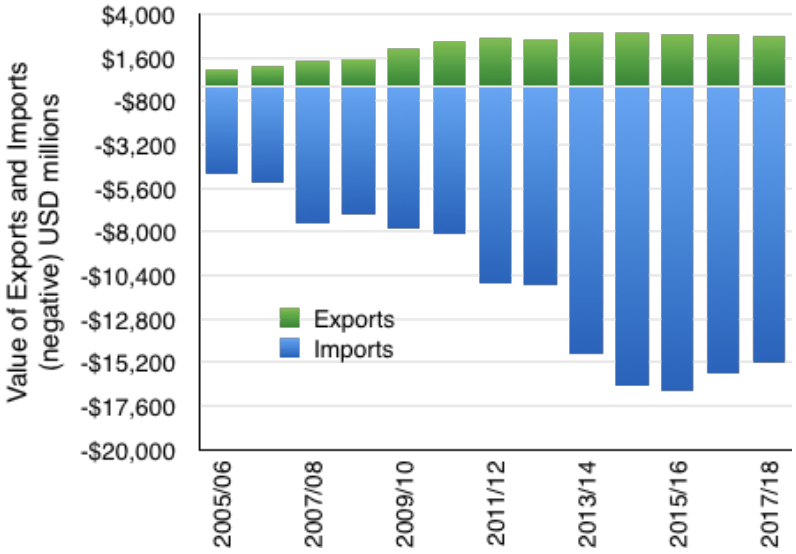
[8] Central Statistical Agency (2013): Report of the Inter Censal Population Survey, 2012
[9] Central Statistical Agency (2011): Ethiopia Demographic and Health Survey 2011
[10] NBE estimate Quarterly Report Volume 35 Q2.
[11] World Bank estimate in Constant (2011) International Dollars

declining, especially in the manufacturing sector, which according to the second Growth and Transformation Plan (GTPII) was expected to expand by 21 percent each year, but in 2017/18 only reported only 57 percent capacity utilisation, resulting in 11 percent growth and 49% of planned export revenues.

Balance of Trade and Exchange Rate

In general, the participation of the private sector, who were expected to take advantage of the physical infrastructure created by the public sector has been less than expected, and the returns, especially export revenues, required to service the debts that underpinned the public sector investments have not been forthcoming (Figure 2.1). This has necessitated both the rescheduling of debt and the shelving of some major investments.

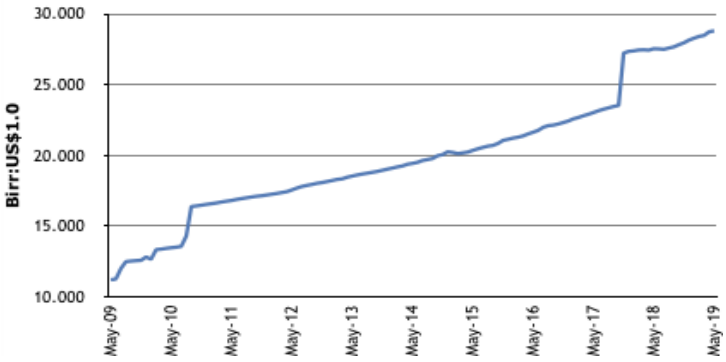
Figure 2.1: Trends in the value of imports and exports



Source: Ethiopian Revenues and Customs Authority

The balance of trade deficit shown in Figure 2.1 is partially offset by private and public transfers, but still resulted in 2017/18 in a current account deficit of $5.3 billion which was covered by both foreign direct investment and public and private overseas borrowing. Currently stagnation in both the levels of private transfers and in foreign direct investment has increased the long-term capital requirement, despite a decline in imports. These trends suggest that the exchange rate will continue to face increasing pressure, as has already been observed. Following a devaluation in August 2010, the official exchange rate has weakened consistently against the dollar through a process of controlled depreciation (Figure 2.2). The controlled rate of depreciation was slower than the decline in the parallel market rate so that another abrupt devaluation was required in October 2017. Nevertheless, by June 2019, the parallel market rate had already fallen to ETB40:US$1 reflecting continued and increasing pressure on the Birr.

Figure 2.2: Trends in the Ethiopian Exchange Rate to the US Dollar



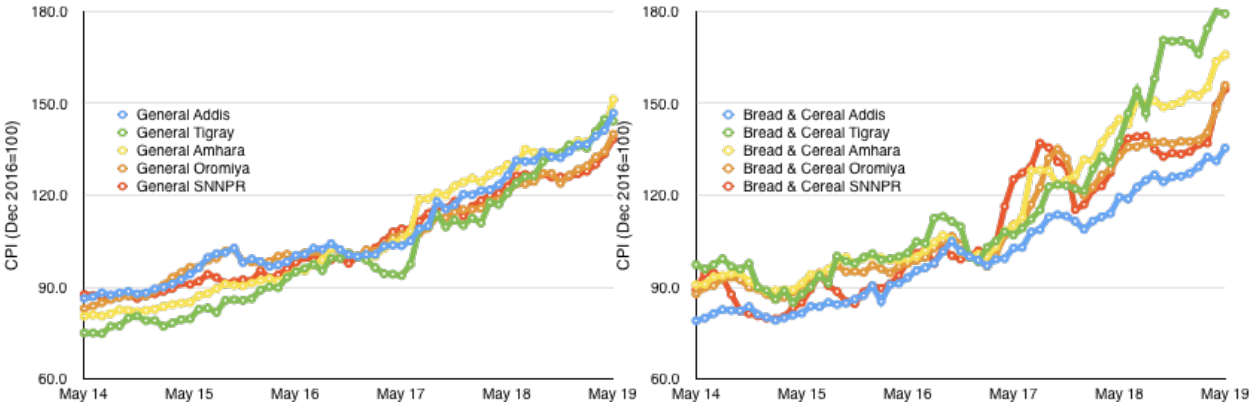
Source: National bank of Ethiopia

The difference of 39% between the official and the parallel market value of the Birr is a substantial distortion of the economy, with further implications for food security. While such conditions do not favor formal exports, informal export trade benefits substantially from the weaker parallel market rate. On the other hand, goods imported on a *franco-valuta* basis, including crop inputs become substantially more expensive.

Inflation

Over the last five years, inflation as reflected by movement in the general CPI has remained relatively constant across all Regions, but the bread and cereal CPI has been more variable (Figure 2.3).

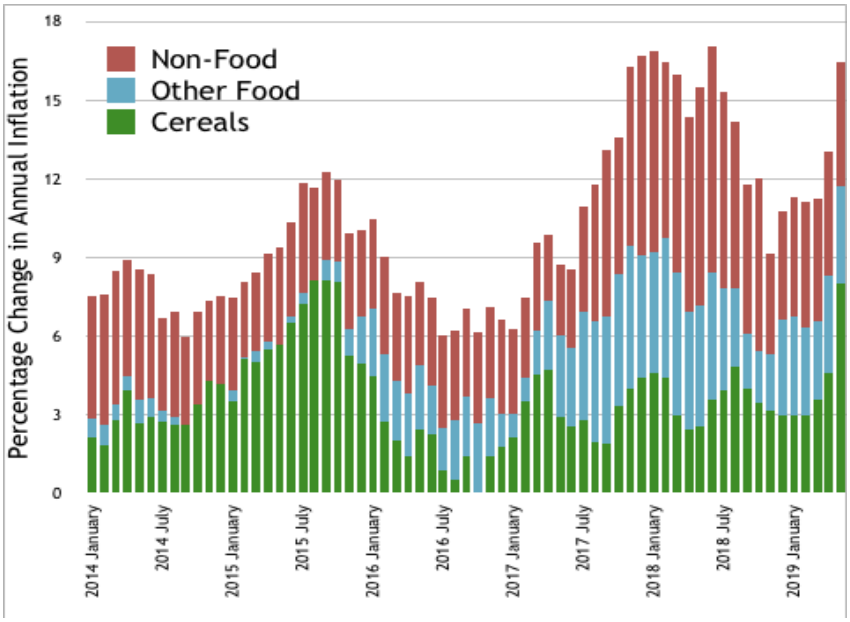
Figure 2.3: Trends in the General and Bread and Cereal Consumer Price Indices across Regions



Source: CSA Consumer Price Data Series

The bread and cereal CPI increased substantially in almost all Regions in 2017 due to the increase in the price of maize at that time. Addis Ababa, where the CPI is more heavily weighted to the consumption of bread was less affected. A similar pattern has emerged over the last six months. The bread and cereals index has increased substantially in all Regions except for Addis Ababa. Tigray and Amhara being particularly affected.

Figure 2.4: Components of Inflation



Source: Calculated from CSA monthly national CPI data.

Figure 2.4 shows the changes in annual inflation rate for three major components of the Consumer Price Index (CPI), i.e. Non- food, Cereals and Food Other than Cereals), over the last five years. Different components have varied in their contributions to overall inflation according to changes in both agricultural production and monetary factors. Of most significance to this report, is the recent sharp increase in cereal inflation. In May 2019, year on year inflation was 16.4%, of which the non-food and non-cereal food components contributed 4.7% and 3.7% respectively, while the contribution of cereal prices was 8.0%, (i.e. almost half). The reasons for this are examined in more detail in the Markets section of this report.

Employment

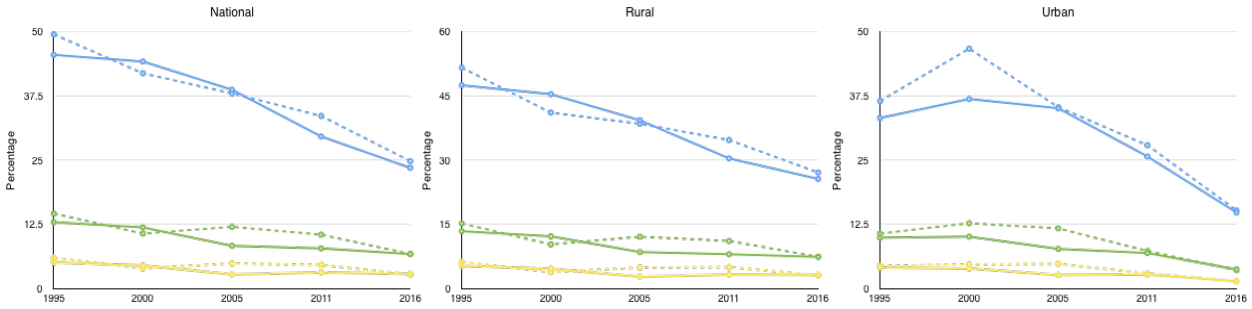
The latest iteration of the Household Economy Approach for Ethiopia suggests that approximately 60% of rural households undertake some element of wage labor and the rate of pay of unskilled labor can significantly affect household food security.

Recent years of increased productivity have been associated with increasing wage rates over and above any increase in the CPI so that on average, the minimum rural wage is now close to ETB 110/day. This issue is considered more fully in Section 5.

Poverty

The last poverty analysis was based upon the 2015/16 Household Income, Consumption and Expenditure (HICE) Survey. Ethiopia has witnessed a substantial decline in poverty over the 20-year period to 2016, from all aspects, i.e. poverty head count declined from 49.5% to 24.5%, poverty gap from 14.6% to 6.7% and poverty severity index from 6.0% to 2.7% (Figure 2.5). These reductions have been most marked in urban areas, especially over the period 2002-2015. Food poverty indices (dashed lines in Figure 2.5) have followed similar trends.

Figure 2.5: Poverty Head Count, Poverty Gap and Poverty Severity Indices at National, Rural, and Urban levels.



Key: Poverty Head Count: — Blue Line **Poverty Gap:** — Green Line **Poverty Severity Index:** — Yellow Line

Food Poverty Data is shown by dashed lines

Source: CSA HICE Surveys.

Poverty Alleviation Initiatives

The main program to alleviate chronic poverty in Ethiopia is the Productive Safety Net Programme. USAID does not directly support the program but operates a parallel DFSA initiative in 45 woredas that is well aligned with the principles of the GoE program.

The PSNP has grown in its extent and scope. Initially in 2005 it covered 4.5 million beneficiaries selected within geographical limitations (i.e. in low-production woredas). In 2013, it was recognised that food insecurity was less geographically constrained than had been supposed and could be found even in productive areas, leading to a gradual increase in the number of households covered, which now stands at 8.0 million. Given that the most recent poverty statistics derived from HICE 2016 suggest that 20 million people are still food-poor, it is quite possible that this number may increase further.

In addition to the PSNP, the GoE engages in an annual humanitarian response designed to address transient food insecurity. The scope of the humanitarian response is determined by assessments undertaken by the NDRMC in November/December of the preceding year (as crops are being harvested). Requirements are detailed in the Humanitarian Response Document, which is published by the GoE in January/February, and may be updated by further assessments, repeated as necessary early in the following March/April. Humanitarian beneficiaries are supported by USAID through the Joint Emergency Operations Program and support to WFP.

Agriculture Sector Overview

The agricultural sector of Ethiopia is characterised by a very large number (approximately 16.0 million) of fragmented smallholdings averaging 0.795 ha in size[12], together with a much smaller number (approximately 3,000) of larger commercial farms totalling 628,000 ha (i.e. 4.7% of the land area). Altogether approximately 13.3 million ha were cultivated to temporary crops in 2018/19.

[12] Average holding size is calculated from data for grain crops reported in the CSA National Crop Estimate for 2018/19

There is a shortage of cultivatable land available in Ethiopia and many kebeles have generated lists of young families currently living with their parents, who are seeking access to land to support themselves.

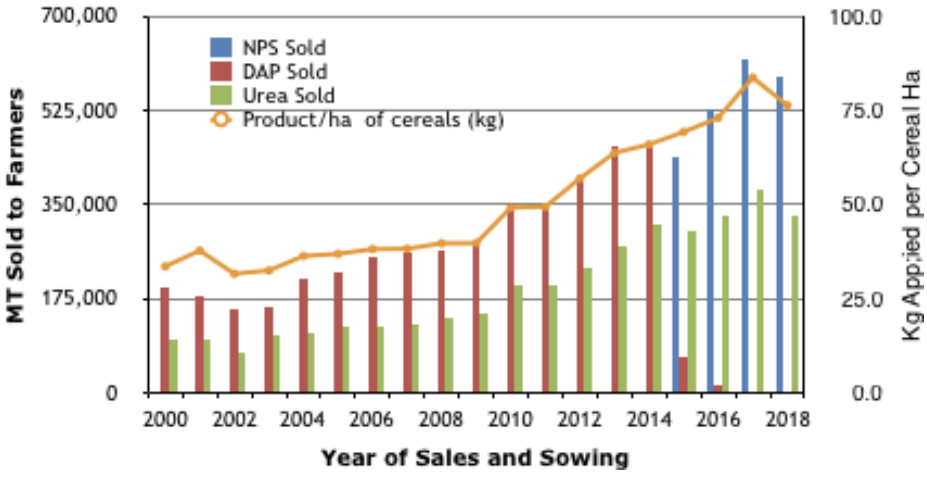
Much of Ethiopia experiences a bimodal rainfall pattern, which allows some areas to enjoy two seasons of agricultural production. The first season depends upon the Belg rains, which generally begin in February/March and last until May. Belg crops are defined as those that are harvested between March and August, but the majority are harvested from June onwards. The Belg season is important in a limited number of areas, generally to the East and South of the country. The area sown to Belg crops has recently been approximately 1.8 million ha (i.e. about 14% of the area sown to Meher crops), but the season is short, and production is disproportionately low, contributing between 5% and 8% of annual production overall. Conversely however, the number of smallholders who are active in the Belg season is disproportionately high at about 5.0 million, or 31% of the number of Meher smallholders. This indicates the relative importance of Belg crops from a food security perspective.

The second, Meher season covers much of the country and relies mainly upon the Kiremt rains that fall from June until late September, although long cycle crops such as maize and sorghum grown at high altitudes, that may require 140-160 days to mature, are sown so that their germination and early growth may benefit from the last part of the Belg rains. Meher crops are harvested between September and February. This is the main season that constitutes more than 90% of production. Most of the crops grown in the Meher season are also cultivated in the Belg except for sorghum, but maize makes up the largest proportion of the Belg cereal area and haricot beans are the dominant pulses. Almost all oilseeds are produced as Meher crops. Other rains, especially the Gu and Dheyr rains are important in pastoral areas but of limited significance to crop production.

Agricultural inputs

Almost all fertilizer is imported by the GoE[13]. The majority is distributed to smallholders through cooperatives on a cash or credit basis, with a small balance being sold to commercial and state farms. Annual sales increased consistently to 2017 but declined in 2018 (Figure 2.6).

Figure 2.6: Trends in Fertilizer Sales



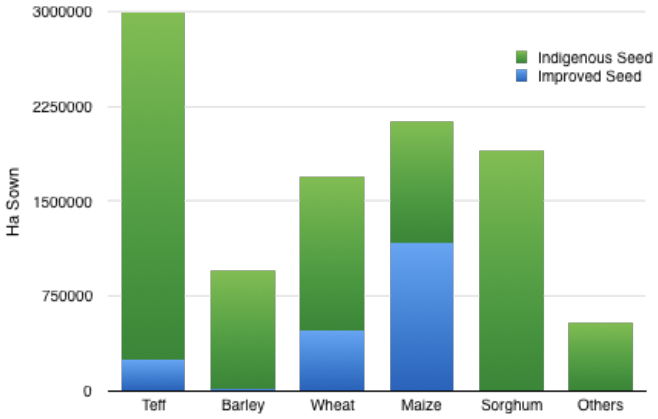
[13] Small volumes of specialized fertilizer are imported by commercial growers for horticultural purposes.

Source: Ministry of Agriculture

The amount sold in 2018 (918,000 MT) is equivalent to an average application rate of 76kg/ha if applied solely to cereal crops. This rate is almost certainly the highest applied by smallholders in sub-Saharan Africa. Currently Ethiopia imports all of its fertilizer, but a partnership with the Moroccan company OCP Group has resulted in the ongoing construction of a plant at Dire Dawa which is expected to operational in 2021.

Ethiopia has been slow to adopt improved seeds of most cereals and it is only in the last ten years that the use of improved seeds has become widespread. Nevertheless, improved seeds are now available to smallholders through public enterprises at both Federal and Regional levels as well as a small number of private seed suppliers. Areas sown to indigenous and improved seeds (including home-saved seed), are shown in Figure 2.7 The production of all crops except maize is still dominated by the use of indigenous landraces.

Figure 2.7: Areas sown to improved seeds, including up to 5 generations of home saved seed.

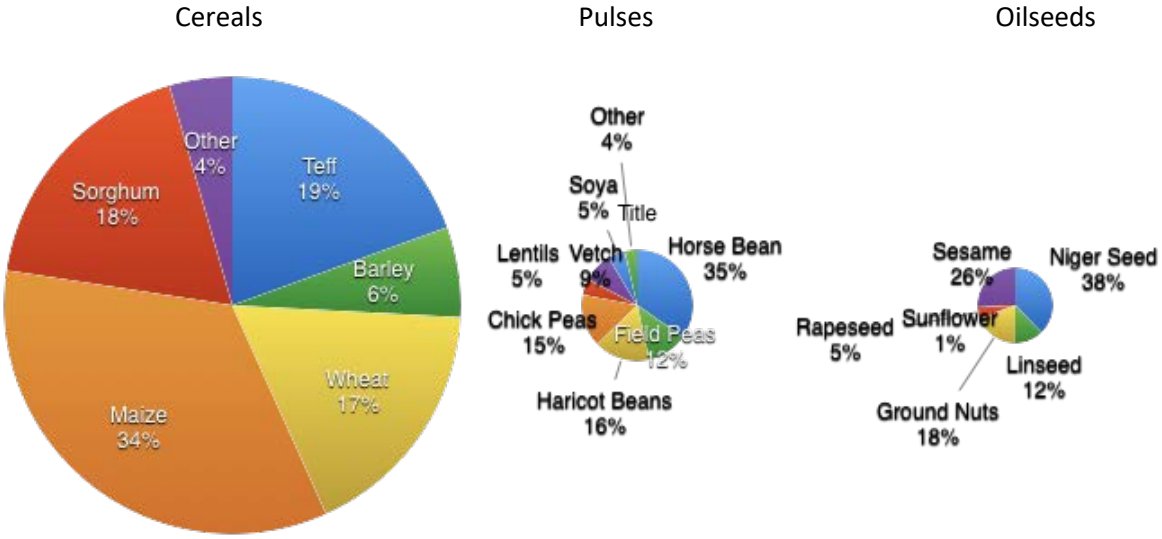


Source: CSA Farm Management Practice Reports 2013-2018.

Production

The main crops produced in Ethiopia and their relative proportions are shown in Figure 2.8. Maize and sorghum make up more than 40% of cereal production. Amongst the pulses, horse bean (faba bean) is the most widely grown, while oilseeds are dominated by niger seed grown for local consumption and sesame seed grown for export.

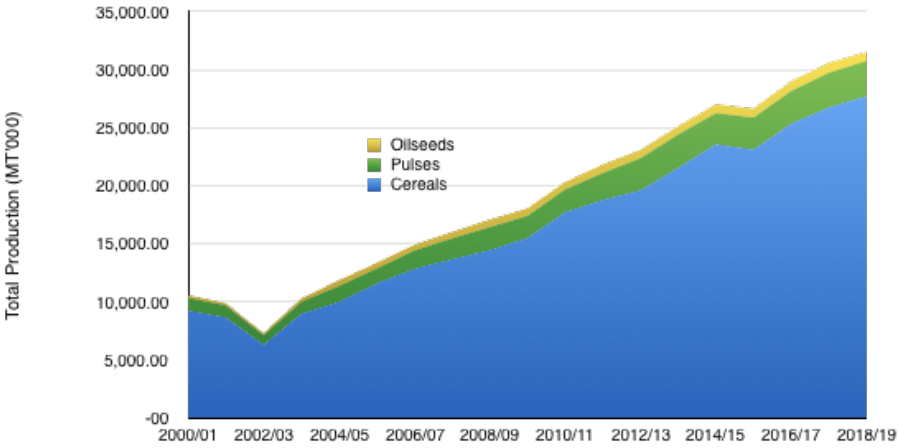
Figure 2.8: Relative Proportions of Crops Grown in Ethiopia (areas scaled to volumes)



Source: CSA 2018/19 Meher Crop Estimate

CSA crop assessments report that crop production overall, (and cereal crops in particular), has increased substantially. With the exception of a single interruption in 2015/16, the trend in Meher crop production has been almost linear over the last 15 years (Figure 2.9). Reported growth during this period, which underpins GDP statistics, is equivalent to an average compound rate 7.5%.

Figure 2.9: Trends in Meher grain crop production



Source: CSA Agricultural Sample Surveys: 2000/01-2018/19

The extent and consistency of this sectoral response is hard to reconcile with the events of 2016, when the GoE imported substantial volumes of grain to avoid food insecurity, together with the ongoing importation of wheat, vegetable oil and sugar. These interventions suggest that production continues to fall short of domestic demand, despite that fact that the increase in consumption reported by successive HICE surveys (Figure 3.8) has been substantially slower (by a factor of three) than the reported rate of increase of cereal production since 2004.

The data would suggest that Ethiopia has surplus agricultural production and should experience a collapse in prices unless post-harvest losses are extreme, or informal exports are substantial. The paradox has resulted in a review of the survey process that has identified systematic error in CSA crop estimates[14] and may explain the consistent trends and differences.

Differences between various crop forecast estimates are not uncommon. The Bellmon analyses of 2001 and 2002 faced a similar dilemma in assessing the validity of CSA crop forecasts against the much higher estimates reported by the FAO, which tended to be better aligned with consumption, effectively reflecting the differences shown in Figure 3.6. Since that time, the two sets of data have first converged, crossed and then diverged. To avoid the possibility of systematic error, this Bellmon analysis has worked from first principles, taking the year 2006 as one when there was a general consensus on production and extrapolating from first principles to produce an estimate of production that can be triangulated with consumption to generate a balance sheet that aligns with observations on the ground. The result is much less precise than CSA estimates, but may nevertheless by more accurate for the purposes of a Bellmon analysis.

Agricultural Market Structures and Stakeholders

Agricultural crop marketing in Ethiopia is largely liberalised (although the marketing of some commodities is subject to some restrictions) and dominated by the private sector. Markets for different crops do vary considerably but tend to share a common underlying structure. Although these structures are often described as value chains, they are generally more complex networks within which a producer may sell to different buyers, including not only assemblers, but also neighbouring households or retail outlets, according to price differentials at the time, while buyers may source product from different suppliers and will themselves sell to different outlets at different times of the year. The key characteristics of the main stakeholders (assemblers, mobile traders, traders, merchants, processors, brokers, cooperatives and retailers) are described in detail in Annex F.

Other stakeholders

The Ethiopian Grain Trade Enterprise[15] has played a major role in the markets of wheat and to a lesser extent maize. In the first case, EGTE has implemented the market stabilization exercise since 2007, distributing up to 500,000 MT of imported wheat annually to selected mills and other agencies. With regard to maize, EGTE has supported wholesale prices by purchasing maize at specified “floor” prices. Such prices are paid for lots of wheat of a specific quality delivered to EGTE warehouses. The main sellers are traders and large commercial farmers. As a result, EGTE floor prices tend to be substantially higher than producer prices.

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[14] See: Kibrom A. Abay, Gashaw T. Abate, Christopher B. Barrett, Tanguy Bernard (2019) Correlated non-classical measurement errors, ‘Second best’ policy inference, and the inverse size-productivity relationship in agriculture. Journal of Development Economics 139 (2019) 171–184
Also: Desierea S., Jolliffe D. (2018) Land productivity and plot size: Is measurement error driving the inverse relationship? Journal of Development Economics 130 (2018) 84–98

[15] The Ethiopian Grain Trade Enterprise was merged with three other public businesses in 2016 to form a single entity, the Ethiopian Trading Businesses Corporation (ETBC). In practice the EGTE still remains as a definitive body with activities in coffee and grain marketing and a mandate to intervene in the market to stabilize prices. As such, its function and impacts have not altered, and this report refers to the EGTE rather than the ETBC throughout.

The Strategic Food Reserve (SFR) has superseded the Emergency Food Strategic Reserve (EFSR). At present its stocks appear to have been largely exhausted and it has had little impact upon the market in 2018/19. Similarly, the Ethiopian Commodity Exchange (ECX) was initially set up as a market for staple crops, but now trades almost exclusively in coffee, sesame and white haricot beans. It has no relevance to food security.

Access to Credit

Credit is currently generally available within the agricultural sector. In 2018/19, 46% of the cooperatives surveyed provided smallholders with inputs on credit. In 57% of cases, loans were made against future production. Nevertheless, 44% of cooperatives did report that they experienced difficulties in recovering loans and the average repayment rate by smallholders was only 83%.

Amongst traders, access to credit has consistently increased over the last five years. In 2019, 62% of traders and 84% of Cooperative Unions used credit to finance their businesses. Traders reported that access had improved markedly over the last year, due mainly to the proliferation of banks offering term loans. They also reported that the allocation of credit is now based much more on commercial principles than upon social or political influence and that "if one bank cannot offer you credit, you can always go to another one".

Transport

The improvement of the road network throughout much of Ethiopia since 2006 has reduced costs of transport and increased the accessibility of remote markets. Average transport costs reported by traders (Table 2.1) were lower than those reported in 2015, which were of the order of 6-8 US Cents/MT/km.

Table 2.1: Average Haulage Rates for Trucks of different Capacities

Truck Capacity	Rate (ETB/Qt/km)	Rate (US Cents/MT/km)
5 MT	0.14	4.6
10 MT	0.22	7.6
20 MT	0.16	5.7
40 MT	0.13	4.4

Source: RRA 2019

Government Policies Affecting the Agricultural Secto

In general, the Ethiopian agricultural sector operates according to commercial market principles, although the GoE does intervene in the supply of inputs, and in the marketing of palm oil, wheat and sugar.

Inputs

The use of improved inputs is strongly promoted by the GoE's agricultural extension agency. The GoE regulates the importation and distribution of fertilizer through the cooperative network, supplying inputs to smallholders on cash or credit. Fertilizer prices are not subsidized. Over 1,100,000 MT have been imported for the 2019/20 season. In the past, the late arrival of fertilizer has compromised its effectiveness and additional emphasis is to be placed on the timeliness of delivery. All of the 2019/20 fertilizer requirement was delivered before the middle of July.

Government has an open policy on improved seed which is now produced not only by the Ethiopian Seed Enterprise, but also by Regional seed companies (in Oromia, Amhara and SNNP) as well as the private sector. Increasing volumes of seed are also being imported.

Commodity Marketing

On the output side, the production and sale of sugar has been controlled by the Government-owned Ethiopia Sugar Corporation which imports over 300,000 MT of sugar annually. This is distributed to consumer associations and sold at a retail price of ETB21/kg.

Since 2008, the GoE has consistently imported between 400,000 and 600,000 MT of bread wheat through the EGTE for the purpose of market stabilisation. Irrespective of the actual price, the imported wheat is distributed to selected mills at a fixed price of ETB550/qt. Flour is from that wheat is then purchased by nominated wholesalers for ETB726/qt, for onward sale to bakers who are obliged to produce loaves at a fixed price of ETB1.1 per 100gm loaf (wholesale), or ETB1.5 per loaf, (retail).

Recently import volumes have been limited and mills have increasingly relied on domestic markets where the price of wheat is now three times higher than that of the imported commodity. As a result, both flour and bread prices have also risen and although the price of bread is notionally fixed by legislation, CPI data shows a marked increase of 30-50% in the price of bread in Addis Ababa between March 2018 and June 2019.

The GoE has affected the importation of edible oil by restricting import licences to a selected group of commercial companies who import up to 425,000 MT (455 million litres) annually. The palm oil is imported without 30% duty or 15% Value Added Tax (VAT) – which is imposed on all other imported oils – and is sold at a wholesale price of ETB23/litre and a retail price of ETB25/litre. Nevertheless, the accelerated decline in foreign exchange rate has eroded importers' profit margins to the point where they are no longer supplying at the expected rates, and shortages of palm oil have been increasingly reported amongst the cooperatives and consumer associations.

Overall, the GoE is allocating foreign exchange to directly or indirectly import large volumes of sugar, wheat and palm oil, most of which is directed towards urban markets. At current levels, the calorific value of the imports (Table 2.2) is equivalent to the annual demand of 7.6 million adults, or approximately 38% of the urban population.

Table 2.2: Calorific Value of GoE Commodity Imports

Imported by GoE	Average Volume (MT)	Calorie Content/100 gm	Total Calories
Cereals	480,000	360	1.728e+12
Edible Oil	435,000	884	3.845e+12
Pulses	15,000	150	2.250e+10
Sugar	300,000	387	1.161e+12
Total per Year			6.757e+12
Total per Day			1.851e+10
People sustained per year	@2450 calories per day		7,555,941

Source: Author's Calculations

Other Interventions

Indirectly GoE policy can affect food security through its levers of control on trading activities. On the one hand, the export of any commodity requires a GoE licence, and on the other, the import of any commodity requires foreign exchange, both of which have been closely controlled through the national banking system. By restricting licences, the GoE has effectively prohibited the export of all cereals for at least the last ten years, with the exception of 2017, when a licence was granted to export maize. Under some circumstances, these constraints may suppress the domestic prices of cereals, with a short-term beneficial impact on food security, although in the long term, incentives to increase production may be diminished. At present, export demand for either cereals or pulses is relatively weak so that this policy has little real impact.

The converse control on imports through the allocation of foreign exchange, has a direct impact currently on the availability in the market of some crops, especially wheat, which millers have clearly reported they would be willing to import if they could access the foreign exchange necessary to do so. At present the government's policy with regard to the exchange rate and the allocation of foreign exchange has a significant impact upon the availability of commodities that are important to food security.

3. Food Supply 2018/20

This chapter considers the various components of food supply over the last year and into 2020. It assesses the extent of carryover stocks held by different stakeholders, looks at production on a first principles basis in the 2018/19 Meher and the 2019 Belg seasons and develops balance sheets for cereals, pulses and oilseeds based upon production, consumption, stocks, trade, and other relevant factors. Based on these analyses, the chapter presents a prognosis for food supply in 2019/20.

From the perspective of national food security, current levels of supply are based upon carryover stocks from 2017/18, Meher production in 2018/19, Belg production in 2019, and imports. A more general estimate of anticipated food supplies in 2019/20 can be made based upon current production trends. From the perspective of a food deficit area, all of the above are important factors, but to these must be added smallholders' willingness to dispose of household grain stocks and the capacity of the market to deliver food from surplus areas at affordable prices. Each of these aspects is considered in turn below.

Carryover stocks

Carryover stocks were assessed by the RRA carried out in July 2019. Smallholder focus group discussions reported that as a result of the production experienced in 2017/18, the volume of carryover stocks from the previous season was higher in September/October 2018 than ever recorded previously[16], (Table 3.1). Households rarely store more than one type of grain, so the figures shown are not additive, but the data suggest that such stocks, if extrapolated nationwide would amount to between 2 and 3 million MT of cereals, i.e. approximately 10% of national production. The results for 2017/18 indicate the extent to which households had recovered from the 2016 El Nino impact.

[16] The mean volumes recorded by the survey were a factor of three greater than the median responses shown in the table, but results were distorted by a small number of households holding very large stocks.

Table 3.1: Smallholders' estimates of carryover stocks by crop and woreda status

Median Response (Qt)	Expected at end of 2018/19 Season		Actual at end of 2017/18 Season	
	PSNP	Non-PSNP	PSNP	Non-PSNP
Teff	1	2.25	2	3
Wheat	1.75	2	1.75	3
Maize	2	5	3	3.75
Sorghum	2	2	2	2

Source: RRA 2019

Anticipated stockholdings at the end of the current (2018/19) year show a general reduction amongst PSNP households, while non-PSNP households also expect to carryover less wheat and teff, but more maize. The general conclusion to be drawn is that food security levels had increased following the 2017/18 season but may have deteriorated slightly over the course of 2018/19. Nevertheless, there remains a substantial buffer, especially in non-PSNP households, to augment food supplies in 2019/20. This will almost certainly be sold off when the new crop is safely harvested. Significantly, even PSNP households reported holding substantial carryover stocks, indicating the importance attached to physical food within the household as opposed to purchasing capacity in the form of cash.

Two other types of stock exist within Ethiopia – the stocks held by merchants, traders and millers, and the stocks held by the GoE, for either intervention or emergency purposes. Despite the fact that merchants respond to large tenders offered by agencies such as WFP or the NDRMC, they have rarely accumulated stocks of grain, preferring to purchase from smaller traders and selling immediately once they have succeeded in winning supply contracts. Enquiries made during the course of the Bellmon analysis suggest that this is again the case in 2019. No traders were aware of any large accumulations of grain held by merchants.

Traders themselves indicated that their supplies of grain would be largely exhausted by the end of September and that indeed they would require this to be so in order to be able to purchase new crop. None of the traders who were canvassed expressed a desire to take a position in the market, preferring instead to trade on a back-to-back basis, i.e. selling grain as soon as enough had been purchased to make up an economically viable trade. Larger traders owning warehouses of 500 MT capacity, who might have been willing to take a position in the past, noted the uncertainty of the current market as the main reason why they would no longer do so. Stocks of grain held by traders were seen to be of the order of 20-50 MT at the most, and it is not expected that the amount carried over from the current season to the next would exceed 300,000 MT.

Millers reported that they rarely held more than two weeks stock of grain at any one time. On the basis that millers selling flour, as opposed to toll milling, are currently processing 20% of the wheat in Ethiopia (i.e. about 1 million MT), carryover stocks of wheat held by millers are expected to be no more than 40,000 MT.

The amount of grain held by the GoE is very small. At the time of the Bellmon survey, the NDRMC reported that the Strategic Food Reserve held no grain. It was expected that imported grain would arrive before the end of August, but that this would be immediately distributed to PSNP and humanitarian beneficiaries. While it might be expected that the Strategic Food Reserve will eventually accumulate a rotating stock of grain that can be immediately drawn upon in the event of an emergency, there is no indication that this will occur within the next 12 months.

The other major grain GoE holder, EGTE/EBTC reported that by the end of 2018/19, it had purchased 76,966 MT of maize, 119MT of chick pea and 1,950 MT of haricot beans. This was the smallest purchase

by EGTE in the last five years[17]. It is very likely that the grain will be purchased either by WFP or NDRMC and utilized before the end of the 2018/19 season.

Overall, carryover stocks are expected to be of the order of 2.4-3.4 million MT. As much as 400,000 MT might be carried over from one season to the next by GoE and commercial parties, but the vast majority (i.e. 2-3 million MT) of the carryover stocks, will remain with the producers.

Belg Production 2019

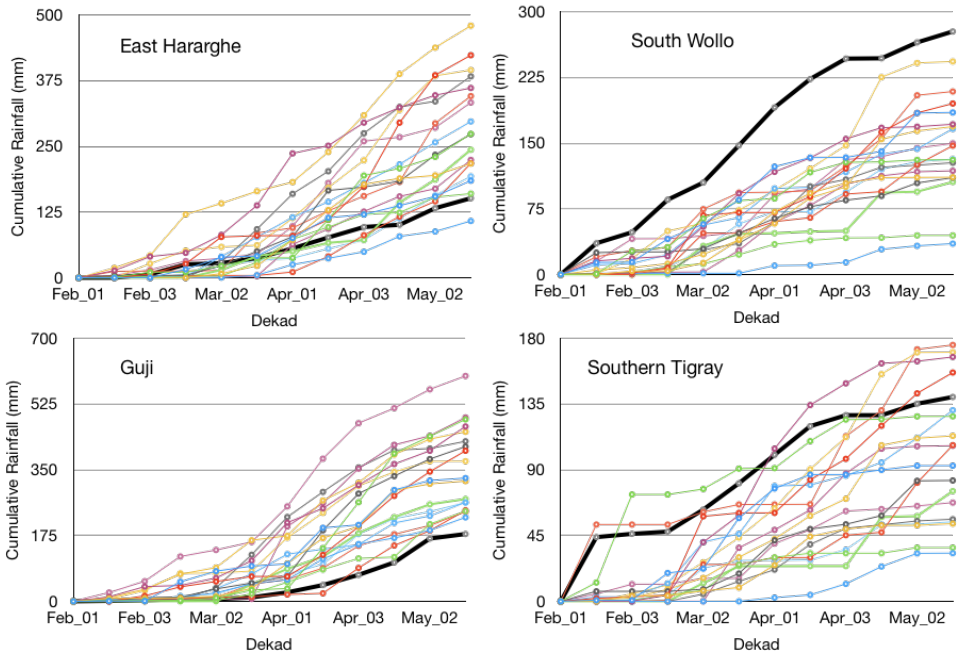
The Belg season normally contributes 5-10% of Ethiopian annual grain crop production[18]. From that volumetric perspective it is of limited significance, but the timing of the production of Belg, maize in particular, can have an impact upon the market, coming as it does during the lean period. A poor Belg harvest can exacerbate the increase in prices that normally occurs from June to August[19]. Poor Belg rains can also delay the sowing of long-cycle Meher crops such as maize and sorghum.

USGS/FEWS rainfall estimates (RFE)[20] suggest that in some (but not all) Belg-dependent areas[21], the rains have been late and sporadic which will significantly reduce and delay crop production. In southern areas of Oromiya and parts of the Southern Nations, Nationalities and Peoples' Region (SNNPR), significant rains were only recorded in late March, by which time planting had been delayed so that the crops that were sown would be harvested late and would prevent the sowing of Meher season crops into the same land. On the other hand, some Zones (such as Southern Tigray) have experienced good Belg rains and can be expected to achieve good yields and to support timely Meher production.

Figure 3.1 shows the variety of rainfall patterns experienced during the 2019 Belg Season. The graphs show cumulative decadal rainfall amounts for 2019 (heavy black line) compared with historical data over the preceding 18 years. The data is summarised in terms of impact on yield in Table 3.2. The complete series of graphs is provided in Annex C.

[17] Data sourced from EGTE/EBTC Annual Reports.
[18] Prior to 2014, it was estimated that the Belg harvest contributed less than 5% of production. Since then, changes in CSA methodology suggest the true figure to be about 80% higher, as quoted.
[19] As was observed in 2008 and 2015.
[20] Available at http://earlywarning.usgs.gov/fews/mapviewer/index.php?region=af
[21] Belg dependent areas were listed by the FAO in 1998. That list includes a number of pastoral and agropastoral areas. A broader definition is used in this report, based on rainfall and cropping patterns reported over the last five years.

Figure 3.1: Belg cumulative dekadal rainfall amounts



Source: USGS/FEWS

USGS rainfall estimates suggest that for Belg production areas, the yield reduction due to Belg failure will be limited mainly to the Zones shown in Table 3.2:

Table 3.2: Expected impact of Belg failure by Zone/Special Woreda

Region	Zone	Yield Reduction
Tigray	South Tigray	Nil
	Argoba	Nil
	Awi	Moderate (10-25%)
	North Wello	Nil
	South Wello	Nil
	Oromya Zone	Light (<10%)
	North Shewa	Nil
Oromiya	North Shewa	Nil
	Arsi	Moderate (10-25%)
	Bale	Severe (>25%)
	Guji	Severe (>25%)
	East Hararghe	Severe (>25%)
	West Hararghe	Moderate (10-25%)
SNNPR	Amaro	Severe (>25%)
	Basketo	Light (<10%)
	Benchi Maji	Light (<10%)
	Burji	Severe (>25%)
	Dawro	Nil
	Derashe	Severe (>25%)

Region	Zone	Yield Reduction
	Gamo Gofa	Light (<10%)
	Hadiya	Nil
	Kembata Tembaro	Nil
	Sheka	Nil
	South Omo	Severe (>25%)
	Wolayita	Nil

The rainfall data is very heterogeneous, and it is difficult to draw strong conclusions from such data, especially since Belg production areas and volumes are only reported by the CSA on a Regional, not Zonal basis. The data suggests only that some yield reduction is to be expected, but it would be difficult to quantify. Smallholders producing Belg crops reported more definitively. Amongst the 39 focus groups of Belg producers, over half reported a reduction in planting area (Table 3.3), and of the 20 groups producing maize, 70% expected a reduction in yield.

Table 3.3 Belg Producer Responses regarding Area and Yield for 2019

How do Belg planting areas in 2011 E.C compare with normal year? (n=39)				
Much less than normal	Less than normal	Normal	More than normal	Much more than normal
44%	28%	18%	5%	5%
How do you expect Belg maize yields in 2011 E.C to compare with a normal year? (n=20)				
20%	50%	20%	10%	0%

Source RRA 2019.

In terms of the impact of the Belg rains on Meher production, 40% of producers expected there to be no effect, while 47.5% expected yield and/or area of production to be reduced and 12.5% expected that short-cycle crops would be substituted for long-cycle production. These expected effects would however be limited to those (generally highland) areas where long-cycle crops were dependent upon Belg rains for their initial seedbed preparation, germination and seedling growth.

Overall, it might be expected that 2019 Belg production has been affected by delayed rains in some areas but that the impact has not been universal. Nevertheless, market prices in June did reflect a reduction in the availability of maize. Moreover, it is quite evident from a comparison of cumulative rainfall data for Belg producing areas in 2018 and 2019, that in some areas this year's rainfall has been much reduced. On that basis, it is tentatively assumed that Belg production would be reduced by at least 10% compared with prior seasons and that total Belg cereal production would not exceed 1,393,000 MT. This volume has been allocated amongst the various grains in proportion to past production levels estimated from limited available data (Table 3.4).

Table 3.4: Estimated volumes of Belg Production

('000MT)	2015	2017	2019 (Estimate)
Cereals	1,482	1,613	1,393
Pulses	401	375	349
Oilseeds	25	5	14
Total	1,908	1,993	1,755

Source: CSA Agricultural Sample Survey Data

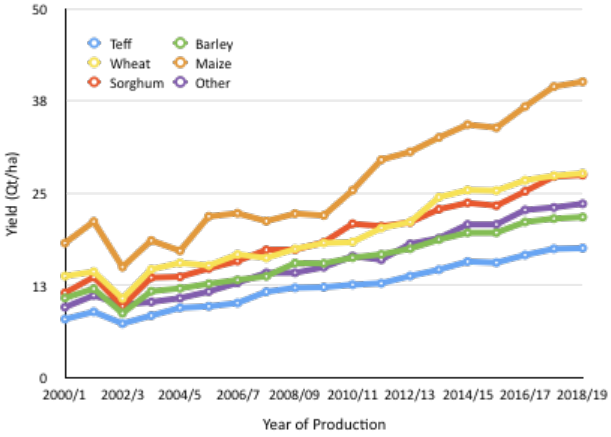
Given that previous estimates of Belg production have varied substantially and, for methodological reasons may not have reflected actual amounts produced, it is the relative change in production that is relevant to market and food security developments. The fact that reported levels of Belg cereal production are now 85% higher than they were in the five year period to 2014 is less significant than the outlook that expected levels of Belg production will be about 10% less in 2019 than they were in 2018.

Meher Production 2018/19

Meher production in 2018/19 was assessed by this Bellmon analysis through a process of triangulation using a variety of methodologies. Agricultural production is the product of both area cultivated and yield. The data generated by the CSA with regard to area shows the asymptotic trend that reflects observations and farmers' reports. The data appears to be consistent and robust.

By contrast, CSA yield estimates suggest that 2018/19 has followed the almost linearly increasing trend established from 2012/13 onwards (with the exception of the El Nino impact in 2015/16) (Figure 3.2).

Figure 3.2: CSA Estimates of Cereal Yields



Source: CSA Agricultural Sample Surveys

As discussed in Chapter 3, these yield estimates are problematic from a number of perspectives. First, they represent a consistency and extent of increased production (a compound rate of 7.5% over 15 years) that is globally almost unparalled (the Green Revolution resulted in compound growth rates that rarely exceeded 4.5%) but has nevertheless been achieved as the land area expands into marginal areas and degraded soils. Second, the rate of increase in production has been three times greater that of consumption, yet no significant surpluses have accumulated and third, while the increased use of inputs would undoubtedly improve yields, not only is it physically impossible for them to do so to the extent recorded, but yield increases of the same magnitude are reported not only for cereals, but also for pulses and oilseeds – subsectors that rarely use fertilizer or improved seeds (eg. over the last ten years, the yields of vetch and wheat have both increased by 58%).

On the basis that CSA yield data may be affected by systematic error, this Bellmon Analysis has reverted to basic principles to assess current yields. Increased agricultural yield can be achieved in three ways:

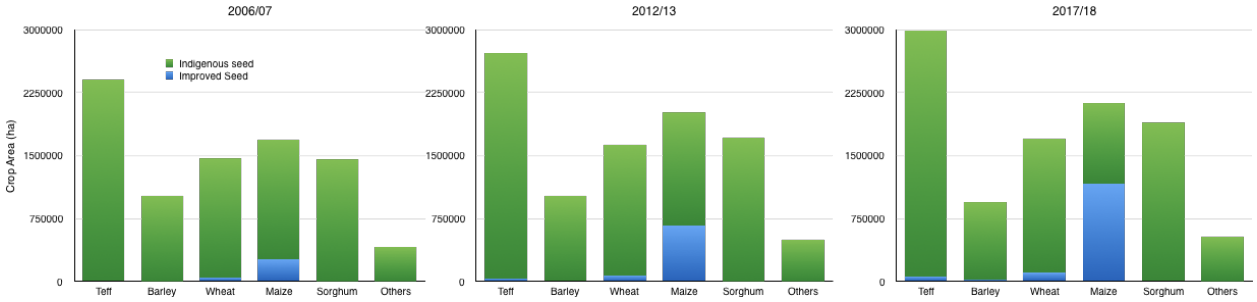
1. Through enhanced factor productivity
2. Through increased use of inputs.
3. Through consistently improving environmental conditions

Each of these aspects are considered in turn to generate the data that can be used to estimate yield.

Enhanced factor productivity would normally be a result of the more effective use of existing inputs, e.g. through improved timeliness, reduced losses, more accurate sowing or fertilizer placement. Such improvements would normally be attributed to increasingly effective agricultural extension services. In fact, repeated surveys[22] have failed to identify such improvements, despite the increased number of agents on the ground. Farmers reported[23] that the primary service that they received from extension agents was the delivery of inputs. Extension agents have been mobilised to increase farmers' use of improved inputs rather than to improve the efficiency with which those inputs might be used.

Increased use of inputs has certainly been a major factor contributing to increased crop production. Usage of fertilizer and of improved seeds has substantially increased over the last 10 years. While fertilizer continues to be imported by a central GoE agency, the market for improved seed has been opened up to include not only the original Ethiopian Seed Enterprise, but Regional seed production and marketing agencies and private sector stakeholders. Growth in the use of fertilizer and of improved seed is shown in Figure 2.6 (pg 9) and Figure 3.3, below.

Figure 3.3: Trends in Areas sown to Improved Seed



Source: CSA Farm Management Survey Data.

The increased use of these improved inputs can be expected to increase yields and to do so in a predictable manner based on recognised crop performance parameters.

Since crop growth is dependent upon the availability first of water and secondly of nitrogen, it is expected that if weather conditions remain constant, then yields will increase in proportion to the amount of nitrogen available. Although the ratio of nitrogen applied to yield produced may vary amongst different crops, the scientific literature has established the typical nitrogen use efficiencies that can be expected for the main Ethiopian staples (Annex D), which typically range between 10 and 46.

[22] See for example: Buehren N, Goldstein M, Molina E, and Vaillant J, (2017) The Impact of Strengthening Agricultural Extension Services: Evidence from Ethiopia - which found no increase in productivity over a 3-year period within the Rural Capacity Building Program.

[23] See Alene, A.D. & Hassan, R.M., (2003), 'The determinants of farm-level technical efficiency among adopters of improved maize production technology in western Ethiopia. Agekon Agricultural Economics Research, Policy and Practice in Southern Africa

Also Bogale, T. & Bogale, A., (2005), 'Technical efficiency of resource use in the production of irrigated potato: A survey of farmers using modern and traditional irrigation schemes in Awi-Zone, Ethiopia', Journal of Agriculture and Rural Development in the Tropics and Sub-tropics

Based on these parameters and using the year 2006/07 as a baseline[24], the increase in production that might normally be expected from the increased application of nitrogen in the form of urea, DAP and NPS are shown in Table 3.5.

Table 3.5: Expected Production of Cereals Based upon Fertilizer Application and Crop-specific Nitrogen Use Efficiency Ratios

Cereal	Fertilizer N* Applied in 2006 (MT)	Fertilizer N Applied in 2018 (MT)	Nitrogen Use Efficiency	Increase in Production (MT)	Production in 2006 (MT)	Expected Production in 2018 (MT)
Teff	30,405	76,399	32	1,471,794	2,437,495	3,909,289
Barley	6,161	15,481	35	326,207	1,352,148	1,678,355
Wheat	22,471	56,464	20	679,850	2,463,064	3,142,914
Maize	23,025	57,856	23	801,096	3,776,440	4,577,536
Sorghum	2,825	7,097	46	196,541	2,316,041	2,512,582
Other	3,268	8,210	30	148,285	534,351	682,636
Total	88,155	221,507		3,623,773	12,879,539	16,503,312
	*Fertilizer N is calculated from the N contents and volumes of Urea, DAP and NPS applied to each crop.					

Source: CSA Ag Sample Survey Data, MoALR Sales Data, Literature Review and Authors calculations

The results suggest that based upon increased fertilizer application alone, production could be expected to have increased from 12.9 million MT of cereals in 2006/07 to 16.5 million MT in 2018/19. This figure is substantially less than the CSA estimate, a fact which is at least in part due to the additional benefits that have been derived from the adoption of improved crop varieties that are not included here.

The increase in yield expected from the use of improved varieties is well documented not only from experimental trials, but more importantly through farmers' own experience. The results of that field experience can be applied to the known proportion of the total area of each crop sown to improved varieties to determine the increase in production that can be realistically expected. In doing so, allowance can be made for home saved seed of improved varieties of barley, wheat and teff, making the assumption that improved varieties of such self-pollinating crops can be revolved for 5 years at most before they should be repurchased. The results of such an analysis are shown in Table 3.6.

Table 3.6: Expected increase in production due to the adoption of improved crop varieties

Crop	Increase in Area Sown to Improved Seed (ha) (2006-2018)	Unimproved Yield (MT/ha)	Improved Yield (MT/ha)	Increase in Yield (MT/ha)	Increase in Production (MT)
Teff	231,820	1.1	2.1	1.0	231,820
Barley	15,290	1.3	2.5	1.2	18,348
Wheat	427,697	1.6	3.5	1.9	812,624
Maize	901,836	2.2	4.5	2.3	2,074,223
Sorghum	3,264	1.6	3.0	1.4	4,570
Others	953	1.3	2.3	1.0	953

[24] This year has been selected as one in which rainfall conditions were beneficial throughout Ethiopia and the GoE program to intensify crop production was just beginning.

Crop	Increase in Area Sown to Improved Seed (ha) (2006-2018)	Unimproved Yield (MT/ha)	Improved Yield (MT/ha)	Increase in Yield (MT/ha)	Increase in Production (MT)
Total	1,580,860				3,142,538

Source: Farmers' Responses, CSA Data and Author's Calculations.

The results of both the adoption of fertilizer and the use of improved varieties, combined with the increase in planting area provide a basis for estimating production, which can then be modified in the light of observed weather conditions.

Analysis of rainfall estimates in those Zones that contribute most to production (Annex 6) suggest that 2017/18 was a good year for agricultural production but that production of teff in 2018/19 would be marginally reduced, especially in Jimma and West Shewa. Production of wheat would be reduced in Bale and West Arsi, while maize yields would be negatively impacted in East and West Wellega, Kelem Wellega, Jimma and parts of West Arsi and West Shewa. The overall trends expected from the rainfall analysis are shown in Table 3.7.

Table 3.7: Yield Estimates for 2018/19 Relative to those of 2017/18 derived from RFA Cumulative Rainfall Analysis

Crop	Relative Yield
Teff	3% reduction
Barley	15% reduction
Wheat	3% reduction
Maize	No definite change
Sorghum	8-10% reduction
Horse Beans	8-10% reduction
Field Peas	8-10% reduction

Source: Calculations based on RFE data

Combining the impacts of fertilizer, improved seed, weather and areas sown, it is possible to derive an estimate of crop production in 2018/19. This has been done for each of the main cereal crops in Table 3.8.

Table: 3.8 Assessment of Meher Cereal Production for 2018/19.

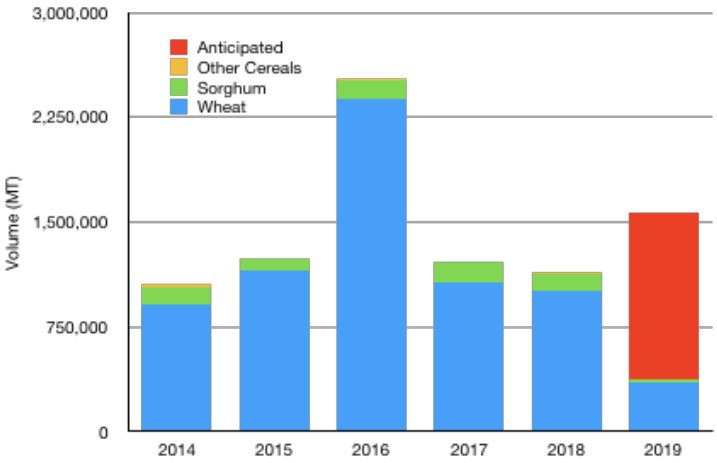
Crop	Base Production (2006/07)	Increase due to Area	Increase Due to Fertilizer	Increase due to Seed	Impact of Weather	Estimate for 2018/19
Teff	2,437,495	3,118,587	1,471,794	231,820	-3%	4,677,535
Barley	1,352,148	1,076,851	326,207	18,348	-15%	1,378,764
Wheat	2,463,064	2,920,982	679,850	812,624	-3%	4,281,053
Maize	3,776,440	5,276,912	801,096	2,074,223	-	7,907,664
Sorghum	2,316,041	2,893,888	196,541	4,570	-9%	3,002,149
Other	534,351	675,849	148,285	953	-9%	800,335
Total	12,879,539	15,963,070	3,623,773	3,142,538		22,047,499

Imports

As noted previously, Ethiopia has consistently imported varying amounts of cereals over the last 20 years or more. Nevertheless, little has been imported commercially. In the past, small volumes of durum wheat were imported by a consortium of mills to make a pasta grist, but this has not occurred recently. Currently

only barley has been imported for malting purposes with any consistency. The vast majority of imports are made in the name of either government, donor agencies or NGOs, who import mainly wheat and a small volume of sorghum. Volumes of cereals imported over the last five years are shown in Figure 3.4.

Figure 3.4: Recent Cereal import Volumes



Source: WFP Bulk Import Data.

2019 import volumes comprise 450,000 MT that had been discharged from Djibouti by the end of June, and an anticipated 1,120,000MT of wheat to be imported during the rest of the year. That volume is made up of 320,000 MT imported by EGTE for market stabilization, 600,000 by NDRMC for relief and a further 200,000 is destined for the Strategic Food Reserve. The total anticipated cereal import volume for 2019 is thus 1,570,000 MT.

Balance Sheet

Import data, carryover stocks, and Belg and Meher production data can then be entered into the positive side of a national cereal balance sheet for 2018/19. The negative side of such a balance sheet must include post-harvest losses, industrial use (other than bread), livestock feed, seed, exports and a balance (including bread) for human consumption.

Post-harvest losses have been estimated in the literature to be as high as 35% and this figure may well be possible over the course of the year for crops stored under poor conditions, but it is equally possible that crops such as maize harvested under dry conditions and sold off as soon as the grain is dry will be subject to much lower levels of wastage. While the traditional method of threshing teff, wheat and barley must inevitably result in losses of 5% or more, it is not relevant for maize or sorghum. Visual assessment of farmers' and traders' grain stores suggests that significant efforts are generally made to minimise grain loss and that levels between 10% and 15% are more normal. In this assessment a post-harvest loss rate of 25% has been applied for teff, and 15% for all other cereals except sorghum at 10%.

Industrial use of crops in Ethiopia is very limited. In this analysis, the use of barley for informal and commercial brewing and distillation is the main industrial use considered. For the current level of consumption (12 million hectolitres of beer and tella[25]) it is estimated that 400,000 MT of barley are used annually. In addition, wheat bran and offal are by-products of commercial milling that might be

[25] Estimate based on RRA interview of commercial brewery management.

loosely considered under the heading of "industrial use". They constitute 25% of wheat processed to make commercial flour (as opposed to toll milled wheat, which is normally hammer milled so that the bran is not separated out). Some of the bran is used as a constituent of livestock feed, but the total volume produced is estimated to be 25% of the volume of wheat milled commercially, which is itself estimated to be 25% of the total volume of wheat produced, i.e. approximately 280,000 MT.

The use of cereals for livestock feed is very limited. A small volume of maize estimated at no more than 15,000 MT[26] is used by the poultry industry but otherwise, the main cereal component of livestock feed is bran, i.e. a cereal by product, the usage of which has already been accounted for under industrial use.

Balance sheets often make different estimates of seed use, but actual national average rates can be obtained from the CSA Farm Management Survey, which reports as part of each year's Agricultural Sample Survey on the volumes of both traditional and improved seed used by farmers. The seed rates based upon that data are shown in Table 3.9.

Table 3.9: Estimated Seed Rates

	Improved Seed (Qt)	Improved Seed (ha)	Indigenous seed (Qt)	Indigenous seed (ha)	Average Seed Rate (kg/ha)
Teff	19,854	56,064	1,453,118	2967,219	48.7
Barley	45,103	18,515	1,500,825	933,479	162.4
Wheat	195,955	111,388	2,833,886	1,585,519	178.6
Maize	315,689	1,169,817	511,957	959,132	38.9
Sorghum	1,319	5,805	465,093	1,890,584	24.6
Other	976	1,417	361,479	533,643	67.7

Source: CSA Farm Management Survey 2017/18

Exports of cereal are generally minimal. One licence for cereal export was granted in 2017, resulting in the export of approximately 60,000 MT of maize, but that has not been repeated and no formal cereal exports occurred in 2018/19. Informal export of sorghum to Sudan was reported by some traders and some movement of teff to Eritrea was also reported to have occurred, but the volumes were not large enough to be included by any formal agency.

Human consumption can be estimated from the HICE data which lists the caloric values of the different components of both rural and urban diets. The last HICE survey of 2015/16 reaffirmed that bread and cereals together comprise the largest element of consumption in both urban and rural diets and that nationally, the daily calorie consumption of this element was 1550 calories per capita. This has been extrapolated upwards to reflect the trend of consistently increasing consumption to 1600 calories per capita in 2019, which is equivalent to average cereal consumption of 5.3 Kg per head per day.

The national cereal balance sheet calculated on the basis of all of the above elements is shown in Table 3.10. It suggests that in 2018/19, the availability of cereals was adequate to meet demand, with a small surplus of 13% of total availability that would almost certainly be carried over to 2019/20. This is in

[26] Estimate based on commercial feed requirement to produce 40,000 MT of eggs at a feed conversion ratio of2.25 and 60,000 MT of poultry meat at a feed conversion ratio of 2.5, applied to 6% of the total poultry sector (94% of flocks scavenge for feed).

accordance with the findings of the RRA, in which farmers predicted a slight reduction in carryover stocks.

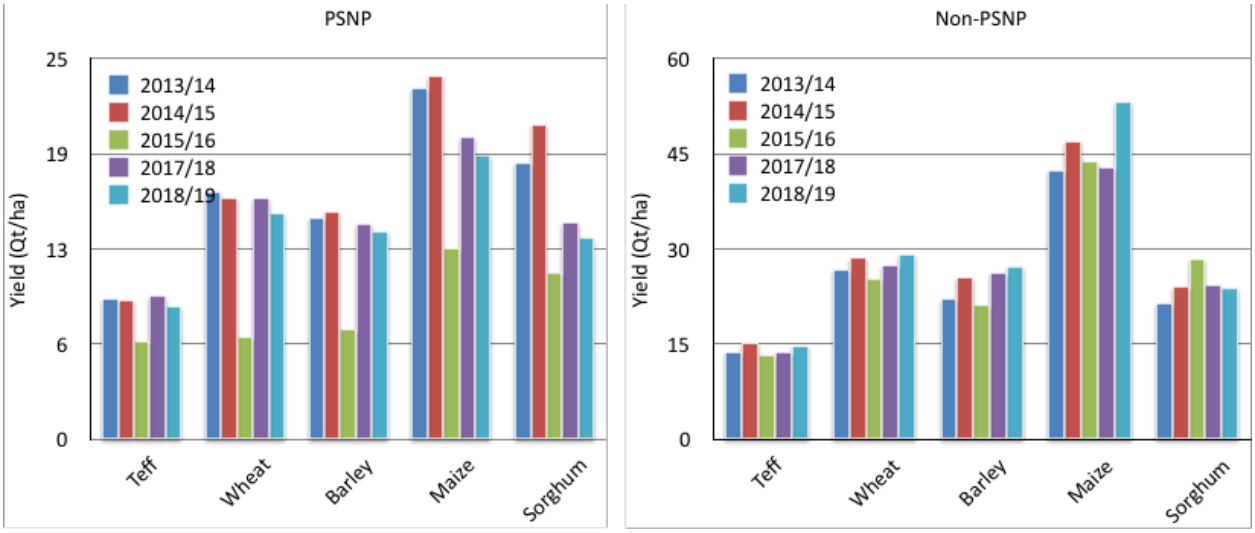
Table 3.10: National Cereal Balance Sheet

Crop	Teff	Barley	Wheat	Maize	Sorghum	Other	Total (million MT)
Carried Forward from 2017/18							2.9
Meher Production	4.7	1.4	4.3	7.9	3	0.8	22.1
Belg Production	0.3	0.2	0.2	0.7	0	0	1.4
Less Post Harvest Loss	1.25	0.24	0.675	1.29	0.3	0.12	3.875
Less Seed Requirement	0.2	0.2	0.4	0.1	0.1	0	1.0
Less Industrial Use		0.4	0.3				0.7
Less Stockfeed	0	0	0	0.1	0	0	0.1
Plus Imports			1.6				1.6
Less Exports							0
Total Available							22.3
National Consumption	Calculated for a population of 100 million and a per capita cereal requirement of 530 gm per day						19.4
Balance to Carry Forward to 2019/20							2.9

The cereal balance shown above is stated to the nearest 100,000 MT. The nature of the data making up the estimate restricts the level of precision and it is quite possible that actual totals may be as much as 500,000 MT above or below the figures quoted. The reason for this is the fact that the first and last estimates of 2018/19 and 2019/20 carryover stocks are very imprecise, yet, it can clearly be seen that they represent an important aspect component of the overall balance. The balance sheet suggests that cereal production and consumption are approximately in balance as long as a minimal level of imports can be maintained. Nevertheless, it shows the relatively small role played by food aid imports in the overall balance, and the relative importance of household stocks that allow small imbalances to be sustained through the drawdown / accumulation of stocks carried over from year to year. This conclusion is very similar to those drawn from previous exercises and it has been borne out by experience on the ground. In general, cereal production levels have matched consumption over the last 20 years, which have rarely seen either the development of massive surplus and market collapse, or substantial shortfall and escalating prices. On two recent occasions however, the level of imports has not provided the necessary balance. The reduction in wheat imports that occurred during 2018 and early 2019, created a definite upward pressure on market prices, while the surplus importation that occurred in 2016, depressed prices. Nevertheless under “normal” circumstances, markets are generally stable and buffered by the stocks that are held largely by producers.

Farmers estimates of yield reported to the RRA show the same trends as those estimated above. Successive RRAs have assessed yields using the same questions over comparable woredas in all years from 2013 to 2019 except for 2016/17. In PSNP woredas, the surveys show a general decrease in cereal yields between 2013 and 2019, while in non-PSNP woredas, the trends are more variable. Yields of teff and sorghum have declined over the last year, while those of wheat, barley and especially maize have increased (Figure 3.5).

Figure 3.5: Crop Yield Estimates of Successive RRAs



Source: RRA datasets.

The majority of these results align well with other response given by farmers regarding food security and by traders regarding the flow of grain to the market, which suggest that production in PSNP areas has generally decreased over the last 12 months, while in non-PSNP areas, production has been more variable. The key exception is maize, for which prices have increased and market flows have declined, suggesting a general reduction in availability, but farmers in non-PSNP woredas reported a significant increase in yields.

Pulses and Edible Oils

Pulses - The national balance for pulses and edible oils are more easily determined given that a surplus of pulses leading to exports has existed for at least the last 15 years, while a persistent deficit in edible oil has been more than offset by the GoE-supported importation of palm oil. A national balance sheet was calculated for pulses using the same principles as for cereals for 2019/20 (Table 3.11). The balance sheet excludes haricot beans, which are grown primarily for export.

Table 3.11: National Pulse Balance Sheet

Crop	Horse Bean	Field Pea	Chick Pea	Lentils	Vetch	Soya	Other	Total ('000MT)
Meher Production	748	273	372	104	200	91	114	1902
Belg Production	125	83	85	40	50			383
Less Post Harvest Loss	87	36	46	14	25	9	11	229
Less Seed Requirement	62	27	21	11	10	7	5	143
Less Industrial Use						10		10
Less Stockfeed						30		30
Plus Imports		24				6		30
National Consumption	Calculated for a population of 100 million and a per capita pulse requirement of 50 gm/ day							1825

Crop	Horse Bean	Field Pea	Chick Pea	Lentils	Vetch	Soya	Other	Total ('000MT)
Balance Available for Export								79

Despite the fact that the pulses listed in Table 3.11 are grown using indigenous varieties and do not require fertilizer, CSA data has consistently reported increases in national pulse yields similar to those reported for cereals. On the basis that both datasets might be subject to similar systematic error, yields were recalculated using the areas recorded by CSA for 2018/19 but applying the yields achieved in 2010/11. This year was selected as one when weather conditions had been ideal. Belg production of pulses, which accounts for approximately 17% of total annual production for the pulses listed, was similarly adjusted to give a total for the production of domestically consumed pulses of 2,285,000 MT. Losses were estimated at 15% and 10% according to the crop, to give a net availability of calculated deriving yields from CSA area data for 2018/19, but using yields averaged over the period 2,054,000 MT. Industrial use and stock-feed requirements apply only to soya, which is used in the production of paint and also as a component of poultry feed. Imports relate exclusively to food aid, imported mainly by USAID, but also by WFP and other donors in smaller quantities. Finally, consumption is estimated from CSA HICE data for 2015/16, assuming an average gross calorie content of 340 calories/100gm.

The balance sheet shows a small surplus for export of 79,000 MT. This is probably be made up mainly of horse bean and chick pea, but since consumption data is aggregated across all pulses, the proportions cannot be estimated. Exports of haricot beans are not included in this analysis, but based upon previous years' data[27], will be of the order of 170,000 MT so that total exports for 2018/19 would be approximately 250,000 MT.

The national balance although positive, is less than reported in previous years. This appears to reflect the overall stagnation of the pulse sector, which has shown no net increase in area over the last 10 years, as well as the reduction in pulse exports that has been recorded in NBE statistics. The country has enjoyed a reputation as a consistent exporter of pulses, but there are indications that growing domestic demand is increasingly eroding that status. Nevertheless at present, while the small balance generates some export earnings, it is not enough to support extensive local purchase programs for pulses[28], so that the import of pulses to meet the needs of development and humanitarian programs is still required.

Oilseeds - The construction of a balance sheet for edible oils is more problematic since it is substantially affected by the amount of imported oil, for which statistics are no longer readily accessible, as well as the levels of consumption, which appear to have increased substantially over the last ten years. From a production perspective, CSA data records a decline of 13% in the area sown to oilseeds over the last ten years. Linseed notably has declined by 54% in area, although increased sowings of groundnut have partially offset the decline. Oilseeds like pulses do not receive any fertilizer, nor are they produced using improved seeds, so there is little apparent reason for the yield increases (ranging from 34% for sunflower to 89% for niger seed) that have been recorded over the period, which especially conflict with the concurrent reductions in area. A balance sheet derived for domestically consumed oilseeds (niger seed, linseed, groundnut, sunflower and rapeseed) on the same basis as that for pulses is shown in Table 3.12.

[27] Pulse Crops Market Update (2018) GAIN Report number ET1819

[28] Both EGTE and WFP purchased pulses from domestic markets in 2019, but volumes were small (<20,000 MT)

Table 3.12: National Oilseed Balance Sheet

Crop	Niger Seed	Linseed	Groundnuts	Sunflower	Rapeseed	Total ('000MT)
Meher Production	159	90	94	8	22	373
Belg Production	Volume is too small to disaggregate meaningfully					20
Less Post Harvest Loss	31.8	18	9.4	0.8	4.4	68.4
Less Seed Requirement	5	4	10	0	4	23
Less Exports	40					40
Balance for Consumption						261.6
Equivalent volume of oil	Assuming an extration rate of 30%					79
Imported Palm Oil						435
Other Commercial Imports						67
Food Aid Oil						8
Total Available oil for Domestic Consumption						589
Consumption	Based upon a per capita consumption of 21 gm per day.					785
Balance						-196

The balance sheet estimates show a major deficit. The result is strongly affected by the estimated level of consumption. The calculation of Table 3.12 is based upon a per capita requirement estimated from the 2015/16 HICE of 21 gm. This amount is 72% greater than the amount reported in the 2010/11 HICE and 201% greater than the requirement reported in 2004/05. If the 2010 requirement is used, consumption would be reduced to 456,000 MT and there would be a 329,000 positive balance.

The increase in per capita consumption of oil recorded by successive HICE surveys shows demand to be quite elastic. What was once considered to be merely a condiment is now consumed as a significant (and inexpensive) source of calories in much larger quantities. From such a perspective, the balance sheets suggests that there is considerable capacity for the edible oil market to absorb further supply, provided it is made available at an affordable price.

Prognosis for 2019/20

Farmers were asked to comment on the current Meher crop production season and the following points emerged.

- The Belg rains, although delayed in some areas, have not delayed planting of the long-cycle crops (maize and sorghum). Establishment of these crops has been good and it appears that little substitution with short cycle alternatives has been necessary.
- The availability of improved maize seed has been reduced as a result first of the vandalism of seed crops last season, and secondly of two years of high demand for maize seed, which have

exhausted the seed industry's carryover stocks[29]. Although some commercial seed has been imported it is not expected to be enough to make up the shortfall and sowings of hybrid maize are not expected to be as much as last year.

- Despite the importation of an increased volume of fertilizer in 2019, MoALR staff reported that sales to farmers were not as fast as usual and it is possible that the amount of fertilizer applied by farmers may decrease in 2019. This was ascribed to a reluctance on the part of some producers to invest under conditions of uncertainty – specifically the risk of losing crops to vandalism.
- Meher rains started on time in most areas and have been regular and adequate throughout the season in most of the productive areas.

The points above, together with those emerging from the analysis of RFE data suggest that the 2019/20 Meher season will have experienced few constraints to production beyond some restriction in the use of inputs. Overall it can be expected that yields will be above average, reversing the trend of 2018/19 by increasing by 5-10%.

Theoretically such an increase would result in the increased availability of 1-2 million MT of cereals, that would offset any need for imports. Practically however, inefficiencies within the market and the buffering effect of household stocks will restrict the speed with which any such surplus is released onto the market in a way that can be accessed by the poorer households. Given the continuously increasing urban demand for bread, prices (especially for wheat) are unlikely to decline in the near term so that the wheat market stabilization exercise and other development and humanitarian imports will continue to be necessary.

Summary

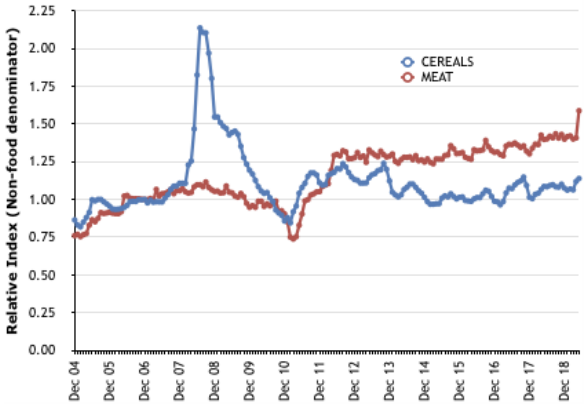
These results show no dramatic increase or decrease in production and the national cereal food balance suggests that the level of national food security in 2018/19 has not been significantly different to that of 2017/18. Preliminary assessments suggest that a similar situation will exist in 2019/20, providing imports remain approximately the same level as they have this year.

Such a conclusion is made against a backdrop of a constant cereal price index. In real terms that index as varied little from 2006 onwards (except for the price spike of 2007/08), while that for meat has increased somewhat (Figure 3.6). That in itself suggests that the cereal food security situation has remained relatively constant and that over a period of 15 years, increased production has been matched by increased consumption.

This is not entirely correct however. Over the course of the last 15 years, the volume of cereal imports has shown a consistently increasing trend, while exports have been minimal. Moreover, the extent of local purchase activities by agencies such as WFP, the European Union and the Disaster Prevention and Preparedness Commission which were of the order of 300,000 MT each year prior to 2006, has now been severely reduced and scarcely exceeds 100,000 MT in any year. The justification for such a reduction being that excessive local purchase might push up prices.

[29] The seed industry rarely sells all the seed it has produced in any given year, carrying about 25% over from one year to the next. High maize prices in 2017 stimulated considerable demand for maize seed in both 2017/18 and 2018/19 which exhausted all carryover stocks.

Figure 3.6: Trends in Real Cereal and Meat Price Indices



Source: CSA CPI Data.

From a long-term perspective, the national cereal balance has shown little improvement over the last 15 years and is arguably more dependent upon imports now than it was 15 years ago. Such a scenario is difficult to explain without recognising that production has hardly kept pace with consumption.

From a Bellmon perspective, it is quite clear that Ethiopia's supply of cereals, while based almost entirely upon domestic production, does nevertheless require supplementation through cereal imports if prices are to remain stable enough to guarantee access by the poorest households. Conversely however, the country's food balance does not rest on a knife edge. Stocks held by many rural households are large enough to act as a buffer to change in the short term (i.e. 12 months or less), although such stocks are inevitably largest amongst and most accessible to better-off households in productive areas. It can therefore be expected that the importation of food aid in the volumes anticipated for 2020, which are not substantially different to those for 2019, will continue to be a beneficial addition to the food supply of the poorer households without disrupting the national cereal balance.

The situation for pulses is similar to that for cereals in that the volume of pulses available for export (or carryover to the next season) is declining. Areas sown to pulses have stagnated and real prices have stabilized at prices which must be assumed to approximate to import parity. It is unlikely that prices will fall below such levels unless a ban is placed upon future exports. Under such circumstances, it can be expected that production levels through 2020 will be similar to those of the previous year and that pulse markets will continue to be underpinned by the small exportable surplus. This will require the continued importation of pulses to supply those who are unable to afford access to the domestic pulse market.

Oilseeds and domestically produced edible oils continue to be affected by the importation of both GoE-supported palm oil and commercial imports of other oils, as evidenced by the continuing decline in areas sown to domestically consumed oil crops. Demand for edible oil has increased substantially and cannot be met by local production. Importation of edible oil, whether it might be through the GoE, commercial, or contraband channels will undoubtedly continue for the foreseeable future, so that (with the exception of the GoE palm oil) edible oil markets will operate at import price parity or, if foreign exchange continues to be limited, above that level. Under such circumstances, the import of food aid oil will marginally reduce both foreign exchange requirements and the observed national deficit.

4. Market Trends

This chapter looks at market developments for the main crops relevant to food security. It first considers some general changes in market conditions reported to the RRA for 2019, including changes in smallholders' sales and traders' purchase volumes, before considering individual crop markets in turn. Individual crop markets are assessed first from the perspective of price movements over the last five years, and then from the short-term perspective provided by smallholders and traders responses. In each case, the outlook for the remainder of 2019 and beyond is also assessed.

General

The RRA conducted both a data collection exercise and a series of more qualitative interviews with traders. While the response to the data collection exercise were quite variable, there was a much greater degree of consistency amongst traders' comments on the changing nature of grain markets. In particular, three trends were widely reported:

1. Reduced regulation: traders reported an increased incidence of unlicensed commercial activity and a reduced level of surveillance and regulation of market actors. This meant that standards for quality and weight (where they existed) were not guaranteed, and neither payment nor performance could be assumed with confidence unless business counterparts were already known.

2. Uncertainty of access: traders were confident both that they could access transport and that they could generally access any area with sufficient forethought. Nevertheless, the fact that areas of the country could be subject to unrest and tension could disrupt the movement of goods, delay business and increase costs.

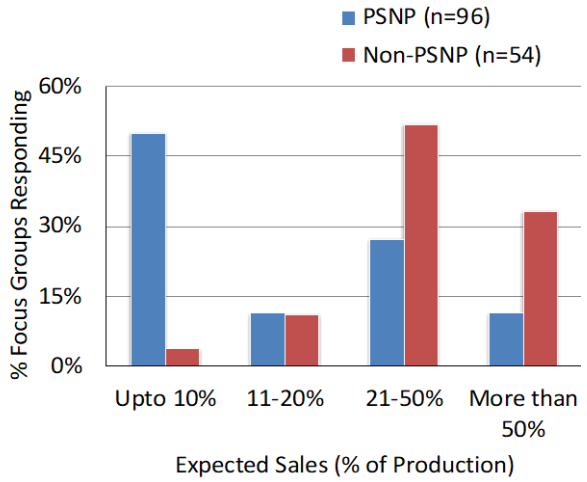
3. New/unknown market participants and networks: traders reported that established business channels and existing networks were increasingly displaced by new networks that they were unaware of and excluded from. It was widely perceived that such networks were often politically or ethnically based. As one trader put it, "the new mafia is in charge". This development has reduced the level of trust between businesspeople and in some cases reduced the appetite of traders to continue in business. In one town, it was observed that most of the established traders operating ten years ago had now moved into different business sectors in the face of what they considered to be unfair competition from unlicensed operations.

These trends were also reflected in the attitudes of traders responding to the RRA. In contrast to previous surveys, the responses of some of those interviewed were marked by an unprecedented level of anxiety and occasional hostility. This may have contributed to the variable nature of the responses which have required careful analysis in order to draw sensible conclusions from the data obtained.

Recent Sales and Purchase Activities

As might be expected, the proportion of production sold by smallholders varied substantially according to their food security status. A majority of smallholders in PSNP woredas expected to sell less than 20% of their production, while in non-PSNP woredas, the majority expected to sell more than 20% (Figure 4.1).

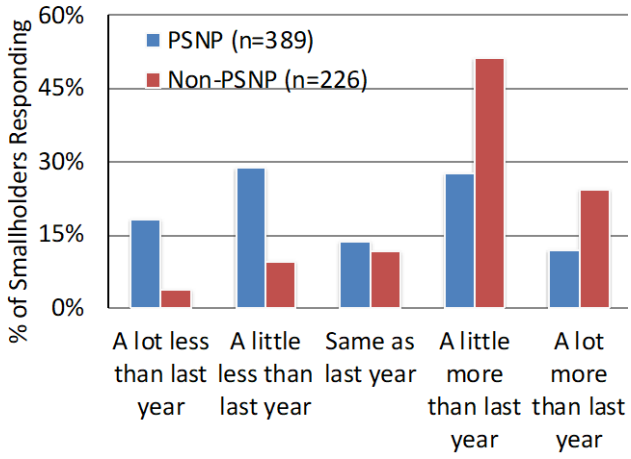
Figure 4.1: Variation in Sales as a Proportion of Production with Woreda Status.



Source: RRA 2019

Smallholders sales intentions for 2019 were mixed. Overall, it was clear that a majority (52%) of smallholders expected to sell more of their production by the end of 2011 than they had in 2010 (Figure 4.2).

Figure 4.2: Changes in Expected Sales (2011) Relative to 2010.

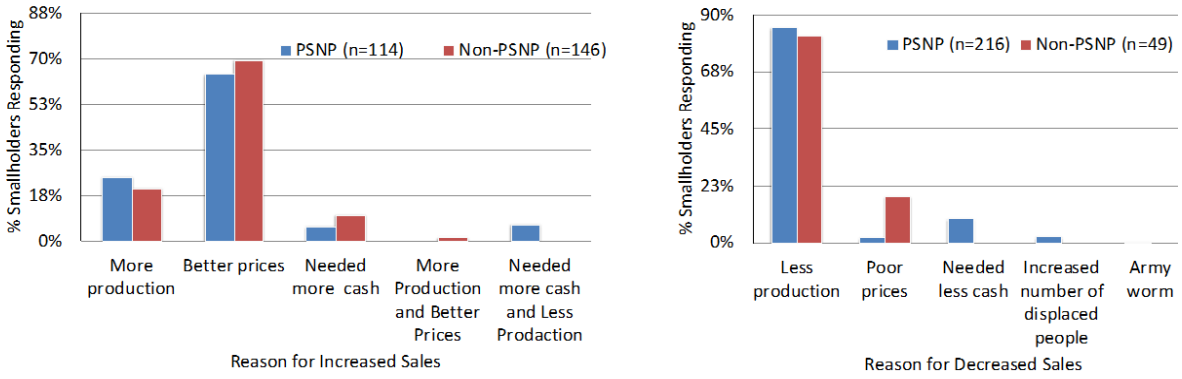


Source: RRA 2019

This trend was strongest for those in non-PSNP woredas, where 75% expected to sell more, mainly because of better prices in the market, although the second most frequent reason was because of increased production. By contrast, in PSNP areas, the majority of smallholders expected to sell the same or less of their production. The most common reason given in this case being that they had produced less crop (Figure 4.3).

Overall, it would appear from farmers' responses that the amount of grain coming onto the market in 2019 is slightly increased and that this increase is largely market rather than production driven, although increased production has played a role in the more productive areas.

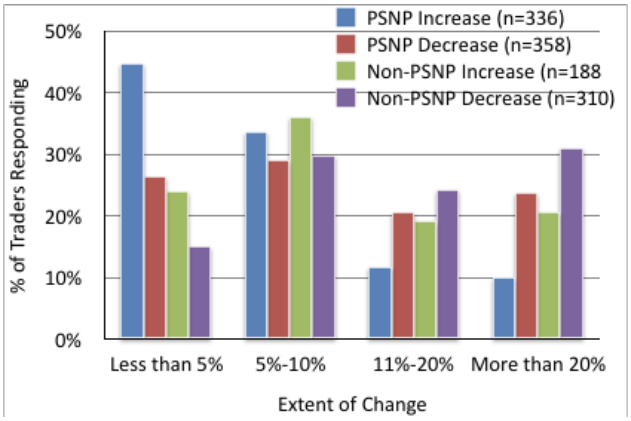
Figure 4.3: Reasons Given by PSNP and non-PSNP smallholders for changes in Sale Volumes



Source: RRA 2019

Traders were canvassed in depth to assess their perspective on grain production and marketing. They reported that their purchase plans were originally to increase volumes purchased by 12.5% overall, but that in fact purchased volumes were 8.5% less than they had been in 2010. This was due to a number of factors, including the inflow of grain, availability of finance and strength of demand. With regard to the inflow of grain to markets. An overall majority (51%, n=1256) reported that inflows in 2019 were less than those in the previous year, while 35% considered that inflows had increased, and 14% that they had stayed the same. The differences between PSNP and non-PSNP woredas were small. In PSNP woredas, the proportion experiencing decreased inflow was 46% and in non-PSNP areas, 58%. The extent to which inflows decreased was more commonly greater than to which inflows increased, suggesting that overall, the volume of grain coming to the markets in 2019 has been reduced (Figure 4.4).

Figure 4.4: Frequency of Relative Increases and Decreases in Grain Inflow to Markets



Source: RRA 2019

These responses contradict those given by farmers and require more detailed analysis, since such overall changes can mask underlying differences amongst the different crops. The traders' perspective is thus included in the relevant subsection of the following crop-specific market analyses.

Cereals

There are five main cereals consumed in Ethiopia: teff, maize, wheat, barley and sorghum. Traditionally teff has been the Ethiopian staple, but its price has escalated to the point where it is consumed mainly in urban areas and by higher income households. Poor rural households grow teff as a cash crop, but consume relatively small amounts. Instead, the staple for the poor has become maize, whose high yields and lower price make it more available and accessible. Wheat and barley have also been traditional Ethiopian crops and of the two, barley was originally more highly prized, being known in Tigray as the "king of cereals" that could be used in many different ways. With increasing urbanisation however, wheat has become more important as a source of flour for the convenience food – bread. As a result, wheat prices have also escalated and like teff, the crop is consumed more by urban and higher income households. Barley prices used to be lower than those of wheat and consumption was mainly amongst poorer rural households. Recently however, increasing demand from local breweries has led to rising prices for white barley. Finally, sorghum continues to be grown in the drier areas where maize yields are less certain, especially in the Eastern Highlands and in parts of Tigray. It is used for traditional foods and commands a significantly higher price than maize.

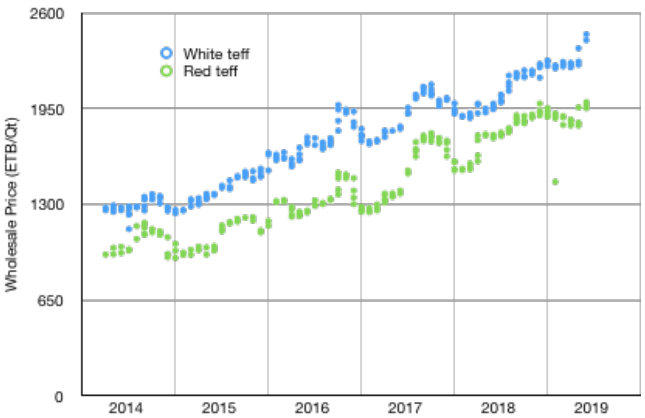
As a result of this market specialisation, the prices of different cereals can trend in different ways. Teff, sorghum and wheat prices tend to vary independently of maize and barley prices. Nevertheless, the floor to the cereal market is almost always set by the maize price.

Cereal prices tend to fluctuate seasonally, falling from September/October through to January as the new crop becomes available for own-consumption (thus reducing demand) and onto the market (thus increasing supply). From February onwards, prices tend to increase, sometimes stabilising around April when Belg production may also reduce demand. From May onwards, prices tend to increase through the hungry season, when deficit areas have exhausted their own production and must rely upon grain brought in from surplus areas. Prices generally reach a peak in late August, early September before beginning the next seasonal decline. Market trends for individual cereal crops are considered below.

Teff

Nominal wholesale teff prices have increased in a consistent manner over the last five years. An approximately constant linear increase has been overlaid by seasonal trends that have affected prices of both white and red (and mixed) teff uniformly (Figure 4.5). Current prices are at record levels and show little sign of decreasing, before the new crop comes onto the market.

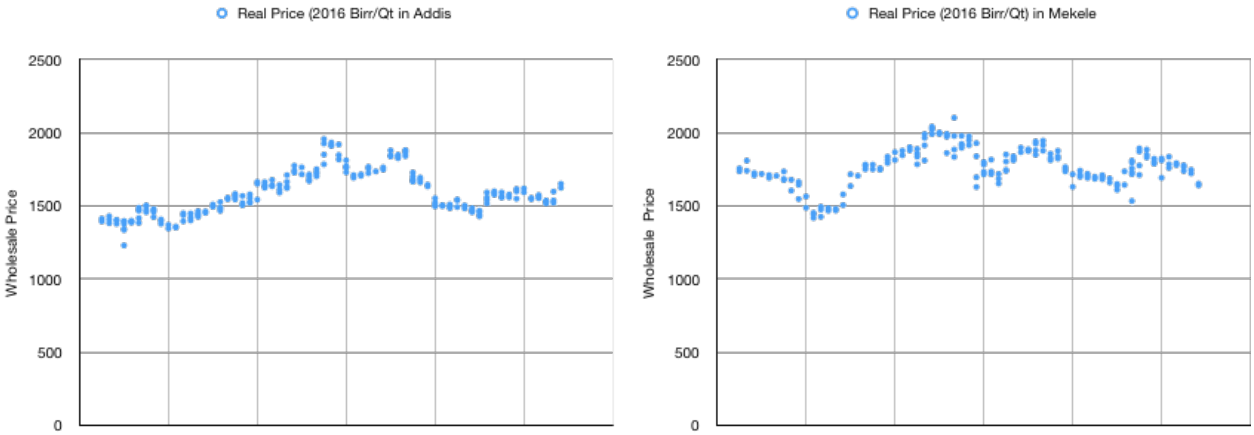
Figure 4.5: Nominal wholesale price trends for white and mixed teff in Addis



Source: EGTE MIS

In real terms however, it is evident that prices have not increased constantly, but instead peaked in 2016 and 2017, possibly as a result of the El Nino impact in 2016 and of the export of maize in 2017 (although the latter is rather tenuous). Otherwise, real prices per quintal have fluctuated between 2016ETB 1500 and 2016ETB2000 in Mekele and slightly below that in Addis (Figure 4.6) with a recent uptick in Addis in early 2019, but not in Mekele.

Figure 4.6: Real wholesale price trends for white teff in different Adds and Mekele



Source: EGTE MIS

Prices of teff are reportedly subject to regional variation on the basis of varieties and taste, so some differences between markets are to be expected. Reports of market flows from traders in 2019 were similarly mixed. Reduced inflow of teff to markets was reported by 48% of 243 traders, while 38% reported an increase. The extent of the reported decreases was greater than that of the reported increases, with 44% of traders reporting decreases of over 10%, while only 24% reported increases of the same order. The overwhelming reason given for the reduced inflow was reduced production (80% of respondents), while reduced prices and increased own consumption were also reported. The main reason for increased inflow of teff was increased production (51% of respondents), although 35% of traders reported that the increase was due to reduced stockholding by farmers.

Outflows of teff had decreased in a majority (47%) of markets canvassed, and increased in 30%. The extent of reported increases in outflow was slightly lower than that of the decreases suggesting that trade in teff was generally reduced. The main reason given for this was decreased urban demand, followed by reduced production. Paradoxically, reported increases in outflow were most commonly ascribed to increased urban demand suggesting that urban demand had both increased and decreased simultaneously. Since that is not possible, the results might be interpreted to suggest that urban demand had shifted from some markets to others, although the majority of responses would suggest that it had decreased overall.

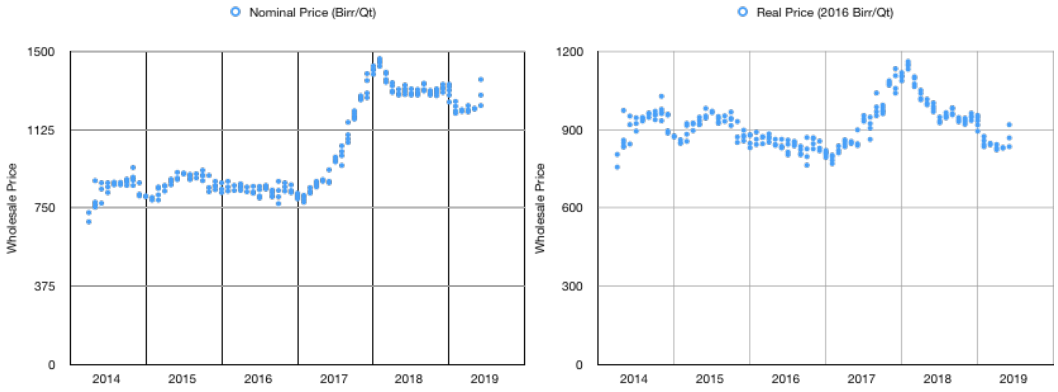
Individual traders reported an average (n=199) 6% reduction in their purchase of teff from 1056qt in 2018 to 997qt to the same period in 2019. There was no significant difference between PSNP and non-PSNP woredas. The main reason given for decreased purchases was reduced production (89%), while increased price was quoted by 10% of respondents. In contrast, increased purchases of teff were largely demand driven (50%) while 38% of traders noted increased production, and 10% noted increased availability of finance as reasons for purchasing more teff.

These mixed responses suggest that overall, teff markets have experienced a reduced flow of grain from farmers, due mainly to reduced production in 2018/19, and that this has caused the recent upward movement in both nominal and real prices. Nevertheless, this trend has not been uniform across the country. Some areas have experienced increased production, and some have also reported reduced demand, but in central markets such as Addis, prices have strengthened. The outlook for the remainder of 2018/19 is that prices will continue to strengthen slightly in central markets but can be expected to be more variable in rural areas. Teff prices should decline according to the seasonal pattern once the new crop is available but there is no obvious reason why real prices should move outside the current range of 2016ETB 1,500 - 2,000/Qt.

Barley

Barley is marketed as white barley (which includes barley for brewing) and mixed barley, which is used for preparing food. Mixed barley prices are lower than those of white barley, but the markets tend to move in unison. In contrast to maize, white barley prices remained flat throughout 2014-2016, despite the 2015 El Nino effect, but rose sharply in both nominal and real terms through 2017 before declining in 2018, trending upward only in the middle of May 2019 (Figure 4.7).

Figure 4.7. Recent Wholesale White Barley Prices in Addis Ababa



Source: EGTE MIS

The reason for the sharp increase in prices appears to be increased demand from the brewing subsector which has been expanding rapidly over the last five years. Initial demand for malting barley from local producers was not well met, mainly as a result of inadequate aggregation systems and low prices offered to producers. In 2017, increasing intensity of competition amongst breweries and the mobilisation of Cooperative Unions as aggregators resulted in significantly increased prices, as more buyers competed for malting barley, pushing up the price of barley of all qualities. Growers responded by increasing production, leading to the subsequent price decline in 2018/19.

The reason for the most recent increase in price was not well understood. Traders purchasing barley did not expect their purchase volumes in 2018/19 to be significantly different from those of 2017/18. Flow of barley to the market from farmers was more frequently reported to be reduced (37% of respondents), than to have increased (29%), largely as a result of reduced production. Increase in demand compared with 2017/18 was also reported by 32% of respondents. These are all factors that might support prices, but in nominal terms prices declined through most of the first part of 2019. It is possible that the initial decline and final uptick in barley prices reflects an initial surplus vis a vis the breweries' requirements, which became a perceived general deficit following the delayed Belg rains that

would have reduced expectations of the availability of maize (for which barley is a common substitute). There was however no evidence to support such supposition.

Wheat

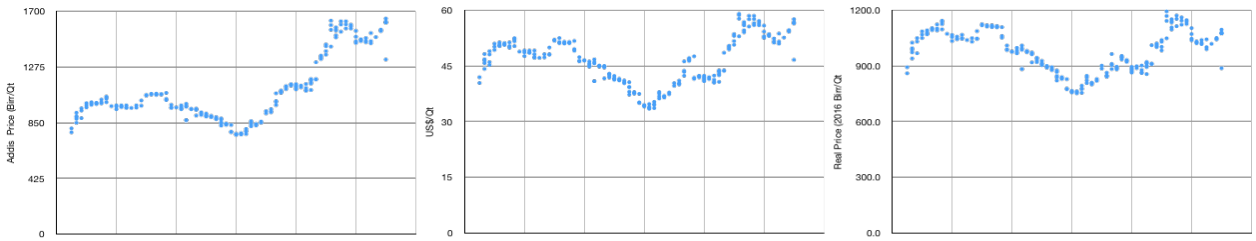
Wheat markets continue to be impacted by the EGTE market stabilization program which provides subsidized wheat to local millers. When the program was introduced, the price at which millers could uplift their allocation of wheat was 61% of the local market price. Now, the subsidized price is only 37% of the current domestic price. The program is mainly implemented in urban areas where it has generally been effective in constraining the price of bread for much of period during which the system operated, at least as far as the nominated bakeries were concerned. In the last 12 months however, the system has become much less effective and the average price of bread recorded by the CPI has fluctuated between 30% and 50% above the official level. Millers and bakeries associate the increase in price with two factors. On the one hand, controls have become much more lax and bakeries have been able to produce larger loaves at higher prices that effectively circumvent the restrictions placed upon the 100gm loaves, but millers in particular note that prices have been driven higher by the very limited volumes of subsidized wheat made available through the market stabilization system throughout much of 2018.

During the period between September 2017 and late 2018 the GoE, through its public procurement institution, launched several tenders for wheat, but almost all of them failed to secure any supplies due to either non-performance, non-compliance or corruption (which resulted in the eventual imprisonment of several officials involved in the procurement process). The lack of imported wheat obliged the EGTE to borrow 300,000 MT from the Strategic Food Reserve, but even then it was only able to supply mills and bakeries at half of the normal rate. As a result, almost all mills were operating at well below normal capacity for at least 12 months from October 2017 to November 2018. The Millers Association estimates capacity utilisation to be of the order of 42%. Millers themselves reported that they would use up their EGTE allocation within less than one week and would be dependent upon local purchases for the remainder of their supply. The EGTE is now resuming the importation of wheat, but the volumes required place a significant demand upon limited national reserves of foreign exchange. At current prices, the annual requirement is at least US120 million, may increase further if international wheat prices continue their rising trend.

Traders report that local purchase activity for wheat has become almost frenetic. In efforts to achieve economically viable levels of capacity utilisation, millers have resorted to using unlicensed “Isuzu traders” as their agents, providing them with the funds to purchase wheat directly from farms. Traders report that they have often been excluded from the market by the Isuzu Traders who are generally unknown in the markets and whose performance in terms of weights, quality and payment are without guarantee.

Recent trends in the wholesale price of wheat in Addis Ababa, in both nominal, US$ and real terms (deflated to December 2016 prices) are shown in Figure 4.8 below.

Figure 4.8: Wholesale Nominal, US$, and Real (2016) Prices of Wheat in Addis Ababa



Source: EGTE Market Price Data

The three graphs show similar trends, namely a generally stable price with normal seasonal fluctuations through 2014 and 2015, followed by as steady decline in price throughout 2016. This is almost certainly associated with the very substantial importation of wheat into the country as a humanitarian response to the El Nino impact on production in 2015. During 2016, an unprecedented 2.55 million MT of wheat and sorghum was brought into Ethiopia. This exceeded the estimated shortfall and the surplus depressed prices in nominal, US$ and especially real prices, which fell by as much as 32%. During the next two years (2017 and 2018), wheat prices showed a pattern of recovery (with seasonal variation) to real price levels that are similar to those experienced in 2014 and 2015. The increase in price was particularly steep through much of 2018, which was reported to be associated with reduced sales by the EGTE. That increase was interrupted by the normal seasonal decline in December 2018/January 2019 but resumed once the initial flow of wheat onto the market had subsided. Reaching record high levels in nominal terms by June 2019.

Traders reported to the RRA that inflows of wheat to markets had generally declined in 2019. 56% of 216 traders reported decreases in inflow. This proportion was broadly consistent across both PSNP and non-PSNP woredas. The extent of the decreases outweighed that of the increases. 50% of traders reported reductions in inflow of more than 10%, while only 25% reported similar increases. Reduced wheat inflows were attributed very largely (by 81% of respondents) to reduced production by farmers. Individual traders reported an average (n=158) 6% reduction in their purchase of wheat from an average volume of 1493Qt in 2018 to 1397qt to the same period in 2019. There was no significant difference between PSNP and non-PSNP woredas. The main reason given for decreased purchases was again reduced production (84%), while 7% of respondents purchased less because prices had increased.

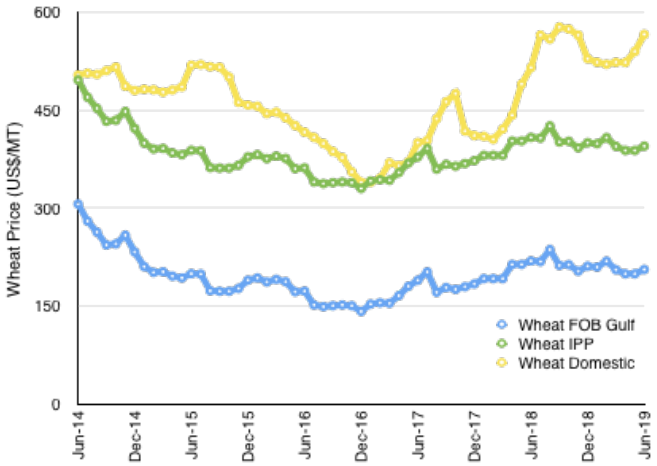
The situation was not entirely uniform. Some traders (30%) did report increased inflows associated mainly with increased production (59%) and farmers reducing their stocks (25%), In contrast, increased individual purchases of wheat were largely demand driven (49%) and occurred predominantly in the PSNP woredas. Although 39% of traders, mainly in non-PSNP woredas, also increased purchases as a result of increased production.

The overall trend appears to be one of increased production stimulating traders to purchase in productive areas and reduced production causing traders to buy into in less productive areas to meet local demand. Overall however, the dominant trend detected by the RRA was of a reduced flow of wheat to the market due to reduced production.

Nevertheless, although associated with a reduced flow of grain through mills and bakeries, current real wholesale prices are not the highest in the last five years and are almost exactly the same as those prevailing at the same time of year in 2014 and 2015. Despite the importation of large volumes of food aid, domestic wholesale prices have never fallen below US$300/MT and have remained above import parity prices[30] for most of the last five years (Figure 4.9). This suggests that there has been little real disincentive to domestic wheat producers throughout this period. It could be argued that prices might have risen even higher had the market not been subject to the distorting effects of food aid, which has therefore been a disincentive to production, but that argument does not allow for the opposite distortion of restricted imports which, if allowed, would almost certainly have resulted in market prices lower even than those prevailing at the end of 2016.

[30] Import parity prices are calculated from US Gulf prices according to the Matrix of costs in Annex 2.

Figure 4.9: Domestic, US Gulf and Import Parity Wheat Price



Source: EGTE Market Price data, Index Mundi and Author's Calculations

It might be expected that under such conditions where domestic wholesale wheat prices consistently exceed import parity, local millers might import wheat themselves, but they are unable to do this. The limited availability of foreign exchange prevents local millers from accessing international markets and the GoE has not allowed millers to purchase forex for the purpose of importing wheat, restricting that activity to EGTE and the National Disaster Response Market Commission (NDRMC).

The market for wheat is currently dominated by increasing demand and inconsistent domestic supply, which is consistently supplemented by more than 450,000 MT of wheat imported annually by the GoE, at a significant cost to foreign exchange reserves. Prices consistently exceed import parity and millers operate at less than 50% capacity. In the absence of any major disruption (such as drought or conflict), no change in this pattern can be expected. Attempts to rectify the imbalance through increased local production have been initiated but are unlikely to bear fruit within the next two years.

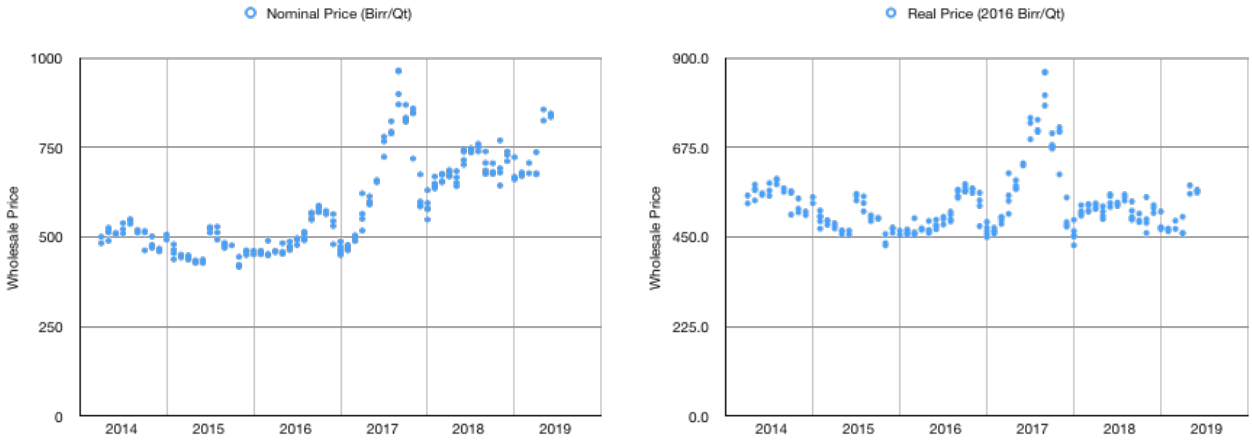
Nevertheless, though there is a clear shortfall in local production capacity relative to domestic demand for wheat, it is possible that the price of wheat will be effectively capped by the price of mixed teff. Most households have indicated a preference for teff and njeera as opposed to wheat and wheat bread if the prices of the finished products were equivalent. If the price of mixed teff were to remain constant at ETB2150/Qt, then wheat would be effectively more expensive, and less preferred if its price rose above ETB1900/Qt. It is therefore possible that despite upward pressure, wheat prices will not rise very far beyond the levels observed in July, unless there is a concurrent rise in the price of teff.

The short-term outlook for wheat prices is that they will decline with the resumption of the EGTE market stabilization exercise followed by the entry of new crop onto the market in October 2019, but the overall trend appears to be one of continued deficiency and elevated prices.

Maize

Maize price trends have been fairly similar throughput most Regions over the last five years. Figure 4.10 shows spot prices in Addis Ababa in nominal and real terms.

Figure 4.10. Recent wholesale maize prices in Addis Ababa

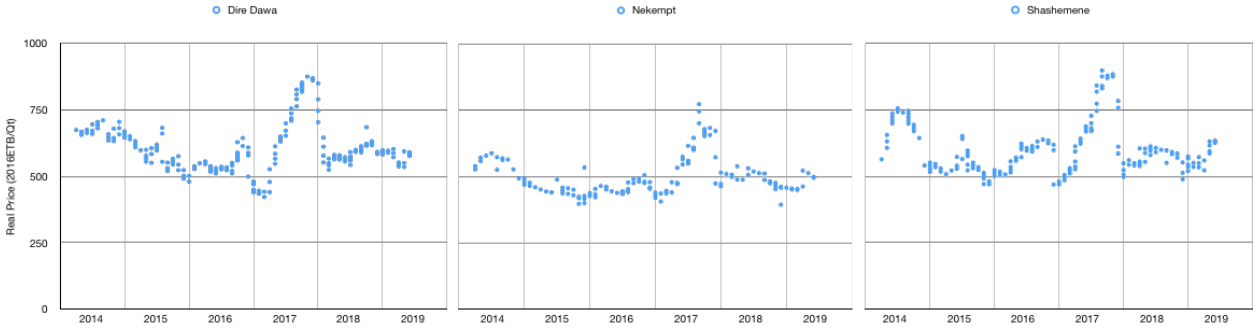


Source: EGTE MIS

Nominal maize price trends are characterized by a generally flat price with seasonal fluctuations through 2014 to 2016. This is surprising given the impact of El Nino on 2015 Meher production, and suggests that the coordinated government and donor response to this crisis was substantially effective. The sharp increase in price in 2017 reflects uncontrolled purchase activity to meet Kenyan import demand. Prices declined thereafter, but increased gradually through 2018, (showing some seasonal fluctuation), before increasing again through the first part of 2019.

In real terms, these price movements show a regular seasonal trend. Were it not for the unexpected spike in 2017, seasonally detrended real prices have remained relatively stable. The real price trends reported in Addis Ababa have also been evident in other terminal markets (for maize) such as Dire Dawa and to a lesser extent in producer markets such as Nekempt. Nevertheless, while the market shows a degree of integration, regional price variations are clearly evident (Figure 4.11).

Figure 4.11: Real Wholesale Maize Price Series for Various Markets



Source: EGTE MIS

The extent to which the latest uptick in prices is a result of seasonal variation can be assessed through trend analysis which suggests that there is in fact a recent unseasonal upward movement. Traders asked to comment on maize markets gave a variety of reactions. Individual traders in non-PSNP areas reported an average 24% reduction in their purchase of maize from 3226Qt/trader in 2018 to 2454Qt/trader to the same period in 2019. In PSNP woredas, traders have purchase slightly more (8%) maize in 2019 than in 2018. The main reason given for decreased purchases was reduced production (84%), while increased price was quoted by 8% of respondents. In contrast, increased purchases of maize were largely demand

driven (52%) with only 36% of traders quoting increased production as a reason for purchasing more maize.

Reports of maize market flows were mixed. A small plurality (48%) of 235 traders reported that the flow of maize to markets had decreased, while 40% considered that it had increased and 13% that it had not changed. The responses were almost identical for both PSNP and non-PSNP woredas. Decreases tended to be larger than increases in maize inflow. While 49% of traders reported decreases of over 10%, only half that proportion (25%) reported increases of the same order. The most common reason given for decreased inflow was reduced production, although a small proportion of traders felt that farmers were holding grain back for their own food security. Where inflows had increased, increased production was the most common reason given, for the change, especially in non-PSNP woredas, although reduction of farmers stocks and increased producer prices were also reported.

Overall, trade in maize appears to have declined in 2018/19, due most commonly to a decrease in the volume of grain coming to markets in both PSNP and non-PSNP areas. While traders in non-PSNP woredas purchased less grain because of reduced production, those in PSNP woredas purchased more because of increased demand. These responses suggest that maize production was reduced in all areas, but in productive areas, households were still able to feed themselves, while in less productive areas, households were obliged to procure maize from surplus markets to a greater extent than they had in the previous year.

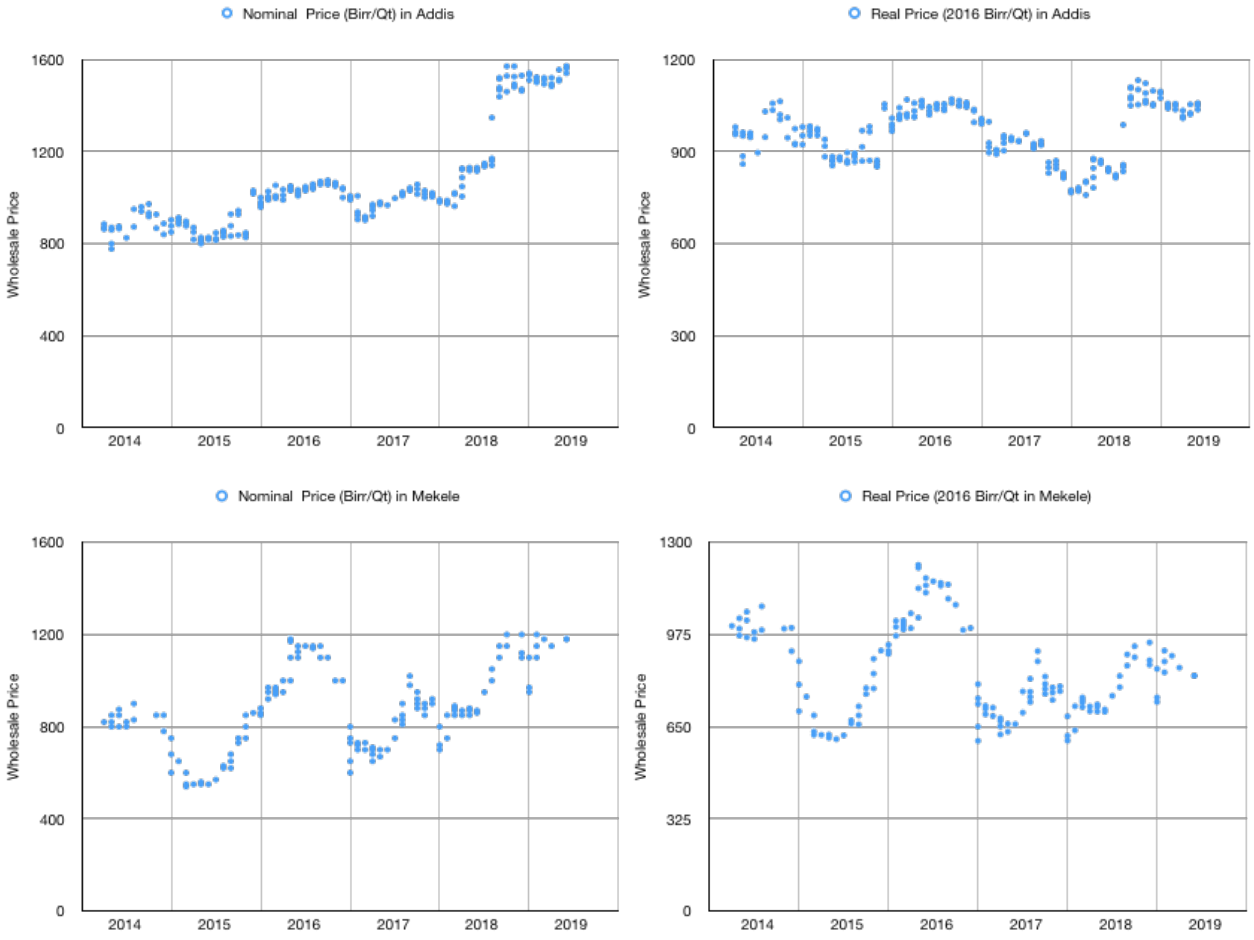
While it is possible that this increase in real maize prices is associated with reduced maize production in the 2018/19 Meher season. It is also possible that the delayed Belg rains in some maize producing areas would have led to anticipation of a further shortfall in maize production. Both situations may have contributed to a reduction in the amount of maize coming onto the market and a consequent increase in prices. The third factor is the element of increased uncertainty noted earlier. Uncertainty has been particularly relevant in the maize producing areas of western Oromia and this can also be expected to have increased maize prices.

The outlook for the maize market is of declining nominal prices in the short term as new Meher crop begins to come onto the market from early October onwards. At present, the outlook for 2019/20 maize production is good, so that a decline in both nominal and real prices is to be expected. In the longer term however, core inflation, driven by underlying weaknesses in the Balance of Trade will continue to drive maize prices upwards. Nevertheless, in the short term, market confidence, associated with both unrest and reduced government intervention can be expected to be the dominant factor affecting prices in a potentially unpredictable manner.

Sorghum

The behaviour of sorghum markets has varied across the country. Wholesale prices in Addis have generally been more stable than those in Mekele. The differences reflect the fact that Mekele is relatively isolated, but closer to an important sorghum production area. As a result, low prices in 2015 rose in both nominal and real terms in 2016 following the impact of El Nino on the 2015/16 sorghum crop in Tigray. Prices in Addis also rose, but by nowhere near the same extent, since that market also had access to production in Oromiya. Subsequently prices declined as production reverted to normal, but have risen again in late 2018 both in Addis and in Mekele (Figure 4.12).

Figure 4.12: Wholesale prices for White Sorghum in Addis and Mekele



Source: EGTE MIS

The recent increase in prices appears to be a function of reduced flow of grain to the market. A majority (51%) of 143 traders reported that the flow of sorghum to markets had decreased, while 34% reported an increase and 15% reported no change in inflow as compared with the previous year. Of those reporting a decrease 40%, noted that it to be greater than 10%, while only 21% of those reporting an increase noted a change of the same extent, suggesting that the scale of the decrease was greater than that of the increase.

The main reason for a decrease, quoted by 73% of respondents was reduced production, while the main reasons for an increase were increased production together with farmers reducing their stocks.

Individual traders reported an average (n= 97) 13% reduction in their purchase of sorghum from 650qt in 2018 to 568qt to the same period in 2019. The trend was greatest in PSNP woredas, but the difference between PSNP and non-PSNP woredas was not significant. Sorghum differed somewhat from other cereals in that price was a greater factor affecting purchases. Thus, while the main reason given for decreased purchases was reduced production (70%), increased price was quoted by 21% of respondents (roughly double the proportion that said price had been a factor affecting purchases of teff, wheat or maize). Increased purchases of sorghum were largely demand driven (59%), while 27% of

traders noted increased production, and 12% noted increased availability of finance as reasons for purchasing more sorghum.

Sorghum prices have also been reportedly affected by increased informal export to Sudan where the sorghum crop as reportedly much lower than normal, obliging Sudanese traders to import from Ethiopia in order to meet their own export contracts.

As a result of both reduced production and increased informal export, sorghum prices have reached record nominal levels both in Addis and at almost every other market throughout the country. In real terms however, while sorghum prices in Addis have just exceeded real prices in 2016, real prices in Mekele remain significantly below those levels and have declined through the first half of 2019, suggesting that informal exports are no longer affecting the market. Despite reduced production, the real price trends for sorghum in the northern part of the country (where the crop plays an important role in food security) suggests that access to the staple is not of unusual concern.

Summary

The main cereal crops exhibit different market trends. Sorghum has declined in price suggesting that production has increased relative to demand. By contrast, wheat prices have increased, suggesting the converse. Teff prices have remained approximately stable, although individual markets show different price trends. Maize prices have generally declined through the first part of the season, but have increased sharply over the course of the last two months.

It is the sharp increase in the price of maize that will most affect cereal supplies to the most vulnerable areas. Teff and wheat are not much consumed by the poorer households. Maize and sorghum are the cheaper and dominant staples. It would appear that last year's harvest has now been effectively exhausted and/or that households are increasingly holding on to their own stocks so that the supply of local grain to deficit markets has ceased. Prices in deficit areas have immediately increased enough to impact the prices in surplus markets. Significantly however, the price of maize in surplus markets has also risen rapidly, suggesting that there too, the rate of inflow has now decreased.

The outlook in the near term is that maize prices will likely increase further until the first green maize comes onto the market in September. At that point, the behaviour of the market will depend upon the Meher production. It is possible that the increased maize price will create upward pressure on the prices of all other cereals, but the extent of this effect cannot be predicted.

Pulses

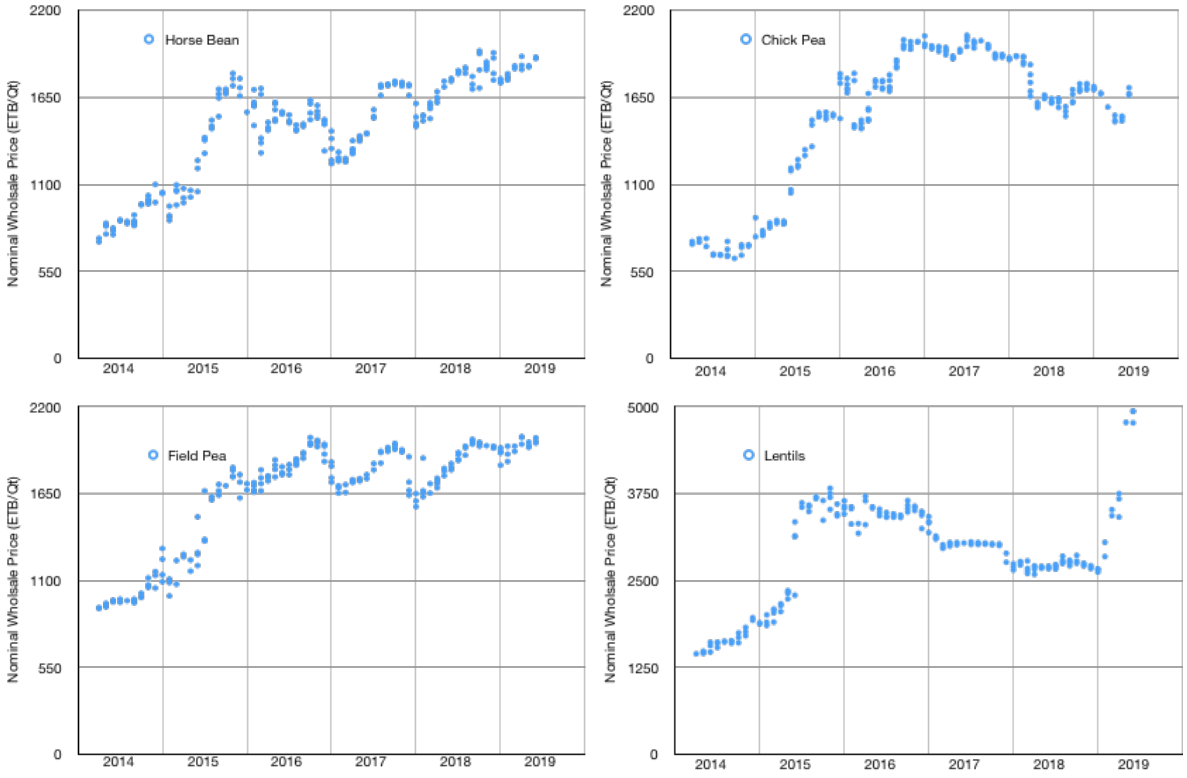
The main pulses produced in Ethiopia are horse bean (Faba beans), field pea, vetch, chickpea, red and white haricot bean (Phaseolus beans) and lentil. Of these, the haricot beans are grown almost exclusively for export, while horse bean, and chickpea are both exported and consumed locally, and field pea, vetch and lentil are all consumed locally. Horse bean and field pea are the most widely grown and consumed although chick pea is becoming increasingly widespread. Lentils are the most highly prized commodity; consumption of lentil is highest in urban areas, while vetch is considered to be a "poor man's crop", that has been implicated in lathyrism.

The domestic pulse market has generally been supported by export parity prices, but the five-year price trends for most pulses began with depressed prices in 2014 due to low levels of international demand. This led to reduced sowings of almost all pulses in 2014/15, creating a shortfall in 2015 that strengthened domestic prices considerably. Despite subsequent increased plantings, prices were maintained by the collapse of pulse production in India, which imported substantial volumes of different

pulses, including chick pea through 2016 to late 2017. This supported the prices of not only chick pea, but also the local substitutes of field pea and vetch. Horse bean prices were less well supported in 2016 but strengthened in 2017 as a result of strong demand from Sudan, and have continued to benefit from that market from 2017 onwards, as conflict in that country continues to hamper domestic crop production there.

In contrast, Chick pea prices declined once India regained near self-sufficiency in that commodity in 2018 and have continued to decline in 2019. Nominal field pea prices also stabilized and then entered a strongly seasonal price trend which has been interrupted by consistently high nominal prices throughout 2018/19. The price of lentil drifted downward from 2016 onwards but has increased dramatically from the beginning of 2019 (Figure 4.13).

Figure 4.13: Nominal Wholesale Pulse Price Trends



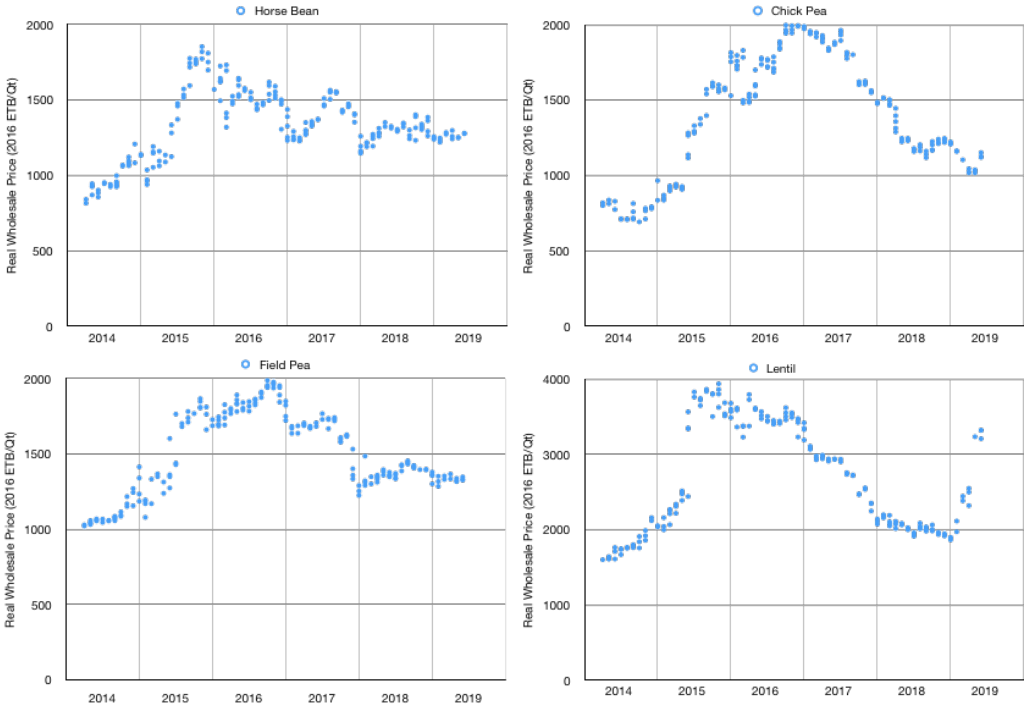
Source: EGTE MIS

In real terms, the price fluctuations have been less positive. Horse bean prices have fluctuated seasonally, but consistently declined from the peak levels caused by the decline in sowing area in 2014/15, stabilizing at a real price that appears to be supported by the continuing opportunity of the export market to Sudan. Once the Indian export market weakened in 2016, chick pea prices have trended downwards, and field pea prices have behaved similarly. Real prices of lentil have followed a similar pattern to those of chick pea, but even in real terms, there has been a substantial increase from the beginning of 2019 onwards (Figure 4.14).

The increase in lentil prices is the one exceptional trend in a pulse market that has otherwise declined in real terms since 2016. That increase appears to be associated with a reduction domestic stocks of lentils causing a shift towards import parity pricing. Responses from traders actually indicated an increase in

production but were too few to be representative. Larger merchants nevertheless indicated that the increasing parallel exchange rate and fears that the currency market might be liberalised had caused a stockpiling of high value commodities, including lentils that then be disposed on the domestic market at elevated prices. As the parallel exchange rate has not moved significantly since July 2019 and in the absence of currency liberalization, these positions will become increasingly difficult to sustain and it can be expected that stocks must eventually be liquidated and real prices will revert to the levels seen in late 2018.

Figure 4.14: Real Wholesale Pulse Price Trends



Sources: EGTE MIS and CSA CPI data

For the other pulse crops, a majority of the 315 traders canvassed reported a decrease in the flow of horse bean (58%), field pea (54%) and chick pea (83%) to the market. In each case, the average decrease in flow was significantly greater than the average increase. 80% of traders who reported a decrease in pulse inflows ascribed it to reduced production. The results strongly suggest that with the exception of lentils (for which evidence is insufficient), pulse production in 2018/19 was generally less than it was in 2017/18 especially for chick pea. Outflows from markets were reported to be similarly affected.

Individual traders reported an overall average decrease in their purchase of pulses of 7.5%, but this trend hides considerable variation amongst the different commodities. There were overall reductions in the purchases of haricot bean (15%), grass pea (16%), horse bean (8%), and field pea (6%), while purchases of chick pea, and lentils increased by 12% and 26% respectively. For the two main pulses (horse bean and field pea), reduced production was the reason noted by 85% and 69% of traders respectively for their reduced purchase of these pulses. Amongst those traders who had increased their purchases, the majority reported that they had done so in response to increased demand. For chick pea and lentils, increasing demand was even more important, for 73% and 52% respectively of those traders who had increased purchases. The responses suggest that while traders in both PSNP and non-PSNP areas experienced reduced grain inflows, a higher proportion of traders in non-PSNP areas saw

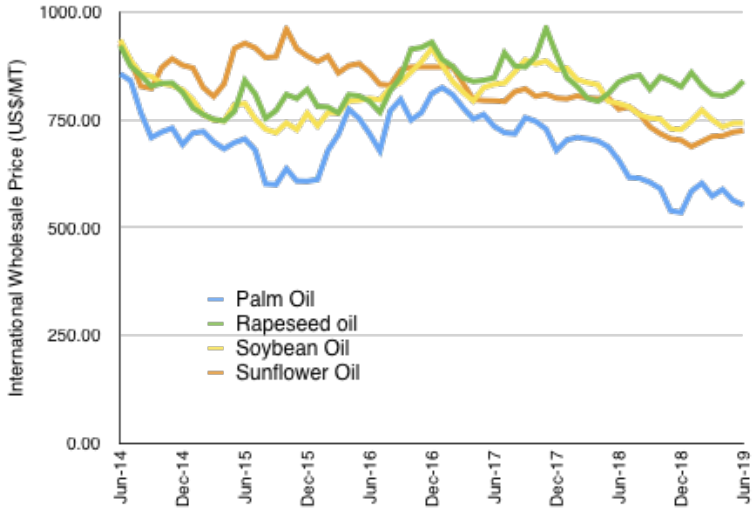
increased outflows, due mainly to increased demand from urban and deficit areas. Responses as to the source of the demand suggested that both urban and deficit markets were equally important.

Overall pulses have shown a depressed real price trend and it is not surprising that the area sown to pulses in 2018/19 was only 2% greater than that sown 10 years earlier in 2008/09. In the short term however, the response of traders speak to a strengthening market for most of the main pulses important to domestic food security. Reduced inflows to the market caused by reduced Meher production, together with the reduced Belg rains make it unlikely that pulse availability will improve until the 2019/20 Meher crop has been harvested. It can be expected that prices will continue to increase from their current levels until new crop comes on to the market. The one exception to this could be lentils, which might experience consumer resistance to the high prices, or a reduction in price as stocks are liquidated.

Oilseeds/Edible Oils

The edible oil market continues to be dominated by palm oil imported exclusively by selected commercial companies under contract to the GoE. This is sold by consumer associations at a fixed price of ETB25/litre – a price at which locally produced oil cannot compete. There are also small volumes of soya and sunflower oil imported commercially by other companies that are not associated with the GoE[31]and available in urban centers from retail outlets, which sell for ETB80-100/litre. This oil is generally purchased by wealthier households, who recognise the quality and health benefits of non-palm edible oils. The volume of such oil is constrained by the limited availability of foreign exchange to import the commodity. As a result, it commands a premium on the market. Although international oil prices are now all less than US$800/MT (equivalent to ETB25/litre - Figure 4.15), the retail prices for imported oils have remained significantly (50%-100%) above these levels even after freight, duty and VAT have been factored into the price.

Figure 4.15: International wholesale prices of edible oils



Source: Index Mundi

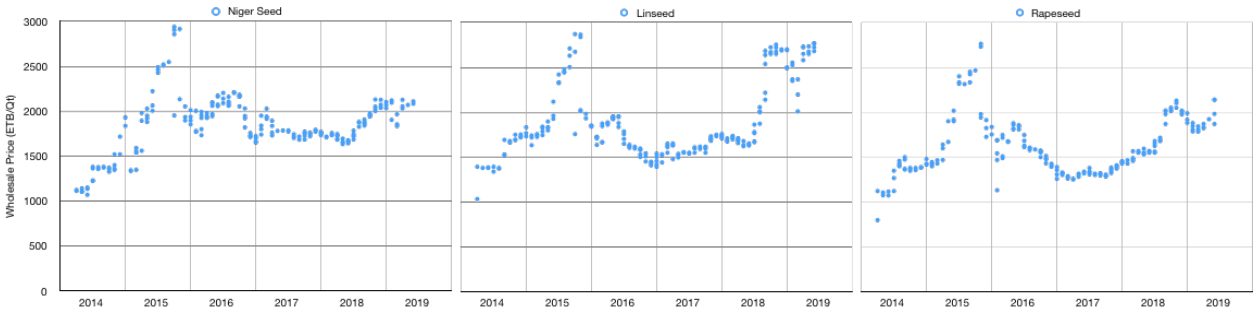
[31] Commercial oil imports pay 30% duty and 25% VAT – which is not paid on the palm oil imports.

This commercial market structure has created an opening for locally produced oil derived from rapeseed, cotton seed or linseed, with the addition of niger seed in some cases to add a preferred traditional flavour[32]. Larger local processors are able to produce blended oils that are perceived to be superior in taste and health benefits to palm oil and can be sold at prices ranging from ETB55 – ETB65 per litre. This price undercuts the commercially imported oil and allows processors access to a market of consumers who do not want to use palm oil, but cannot afford the price of imported oil. This market appears to be considerable[33] and processors report that they are now achieving higher capacity utilisation than they have been able to do for the last ten years. Demand for the locally produced blended oil remains greater than supply, which is currently limited by the supply of oilseeds.

In addition to the larger processors, a substantial number of small-scale oil processors are now operating in rural areas wherever GoE subsidized oil is not available. These small-scale processors use mainly linseed and niger seed and sell unrefined oil at ETB90/litre. The high prices of linseed and niger seed (Figure 6.17) render such enterprises non-viable unless the oilcake can also be sold, and even then the business is only feasible in the absence of any other source of oil. In practice commercial traders prefer to supply their limited volumes of imported oils to urban markets. In their absence, rural processors are able to enjoy a captive market.

Oilseed prices rose substantially from 2014 to 2015 following major reductions in the areas sown to niger seed, linseed and especially rapeseed. Since that time areas sown to oilseeds have increased slowly and prices have moderated. In nominal terms prices appear to have increased (Figure 4.16).

Figure 4.16: Trends in Nominal Wholesale Prices of Oilseeds in Addis Ababa



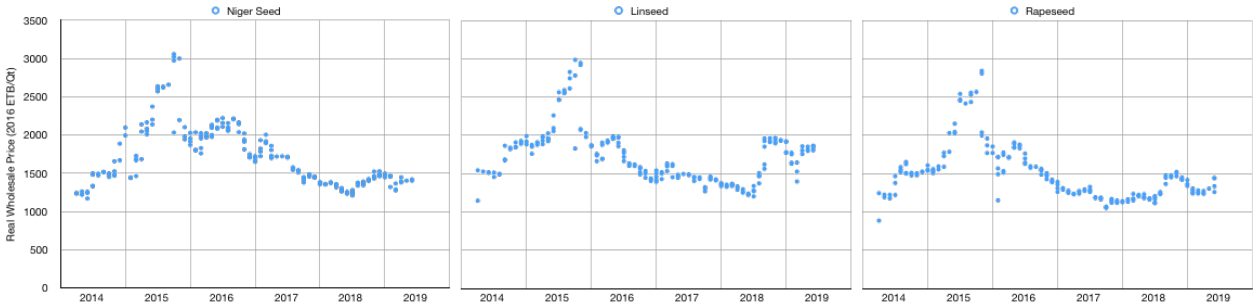
Source: EGTE MIS

In real terms however, the wholesale prices of niger seed, linseed, and rapeseed have shown a general decline from late 2015 onwards (Figure 4.17), although there appears to be a recent uptick in real prices from late 2018 onwards.

[32] Pure niger seed oil is not widely produced. It is not only expensive, but processors report that the niger seed is most profitable when used as a flavouring with other oils.

[33] It is important to note however that the market for domestically produced oil only exists because of the limited availability and premium price of imported quality oil. If foreign exchange were to be freely available the import parity price would be reduced to approximately ETB40/litre. It is unlikely that locally processed oil would be competitive at this price.

Figure 4.17: Real wholesale oilseed price trends (Addis Ababa)



Source: EGTE MIS

In this regard, individual traders reported an overall average decrease in their purchase of oilseeds (excluding sesame) of 15%. There were overall reductions in the purchases of neug (16%), rapeseed (19%), and groundnut (34%), and field pea (6%), while purchases of linseed remained the same and of sunflower increased by 12%. For the three main oilseeds (neug, linseed, and rapeseed), reduced production was the reason noted by 83%, 69% and 69% of traders respectively for their reduced purchase of these oilseeds. A minority of traders had increased their oilseed purchases, 27% reported that they had done so because of increased production, but 52% reported that they had done so in response to increased demand. Trader's responses suggest that 2018/19 oilseed production was less than that of 2017/19, but in some areas, demand has increased. This aligns well with smallholders' responses who noted that edible oil had become more difficult to access from the market.

Overall, nominal prices of domestically produced edible oil have increased over the course of the last year in line with inflation. The price of imported palm oil has remained constant, but its availability in the market appears to have declined. This has created new opportunities for domestic and commercially imported oils as well as contraband oil, which is reappearing in the market in increasing volumes, and potentially for the increased monetization of food aid oil, (although such an increase has not yet been recorded).

The market for edible oil now consists of a number of different segments:

- For the poorest consumers, the cheapest source of oil is the palm oil imported with GoE support and distributed to consumer associations and retail outlets for sale at ETB 25/litre. Volumes of imported palm oil have been substantial (435,000 MT) in the past and have dominated the market, but it appears that this exercise is no longer as effective as before, especially in rural areas.
- Better off consumers in urban areas divide into two segments:
    - Edible oil (especially soya and sunflower oil) is commercially imported by the private sector without GoE support, which retails at ETB80-100/Litre. The customs data necessary to track volumes of commercially imported edible oil is no longer available, but in 2017, the total imported volume was 63,680 MT.
    - Domestically produced oil from larger commercial producers, derived mainly from rapeseed and cottonseed. This oil is sold at a price just under that of imported oil, i.e. ETB 65-75/litre. It is of limited availability (estimates by processors themselves suggest the total volume to be no more than 20,000 MT) and distributed almost exclusively through urban outlets.

- Rural consumers in some areas can access limited volumes of domestically produced oil produced by small-scale producers derived mainly from linseed, rapeseed and niger seed. This is produced in small quantities for sale mainly in rural markets at a price of approximately ETB90/litre. It is difficult to estimate the volume produced but this report estimates that it would be no greater than 20,000 MT.
- Rural consumers have access to oil from two other sources:
    - The RRA found that contraband oil has reappeared in rural markets in discernible volumes. This appears to be associated with the increased volume of informal trade across the border of Somali Region as a result of both reduced regulation on the one hand, and increased demand on the other. Such oil is of good quality (refined sunflower oil) and was found to be competitively priced with commercially imported oil (ETB 75-80/liter).
    - Self-monetized food aid oil is also available but tends to be collected by traders for sale in urban markets. The oil fetches a high price (ETB100/liter or above). Given that the total volumes imported annually do not exceed 10,000 MT, and that only a small proportion (10% at most) of that is actually self-monetized, the total volume of this product on the market is probably of the order of 1,000MT, which when compared with the overall market of 550-600,000 MT, is effectively negligible.

4. Food Security

This chapter considers household food security from a number of perspectives including not only access to food, but also the availability of employment and wage rates, changes in food consumption, the accessibility of markets, and the availability of staple commodities. The responses of smallholders are used to determine how each of these factors have changed over the course of the last year.

The majority of smallholder focus groups indicated that household food security had decreased in 2019, although responses varied considerably by Region. In Tigray, responses were evenly balanced between increased and decreased food security, but in Oromiya and SNNPR a majority indicated that food security had declined (Table 5.1). When disaggregated by woreda status, the majority of PSNP woredas were less food secure, while 50% of non-PSNP woredas were more food secure.

Table 5.1: Focus group experience of relative food security level

Region	Less Food Secure	No Change	More Food Secure
Tigray (n=22)	36%	27%	36%
Amhara (n=52)	36%	39%	25%
Oromiya (n=69)	61%	5%	33%
SNNPR (n=12)	67%	8%	25%
Woreda Status			
PSNP (n=103)	64%	16%	20%
Non-PSNP (n=52)	21%	29%	50%

Source: RRA 2019

In the minority of cases where improved food security was reported, the reasons showed little consistent variation between Regions. When disaggregated by woreda status, the impact of increased productivity was seen to be the dominant reason for increased food security in both PSNP and non-PSNP

areas (Figure 5.2). This is in marked contrast to results obtained in 2015, when increased employment opportunities were the main driver of improved food security.

Table 5.2: Reasons cited for increased food security by Woreda status

Woreda Status	PSNP	Non-PSNP
Number of groups responding	42	32
Improved Yields this season	71%	81%
GoE and donor programs	13%	3%
Improved access to markets	2%	13%
More employment opportunities	2%	0%
Better livestock prices	5%	0%
Higher levels of remittance	2%	3%

Source: RRA 2019

20% of all smallholder groups canvassed noted that there had been no change in food security and 50% that food security had been reduced. Amongst these last groups, reduced production in the previous Meher season was the most common factor quoted for reduced food security, although a small percentage of PSNP woredas reported reduced production in the Belg also. Otherwise, increased food prices, followed by the reduced availability of land were the most important factors reducing food security (Table 5.3). Respondents in PSNP woredas also reported a shortage of employment opportunities, although this was not noted as a factor in the non-PSNP areas.

Table 5.3: Reasons cited for reduced food security by Woreda Status

Woreda Status	PSNP	Non-PSNP
Number of groups responding	65	15
Reduced availability of land	11%	20%
Lower yield in Belg season	6%	0%
Lower yield in Meher season	39%	53%
Less Employment Opportunities	14%	0%
Higher food prices	19%	20%
Other	11%	7%

Source: RRA 2019

Wage Labor

Traders indicated that unskilled wage rates had increased across all Regions. Overall, the rate of increase in wages was 30%, which significantly exceeds the rate of inflation so that in real terms based on traders' responses peri-urban wages appear to have increased by 12.5% (Table 5.4).

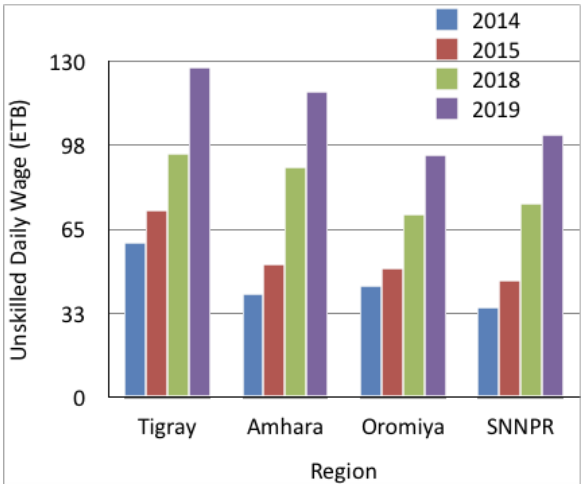
Table 5.4: Traders' estimates of wage rates by Region

Region	Current Unskilled Peri-urban Daily Wage	Unskilled Peri-urban Daily Wage Last Year	% Increase
Tigray	148	115	28%
Amhara	113	82	38%
Oromiya	107	76	25%
Somali	137	106	29%
SNNPR	108	80	36%
Dire Dawa	90	86	5%
Mean	116	89	30%
Addis Ababa	170	136	25%

Source: RRA 2015

Farmers generally reported wage rates for agricultural work that were generally lower than those reported by traders. Nevertheless, the average rate has increased from ETB 44/day in 2014 to ETB 109/day in 2019, i.e. overall rate of increase of 150% over the last five years, and 33% over the last year (Figure 5.1). This compares with an overall increase of 70% in the general CPI over the last five years, and 16% over the last year, indicating that rural wages have risen substantially in real terms over the last five years and that this rate of increase has accelerated over the last year.

Figure 5.1: Smallholders' estimates of wage rates by Region



Source: RRA 2015 and 2019

When disaggregated into PSNP and non-PSNP woredas, average wage rates showed little difference between the two groups (Table 5.5). Peri-urban wages were consistently higher than rural wages and the rate of increase was similar across all groups.

Table 5.5: Smallholders' estimates of wage rates by woreda status

	Current Unskilled Daily Wage	Unskilled Daily Wage Last Year	% Increase
PSNP (peri-urban)	118	92	28%
PSNP (rural)	113	84	35%
Non-PSNP (peri-urban)	113	86	31%
Non-PSNP (rural)	102	77	32%

Source: RRA 2019

The availability of peri-urban labor reported by traders showed no consistent trends in most areas except for Tigray, where more than 80% of traders reported that labor had become harder to find, and in Addis Ababa, where labor had become easier to find. The difference between wage rates for unskilled work reported in Addis and elsewhere readily explains the latter change. In rural areas, a majority of farmers reported that labor had become less available that it was last year (Table 5.6).

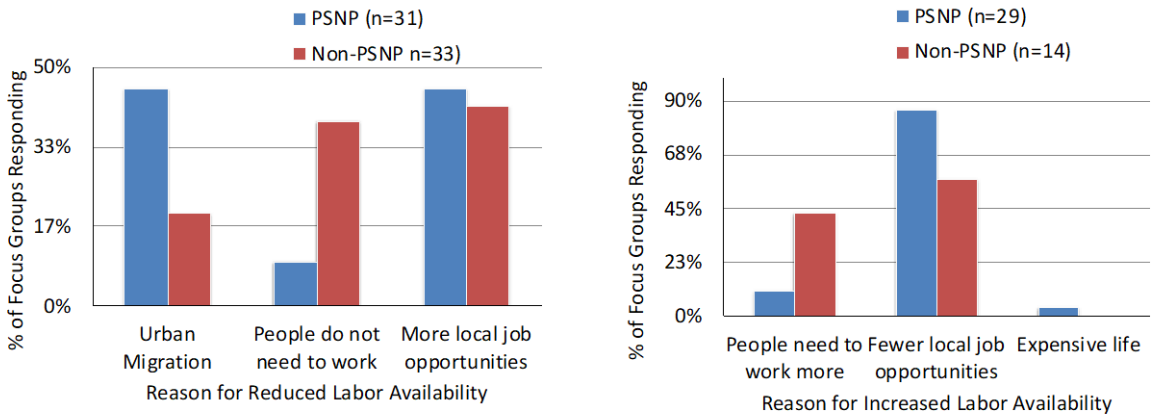
Table 5.6: Farmers assessment of the availability of labor as compared with the previous year.

	More Available	Less Available	No change
PSNP (n=101)	20%	52%	28%
Non-PSNP (n=53)	23%	68%	9%

Source: RRA 2019

The labor price and availability trends show levels of increase that suggest the labor market is tightening. The reasons reported for changes in labor availability varied amongst woredas, so that increased labor opportunities and decreased labor opportunities were both quoted as reasons for reduced and increased labor availability in different areas (Figure 5.2). It was notable however that lack of job opportunities and urban migration for work featured more strongly as factors reported in PSNP woredas, as might be expected within poorer communities.

Figure 5.2: Reasons for Changes in Labor Availability



Source: RRA 2019

Analysis of wage rates and labor availability trends suggests that households are able to earn more in real terms. It is possible that rural households might be more food secure as a result of the additional income, but for that to be true it would also be necessary for employment opportunities to have kept pace with rural population growth. That was not determined by this Bellmon Survey and the general increase in rural/urban migration that is currently occurring would suggest that such an increase in rural employment opportunities may not in fact be happening. Indeed, the income elasticity of agricultural employment observed by Mellor and Dorosh[34] of about 30%, would indicate that employment opportunities will not increase as rapidly as agricultural growth itself. Under such circumstances, it will be income earned as a result of urban employment that might contribute to increased food security – provided that income could be effectively remitted.

Overall, the wage and employment situation reflects a trend that is positive for food security, but which appears to depend more upon urban than upon rural demand to maintain the increases in real wage rates that have been observed over the last 12 months.

Consumption

Focus groups were asked to compare household consumption of key staples, edible oil and meat over the last year, with their consumption five years previously and to give reasons for any changes that were reported. The results of this aspect of the RRA are confusing and merit further investigation.

The results comparing levels of consumption were consistent across Regions and showed little variation between PSNP and non-PSNP woredas. Overall, a clear majority reported that consumption levels of

[34] Dorosh P, and Mellor J. (2013) Why Agriculture Remains a Viable Means of Poverty Reduction in Sub-Saharan Africa: The Case of Ethiopia. Development Policy Review 2013, 39(4) 419-441.

three major cereals, and edible oil had all increased. Even meat is reportedly now more widely consumed in greater amounts than was reported in 2015. (Table 5.6).

Table 5.6: Proportions of focus groups noting changes in the consumption of key commodities.

Commodity	Number of groups responding	Increased	No Change	Decreased	Don't eat it
Maize	138	66%	22%	9%	3%
Wheat	128	53%	27%	18%	2%
Teff	140	56%	34%	3%	6%
Edible Oil	144	58%	37%	4%	1%
Meat	143	42%	46%	6%	6%

Source: RRA 2019

These trends suggest a widespread increase in food security to be occurring even in the less food secure (PSNP) woredas. Previous surveys have reported that consumption had increased more amongst the non-PSNP woredas, but that trend was not reported in 2019. Instead it was found that a more PSNP beneficiaries had increased their consumption of these commodities by greater amounts than had those living in non-PSNP areas. This was true not only for teff, wheat, and maize, but also for meat. Suggesting that PSNP beneficiaries were in some way "catching up" in terms of consumption with those in non-PSNP areas. (Table 5.7).

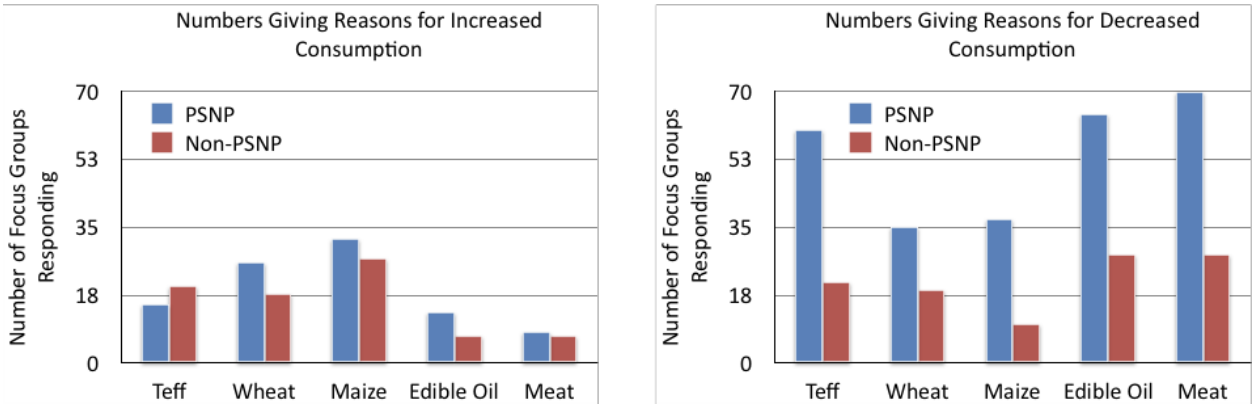
Table 5.7: Extent of Increase in Consumption of Different Commodities

Commodity	Woreda Status	Number of groups responding	<10%	11%-25%	>25%
Maize	PSNP	78	29%	27%	44%
	Non-PSNP	40	30%	43%	27%
Wheat	PSNP	68	38%	27%	35%
	Non-PSNP	44	46%	36%	18%
Teff	PSNP	81	30%	25%	46%
	Non-PSNP	54	39%	33%	28%
Edible Oil	PSNP	85	27%	29%	44%
	Non-PSNP	51	27%	27%	45%
Meat	PSNP	84	25%	21%	54%
	Non-PSNP	47	24%	38%	38%

Source: RRA 2019

Nevertheless, when asked to provide reasons for these trends, respondents replied quite differently. A substantial majority of PSNP respondents (266 to 94) and a smaller majority (106 to 79) of those in non-PSNP woredas noted reduced rather than increased consumption (Figure 5.3).

Figure 5.3: Responses of Focus Groups on Reasons for Consumption Change



Source: RRA 2019

The trends described in response to the earlier questions were generally reversed. In the PSNP areas, this was especially true for teff, edible oil and meat, but was also evident for wheat and maize, where more respondents noted reduced rather than increased consumption. In non-PSNP areas, edible oil and meat were also consumed less, although consumption of teff and wheat was reduced as often as it was increased, and only maize showed a pronounced increase.

It is possible that focus group respondents were giving cursory replies to the first set of questions concerning changes and amounts, but were more honest when it came to giving replies to more probing questions about their reasons for changing consumption patterns, or it might be that in a group forum, especially in PSNP areas, no respondent would want to claim that they could now afford to eat more meat or teff, and so provided more negative responses to the probing questions than might have been truly warranted. In any event, it is useful to consider the reasons given for the changes (Tables 5.8-5.11).

The largest proportion of respondents in PSNP woredas noted the main reason for increased maize consumption was that it was cheaper than other commodities (Table 5.8). Only 22% of respondents related the increased consumption to increased own production.

Table 5.8: Reasons for the increase in consumption of different commodities in PSNP woredas

Reason	Maize	Wheat	Teff	Edible Oil	Meat
Number of groups responding	32	26	15	13	8
Price is lower than other foods	78%	50%	7%	31%	13%
Increased production	22%	50%	80%	39%	63%
Improved nutrition/taste			13%	31%	25%
Increased income					

Source: RRA 2019

By contrast, increased production was noted most frequently as the main reason for the increased consumption of wheat and especially teff. Increased income was not a reason for increased consumption of any commodity.

In non-PSNP woredas, while price is still a major factor affecting maize consumption, it was own production that was most frequently reported as the main factor and this was still more pronounced in the cases of wheat and teff (Table 5.9).

Table 5.9: Reasons for the increase in consumption of different commodities in non-PSNP woredas

Reason	Maize	Wheat	Teff	Edible Oil	Meat
Number of groups responding	27	18	20	7	7
Price is lower than other foods	37%	22%	0%	29%	0%
Increased own production	63%	72%	90%	43%	71%
Improved nutrition/taste	0%	0%	0%	0%	0%
Increased income	0%	6%	10%	29%	29%

Source: RRA 2019

These results are very similar to those recorded in the RRA of 2015.

Reduction in the consumption of maize in PSNP woredas was mainly due to reduced production, although price was also a factor. Price was clearly the dominant factor for the other commodities. Where consumption had decreased, it was almost always in response to price rather than availability. (Table 5.10).

Table 5.10: Reasons for the decrease in consumption of commodities in PSNP woredas

Reason	Maize	Wheat	Teff	Edible Oil	Meat
Number of groups responding	37	35	60	64	70
Other foods are cheaper	5%	6%	2%	0%	1%
Price is too high	27%	49%	58%	61%	84%
Reduced market availability	16%	17%	12%	34%	9%
Reduced production	51%	29%	28%	5%	4%

Source: RRA 2019

In non-PSNP woredas the number of respondents noting a decrease in consumption of commodities was small (Table 5.11), being lowest for maize and greatest for wheat. Price was the most important factor for teff, edible oil and meat, but reduced production had also led to the reduced consumption of maize and wheat.

Table 5.11: Reasons for the decrease in consumption of commodities in non-PSNP woredas

Reason	Maize	Wheat	Teff	Edible Oil	Meat
Number of groups responding	10	19	21	28	28
Other foods are cheaper	20%	5%	0%	0%	3%
Price is too high	40%	37%	57%	89%	64%
Reduced market availability	0%	5%	10%	4%	9%
Reduced production	40%	53%	33%	7%	24%

Source: RRA 2019

Access to Markets

The availability of food in markets is a key component of food security on which the concept of cash transfers is fundamentally dependent. Historically, many poor households in Ethiopia had limited access to markets, especially in the more remote areas. This is no longer the case. The RRA found that teff and maize were available to all respondents, although a small proportion of respondents had to travel outside the area to obtain it at a reasonable price (Table 5.12).

Table 5.12: Access to Markets for PSNP and Non-PSNP Respondents

		It is available at a price we can afford	It is available but too expensive	We have to travel out of the area to find it at a reasonable price	It is not available anywhere
PSNP	Teff (n=98)	5%	95%	0%	0%

		It is available at a price we can afford	It is available but too expensive	We have to travel out of the area to find it at a reasonable price	It is not available anywhere
	Wheat (n=90)	26%	62%	10%	2%
	Maize (n=94)	55%	36%	9%	0%
	Sorghum (n=73)	36%	48%	12%	4%
	Pulses (n=85)	15%	75%	7%	2%
	Oil (n=97)	7%	73%	5%	14%
Non-PSNP	Teff (n=52)	8%	90%	2%	0%
	Wheat (n=50)	44%	44%	12%	0%
	Maize (n=40)	75%	20%	5%	0%
	Sorghum (n=23)	52%	30%	13%	4%
	Pulses (n=45)	20%	67%	13%	0%
	Oil (n=51)	6%	78%	10%	6%

Source: RRA 2019

Although cereals were available in markets, price was a major deterrent to consumption. The effect of price was greater in PSNP than non-PSNP woredas, as might be expected, but teff, pulses and edible oil were reported to be too expensive in both PSNP and non-PSNP woredas.

The result for teff reinforces its status as a cash crop – even though it is so widely produced, it is still considered to be too expensive for many smallholders themselves to consume, and instead it is sold to higher-income consumers, often in urban areas. The results for pulses and edible oil are potentially more concerning. Specifically, GoE transfers under the PSNP have cut back on pulses and edible oil and consumers are expected to be able to source these commodities from markets. These results suggest that this may not be as feasible as expected. Even though pulses were available in local markets, 75% of PSNP respondents reported that they could not afford to purchase them. The result may contain an element of bias – 36% of PSNP respondents also indicated that maize was also too expensive to purchase, but it is unlikely that they did not do so. Nevertheless, it is indicative of a market constraint.

The very limited availability of edible oil is surprising given the substantial volume of palm oil that is imported with GoE support and distributed to consumer associations across the country. The imported volume is equivalent to at least 4 litres per person and is sold at a price of only ETB25/liter, but the expected level of availability is not at all reflected in the RRA responses in either PSNP or non-PSNP woredas. In both cases, close to 75% of respondents found that despite the importation exercise, edible oil was not available at a price they could afford. Instead, it was observed that some rural consumers were purchasing locally produced neug and linseed oil at prices of ETB80-90/liter, although volumes were low.

The RRA results suggest that neither pulses nor edible oil are not as available as expected. Further research might be required to determine the implications from the perspective of the GoE edible oil distribution exercise, but from a PSNP perspective it is evident that transfers that include both pulses and edible oil will be effectively utilised.

Traders were also canvassed as to the availability of commodities in markets. They generally reported more negatively than smallholders. 25% of traders could identify some localities within their areas where cereals would not be available at some point of the year (generally the lean season). For pulses, this figure increased to 28% and for edible oil, to 35%. When asked why they thought that the commodity was not available, a variety of reasons were given, but the most common was that there were no towns or villages in the localities that were large enough to justify the presence of a market.

The second most common reason was that the cost of transport to those localities was prohibitively high (this was not a major reason in the case of edible oil) (Table 5.13).

Table 5.13: Reasons for the Absence of Commodities from Certain Localities

	There is no town or village big enough for a market	The cost of transport to the market is too high.	There is better market in the area	Population is too small to make it worthwhile	Population is too poor to make it worthwhile	Food aid makes the markets uncertain	Other
Cereals and Pulses (n=51)	51%	20%	14%	14%	0%	2%	0%
Oil (n=53)	68%	4%	4%	2%	4%	9%	9%

Source: RRA 2019

The disincentive effect of food aid was noted by only one of the 51 traders responding for cereals and pulses but by five of the 53 responding for edible oil.

The physical absence of a market because there is no settlement is predominantly a traders' perspective. From a smallholders' perspective, the market would be simply "far away" from their homes. This and the reasons that there was the option of a better market and of too small a population to make it worthwhile are similar in that smallholders would always have lived under such constraints and would undoubtedly become used to accessing a market somewhere within the Region. The issue of transport cost is more substantial, but it is significant that it was not widely quoted, suggesting that traders are able to supply most of the markets that currently exist.

Nevertheless, while commodities might be available to purchase at markets, the distance that PSNP respondents might be required to transport the purchased goods may still be a constraint to access. The RRA found that although markets were not impossible to access, the distances to markets selling key commodities could be significant, and in some cases averaged more than 10 km (Table 5.14).

Table 5.14: Distance to Nearest Market Selling Key Commodities

Region	Wheat	Maize	Pulses	Edible Oil
Tigray	10.00	11.06	8.86	9.58
Amhara	8.45	8.95	8.79	8.75
Oromiya	11.46	11.21	12.12	13.08
SNNPR	6.50	6.40	7.25	4.83
Total	9.47	10.05	9.58	9.62

Source: RRA 2019

Distances were greater in Oromiya and least in SNNPR, but given that these are average responses it can be expected that they might be substantially more than shown in some cases. Such distances represent a cost to beneficiaries that may be deducted from the value of any cash transfer.

Summary

Overall these responses suggest a marginal decline in food security associated with reduced production in 2018/19. This decline appears to have been offset to a limited extent by increased wages, but appears to have been greater in PSNP than in non-PSNP areas. Results are nevertheless spatially variable and sometimes conflicting even within the same area.

It is evident that markets are functioning adequately. At least one staple cereal could be accessed in all of the areas sampled. Nevertheless, the fact that low-cost edible oil was not widely available suggests that the current oil distribution program might benefit from review.

The responses given to the food security questions by smallholder groups, give little other cause for concern and suggest that provided the 2019/20 Meher season continues to be favourable, the outlook for 2020 is certainly no worse and potentially marginally better than 2019.

5. Impact of DFSA (PSNP) and Humanitarian Interventions

This chapter considers the impacts of food and cash interventions under the DFSA and JEOP programs. Smallholder and trader responses are used to determine the relative importance of transfers, their impacts on local prices and behaviours and the extent of self monetization. Smallholder preferences for food or cash are also assessed.

USAID's Cooperating Sponsors currently implement DFSA programs that support 1.36 million beneficiaries in 45 woredas, while JEOP interventions support another 1.46 million in 77 woredas. An additional 1.4 million PSNP beneficiaries in Somali Region receive food and cash provided by USAID through WFP, who also distribute USAID food aid to 1.9 million humanitarian response beneficiaries. Altogether 6.1 million beneficiaries receive USAID support either directly or indirectly. This represents 35% of the overall Ethiopian caseload, which comprises 8.0 million beneficiaries under the PSNP and 9.5 million receiving humanitarian support.

PSNP and humanitarian programs provide food, cash, or a combination of the two, in which the earlier transfers are cash, while food is provided later in the year (which coincides with the lean season). The cash transfer has been unconditional for 20% of beneficiaries (i.e. the aged, infirm or orphaned) and provided as cash for work for the remaining 80%.

Because the PSNP and JEOP transfers have been provided in response to work performed, they are often described as a wage. This has resulted in comparisons with the prevailing unskilled wage rate on the one hand and with the cost of living on the other. In practice, neither comparison is strictly appropriate. Cash for work is a transfer modality that does not reflect actual wage rates, which at ET94-128/day for unskilled labor are substantially higher than the rates paid under PSNP of ETB 39-55/day in 2019. Neither does the cash transfer reflect the cost of living since it is reflects only the cost of the standard ration, ignoring all other costs that commonly make up 30% of a vulnerable household's budget. For these reasons, both cash and food transfers can arguably be considered as two aspects of a consumptive stipend that reduces the tendency of vulnerable households to be drawn down the spiral of chronic impoverishment.

It is important to understand the significance for beneficiaries of the cash and food transfers made under these programs. For the majority, the RRA found that PSNP transfers make up only a small proportion of food consumed (Table 6.1).

Table 6.1: Significance of PSNP transfers – Beneficiary Responses

	Very small amount (up to 15%)	A significant amount (16-40%)	As much as half (41-60%)	More than half (61-85%)	All or nearly all of it (86-100%)
"During PSNP food distribution months, What % of HH food comes from PSNP?"					
Count (% of Responses)	41 (59%)	12 (17%)	9 (13%)	6 (9%)%	1 (1%)
"During PSNP cash distribution months, what % of total HH cash income comes from PSNP cash?					
Count (% of Responses)	48 (60%)	18 (23%)	8 (10%)	5 (6%)	1 (1%)
"When beneficiaries get cash, how much do they spend on food?"					
	8 (10%)	1 (1%)	14 (17%)	29 (36%)	29 (36%)

Source: Rapid Rural Assessment.

For over 50% of beneficiary households, transfers made up less than 15% of food consumed and only 10% considered that more than half of their food needs were met from resources. For cash transfers, this trend was slightly more pronounced. The findings suggest that transfers provide supplementary support to the majority of beneficiaries, which is in line with PSNP expectations. The existence of strongly dependent households, for whom transfers met more than half of their food needs, begs the question as to how such households might survive during those months when transfers are not provided. This survey did not identify which households these might be, although it is expected that they might include a high proportion of direct support beneficiaries. The survey results suggest that the current suggestion to provide year-round support to such beneficiaries, merits further consideration.

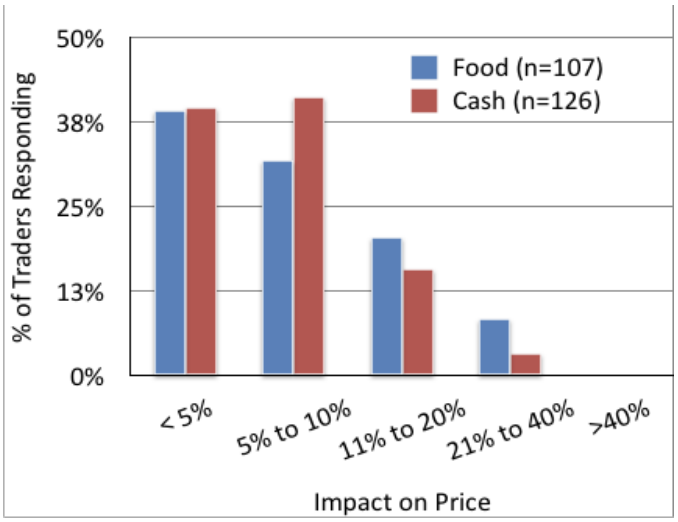
Cash provided through the programs was less significant for more households. In fact, focus groups reported without exception that the cash provided was not enough to meet their needs.

Nevertheless, the RRA also found that while the cash provided did not make up a large proportion of household income in most cases, it was still predominantly spent on food, with over 70% of beneficiaries reporting that more than half of the cash was used in this way. Clearly the cash income, although inadequate, was significant.

The impact of the PSNP on farmers' agricultural practices was complex. Just over half (56%) of 89 focus groups reported that they had not changed their cropping practices, while 34% reported that they grew more crops and 10% that they grew less. At the same time, 40% reported that they had reduced their use of crop inputs, 24% that they had increased input use and 36% that they had not changed their use of inputs.

The reported increase in crop production featured high proportions (20% each) of teff and wheat, 14% maize, 14% sorghum and 18% cash crops. Given that teff is often grown by poorer households as a cash crop it would appear that the most frequent impact of PSNP on cropping was to promote cash crop production, but the effect was not large.

Figure 6.1: Traders' assessment of impact of PSNP transfers upon commodity prices

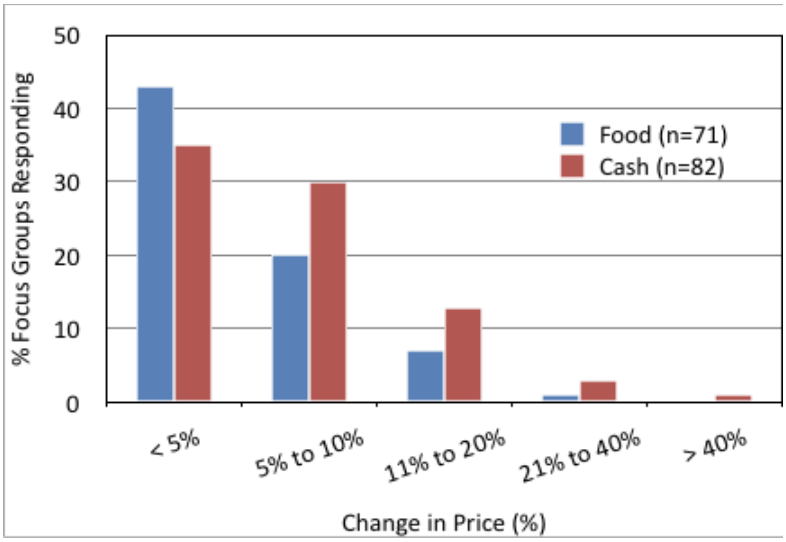


Source: RRA 2019

The majority (81%) of traders reported noticeable impacts of cash or food distribution upon market prices. As might be expected, food distribution reduced food prices according to most traders[35] , while cash distribution increased prices. (Figure 6.1).

Focus groups of smallholders in PSNP woredas reported similar impacts. 80% of woredas reported a decrease in price following food distribution, while 92% reported an increase following the distribution of cash (Figure 6.2).

Figure 6.2: Smallholders' assessment of impact of cash and food transfers upon price.



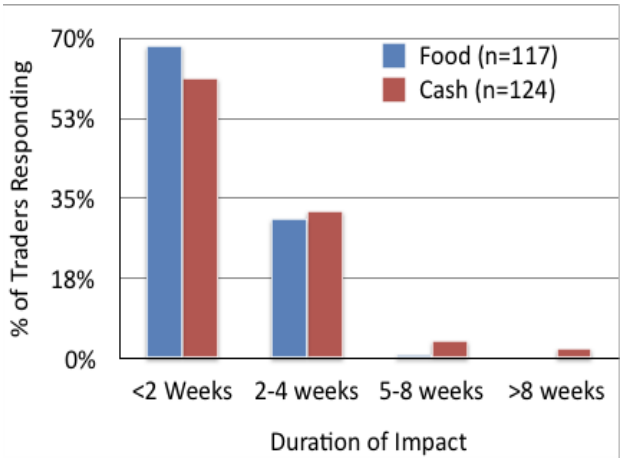
Source: RRA 2019

Impacts were generally less than 10% increase or decrease in price for cash or food transfers respectively. This pattern aligns with farmers' responses in 2015 and has been consistently observed in at least five RRAs over the last ten years.

After reaching a maximum soon after distribution, impacts then declined. Traders reported little discernible difference between cash or food transfers although a small minority reported a persistent impact of cash. (Figure 6.3).

[35] Responses were not absolute; 16 traders (13%) reported increases in grain prices following food distribution, while 8 traders (6%) reported a decrease in prices following cash distribution.

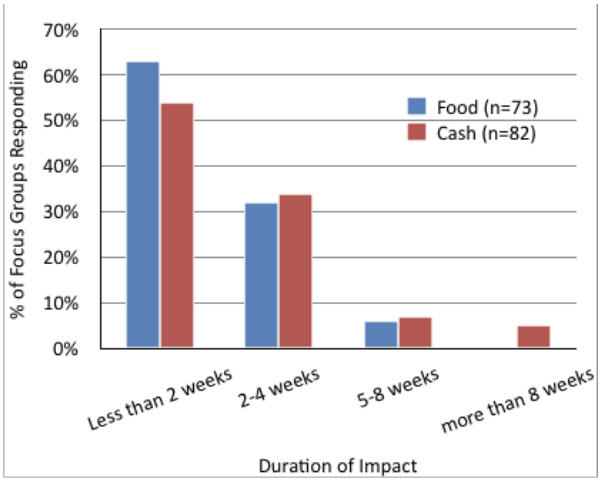
Figure 6.3: Total Duration of Impact of Cash or Food Transfers (Traders' estimate)



Source: RRA 2019

Smallholders responded similarly, (Figure 6.4), although they considered the total impact of food transfers to be of shorter duration than that of cash. The same result was reported by smallholders in 2015.

Figure 6.4: Smallholders' assessment of total duration of PSNP transfer impact



Source: RRA 2019

Overall, responses suggest that the most frequent maximum impacts of both food and cash upon price are of the order of a 10% variation in price, and that the total impact (which may decline in scale over time) is of approximately two to four weeks duration. This result which mirrors those obtained by successive RRAs over the last ten years can now be considered to be quite robust.

In terms of predictability, more than 80% of beneficiaries, reported that they knew when transfers would be made, with little variation across Regions. Nevertheless, the absolute predictability of transfers was only 51% and ranged from 64% in Amhara to 38% in SNNPR. This is lower than figures reported in 2015 when about 75% of households were confident that transfers would be made on the expected date.

Self-Monetization

Traders reported that some beneficiaries in all Regions were willing to monetise food aid. Monetization was reported most frequently in Tigray and least in SNNPR. (Table 6.2)

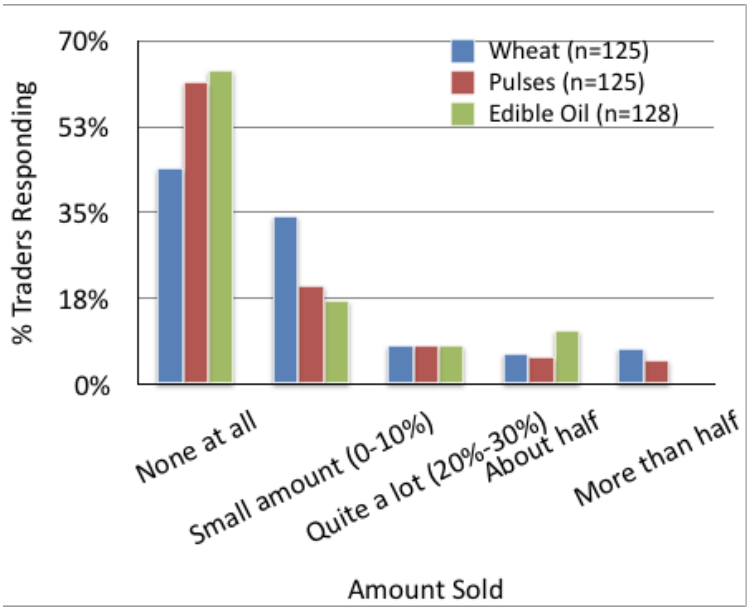
Table 6.2: Proportion of Traders Reporting Sales of PSNP Transfers in their Areas

Region	%	N
Tigray	94%	18
Amhara	62%	45
Oromiya	39%	41
SNNPR	33%	6

Source: RRA 2019

The commodity most widely monetized was reported to be wheat, although differences were small. The results also varied by Region. In particular, in Tigray edible oil was monetized in larger amounts than elsewhere.

Figure 6.5: Amounts of Commodities sold by beneficiaries to traders



Source: RRA 2019

The monetization of edible oil was more widespread than was observed in 2015 and suggests a reversal in the trend of reducing edible oil monetization. Prior to 2014, successive RRAs had found edible oil to be the most widely monetized commodity, but in 2014 and again in 2015, the monetization of edible oil was much reduced. The results collected in 2019 suggest that edible oil transfers are again considered (at least in Tigray) to worth selling. The reason for this change has not been identified.

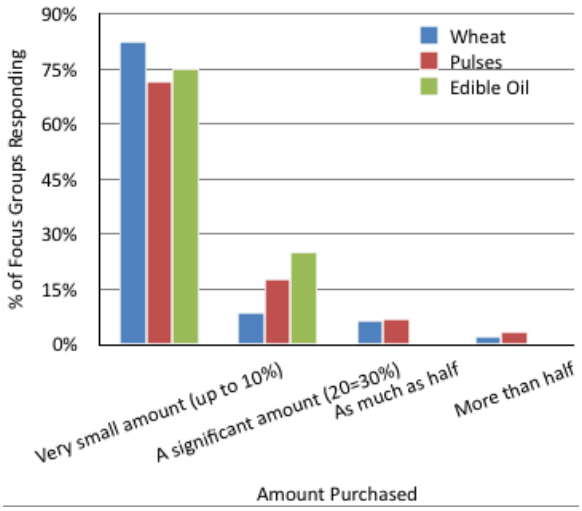
When smallholders were asked if traders ever came to purchase the PSNP transfers, 75% of smallholders in Tigray reported that this occurred often, or every time food was distributed, 45% in Amhara reported similarly, but only 29% of focus groups in Oromiya gave such responses, while none did in SNNPR where monetization was reportedly much less common. The commodity most frequently purchased in Tigray

and Oromiya was wheat, while in Amhara, smallholders indicated that traders would buy “anything they could get”.

The volumes monetised were reported by smallholders to be generally small (Figure 6.5). In SNNPR, wheat was the only commodity sold to traders. In the other main Regions, all three commodities were sold, but rarely in large amounts. It was widely reported that monetization was necessary in order to buy larger volumes of cheaper commodities (i.e. wheat would be sold to buy maize and edible oil to buy cheaper oil or other food).

It must be noted that the RRA only considered monetisation of commodities by sale to traders. It is possible that some volume of all commodities will be monetised by sale to neighbouring smallholders. Hence the extent of monetisation shown in Figure 6.6 is most probably conservative.

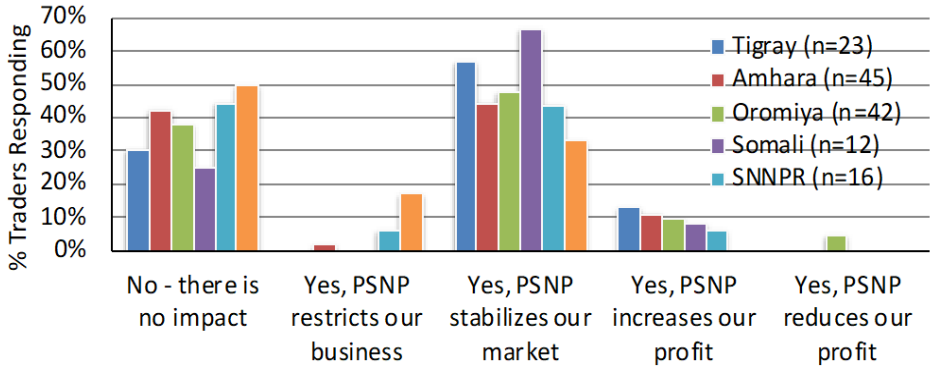
Figure 6.6: Amounts of commodities purchased from beneficiaries by traders



Source: RRA 2019

Traders were asked to rate how the PSNP affected their business. The replies were consistent across Regions and in line with previous RRA surveys (Figure 6.7), 96.5% of traders reacted neutrally or positively, while 3.5% felt that it restricted their business or reduced their profits. Significantly, positive responses outweighed even neutral ones, with a majority of traders noting that the PSNP stabilized the markets or increased their profits.

Figure 6.7: Trader’s Assessment of PSNP Impacts



Source: RRA 2019

When asked if, given foreknowledge of an increase in cash transfers, traders would increase their stock in anticipation, responses were generally positive. 89%, 88%, and 82% of traders in Tigray, Amhara , and SNNPR said they would, but only 55% of those in Oromiya responded in the same way. These responses reflect a more positive attitude towards cash transfers than was recorded in the past, when traders were less willing to change their business practices. This may be because traders have come to recognise the predictability and impact of cash transfers on the markets, but the reason remains unclear.

When asked why they would not change, the most common reply by 50% of traders responding negatively, was that that it would be socially unacceptable to take advantage of the situation, while 21% thought there was no guarantee that the cash would be spent on food and 21% that the increased volume of sales would be too small to justify extra purchase.

Overall it is evident that the PSNP transfers of both food and cash do have impacts on market prices, albeit of short duration and limited extent, as well as impacts upon traders and upon beneficiaries (as indeed they are intended to do). On the basis of past RRA results, a disincentive impact of PSNP transfers upon farmers is unlikely. It is more probable that use of improved inputs had increased as a result of the additional food or cash supplied to households but the extent of any such effect remains undetermined. The net effect of transfers upon local traders is clearly positive.

Food/Cash Preferences

Given the increasing emphasis on the inclusion of a cash element in transfer programs, the preferences of beneficiaries in this regard were canvassed. At a national level, 41% of indicated a preference for food only, while 42% would prefer part food and part cash in each transfer (Table 6.3). The options of cash only, or cash after harvest and food in the lean season, were clearly less preferred.

Table 6.3: National and Regional preferences of transfer type

Region	Number of groups responding	Food only	Cash only	Part food and part cash	Food in lean season and cash at other times
Tigray	20	55.0%	10.0%	35.0%	0%
Amhara	32	25.0%	15.6%	50.0%	9.4%
Oromiya	35	40.0%	5.7%	45.7%	8.6%
SNNPR	8	62.5%	12.5%	25.0%	0%
Dire Dawa	2	100.0%	0%	0%	0%
Total	97	41.2%	10.3%	42.3%	6.2%

Source: RRA 2019

Two main reasons were given for preferring food. The first being the negative reason that when cash was provided it was not enough to buy the food that was required. The second was the more positive reason that food could be sold for cash, which could then be used to buy more and cheaper food. These are exactly the same two responses that were most prominent in 2015. Significantly, only one group used the fact that there was no food to buy in the area as their main reason, and only one group preferred food because it was less easily abused than a cash transfer (although this was the most common secondary reason, given by 67% of respondents). The fact that cash could be spent on other things besides food was the major reason given by 73% of groups that preferred to receive cash only.

When asked to indicate what their preference might be in the event of a transfer program that included food transfers on some occasions and cash on others, respondents gave no clear preference between

half cash:half food and 1/3 cash:2/3 food, but definitely preferred to receive food earlier and cash later in the season (Table 6.4).

Table 6.4: Group preferences of transfer mix by Woreda status.

Number of groups responding	1/2 : 1/2 cash first, food later	1/3 : 2/3 cash first, food later	1/2 : 1/2 food first, cash later	1/3 :2/3 food first, cash later	1/2: 1/2 food/cash mix in all transfers
53	32%	32%	11%	4%	21%

Source: RRA 2019

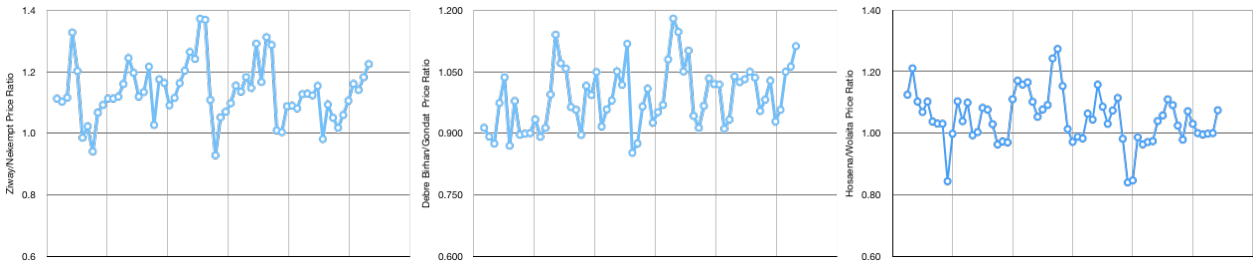
Overall it was evident that food continued to be the preferred choice of beneficiaries under most circumstances. The reason for this is very clear, namely that the cash transfer is considered inadequate to meet household needs, and that even though cash transfers are both more convenient, and allow beneficiaries to choose how they allocate their resources and what foods they buy (two widely quoted secondary reasons for preferring cash), the benefits of receiving cash are inherently less than those of receiving food.

There are two main reasons for this. First, the food basket for USAID beneficiaries includes wheat and vegetable oil, both of which can be sold at high prices in local markets and the cash used to buy substantially larger volumes of maize and palm oil. In June 2019, one kg of wheat could be sold to purchase at least 1.75 kg of maize in most Regions, while one litre of USAID fortified soya oil had the value of four litres of palm oil. Such transactions represent substantial increases in nutritional value. Secondly, the widely repeated statement that cash was "never enough" reflects that fact that cash transfers are set at the beginning of each period from which time, their value is continuously eroded by inflation.

Market Variability

The reluctance of smallholders to adopt a cash-only transfer can be partly ascribed to the variability of prices. The graphs of prices displayed in Chapter 4 bear witness to the considerable variation that exists between and within different markets. This is very relevant to development programs such as the PSNP or DFSAs that include a cash transfer. Such transfers are normally calculated on the basis that the cash provided should be enough to allow for the purchase of 15 kg of the cheapest cereal (generally maize), with some additional element for other requirements. In the initial development of the PSNP, a pan-national cash transfer rate was used. This resulted in some complaints since CPI developments in one Region might be quite different from those in another, so Regional CPI data was used to modulate the basic transfer rate. Nevertheless, a comparison between wholesale prices of maize in pairs of markets in the same Regions, shows the extent to which intra-Regional variation can occur (Figure 6.8).

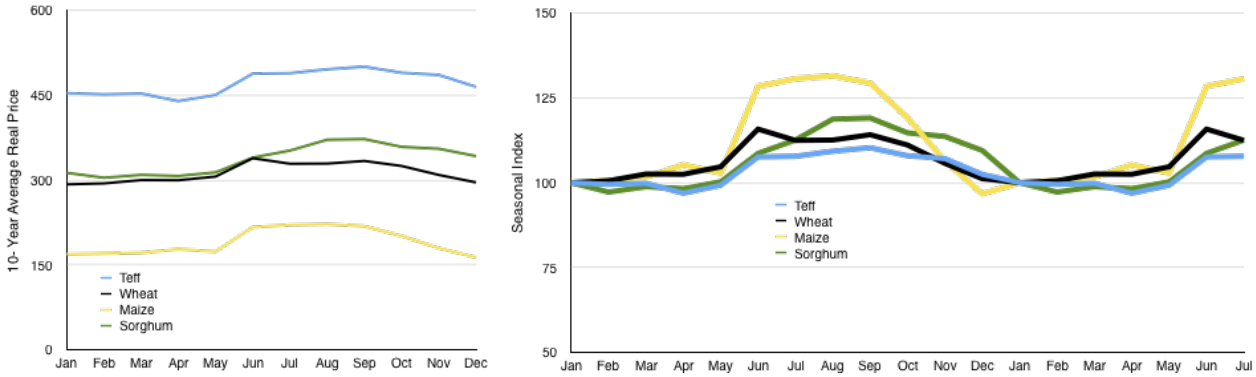
Figure 6.8: Price Ratios for Wholesale Maize in Pairs of Markets within the Same Regions



Source: EGTE MIS

Further analysis showed that costs vary significantly from season to season, and so an attempt has been made to provide seasonal indexation to the transfer as well. Analysis of historical real price data allows the generation of monthly real wholesale price trends for teff, wheat, maize and sorghum in Addis (Figure 6.9), which can be used to detrend recent price series.

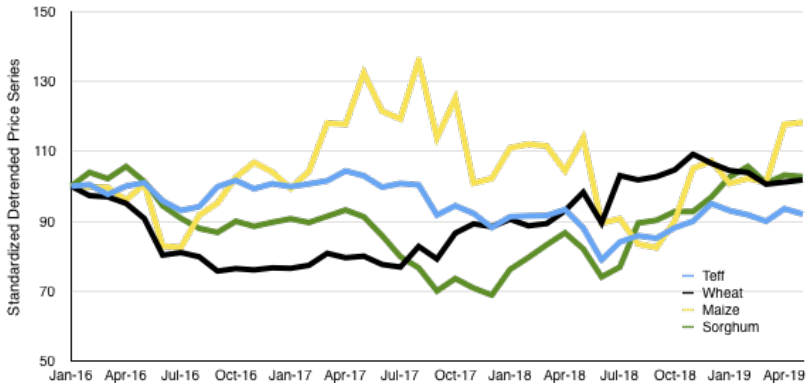
Figure 6.9: 10-Year Average Real Price Trends and Seasonal Index for different cereals at Addis Ababa



Source: EGTE MIS, CSA CPI

The detrended series for 2016-2019 (Figure 6.10) still display considerable variation, exceeding +/- 20% of the detrended mean on a number of occasions.

Figure 6.10: Standardized Detrended Wholesale Price Variation at Addis Ababa over a 40 month period



Source: EGTE MIS, CSA CPI

Available data suggests that variation in the market is such that prices will on occasion still differ from the fiscally, spatially and seasonally adjusted indices by as much as 20%. Thus, even though markets may function well enough to allow consumers access to staple commodities throughout Ethiopia, prices may vary to such an extent that an indexed transfer is still inadequate to allow the consistent purchase of food.

Summary

Field observations show that USAID food transfers impact most beneficiaries to a limited extent, although a small proportion (10%) of households are heavily dependent upon them. The impacts of both food and cash on market prices are quite evident. In general, food tends to disrupt prices by smaller amounts and for a briefer period than cash, but the differences are small. Traders demonstrate a clear

preference for food transfers for the main reason that it stabilizes local markets. Smallholders also prefer to receive food rather than cash for the main reason that the cash provided is “never enough”.

About half of smallholders receiving regular transfers had changed their cropping patterns somewhat, most commonly increasing the production of cash crops. A substantial majority of traders reported no detrimental impact of food aid transfers on their business activities and at least 48% reported a positive stabilisation effect.

Overall, this Bellmon survey and analysis found no significant long-term detrimental impact of food aid in rural areas, either in terms of production, or in terms of disruption to markets or investment in trade. It was also quite evident that cash transfers will not be as acceptable to beneficiaries as food, until the value of each cash transfer can be guaranteed to be commensurate with the price of the food that would be foregone.

6. Logistics of Food Aid Distribution

The Bellmon analysis is asked to consider that adequacy of ports, storage and transport capacities to handle the anticipated volumes of Title II commodities. Each of these aspects is considered in turn in the chapter below.

Port Capacity

Title II food aid is currently imported to Ethiopia through Djibouti which now possesses five ports including the original Djibouti Port, Tadjoura, Djibouti Container Port, the Bulk Oil handling Port and as of April 2017, Doraleh Multipurpose Port (DMP). Of these, only Djibouti Port and DMP are of significance to the movement of food aid.

The performance of the original Djibouti Port in 2016 when it handled over 2.5 million tons of food aid was a clear demonstration of its capacity. Nevertheless, the port handles more than food aid alone and as Ethiopian imports increase in volume, attention is turning to additional options, including Port Sudan, in Sudan, Massawa and Assab in Eritrea and Berbera in Somaliland[36]. The capacities of each of these ports are summarised in Annex E. The following aspects are most relevant:

Port Sudan has been used by exporters of Ethiopian sesame and a pilot shipment of fertilizer was also imported through the port, but the distance between Port Sudan to Addis at 1770 km is prohibitive. While Port Sudan has the necessary experience and physical capacity to reduce the load on Djibouti, it is not an ideal choice if the options of Assab or Berbera are developed.

Massawa is 1317 km from Addis Ababa. Considerable investment would be required to allow significant volumes of food aid or any other goods to be offloaded through Massawa, and given the closer proximity of other ports, it is unlikely that Massawa would play a major role in the importation of Ethiopian requirements.

Assab is substantially closer to Addis Ababa, at 882 km, it is in fact the closest of all potential ports (including Djibouti which is 910 km from Addis). The port has limited capacity at present, but the recent

[36] There is also the option of using Mombasa in Kenya. Currently distance makes this impractical, but the construction of the planned Nairobi-Moyale railway would provide a connection between Mombasa and the Ethiopian border that might improve the feasibility of this route.

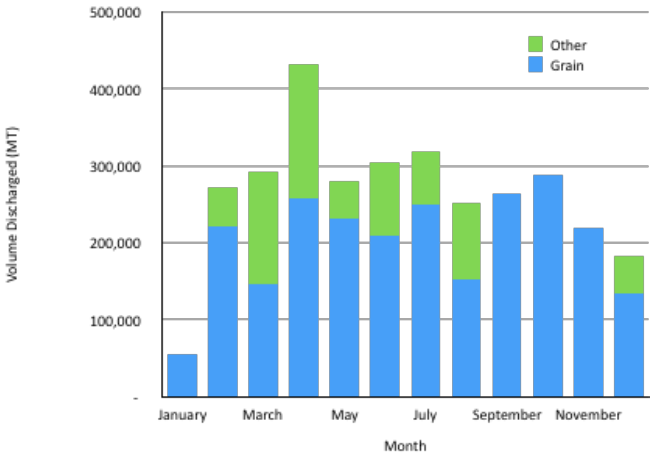
rapprochement with Eritrea (in the course of which the Ethiopian Prime Minister pointedly drove with the Eritrean President along the full length of the road from Assab to the Ethiopian border) has raised the possibility that further capacity might be developed in the future

The port at Berbera is 932 km from Addis, and has been used in the past to reduce congestion at Djibouti. In 2018 the GoE confirmed its interest in the port by taking a 19% share in a major program to expand the port's capacity in conjunction with the Government of Somaliland and Dubai Ports World. The upgrading of offloading and storage capacity may allow Berbera to become a viable alternative to Djibouti, although it will also require some rehabilitation of the Berbera-Jigjiga road for that potential to be fully realised.

Currently however, the port has 5 berths capable of accommodating the Handysize vessels generally used to ship 25,000[37] ton lots of food aid as well as 120,000 tons of covered storage. Offloading and bagging capacity is limited. In 2016 WFP was able to receive 45,000 tons of wheat per month through the port and it is not expected that Berbera will be able to achieve higher discharge rates until its upgrading has been completed over the next two year's.

Djibouti Port has been used to move the food aid required by Ethiopia for more than 20 years. Prior to 2016, Djibouti's actual performance in terms of volumes discharged was never more 30% of capacity, most often as a result of a shortage of trucks to receive and move grain as well as congestion at the berths. Nevertheless, in 2016, a concerted effort was made to move the 2.5 million tons of food aid required following the impact of El Nino in 2015. The arrival of shipments was carefully coordinated, and additional trucks were contracted by GoE to move the grain from the port. Over the course of 2016, 2.48 million tons of bulk grain were discharged at a peak rate of over 280,000 tons per month (Figure 7.1). This unprecedented performance was the more remarkable for having been achieved simultaneously with the discharge and uplift of 600,000 tons of bulk fertilizer.

Figure 7.1: Uplift of Grain from Djibouti Port in 2016



Source: WFP Bulk Discharge Data

[37] Although the draft of Berbera Port is specified to be 9.5-12 metres, i.e. capable of accommodating Handymax vessels carrying 50,000 tons, it would appear that this draft is not currently available, and vessels are limited to 25,000 ton capacity.

Doraleh Multipurpose Port (DMP) began operations in April 2017 and has played a major role in the movement of bulk grain from that date onwards. The port's design of a single wharf of 15.3 metre draft, served by a large number of cranes and both fixed and mobile bagging facilities allows it to accommodate different combinations of vessels, including the larger Panamax ships capable of carrying up to 75,000 MT. A discharge rate for bulk grain (including bagging) of 7,500 MT per day has been achieved for individual vessels, but rates depend mainly upon the availability of trucks and are more often only 30% of that.[38] Nevertheless, DMP can undoubtedly discharge 200,000 MT of bulk grain per month without difficulty and could potentially achieve 500,000 MT per month if the movement of trucks were to be effectively coordinated.

Inland Transport

The process of food aid importation and distribution is critically dependent on the availability of adequate haulage capacity. The movement of freight out of Djibouti has often been the main constraint to the timely discharge of vessels, and the increase in port capacity now intensifies the focus on inland transport as the logistical "choke point" for Ethiopian food aid.

There are no current statistics for Ethiopian Dry Haulage Capacity. A survey undertaken in 2009[39], identified a total capacity of 600,000 MT, made up of 30% large trucks (18 MT or over) and 70% smaller units. Capacity has undoubtedly increased since that time. TESCO, the main haulage company operating at Djibouti reported that at least 50% of its 400 trucks running between Djibouti and Addis were less than three years old, while traders reported to the RRA that the availability of trucks has been consistently increasing. Nevertheless, demand too has grown, as economic development has increased the need for construction materials such as steel and cement as well as fertilizer and other goods.

TESCO estimate that there are approximately 1,500 trucks of 40-45 MT capacity (i.e. a capacity of approximately 60,000 MT) moving grain and other large volume[40] commodities between Djibouti and the main discharge points in Ethiopia (Addis Ababa, Mekele, Dire Dawa, Adama, Dessie and Kombolcha). The discharge rate of Djibouti Port and DMP together is potentially 33,000 MT per day but in practice average rates are unlikely to exceed 50% of that amount. At the current average round-trip time of seven days, the maximum volume that can be uplifted from the port is 8,570 MT per day. This is significantly less than even half of the port discharge capacity, although it is still enough to move more than three million MT of large volume freight annually.

The three key constraints to inland transport of food aid by road are: a). The number of trucks, b). The turnaround time and c). Competition with other commodities (especially fertilizer) for available freight capacity. The evidence of 2016 suggests that all three of these issues can be addressed satisfactorily. On that occasion, uplift rates of grain exceeded 200,000 MT/month in eight months of 2016. To achieve this: a) Additional trucks were conscripted both from the military and other private sector agencies (including cement producers) to increase the volume of freight, b) Turnaround time was reduced through the organized allocation of trucks to different destinations to minimize congestion at any given

[38] A computerized gate pass system allows trucks to be within the port for 20 minutes only. This would be adequate under normal circumstances, but teething problems with bagging equipment create delays forcing drivers to leave the port and reenter, substantially reducing the overall efficiency so that the rate of uptake is often no more than 70 trucks per day as compared with 100 or more per day at SDTV.

[39] Afro Consult & Trading PLC. 2010. Final Report of National Freight Transport and Logistics Program

[40] The term "bulk commodities" has been avoided since almost all grain is bagged at the quayside upon discharge and transported inland as breakbulk.

warehouse, while c).Competition with other commodities was reduced (but not completely avoided) through the use of other ports, such as Berbera and Port Sudan.

The level of performance in 2016 was exceptional, and there is some concern that it might not be easily repeated at present. In particular, road conditions within Djibouti itself have deteriorated severely and the time to travel from the Port to the Djibouti/Ethiopia border has increased from three hours to a full day. Equally significantly, localized unrest within Ethiopia has obliged many trucks to reroute, adding significantly to the distance and time taken, increasing costs overall. Although the inland transport of food aid by road has improved significantly over that last ten years, the issue still requires scrutiny for each shipment.

In this regard, the development of the rail link between Djibouti and Addis Ababa has been considered critical, since it could provide the additional capacity required to move significant volumes of grain rapidly and at low cost. The rail link has been operational since 2018. Each train consists of 32 wagons, 30 x 56 MT capacity and 2 x 70 MT capacity, giving a total volume carried of 1,820 MT, equivalent to 42 trucks. Given a turnaround time for trucks of seven days, the rail system has the capacity to replace 294 trucks at its current level of operation, with a turnaround time of four days per train and one train per day. At peak performance it is expected to run two trains per day with a turnaround time of three days, effectively augmenting large-volume inland freight capacity from Djibouti by 50%.

In practice however, the railway has experienced operational difficulties, including a derailment in April 2019 which curtailed operation for three weeks and continues to impact performance[41]. Freight forwarders complain that they do not know when a train will arrive, making it difficult to coordinate the movement of grain from vessels.

In fact the rail link is primarily designed to handle container freight. It does not yet run to DMP, but ends 3.5 km away from the port. All grain must therefore be bagged and carried by truck to the rail siding to be offloaded and restacked in the wagons. While the extension of the railway to DMP is in process, there are no plans for it to run onto the wharf to allow bulk discharge directly into wagons[42]. Instead it will terminate approximately 1 km from the wharf, outside the port and all goods will continue to be transferred to wagons by trucks. Freight forwarders report that while the actual movement of grain into Ethiopia is accelerated by the rail link, it must still be offloaded to trucks for distribution from the sidings in Welenchiti, Mojo and Addis to the final destination warehouses, so that while the demand for trucks is reduced, the impact is not as much as expected. As a result, what was initially expected to be a “game changer” has yet to make a difference. The performance of Djibouti as a port is still constrained by road haulage issues more than any other factor.

Food uplifted from Djibouti to the primary storage centers must then be transported to final distribution points prior to transfer. This exercise has become increasingly efficient with the rapid development of Ethiopia’s road network, while the positive responses of traders reporting increased availability of transport, suggest that road haulage capacity necessary for movement of commodities to secondary distribution points has also increased. Nevertheless, in 2019, distribution has been significantly

[41] Prior to the derailment, trains ran twice each day to Djibouti, following the derailment locomotive speeds were lowered, so that what had originally been an 8-hour trip now takes over 24 hours, including a night stop at Hadigala. As a result, the daily frequency of trains has been reduced from two to one, which arrives at an indeterminate time.

[42] There is in fact no space to accommodate such a connection since the railway terminus is directly adjacent to the Chinese military base, which also abuts DMP.

compromised by local unrest, which has often prevented WFP and GoE trucks from reaching final distribution points and has delayed both PSNP and humanitarian transfers. Sporadic unrest throughout the first half of 2019 shows little sign of abating and must be factored into the scheduling of future food distribution exercises.

Storage

Potential storage capacity for Title II food aid exists in a number of different forms throughout Ethiopia, including grain silos, hollow block warehouses, RUBB halls and a very large number of privately held stores of varying construction. An estimation of capacity is complicated by the fact that much of the volume is regularly rented out to various agencies, (especially WFP, which rents both public and private sector warehouse space, as well as owning its own facilities). The Cooperating Sponsors generally rent storage (with the exception of REST, which owns its own warehouses).

The rental market for storage fluctuates according to the extent of each humanitarian response, but demand has never yet exceeded supply. A comprehensive logistics capacity assessment conducted by WFP in 2017[43] found national permanent storage capacity to be at least 2,190,000 MT. The bulk of this capacity (1,477,300 MT) is held by four government agencies. The largest volume is owned or rented by EGTE, which has a total store capacity of approximately 800,000 MT in major towns, distributed throughout most of the productive areas. In addition, the SFR (now part of NDRMC) has a total of 322,000 MT warehouse capacity in 7 strategically located sites and is now in the process of constructing an additional 350,000 MT of storage. The Ethiopian industrial inputs development enterprise, EIIDE (formerly MEWIT) - owns 238,000 MT of storage throughout the country, many of its which are leased to NGOs, other Companies and WFP. Finally, the Ethiopian Agricultural Commodities Warehouse Services Enterprise (EACWSE), a subsidiary of the Ethiopian Commodity Exchange has 65 warehouses in 21 locations with a total capacity of 117,300 MT. The remaining 712,000 MT capacity is held by smaller government agencies, Cooperative Unions and the private sector.

The total volume was adequate to meet the record logistical requirements of 2016, when over two million MT of food were imported and distributed, and it is anticipated that it will be adequate to meet the lesser needs of 2020. The volumes currently owned or rented by the Cooperating Sponsors are shown in Table 7.1.

Table 7.1: Current Storage capacity of the Cooperating Sponsors

Cooperating Sponsor	Primary Warehouse (MT)	Final Distribution Points (MT)	PSNP (MT)	JEOP (MT)	Balance (MT)
Catholic Relief Services and Catholic Secretariat	34,250	39,890	15,351	60,355	-1,566
Food for the Hungry	30,000	19,790	15,590	23,460	10,740
REST	18,000	80,000	38,130	19,494	40,376
Save the Children	15,000	38,500	-	38,324	15,176
World Vision et al.	46,350	44,520	25,934	47,270	17,666

Source: DFSA/JEOP Partner Interviews

The figures in Table 7.1 show that in most cases, capacity exceeds total requirements and it is possible that some leases may be terminated. Especially since in practice, stocks are normally rotated within a

[43] Available at: https://dlca.logcluster.org/display/public/DLCA/2.6+Ethiopia+Storage+Assessment

six-month period, so that total volumes can be accommodated within a lesser capacity. Cooperating Sponsors also reported that implementing the JEOP in conjunction with the PSNP increases distribution efficiency, since stocks from one program can substitute for those of the other according to need and availability.

All of the Cooperating Sponsors have participated in the PSNP from its inception and as a result are well experienced in the effective storage and distribution of Title II commodities. These interview responses together with past experience indicate that the necessary physical and technical capacity exists to ensure that anticipated volumes could be stored without difficulty.

7. Bellmon Considerations

To inform USAID's Bellmon determination, the following points summarize the analysis and discussion above.

1. **Logistics of Importation, distribution and storage**: Recent experience with the major food aid importation and distribution exercise of 2016 has demonstrated the physical feasibility of importing the proposed volumes of Title II commodities into Ethiopia. Since that time, the facilities at Djibouti have significantly increased in capacity with the construction of Doraleh Multipurpose Port, so that there are not expected to be any physical constraints to importation. Given the current level of access, the increased capacity at Djibouti should be adequate to meet both commercial and humanitarian requirements for at least the next five years. Nevertheless, Ethiopia is also taking steps to access alternative ports in Eritrea and Somaliland so that access to one or more seaports can be maintained even if access to Djibouti becomes restricted.

   Storage capacity at Djibouti port is limited and importation is restricted by the speed with which commodities can be transported inland to primary distribution points. In that regard, the theoretical capacity of the national haulage fleet is unknown, but its actual performance (arguably a more useful parameter) was tested in 2016 and has proven to be adequate to move food aid commodities inland at a maximum rate of at least 200,000MT/month. This is more than enough to move anticipated Title II volumes in a timely fashion. The addition of the Djibouti-Addis railroad, although not yet working at the rate intended, will increase that capacity further. Road haulage capacity necessary for movement of commodities to secondary distribution points has also increased, but local unrest has the potential to disrupt the movement of food and remains a cause for concern.

   Within Ethiopia, storage capacity is more than adequate to handle both PSNP and JEOP commodity volumes. Existing national physical capacity is under-utilised and Cooperating Sponsors have always been able to rent adequate storage facilities in the past to store volumes greater than those anticipated for FY2020.

   Overall, this analysis found that the physical facilities and human resources necessary to import, store and distribute Title II food aid are available. Resources are in fact more than adequate to meet anticipated needs.

2. **Disincentive impacts of food aid:** – both farmers and traders reported unequivocally that a price depressing impact of food aid was regularly observed, but that it was small, local[44] and transitory. From the producer's perspective, food aid distribution made little difference to the majority of producers' crop production. Amongst those who did change their crop production, activities, 78% increased their production and 22% reduced it. A substantial majority (96.5%) of traders reported no negative impact from the PSNP food transfers, while 48% considered it to be beneficial through its market stabilisation effect. Overall no significant disincentive effects were reported by either producers or traders.

3. **Commodity selection:** Market analysis found clear evidence of unmet demand for cereals and edible oil amongst rural communities. The market for pulses has improved from a consumer's perspective, but remains uncertain. Specific commodity considerations are:

    a. Wheat – Ethiopian demand for wheat exceeds its availability. A hiatus in the GoE import process has resulted in increased domestic prices which now substantially exceed import parity levels. Despite the existence of such a price incentive over the last two years, the domestic supply of wheat has not increased to match demand. Millers are unable to access the foreign exchange necessary to import wheat and bread prices have begun to rise. Wheat is a widely consumed cereal in all parts of Ethiopia with the exception of Afar region, where sorghum is preferred. In general however, wheat is an appropriate component of an Ethiopian food aid ration. There is a risk that beneficiaries receiving wheat will monetize it to buy maize, which is significantly cheaper, but the practicalities of storing and distributing maize without risk of loss and/or toxicity either from over-fumigation have always obliged the implementing partners to avoid maize in favour of wheat.

    b. Pulses – with the exception of lentils, pulse prices have fallen from the high levels of 2015/16. Nevertheless, while beneficiaries also reported that pulses were available in most food markets, there is an argument for maintaining pulses in the food aid ration on the basis that prices are no less variable than those of cereals and the argument that cash is ill-suited to address unpredictable price variations is as applicable to pulses as it is to cereals. Field peas, widely used to make shiro are most appropriate to Title II beneficiaries. Although lentils are more readily prepared, their current high price of increases the risk of self-monetisation as compared with field peas or split peas.

    c. Edible oil – the importation of palm oil promoted by the GoE has been effective in the past, but it appears that the program is no longer operating to the same extent as it has done. Responses from farmers in both PSNP and non-PSNP woredas suggest that the availability of edible oil is substantially less than might be expected, given the significant volumes that have been imported. This in itself is enough to suggest that edible oil would be a valuable component of a standard ration, although given the high quality of the USAID refined soya oil and the presence of cheaper lower quality substitutes on the local market, some degree of self-monetization is almost inevitable.

[44] Local in this case implies that, as demonstrated by wholesale market price data, price impacts did not extend beyond the woreda level. This was certainly not the case in 2016, when the large volume of food aid wheat was associated with a clear reduction in real prices, but that exercise was an order of magnitude greater than the volumes anticipated for importation by USAID.

4. **Distribution of Cash:** This analysis considered the capacity of rural markets to provide to beneficiaries who received cash transfers. It was reported that cash transfers did cause some market distortion, but that the inflationary impact was very similar to that of food aid, i.e. local, limited in extent and brief in duration. Beneficiaries reported that it was possible to access markets supplying staple foodstuffs in all of the communities visited. The majority of traders also reported a willingness to increase their supply of goods into an area if they knew that it would receive cash transfers.

   Nevertheless, it was universally reported that cash transfers distributed under the current "wage rate" calculation system were not enough. This response was both relative (the cash provided was not enough to purchase the food aid package), and absolute (the cash provided was not enough to meet their needs even if they purchased cheaper foodstuffs). It was observed that a wage rate calculation system that a) lags behind increases in CPI, and b) uses the cheapest commodities available as a basis for calculation, will inevitably result in an inadequate transfer. Not unexpectedly, therefore, a majority of beneficiaries reported a marked preference for transfers of food, or food and cash, but much less for any system that would result in transfers of cash alone on any given occasion.

5. **Self Monetization of food transfers:** Both traders and beneficiaries reported that some sale of food transfers did occur. The amounts sold varied by Region and commodity, but were generally of the order of 10% or less. Both wheat and edible oil were reportedly often monetized to purchase cheaper substitutes (maize and contraband oil). Overall, levels of monetization were low, and insufficient for traders to report negative impacts.

Annex A: Study Areas

Region

1	Tigray
2	Amhara
3	Oromiya
4	SNNPR
5	Dire Dawa

Zone

1	Central Tigray
2	East Tigray
3	North West Tigray
4	South Tigray
5	East Gojam
6	North Shoa
7	North Wello
8	Oromiya Zone
9	South Gondar
10	South Wello
11	Wag Himra
12	West Gojam
13	Arssi
14	Borena
15	East Hararghe
16	East Shoa
17	East Wellega
18	Horo Guduru
19	Illubabor
20	Jimma
21	West Arssi
22	West Hararghe
23	West Shoa
24	Hadiya
25	Gurage
26	Kanbata & Timbaro
27	Sidama
28	Dire Dawa
29	South East Tigray
30	Central Gondar
31	West Guji
32	Buno Bedele

Woreda

1	Ahferom
2	Degua Tembien

3	Mereb Leke
4	Werie Leke
5	Hawzen
6	Kilte Awlalo
7	Tahtay Adyabo
8	Raya Azebo
9	Awabel
10	Bure
11	Dejen
12	Enemay
13	Gozamen
14	Baso Werena
15	Kewet
16	Menz Mama Midir
17	Bugna
18	Delanta
19	Gidan
20	Guba Lafto
21	Lasta
22	Wadla
23	Bati
24	Dewa Chefa
25	Lay Gayint
26	Farta
27	Ambasel
28	Dehnan
29	Sekota
30	Bahir Dar Zuria
31	Jabi Tehnan
32	Dodota
33	Shirka
34	Sire
35	Tiyo
36	Arero
37	Dugda Dawa
38	Yabello
39	Deder
40	Goro Gutu
41	Grawa
42	Kersa
43	Meta
44	Boset
45	Lume
46	Zway Dugda
47	Guto Gida
48	Sibu Sire

49	Gudru
50	Horo
51	Omo Nada
52	Arsi Negele
53	Shala
54	Shashemene
55	Chiro
56	Ambo
57	Bako Tibe
58	Limo
59	Kacha Bira
60	Dire Dawa
61	Limuna Bilbilo
62	Tanqua Abergele
63	Gulomiheda
64	Laelayi Adiyab
65	Dehana
66	Menz Keno
67	Menz Gera
68	Wegera
69	Tach Gayint
70	Hawassa Zuriya
71	Timbaro
72	Gedeb Asasa
73	Adaba
74	Mareko
75	Sodo
76	Semen ChaCha
77	Gursum
78	Miaso
79	Fentale
80	Adami Tulu Jido Komibolicha
81	Metu
82	Bedele

Kebele Name

1	01 A/Werke
2	011 -1Dober
3	04 Hulaban
4	05-Doregber
5	Sero
6	Negashe
7	Burka Heneta
8	Awudal
9	Muyedin
10	Ganda Rige

11	IJa Aneni
12	Hakabas
13	Burka Jalela
14	Lafto Mada Talila
15	Biftu Diremu
16	Hawi Bilisuma
17	L/Wekro
18	Harkoncha
19	Faye
20	Arba rekete
21	Kiliso
22	Dimedu
23	Dire Seden
24	Dedaela
25	Buta Wogare
26	Koloba Shemeda
27	Egersata Ouduba
28	Ha/Alga
29	Dosha
30	Oubo bericha
31	Halo
32	Lode Sherbe
33	Amogna Deboso
34	Gere lenche
35	Oda Anshura
36	Wak Tola
37	Srte/Babbo kebele
38	Hawlti
39	Ketbilo
40	Tulube
41	Seyo adami
42	Ale buya
43	Digeja
44	Hro Gefare
45	Loko
46	Ouke
47	Chero
48	Falem Yibide
49	14 ™ þ ƒ
50	Leku Egu
51	Dilalo Bero
52	Elamu Tarko
53	Amaro
54	Huko Kore
55	Dambi Gubu
56	Denibi Dima
57	Ademite
58	16 “ þ Ù
59	Emariyam
60	Robit
61	Tahetaye Mogeraya Tsemeri

62	Golbo
63	Angewa
64	Guremegne
65	Nedike Gebere Mahiber
66	Zegba kebele Yegaragot
67	Negasi Amba/07kebele/
68	03/Abedes Gedemibo
69	Tere
70	Yelena Wacha Kebele Geberemahiber
71	03 Kebele
72	Melfa
73	Densa
74	Ayitwiha/01Kebele
75	Chekorit
76	Felna
77	Bete Yohans 012
78	Angeter 01 Kebele
79	Gobgob
80	Yedero
81	Alile Zuriya
82	Tsadkane
83	Ayineme Birhan
84	02
85	K/Mender/03/Kebele
86	Barbi
87	Teche
88	Wayu
89	Gudeberet /Musho/
90	Meko Oda
91	Hada Bossa
92	Oda
93	Mariy
94	Selue
95	Jara Gelelicha
96	Hodo Kebele
97	Yelazenbara kebele gebere mahiber
98	Masana
99	Walana Kebele Geber Mahiber
100	Derato
101	Dide Yabello
102	Jigessa Nanessa
103	Burkitu Megada
104	Eadole Burika
105	6 › þ T
106	Kerara Felecha
107	Dabera Bubura
108	Ourba Welkit
109	Ejrsa chumlugo
110	Oudassa Gola
111	Alibo
112	Shecha Roma

113	Buei Zuriya
114	Tahetaye Enedachiwa
115	Anati Kebele geber mahiber
116	Haro Dimtu
117	Renji
118	Lemuf Ticho
119	Hela Zenbaba
120	Dak Bora Ara
121	Nanawa Kebele gebere mahiber
122	Fande Ejerssa
123	Sadecha Kemele
124	Negeso
125	D/Hiwete
126	Chiba Mikael
127	Hneyi Abargayi
128	Gena Mechawecha
129	Wenidata
130	Kurit Bahir
131	Wegilas
132	Weyinma Awabaye
133	Zalibet Shembekul
134	Jiga Yelimdar
135	Ma wistegulet
136	Enerta
137	Libanos
138	Yekafot
139	Yegodana
140	Sekela
141	Enideshegnet
142	Kokwiha
143	Borebor
144	JiruGemechu
145	Abune Yosep 016
146	Ayuna
147	Lador deba
148	Ma/chekemot
149	Medihn
150	Mihikuan
151	Siwdey
152	Tiya
153	Wedebye 015
154	Welih

Coops

1	Gozamen
2	Sidama Elto
3	Damota
4	Melik
5	Bora Denbel

6	Walta
7	Gibe Dedesa
8	Buno Bedele
9	Ambo
10	Galama
11	Hitosa
12	Tekeze
13	Maed Kilteawlalo
14	Hawzen
15	Erikum
16	Wedera
17	Lume Adama
18	Utta Wayu
19	Haragu
20	Bore Bako
21	Ambassel
22	Merekeb
23	Ghion
24	Dele Betegel
25	Merebe
26	Degua Temben
27	Temesgen
28	Mehoni
29	Gozamen

Market name

1	Wuchale
2	Woldiya
3	Sekota
4	Yechela
5	Entecho
6	Adi Daero
7	Sheraro
8	Asebot
9	Chero
10	Assassa
11	Bekoji
12	Modjo
13	Dire Dawa
14	Assela
15	Arada
16	Yabelo
17	Bako
18	Ambo
19	Nada
20	Jimma Zuria
21	Sire
22	Nekemte
23	Combolcha

24	Shambu
25	Dejen
26	Bichena
27	Bure
28	Hagre Selam
29	Rama
30	Edega A'rbi
31	Hawezen
32	Wukero
33	Mehoni
34	Zalambessa
35	Mekele
36	Lalibela
37	Ayina Eyseus
38	Amde worke
39	Zemero
40	Debre Berhane
41	Sali Gebeya
42	Wogel Tena
43	Kone
44	Muja
45	Bati
46	Shewa Robit
47	Mehale Meda
48	Molale
49	Arbe Gebeya
50	Amba Geiroges
51	Kemese
52	Degehabour
53	Gode
54	Jigjiga
55	Girawa
56	Gursum
57	Kezera
58	Dedere
59	Karamille
60	Chelenko
61	Haro Addi
62	Wolencheti
63	Gubessa
64	Merkeche
65	Hossaena
66	Arsi Negele
67	Finchewa
68	Adaba
69	Aje
70	Shemena
71	Shashemne
72	Mudula
73	Kulito
74	Arero

75	Metagefersa
76	Buee
77	Kella
78	Queshe
79	Shenshecho
80	Ehil Berenda
81	Merawi
82	Habura
83	Dera
84	Zewaye
85	Mettu
86	Tana
87	Jiga
88	Debre Markos
89	Lumame
90	Debre Tabor
91	Bedele
92	Gonder
93	Kemese
94	Areb Gebeya

Annex B: Questionnaires

Questionnaire for Farmers' Focus group Discussion (June/July 2019)

Three focus groups of farmers (comprising of 8 farmers each) will be interviewed per Woreda.

A. Identification

1. Region_____ (A1)
2. Zone _____ (A2)
3. Woreda _____ (A3)
4. Name of locality/PA where the interview was conducted _____ (A4)
5. Name of FGD Participants (A5)

1._____ 5._____
2._____ 6._____
3. _____ 7. _____
4. _____ 8. _____

B. Farmers' Assessment of Crop Yields

1. What is your assessment of average Meher yields in 2010/11 compared to 2009/2010 E.C?

Crop Type	Estimate of Average Yield in 2009/10	Estimate of Average Yield in 2010/11
Teff		
Wheat		
Barley		
Maize		
Sorghum		
Horse Beans		
Field Pea		
Chick Pea		
Haricot Bean		
Neug		
Flax		
Rape Seed		

2. How much of your annual harvest normally comes from Belg production?

Crop Type	Amount from Belg (qt)	Amount from Meher (qt)
Not applicable (all Meher or other season)		
Teff		
Wheat		
Barley		
Maize		
Sorghum		
Horse Beans		
Field Pea		
Chick Pea		
Haricot Bean		
Neug		
Flax		
Rape Seed		

3. What is your expectation of average Belg yields in 2011 compared to 2010 E.C?

Crop Type	Estimate of Average Yield in 2009/10	Estimate of Average Yield in 2010/11
Not applicable		
Teff		
Wheat		
Barley		
Maize		
Sorghum		
Horse Beans		
Field Pea		
Chick Pea		
Haricot Bean		
Neug		
Flax		
Rape Seed		

4. Are root crops important in your area? (B5)
   1=Yes 2=No

5. If root crops are important in your area, what is your assessment of average root crop yields in 2010/2011 and 2009/2010 meher season?

Crop Type	Estimate of average yield in 2010/11 crop year (qt/ha)	Estimate of average yield in 2009/10 crop year (qt/ha)
Irish potato		

Crop Type	Estimate of average yield in 2010/11 crop year (qt/ha)	Estimate of average yield in 2009/10 crop year (qt/ha)
Sweet Potato		
Tarot		
Enset		

Please express enset yield in terms of kocho and bula

6. Has the production of kocho increased in your area in 2010/2011 compared to 2009/2010? (B7)
   1=Yes 2=No

7. If production of Kocho increased in 2010/2011 compared to 2009/2010, what was the most important reason? (B8)
   1=Production of other crops was less so we produced more Kocho
   2=Growth of enset was stronger so we were able to harvest more
   3=We had more enset plants to harvest this year.
   4=Price of Kocho was higher than last year (please indicate prices this year and last year)

8. If the production of Kocho has gone down in 2010/2011 compared with 2009/2010, what was the main reason? (B9)
   1=Production of other crops was more so we produced less Kocho
   2=Growth of enset was weaker so we were able to harvest less
   3=We had less enset plants to harvest this year.
   4=Price of Kocho was lower than last year (please indicate prices this year and last year:

9. How much is the producer's price of Kocho in March 2011 E.C. (B10)
   _____ (Birr/quintals)

10. How much was the producer's price of Kocho in March 2010 E.C.
    _____ (Birr/quintals) (B11)

C. Farmers' grain sales, prices and stock holding intentions

1. What portion of your 2011 E.C. crop do you expect to sell or exchange before the next crop is harvested? (C1)
   1=up to 10% 2=11%-20% 3=21%-50% 4=More than 50%

2. How do you rate your grain sales in 2011 compared to 2010? Please answer for each type of crop separately in the following table:

Crop Type	Grain sales compared with same period last year: 1=a lot less than last year 2=a little less than last year 3= same as last year 4=a little more than last year 5=a lot more than last year	Reason for change: 1=More production 2= Better prices 3= Need more cash 4=Less production 5=Poor prices 6=Need less cash 7=Other
No Sales (tick if appropriate)		
Teff		

Crop Type	Grain sales compared with same period last year: 1=a lot less than last year 2=a little less than last year 3= same as last year 4=a little more than last year 5=a lot more than last year	Reason for change: 1=More production 2= Better prices 3= Need more cash 4=Less production 5=Poor prices 6=Need less cash 7=Other
Wheat		
Barley		
Maize		
Sorghum		
Horse Beans		
Field Pea		

3. What is the current selling price for each crop and how much must you pay if you needed to buy grain from a local retailer at the nearest market?

Crop Type	Price received by farmer (Birr/qt)	Retail price at nearest market (Birr/qt)
Teff		
Wheat		
Barley		
Maize		
Sorghum		
Horse Beans		
Field Pea		

4. How much grain do you expect to keep until the next crop is safely harvested, how much did you have in store at the time of the last main harvest?

Crop Type	Expected amount in store at the end of this coming Meher season (just before harvest) (qt)	Amount that was in store just before harvest last year (qt)
Teff		
Wheat		
Maize		
Sorghum		

5. For the four most important crops, in your area, who are your principal buyers and what would be their relative share of your total annual sales? Should add up to 100% for each crop.

Major buyers that buy grain from you	% share of annual sales of your first important crop	% share of annual sales of your second important crop	% share of annual sales of your third important crop	% share of annual sales of your fourth important crop
C4a	**C4b**	**C4c**	**C4d**	**C4e**
1= Directly to consumers				
2= Rural assemblers				
3= Cooperatives				
4= Wholesalers				
5=Retailers				
6= Millers				
7=Other specify				
Total	100%	100%	100%	100%

D. Labor

1. What is the cost of unskilled labor in your area (per day) now? _____ birr/day (D1)
2. Has the cost of labor increased since last year or decreased? (D2)
    1. 1=increased 2=decreased 3=the same
3. What was the cost of labor at this time last year? _____ birr/day (D3)
4. Is unskilled labor easier or harder to find than it was at this time last year? (D4)
    1. =Easier 2=Harder 3=No change
5. If there is a difference, what is the main reason?
    1. Migration to Addis
    2. People don't need to work
    3. More local job opportunities
    4. People need to work more
    5. Fewer local job opportunities

E. Food Security

1. Is the average household more food secure or less food secure in 2011 E.C. as compared to the year before (2010)? (E1)
    1=More food secure
    2=Less food secure
    3=No change
2. If there was a change what were the two most important reasons for it:
    First important reason: _____ (E2a)
    Second important reason: _____ (E2b)
3. If the food security situation of households is expected to improve, what are the major reasons? (Please indicate two most important reasons.
    First important reason: _____ (E3a)
    Second important reason: _____ (E3b)

Code for reasons

1= Improved yields this season due to better rainfall
2= Improved yields this season due to access to inputs and advice
3=Continued assistance from Government and donor programs to continue
4= Improved access to markets
5= Decline in food prices
6= Decline in prices of other things means more to spend on food
7=More employment opportunities
8=Higher wage levels
9=Better cash crop prices
10=Better livestock prices
11=Higher levels of remittance
12= Other (please specify)

4. If the food security situation of households is expected to decline, what are the major reasons? (Please indicate two most important reasons)
   First important reason: _____ (E4a)
   Second important reason: _____ (E4b)

Code for reasons:

1= Reduced availability of land per household
2= Lower yields in last Belg seasons
3= Lower yields in this Meher seasons
4= High price or inaccessible inputs
5= Assistance from Government and donor programs is spread too thin
6=More competition from elsewhere in markets
7= Higher food prices
8= Higher prices of other things means less to spend on food
9= Less employment opportunities
10= Lower wage levels
11= Lower cash crop prices
12= Lower livestock prices
13= Lower levels of remittance
14=Other (please specify)

5. Has household consumption of the following foods over the last two years changed as compared with their consumption five years ago? If so, please state by how much and why?

Food	Has consumption Changed? 1= Increased 2= decreased 3= No change 4= Don't eat it.	If consumption has changed, by how much? 1= up to 10% 2=11%-25% 3= more than 25%	If consumption has changed, What is the main reason? 1= Other foods are cheaper 2= price is too high 3=price is lower than other foods 4= Not as available in the market 5= we produced more. 6= We produced less. 7=Other (specify)
E5a	**E5b**	**E5c**	**E5d**
Maize			
Wheat			
Teff			
Edible Oil			
Meat			

6. Which statement applies best to the following foods in your area?

Crop Type	Statement applying best: 1= It is available at a price we can afford 2= It is available but too expensive 3=We have to travel out of the area to find it at a reasonable price 4=It is not available anywhere
Teff	
Wheat	
Maize	
Sorghum	
Pulses	
Oil	

F. PSNP/Humanitarian Assistance (all woredas)

1. Which would the poorest households in the area prefer to receive if available as assistance (F1)
   1=Food only
   2=Cash only
   3=Part food and part cash
   4=Food in lean season and cash at other times

2. If their preference is for food only, what are the two main reasons? (F2)
   1=Food can be sold to get cash and buy cheaper food as well
   2=Cash is not enough to buy the food that we need
   3=There is no food in the area to buy
   4=Some people misuse cash, but it is harder to misuse food
   5=Other (please list)

3. If the preference is for cash only, what are the two main reasons? (F3)
   1=Cash can be spent on other things as well as food
   2=Cash is easier to store than food
   3=Cash is easier to carry home than food
   4=Food is cheap and available and with cash we can do more

5=With cash we can buy the food that we want, not the food that we are given
6=Other (Please list)

4. If the preference is for food in one season and cash in another what is the preferred mix? (F4)
   1= ½:½/ Cash first, food later
   2= 1/3: 2/3 Cash first, food later
   3= ½:½/ Food first, cash later
   4= 1/3: 2/3 Food first, cash later
   5= ½:½/ Food/cash mix in all transfers.

G. PSNP/Food aid Impacts (for PSNP woredas and those receiving food aid only)

1. What is the average distance from the community to the nearest market selling:
   wheat: _____in km (G1a)
   maize: _____in km (G1b)
   pulses: _____ in km (G1c)
   oil: _____in km (G1d)

2. Does this woreda receive food or cash or both under the PSNP? (G2)
   1=food 2=cash 3=both

3. Do you notice a decrease in prices when PSNP food or cash is distributed? (G3)
   1=yes 2=no 3= Not applicable

4. If you observed decrease in food price when food is distributed, what is your estimate of the decrease? (G4)
   1=less than 5% 2=5%to 10%
   3=11% to 20% 4=21% to 40% 5=more than 40%

5. How long does the price decrease last when food is distributed? (G5)
   1=less than two weeks 3=5 to 8 weeks
   2=2 to 4 weeks 4= more than 8 weeks

6. Do you notice an increase in price when cash is distributed? (G6)
   1= Yes 2= No 3= Not applicable

7. If you observed increase in food price when cash is distributed, what is your estimate of the increase? (G7)
   1=less than 5% 4=21% to 40%
   2=5% to 10% 5=more than 40%
   3=11% to 20%

8. How long does the price increase last when cash is distributed? (G8)
   1=less than two weeks 3=5 to 8 weeks
   2=2 to 4 weeks 4=more than 8 weeks

For woredas that get food:

9. In those months when food aid is available through the PSNP, what proportion of the food that a household eats will come from the PSNP? (G9)

1=Very small amount (up to 15%)
2=A significant amount (16%- 40%)
3=As much as half (41-60%)
4=More than half (61-85%)
5= All or nearly all of it (86-100%)

10. Do traders come to buy food when it is distributed? (G10)

    1=Never
    2=Just occasionally
    3=Often
    4=Every time

11. If traders do come to buy food when food aid is distributed, what commodity do they buy most of? (G11)

    1=wheat
    2=pulses
    3=vegetable oil
    4=anything they can get

12. If they buy food aid wheat, what proportion of the food aid wheat do they buy? (G12)

    1=Very small amount (up to 10%)
    2=A significant amount (20-30%)
    3=As much as half
    4=More than half

13. If they buy food aid pulses, what proportion of the food aid pulses do they buy? (G13)

    1=Very small amount (up to 10%)
    2=A significant amount (20-30%)
    3=As much as half
    4=More than half

14. If they buy food aid oil, what proportion of the food aid oil do they buy? (G14)

    1=Very small amount (up to 10%)
    2=A significant amount (20-30%)
    3=As much as half
    4=More than half

For woredas that sometimes get cash:

15. When you get cash how much of that cash do you spend on food? (G15)

    1=Very small amount (up to 15%)
    2=A significant amount (16%- 40%)
    3=As much as half (41-60%)
    4=More than half (61-85%)
    5= All or nearly all of it (86-100%)

16. Is the PSNP money that you get enough to meet your food needs? (G16)

1=Yes 2=No

17. In those months when PSNP cash is available, how much of the cash that you can access to comes from the PSNP transfer? (G17)

    1=Very small amount (up to 15%)
    2=A significant amount (16%- 40%)
    3=As much as half (41-60%)
    4=More than half (61-85%)
    5= All or nearly all of it (86-100%)

For all PSNP or humanitarian food aid woredas:

18. Does the community know when food or cash will be distributed? (G18)
    1=Yes 2=No

19. Is it on time enough to be able to predict it accurately? (G19)
    1=Yes 2=No

20. Have farmers changed their use of inputs because of the PSNP/Food aid? (G20)
    1= No, there has been no change
    2= Yes, we now use more inputs
    3= Yes, we now use less inputs

21. Have farmers changed their cropping plans because of the PSNP/Food aid? (G21)
    1= No, there has been no change
    2= Yes, we now grow more crops (if so please list two main crops)
        a)
        b)
    3= Yes, we now grow less crops (if so please list two main crops)
        a)
        b)

Grain Traders' Survey Questionnaire (June/July 2019) Final Version

This questionnaire will be filled by interviewing grain traders operating in selected markets and three traders will be interviewed in each selected market. An additional three (total six) in medium sized markets (Wolayita, Assela, Jigjiga, Alaba, Jimma, Nekemt) and an additional four (total seven) in five large markets (Addis Ababa, Mekele, Dire Dawa, Bahir Dar, Gonder, Shashemene).

A. Identification

1. Region _____ (A1)
2. Zone: _____ (A2)
3. Woreda _____ (A3)
4. Market Place: _____ (A4)
5. Name of Interviewee: _____ (A5)
6. Date of Interview (**MMDDYY**): G.C. _____ (A6)

B. Market Flow

1. What is your assessment of the inflow and outflow of grain to the market in 2011 E.C. compared to 2010 E.C? Please provide answer for each of the five most important crops that the trader normally handles:

Crop ype	Inflow of grain in 2011 E.C compared with 2010 E.C 1= No change 2= increased 3= decreased	If Inflow increased, by how much? 1 = <= 5% 2= 6% - 10% 3= 11% - 20% 4= more than 20%	Reason for increase in inflow 1= Increase in production 2=Increase in quality of grain 3= Increase in price 4= Decrease in farmers' stock holding 5= Other (specify____)	If Inflow decreased, by how much? 1 = <= 5% 2= 6% - 10% 3= 11% - 20% 4= more than 20%	Reason for decrease in inflow 1= Decrease in production 2=Decrease in quality of grain 3= Decrease in price 4=Increase in farmers' stock holding 5= Other (specify____)	Outflow of grain in 2011 E.C compared with 2010 E.C 1= No change 2= increased 3= decreased	If outflow increased, by how much? 1 = <= 5% 2= 6% - 10% 3= 11% - 20% 4= more than 20%	Reason for increase in outflow 1= Increase in urban demand in other areas 2= Increase in demand from other rural areas 3= Reduced local price is more attractive to buyers in other areas 4= Buyers in other areas have more cash 5= Other (specify ___)	If outflow decreased, by how much? 1 = <= 5% 2= 6% - 10% 3= 11% - 20% 4= more than 20%	Reason for decrease in outflow 1=Decrease in urban demand in other areas 2= Decrease in demand from other rural areas 3= Increased local price is less attractive to buyers in other areas 4= Buyers in other areas have less cash 5= Other (specify ___)
B1a	**B1b**	**B1c**	**B1d**	**B1e**	**B1f**	**B1g**	**B1h**	**B1i**	**B1j**	**B1k**
1= Teff										
2= Wheat										
3= Barley										
4= Maize										
5= Sorghum										
6= Horse beans										
7= Field peas										
8= Other (specify)										

C. Trade Activities Previous Years and Plan for 2011 E.C.

1. What is your planned total purchase (all crops added together) in 2011?
   _____ quintals **(C1)**
2. What was your actual total purchase (all crops added together) in 2010 E.C?
   _____ (quintals) **(C2)**
3. What cereal crops do you normally trade? Please indicate the **three main cereals** you normally trade and their **relative importance in terms of volume annually traded** in the following table.

Type of cereal	Volume normally purchased in a year (qt)	Volume you expect to purchase this year (qt)	Reason for difference
c3a	**c3b**	**c3c**	**c3d**
1=Teff			
2=Wheat			
3=Barley			
4=Maize			
5=Sorghum			
6=other (Specify)			

Code for reasons

1= Increased production	4=reduced cost	7=increased demand
2=reduced production	5=increased availability of finance	8=reduced demand
3=increased cost	6=reduced availability of finance	9=other (specify_____)

4. What pulse crops do you normally trade? Please indicate **the three main pulses** you normally trade and their **relative importance in terms of volume annually traded** in the following table.

Type of Pulse	Volume normally purchased in a year (qt)	Volume you expect to purchase this year (qt)	Reason for difference
c4a	**c4b**	**c4c**	**c4d**
1=Horse Bean			
2=Field Pea			
3=Haricot Bean			
4=Chick Pea			
5=Grass Pea			
6=Lentil			
7=other (Specify)			

Code for reasons

1= Increased production	4=reduced cost	7=increased demand
2=reduced production	5=increased availability of finance	8=reduced demand
3=increased cost	6=reduced availability of finance	9=other (specify_____)

5. What oil crops do you normally trade? Please indicate the **three main oil crops** you normally trade and their **relative importance in terms of volume annually traded** in the following table.

Type of Oil Crop	Volume normally purchased in a year (qt)	Volume you expect to purchase this year (qt)	Reason for difference
c5a	**c5b**	**c5c**	**c5d**
1=Niger Seed			
2=Flax			
3=Rapeseed			
4=Groundnut			
5=Sunflower			
6=Other (speciofy_____)			

Code for reasons

1= Increased production	4=reduced cost	7=increased demand
2=reduced production	5=increased availability of finance	8=reduced demand
3=increased cost	6=reduced availability of finance	9=other (specify_____)

D. Market Structure

1. Please complete the following table for grain traders:

Type of market participant	How many are currently participating in this market (Number)	How has the number changed in the last three years? 1= Decreased by more than 10% 2=Decreased by 6-10% 3= Decreased by up to 5% 4= No Change 5= Increased by up to 5% 6=Increased by 6%-10% 7=Increased by more than 10%
D1a	**D1b**	**D1c**
1=Assemblers		
2=Isuzu buyers		
3=Grain Traders		
4=Millers		
5=Other (specify---)		

2. Would you please indicate in the following table **your main grain buyers** in 2010 and 2011 E.C. and their relative share of your annual sales **(column sums should add up to 100%)**

Major buyers that buy grain from you	% share of sales purchased by this buyer in 2010 E.C.	Expected percent share of sales going to this buyer in 2011 E.C.
D2a	**D2b**	**D2c**
1. Local retailers		
2. Local consumers		
3. Grain trading companies		
4. Traders in Addis Ababa		
5. Traders in deficit regions		
6. Large and medium flour mills		
7. EGTE		
8. Other specify		
Total	100%	100%

3. Please indicate in the following table, where you buy grain from and their relative share of your annual purchase. **Column sums should add up to 100%**

Major sources of grain purchase	% share of total purchase in 2010 E.C	Expected % share of total purchase in 2011 E.C.
D3a	**D3b**	**D3c**
1. Local traders		
2. ISUZU traders		
3. Local assemblers		
4. Local farmers		
5. Traders in Addis Ababa		
6. Traders in regions (not Addis Ababa)		
7. Other specify		
Total	100%	100%

4. Which areas have been the main remote markets that you supplied this year? What percent of your total annual sales did each buy? **Please indicate up to three important remote markets and their relative share of total annual sales in the following table**.

Main crops you normally sell	Name of first important furthest grain sales location (market)	% of total annual sales sent to this market	Name of second important furthest grain sales location (market)	% of total annual sales sent to this market	Name of third important furthest grain sales location (market)	% of total annual sales sent to this market
D4a	**D4b**	**D4c**	**D4d**	**D4e**	**D4f**	**D4g**
1=Teff						
2=Wheat						
3=Barley						
4=Maize						
5=Sorghum						
6= Horse bean						
7=Field peas						
8=Lentils						

5. Which remote markets have been the sources of supply to you this year? What percent of your purchases did each supply? **Please indicate up to three important remote markets and their relative share of total annual purchase in the following table**.

Main crops you normally buy	Name of first important furthest grain buying location (market)	% of total annual purchase from this market	Name of second important furthest grain buying location (market)	% of total annual purchase from this market	Name of third important furthest grain buying location (market)	% of total annual purchase from this market
D5a	**D5b**	**D5c**	**D5d**	**D5e**	**D5f**	**D5g**
1=Teff						
2=Wheat						
3=Barley						
4=Maize						
5=Sorghum						
6= Horse bean						
7=Field peas						
8=Lentils						

E. Transport

1. How has the availability of large trucks in 2011 changed compared to 2010? _____ **(E1)**
   1=More available
   2=Less available
   3=No change

2. How has the availability of ISUZU trucks in 2011 changed compared to 2010? ___ **(E2**)
   1=More available
   2=Less available
   3=No change

3. **For up to three of your main cereal commodities**, what is the furthest market that you have sold to in 2011?

Type of grain sold in 2011 E.C.	Name of furthest market sold into	Distance from origin (km)	Type of truck you used 1=Truck & trailer 400 qt. 2=Truck 200 qt. 3= ISUZU 100 qt 4=ISUZU 50 qt 5=Other Specify	Total transport cost (birr/haulage)
E3a	**E3b**	**E3c**	**E3d**	**E3e**
1= Teff				
2= Wheat				
3= Barley				
4= Maize				
5= Sorghum				
6=Other				

4. **For up to three of your main cereal commodities**, what is the furthest market that you have bought from in 2011?

Type of cereal bought in furthest market in 2011 E.C.	Name of furthest purchase market	Distance from origin (km)	Type of truck you used 1=Truck & trailer 400 qt. 2=Truck 200 qt. 3= ISUZU 100 qt 4=ISUZU 50 qt 5=Other Specify	Total transport cost (birr/haulage)
E4a	**E4b**	**E4c**	**E4d**	**E4e**
1= Teff				
2= Wheat				
3= Barley				
4= Maize				
5= Sorghum				
6=Other				

5. **For up to two of your main pulse commodities**, what is the furthest market that you have sold to in 2011?

Type of pulse sold in furthest market in 2011	Name of furthest market sold into	Distance from origin (km)	Type of truck you used 1=Truck & trailer 400 qt. 2=Truck 200 qt. 3= ISUZU 100 qt 4=ISUZU 50 qt 5=Other Specify	Total transport cost (birr/haulage)
E5a	**E5b**	**E5c**	**E5d**	**E5e**
1=Horse Bean				
2=Field Pea				
3=Haricot Bean				
4=Chick Pea				
5=Grass Pea				
6=Lentil				
7=other (Specify)				

6. **For up to two of your main pulse commodities**, what is the furthest market that you have bought from in 2011?

Type of pulse bought in furthest market in 2011 E.C.	Name of furthest purchase market	Distance from origin (km)	Type of truck you used 1=Truck & trailer 400 qt. 2=Truck 200 qt. 3= ISUZU 100 qt 4=ISUZU 50 qt 5=Other Specify	Total transport cost (birr/haulage)
E6a	**E6b**	**E6c**	**E6d**	**E6e**
1=Horse Bean				
2=Field Pea				
3=Haricot Bean				
4=Chick Pea				
5=Grass Pea				
6=Lentil				
7=other (Specify)				

F. Prices and factors influencing prices

1. **For each of the following crops**, what is the current local wholesale price (at which wholesalers can sell locally now), and what is your expectation of wholesale prices at the end of 2011 E.C.?

Type of crops	Current wholesale price (birr/qt)	Expected wholesale price (birr/qt) at the end of August 2011 E.C.
F1a	**F1b**	**F1c**
1= Teff		
2= Wheat		
3=Barley		
4= Maize		
5= Sorghum		
6= Horse beans		
7=Field peas		
8=Chickpea		
9= Haricot beans		
10= Lentils		
11= Other (specify)		

2. What are the **two most important factors influencing supply of grain** in your area at the moment for the following crops?

Important factors influencing supply:	Teff	Wheat	Maize	Sorghum	Pulse
F2a	**F2b**	**F2c**	**F2d**	**F2e**	**F2f**
1=First most important Factor					
2=Second important					

Code:
1=Local production
2= Current prices
3= Farmers' cash needs
4= Farmers' storage capacity
5= Farmer's price expectations
6= Farmers' food security concerns
7=Other (specify)

3. What are **the two most important factors influencing demand for grain** in your area for the following crops?

Important factors influencing demand:	Teff	Wheat	Maize	Sorghum	Pulse
F3a	**F3b**	**F3c**	**F3d**	**F3e**	**F3f**
1=First most important Factor					
2=Second important					

Code:
1= Local production
2= Production in deficit areas (if this area is not a deficit area)
3= EGTE purchase activity
4= Purchasing capacity of traders
5= Strong export markets
6= Buying power of consumers
7= WFP purchase activities
8= Food aid distribution activities
9= Millers purchase activities
10=Other (specify)

4. **Who has the biggest influence and who has the least influence on the wholesale price of your main three commodities**? Please show only for the three most important crops in terms of their volume of purchase.

Your three important crops? 1= Teff 2= Wheat 3= Barley 4= Maize 5= Sorghum 6= Horse beans 7= Field peas 8= Lentils 9=Chick peas 10=Other (specify--------)	Who has the biggest Influence?	Who has the least Influence?
F4a	**F4b**	**F4c**

Codes

1=Traders like me	**5=Isuzu traders**	**9=Donors bringing food aid**
2=EGTE	**6=Big grain merchants in Addis**	**10=Little retail outlets**
3=WFP	**7=Government**	**11=Consumers**
4=Cooperatives	**8=Local authorities**	**12= Other (please specify)**

5. What is the **main cereal consumed in this woreda**? _____ **(F5)**
   1=Teff 2=Wheat 3=Barley 4=Maize 5=Sorghum 6=other (specify____)
6. How many months did local supplies of the main cereal last this year? **(F6)**
   Number of Months after harvest:_____ *(put 12+ for surplus woreda)*

7. How is the price of the main cereal varying this year (2011 E.C.)? : **(Please refer to F5 above for the selected one main cereal consumed in the woreda)**

Main cereal consumed in the woreda (please show for one important cereal only as shown in **F5 above)**	Price to farmers just after harvest (in birr/quintal)	Price to farmers one month after supplies had run out (in birr/quintal)	Expected Price to farmers at the end of the year (in birr/quintal)	Local wholesale price just after Harvest (in birr/quintal)	Local wholesale price one month after supplies had run out (in birr/quintal)	Expected local wholesale price at the end of the year (in birr/quintal)	Local retail price just after harvest (in birr/quintal)	Local retail price one month after supplies had run out (in birr/quintal)	Expected local retail price at the end of the year (in birr/quintal)
F7a	**F7b**	**F7c**	**F7d**	**F7e**	**F7f**	**F7g**	**F7h**	**F7i**	**F7j**
1=Teff									
2=Wheat									
3=Barley									
4=Maize									
5=Sorghum									
6=other (Specify)									

Note: at the end of the year means August

8. Do new traders ever move into the woreda when supplies of cereals have run out?____ **(F8)**
   1=Yes 2=No

9. What is the main pulse consumed in this woreda?_____ **(F9)**
   1=horse beans 2=Field Peas 3=Haricot beans 4=Chickpea 5=Grasspea 6=Lentils

10. How many months did local supplies of the main pulse last this year? **(F10)**
    Number of Months after harvest:_____ (put 12+ for surplus woreda)

11. How is the price of the main pulse varying this year (2011 E.C.)? **(Please refer to F9 above for the selected one main pulse crop consumed in the woreda)**.

Main pulse crop consumed in the woreda (please show for one important pulse crop only **as shown in F9 above)**	Price to farmers just after harvest (in birr/quintal)	Price to farmers one month after supplies had run out (in birr/quintal)	Expected Price to farmers at the end of the year (in birr/quintal)	Local wholesale price just after Harvest (in birr/quintal)	Local wholesale price one month after supplies had run out (in birr/quintal)	Expected local wholesale price at the end of the year (in birr/quintal)	Local retail price just after harvest (in birr/quintal)	Local retail price one month after supplies had run out (in birr/quintal)	Expected local retail price at the end of the year (in birr/quintal)
F11a	**F11b**	**F11c**	**F11d**	**F11e**	**F11f**	**F11g**	**F11h**	**F11i**	**F11j**
1=Horse Bean									
2=Field Pea									
3=Haricot Bean									
4=Chick Pea									
5=Grass Pea									
6=Lentil									
7=other (Specify)									

Note: at the end of the year means August

12. Do new traders ever move into the woreda when supplies of pulses have run out? ____**(F12)**
    1=Yes 2=No

13. If you were aware that beneficiaries in PSNP areas would be given more cash and less food, would you investigate the possibility of selling food into that area?_____ **(F13)**
    1=Yes 2=No

14. What would be **the most important factor** that determined whether or not you sold food into the area?_____ **(F14)**
    1=Cost of transport
    2=Number of people with extra cash
    3=Number of other traders already selling in the area
    4=Local regulations
    5=Availability of trustworthy business counterparts in the area
    6=Your own cash flow
    7=Other (please list)"

G. Access to Credit

1. Do you have access to bank credit for the purchase of grain? **(G1)**
   1=yes 2=no

2. Has the availability of credit changed over the last year? **(G2)**
   1=No.
   2=Yes, it has become harder to obtain credit
   3=Yes, credit is available but interest rates have gone up.
   4=Credit is now easier to obtain.

3. If credit has become harder to obtain, has that affected your purchase and sales? **(G3)**
   1=No.
   2=Yes, I purchase and sell less
   3=Yes, I purchase and sell the same but in smaller amounts

4. If credit has become harder to get, what is the main reason? (G4)
   1=No collateral
   2=Interest rates too high
   3=Other bank charges too high
   4=Don't have the necessary contacts

5. If credit has become harder and you purchase and sell less overall, by how much has your business been reduced? **(G5)**
   1=Up to 10%
   2=11%-25%
   3=26%-50%
   4=More than 50%

H. Labor

1. What is the cost of unskilled labor in your area (per day) now? _____ birr/day **(H1)**

2. Has the cost of labor increased since last year or decreased? **(H2)**
   1=increased 2=the same 3=decreased

3. What was the cost of labor at this time last year? _____ birr/day **(H3)**

4. Is unskilled labor easier or harder to find than it was at this time last year? **(H4)**
   1=Easier 2=No change 3=Harder

I. Additional Questions for Traders in PSNP and Food aid woredas only

1. Does this woreda receive food or cash or both under the PSNP? **(I1)**
   1= Food 2= Cash 3= Both

2. Are there areas in this woreda where pulses are not available in the markets at some times of the year? **(I2)**
   1=Yes 2=No 3=Don't know

3. Are there areas in this woreda where cereals are not available in the markets at some times of the year? **(I3)**
   1=Yes 2=No 3=Don't know

4. If there are areas where pulses or cereals are sometimes not available in the markets, what is the main reason? **(I4)**
   1= There are no towns or villages big enough for a market
   2= The cost of transport to bring cereals or pulses to the markets that exist is too high.
   3= There is a better market in the woreda so all grain goes there instead

4= The population there is so small that it is not worth it to bring grain to the area.
5= The population there is too poor to be able to afford enough grain to make the business worthwhile
6= Food aid makes the markets there too uncertain
7= No one goes there
8= Other (please list)

5. Are there areas in this woreda where edible oil is not available in the markets at some times of the year? **(I5)**

1=Yes 2=No 3=Don't know

6. If there are areas where edible oil is sometimes not available in the markets, what is the main reason? **(I6)**

1= There are no towns or villages big enough for a market
2= The cost of transport to bring oil to the markets that exist is too high.
3= There is a better market in the woreda so all oil goes there instead
4= The population there is so small that it is not worth it to bring oil to the area.
5= The population there is too poor to be able to afford enough oil to make the business worthwhile
6= Food aid makes the markets there too uncertain
7= No one goes there
8= Other (please list)

7. Do you notice any change in prices when PSNP food or cash is distributed? **(I7)**

1=Yes 2= No

8. If yes, what changes do you notice when food is distributed? **(I8)**

1=increase in food prices 2=decrease in price

9. If you observed increase in food price when food is distributed, what is your estimate of the increase? **(I9)**

1=less than 5% 2=5%to 10%
3=11% to 20% 4=21% to 40% 5=more than 40%

10. If you observed decrease in food price when food is distributed, what is your estimate of the decrease**? (I10)**

1=less than 5% 2=5%to 10%
3=11% to 20% 4=21% to 40% 5=more than 40%

11. How long does the price increase last when food is distributed? **(I11)**

1=less than two weeks
2=2-4 weeks
3=5-8 weeks
4=more than 8 weeks

12. How long does the price decrease last when food is distributed? **(I12)**

1=less than two weeks
2=2-4 weeks
3=5-8 weeks
4=more than 8 weeks

13. If you noticed any change in prices when cash is distributed, what were the changes? **(I13)**
    1=increase in food prices 2=decrease in price

14. If you observed increase in food price when cash is distributed, what is your estimate of the increase? **(I14)**
    1=less than 5% 2=5%to 10%
    3=11% to 20% 3=21% to 40% 4=more than 40%

15. If you observed decrease in food price when cash is distributed, what is your estimate of the decrease? **(I15)**
    1=less than 5% 2=5%to 10%
    3=11% to 20% 3=21% to 40% 4=more than 40%

16. How long does the price increase last when cash is distributed? **(I16)**
    1= less than two weeks
    2= 2-4 weeks
    3= 5-8 weeks
    4= more than 8 weeks

17. If prices rise, what is their more common consequence? **(I17)**
    1=They attract new suppliers to the area
    2=they encourage local traders to look for more supplies
    3=nothing happens, prices just go up.

18. How long does the price decrease last when cash is distributed? **(I18)**
    1= less than two weeks
    2= 2-4 weeks
    3= 5-8 weeks
    4= more than 8 weeks

19. If food aid is distributed in your area, are there beneficiaries ready to sell food aid in your area? **(I19)**
    1=yes
    2=No
    3=Food aid is not distributed in this area

20. How much food aid wheat do beneficiaries in your area sell? **(I20)**
    1=None at all
    2=A small amount (0–10%)
    3=Quite a lot (20–30%)
    4=About half
    5=More than half

21. How much food aid pulses do beneficiaries in your area sell? **(I21)**
    1=None at all
    2=A small amount (0–10%)
    3=Quite a lot (20–30%)
    4=About half
    5=More than half

22. How much food aid oil do beneficiaries in your area sell? **(I22)**
    1. None at all

2. A small amount (0–10%)
3. Quite a lot (20–30%)
4. About half
5. More than half

23. Is your business affected by the PSNP? - select one only: **(I23)**
    1= No – there is no impact
    2= Yes, PSNP restricts our business
    3= Yes, PSNP stabilizes our market
    4= Yes, PSNP increases our profit
    5= Yes, PSNP reduces our profit
    6=Yes, other (please specify)

24. If you knew that PSNP beneficiaries would be given more cash and less food, would you increase your purchases of food for sale in to these beneficiaries? **(I24)**

    1=Yes 2=No

25. If no, what would be your main reason? **(I25)**
    1=There is no guarantee they would spend the cash on food
    2=It would be seen as taking advantage of the situation
    3=The difference in my sales would be too small to make a difference.
    4= Other (Please list).

Cooperative Survey Questionnaire (June/July 2019)

This questionnaire will be filled by interviewing the Cooperatives and Unions operating in selected markets.

A. Identification

1. Region _____ (A1)
2. Zone: _____ (A2)
3. Woreda _____ (A3)
4. Cooperative/Union: _____ (A4)
5. Date of Interview: _____ (A5)

B. Market Flow:

1. What is your assessment of the inflow and outflow of grain to the market in 2011 EC compared to 2010 E.C? Please provide answer for each of the five most important crops that the trader normally handles:

   Inflow

Crop (Please list up to five) 1=Teff 2=Wheat 3=Barley 4=Maize 5=Sorghum 6=Horse bean 7=Field Pea 8=Other	Inflow in 2011 compared with 2010 1=No change 2=Increased inflow 3=Decreased inflow	If increased, by how much? 1=<5% 2=6% -10% 3=11% - 20% 4=>20%	Reason for increase 1=Increase in production 2=Increase in quality 3=Increase in price 4=Decrease in farmers' stockholding 5=Other (please list)	If decreased, by how much? 1=<5% 2=6% -10% 3=11% - 20% 4=>20%	Reason for decrease 1=Increase in production 2=Increase in quality 3=Increase in price 4=Decrease in farmers' stockholding 5=Other (please list)

Outflow

Crop (Please list up to five) 1=Teff 2=Wheat 3=Barley 4=Maize 5=Sorghum 6=Horse bean 7=Field Pea 8=Other	Outflow in 2011 compared with 2010 1=No change 2=Increased inflow 3=Decreased inflow	If increased, by how much? 1=<5% 2=6% -10% 3=11% - 20% 4=>20%	Reason for increase 1=Increase in urban demand 2=Increase in demand from rural areas 3=Reduced local price is more attractive to buyers 4=Buyers have more cash 5=Other (please list)	If decreased, by how much? 1=<5% 2=6% -10% 3=11% - 20% 4=>20%	Reason for decrease 1=Decrease in urban demand 2=Decrease in demand from rural areas 3=Increased local price is less attractive to buyers 4=Buyers have less cash 5=Other (please list) list)

C. Trade Activities Previous Years and Plan for 2010/11 E.C.

1. What is your planned total purchase (all crops added together) in 2011?
   _____ quintals (C1)

2. What was your actual total purchase (all crops added together) in 2010 E.C?
   _____ (quintals) (C2)

3. What cereal crops do you normally trade? Please indicate the three main cereals you normally trade and their relative importance in terms of volume annually traded in the following table.

Type of Pulse	Volume normally purchased in a year (qt)	Volume you expect to purchase this year (qt)	Reason for difference
Teff			
Wheat			
Barley			
Maize			
Sorghum			

Code for Reasons:

1= Increased production, 2=reduced production, 3=increased cost, 4=reduced cost, 5=increased availability of finance, 6=reduced availability of finance, 7=increased demand, 8=reduced demand, 9=other (please note).

4. What pulse crops do you normally trade? Please indicate the three main pulses you normally trade and their relative importance in terms of volume annually traded in the following table.

Type of Pulse	Volume normally purchased in a year (qt)	Volume you expect to purchase this year (qt)	Reason for difference
Horse Bean			
Field Pea			
Haricot Bean			
Chick Pea			
Grass Pea			
Lentil			

Code for Reasons:

1= Increased production, 2=reduced production, 3=increased cost, 4=reduced cost, 5=increased availability of finance, 6=reduced availability of finance, 7=increased demand, 8=reduced demand, 9=other (please note).

5. What oil crops do you normally trade? Please indicate the three main oil crops you normally trade and their relative importance in terms of volume annually traded in the following table.

Type of Oil Crop	Volume normally purchased in a year (qt)	Volume you expect to purchase this year (qt)	Reason for difference
Niger Seed			
Flax			
Rapeseed			
Groundnut			
Sunflower			

Code for Reasons:

1= Increased production, 2=reduced production, 3=increased cost, 4=reduced cost, 5=increased availability of finance, 6=reduced availability of finance, 7=increased demand, 8=reduced demand, 9=other (please note).

D. Market Structure

1. Please complete the following table for grain traders:

Type of Market participant	Number	How has the number changed in the last three years? 1= Decrease by more than 10% 2=Decrease by 6-10% 3= Decrease by up to 5% 4= No Change 5= Increase by up to 5% 6= Increase by 6%-10% 7= Increase by more than 10%
Assemblers		
Isuzu buyers		
Grain Traders		
Millers		
Other		

2. Would you please indicate in the following table your main grain buyers in 2010 and 2011 E.C.?

Major buyers who buy grain from you	Percent share of your annual sales they bought in 2010	Expected percent share of sales going to this buyer in 2011
Local consumers		
Local retailers		
Grain trading companies		
Traders in Addis Ababa		
Traders in deficit areas		
Large and medium flour mills		
EGTE		
Other (specify)		
Total	100%	100%

3. How has the availability of large trucks in 2011 changed compared to 2010? (D3)
   1=More available
   2=Less available
   3=No change

4. How has the availability of ISUZU trucks in 2011 changed compared to 2010? (D4)
   1=More available
   2=Less available
   3=No change

5. Who has the biggest influence and who has the least influence on the wholesale price of your main three commodities?

Your three important crops? 1= maize 2= wheat 3= sorghum 4= teff 5= horse beans 6=field peas 7=lentils 8=chick pea 9=Other (specify)	Who has the biggest Influence?	Who has the least Influence?
D5a	**D5b**	**D5c**

Codes
1=Traders like me
2=EGTE
3=WFP
4=Cooperatives
5=Isuzu traders
6=Big grain merchants in Addis
7=Government
8=Local authorities
9=Donors bringing food aid
10=Little retail outlets
11=Consumers
12= Other (please specify)

E. Access to credit

1. Do you have access to bank credit for the purchase of grain? (E1)
   1=yes 2=no

2. Has the availability of credit changed over the last 12 months? (E2)
   1=No.
   2=Yes, it has become harder to obtain credit
   3=Yes, credit is available but interest rates have gone up.
   4=Credit is now easier to obtain.

3. If credit has become harder to obtain, has that affected your purchase and sales? (E3)
   1=No.

2=Yes, I purchase and sell less
3=Yes, I purchase and sell the same but in smaller amounts

4. If credit has become harder to get, what is the main reason? (E4)
   1=No collateral
   2=Interest rates too high
   3=Other bank charges too high
   4=Don't have the necessary contacts

5. If you purchase and sell less overall, by how much has your business been reduced? (E5)
   1=Up to 10%
   2=11%-25%
   3=26%-50%
   4=More than 50%

F. Distribution of inputs

1. Do you supply inputs to farmers? (F1)
   1=yes 2=no

2. Is this supply on credit? (F2)
   1=yes 2=no

3. If yes, what value and volume of seed and fertilizer did you lend out in 2010/2011 crop year?

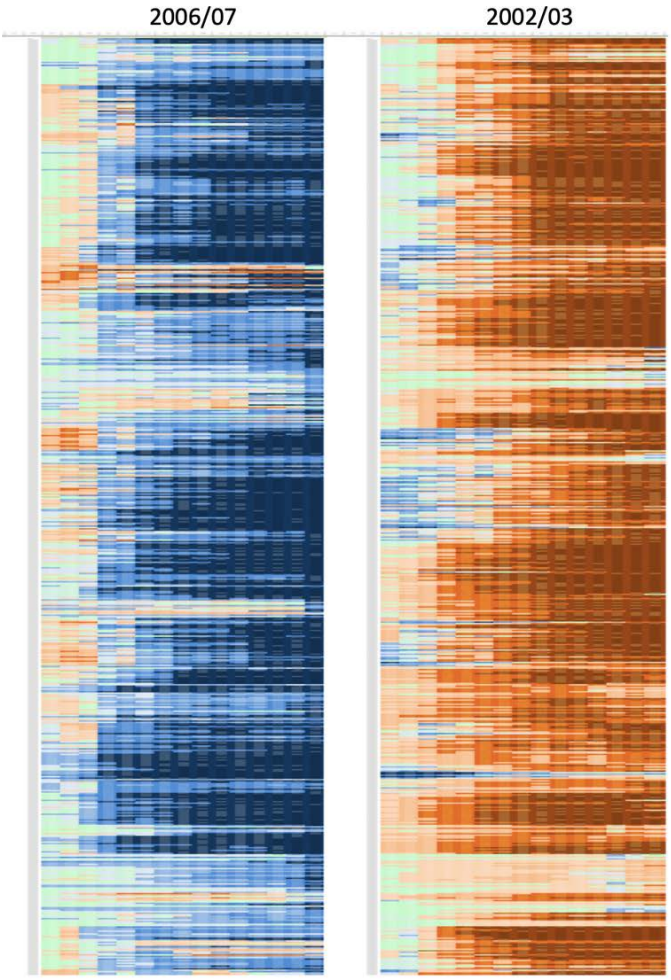
Inputs distributed	Quantity distributed (quintals)	Unit selling price (birr/quintal)
F3a	**F3b**	**F3c**
F3v		
2= Wheat seed		
3= Teff seed		
4= Sorghum seed		
5= Barley seed		
6= Other seed (specify)		
7=DAP		
8= Urea		
9=Other fertilizer (specify)		

4. Do you have problem recovering input loans? (F4)
   1=yes 2=no

5. Do you lend to farmers against their future grain sales back to the cooperative? (F5)
6. What proportion of loans to farmers did you recover last year? (F6)
   _____ (%)

Annex C: Graphical Analysis of Cumulative Rainfall Estimate Data

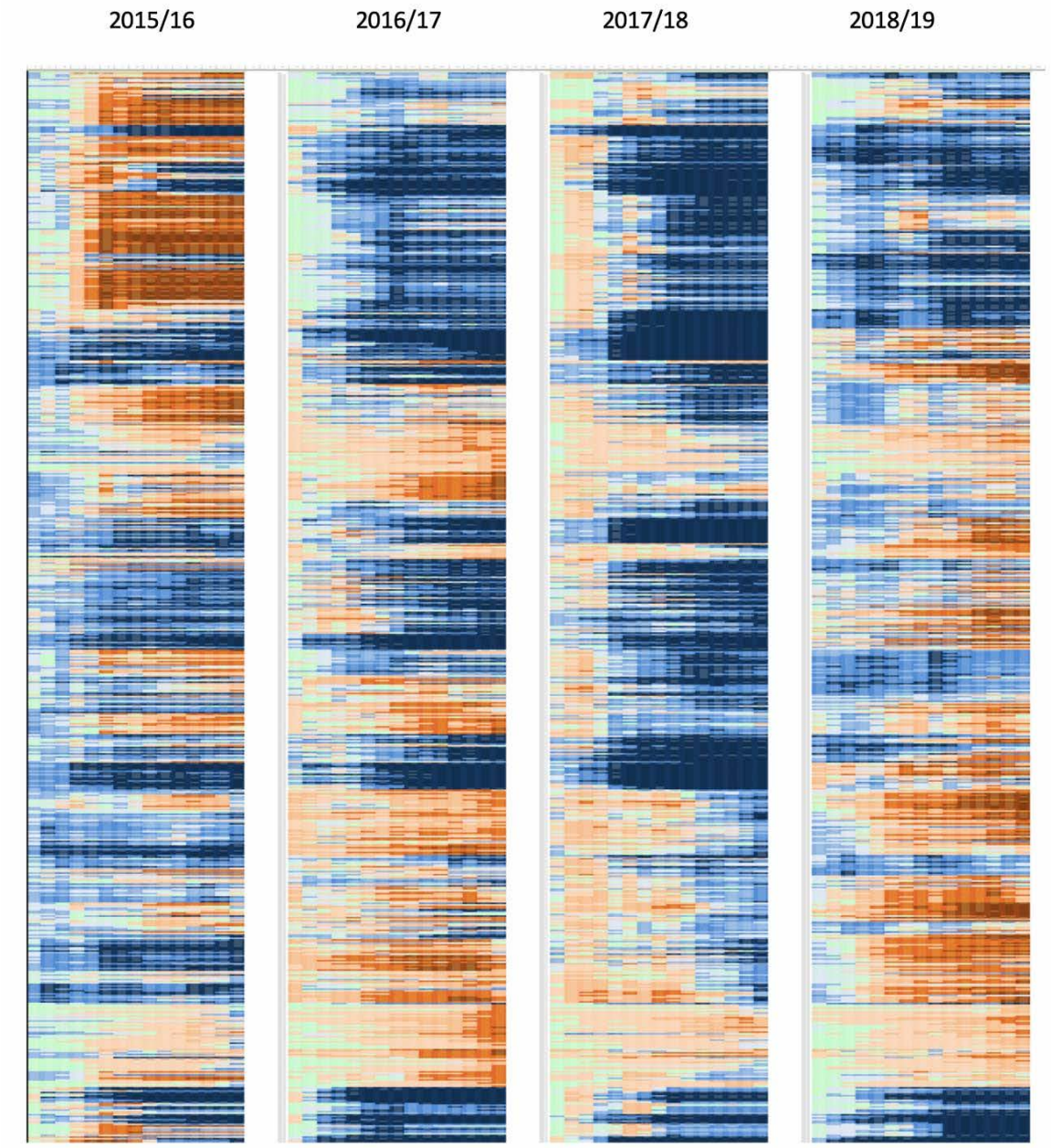
The methodology for this analysis is based upon cumulative rainfall anomalies, derived from decadal rainfall estimates for 672 woredas over the last 18 years. For the year under consideration, the rainfall in a given dekad in a specific woreda is compared with the mean rainfall for the same dekad in that woreda over the years 2001 -2018 woreda and the difference accumulated throughout the course of the Belg or Meher growing seasons being assessed. This process approximates to the cumulative effect of rainfall on the one hand, its storage in the soil, and evapotranspiration on the other. The difference between the cumulative anomaly and the mean is depicted using the conditional formatting capability of Microsoft Excel. In this case, cumulative rainfall that is less than the mean (i.e. drier conditions) is formatted against an increasingly red back ground, while rainfall that exceeds the mean is formatted against an increasingly blue background. To illustrate the process, the results for the year 2006/07 – a very wet year of high productivity - and 2002/03 – the driest in more than 20 years, when yields declined by 35% - are shown below.



Key – numbers refer to cumulative rainfall anomaly in mm

<-150	-200.00	
-150	-125.00	-100
-100	-75.00	-50
-50	-30.00	-20
-20	-15.00	-5
-5	2.00	5
5	15.00	20
20	30.00	50
50	75.00	100
100	125.00	150
>150	200.00	

In the figure above, the entire national database of 672 sets of data is displayed for each of the two separate seasons. Each set of data consists of a row of 15 spreadsheet cells, corresponding to the 15 dekads from June 1 to the end of October. Each cell is allocated a colour conditional upon the value within it. As the value decreases, indicating progressively drier conditions, so the cells become increasingly red. Alternatively, as the value decreases, so the cells become increasingly blue. The key to the right of the two sets of data shows the colours and the parameters used to determine the formatting.



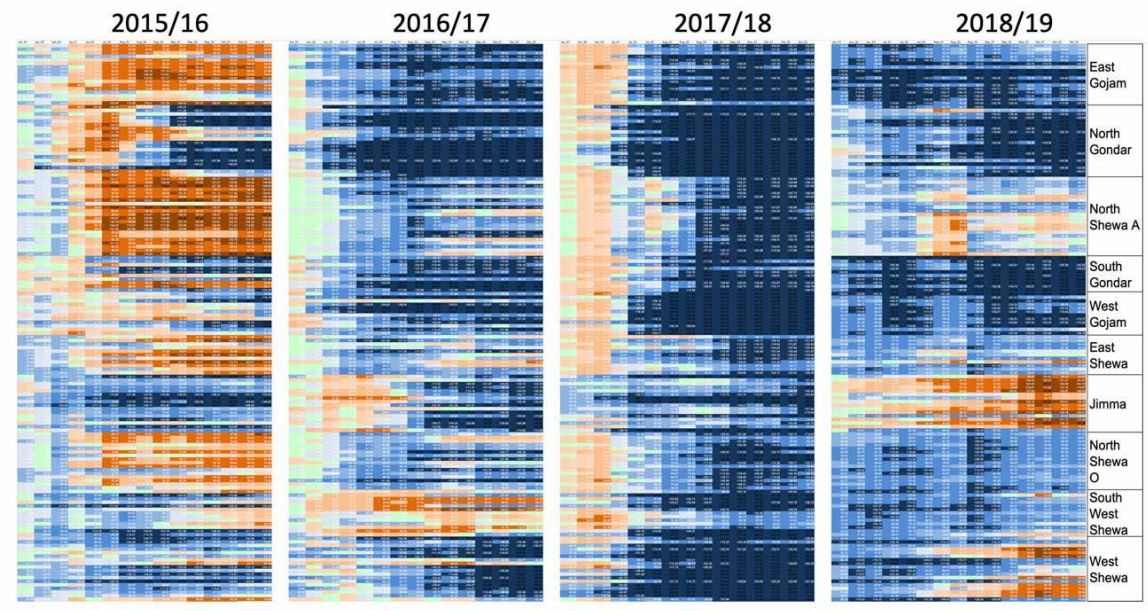
The same assessment was made for the 2018/19 Meher season and the results are shown below together with the results for 2015/16 (the recent El Nino year) and the two subsequent seasons:

The diagrams show how the Meher season of 2018/19 began with more rainfall than did the preceding Meher of 2017/18, but ultimately became drier over many parts of the country. There is also a marked contrast between the geographic and temporal distribution of rainfall in 2018/19 and that in 2015/16. Nevertheless, the resolution of the diagrams shown above is not adequate to determine exactly where rainfall was above or below normal and which crops would be most impacted. In order to provide this information, the RFE data for the key production Zones of each crop was assessed, as below.

To determine the key production zones by crop, CSA data for Meher Crop Estimates over the five-year period 2012/13 to 2016/17 was averaged by crop for each Zone, and the mean results sorted in order of magnitude. This allowed each Zone to be ranked in order of production and the most important Zones to be selected for the analysis of their RFE data. In general, it was found that 60-70% of production was concentrated within about 10-11 Zones, depending upon the crop. (Since these Zones were generally the surplus production areas, they could be expected to have an even greater influence on the volume of each crop coming to the market). The anticipated impact of the depicted rainfall regime on each of the main Zones was then multiplied by the proportion that each Zone contributed to national production in order to determine overall impacts.

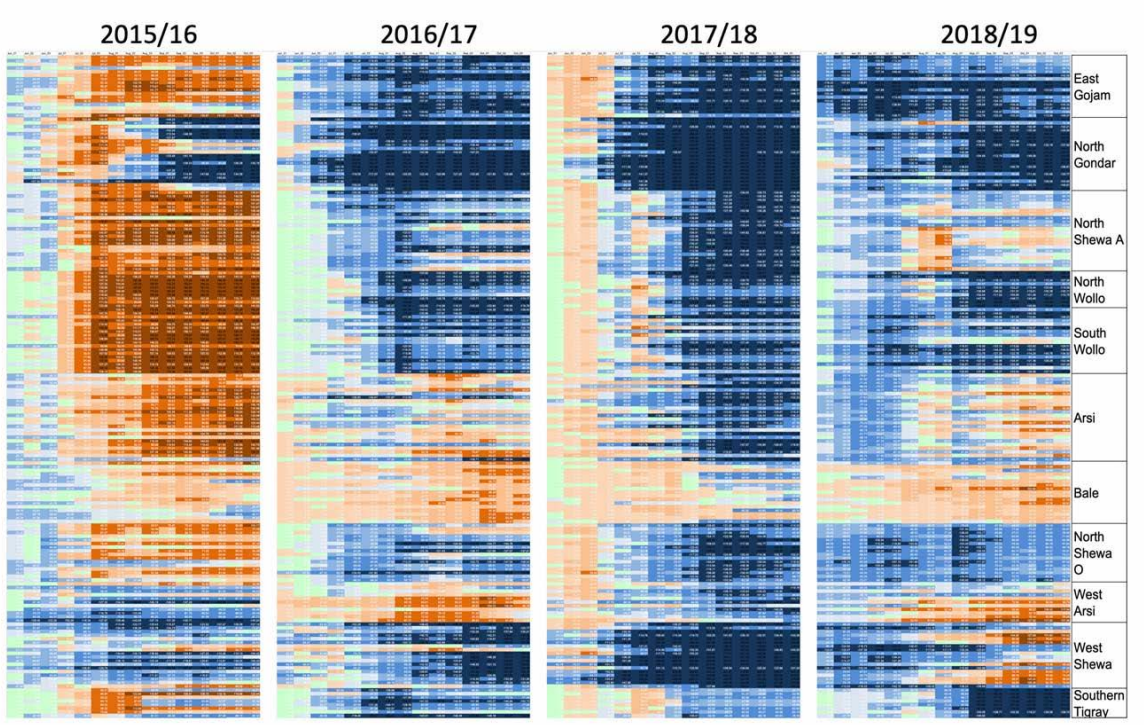
The analysis for each crop is shown below:

Teff



The ten Zones for which RFE analysis is depicted above comprised 61% of average national production of teff. In general, Meher rainfall in 2018/19 was greater than average and substantially better than in 2015/16, but also quite clearly drier than the year before. In particular, Jimma was substantially drier than it has been for at least three years as also were parts of West Shewa. In these two Zones, the rainfall deficits were such that yields would be reduced by at least 15% and national production reduced proportionate to the contribution of these Zones. The overall conclusion would be that based on rainfall alone, yield of teff in key production areas would be unlikely to exceed that achieved in 2017/18 and would most probably be reduced by 3%.

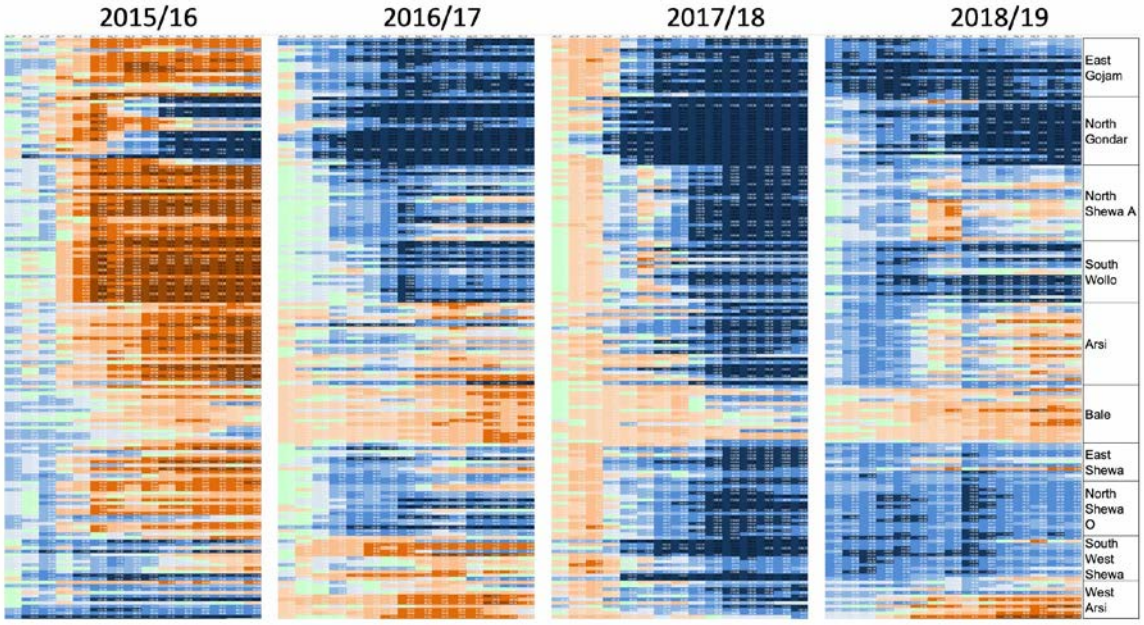
Barley



The 11 Zones listed above comprise 70% of national barley production. As for teff, rainfall was adequate over many of these Zones, and certainly better than in 2015/16, but definitely drier than the previous year. Although all Zones except Bale began the season with adequate rainfall, parts of North Shewa in Amhara, Arsi and West Arsi, as well as most of Bale and the majority of West Shewa all experienced less than average rainfall over the later part of the season. The impacts of reduced rainfall would be expected to be less in North Shewa and Arsi than in Bale, West Arsi and West Shewa, where the negative anomalies were both more pronounced and of greater duration. Given the importance of these highland areas in Oromiya to national barley production, yields cannot be expected to be more than 15% of their level in 2017/18.

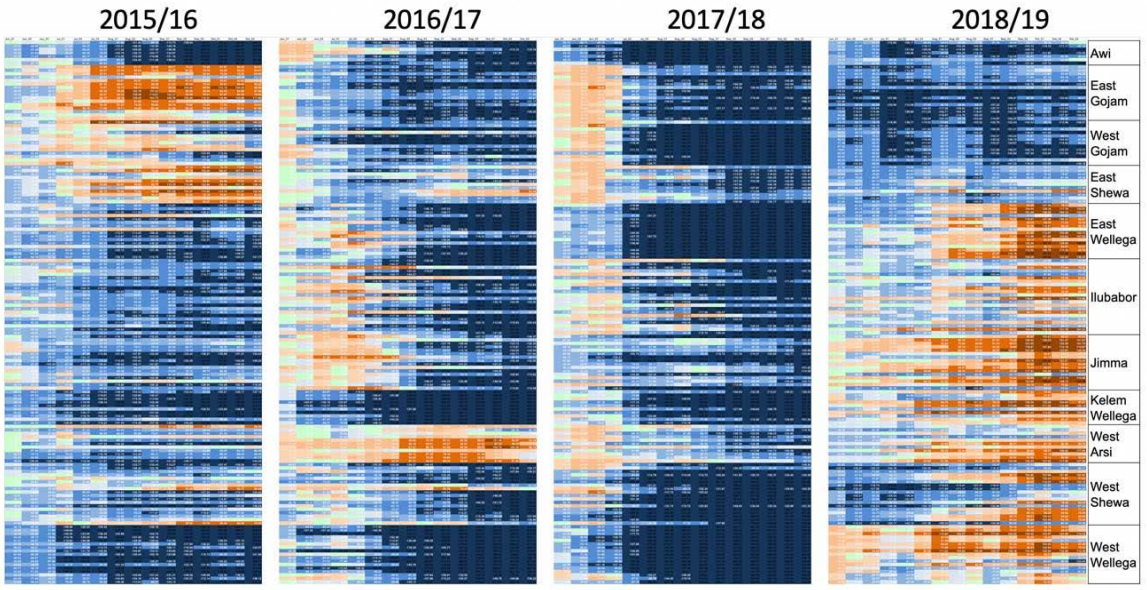
Wheat

RFE data for the ten most productive Zones, which on average produce 69% of the national wheat crop are shown below. Since wheat and barley are often produced in the same Zones, the situation is somewhat similar to that for barley. Three important Zones (Arsi, West Arsi and Bale) experienced less rainfall than they did in 2017/18. Given that the reduced rainfall occurred later in the season, and that wheat is not produced to the same extent as barley in West Shewa, the overall impact can be expected to be less than that for barley, i.e. of the order of a 3% reduction as compared with 2017/18.



Maize

Maize is widely grown in Ethiopia and there is less concentration of production. Nevertheless, on average, the 11 Zones shown below produce 60% of the national maize crop.

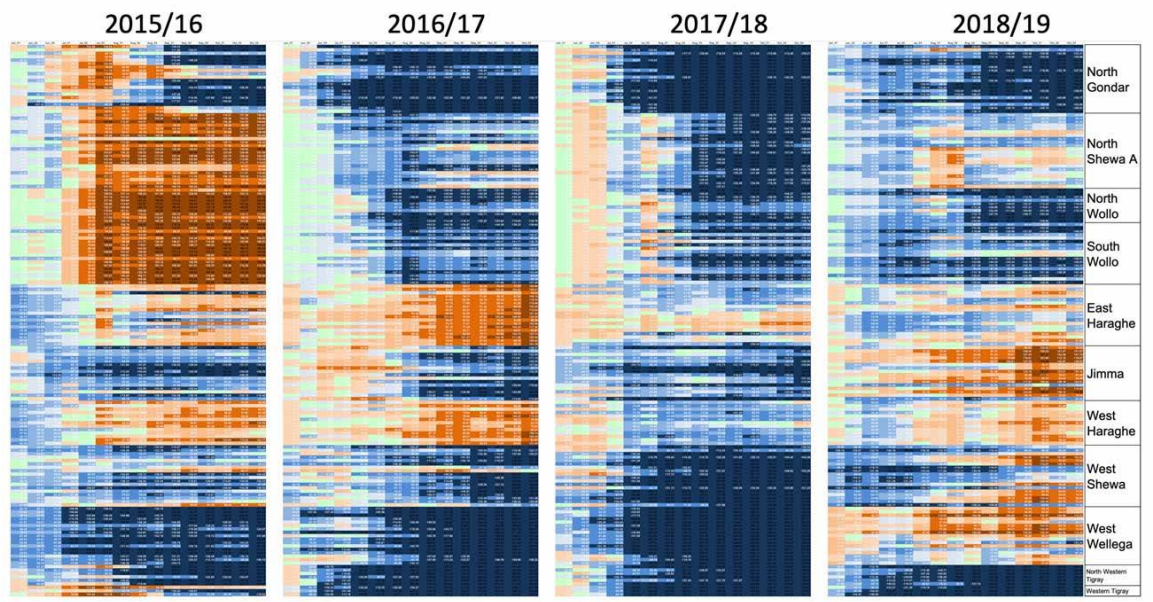


The rainfall data clearly shows that 2018/19 was significantly drier than 2017/18 in the main maize producing areas. Indeed, with the exception of Arsi, East Gojam, West Gojam and East Shewa, much of the area that normally produces maize was drier in2018/19 than it was in the El Nino year of 2015/16. On this basis, it is hard to see how average yield of maize in 2018/19 could possibly be any greater than that of 2017/18. Key production areas, including East Wellega and Jimma experienced substantial negative anomalies, while other important Zones, including parts of West Wellega and Kelem Wellega were also below normal, as were parts of Illubabor, West Arsi and West Shewa. On this basis, it can be

estimated that average yields would be reduced by at least 5%. Nevertheless, that reduction might be offset by the widely reported increase in the area sown to maize in 2018, so that the impact on national production levels is extremely difficult to determine and no sound estimate for production can be made.

Sorghum

Rainfall estimates for the 11 Zones producing 70% of the national sorghum crop are shown below:



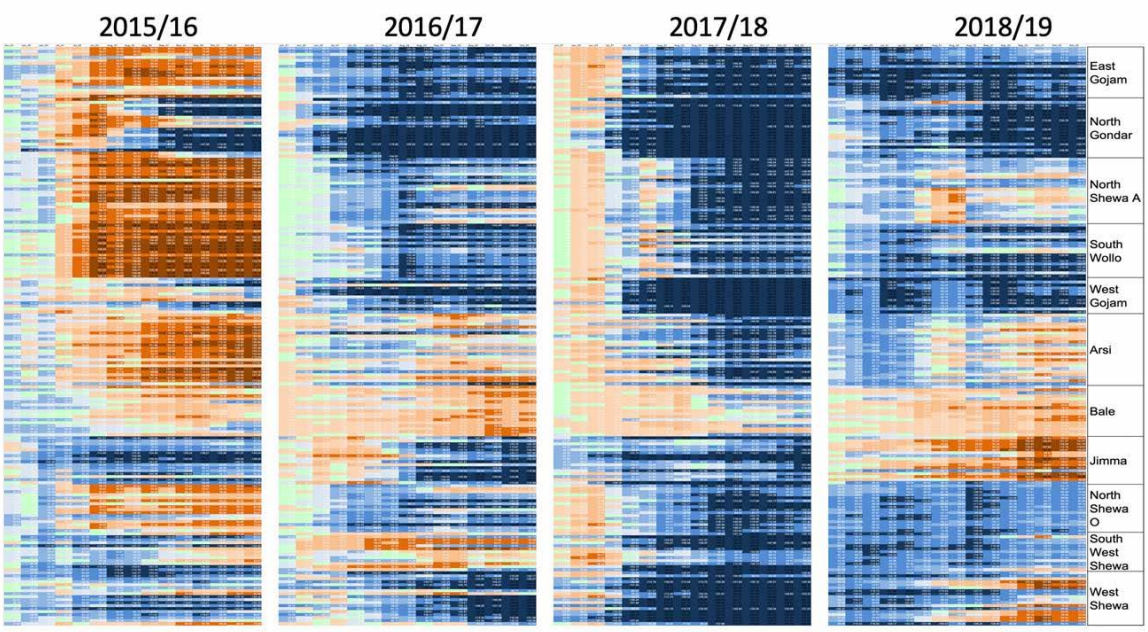
The diagrams show major deficits in Jimma, West Haraghe and parts of West Wellega and West Shewa. Deficits experienced in North Shewa (in Amhara) and East Haraghe were less pronounced and unlikely to have had an effect. There is a clear contrast between the RFE data for maize and sorghum in 2018/19 as compared with 2015/16. Maize production Zones appear to have been generally drier in 2018/19 than in the El Nino year, while the opposite is true for sorghum, for which some important production Zones were clearly much drier in 2015/16, especially North Shewa and North and South Wollo. Nevertheless, overall yield of sorghum would be expected to be reduced by the deficits depicted above. Based on the proportions contributed by the most affected Zones to overall national production, a reduction of 8-10% would be expected.

Horse Bean

Horse bean is produced in the highland areas in the center of Ethiopia. 67% of the national crop is produced in the 11 Zones depicted below. RFE data suggests that compared with 2017/18, yields will have been reduced in Bale, Jimma and parts of West Shewa, with some possible reductions in Arsi.

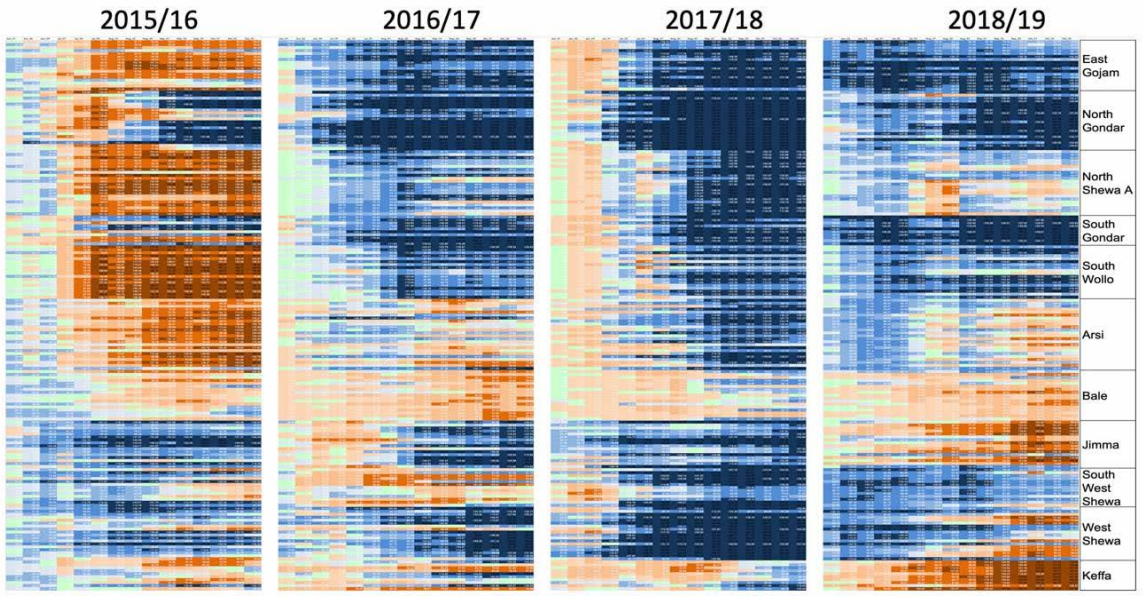
The impact of these negative rainfall anomalies will be to reduce yields in the most affected areas by up to 20%, contributing to a national yield reduction of 8-10% overall.

Ethiopia: Bellmon Analysis - 2019/20



Field Pea

Field pea is more widely grown than most crops (except maize). The RFE anomaly data for the 11 Zones producing 61% of the national crop are depicted below:



Significant deficits were experienced in Bale, Jimma, parts of West Shewa, and Keffa, while below average rainfall was also experienced in Arsi. Nevertheless, Keffa also experienced a dry period in the middle of the 2017/18 Meher season, which would be expected to have reduced production in that year. On the basis of these anomalies in both 2017/18 and 2018/19 it is expected that field pea yields would be reduced by 8-10%.

Annex D: References for Crop Nitrogen Use Efficiency

Crop	High	Low	Highest Response N rate	Average Response	Source
Malting Barley	31.2	16.1	23	22.2	Meharie Kassie, Kindie Fanataye. (2019) Nitrogen Uptake and Utilization Efficiency of Malting Barley as Influenced by Variety and Nitrogen Level .J. Crop Sci. Biotech. 2019 (March) 22 (1) : 65 ~ 73 DOI No. 10.1007/s12892-019-0004-0
Barley	31.5	15.4	23	23	Sofonyas Dargie, Bereket Haileselassie, Mehretab Haileselassie, Fisseha Hadgu, Hagos Birhane Molla Hadis and Medhn Berhane (2018) Agronomic efficiency, yield and yield components of food barley response to nitrogen rates after fababean in Emba Alaje, Northern Ethiopia. African Journal of Agricultural Research,Vol. 13(42), pp. 2324-2328,
Barley	42.7	28.0	40.6	35	Melkamu H.S., Gashaw M., Wassie, H. (2019). Effects of Different Blended Fertilizers on Yield and Yield Components of Food Barley (Hordeum vulgare L.) on Nitosols at Hulla District, Southern Ethiopia Acad. Res. J. Agri. Sci. Res. 7(1): 49-56.
Sorghum	43.7	14.5	43	24.6	Kasaye Abera Meshesha (2018) Effect of Rates and Time of Nitrogen Fertilizer Application on Yield and Yield Components of Sorghum [Sorghum bicolor (L.) Moench] at Raya Valley, Northern Ethiopia. Msc Thesis. Haramaya University, Haramaya
Sorghum (Dekeba)	30.3	14.2	84	24.5	Redai Weldegebriel, Tesfay Araya and Yemane G.Egziabher (2018) Effect of NPK and Blended Fertilizer Application on Nutrient Uptake and Use Efficiency of Selected Sorghum (Sorghum bicolor (L.) Moench) Varieties Under Rain-fed Condition in Sheraro District, Northern Ethiopia Momona Ethiopian Journal of Science (MEJS), V10(1):140-156. Mekelle University
Sorghum (Melkam)	28.0	15.1	84	23.1	

Crop	High	Low	Highest Response N rate	Average Response	Source
Sorghum	46.1	31.7	46	46.1	Sebnie, W. and Mengesha, M. (2018). Response of nitrogen and phosphorus fertilizer rate for sorghum(Sorghum bicolor L. Moench) production in Wag-Lasta area of Ethiopia. Archives of Agriculture and Environmental Science, 3(2): 180-186.
Teff	31.3	17.5	23	23.9	Giday O, Gibrekidan H, Berhe T. (2014) Response of teff (Eragrostis tef) to different rates of slow release and conventional urea fertilizers in vertisols of southern Tigray, Ethiopia. Adv Plants Agric Res. 2014;1(5):190–197. DOI: 10.15406/apar.2014.01.00030
Teff	22	13	32	32	Hailay Haileselassiea, A. Arayaa,b, Solomon Habtua, Kiros Gebretsadkan Melesc, Girmay Gebrua, Isaya Kisekkab, Atkilt Girmaa, Kiros Meles Hadgud, A.J. Foster (2016) Exploring optimal farm resources management strategy for Quncho-teff (Eragrostis tef (Zucc.) Trotter) using AquaCrop model. Agricultural Water Management 178 (2016) 148–158
Teff	14.0	8.3	23	23	Gifole Gidago and Fanuel Laekemariam, (2017) Farmers' participatory evaluation of teff (Eragrostis teff (Zucc.) Trotter) productivity in response to nitrogen and phosphorous fertilizers at Edo, Wolaita zone, South Ethiopia. International Journal of Current Research Vol. 9, Issue, 07, pp.54407-54413.
wheat	16.9		138	16.9	Minale Liben; Alemayehu Assefa; Tanner DG ; Tilahun Tadesse. (1999). The response of bread wheat to N and P applications under improved drainage on Bichena vertisols in northwestern Ethiopia. In: The Tenth Regional Wheat Workshop for Eastern, Central and Southern Africa. Addis Ababa, Ethiopia: CIMMYT. pp 298-308

Crop	High	Low	Highest Response N rate	Average Response	Source
Wheat	13.3		92	13.3	Dawit Habte; Kassu Tadesse; Wubengeda Admasu; Tadesse Desalegn; Asrat Mekonen. (2015.) Agronomic And Economic Evaluation of the N and P Response of Bread Wheat Grown in the Moist and Humid Mid-Highland Vertisols Areas of Arsi Zone, Ethiopia. Afri. J. Agric. Res. 10 (3):89-99.
Wheat	26.1	8.8	120	19.5	Fresew Belete, Nigussie Dechassa, Adamu Molla & Tamado Tana (2018) Effect of nitrogen fertilizer rates on grain yield and nitrogen uptake and use efficiency of bread wheat (Triticum aestivum L.) varieties on the Vertisols of central highlands of Ethiopia. Agriculture & Food Security Volume 7, Article number: 78.
Maize hybrid	20.8	16.3	46	17.5	Tolessa Debele; Du Preez CC; Ceronio GM. (2007).Comparison of maize genotypes for grain yield, nitrogen uptake and use efficiency in Western Ethiopia. South African Journal of Plant and Soil. 24:70-76. T
Maize OPV	15	10	46	12	
Maize five cvs	33	18	55	22.4	Tolera Abera; Dagne Wegary; Tolessa Debele. (2016). Varieties and Nitrogen Rates on Grain Yield and Nitrogen Use Efficiency of Highland Maize in Toke Kutaye, Western Ethiopia. American Journal of Experimental Agriculture, 12(1):1-16.
Maize five cvs	13.2	8.9	55	10.1	Tolera Abera,Tolessa Debele, and Dagne Wegary (2017) Effects of Varieties and Nitrogen Fertilizer on Yield and Yield Components of Maize on Farmers Field in Mid Altitude Areas of Western Ethiopia Article ID 4253917, International Journal of Agronomy
Maize microdosing	34	11	19	20	Getachew Sime and Jens B. Aune (2014) Agronomy 2014, 4(3), 436-

Crop	**High**	**Low**	**Highest Response N rate**	**Average** Response	**Source**
Maize banding	23	10	19	17	451; Maize Response to Fertilizer Dosing at Three Sites in the Central Rift Valley of Ethiopia

Annex E: Port Capacities

Data in the following tables has been sourced from WFP logistical assessments supported by visits to Djibouti Port and DMP. Data for Assab and Massawa may not be accurate, especially with regard to the availability and capacity of equipment.

Port Sudan

Conventional Berths	Number	Total Length	Depth
General Cargo Bulk	9 (North Quay) 1 (South Quay)	1556 m 180 m	Berth 1-5 = 8.5m draft Berth 5A = 9.5m draft Berths 6-9 = 10.7m draft Berth 15 (South Quay) = 12.6m
Discharge Rates	MT/Day		
Bagged	2500		
Bulk, bagged on Quayside	2500		
Bulk to Silo	9600		
Bulk Handling Facilities			
Bagging	7 x 2- line bagging plants		
Storage	Silos: 50,000 MT Warehouses: 57,000 M^2		
Discharge	Pneumatic Conveyor (1): 200MT/hr Crane and Grab (11): 2000 MT/day		
Bulk Handling Performance	2,898,328 MT (2014)		

Berbera

Conventional Berths	Number	Total Length	Depth
General Cargo (including Bulk)	5	650 m	9.5 m
Discharge Rates	MT/Day		
Bagged	2500		
Bulk, bagged on Quayside	2500		
Bulk Handling Facilities			
Bagging	NO installed capacity		
Storage	Warehouses: 5,760 M^2		
Discharge	Crane and Grab (10): 2500 MT/day		
Bulk Handling Performance	150,425 MT (2012)		

Djibouti Port

Conventional Berths	Number	Total Length	Depth

General Cargo Bulk	5 (Nos 6-9 and No 13)) 2 (Nos14 and15)	739 m 397 m	7.8 m – 10.1 m 12.6 m
Discharge Rates	MT/Day		
Bagged	250 per gang (up to 3 gangs per vessel)		
Bulk, bagged on Quayside	2,500- 5,000 per vessel per day		
Bulk to Warehouse	12,000 per day		
Bulk Handling Facilities			
Bagging	12 fixed bagging lines (36 MT/hr per line) 15 mobile bagging lines (20MT/Hr/Line		
Storage	Bulk Warehouse: 70,000 MT		
Discharge	Pneumatic Conveyor (2): 300MT/hr each Quayside Crane and 21 MT bucket: 2000 MT/day		
Bulk Handling Performance	3,254,203 MT (2016)		

Doraleh Multipurpose Port

Conventional Berths	Number	Total Length	Depth
General Cargo (including bulk)	15	1200 m	15.3 m
Discharge Rates	MT/Day		
Bulk, bagged on Quayside	45,000		
Bulk to Silo	45,000		
Bulk Handling Facilities			
Bagging	8 x bagging lines, 300 MT/hr/line		
Storage	Silo: 85,000 MT Warehouse bagged: 20,000 M^2 Warehouse Dry Bulk:35,000 M^2		
Discharge	12 Quay Cranes: 50,000 MT/day		
Bulk Handling Performance	Not yet established, estimated at 8.2 million MT per year		

Assab

Conventional Berths	Number	Total Length	Depth
General Cargo (including bulk) Bulk	4 (Nos 3,9,10,11) 2 (Nos 1 and 2)	530 m 490 m	8.2- 9.7 m 10 m
Discharge Rates	MT/Day		
Bagged	1000		
Bulk, bagged on Quayside	2,800		
Bulk Handling Facilities			
Bagging	8 bagging lines		
Storage	Open Area 230,000 MT Warehouses: 34,000 MT		

Conventional Berths	Number	Total Length	Depth
Discharge	8 Pneumatic units 14 x 6MT Cranes 4 x 20MT Cranes		
Bulk Handling Performance	4,000 MT/day (1996)		

Massawa

Conventional Berths	Number	Total Length	Depth
General Cargo (including bulk)	4	600 m	6.2 - 8 m
Discharge Rates	MT/Day		
Bagged	1300 per vessel		
Bulk, bagged on Quayside	1500 per vessel		
Bulk Handling Facilities			
Bagging	4 bagging lines		
Storage	Open Storage: 70,000 MT Warehouses: 18,500 MT		
Discharge	Large Crane and Grab (30-50 MT): 4		
Bulk Handling Performance	12,000 MT/day MT (1996) (no longer feasible)		