



World Food Programme  
Programme Alimentaire Mondial  
Programa Mundial de Alimentos  
برنامج الأغذية العالمي

**Executive Board**  
Annual session  
Rome, 29 June–3 July 2020

Distribution: General

Agenda item 10

Date: 12 June 2020

WFP/EB.A/2020/10-D

Original: English

Administrative and managerial matters

For information

Executive Board documents are available on WFP's website (<https://executiveboard.wfp.org>).

## Report on global losses for the period from 1 January to 31 December 2019

### Executive summary

WFP confronted the operational challenges posed by seven Level 3 and eleven Level 2 emergencies and provided high-quality food assistance to close to 100 million people in 2019. This meant handling 5.5 million mt of food, an increase of 20 percent over the preceding year.

This was enabled by an efficient, agile end-to-end supply chain, robust risk mitigation systems and strong management processes. However, events beyond WFP's control resulted in relatively high levels of global food losses. These events resulted in significant pre- and post-delivery losses of Super Cereal provided by one supplier.

Pre-delivery losses of 20,966 mt, at a value of USD 9.7 million, were the second highest in terms of both volume and value since 2011. Deterioration of food due to problems at origin accounted for 50 percent of the losses, valued at USD 4.8 million.

Post-delivery losses amounted to 24,113 mt, for a total value of USD 14.9 million, the third highest loss in terms of volume and fifth highest in terms of value since 2011. Eighty-nine percent of all post-delivery losses, 21,450 mt, were attributable to reconstitution, rebagging or repacking, deterioration of food due to problems at origin, inadequate transport, improper or overlong storage and losses incurred during civil strife.

Ten country operations accounted for 18,371 mt or 76 percent of post-delivery losses, of which 53 percent or 9,821 mt were attributable to the Level 3 emergency operations in Yemen, Nigeria, the Niger, South Sudan and Mali.

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## Introduction

1. This report provides an overview of global losses – pre-delivery and post-delivery losses – in 2019 and describes recent measures for preventing or minimizing them. The annexes detail country-specific losses and identify countries where losses were above WFP’s reporting thresholds.<sup>1</sup>
2. Pre-delivery losses are those that occur up to the point where legal title to the food passes to the government, usually at the first delivery point in the recipient country.
3. Post-delivery losses are those that occur after food arrives in the recipient country and before it is distributed to people in need.
4. Within the legal framework in which WFP operates, legal title of food commodities normally passes to the government of the recipient country at the commodities’ point of first entry into the country where they are to be distributed. However, although legal title to food commodities held in WFP warehouses in a recipient country may have passed to the government concerned, WFP generally retains possession far beyond the point at which title is transferred.
5. The report does not cover unintended uses of food after distribution to beneficiaries. Unintended uses such as sharing, theft or sale are captured through monitoring and addressed accordingly.
6. Following its approval by the Executive Board, the WFP self-insurance scheme was extended to cover post-delivery losses. All WFP losses are therefore covered by insurance from when WFP takes possession up to the physical handover to the cooperating partner, the beneficiaries or the government.<sup>2</sup>

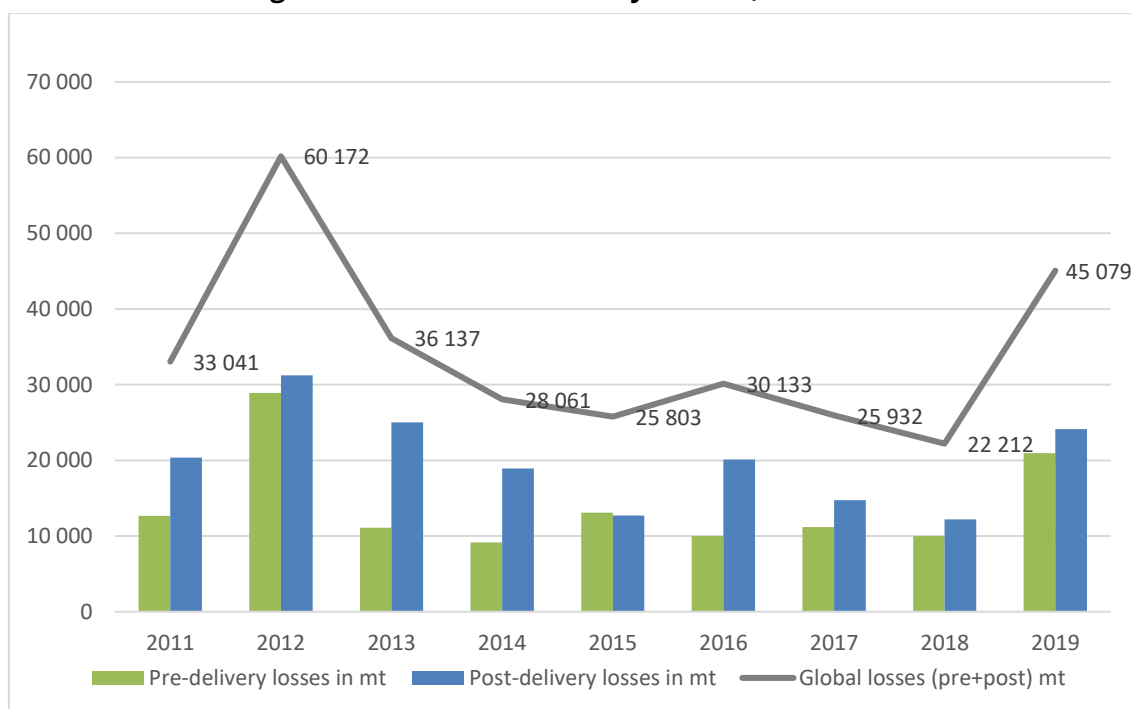
## Characteristics of global losses in 2019

7. Global losses in 2019 are presented in terms of volume (tonnage) and value (United States dollars) and are compared with losses in previous years.
8. Significant losses beyond the control of WFP meant that the volume of global losses in 2019 amounted to 45,079 mt, the second highest level since 2011 (see figure 1 and annex I).

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<sup>1</sup> These are countries where losses of a single food type amount to at least 2 percent of the tonnage handled and have an absolute value of at least USD 20,000 and countries where losses of a single food type have an absolute value of more than USD 100,000.

<sup>2</sup> WFP Management Plan (2018–2020). WFP/EB.2/2017/5-A/1/Rev.1.

**Figure 1: Global food losses by volume, 2011-2019**

9. The value of global losses was the third highest since 2011, at USD 24.6 million.
10. A significant proportion – 19,320 mt or 43 percent – of global losses was the result of quality issues beyond the control of WFP with Super Cereal (corn-soya blend and wheat-soya blend) provided by one supplier. These losses affected 25 countries (see paragraphs 2-15 in the annexes for a detailed explanation).
11. Losses of corn-soya blend, wheat flour, sorghum, rice and wheat amounted to 35,440 mt valued at USD 17.7 million, accounting for 79 percent of global losses by volume and 72 percent by value (see details in table 1).

**TABLE 1: THE FIVE COMMODITIES FOR WHICH LOSSES WERE HIGHEST, 2019**

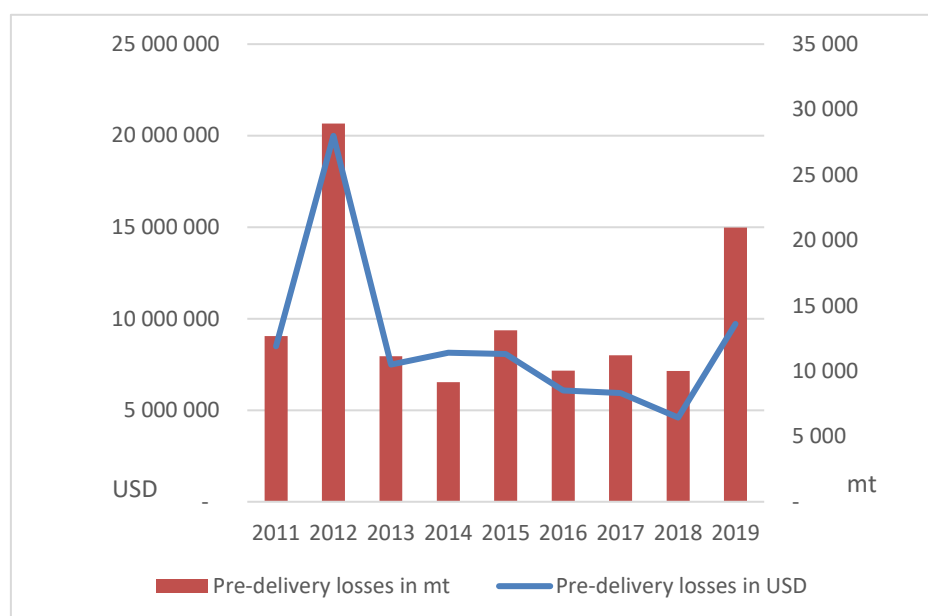
Commodity	Losses (mt)	USD	USD per mt	Losses as a percentage of total losses by volume
Corn-soya blend <sup>3</sup>	22 049	12 570 653	570	49
Wheat flour	5 097	2 110 108	414	11
Sorghum	3 607	1 097 894	304	8
Rice	2 527	1 259 644	498	6
Wheat	2 159	688 945	319	5

<sup>3</sup> Quality issues beyond the control of WFP with Super Cereal provided by one supplier accounted for 19,073 mt or 87 percent of corn-soya blend losses. WFP is pursuing restitution.

## Characteristics of pre-delivery losses in 2019

12. Pre-delivery losses in 2019 are presented in terms of volume (tonnage) and value (United States dollars) and are compared with losses in previous years in terms of volume, value and causes.
13. In 2019, pre-delivery losses amounted to 20,966 mt, the second highest level by volume since 2011 (figure 2).
14. Pre-delivery losses were valued at USD 9.7 million, the second highest level by value since 2011 (figure 2).

**Figure 2: Pre-delivery losses by volume and value, 2011–2019**



15. Losses of corn-soya blend amounting to 9,829 mt at an average value of USD 481/mt accounted for 47 percent of all pre-delivery losses. Of these losses, 9,595 mt or 98 percent were the result of quality issues with Super Cereal provided by one supplier.
16. Losses of 2,991 mt of wheat flour at an average value of USD 409/mt accounted for 14 percent of pre-delivery losses.
17. Losses of 1,826 mt of rice at an average value of USD 467/mt accounted for 9 percent of pre-delivery losses.

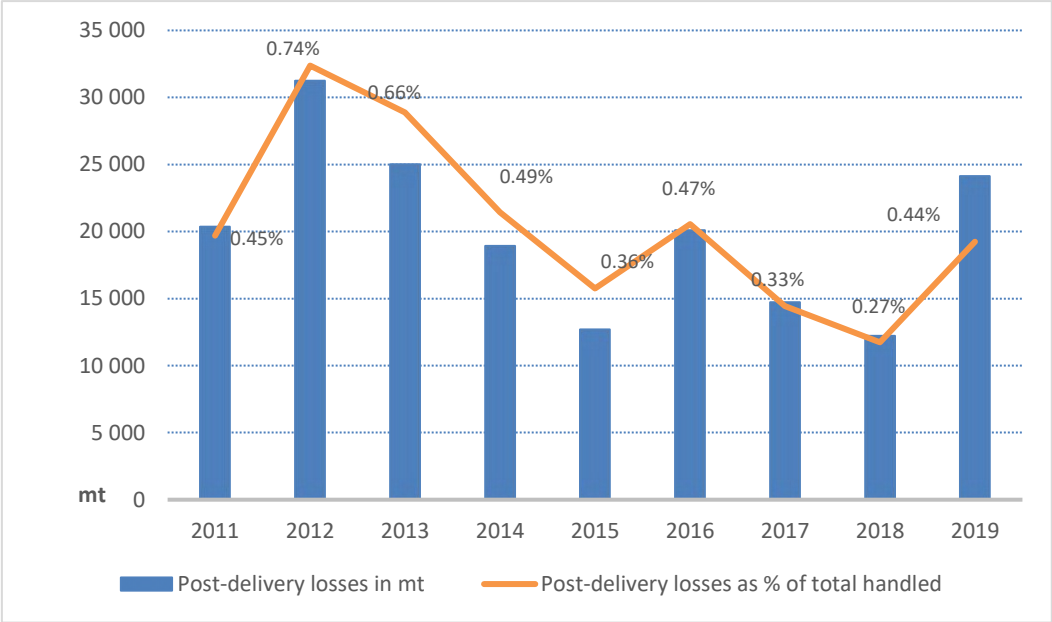
### Main reasons for pre-delivery losses

18. In 2019, 50 percent of pre-delivery losses, or 10,530 mt worth USD 4.8 million, were mainly attributable to deterioration of food due to problems at origin.
19. Inadequate transport resulted in pre-delivery losses of 8,608 mt worth USD 3.8 million. This accounted for 41 percent of all pre-delivery losses.
20. Of these losses, 84 percent occurred during ocean transport and 16 percent during overland transport. Ocean transport is generally the first transport modality for internationally procured commodities, which means that most WFP food is transported via ocean-going vessels. Food is transported in bulk on such vessels, which increases its susceptibility to water damage, spillage and other causes of spoilage.

### Characteristics of post-delivery losses in 2019

- 21. Post-delivery losses in 2019 are presented in terms of volume and value and are compared with losses in previous years in terms of volume, value and causes.
- 22. The volume of post-delivery losses in 2019 was the third highest since 2011 in absolute terms but fourth lowest as a percentage of food handled.<sup>4</sup> Post-delivery losses were 24,113 mt, or 0.44 percent of the 5.5 million mt of food handled; the corresponding figures for 2018 were 12,218 mt and 0.27 percent (see figure 3 and annex XI). Quality issues with Super Cereal provided by one supplier accounted for 9,725 mt or 40 percent of these losses.
- 23. In 2019, post-delivery losses had a total value of USD 14.9 million, the fifth highest since 2011 in absolute terms. At 0.57 percent of the USD 2.61 billion of food handled, it was also the fifth highest in percentage terms. The corresponding figures for 2018 were USD 9.8 million and 0.42 percent (see figure 3 and annex XI).<sup>5</sup>

**Figure 3: Post-delivery losses by volume, 2011–2019**

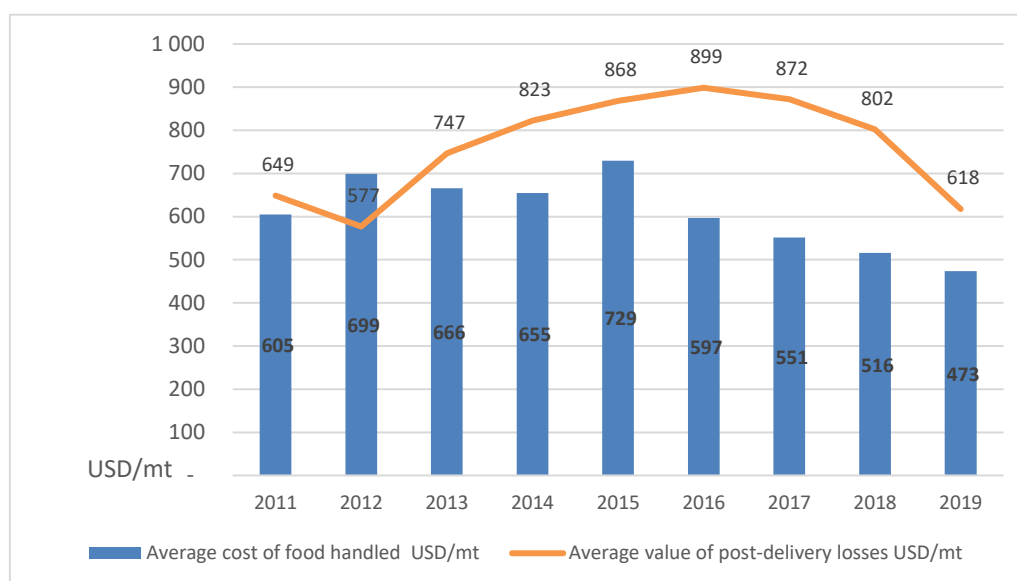


- 24. The average value of food handled in 2019 was USD 473/mt, compared with USD 516/mt in 2018. The average value of post-delivery losses was USD 618/mt, compared with USD 802/mt in 2018 (see figure 4).

<sup>4</sup> Tonnage of food handled is defined as “opening stocks in the recipient country plus commodities received in the recipient country”.

<sup>5</sup> Food items are valued according to “moving average prices”, whereby the cost of each item is determined from the weighted average of the costs of similar items at the beginning of and during the period. The losses in this report are valued at the moving average prices as at the end of 2018.

**Figure 4: Average cost of food handled and average value of post-delivery losses, 2011–2019**



25. Uganda, with losses of 4,761 mt at an average value of USD 546/mt, accounted for 20 percent of all post-delivery losses. Conflict-affected Yemen, with losses of 3,764 mt at an average value of USD 672/mt, accounted for 16 percent, while Nigeria, with losses of 2,746 mt at an average value of USD 479/mt, accounted for 11 percent.
26. Losses of corn-soya blend amounting to 12,220 mt at an average value of USD 642/mt constituted 51 percent of all post-delivery losses. A significant portion of these losses – 9,478 mt or 78 percent – was the result of quality issues with Super Cereal provided by one supplier. Of all corn-soya blend post-delivery losses, 27 percent, or 3,352 mt at an average value of USD 601/mt, occurred in Uganda. Nigeria accounted for 14 percent of these losses, with 1,701 mt at an average value of USD 537/mt, while the Niger and Somalia accounted for 13 and 11 percent respectively. The volume in the Niger was 1,528 mt at an average value of USD 701/mt and the volume in Somalia was 1,362 mt at an average value of USD 703/mt.
27. Losses of 2,106 mt of wheat flour at an average value of USD 421/mt accounted for 9 percent of all post-delivery losses. Of these losses, 77 percent occurred in Yemen, with 1,631 mt at an average value of USD 430/mt.
28. Losses of 1,999 mt of sorghum at an average value of USD 314/mt accounted for 8 percent of all post-delivery losses. Of these losses, 40 percent occurred in Nigeria, with 805 mt at an average value of USD 252/mt.

#### **Main reasons for post-delivery losses**

29. In 2019, 89 percent or 21,450 mt of post-delivery losses were attributable to reconstitution, rebagging or repacking, deterioration due to problems at origin, inadequate transport, improper or overlong storage and losses incurred during civil strife (see figure 5). Specific details by country are provided in annex I.

**Figure 5: The five main reasons for post-delivery losses, 2019**

Reconstitution/ rebagging/ repacking	Deterioration of food due to problems at origin	Inadequate transport	Improper/overlong storage	Loss during civil strife
<ul style="list-style-type: none"> <li>• 8,119 mt</li> <li>• 0.15% of total food handled</li> <li>• 34% of total post-delivery losses</li> </ul>	<ul style="list-style-type: none"> <li>• 6,343 mt</li> <li>• 0.12% of total food handled</li> <li>• 26% of total post-delivery losses</li> </ul>	<ul style="list-style-type: none"> <li>• 2,669 mt</li> <li>• 0.05% of total food handled</li> <li>• 11% of total post-delivery losses</li> </ul>	<ul style="list-style-type: none"> <li>• 2,479 mt</li> <li>• 0.04% of total food handled</li> <li>• 10% of total post-delivery losses</li> </ul>	<ul style="list-style-type: none"> <li>• 1,839 mt</li> <li>• 0.03% of total food handled</li> <li>• 8% of total post-delivery losses</li> </ul>

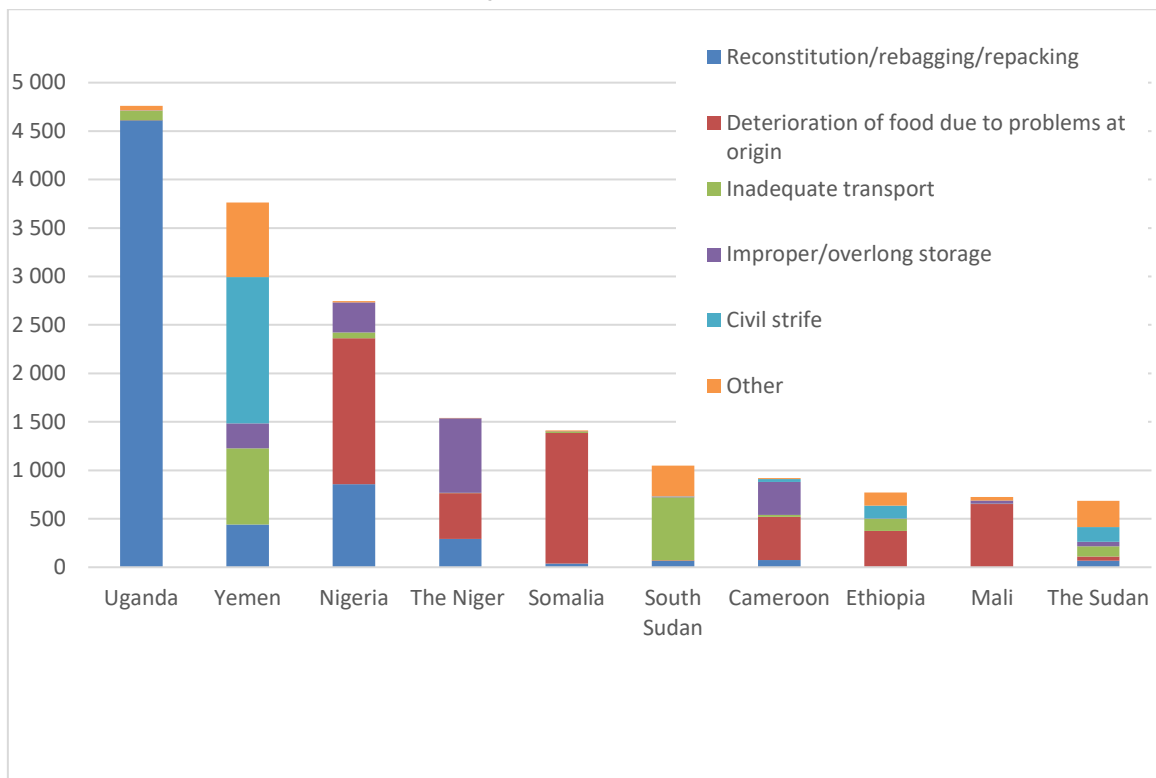
30. Problems related to reconstitution or repacking resulted in post-delivery losses of 8,119 mt, or 0.15 percent of food handled and 34 percent of all post-delivery losses. Of these losses, 4,611 mt or 57 percent occurred in Uganda.
31. Food deterioration caused by problems at origin resulted in post-delivery losses of 6,343 mt, or 0.12 percent of food handled and 26 percent of all post-delivery losses. Nigeria and Somalia together accounted for 45 percent of these losses, or 2,854 mt.
32. Inadequate transport accounted for 2,669 mt of losses, or 0.05 percent of food handled and 11 percent of all post-delivery losses. Of these losses, 54 percent or 1,437 mt occurred in Yemen and South Sudan.<sup>6</sup>
33. Improper or overlong storage resulted in post-delivery losses of 2,479 mt, or 0.04 percent of food handled and 10 percent of all post-delivery losses. Of these losses, 1,963 mt or 79 percent occurred in the Niger, Cameroon, Nigeria, Mozambique and Yemen.
34. Civil strife in 10 countries accounted for 1,839 mt, or 0.03 percent of food handled and 8 percent of all post-delivery losses. Yemen accounted for 1,508 mt or 82 percent of these losses.

#### Post-delivery losses by country

35. Ten country operations accounted for 18,371 mt or 76 percent of post-delivery losses in 2019 (see figure 6). Of these, Level 3 emergency operations in Yemen, Nigeria, the Niger, South Sudan and Mali accounted for 53 percent, at 9,821 mt.

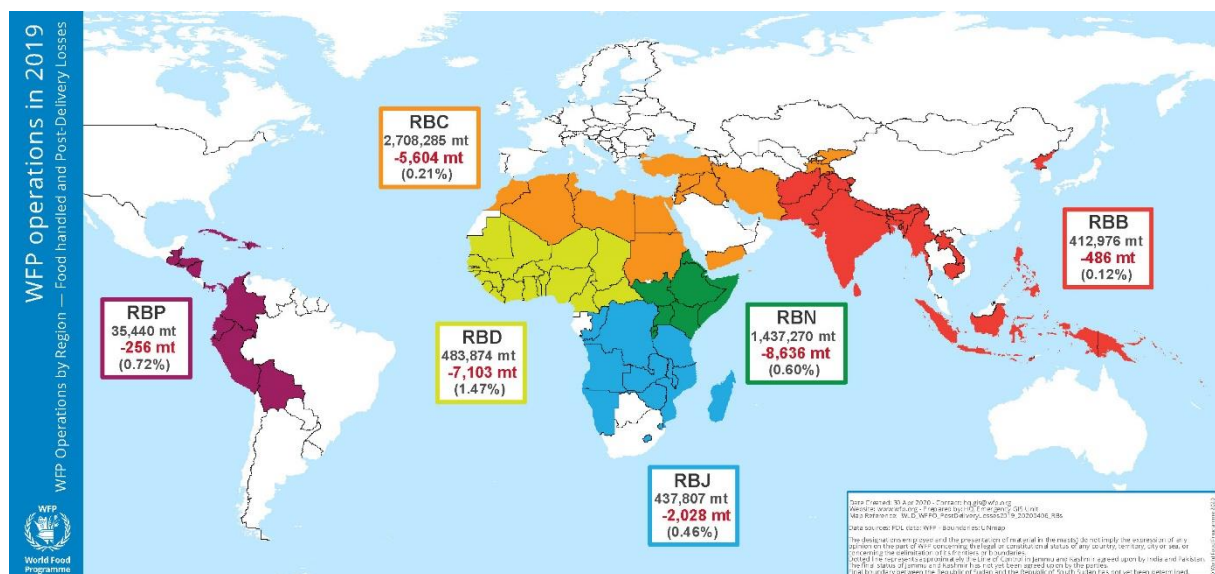
<sup>6</sup> Contractual provisions for recovering post-delivery losses from service providers and the selection and review of service providers are crucial for minimizing food losses. Poorly performing service providers receive a warning or are removed from the list of suppliers. Performance indicators for transporters include amounts lost in transit.

**Figure 6: The 10 countries with the highest post-delivery losses in 2019, by cause of loss (mt)**



36. WFP’s 10 largest operations in terms of volume of food handled in 2019 were, in descending order, Yemen, Ethiopia, the Syrian Arab Republic, South Sudan, the Sudan, Uganda, Afghanistan, Bangladesh, Somalia and the Democratic Republic of the Congo. These operations handled 4.3 million mt of food, or 77 percent of the total, and accounted for 14,072 mt or 58 percent of all post-delivery losses (see figure 7 for an overview by region).

**Figure 7: WFP operations by region – food handled (mt) and post-delivery losses (mt and percentage of total food handled in the region)**



**Abbreviations:** RBB = Regional Bureau for Asia and the Pacific; RBC = Regional Bureau for the Middle East, North Africa, Eastern Europe and Central Asia; RBD = Regional Bureau for West Africa; RBJ = Regional Bureau for Southern Africa; RBN = Regional Bureau for East Africa; RBP = Regional Bureau for Latin America and the Caribbean.



37. In 2019, WFP operations in 26 countries had above-threshold post-delivery losses, which totalled 18,921 mt (see annexes I and II). Of these countries, seven were in East Africa, accounting for 40 percent of all above-threshold post-delivery losses, eight were in West and Central Africa, accounting for 32 percent; three were in the Middle East, North Africa, Eastern Europe and Central Asia, accounting for 19 percent; six were in Southern Africa, accounting for 7 percent; one was in the Asia and the Pacific region, accounting for 1 percent; and one was in the Latin America and the Caribbean region, accounting for less than 1 percent.<sup>7</sup>

## Measures for preventing and mitigating losses

### Food procurement and safety and quality for WFP operations

38. WFP is committed to reducing food losses through its supply chain operations. Robust processes for procuring food and ensuring its safety and quality, complemented by monitoring at all levels, are key to this.
39. In 2019 the food procurement unit, in collaboration with the food safety and quality assurance unit, developed new shelf-life and packaging specifications for Super Cereal. Required shelf-life was increased by six months and stronger packaging was specified to reduce the risk of breakage and contamination. In addition, the requirement that all lipid-based nutrient supplements have a minimum remaining shelf-life of 80 percent at the time of delivery was strictly enforced in all country offices.
40. One of WFP's suppliers of palm oil in Indonesia redesigned the palm oil jerrycan to improve its strength – including resistance to top loading, which is important when cans are stacked on top of one another, as well as resistance to breakage if dropped – and reduce losses from leakage. The testing and monitoring of the effect of the design changes are still ongoing.
41. In the last quarter of 2019 new packaging specifications for vegetable oil were introduced in global tenders; the specifications were to be implemented by February 2020, but some suppliers put them into place before the end of 2019. Monitoring of reduction in losses resulting from leakage is ongoing.
42. The use of pallets, coupled with column and cross-stacking of sunflower oil containers, to improve load stability during transport and handling reduced losses during cross-border shipments from Turkey into the Syrian Arab Republic.
43. At WFP's request, a supplier of sugar in Morocco agreed to change the inner lining of containers from plastic to kraft paper to reduce condensation and environmental impact.
44. The food procurement unit switched from container to break-bulk contracts to reduce quality issues with white beans destined for Yemen at discharge points.
45. By monitoring production and best-before dates of wheat flour bought using the Global Commodity Management Facility (GCMF) and following up with the Yemen country office to ensure that wheat flour close to its best-before date was not sent to Yemen, the food procurement unit reduced losses of wheat flour.
46. In 2019, the food safety and quality assurance unit rolled out a food incident management (FIM) protocol and trained 118 staff in four sessions. By the end of the year, 68 percent of FIM committees were set up.

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<sup>7</sup> These are post-delivery losses that exceed WFP's thresholds for country-level post-delivery losses of single food types: valued at USD 20,000 or more and accounting for at least 2 percent of the tonnage handled; or valued at USD 100,000 or more.

47. The unit tested 136 food samples for compliance with specifications and more than 500 food samples for troubleshooting and incident management purposes in 2019. The unit also reviewed 24 food and packaging specifications.
48. The unit increased the nutritional value and shelf-life of high-energy biscuits through the use of improved micronutrients and better packaging, respectively.
49. Over the course of the year the unit upgraded weed seed controls for suppliers of Super Cereal, enhanced the supplier audit programme and upgraded the scope of work of inspection companies.

### **Tracking and monitoring of food**

50. The commodity accounting unit at headquarters plays an integral role in mitigating losses, whether by coordinating with regional bureaux and country offices to strengthen staff capacity or by taking all necessary measures to ensure that food commodity data are correctly captured and thus contribute to the reliability of commodity reports.
51. Throughout the year, the unit provided training to all six regional bureaux and all country offices on using the appropriate handling, tracking and monitoring procedures to better account for and manage commodities.
52. The unit provided hands-on support to all country offices – 10 directly and others remotely – in their efforts to clear data backlogs and enhance storekeepers' skills in using the Logistics Execution Support System (LESS). The LESS support cell at headquarters logged, analysed and resolved over a thousand technical support requests in 2019.
53. The unit also supported country offices in implementing the Last Mile application, which captures commodity receipt information at cooperating partner locations in real time. Integrated into LESS, this application is vital for tracking commodities at the last mile stage, i.e., when food is delivered to cooperating partners.
54. The unit remotely monitored commodities handled in approximately 450 warehouse locations worldwide and ensured that stocks complied with best-before dates. The unit also checked data reliability and ensured that transactions were captured and updated in the corporate system on time.
55. Moreover, quarterly follow-ups with physical inventory, loss monitoring and supporting the insurance unit with information on types of losses were also important in mitigating losses.

### **Regional bureau initiatives for minimizing losses**

56. Over the course of 2019, regional bureaux supported country offices in their efforts to minimize losses. This support took many forms, including oversight and compliance missions and training, technical assessments and audits of suppliers, guidance on the mitigation of food safety and quality risks and the management of incidents, and were aimed at ensuring that WFP best practices in food management and logistics were applied consistently in all operations.
57. The Regional Bureau for East Africa conducted oversight missions to eight country offices to ensure that food handling and management practices conformed to expected standards. Based on verification of the performance of transporters, the bureau ensured that only transporters capable of implementing best practices to minimize transport-related losses were contracted.

58. The Regional Bureau for East Africa also monitored the movement, storage and best-before dates of stocks through the LESS system to minimize food losses resulting from overlong storage and expiration of food commodities. During oversight missions, the bureau supported country offices in ensuring that expiry dates for cargo received in warehouses were checked and that any discrepancies were reported immediately. The oversight missions also supported country offices in following best practices on commodity accounting, contracting and warehouse management.
59. In collaboration with the food safety and quality assurance unit, the Regional Bureau for East Africa trained staff in handling specialized nutritious foods, which helped reduce losses of such foods.

**Box 1: Example of regional bureau support**

The Regional Bureau for Asia and the Pacific collaborated with the Myanmar country office to provide best-before-date information for all commodities to programme teams at least three months in advance of the dates. The information enabled the programme teams – who are responsible for planning food baskets and distributing food – to prioritize food distribution, thereby eliminating all losses arising from best-before dates being reached before distribution.

The regional bureau also supported the Bangladesh country office in ensuring that stronger packaging was used for high-energy biscuits. The stronger packaging minimized losses resulting from high-energy biscuit stacking.

60. The Regional Bureau for Asia and the Pacific conducted regular inspections to ensure that country offices used best-practice warehouse management procedures so that losses were minimized. These procedures included the maintenance of warehouses, the use of optimal stacking methods and pallets to prevent damage to stocks, proper ventilation, regular fumigation, pest control, including the use of fishnets to avoid infestation and damage by pests, and the installation of temperature-controlled containers for storing temperature-sensitive commodities. Regular monitoring of stocks and best-before dates and daily inventory checks also helped minimize losses.

61. The Regional Bureau for Asia and the Pacific helped reduce transportation-related losses by supporting country offices in tracking the movement of food and taking immediate action when incidents occurred during transportation and by ensuring that country offices only contracted transporters who used clean trucks and followed correct food handling procedures. The immediate reconditioning of bags or cartons damaged during transportation also contributed to loss reduction.
62. The warehouse and transportation-related loss mitigation support provided by the regional bureau enabled the Bangladesh country office to reduce losses considerably in 2019.
63. The Regional Bureau for Latin America and the Caribbean provided training in warehouse management and food storage and handling to the staff responsible for food management at school and government food warehouses. The bureau also strengthened the capacity of cooperating partners by conducting training in warehouse management, visiting storage locations at health units and schools and coordinating with programme staff to facilitate training for cooperating partners in best food handling practices during their field monitoring missions. WFP will continue to strengthen the capacity of government cooperating partners through further training and increased emphasis on internal control mechanisms and commodity quality checks to minimize losses in the future.
64. The warehouse management and pest control training provided by the Regional Bureau for Latin America and the Caribbean – in coordination with pest control companies – reduced losses due to rodent bites and weevil infestation in Honduras. Oil losses resulting from spillage were also reduced.

65. WFP best practices in food management and logistics in Nicaragua minimized losses due to poor transport conditions and handling by transporters, who were instructed to carefully and regularly check the condition of their trucks, which were subject to further inspection by country office staff prior to loading at warehouses. Additional mitigation measures, such as loading inspections, cargo loading controls, the use of tarpaulins and attention to axle loads were reinforced at loading points.

## ANNEX I

**Above-threshold losses, by country**

1. This annex presents post-delivery losses that exceed WFP's thresholds for country-level post-delivery losses of a single food type, either valued at USD 20,000 or more and accounting for at least 2 percent of the volume handled or valued at USD 100,000 or more. In 2019, such losses amounted to 18,921 mt from 27 projects in 26 countries (see table A1).

<b>TABLE A1: OPERATIONS IN COUNTRIES WITH ABOVE-THRESHOLD POST-DELIVERY LOSSES</b>	
<b>Country</b>	<b>Above-threshold post-delivery losses (mt)</b>
UGANDA	4 598
YEMEN	3 207
NIGERIA	2 559
NIGER (the)	1 511
SOMALIA	1 305
SOUTH SUDAN	793
CAMEROON	781
MALI	695
ETHIOPIA	387
DEMOCRATIC REPUBLIC OF THE CONGO	372
MOZAMBIQUE	341
MADAGASCAR	323
RWANDA	288
ALGERIA	272
MAURITANIA	260
BANGLADESH	246
CENTRAL AFRICAN REPUBLIC	163
BENIN	140
ANGOLA	136
UNITED REPUBLIC OF TANZANIA	132
LIBYA	120
KENYA	89
BURUNDI	87
HAITI	82
CHAD	36
MALAWI	0.34

## Above-threshold losses of Super Cereal produced by supplier Demirpolat

2. Following incidents in March and April 2019, when people became ill – first in Uganda and then in Somalia – after consuming Super Cereal (corn-soya blend), all distributions of the commodity were halted and a comprehensive investigation was launched.
3. Initial analysis indicated that all the affected people had consumed Super Cereal from three separate batches produced by one supplier in Turkey, Demirpolat.
4. Worldwide, all stocks of Demirpolat Super Cereal in WFP and cooperating partner warehouses were put on hold. In Uganda and Somalia, all stocks of Super Cereal produced by other suppliers were also put on hold. Stocks of Demirpolat Super Cereal on board ships were offloaded and put on hold in warehouses at arrival ports, while stocks at the Demirpolat Super Cereal production location were also put on hold.
5. Based on the investigation, which found the presence of unsafe amounts of tropane alkaloids in Super Cereal produced by Demirpolat, all Demirpolat stocks of Super Cereal worldwide were condemned as unfit for human and animal consumption and authorized to be destroyed in accordance with instructions from headquarters. These stocks were segregated and kept securely isolated from other stocks in WFP and cooperating partner warehouses. When practicable, the stocks were also returned to WFP warehouses by cooperating partners.
6. In accordance with instructions from headquarters, all pending orders for Super Cereal produced by Demirpolat were cancelled and deliveries of additional stocks refused.
7. Employing its self-insurance scheme, WFP started processing immediate payments for the condemned stocks to enable the procurement of replacement stocks from other suppliers and minimize disruptions to nutrition programmes; in parallel it started to review suitable recovery actions against the supplier.
8. In all, 22 countries suffered post-delivery losses of Demirpolat Super Cereal as a result of the incidents and subsequent investigation. Of these, 17 incurred above-threshold losses (see table A2).

<b>TABLE A2: COUNTRIES AFFECTED BY ABOVE-THRESHOLD LOSSES OF SUPER CEREAL PRODUCED BY DEMIRPOLAT</b>						
<b>Country</b>	<b>Work breakdown structure (WBS) code</b>	<b>Commodity</b>	<b>Post-delivery losses (mt)</b>	<b>Losses as a percentage of total volume handled</b>	<b>Demirpolat</b>	<b>Demirpolat as a percentage of post-delivery losses</b>
ALGERIA	DZ02.01.011.URT1	MIXCSB	272	18.30	270	99.4
ANGOLA	AO01.01.011.URT1	MIXCSB	136	79.10	136	100.0
BANGLADESH	BD01.01.021.URT1	MIXWSB	246	1.79	237	96.5
CAMEROON	CM01.01.011.URT1	MIXCSB	675	30.90	667	98.8
CAMEROON	CM01.01.021.SMP1	MIXCSB	106	100.00	62	58.6
CENTRAL AFRICAN REPUBLIC	CF01.01.011.URT1	MIXCSB	163	6.53	154	94.8
DEMOCRATIC REPUBLIC OF THE CONGO	CD01.02.021.NTA1	MIXCSB	96	2.59	87	90.5
ETHIOPIA	ET01.01.011.URT3	MIXCSB	387	3.43	368	94.9

<b>TABLE A2: COUNTRIES AFFECTED BY ABOVE-THRESHOLD LOSSES OF SUPER CEREAL PRODUCED BY DEMIRPOLAT</b>						
<b>Country</b>	<b>Work breakdown structure (WBS) code</b>	<b>Commodity</b>	<b>Post-delivery losses (mt)</b>	<b>Losses as a percentage of total volume handled</b>	<b>Demirpolat</b>	<b>Demirpolat as a percentage of post-delivery losses</b>
KENYA	KE01.01.011.URT1	MIXCSB	89	2.51	86	96.6
MADAGASCAR	MG02.01.011.URT1	MIXCSB	280	47.79	280	100.0
MADAGASCAR	MG02.02.031.NPA1	MIXCSB	44	15.92	44	100.0
MALI	ML01.01.011.NPA1	MIXCSB	659	22.96	651	98.7
MAURITANIA	MR02.01.011.URT1	MIXCSB	83	88.86	65	77.4
MAURITANIA	MR02.01.021.SMP1	MIXCSB	176	43.11	176	100.0
NIGER (the)	NE01.01.011.URT1	MIXCSB	470	13.51	470	99.9
NIGER (the)	NE01.01.021.SMP1	MIXCSB	152	51.28	152	100.0
NIGER (the)	NE01.02.031.NTA1	MIXCSB	255	22.02	255	99.7
NIGER (the)	NE01.04.041.ACL1	MIXCSB	633	52.84	633	100.0
NIGERIA	NG01.01.011.NPA1	MIXCSB	185	1.59	128	69.1
NIGERIA	NG01.01.011.URT1	MIXCSB	1 280	26.65	1 264	98.7
NIGERIA	NG01.03.021.ACL1	MIXCSB	170	48.64	131	77.1
RWANDA	RW01.01.011.URT1	MIXCSB	288	17.57	288	100.0
SOMALIA	SO01.01.011.URT1	MIXCSB	817	7.74	816	100.0
SOMALIA	SO01.02.031.NTA1	MIXCSB	488	11.53	470	96.3
UNITED REPUBLIC OF TANZANIA	TZ01.02.021.NPA1	MIXCSB	132	11.11	132	99.9
UGANDA	UG01.01.011.URT1	MIXCSB	2 462	16.43	1 235	50.1
UGANDA	UG01.02.031.NTA1	MIXCSB	890	25.73	261	29.4

9. For 13 of these 17 countries, the losses of Demirpolat Super Cereal were the only above-threshold commodity losses incurred. These countries were Algeria, Angola, Bangladesh, Cameroon, Central African Republic, Ethiopia, Kenya, Madagascar, Mauritania, the Niger, Rwanda, Somalia and the United Republic of Tanzania.
10. Country offices mostly attributed these Super Cereal losses to deterioration of food due to problems at origin.

11. In order to avoid any mixing with Demirpolat Super Cereal, all bags of Super Cereal that had been reconstituted, rebagged or repacked were also set aside and condemned, thereby leading to some losses being attributed to reconstitution, rebagging or repacking. The hold on Demirpolat Super Cereal resulted in the storage of some stocks beyond expiry dates, and hence overlong storage was also stated as a cause of loss.
12. Moreover, the caution exercised by country offices – especially those for whom Demirpolat Super Cereal constituted a significant proportion of total Super Cereal stocks – meant efforts to avoid any mixing of stocks, particularly when reconstituted or rebagged, resulted in non-Demirpolat Super Cereal also ending up as part of the above-threshold losses of Super Cereal.
13. To minimize the risk of such incidents in the future, the food safety and quality assurance unit at headquarters worked with other units to improve supply chains and monitor specialized nutritious foods such as Super Cereal through enhanced food safety systems and controls and stricter food safety and quality production requirements for WFP suppliers – including upgraded controls for weed seeds, the source of tropane alkaloids – in line with international standards.
14. The unit also enhanced the supplier audit programme, upgraded the scope of work of inspection companies and worked with regional bureaux and country offices on managing food incidents and handling specialized nutritious foods such as Super Cereal.
15. For the purpose of this report, separate explanations of the above-threshold losses of Demirpolat Super Cereal stocks for each country will not be provided.

## **Benin**

16. Flooding in Benin resulted in above-threshold losses of 76 mt of maize and 61 mt of beans stored in school warehouses for a school feeding programme. The maize and beans became wet and ended up getting infested and damaged beyond recovery.
17. To prevent such occurrences in the future, along with the continuous monitoring of stocks in school warehouses the country office trained non-governmental organization staff to better manage these stocks. The need to work with local authorities to receive alerts about flooding so that food can be moved to other locations was also recognized. In addition, WFP staff were provided with refresher training in stock management and the use of LESS.

## **Burundi**

18. Above-threshold losses of maize meal in Burundi in 2019 amounted to 87 mt. Of this, 58 mt expired as a result of being stored for too long, while 29 mt was lost as a result of problems with the maize from which it was milled.
19. In February, 58 mt of fortified maize meal with a shelf-life of three months was handed over to a partner (PROPAO<sup>8</sup>). The partner was unable to distribute it due to a lack of involvement by local administrative and health authorities – despite attempts by the programme team to convince them and the health authorities of the importance of fortified food – and the commodity expired. In October, the partner requested WFP to dispose of the maize meal, which had been reported as unfit for human consumption after an inspection conducted by a public health specialist. The disposal was duly carried out by WFP.

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<sup>8</sup> Programme for Accelerating the Attainment of the Millennium Development Goal 1.



20. In 2018, WFP had noticed lower quantities of maize meal being received after milling by Minolac, the only company contracted to mill and fortify maize meal for all WFP operations in Burundi. Based on meetings with the company, it was found that the presence of levels of impurities exceeding the required standards in the maize sent for milling meant that a lower proportion of meal could be extracted from the maize. This necessitated reduction of the prescribed milling extraction rate from 80 to 78.5 percent, for which permission was granted in December 2018. Accrued losses of maize meal amounting to 29 mt were registered in the system in 2019.
21. To mitigate such losses in the future, the country office trained partners in stock management and ensured that the maize being sent to the miller was of the required quantity and standard.

## **Chad**

22. The only above-threshold losses incurred in Chad were 36 mt of Super Cereal. These losses were related to the Demirpolat incident (see paragraphs 2–15 for a detailed explanation). To avoid any mixing of Super Cereal from other suppliers with condemned Demirpolat Super Cereal, the country office set aside all bags of reconstituted Super Cereal as unfit for human or animal consumption. This resulted in the above-threshold loss of 36 mt of Super Cereal from another supplier.

## **Democratic Republic of the Congo**

23. The country office in the Democratic Republic of the Congo incurred above-threshold losses of 257 mt of maize meal, 96 mt of corn-soya blend (Super Cereal) and 18 mt of vegetable oil in 2019.
24. More than 90 percent of the corn-soya blend losses was a consequence of the Demirpolat incident (see paragraphs 2–15 for a detailed explanation).
25. Most of the losses of vegetable oil occurred during transportation because the jerry cans containing the oil were insufficiently strong.
26. Of the losses of maize meal, 144 mt was received at the Bunia warehouse from the port of Dar es Salaam already infested and lacking best-before-date markings on the bags in which it was shipped. The maize meal was condemned as unfit for human consumption by the inspection company. Fumigation of the bags was not permitted by the national inspection company.
27. In addition, transportation-related issues contributed to losses of 78 mt of maize meal, of which approximately 52 mt was noticed at the Kananga warehouse, where the maize meal arrived wet and past its expiry date.
28. Maize meal amounting to 16 mt was looted during delivery to the distribution site after some damage to a bridge by the transporter's truck.
29. Transporting commodities over long distances – often from ports in other countries and through insecure regions where losses sometimes occur – and over bad roads that deteriorate further during the rainy season poses a constant challenge.
30. Losses that occurred during transportation, including from looting resulting from transporters taking non-recommended routes, were recovered from the transporters. To reduce transportation losses transporters were instructed to use more secure trucks and better tarpaulins.

31. To mitigate losses resulting from infestation and spoilage, the country office strengthened collaboration with the inspection body (the government office for quality and quantity control) and government authorities at the provincial level to increase awareness of their role and the support for WFP operations that was expected. Moreover, a South African inspection company, Intertek, was used for additional analysis to ascertain food quality.
32. Along with regular mandatory meetings with transporters, the country office also undertook efforts to build the warehouse and food management capacity of WFP and cooperating partner staff through periodic briefing and information sessions.

## Haiti

33. The Haiti country office incurred above-threshold losses of 45 mt of maize and 37 mt of rice in 2019.
34. The maize was lost during the processing of raw maize into degermed maize grits and maize flour by a milling company. The final product was rejected by the country office as unfit for human consumption due to concentrations of aflatoxin above the specified limit.
35. The country office took measures, in consultation with the food safety and quality assurance unit and the risk and insurance unit at headquarters, to mitigate and recover the loss. In the future a quality and quantity inspection, including laboratory analysis, will be conducted during the handover of locally procured raw maize by the supplier to the milling company. The country office has also agreed with the milling company to sell the maize as animal feed, while a credit note corresponding to the loss value will be issued by the milling company to cover the processing of future consignments.
36. Haiti was affected by insecurity and instability in 2019, which led to the theft of 31 mt of rice during a distribution in Les Irois, a commune in the Grand'Anse Department, when armed men stole the rice during a road accident. The value of the rice stolen during the accident was recovered from the transporter. Measures to prevent future thefts include police escorts for WFP convoys and the coordination of food dispatches and truck movements by WFP security.
37. Losses of rice – originally part of emergency consignment stock but allocated for school feeding to optimize pipeline and quality (best-before date) management – during the reconstitution process amounted to 6 mt.

## Libya

38. Wheat flour amounting to 120 mt comprised above-threshold losses in Libya. The wheat flour expired as a result of overlong storage.
39. The wheat flour was part of food to be distributed in 2017 in Benghazi by a cooperating partner that did not receive the permission of Libyan authorities to continue activities in the east of the country. Commodities were therefore handed over to the Libyan Humanitarian Relief Agency in January 2018. The agency expressed concern about some of the commodities in the ration, and the food and drugs control centre in Benghazi reported these commodities as infested.
40. In February 2018 the country office appointed an independent local laboratory to test the commodities. The results of the test confirmed that the commodities, including the wheat flour, had expired in January 2018.
41. After receiving permission from the risk mitigation service in late 2018, the country office therefore proceeded with the destruction of the wheat flour in January 2019 and registered the loss in the system.

42. A meeting was held with Libyan authorities in July 2018 to discuss the challenges and agree on how to avoid similar incidents in the future. As local authorities in Benghazi had designated the Libyan Humanitarian Relief Agency as the only cooperating partner allowed to work with international organizations, the country office revised its distribution plans and invited staff of the agency to a workshop for cooperating partners in December 2018 aimed at building partners' capacities, particularly in monitoring and reporting.
43. Moreover, in October 2019, all cooperating partners, including the Libyan Humanitarian Relief Agency, were invited to another workshop in Tunis, where all distribution-related topics – including monitoring and reporting and warehouse and inventory management – were covered and challenges discussed.
44. Along with the selection of commodities with longer shelf lives, measures taken to minimize losses due to overlong storage were working with cooperating partners authorized to work in the areas where WFP operates, proactive follow-up with customs in Benghazi to reduce customs delays, the nurturing of good relationships with the local authorities in Benghazi, the assignment of a third-party monitoring company to conduct regular visits to the Libyan Humanitarian Relief Agency to report on storage conditions and the setting up of a solid mechanism for monitoring best-before dates of commodities.

## Malawi

45. The Malawi country office incurred above-threshold losses of 0.34 mt of micronutrient powder intended for use in a joint project of the Nutrition Division at headquarters, the global nutrition company DSM and the Malawi College of Medicine to test the acceptability of a nutritious drink for adults with HIV.
46. After not being collected by the Malawi College of Medicine for the trials, the micronutrient powder passed its best-before date and was declared unfit for human consumption and disposed of.
47. To prevent such losses in the future, the country office advised warehouse managers to prioritize commodities for action before they near their best-before dates. Moreover, regular refresher training on warehouse management best practices and the tracking of best-before dates were provided to cooperating partners to mitigate warehouse losses. Staff have also been instructed to conduct physical checks on packaging upon receipt and ensure that best-before-date information matches that in LESS.

## Mali

48. Apart from the above-threshold losses of 659 mt of Super Cereal related to the Demirpolat incident (see paragraphs 2–15 for a detailed explanation), 36 mt of Super Cereal from another supplier were lost in Mali as a result of being stored beyond best-before dates.
49. Measures implemented to minimize such losses in the future include regular monitoring of best-before dates and stock management training for warehouse staff.

## Mozambique

50. In Mozambique above-threshold losses of 306 mt of maize meal and 35 mt of vegetable oil arose from events in 2018 and 2019, when the Government blocked distribution of WFP food to schools, citing problems with the quality of the commodities.

51. After a school feeding mission in February 2018 found signs of weevil infestation in maize meal purchased from a local supplier and national authorities raised concerns about its quality, the country office took corrective measures, including the testing and replacement of the infested maize meal. The inspection of storage facilities and testing of the maize meal indicated that part of the maize meal had been damaged due to poor roofing in school warehouses.
52. The country office also organized a joint inspection with the provincial department of education to examine the quality of the commodities at the supplier's facilities. In April, a joint report was issued confirming that the maize meal was of acceptable quality.
53. In May 2018, despite the positive outcome of a joint report and the resumption of food distribution activities for school feeding, the Nutrition Department of the Ministry of Education and Human Development requested the country office to halt all distributions and collect existing stocks of all WFP food in the schools because the commodities were suspected of being unfit for human consumption. Moreover, all provincial directorates were instructed by the Ministry of Education and Human Development to not receive any WFP commodities.
54. Following consultation with government authorities, in which concerns were raised by the country office about the risk of potential food losses due to storage beyond best-before dates, it was agreed that WFP could resume food distribution activities. The resumption was contingent on the results of an assessment by the National Inspectorate of Economic Activities (INAE).
55. In July 2018, several missions were jointly carried out by the country office and INAE to inspect WFP and cooperating partner warehouses in six provinces and to draw samples from all commodities whose distribution to schools had been put on hold pending the results of the national assessment. The above-threshold losses of maize meal and the vegetable oil consisted of part of the food commodities put on hold, pending laboratory results.
56. In August and September, the country office raised concerns with government authorities about the impact that withholding the commodities would have on operations, particularly in view of the fast approaching 30 September best-before date of the maize meal.
57. The laboratory results from INAE – received on 2 October 2018, two days after the expiry of the maize meal – indicated that the vegetable oil had high levels of peroxide but that the maize meal was fit for human consumption. However, a second sampling of the maize meal to determine whether its shelf-life could be extended indicated that it was unfit for human consumption, although suitable for animal consumption.
58. Although the quality of the maize meal was sound, factory audits undertaken in May indicated that none of WFP's suppliers were able to meet WFP production standards for food safety and quality. The country office therefore decided to cease purchasing maize meal locally pending implementation of audit recommendations. Meanwhile, to ensure continuation of the national school feeding programme, it was decided to replace maize meal with rice, which has a longer shelf-life.
59. Since the National Laboratory for Hygiene, Water and Food was not an accredited laboratory for oxidation-related analysis, the country office also sent new samples to Intertek, South Africa for testing, which indicated that the oil was in good condition. However, INAE did not accept the results, as they were from an external laboratory, and requested the country office to destroy all stocks of vegetable oil.
60. In December, based on the results of the tests from Intertek, South Africa, the Ministry of Industry and Commerce nevertheless gave permission for the distribution of the blocked oil.

61. In March 2019, by which time 180 mt of the oil had been distributed, the country office again halted distribution upon receiving a letter from the Government accusing it of distributing commodities unfit for human consumption.
62. In June, the country office engaged with both the Ministry of Education and Human Development and INAE to emphasize the quality control measures undertaken prior to any food distribution, as well as to request the final report of the assessment carried out in May 2018. This assessment report, received in October 2019, requested the destruction of the oil on hold because its peroxide levels did not comply with the Mozambican national standard for vegetable oil.
63. To prevent similar losses in the future, the country office has been sending two samples – one to a national laboratory accepted by the Government and the other to Intertek, South Africa – of all local food commodities for laboratory analysis prior to purchase.

## **Nigeria**

64. Above-threshold losses of 1,635 mt of corn-soya blend (Super Cereal), 729 mt of sorghum, 184 mt of beans and 9 mt of ready-to-use supplementary food were incurred by the Nigeria country office in 2019.
65. Most of the losses of corn-soya blend (approximately 93 percent) were a consequence of the Demirpolat incident (see paragraphs 2–15 for a detailed explanation). Inadequate transport, reconstitution and repacking-related issues and spoilage at cooperating partner warehouses accounted for almost all the rest.
66. Most of the losses of ready-to-eat supplementary food, amounting to 7 mt, occurred as a result of overlong storage. Low consumption rates resulted in the expiry date being exceeded.
67. Approximately 96 mt of beans were returned spoiled from cooperating partner warehouses and deemed unfit for human consumption, while 6 mt were lost due to inadequate transport, and reconstitution and repacking.
68. The presence of pesticide residue in sorghum rendered it unfit for human consumption and resulted in losses of 118 mt. The value of 24 mt of sorghum lost due to inadequate transport was recovered from the transporters.
69. In early 2019 a shortage of sorghum (585 mt), beans (82 mt), corn-soya blend (18 mt) and ready-to-eat supplementary food (2 mt) was discovered in the Maiduguri warehouse. Despite stock reconciliation and clearing of a backlog – the result of stock migration from emergency operations to country strategic plans and the pressure to deliver commodities to cooperating partners before general election-related movement restrictions – and a thorough physical inventory check at the end of April, the shortage could not be explained. The country office is working with the regional bureau and headquarters to explain the loss.
70. To mitigate such losses, the real-time use of LESS has been emphasized to ensure stock visibility. This enables the early detection of any abnormality in stock figures, which may not be possible when there are backlogs to be cleared. Moreover, approval from the head of supply chain operations in Nigeria is required when it is necessary to work offline using manual documents. In addition, all restacking of stocks in warehouses requires management approval, followed by a work order release in LESS.
71. Refresher training in warehouse and commodity management and LESS was provided to all warehouse staff. The training emphasized the importance of loss mitigation measures such as timely reconstitution and reconditioning, proper handling and stacking and the updating of warehouse documents and reporting of any suspected loss correctly and on time.

72. This training was replicated for all cooperating partners to ensure proper commodity handling, reporting and loss mitigation measures to minimize warehouse losses. Quarterly refresher training has been planned to minimize the effect of cooperating partner staff turnover.
73. A vendor awareness workshop was held to enhance awareness of the handling of WFP commodities and the consequences of failure to comply with requirements. Transporters were informed that not only were losses incurred during transportation deducted from their invoices but that the loss percentage was used as a performance criterion that could influence the decision to retain them on the list of WFP transport service providers.
74. The LESS Last Mile application was implemented and receipt at cooperating partner warehouses is currently confirmed in real time. This facilitates visibility of actual stock in transit to cooperating partners and enables early detection of delayed deliveries for timely follow-up with the transporters, thereby minimizing the risk of transport losses and stock diversion.
75. Potential buyers were identified for the sale of commodities certified unfit for human consumption but fit for animal consumption, and the sale process is ongoing.

## **South Sudan**

76. In 2019, the South Sudan country office incurred above-threshold losses of 439 mt of sorghum, 150 mt of yellow split peas, 128 mt of corn-soya blend (Super Cereal) and 75 mt of vegetable oil, primarily due to transportation-related issues.
77. The poor condition of roads in the country and the wetting of commodities during transportation by river were behind 520 mt of these losses. In addition, theft and flooding resulted in the loss of 118 mt of the above quantities over the course of the year.
78. To mitigate such transport-related losses, all trucks, boats and barges are thoroughly inspected before loading. Transporters are also advised to cover all commodities, and loads on trucks are adjusted for road conditions.
79. The country office is also enhancing storage facilities to prevent losses due to flooding and has planned a local capacity building programme to improve conditions on boats and barges to prevent losses during river delivery of food commodities. Regular alerts about impending best-before dates also mitigate warehouse losses resulting from overlong storage.
80. The value of transport-related losses was fully recovered from transporters, while some of the value of the losses due to theft was recovered from the security company.

## **Uganda**

81. Above-threshold losses in Uganda amounted to 3,352 mt of corn-soya blend (Super Cereal), 831 mt of maize and 415 mt of maize meal.
82. The losses of Super Cereal – 45 percent manufactured by Demirpolat and the rest by other suppliers – were related to the Demirpolat incident (see paragraphs 2–15 for a detailed explanation).
83. All Super Cereal distribution in the country was halted between March and July. This resulted in considerable stocks of Super Cereal from other suppliers – after the investigation confirmed that only Demirpolat Super Cereal had problems, the Government of Uganda permitted distribution of Super Cereal from other suppliers – expiring and being deemed unfit for human consumption.

84. Losses of Demirpolat Super Cereal were recovered through the corporate self-insurance scheme. A new food safety and quality position was created at the country office and a competent candidate for the position was selected towards the end of 2019. Apart from strengthening the country office's ability to ensure that food procured meets WFP standards, the incumbent will provide guidance to suppliers, staff and corporate partners on all matters related to food safety and quality.
85. Above-threshold losses of maize to the tune of 831 mt were generally attributable to warehouse-related issues. Approximately 710 mt of maize that was stacked outside due to shortage of indoor storage – an effect of South Sudan pre-positioning activities – in late 2018 and early 2019 was affected by rainwater. Despite drying, approximately 392 mt of the maize had high levels of discolouration and disease and was hence deemed unfit for human consumption.
86. Maize amounting to 244 mt – most of which had been locally and regionally procured and dried traditionally on the ground, leading to some discolouration and some quality issues – was lost as a result of being rejected by beneficiaries accustomed to machine-dried South African maize of a certain colour.
87. Moreover, the cleaning required for regionally procured maize – the maize had been accepted by other country offices and hence could not be returned to the supplier – also led to losses amounting to 108 mt. Quality issues with maize stored in cooperating partner-managed warehouses at final distribution points accounted for the rest of warehouse-related losses of maize.
88. Transport-related issues, including an accident in which a truck overturned on a bridge, resulted in the loss of 82 mt of maize, most of which was recovered from the transporters.
89. To mitigate future warehouse-related losses, two rounds of warehouse management training were conducted in 2019. Moreover, cooperating partners were provided training in commodity management, accountability and food safety and quality.
90. The above-threshold losses of 415 mt of maize meal related to events that occurred in 2018. In February 2018, the country office procured 6,600 mt of maize meal with a shelf-life of six months from a local supplier. The delivery of the maize meal started in March, with the last of the consignment delivered to extended delivery points in July and August to enable distribution before its expiry date in September 2018. During the distribution in August, some beneficiaries rejected the maize meal due to its short shelf-life, leading to its being replaced with maize.
91. Upon subsequent inspection by the authorities, the maize meal was found to be sound and fit for human consumption. The country office issued a letter, supported by laboratory analysis, to the relevant authorities requesting permission to distribute the maize meal and seeking support with sensitizing beneficiaries. The authorities visited the warehouses, physically inspected the stocks and confirmed that the maize meal was not altered in colour, smell or taste. The maize meal was therefore scheduled for distribution in the month of September.
92. During the distribution, some beneficiaries complained of a sour taste, prompting extra sampling and analysis, which revealed early stages of a mild infestation in some bags. At a meeting of the stakeholders – the Office of the Prime Minister of Uganda, WFP, the Office of the United Nations High Commissioner for Refugees and World Vision – it was acknowledged that a small part of the maize meal was infested and recommended that only particular bags be isolated. However, local authorities stopped the distribution of the entire consignment, as a result of which it was not distributed by its best-before date. The food was subsequently marked as suspicious and in 2019 declared unfit for human consumption.

## Yemen

93. In conflict-affected Yemen there were above-threshold losses of 1,631 mt of wheat flour, 952 mt of wheat-soya blend (Super Cereal), 52 mt of vegetable oil, 58 mt of rice and 45 mt of ready-to-eat supplementary food.
94. In November 2018, 13,000 mt of food, including 10,000 mt of wheat flour with best-before dates in February and March 2019, was dispatched from Aden as part of food rations to three different final delivery points in the Taiz Governorate. After the cooperating partner (Ministry of Education) raised concerns about insect infestation of the wheat flour, the country office took immediate action and instructed the transporter to return the wheat flour to WFP warehouses for fumigation and cleaning. Despite significant efforts by the country office, customs and other operational formalities resulted in trucks being detained at check points for more than four months, during which 611 mt of wheat flour deteriorated further and passed its expiry dates. A request to dispose of the damaged flour was submitted in May 2019 and endorsed by headquarters.
95. In August 2018, 362 mt of wheat flour that arrived on board the MV Jumana did not meet standard specifications, according to the authorities. A combination of bad weather, humidity and inadequate storage at the port where it was stored for more than three months – while efforts to have it checked by the authorities were ongoing – resulted in the wheat flour becoming infested and unfit for human consumption, which was confirmed by the Yemen standards authorities when they finally tested the flour. The request for its disposal was prepared and submitted to headquarters in January 2019.
96. Inadequate transport and poor handling accounted for 322 mt and 302 mt of above-threshold losses of wheat flour, with 37 mt being the result of various other causes.
97. Armed conflict in Hodeidah in June 2018 prevented access to four WFP warehouses as a result of all roads to them being blocked by the controlling authorities. After several attempts at negotiating access to the warehouses to move the entire stock of approximately 2,300 mt of food, WFP managed to gain access and move approximately 650 mt of mixed commodities.
98. The Subbari warehouse remained inaccessible. As a result, 889 mt of wheat-soya blend and 467 mt of vegetable oil could not be moved, and their expiry dates passed in 2018 and 2019.
99. Losses resulting from reconstitution and repacking (28 mt), poor handling (14 mt) and inadequate transport (11 mt) accounted for the remaining 53 mt of above-threshold losses of wheat-soya blend.
100. Overlong storage (20 mt), inadequate transport (19 mt) and poor handling (11 mt) accounted for most of the remaining lost vegetable oil.
101. Losses of rice amounting to 58 mt occurred during transportation to Shabwa-Merkha Ulya in August 2018. Several follow-ups with the transporter, who was not able to provide proof of delivery, revealed in March 2019 that the rice had been lost during transportation. The full value of the rice was recovered from the transporter.
102. Of the above-threshold losses of ready-to-eat-supplementary food, 25 mt occurred because the cooperating partners refused to accept it due to its short shelf-life. The country office had the food returned to the WFP warehouse and, in 2019, requested its disposal, which was approved by headquarters. The value of the remaining 11 mt, which was lost during transport to Hodeidah-Az Zuhra, will be deducted from the amount to be paid to the transporter.



103. To minimize infestation-related losses in the future, the country office has begun preventive fumigation of all wheat flour stocks expected to remain at WFP warehouses for more than one month. Stock rotation to avoid storage of food for long periods and the strict enforcement of standard warehouse management procedures – including stock movement on a “first in, first out” basis, with exceptions only in cases of damaged stock, stock at risk of deterioration or stock that is specifically requested – will also ensure that such losses are minimized.
104. To minimize food losses resulting from stock accumulation and the challenges posed by travel between the north and south of the country, the country office has adopted a two-pipelines strategy – one for the north and the other for the south – to prevent further accumulation of stocks in Aden that cannot be consumed before expiry. As a result, the pipeline for the south has stabilized and the country office is in the process of releasing unneeded warehouses back to their landlords, starting with those that have long been in poor condition.
105. The country office updated the standard operating procedures for warehouse management – with greater focus on food loss mitigation – and disseminated them to all warehouse staff. The WFP storekeepers’ manual was printed and distributed to WFP staff, warehouse operator staff and cooperating partners.

**ANNEX II****Post-delivery losses under verification from previous reports****2015 report*****Eritrea***

1. WFP has previously reported as advanced stock 64,538 mt with an estimated 2005 value of USD 31 million that were delivered to the Government of Eritrea in 2005.
2. The Government has informed WFP that at the time all food stocks donated by the international community, including by WFP, and intended for relief assistance were commingled and monetized by the Government in accordance with a change in the national food strategy that prioritized the discontinuation of relief aid in favour of food-for-work schemes to promote self-sufficiency.
3. The Government notes that proceeds from the monetization exercise were used to implement cash-for-work activities across the country meeting the criteria outlined in the programme documents for WFP's emergency operation 10261.1 and protracted relief and recovery operation 10192.0.
4. The Government acknowledges that the monetization of food stocks was not in strict accordance with the basic agreement between WFP and the Government but that the action undertaken was valid under the change in national strategy to discourage food aid dependency and promote self-sufficiency.
5. WFP has gathered evidence, namely ex-post distribution reports and an audit concerning food provided by a donor whose stocks were also monetized, that indicates that the WFP food stocks were milled alongside those of other donors and that the proceeds of the monetization exercise were used on cash-for-work activities that ultimately increased the capacity of beneficiary households to obtain food and improve their livelihoods. This evidence also indicates that at the time of the events the Government had in place the internal procedures and controls necessary for the reasonable prevention and detection of errors, irregularities and fraud.
6. It is WFP management's considered opinion that while the commodities were not distributed in accordance with the basic agreement between WFP and Eritrea it is more likely than not that the distribution mechanism was consistent with the outputs and outcomes set out in the programme documents for emergency operation 10261.1 and protracted relief and recovery operation 10192.0. In the light of this, the commodities will be recorded as distributed, without any loss, obligations or liabilities to WFP, and this matter will not appear in future loss reports.

## ANNEX III

## Global losses

2019 GLOBAL LOSSES REPORT – LOSSES BY COMMODITY			
Commodity	Commodity description	Sum of net mt	Sum of USD
CERBAR	Barley	7.500	2 900.74
CERMAZ	Maize	1 848.163	675 541.80
CERMML	Maize meal	1 325.156	621 968.00
CERPAS	Pasta	88.473	48 972.51
CERRIC	Rice	2 526.923	1 259 643.71
CERSOF	Sorghum flour	2.925	1 144.74
CERSOR	Sorghum/millet	3 606.644	1 097 893.51
CERWBG	Bulgur wheat	30.048	15 352.84
CERWHE	Wheat	2 159.330	688 945.17
CERWHF	Wheat flour	5 097.398	2 110 108.43
DAIDSP	Plain dried skimmed milk	2.349	6 470.41
DAIUHT	UHT milk	0.469	542.16
FRUDFR	Dried fruits	12.674	19 046.61
FSHCFI	Canned fish	1.906	8 424.15
MEACHK	Canned chicken	0.033	70.32
MEAMEA	Canned meat	0.007	17.99
MIXBP5	BP5 emergency rations	7.864	28 435.93
MIXCSB	Corn-soya blend	22 049.388	12 570 652.84
MIXHEB	High-energy biscuits	15.212	21 431.07
MIXLNS	Lipid-based nutrition supplement (LNS)	140.411	366 688.86
MIXPWB	Pea-wheat blend	0.010	32.64
MIXRSF	Ready-to-use supplementary food	84.422	247 684.41
MIXWSB	Wheat-soya blend	1 265.380	844 877.00
MSCCRA	Crackers	0.164	412.81
MSCMNP	Micronutrient powder	1.590	42 494.54
MSCSAL	Iodized salt	102.031	18 238.96
MSCSPC	Spices	0.799	1 158.75
MSCSUG	Sugar	289.521	121 120.85
MSCTOM	Processed tomato	0.069	43.16
MSCYEA	Yeast	0.018	39.31
OILOLV	Olive oil	0.023	97.10
OILVEG	Vegetable oil	1 711.411	2 032 842.21

<b>2019 GLOBAL LOSSES REPORT – LOSSES BY COMMODITY</b>			
<b>Commodity</b>	<b>Commodity description</b>	<b>Sum of net mt</b>	<b>Sum of USD</b>
PPFRTN	Rations	92.513	66 501.42
PULBEA	Beans	828.256	495 949.46
PULCKP	Chickpeas	153.785	93 433.10
PULCPU	Canned pulses	0.076	85.96
PULCVE	Canned vegetables	0.023	26.55
PULLEN	Lentils	243.026	146 467.51
PULPEA	Peas	199.507	119 059.88
PULSLN	Split lentils	296.362	178 660.96
PULSPE	Split peas	887.502	654 233.07
		<b>45 079.361</b>	<b>24 607 711.46</b>

## ANNEX IV

2019 PRE-DELIVERY LOSSES REPORT – LOSSES BY COMMODITY				
Commodity	Commodity description	Pre-delivery losses (mt)	Pre-delivery losses (USD)	% losses (USD)
CERMAZ	Maize	575.673	188 793.52	1.94%
CERMML	Maize meal	64.198	34 952.57	0.36%
CERPAS	Pasta	83.095	46 118.17	0.47%
CERRIC	Rice	1 825.736	852 510.39	8.78%
CERSOR	Sorghum/millet	1 607.346	470 626.98	4.85%
CERWBG	Bulgur wheat	0.886	445.35	0.00%
CERWHE	Wheat	1 794.406	542 845.96	5.59%
CERWHF	Wheat flour	2 991.350	1 223 369.83	12.59%
DAIDSP	Plain dried skimmed milk	1.674	4 471	0.05%
FRUDFR	Dried fruits	4.988	7 495.07	0.08%
FSHCFI	Canned fish	0.046	281.47	0.00%
MIXBP5	BP5 emergency rations	3.063	10 747.63	0.11%
MIXCSB	Corn-soya blend	9 829.048	4 725 650.38	48.65%
MIXHEB	High-energy biscuits	0.621	888.11	0.01%
MIXLNS	LNS	31.042	79 990.05	0.82%
MIXPWB	Pea-wheat blend	0.004	13.06	0.00%
MIXRSF	Ready-to-use supplementary food	1.004	2 944.09	0.03%
MIXWSB	Wheat-soya blend	5.199	3 519.77	0.04%
MSCSAL	Iodized salt	1.286	267.99	0.00%
MSCSUG	Sugar	225.893	93 027.24	0.96%
OILVEG	Vegetable oil	708.720	731 772.99	7.53%
PPFRTN	Rations	13.046	8 497.11	0.09%
PULBEA	Beans	313.484	169 883.63	1.75%
PULCKP	Chickpeas	118.876	71 465.03	0.74%
PULLEN	Lentils	122.721	71 615.2	0.74%
PULPEA	Peas	65.694	38 615.21	0.40%
PULSLN	Split lentils	217.623	130 677.66	1.35%
PULSPE	Split peas	359.448	201 693.94	2.08%
<b>Grand total</b>		<b>20 966.170</b>	<b>9 713 179.400</b>	

**ANNEX V**

<b>2019 PRE-DELIVERY LOSS REPORT – LOSSES BY REASON</b>		
<b>Reason for loss</b>	<b>Pre-delivery losses (mt)</b>	<b>Pre-delivery losses (USD)</b>
Deterioration of food commodities mainly attributable to problems at origin	10 530.174	4 781 386.98
Deterioration of packaging materials	4.603	3 325.60
Flooding and other natural disasters	16.650	7 330.52
Improper/overlong storage	818.118	593 703.66
Inadequate transport	8 608.278	3 827 998.50
Loss due to sampling food analysis	16.830	11 142.97
Loss during civil strife	0.666	316.66
Pilferage/theft	2.552	2 090.57
Poor handling	89.230	48 740.98
Reconstitution/rebagging/repacking	879.069	437 142.96
<b>Grand total</b>	<b>20 966.170</b>	<b>9 713 179.40</b>

## ANNEX VI

2019 POST-DELIVERY LOSS REPORT - LOSSES BY REASON		
Reason for loss	Post-delivery losses (USD)	% of total loss
Attack by termites	26 398.30	0.18%
Broken during loading	15 065.40	0.10%
Deterioration of food commodities mainly attributable to problems at origin	3 955 378.98	26.56%
Deterioration of packaging materials	33 992.70	0.23%
Flooding and other natural disasters	99 766.59	0.67%
Improper/overlong storage	1 668 540.50	11.20%
Inadequate transport	1 655 253.09	11.11%
Infestation	120 241.01	0.81%
Loss due to fire	19 081.73	0.13%
Loss due to over-scooping	22 611.75	0.15%
Loss due to sampling food analysis	76 796.08	0.52%
Loss during civil strife	1 503 139.66	10.09%
Pilferage/theft	636 226.22	4.27%
Poor handling	449 340.65	3.02%
Processing/transformation of commodity	73 816.05	0.50%
Reconstitution/rebagging/repacking	4 408 152.25	29.60%
Short-delivered	3 921.81	0.03%
Unauthorized distribution	78 310.06	0.53%
Variance in weight	5 671.30	0.04%
Wet bags	5 702.01	0.04%
Wet by gasoil	175.18	0.00%
Wet by water	36 950.74	0.25%
<b>Grand total</b>	<b>14 894 532.06</b>	

## ANNEX VII

2019 POST-DELIVERY LOSS REPORT Quantities and values by region								
Region	2019 Opening stock		Received in recipient country		Total handled		Post-delivery losses	
	Quantity <i>mt</i>	Value <i>USD</i>	Quantity <i>mt</i>	Value <i>USD</i>	Quantity <i>mt</i>	Value <i>USD</i>	Quantity <i>mt</i>	Value <i>USD</i>
<b>RBB</b>	67 042	34 328 561	345 933	174 749 058	412 976	209 077 619	486	286 126
<b>RBC</b>	403 025	193 536 206	2 305 260	1 050 278 338	2 708 285	1 243 814 544	5 604	3 495 187
<b>RBD</b>	112 859	83 622 177	371 015	193 745 308	483 874	277 367 485	7 103	4 337 619
<b>RBJ</b>	87 829	58 077 973	349 978	190 999 490	437 807	249 077 464	2 028	1 336 999
<b>RBN</b>	210 328	109 438 804	1 226 942	496 477 276	1 437 270	605 916 080	8 636	5 309 136
<b>RBP</b>	8 927	5 596 876	26 513	20 367 089	35 440	25 963 965	256	129 466
<b>Grand total</b>	<b>890 011</b>	<b>484 600 598</b>	<b>4 625 640</b>	<b>2 126 616 559</b>	<b>5 515 651</b>	<b>2 611 217 157</b>	<b>24 113</b>	<b>14 894 532</b>

RBB = Regional Bureau for Asia and the Pacific; RBC = Regional Bureau for the Middle East, North Africa, Eastern Europe and Central Asia;

RBD = Regional Bureau for West Africa; RBJ = Regional Bureau for Southern Africa; RBN = Regional Bureau for East Africa;

RBP = Regional Bureau for Latin America and the Caribbean.



## ANNEX VIII

2019 POST-DELIVERY LOSS REPORT – LOSSES BY COMMODITY				
Commodity	Commodity description	Total handled (USD)	Post-delivery losses (USD)	Losses in USD as % of total handled
CERBAR	Barley	1 190 981.99	2 900.74	0.24%
CERBHW	Buckwheat	63 916.43	-	0.00%
CERMAZ	Maize	123 316 907.30	486 748.28	0.39%
CERMML	Maize meal	41 899 856.57	587 015.43	1.40%
CEROAT	Oat	149 755.83	-	0.00%
CERPAS	Pasta	9 203 727.49	2 854.34	0.03%
CERRIC	Rice	237 634 761.61	407 133.32	0.17%
CERSOF	Sorghum flour	70 691.18	1 144.74	1.62%
CERSOR	Sorghum/millet	242 071 298.20	627 266.53	0.26%
CERWBG	Bulgur wheat	27 346 859.63	14 907.49	0.05%
CERWHE	Wheat	220 738 699.74	146 099.21	0.07%
CERWHF	Wheat flour	363 423 509.53	886 738.60	0.24%
DAIDSP	Plain dried skimmed milk	5 319 407.19	1 999.41	0.04%
DAIUHT	UHT milk	968 750.20	542.16	0.06%
FRUDFR	Dried fruits	6 037 756.00	11 551.54	0.19%
FSHCFI	Canned fish	10 634 092.78	8 142.68	0.08%
MEACHK	Canned chicken	1 378 788.49	70.32	0.01%
MEAMEA	Canned meat	182 344.40	17.99	0.01%
MIXBIS	Biscuits	10 368.00	-	0.00%
MIXBP5	BP5 emergency rations	2 128 161.71	17 688.30	0.83%
MIXCSB	Corn-soya blend	220 401 795.74	7 845 002.46	3.56%
MIXHEB	High-energy biscuits	54 941 197.53	20 542.96	0.04%
MIXLNS	LNS	171 969 624.16	286 698.81	0.17%
MIXPWB	Pea-wheat blend	444 694.41	19.58	0.00%
MIXRSF	Ready-to-use supplementary food	28 598 142.85	244 740.32	0.86%
MIXRTF	Ready-to-use therapeutic food	415 881.41	-	0.00%
MIXWSB	Wheat-soya blend	50 955 016.34	841 357.23	1.65%
MSCCRA	Crackers	412.81	412.81	100.00%
MSCHAL	Halawa	320 914.97	-	0.00%
MSCMNP	Micronutrient powder	955 003.03	42 494.54	4.45%
MSCSAL	Iodized salt	5 229 137.21	17 970.97	0.34%
MSCSPC	Spices	198 483.29	1 158.75	0.58%
MSCSUG	Sugar	35 088 238.84	28 093.61	0.08%
MSCTOM	Processed tomato	48.23	43.16	89.49%
MSCYEA	Yeast	557 291.23	39.31	0.01%
OILOLV	Olive oil	642 879.10	97.10	0.02%
OILVEG	Vegetable oil	355 630 064.29	1 301 069.22	0.37%
PPFRTN	Rations	49 776 675.74	58 004.31	0.12%
PULBEA	Beans	124 550 573.28	326 065.83	0.26%

<b>2019 POST-DELIVERY LOSS REPORT – LOSSES BY COMMODITY</b>				
<b>Commodity</b>	<b>Commodity description</b>	<b>Total handled (USD)</b>	<b>Post-delivery losses (USD)</b>	<b>Losses in USD as % of total handled</b>
PULCKP	Chickpeas	18 185 006.02	21 968.07	0.12%
PULCPU	Canned pulses	3 516 685.52	85.96	0.00%
PULCVE	Canned vegetables	281 401.73	26.55	0.01%
PULLEN	Lentils	47 064 560.72	74 852.31	0.16%
PULPEA	Peas	21 922 496.09	80 444.67	0.37%
PULSLN	Split lentils	26 678 966.94	47 983.30	0.18%
PULSPE	Split peas	98 514 027.46	452 539.13	0.46%
TUBFRS	Tubers - fresh	607 304.21	-	0.00%
<b>Grand total</b>		<b>2 611 217 157.39</b>	<b>14 894 532.06</b>	<b>0.57%</b>

\* Total handled = opening stocks plus food received in-country.

## ANNEX IX

2019 POST-DELIVERY LOSS REPORT						
Quantities and values by recipient country						
Region	Recipient country	Total handled		Post-delivery losses		% losses USD vs. total handled USD
		mt	USD	mt	USD	
RBB	AFGHANISTAN	135 115.3	64 931 100	133.6	68 545	0.11%
	BANGLADESH	130 280.4	65 494 561	269.1	155 065	0.24%
	CAMBODIA	5 969.0	3 914 133	2.6	1 463	0.04%
	DPR KOREA	35 395.0	17 483 022	58.7	40 766	0.23%
	LAO PDR	6 705.7	6 405 787	1.3	957	0.01%
	MYANMAR	52 775.5	22 229 269	5.3	5 286	0.02%
	NEPAL	8 358.5	6 076 260	9.7	6 833	0.11%
	PAKISTAN	37 083.7	21 463 482	1.1	1 480	0.01%
	PHILIPPINES	1 256.6	1 051 115	4.2	3 190	0.30%
	SRI LANKA	0.6	2 397	0.6	2 397	100.00%
	TIMOR-LESTE	35.3	26 493	0.2	145	0.55%
<b>RBB total</b>		<b>412 975.6</b>	<b>209 077 619</b>	<b>486.4</b>	<b>286 126</b>	<b>0.14%</b>
RBC	ALGERIA	28 793.3	12 278 279	297.6	177 163	1.44%
	ARMENIA	3 021.5	1 574 808	-	0	0.00%
	EGYPT	9 591.4	11 622 292	0.4	312	0.00%
	IRAN (ISLAMIC REP. OF)	4 943.0	1 945 562	17.8	4 213	0.22%
	IRAQ	20 426.5	9 229 928	5.4	3 049	0.03%
	JORDAN	3 278.0	4 939 305	0.8	1 299	0.03%
	KYRGYZSTAN	7 546.3	4 781 091	0.0	30	0.00%
	LEBANON	0.0	5	-	0	0.00%
	LIBYA	9 250.2	6 433 024	170.9	93 324	1.45%
	PALESTINE, STATE OF	9 501.3	6 717 887	1.1	554	0.01%
	SUDAN (the)	300 880.1	104 105 008	686.6	361 009	0.35%
	SYRIAN ARAB REPUBLIC	603 420.5	331 398 732	659.3	323 013	0.10%
	TAJIKISTAN	6 477.3	4 164 385	-	0	0.00%
	YEMEN	1 701 155.9	744 624 239	3 763.9	2 531 220	0.34%
<b>RBC total</b>		<b>2 708 285.0</b>	<b>1 243 814 544</b>	<b>5 603.8</b>	<b>3 495 187</b>	<b>0.28%</b>
RBD	BENIN	16 908.4	7 219 717	158.2	76 532	1.06%
	BURKINA FASO	75 568.2	34 560 778	48.1	35 432	0.10%
	CAMEROON	54 805.3	26 778 729	920.8	498 139	1.86%
	CENTRAL AFRICAN REPUBLIC	48 422.0	32 611 498	394.6	330 674	1.01%
	CHAD	69 213.6	46 073 003	210.6	356 933	0.77%

2019 POST-DELIVERY LOSS REPORT						
Quantities and values by recipient country						
Region	Recipient country	Total handled		Post-delivery losses		% losses USD vs. total handled USD
		mt	USD	mt	USD	
RBD	CÔTE D'IVOIRE	8 222.9	4 745 143	6.4	5 234	0.11%
	GAMBIA (the)	4 248.6	3 127 278	11.5	9 695	0.31%
	GUINEA	8 733.0	4 922 727	28.5	15 493	0.31%
	GUINEA-BISSAU	5 115.6	4 828 822	0.9	804	0.02%
	LIBERIA	6 505.2	2 925 834	20.8	11 644	0.40%
	MALI	13 327.5	10 677 867	724.7	443 033	4.15%
	MAURITANIA	6 584.5	3 773 433	269.0	152 297	4.04%
	NIGER (the)	64 498.2	38 442 488	1 538.4	1 078 763	2.81%
	NIGERIA	97 422.4	54 078 431	2 745.6	1 315 016	2.43%
	SENEGAL	331.5	626 182	0.1	267	0.04%
	SIERRA LEONE	3 966.9	1 975 555	24.7	7 662	0.39%
<b>RBD total</b>		<b>483 873.7</b>	<b>277 367 485</b>	<b>7 102.9</b>	<b>4 337 619</b>	<b>1.56%</b>
RBJ	ANGOLA	2 984.1	1 276 041	140.1	78 449	6.15%
	COMOROS	1 239.4	788 881	1.2	809	0.10%
	CONGO (the)	10 581.0	6 480 266	35.2	30 186	0.47%
	DEM. REP. OF THE CONGO	111 208.5	89 570 792	568.7	448 748	0.50%
	ESWATINI	3 482.0	1 653 120	23.3	7 477	0.45%
	LESOTHO	6 479.7	2 929 885	5.2	2 453	0.08%
	MADAGASCAR	24 649.4	13 084 415	354.1	208 356	1.59%
	MALAWI	35 880.1	16 174 328	7.4	25 315	0.16%
	MOZAMBIQUE	98 085.6	55 189 524	568.5	345 376	0.63%
	NAMIBIA	1 946.7	1 162 685	0.1	104	0.01%
	TANZANIA, UNITED REPUBLIC OF	67 630.2	25 845 563	299.7	175 491	0.68%
	ZAMBIA	4 866.0	2 500 350	0.5	203	0.01%
	ZIMBABWE	68 774.3	32 421 612	23.8	14 030	0.04%
<b>RBJ total</b>		<b>437 807.0</b>	<b>249 077 464</b>	<b>2 027.7</b>	<b>1 336 999</b>	<b>0.54%</b>
RBN	BURUNDI	41 055.4	23 608 119	113.6	61 100	0.26%
	DJIBOUTI	6 803.8	3 535 265	41.7	25 496	0.72%
	ETHIOPIA	632 306.5	221 500 260	771.7	517 919	0.23%
	KENYA	97 931.5	47 524 023	201.2	100 668	0.21%
	RWANDA	9 326.7	6 278 111	288.9	194 273	3.09%
	SOMALIA	129 412.1	78 856 525	1 410.3	998 121	1.27%
	SOUTH SUDAN	317 610.5	143 535 256	1 048.3	810 961	0.56%
	UGANDA	202 823.1	81 078 520	4 760.6	2 600 598	3.21%
<b>RBN total</b>		<b>1 437 270</b>	<b>605 916 080</b>	<b>8 636.3</b>	<b>5 309 136</b>	<b>0.88%</b>

2019 POST-DELIVERY LOSS REPORT						
Quantities and values by recipient country						
Region	Recipient country	Total handled		Post-delivery losses		% losses <i>USD</i> vs. total handled <i>USD</i>
		<i>mt</i>	<i>USD</i>	<i>mt</i>	<i>USD</i>	
RBP	BAHAMAS	8.0	64 662	0.0	218	0.34%
	COLOMBIA	2 295.2	1 498 510	4.1	2 408	0.16%
	CUBA	1 950.2	1 508 379	20.3	10 215	0.68%
	DOMINICAN REPUBLIC	466.9	364 400	-	0	0.00%
	GUATEMALA	2 780.4	2 404 775	0.0	6	0.00%
	HAITI	10 914.8	6 185 981	215.4	103 422	1.67%
	HONDURAS	11 085.9	8 700 449	15.9	12 600	0.14%
	NICARAGUA	5 938.7	5 236 808	0.4	598	0.01%
<b>RBP total</b>		<b>35 440</b>	<b>25 963 965</b>	<b>256.1</b>	<b>129 466</b>	<b>0.50%</b>
<b>Grand total</b>		<b>5 515 651.1</b>	<b>2 611 217 157</b>	<b>24 113.2</b>	<b>14 894 532</b>	<b>0.57%</b>

\* Total handled = opening stocks plus food received in-country.

## ANNEX X

2019 POST-DELIVERY LOSS REPORT									
Commodities with post-delivery losses									
greater than 2 percent in tonnage and value over USD 20,000 or value greater than USD 100,000									
Region	Country	Project	WBS	Commodity	Total handled (mt)	Total handled (USD)	Post-delivery losses (mt)	Post-delivery losses (USD)	% losses (mt) vs. total handled
RBB	BANGLADESH	BD01	BD01.01.021.URT1	MIXWSB	13 695.40	12 360 428.89	245.55	139 632.71	1.79%
RBC	ALGERIA	DZ02	DZ02.01.011.URT1	MIXCSB	1 485.40	981 025.18	271.80	164 862.47	18.30%
RBC	LIBYA	200925	200925.F.1	CERWHF	120.42	59 385.12	120.42	59 385.12	100.00%
RBC	YEMEN	201068	201068.F.1	CERRIC	566.28	274 373.99	57.60	27 888.92	10.17%
RBC	YEMEN	201068	201068.F.1	CERWHF	181 098.49	63 197 435.36	406.76	186 087.92	0.22%
RBC	YEMEN	201068	201068.F.1	MIXRSF	561.55	1 523 242.44	36.20	98 758.38	6.45%
RBC	YEMEN	201068	201068.F.1	OILVEG	29 070.10	31 214 993.47	520.73	702 535.14	1.79%
RBC	YEMEN	YE01	YE01.01.011.URT1	CERWHF	557 774.33	200 420 130.35	1 224.37	515 564.15	0.22%
RBC	YEMEN	YE01	YE01.02.021.NTA1	MIXRSF	354.65	872 869.55	8.73	23 109.60	2.46%
RBC	YEMEN	YE01	YE01.02.021.NTA1	MIXWSB	35 902.06	26 105 644.83	952.39	658 263.70	2.65%
RBD	BENIN	BJ02	BJ02.01.011.SMP1	CERMAZ	2 737.00	980 215.94	78.55	28 765.46	2.87%
RBD	BENIN	BJ02	BJ02.01.011.SMP1	PULBEA	303.00	195 792.52	61.02	39 783.70	20.14%
RBD	CAMEROON	CM01	CM01.01.011.URT1	MIXCSB	2 184.53	1 180 175.15	675.01	358 709.01	30.90%
RBD	CAMEROON	CM01	CM01.01.021.SMP1	MIXCSB	105.78	54 886.52	105.78	54 886.52	100.00%
RBD	CENTRAL AFRICAN REPUBLIC	CF01	CF01.01.011.URT1	MIXCSB	2 493.38	1 785 990.30	162.73	132 255.75	6.53%
RBD	CHAD	TD01	TD01.02.031.NTA1	MIXCSB	1 204.22	1 587 532.79	36.49	25 798.34	3.03%
RBD	MALI	ML01	ML01.01.011.NPA1	MIXCSB	2 870.94	3 154 085.08	659.20	399 734.83	22.96%
RBD	MALI	ML01	ML01.02.031.NTA1	MIXCSB	185.25	139 585.88	35.86	27 014.60	19.36%
RBD	MAURITANIA	MR02	MR02.01.011.URT1	MIXCSB	93.74	59 564.49	83.30	53 278.64	88.86%

2019 POST-DELIVERY LOSS REPORT									
Commodities with post-delivery losses									
greater than 2 percent in tonnage and value over USD 20,000 or value greater than USD 100,000									
Region	Country	Project	WBS	Commodity	Total handled (mt)	Total handled (USD)	Post-delivery losses (mt)	Post-delivery losses (USD)	% losses (mt) vs. total handled
RBD	MAURITANIA	MR02	MR02.01.021.SMP1	MIXCSB	409.03	226 072.42	176.31	95 343.07	43.11%
RBD	NIGER (the)	NE01	NE01.01.011.URT1	MIXCSB	3 478.92	2 279 553.82	469.96	325 369.98	13.51%
RBD	NIGER (the)	NE01	NE01.01.021.SMP1	MIXCSB	296.48	145 268.73	152.03	103 332.95	51.28%
RBD	NIGER (the)	NE01	NE01.02.031.NTA1	MIXCSB	1 159.59	725 536.01	255.40	200 156.04	22.02%
RBD	NIGER (the)	NE01	NE01.04.041.ACL1	MIXCSB	1 198.23	798 599.02	633.14	431 288.81	52.84%
RBD	NIGERIA	NG01	NG01.01.011.NPA1	MIXCSB	11 625.47	12 938 752.07	185.20	126 475.37	1.59%
RBD	NIGERIA	NG01	NG01.01.011.NPA1	MIXRSF	30.00	76 500.00	9.73	27 230.44	32.42%
RBD	NIGERIA	NG01	NG01.01.011.URT1	CERSOR	30 538.48	7 654 741.12	633.22	147 422.58	2.07%
RBD	NIGERIA	NG01	NG01.01.011.URT1	MIXCSB	4 802.80	2 535 924.67	1 280.19	660 343.40	26.65%
RBD	NIGERIA	NG01	NG01.01.011.URT1	PULBEA	11 121.80	5 715 507.14	183.65	118 975.62	1.65%
RBD	NIGERIA	NG01	NG01.03.021.ACL1	CERSOR	2 668.53	660 419.81	96.28	25 020.15	3.61%
RBD	NIGERIA	NG01	NG01.03.021.ACL1	MIXCSB	350.35	207 126.61	170.40	96 964.43	48.64%
RBJ	ANGOLA	AO01	AO01.01.011.URT1	MIXCSB	172.00	76 350.80	136.05	75 777.14	79.10%
RBJ	DEM. REP. OF THE CONGO	CD01	CD01.01.011.URT1	CERMML	35 663.53	19 794 782.75	257.30	150 737.35	0.72%
RBJ	DEM. REP. OF THE CONGO	CD01	CD01.02.021.NPA1	OILVEG	759.15	851 121.28	18.33	20 123.28	2.41%
RBJ	DEM. REP. OF THE CONGO	CD01	CD01.02.021.NTA1	MIXCSB	3 705.98	2 390 673.13	96.03	78 364.12	2.59%
RBJ	MADAGASCAR	MG02	MG02.01.011.URT1	MIXCSB	585.25	316 963.73	279.71	150 697.48	47.79%
RBJ	MADAGASCAR	MG02	MG02.02.031.NPA1	MIXCSB	274.03	161 285.16	43.63	25 220.89	15.92%
RBJ	MALAWI	MW01	MW01.02.031.NPA1	MSCMNP	0.34	21 288.00	0.34	21 288.00	100.00%
RBJ	MOZAMBIQUE	MZ01	MZ01.01.033.SMP1	CERMML	305.55	114 951.85	305.55	114 951.85	100.00%

2019 POST-DELIVERY LOSS REPORT									
Commodities with post-delivery losses									
greater than 2 percent in tonnage and value over USD 20,000 or value greater than USD 100,000									
Region	Country	Project	WBS	Commodity	Total handled (mt)	Total handled (USD)	Post-delivery losses (mt)	Post-delivery losses (USD)	% losses (mt) vs. total handled
RBJ	MOZAMBIQUE	MZ01	MZ01.01.033.SMP1	OILVEG	137.17	221 868.95	35.07	60 644.00	25.57%
RBJ	TANZANIA, UNITED REP. OF	TZ01	TZ01.02.021.NPA1	MIXCSB	1 190.66	1 064 908.01	132.27	74 140.12	11.11%
RBN	BURUNDI	BI01	BI01.02.031.NPA1	CERMML	87.07	44 158.91	87.07	44 158.91	100.00%
RBN	ETHIOPIA	ET01	ET01.01.011.URT3	MIXCSB	11 294.07	9 653 338.13	387.20	334 935.72	3.43%
RBN	KENYA	KE01	KE01.01.011.URT1	MIXCSB	3 554.84	3 441 069.82	89.25	46 465.86	2.51%
RBN	RWANDA	RW01	RW01.01.011.URT1	MIXCSB	1 636.75	1 442 582.79	287.64	193 391.15	17.57%
RBN	SOMALIA	SO01	SO01.01.011.URT1	MIXCSB	10 549.92	7 034 519.46	816.58	620 935.25	7.74%
RBN	SOMALIA	SO01	SO01.02.031.NTA1	MIXCSB	4 233.58	3 022 787.93	488.02	291 451.38	11.53%
RBN	SOUTH SUDAN	SS01	SS01.01.011.URT1	CERSOR	175 799.39	47 120 698.01	438.92	185 781.65	0.25%
RBN	SOUTH SUDAN	SS01	SS01.01.011.URT1	OILVEG	13 241.60	15 519 992.49	75.33	105 976.05	0.57%
RBN	SOUTH SUDAN	SS01	SS01.01.011.URT1	PULSPE	12 276.50	6 581 575.58	150.33	102 453.29	1.22%
RBN	SOUTH SUDAN	SS01	SS01.02.021.NTA1	MIXCSB	25 980.22	29 011 787.84	127.93	171 409.02	0.49%
RBN	UGANDA	UG01	UG01.01.011.URT1	CERMAZ	94 591.67	24 902 454.74	831.30	296 063.32	0.88%
RBN	UGANDA	UG01	UG01.01.011.URT1	CERMML	3 307.73	1 757 705.92	415.45	197 499.78	12.56%
RBN	UGANDA	UG01	UG01.01.011.URT1	MIXCSB	14 988.15	12 536 648.28	2 462.04	1 540 524.35	16.43%
RBN	UGANDA	UG01	UG01.02.031.NTA1	MIXCSB	3 458.03	2 954 672.09	889.65	474 446.27	25.73%
RBP	HAITI	HT01	HT01.01.011.URT1	CERRIC	1 571.60	641 358.48	36.88	20 986.37	2.35%
RBP	HAITI	HT01	HT01.01.031.SMP1	CERMAZ	295.19	156 982.12	45.19	22 459.07	15.31%

RBB = Regional Bureau for Asia and the Pacific; RBC = Regional Bureau for the Middle East, North Africa, Eastern Europe and Central Asia;

RBD = Regional Bureau for West Africa; RBJ = Regional Bureau for Southern Africa; RBN = Regional Bureau for East Africa;

RBP = Regional Bureau for Latin America and the Caribbean.

\* Total handled = opening stocks plus food received in-country.



## ANNEX XI

<b>POST-DELIVERY LOSSES 2008-2019</b>						
<b>Year</b>	<b>Total volume handled (mt)</b>	<b>Volume of losses (mt)</b>	<b>Losses as a percentage of total volume handled</b>	<b>Total value handled (USD)</b>	<b>Value of losses (USD)</b>	<b>Losses as a percentage of total value handled</b>
2008	4 831 067	21 699	0.45	2 604 005 060	11 388 899	0.44
2009	5 567 314	21 187	0.38	2 755 152 374	10 131 966	0.37
2010	5 508 365	17 128	0.31	2 915 989 860	10 180 080	0.35
2011	4 517 972	20 371	0.45	2 734 427 882	13 217 691	0.48
2012	4 201 302	31 251	0.74	2 936 389 248	18 033 222	0.61
2013	3 770 209	25 016	0.66	2 511 094 911	18 684 094	0.74
2014	3 898 691	18 921	0.49	2 553 059 658	15 563 533	0.61
2015	3 559 176	12 694	0.36	2 596 324 005	11 019 934	0.42
2016	4 234 149	20 109	0.47	2 527 081 008	18 070 937	0.72
2017	4 457 644	14 733	0.33	2 458 337 114	12 841 501	0.52
2018	4 554 062	12 218	0.27	2 347 637 426	9 803 775	0.42
2019	5 515 651	24 113	0.44	2 611 217 157	14 894 532	0.57