50x2030
DATA-SMART AGRICULTURE

THEMATIC BRIEF

Agricultural Losses

2024 (rainy season)

Republic of the Niger

THE WORLD BANK

Food and Agriculture Organization of the United Nations

Reducing losses in agricultural commodities is a priority for the agricultural sector in Niger: lower losses lead to increased food availability, enhanced national food security and strengthened agri-food value chains. To provide up-to-date and quality evidence on the magnitude of food losses, 720 households and 120 wholesalers were surveyed between September and December 2024 across the country, covering the country's key crops and major on and off-farm stages of the agri-food value chains, including harvest, post-harvest and transportation. This survey was conducted by the Statistics Department of the Ministry of Agriculture and Livestock (*Direction des statistiques, Ministère de l'Agriculture et de l'Elevage)*, with technical assistance from the 50x2030 Initiative.

Key features

This Thematic Brief offers valuable insights into both on-farm and off-farm losses for six of Niger's most significant agricultural commodities: millet, sorghum, maize, cowpeas, groundnuts, and sesame. By employing a comprehensive approach that integrates physical measurements with farmers' declarations, the survey delivers robust quantitative estimates of these losses. Additionally, it sheds light on the effectiveness of various data collection methods, paving the way for future assessments. For an in-depth understanding of the results and methodology, readers are encouraged to consult the survey report. A technical annex at the conclusion of this document provides detailed information on the definitions, sources, and indicators utilized throughout the brief.

Cultivated land and distribution by crop type

A significant portion of the Republic of the Niger's 17.4 million hectares of cultivated land, measured for the country's top 20 crops, is dedicated to staple crops, accounting for 90% of the area. The two primary food crops, millet and sorghum, alone represent 71% of the cultivated area. Cash crops, including sesame, moringa and various horticultural crops, constitute a small but growing share of the Niger's cultivated land, making up 10%.

Cultivated land

17.4

million hectares

(Top 20 crops)

Share used for staple crops

90%

Share used for cash crops

10%

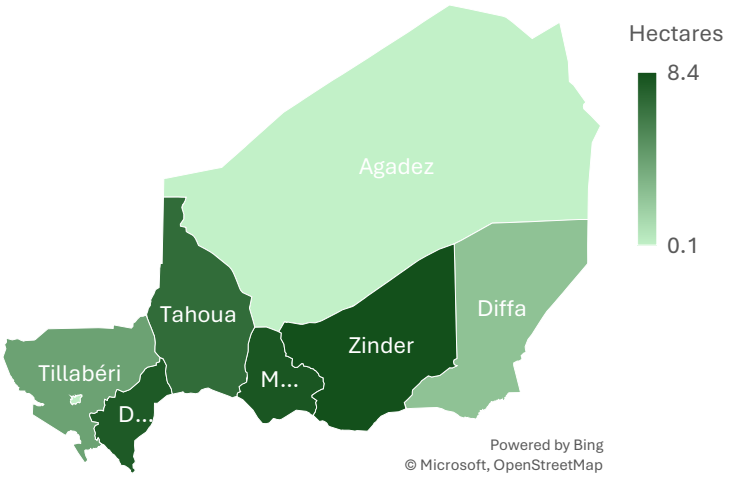
Size of agricultural holdings

The average size of agricultural holdings in the Republic of the Niger is 6.2 hectares, with significant variations across regions, from less than 0.1 hectares in Agadez, in the Sahara Desert, to above 8 hectares in Zinder, in the southern part of the country.

Average holding size

6.2

hectares



Crop output and losses

The total agricultural losses for the six crops included in this assessment range from 10.5% for sesame to 19.5% for maize. For the other crops, loss ratios are in the order of 15%.

These percentages indicate significant quantitative losses, which could have critical implications for food security and livelihoods: about 660 thousand tonnes for millet, nearly 430 thousand tonnes for cowpea, and approximately 300 thousand tonnes for sorghum.

Crops	Harvest Tonnes (A)	Harvest losses Tonnes (B)	Agricultural losses Percentage (C)	Agricultural losses Tonnes (C) x [(A)+(B)]
Millet	3 836 015	379 486	15.7	661 834
Cowpea	2 763 022	278 512	14.1	428 856
Sorghum	1 907 421	194 653	14.2	298 494
Peanut	672 756	28 599	13.6	95 343
Sesame	141 025	10 254	10.5	15 884
Maize	12 430	1 149	19.5	2 648

Notes: 1) Data on harvested quantities have been drawn from the "Enquête sur la Prévision et l'Estimation des Récoltes" (EPER, 2024, report available here). 2) Harvest losses in tonnes are computed using the % losses during harvest from the Loss survey and the quantities harvested from the EPER (2024). 3) Loss indicators are derived from physical measurements, with the exception of peanut and sesame, which are reported by farmers.

Quantities lost on the farm

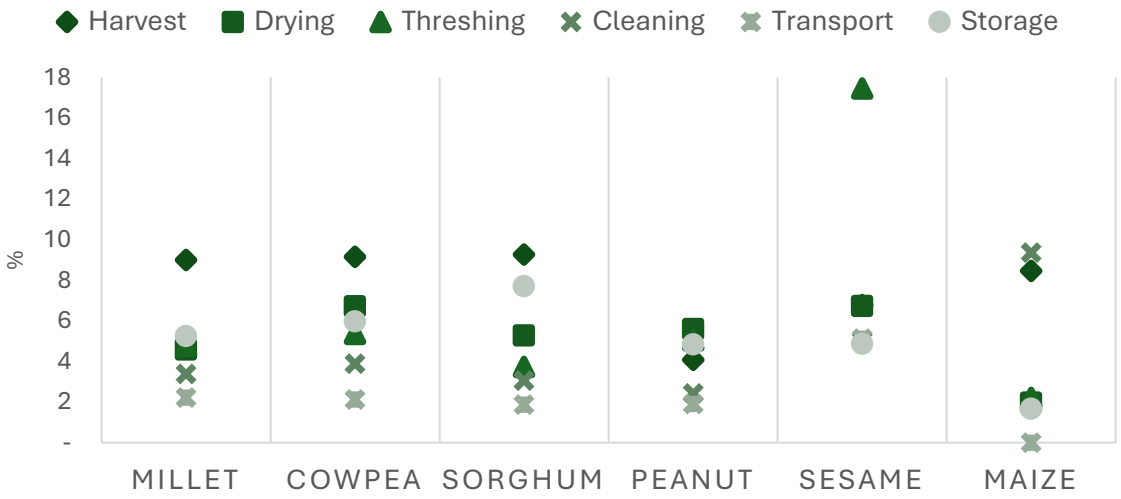
> 1 500 000

Tonnes in 2024

(For the 6 crops covered by the survey)

Crop losses by operation, in %

In Niger, harvest losses constitute a major part of overall agricultural losses, especially for crops like millet, sorghum, maize, and cowpeas. In contrast, peanuts and sesame face greater losses during the drying and threshing stages. Furthermore, storage and drying losses are notably significant for most of the crops studied. Transportation, on the other hand, generally leads to minimal relative losses across different crops.



Notes: 1) Physical measurements, except for storage and drying. 2) The loss % for each operation do not sum up to total agricultural losses, as for each operation the denominator used is the quantity handled for that specific stage (quantity dried, threshed, etc.) and not harvest losses plus harvested quantities as in the case of total agricultural losses.

Main causes of harvest losses

Spillage and mishandling, which may lead to damages to the crops (breakage, etc.), is the main cause of losses at harvesting, cited by almost 50% of the farmers. Moulds/rotting and pests are other significant causes, mentioned respectively by 17% and 14% of the farmers. Moulds and rotting are more prone to happen either before harvest or when the crop is left on the field before processing or during storage.

Spillage and mishandling

49%

Moulds, rotting

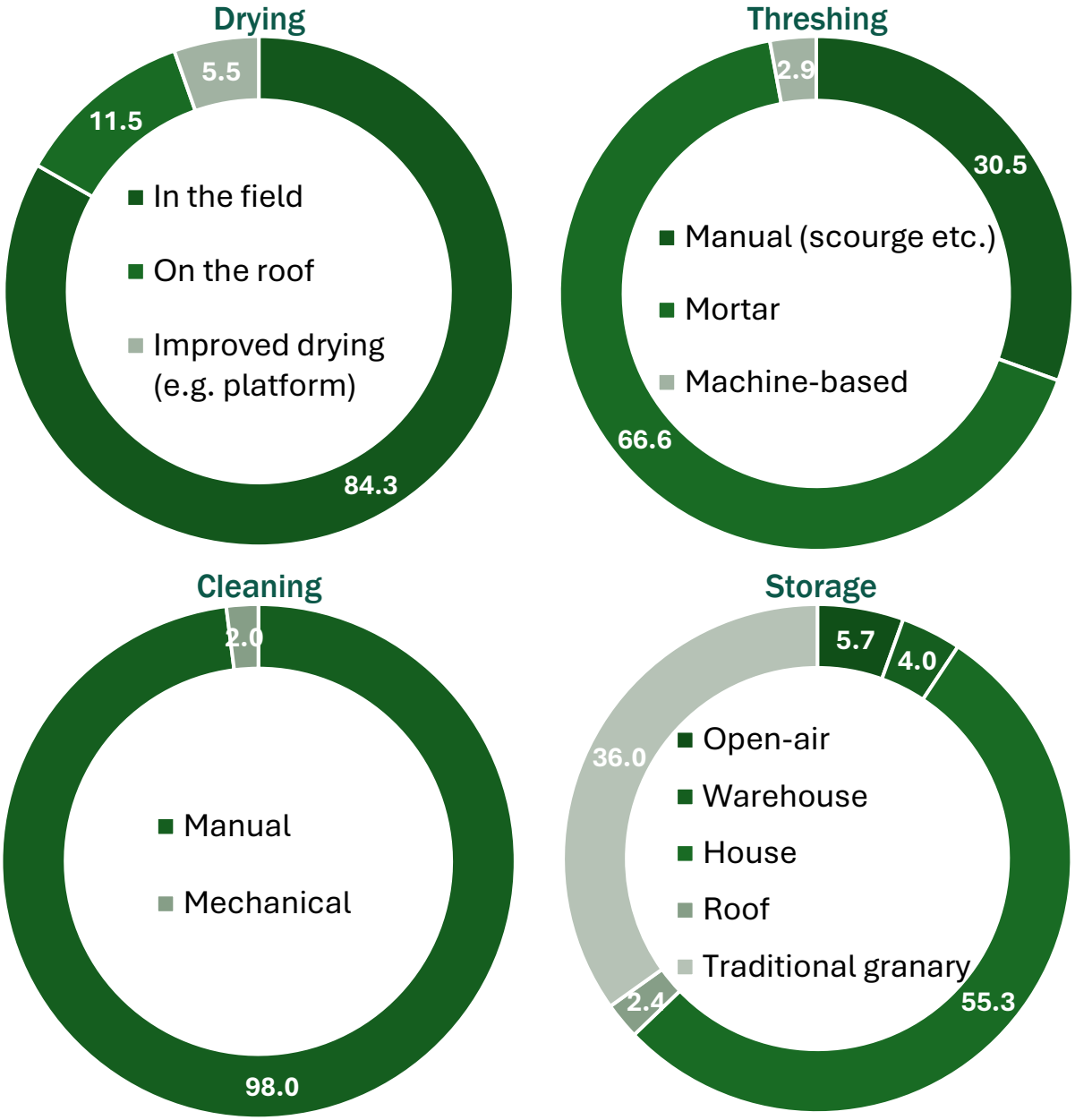
17%

Rodents and other pests

14%

Common practices for key post-harvest operations and their impact on losses

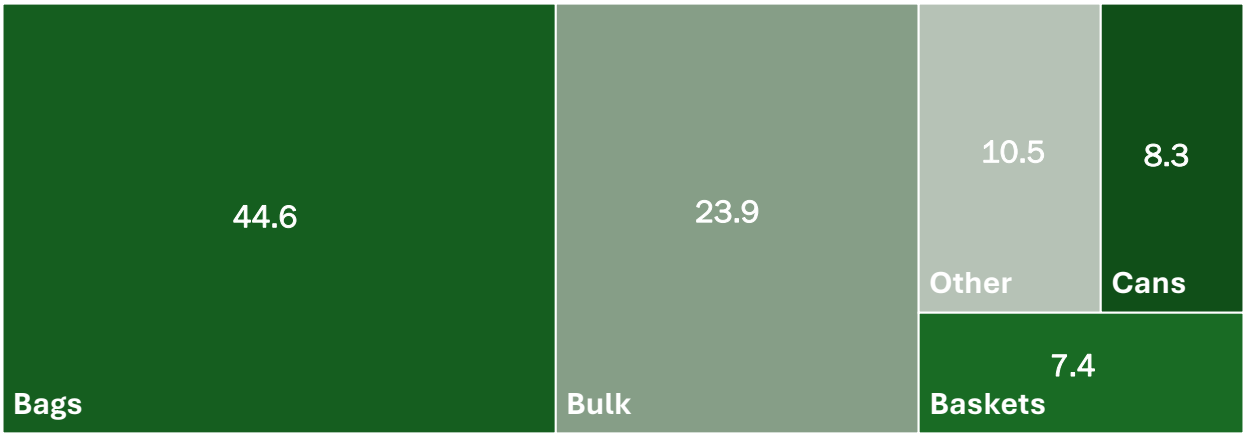
Farming in Niger predominantly relies on manual methods for both harvesting and post-harvest activities. Processes such as threshing and cleaning are almost entirely performed manually, which contributes to increased crop losses. Threshing, for example, is done mostly using mortar or other manual means, with only 2.9% of the farmers using mechanical means. Additionally, inefficient drying and storage practices, often carried out in open-air environments or unsuitable facilities, exacerbate these losses. For instance, 55% of farmers use house storage, whereas only 4% utilize warehouses and a mere 0.08% employ silos, highlighting the need for improved storage solutions to minimize losses.



Storage practices and losses

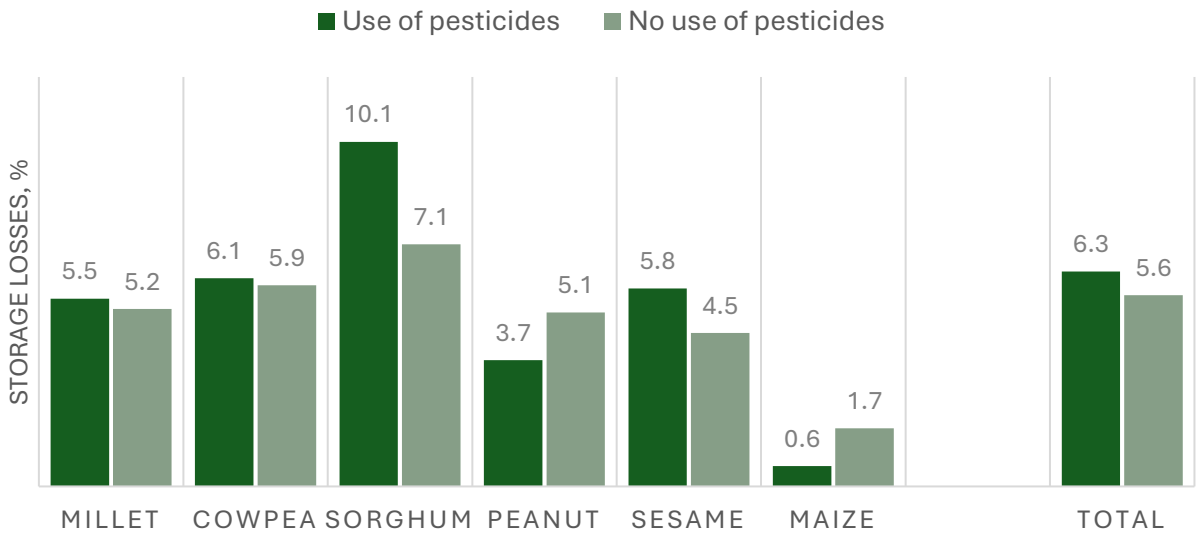
Storage containers

A significant proportion of farmers in Niger do not use adequate containers to store their crops, with 29.3% practicing bulk storage. This practice increases the exposure of their produce to climatic factors and pests. Given that crops are typically stored for several months – averaging 3.6 months, with millet stored for up to 4.2 months and maize for as little as 2.8 months – these inadequate storage practices significantly affect the magnitude of post-harvest losses.



Impact of pesticide use on storage losses

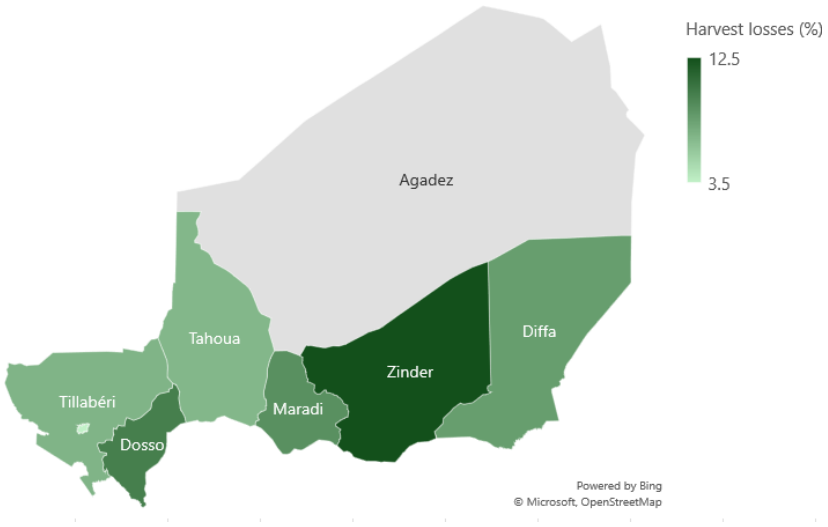
The use of pesticides does not seem to have a significant impact on the losses during storage for the six crops assessed in this survey. The existence of other - more critical - loss factors, such as the use of non-adapted storage facilities (house, open-air) or inefficient practices, such as bulk storage, may explain the unclear effect of pesticides on losses.



A focus on millet, the country's main crop

Harvest losses by region

On average, millet farmers in the Republic of Niger lose 9% of their produce at harvest, making this operation the first critical loss point on the farm. Regional variations are marked, reflecting differences in agroclimatic conditions and farming practices: they range between 3.5% (Niamey) and 12.5% (Zinder).

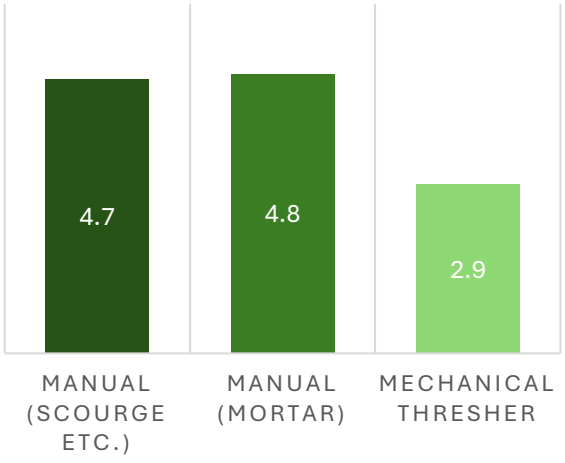


Note: Physical measurements; in grey, regions with insufficient data.

Threshing method and losses

Survey evidence indicates that manual threshing results in higher crop losses compared to mechanical methods, including for millet (4.8% vs. 2.9%, respectively). Notably, sesame, which suffers 17.4% losses due to threshing, is consistently threshed manually.

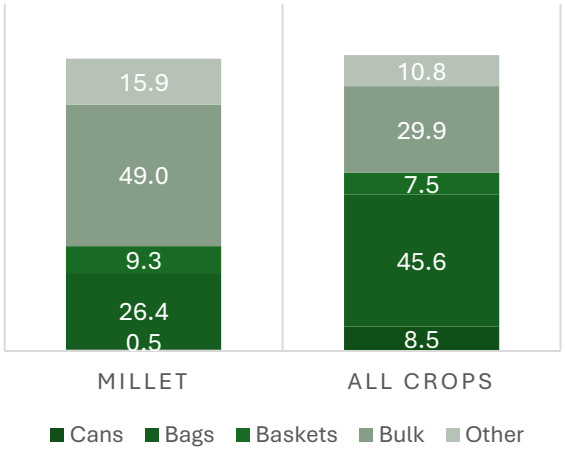
Threshing losses by threshing method, in %



Storage practices and losses

The survey also shows that inefficient storage practices are more common for millet, contributing to high losses for this critical staple crop. For example, almost half of millet farmers store the crop in bulk form, compared to an average of 30% across all the six crops assessed.

Storage losses by type of storage containers, in %



Thematic brief – Agricultural losses in Niger 2024 (rainy season)

Source

All the data and indicators presented in this Thematic Brief are drawn from the Survey on Agricultural Losses of the 2024 rainy season ("Enquête sur l'evaluation des pertes agricoles durant la campagne agricole d'hivernage 2024") conducted by the Ministry of Agriculture and Livestock of the Republic of Niger. The report of this survey can be found here.

Key Definitions

- Agricultural losses: Quantitative losses generated by all agricultural operations, from harvesting to storage. This indicator can be expressed in absolute terms (e.g. quantities lost in kg) or relative terms (losses as a % of potential harvest). Using the potential harvest (i.e. harvested quantities plus losses at harvest) and not the actual harvest allows the indicator to be between 0% and 100%.
- Losses during harvest: Losses incurred during harvesting, usually due to an inappropriate harvesting method, such as the choice of an unsuitable period/time, the use of faulty or poorly calibrated tools and machinery, among other factors. This indicator can be expressed in absolute or relative terms (as a % of potential harvest).
- Post-harvest losses: Losses incurred during post-harvest operations. They can be due to multiple factors, such as breakage during the threshing/ginning or cleaning/winnowing process, damages caused by rodents and other pests during storage, etc. This indicator can be expressed in absolute or relative terms (as a % of potential harvest). This aggregate indicator can be broken-down for each individual operation: losses during threshing, cleaning, drying, storage, Etc. These operation-specific indicators can be expressed in absolute terms or as a % of the quantities handled during the operation.

All the indicators produced in this brief are weighted by the relevant extrapolation factors, and hence can be considered as statistically representative at the geographical scale at which they are presented.

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