Food and Agriculture Organization of the United Nations

# AFGHANISTAN

## The impact of the June 2022 earthquake on Khost and Paktika provinces

DIEM – Data in Emergencies Impact report
January 2023

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Food and Agriculture Organization of the United Nations
Rome, 2023

REQUIRED CITATION

**FAO.** 2023. *Afghanistan: The impact of the June 2022 earthquake on Paktika and Khost provinces. DIEM – Data in Emergencies Impact report, January 2023*. Rome. https://doi.org/10.4060/cc3940en

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ISBN 978-92-5-137543-3
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# Abbreviations and acronyms

| | |
|---|---|
| AFN | Afghan afghani |
| DIEM | Data in Emergencies Information System |
| FAO | Food and Agriculture Organization of the United Nations |
| FCS | food consumption score |
| FEWS NET | Famine Early Warning Systems Network |
| HDDS | Household Dietary Diversity Score |
| LCSI | livelihood-based coping strategy index |
| OCHA | United Nations Office for the Coordination of Humanitarian Affairs |
| rCSI | reduced coping strategy index |
| USD | United States dollar |
| WHO | World Health Organization |

# Key highlights

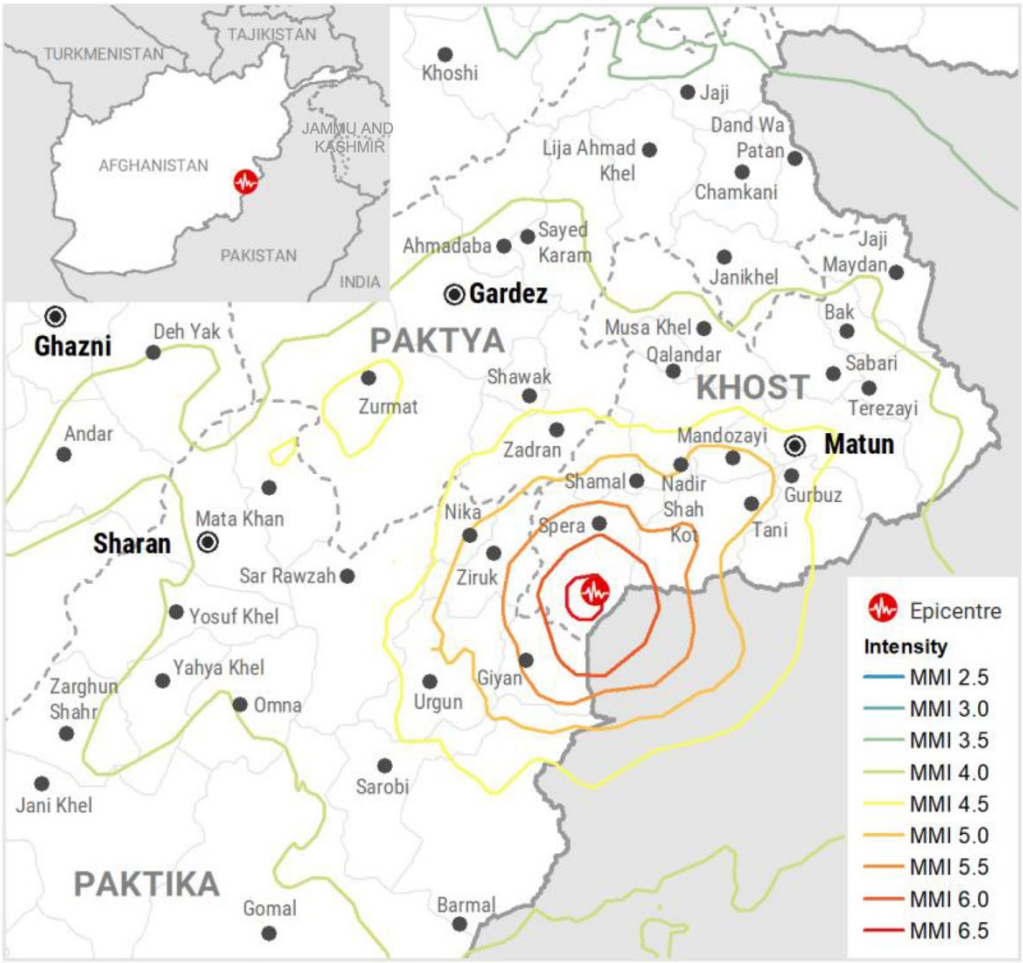
- On 22 June 2022, a 5.9 magnitude earthquake struck the Central Region of Afghanistan, impacting Khost and Paktika provinces. The affected districts were Giyan and Barmal in Paktika province, and Spera in Khost province.
- In these districts, almost 1 900 homes were destroyed – 1 028 in Giyan, 450 in Barmal and 416 in Spera. Many more structures are estimated to have experienced extensive damage and are at risk of collapse. A total of 1 039 people died and 2 949 people were injured. An additional 100 000 people were determined to be in need of humanitarian assistance (OCHA, 2022a).
- In the aftermath of the earthquake, the Food and Agriculture Organization of the United Nations (FAO) organized a rapid assessment approximately one week after the disaster, from 29 June to 5 July 2022. The provinces of Khost and Paktika were covered by the Food and Agriculture Organization of the United Nations' (FAO) Data in Emergencies Monitoring (DIEM-Monitoring) round of data collection from 23 July to 26 August 2022. An additional survey was conducted to complement the DIEM-Monitoring survey, focusing specifically on the districts of Barmal, Giyan and Spera, covering the impact of the damages and losses.
- Data on agricultural production show that crop and livestock production in Afghanistan have been constrained by multiple challenges, compounded by the increasing vulnerability of producers to shocks due to the depletion of their productive assets over recent years. While there was an increase in farming activity in the three districts affected by the earthquake, livestock production continues to be affected by animal diseases and poor pastures. However, the potential for significant improvements to crop production was curbed by below-average rainfall, particularly in Spera, as well as by the impact of the earthquake.
- Damages and losses were widespread across the affected districts, and affected stored crops, productive agricultural assets (seeds, fertilizer, tools, machinery, etc.), livestock and livestock products, inputs and shelters.
- Losses of the highest value were recorded in livestock assets, in particular cattle and shelter infrastructure. The distribution of these losses suggests that these involved better-off households. Nevertheless, small ruminants and poultry represent an important livelihood source for all households in the area, and heavy losses of these animals were recorded after the earthquake.
- The depletion of livestock assets had an impact on food consumption. While only the loss of sheep was associated with poor and borderline food consumption, animal death and losses of fodder and hay were associated with a poorly diversified diet. This suggests that even better-off households have consumption gaps. Losses in farming assets were, in monetary terms, less significant than livestock losses, but they were equally as common and appear to have had a stronger impact on food consumption.

- The depletion of productive assets is of concern, particularly considering the winter months. It is unlikely that the next production season for crops nor livestock can provide food and income to sustain households.
- It is recommended that cash-for-work activities are implemented for the operation and maintenance of the *Kariz* irrigation system (an underground canal system), land rehabilitation, canal rehabilitation and the construction of retaining walls in some areas.
- In addition, livestock keepers/herders – especially those who have decapitalized – must be supported with livestock protection packages that include concentrated animal feed for the upcoming winter season, deworming services, trainings and linkages to local extension services.

# Context

At 01.30 local time on 22 June, a 5.9 magnitude earthquake struck the Central Region of Afghanistan, impacting Khost and Paktika provinces (Figure 1). The earthquake – which was recorded at a depth of 10 km – was reportedly felt in neighbouring provinces including Kabul, as well as in Pakistan and India. Since the onset of the earthquake, the district of Giyan, in Paktika province, appeared the worst affected (OCHA, 2022b).

Figure 1. The epicentre of the earthquake




MMI: Modified Mercalli Scale (2-3: Weak; 4: Light; 5: Moderate; 6: Strong; 7: Severe). Data source: USGS
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

**Source:** OCHA. 2022b. Afghanistan flash update: #1. In: *ReliefWeb*. New York. Cited 28 November 2022. unocha.org/Afghanistan

Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Several assessments were launched in the aftermath of the earthquake, identifying the districts of Giyan and Barmal (in Paktika) and Spera (in Khost) as the most impacted (Figure 2). In these districts, almost 1 900 homes were destroyed – 1 028 in Giyan, 450 in Barmal and 416 in Spera. Many more houses are estimated to have experienced extensive damage and are at risk of collapse (OCHA, 2022c), and around 100 000 people (14 000 families) have been identified as in need of humanitarian assistance (OCHA, 2022a).

Figure 2. The provinces of Khost and Paktika

**Source**: FAO. 2022. Hand-in-Hand Initiative data hub. Cited 28 November 2022. data.apps.fao.org

According to the description of livelihood zones produced by the Famine Early Warning Systems Network (FEWS NET) in 2011, the area is composed of three main livelihood zones. The first is the eastern semi-arid agriculture zone, where agricultural production is largely dependent on water availability. The zone's proximity to the cities of Jalalabad and Khost provides labour opportunities for the zone's poorer households. *Dekhani*, or sharecropping, is important for households' access to food. The second livelihood zone is the eastern intensive irrigated agriculture zone. This zone's main cash crops are harvested three times per year and include vegetables such as potatoes, tomatoes, cucumbers, onions, radishes, green beans and eggplants. Wheat is harvested once in May and June, and maize is harvested in October and November. Although most land holdings rarely exceed 1.5 *jeribs* (0.3 ha), households maximize their yields by ploughing, irrigating and fertilizing their fields as efficiently as possible. Poorer households from within and outside the zone, supply labour to better-off households in exchange for both cash and grain, as intense agricultural production requires a large amount of labour. The third livelihood zone is the eastern deep-well irrigated agriculture zone, where most of the residents are congregated in the irrigated areas of central and western Paktika. This zone comprises a marginal amount of the area affected by the earthquake.

The three districts have the following notable characteristics:

- They are all mountainous, located on the border with Pakistan and closely linked to the Wazir tribe in northern Waziristan in Pakistan. While farming is, in general, more important than livestock in the plains (keeping animals is only possible for better-off households), agricultural land is limited. Since the affected area is mountainous and unfavourable for crop production, there is much less available farmland when compared to what is typical in the rest of the districts – farming systems are

characterized as smallholding in the hills. The main crops are wheat, maize, bean, alfalfa, barseem, vegetables, potato and tomato. Farmers use local seeds or grains, and generally do not have access to fertilizer or irrigation infrastructure. Yields are typically low. Land and water represent the main constraints for agricultural production. Livestock is a crucial source for local livelihoods and, typically, a herd of goats is kept by each household along with a few milking cows.

- Wheat is an important crop but given the proximity to markets, fruit, vegetables and cash crops are also grown, depending on rainfall and irrigation. All villages have some degree of agricultural and horticultural land – more so in Barmal than the other districts.
- Hiring out labour is an important, if not the most important, source of food and income. Farming among better-off households, which are more likely to hire casual labour, is a significant source of livelihood for poorer households.
- Even if land holding is generally limited to a few *jeribs* (approximately 0.6 ha), key activities are typically performed by machinery, and tractors and equipment are often rented.
- In the affected areas, the earthquake and subsequent data collection occurred during the post-harvest period, when farmers had crops and food stocked.

# Scope and methodology

This report outlines the impact of the earthquake on agricultural livelihoods and food security. It assesses key damages and losses, and identifies which households were affected and to what extent. The report also outlines specific needs for agricultural rehabilitation in the area.

The main sources of information are primary. First, FAO organized a rapid assessment mission approximately one week after the disaster, from 29 June to 5 July 2022. A three-page questionnaire was developed for the assessment focusing on collecting information and data on the agriculture, livestock and water sectors. Focus group discussions were arranged with affected communities. In addition, the mission collected information on damages, losses and needs across the three sectors.

Second, the provinces of Khost and Paktika were covered by FAO's DIEM-Monitoring fifth-round survey. Data collection took place from 23 July to 26 August 2022. Results are considered representative at a provincial level, and the data were weighted for demographics and a wealth proxy. The survey used the standard DIEM-Monitoring questionnaire covering shocks, crop and livestock production and marketing, food security and needs.

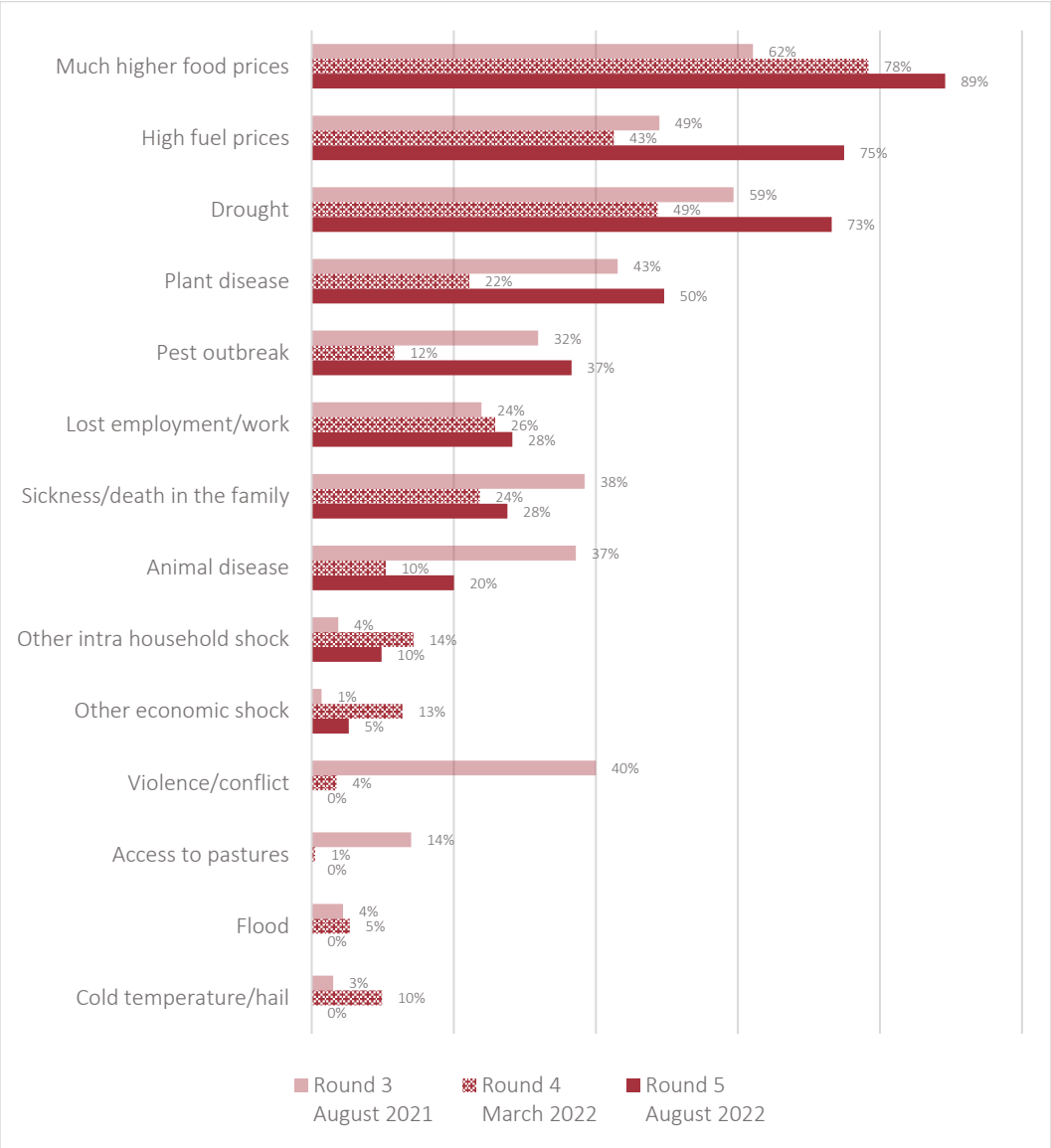
Finally, in addition to the sample representative of the affected provinces, a survey was conducted to complement the DIEM-Monitoring survey, focusing specifically on the districts of Barmal, Giyan and Spera. In these three districts, enumerators used the same DIEM-Monitoring standard questionnaire used in the other areas covered by the DIEM round, but with an additional section covering the impact of damages and losses. Overall, 549 households were surveyed in the three districts.

The FAO damage and loss methodology in agriculture was used to understand the impact of the earthquake on the agriculture sector and related sectors. For this analysis, damages refer to the quantification of partial and total destruction of public and private infrastructure and physical assets, both in terms of number of units and their monetary value. Losses refer to the estimate of the change in economic flows arising from the disaster (Conforti, Markova and Tochkov, 2020). The Afghan afghani (AFN) is used throughout this report. At the time of publication, USD 1 was the equivalent of AFN 90.02.

# Other shocks

The earthquake in June 2022 arrived during a period of multiple and complex events that have affected the country in past years. DIEM-Monitoring data have captured the shocks affecting Afghanistan's rural populations since September 2021, including notably higher food and fuel prices, and drought (Figure 3).

Figure 3. Most frequent shocks in the past year

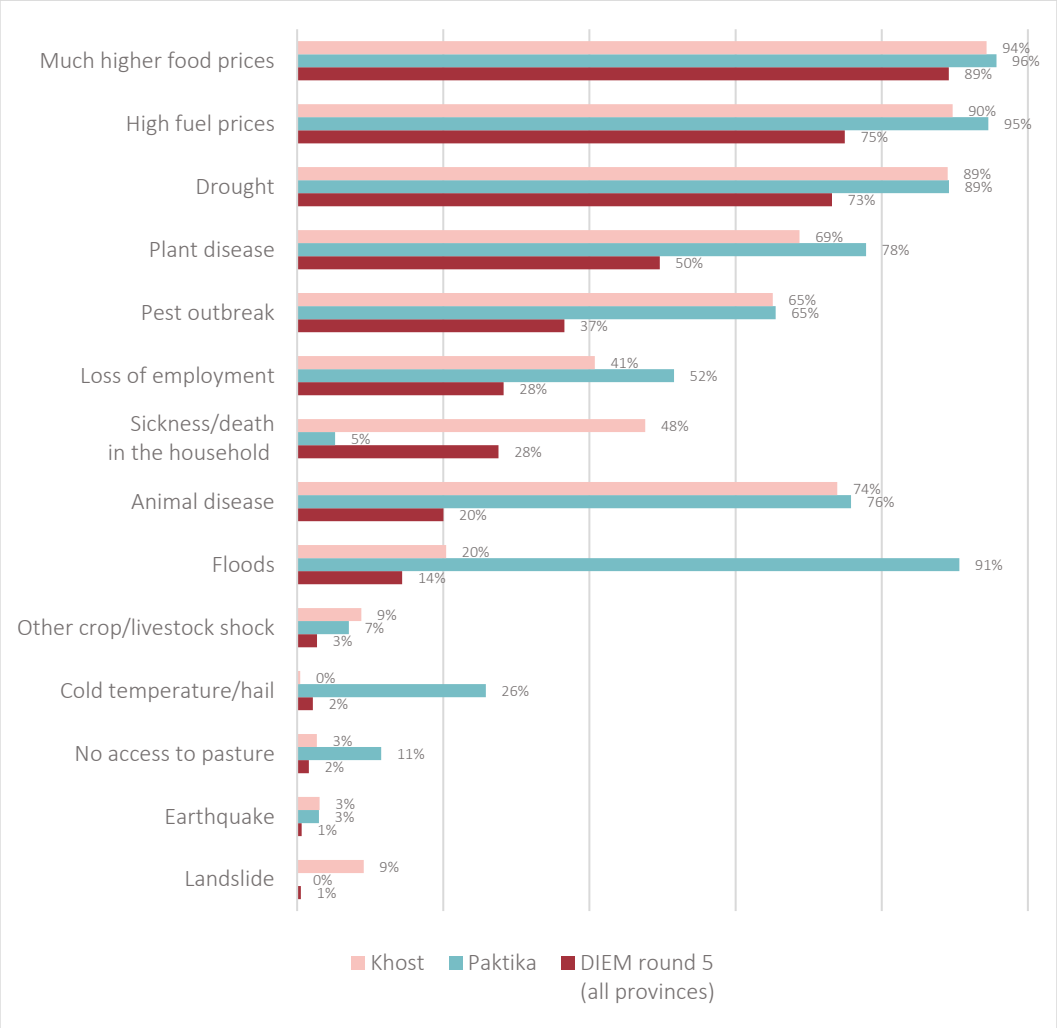



**Source:** FAO. 2022. Afghanistan: DIEM-Monitoring assessments results (September 2021, April 2022 and July–August 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 November 2022. data-in-emergencies.fao.org

Figure 4 compares the frequency of shocks in Khost and Paktika to all 25 provinces covered by the DIEM-Monitoring rounds. While the most frequent shocks are economic, such as soaring food and fuel prices, and the share of farmers affected is similar across the provinces, some shocks are higher in Paktika (floods and cold temperatures) and in both Khost and Paktika (animal and plant disease, and pests).

These more frequently reported shocks suggest the complex interaction of multiple shocks, varying over the years and across provinces. Exposure to multiple shocks likely erodes resilience and depletes households' capital, including productive assets, thereby undermining their ability to return to sustainable livelihoods.

Figure 4. Frequency of shocks in the provinces of Khost and Paktika compared to all other provinces covered by DIEM-Monitoring



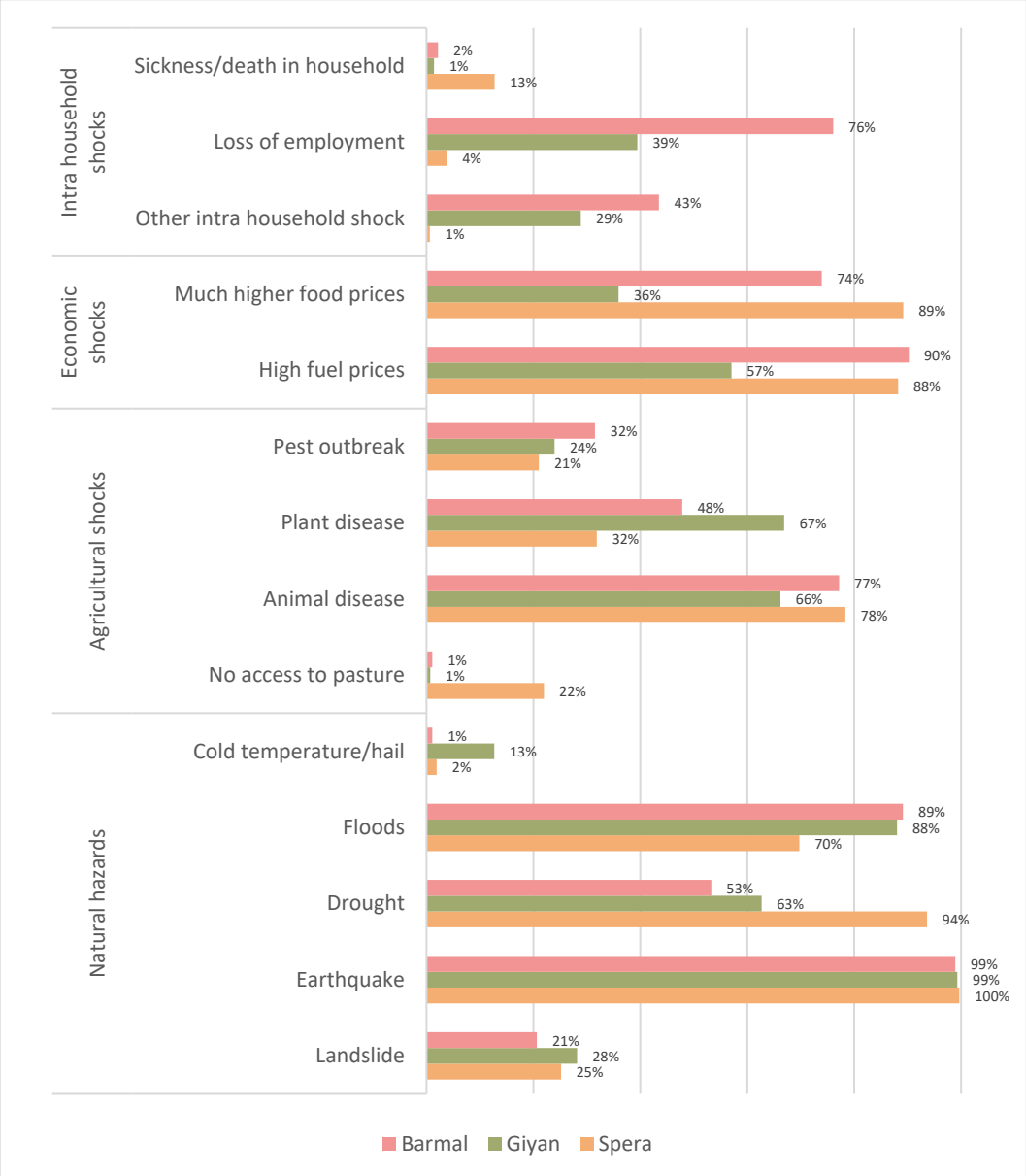

**Source:** FAO. 2022. Afghanistan: DIEM-Monitoring assessments results (July–August 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 November 2022. data-in-emergencies.fao.org

One notable trend is the continued reduction in area planted. DIEM-Monitoring data indicate that until the beginning of 2021, the observed decrease in farming activities was mostly associated with either drought or conflict. Since late 2021, this has been more strongly associated with the loss of productive farming assets (seeds, tools, land, etc.). This pattern indicates that as farmers reduce investments in crop production, the potential profits of each farm decrease, causing increased vulnerability to any negative event.

All respondents from the districts of Barmal, Giyan and Spera reported the earthquake as a major shock. In addition, households were affected by other shocks in high proportion, consistent with the rest of the provinces and the country as a whole. Fifty-two percent of households reported the loss of employment opportunities. Economic shocks, in line with

DIEM results, were also frequent: 79 percent reported high fuel prices as a shock, while 65 percent mentioned much higher food prices. In terms of agricultural shocks, 74 percent reported animal diseases, 51 percent reported plant disease and 27 percent reported pest outbreaks. In addition, other natural disasters were also frequently cited: landslides by 24 percent, drought by 64 percent and floods by 85 percent. Figure 5 shows these frequencies by district. It is worth noting that some shocks are concentrated in specific districts: loss of employment in Barmal, plant disease in Giyan, and access to pasture and drought in Spera.

Figure 5. Frequency of shocks by district (percentage of households)



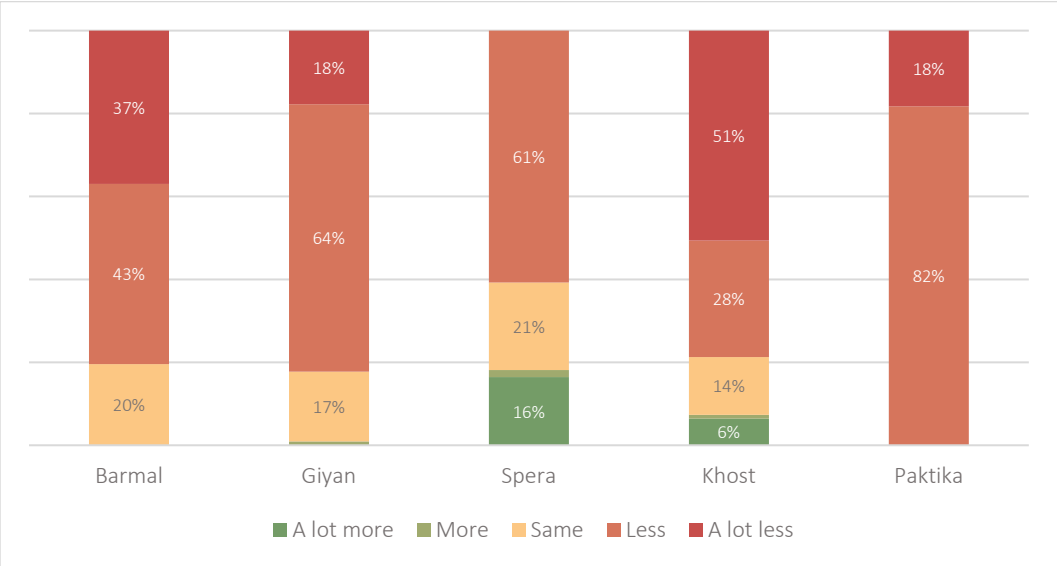

**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

# Agricultural production

Although the main crop in the two provinces is wheat, maize is also grown in Khost, including in Spera district. Paktika province has a wide variety of crops grown for income and food, but farmers in the districts of Barmal and Giyan mainly grow wheat, most likely due to the mountainous terrain and dependency on rains. In Paktika, pumping water for irrigation is far more common than in Khost, but not in the districts affected by the earthquake.

In Khost, and especially Spera, a notable portion of farmers chose to plant a larger area than usual (Figure 6). However, the great majority of farmers planted less or a lot less than usual. Reducing the area planted is associated with certain shocks (plant and animal diseases, floods, drought and high food prices), and with specific production difficulties, including lack of access to fertilizer, pesticides, labour, machinery and fuel, as well as soil erosion and lack of water.

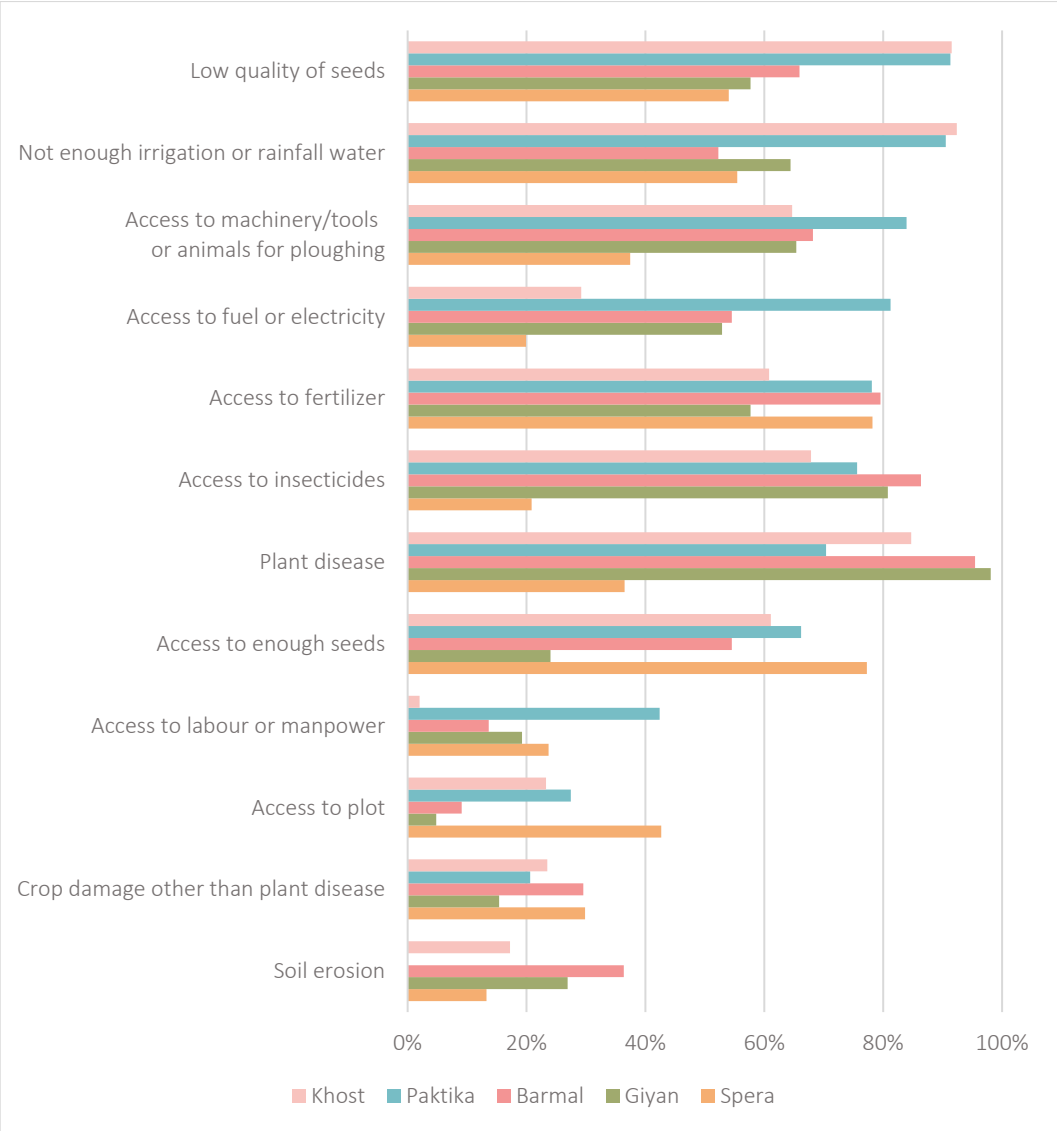
Figure 6. Comparison of area planted (this season compared to the typical area planted)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Crop production difficulties in the three affected districts follow a similar distribution pattern to what is generally found in Khost and Paktika provinces – the most frequent barriers were lack of water, difficulties accessing fertilizer, seeds and machinery, and plant disease. However, certain patterns are worth noting. Challenges with access to plots and seeds were much more frequent in Spera, while plant disease was less frequent. In Barmal, challenges with access to machinery, labour and fuel were more frequent. In both Barmal and Giyan, almost all farmers mentioned plant disease as a production constraint (Figure 7). Low quality of seeds was less frequently cited in the three affected districts than in the rest of Khost and Paktika provinces.

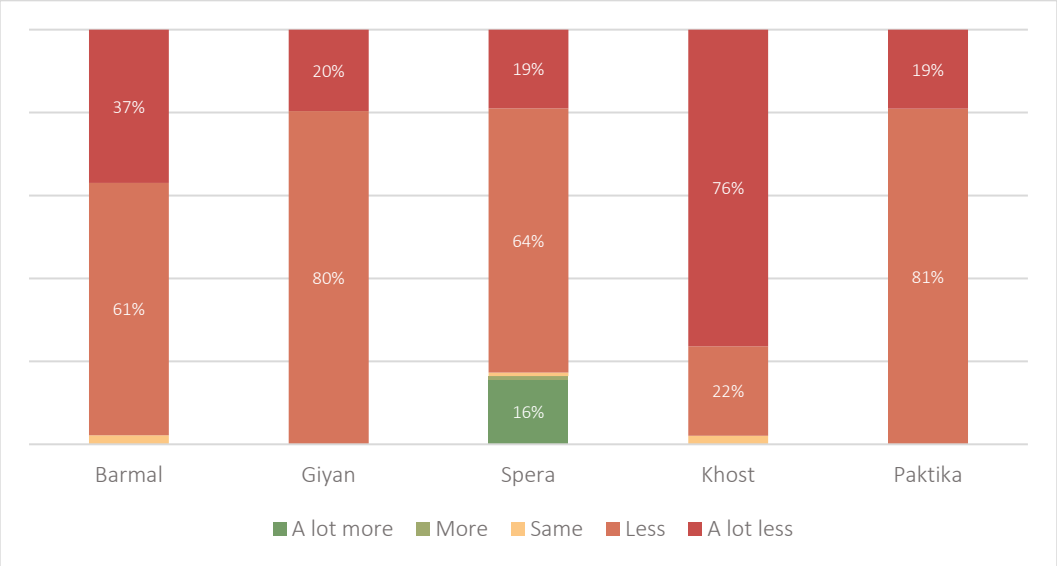
Figure 7. Frequency of crop production difficulties by province and district




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Most farmers reported a lower main crop harvest. Only in Spera did a notable share of farmers harvest more than usual (Figure 8). This was associated with the size of the area planted and the absence of particular constraints, specifically labour shortages and soil erosion.

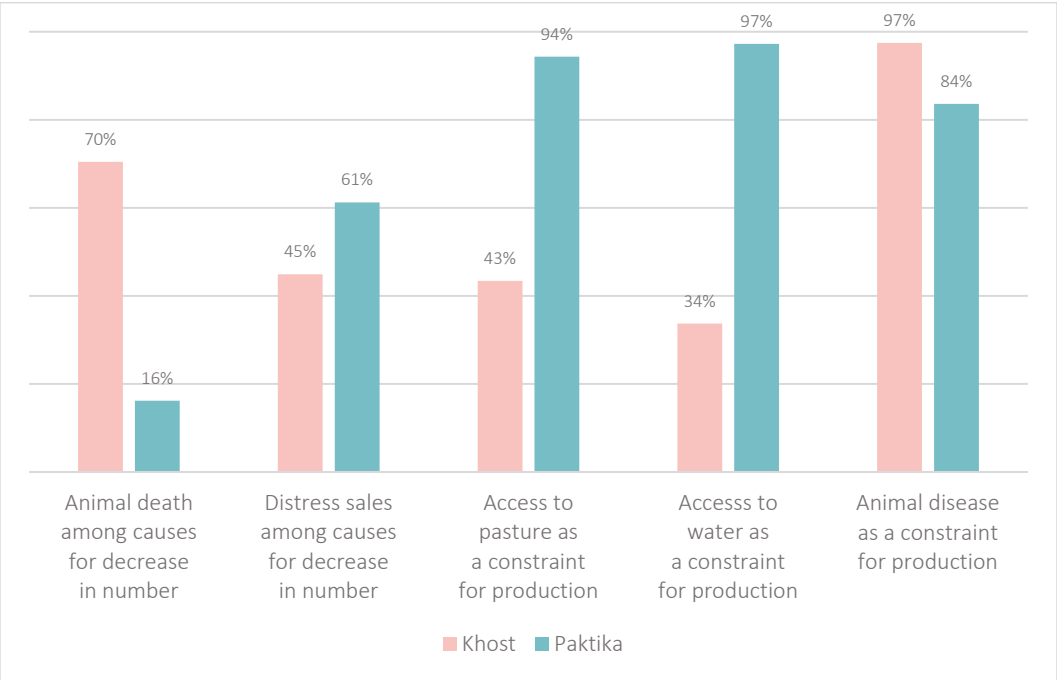
Figure 8. Harvest estimates by province and district




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

The provinces of Khost and Paktika experienced a poor year for livestock production. Outbreaks of animal diseases in Khost and the poor condition of pastureland in Paktika (where most producers rely on open or common pastures and where all households reported a deterioration in conditions) contributed to a decrease in livestock production (Figure 9).

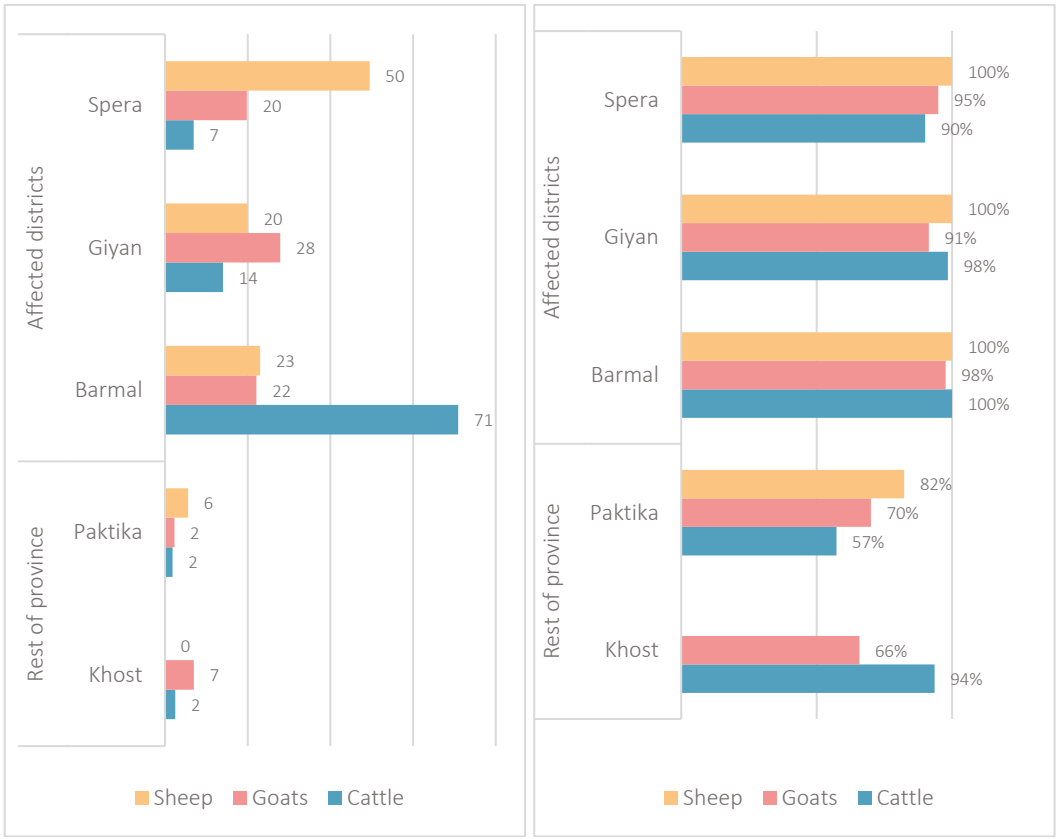
Figure 9. Reasons for a decrease in herd/flock size and livestock production difficulties




**Source:** FAO. 2022. Afghanistan: DIEM-Monitoring assessments results (July–August 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 November 2022. data-in-emergencies.fao.org

Looking at the affected districts, the decrease in livestock production is greater than in the rest of Paktika and Khost (Figure 10).

Figure 10. Average decrease in herd size (number of animals, left) and share of households reporting a decrease in herd/flock size (right)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

The key takeaway from the data outlined in this section is that crop and livestock production in Afghanistan has been constrained by multiple interacting challenges, compounded by an increasing vulnerability of producers to shocks due to the depletion of their productive assets over the past years. While there has been some increase in farming activity in the three districts affected by the earthquake, livestock production continues to be affected by animal diseases and poor pastures. The potential for significant improvements in crop production were curbed by below-average rainfall, particularly in Spera, and the impact of the earthquake.

The FAO rapid assessment found that the earthquake damaged water resource facilities, namely wells, springs, the *Kariz* irrigation system (an underground canal system), streams and canals. Although some communities reported an increase in water access in areas of Giyan district following the earthquake, others reported severe water scarcity. None of the affected water sources had, at the time of the assessment, been rehabilitated. Most households were dependent on springs with minimal discharge and streams with minimal water flow for irrigation and drinking purposes. Droughts have affected the *Kariz*, springs and streams, decreasing water flow and discharge. Surveyed households were concerned

with securing water for irrigation and drinking, listing water as one of the priority needs for their community.

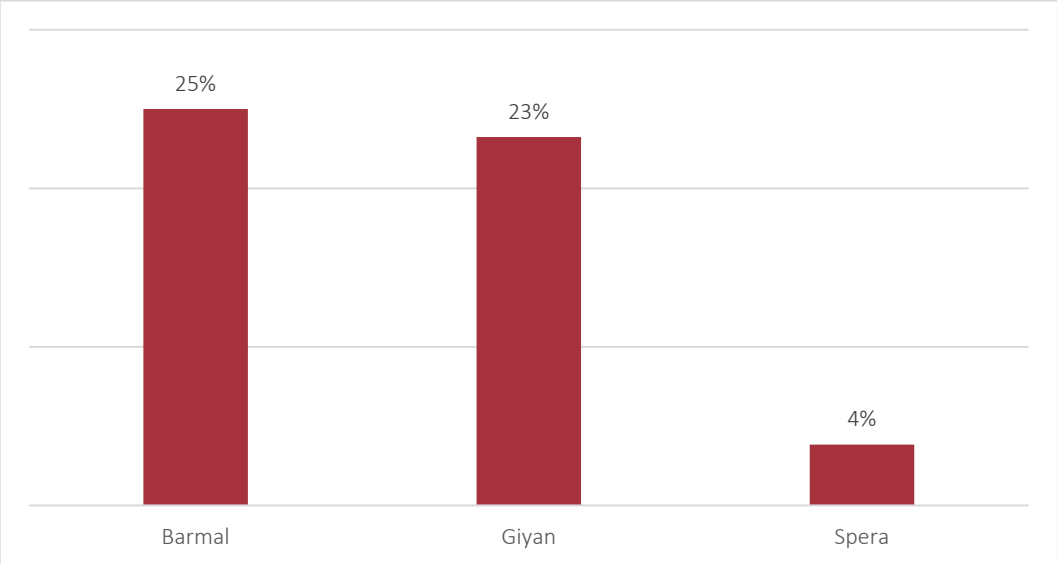
The assessment team surveyed 25 canals, the *Kariz*, springs and riverbank protections used before and during the earthquake in the affected areas. In Barmal district, most people noted a lack of access to clean water and were concerned with access to drinking water. Most deep wells used for daily water needs by some communities were damaged by the earthquake. Water scarcity is one reason the area is less densely populated (FAO, 2022a).

# Damage and loss in agriculture

## Social and human implications

The loss of life as a result of the earthquake was significant with 1 039 deaths. An additional 2 949 people were injured, and 4 500 houses were partially or fully damaged across Khost and Paktika (WHO, 2022). In the three affected districts, 12 percent of households lost family members as a result of the earthquake, with the greatest losses in Paktika province (Figure 11). Most households in Paktika lost one or two family members, though some were reported to have lost more than half of their household members. Given that family labour plays an important role in the capacity of poorer households to obtain a means of living, this also represents a loss in terms of the household's capacity to farm and hire labour out, especially for the poorest stratum of the population.

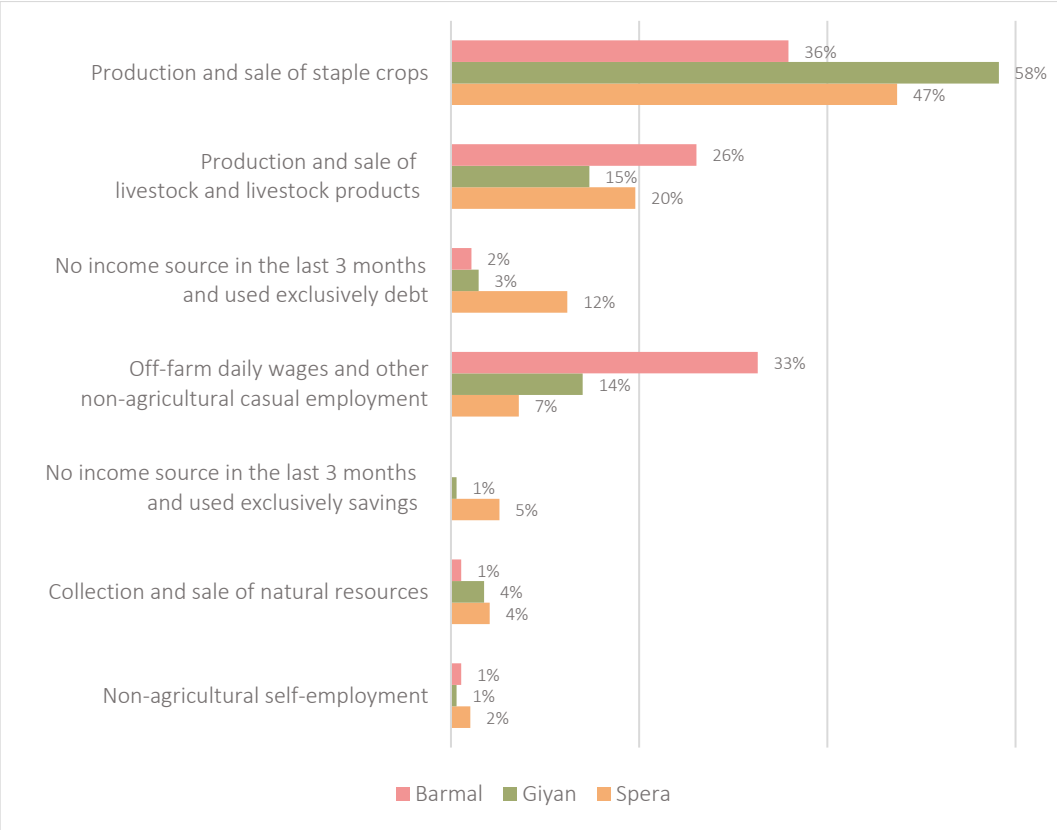
Figure 11. Share of households with human losses




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

While the average household's size is larger in the affected districts than in the rest of the province, daily labour is the predominant source of income, as shown in Figure 12. The loss of family members seems to have affected better-off households in particular. In the three affected districts, the frequency of households with human losses cultivating less than 2.5 *jeribs* (0.5 ha) was 6 percent.

Figure 12. Sources of income in the affected districts

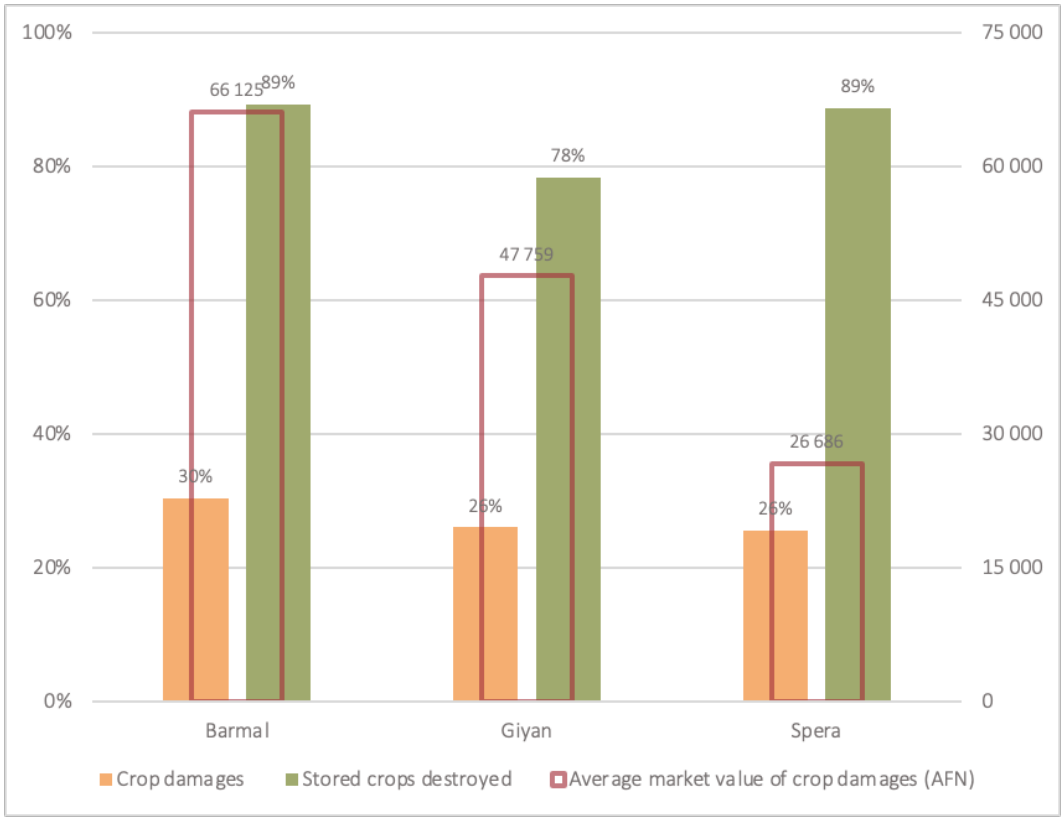



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Impact on crop production

Households reported damage to stored food and crops in relatively high proportions, given that the earthquake occurred in the post-harvest period. Approximately nine households out of ten in Barmal and Spera, and eight out of ten in Giyan lost food stock. In addition, about a third experienced damages to stored crops. The estimated value of these damages was highest in Barmal (Figure 13).

Figure 13. Damage to stored food and crops (in percentages) and their estimated economic value (AFN)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Damage to productive assets such as seeds, fertilizer, tools and machinery as a direct impact of the earthquake stands out, not only for its immediate monetary value but also as it decreases the capacity of a household to farm in the next agricultural season. In addition, it is important to note that the value and applicability of productive assets depends on the availability of other assets – a tractor will provide little use to a household if there are no seeds to plant. When defining crops, fertilizer, tools, machinery, orchards and land as productive assets, 68 percent of households reported damage to one or more of these.

As shown in Table 1, the frequency of households reporting damage to some assets is high for specific items, such as seeds, food and hand tools.

Table 1. Proportion of households reporting damage to assets by district

| | Barmal | Giyan | Spera |
|---|---|---|---|
| Stored crops | 30% | 26% | 26% |
| Seeds/food | 50% | 63% | 61% |
| Fertilizer | 17% | 36% | 27% |
| Hand tools | 57% | 76% | 60% |
| Agricultural machinery | 2% | 1% | 0% |
| Land | 29% | 32% | 18% |
| Orchard | 24% | 23% | 22% |
| Cultivation | 32% | 19% | 20% |

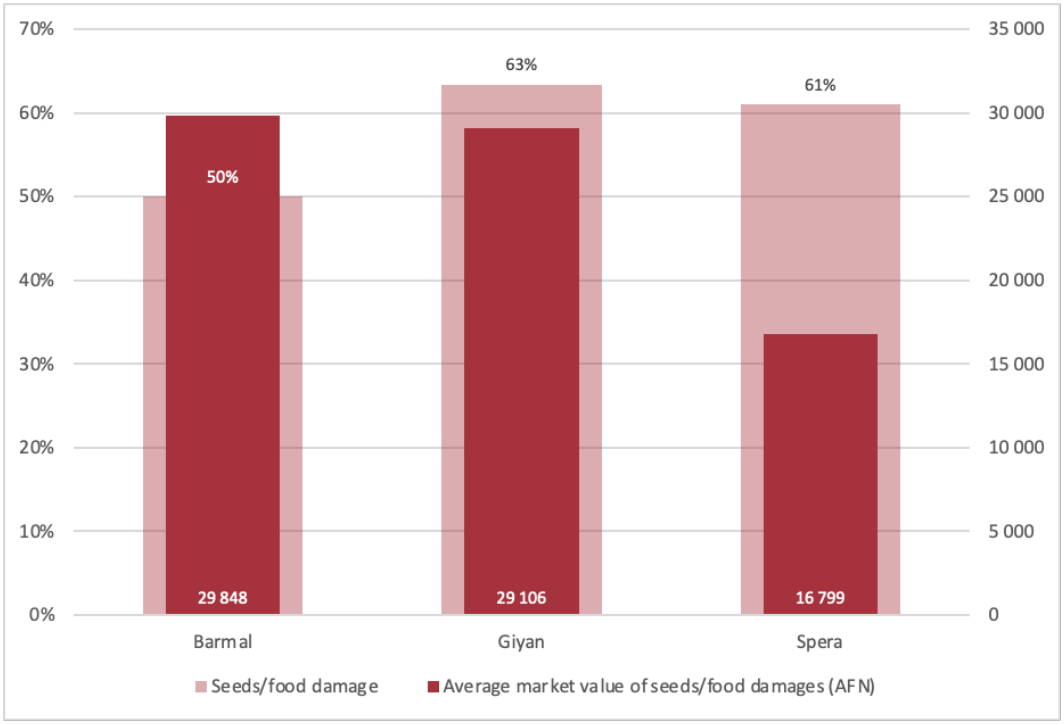
**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Given that the use of these agricultural inputs is interlinked, most households lost their means of farming when compared to the situation before the earthquake.

## Seeds

Damage to seeds follows a similar pattern to damage to stored crops, most likely because farmers typically use grains from the previous season as opposed to selected or improved seeds. A slightly higher proportion of households experienced damage to seed and food stock in Giyan and Spera, compared to Barmal, however the average monetary value of the damage in Spera was the lowest (Figure 14).

Figure 14. Share of households affected by damaged seed/food stocks and their average monetary value (AFN)

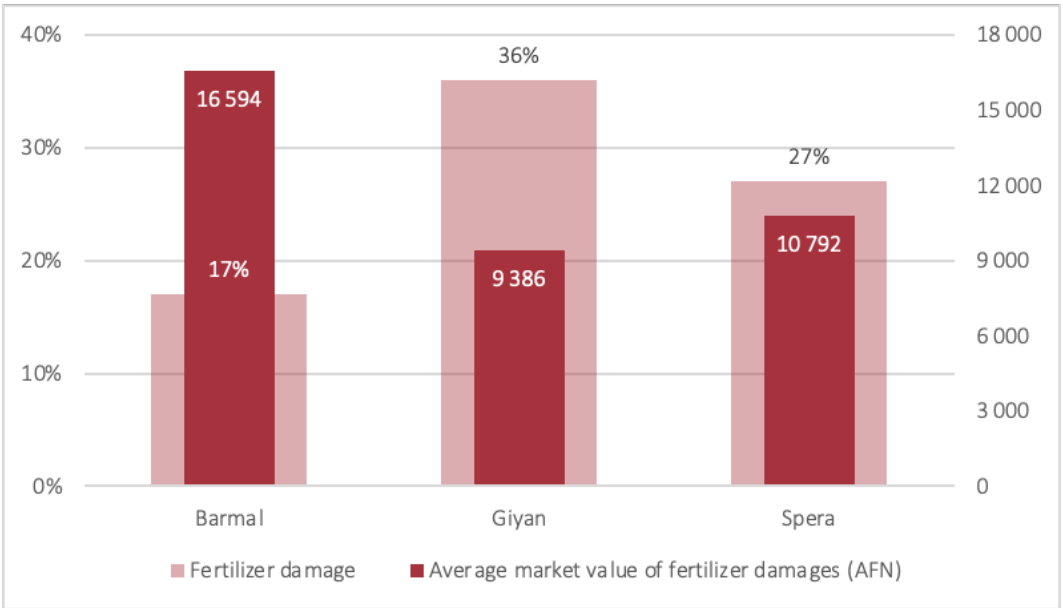



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Fertilizer

Storing fertilizer is typically less common than storing other productive inputs, especially during the post-harvest period. The frequency of households reporting damage to their fertilizer stock is lower than for seeds, but still impacts farming capacity. The greatest rates of damage were reported in Giyan, yet in Barmal the estimated economic value of this damage is highest at about AFN 17 000 (Figure 15). This is probably due to the higher total volume stocked in Barmal.

Figure 15. Share of households reporting damage to their stock of fertilizer and its estimated monetary value (AFN)

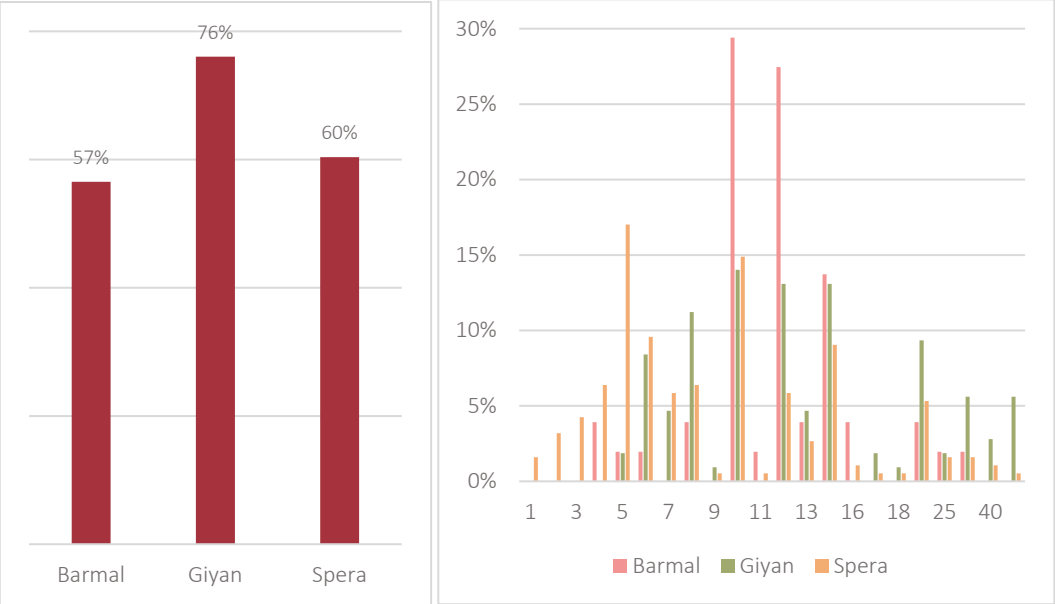



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Hand tools

Damage to tools was more frequent and more impactful than to consumable inputs. While fewer households were affected in Barmal, those most affected reported a higher number of damaged implements (Figure 16). The average monetary value of damages was highest in Giyan.

Figure 16. Share of households that lost hand tools (left) and distribution of damages (right)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

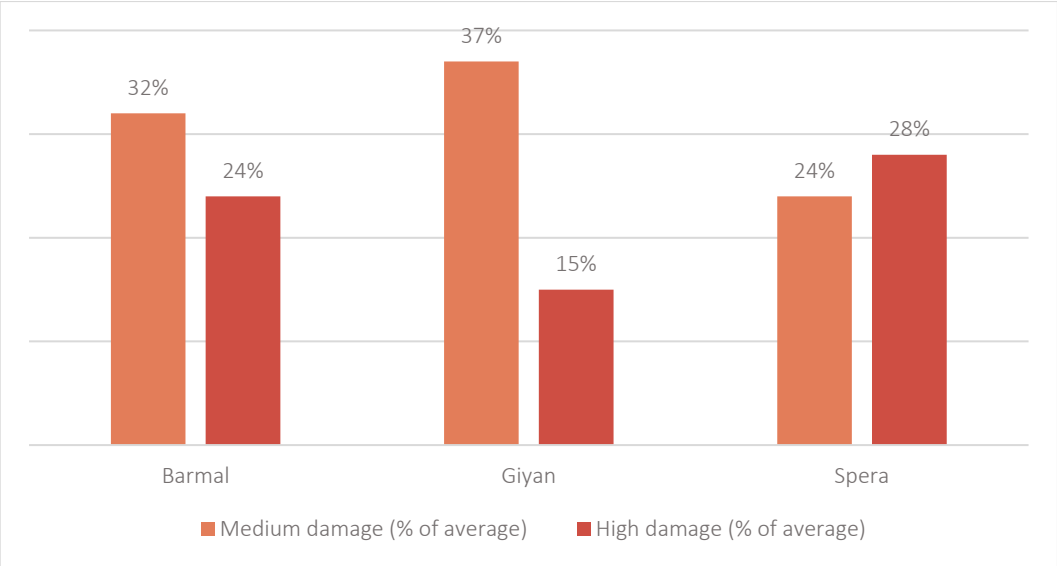
## Agricultural machinery

Agricultural machinery is typically limited to better-off farmers, but because machinery is usually rented out, it is an important asset for entire communities. Average replacement and repair values are much higher than for other inputs, especially in Spera (more than AFN 1 million), though, proportionally, the reported damages directly affected less than 2 percent of households from the three targeted districts.

## Land

Damage to agricultural land was reported by 28 percent of households and by 43 percent of farmers, particularly in Barmal and Giyan (Figure 17). In Barmal, the average estimated value of rehabilitation, calculated on the basis of expected short term costs to prepare land for cultivation again (i.e. labour and/or machine and fuel costs for land preparation, removal of sediments and reestablishment of bonds), is almost double that in Spera, despite the larger average area damaged in this district – 1.8 *jeribs* (0.36 ha) suffered high damage, compared to 1.1 (0.22 ha) and 0.6 *jerib* (0.12 ha) in Barmal and Giyan respectively. This is due to the higher proportion of landless households in Spera.

Figure 17. Degree of reported land damage by district

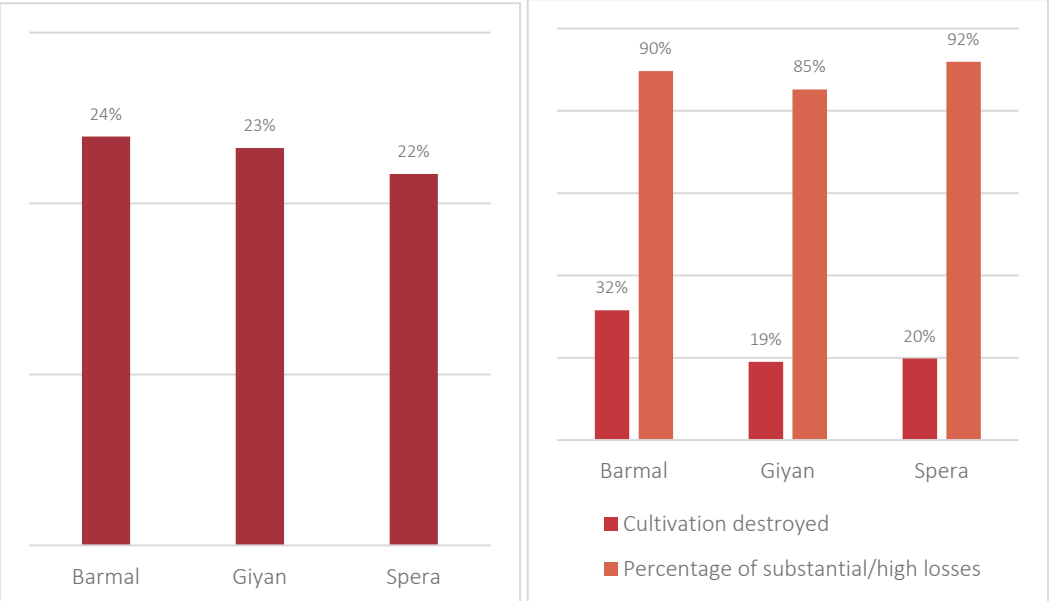



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Orchards

Orchards were affected at a similar rate across the three districts (Figure 18). Among the households reporting damage, most suffered substantial or high damages (to more than 50 percent of their orchards). In more than 90 percent of cases, the damaged area was less than 4 *jeribs* (0.8 ha), however, this has implications on the local farming system.

Figure 18. Share of households with damaged orchards (left) and degree of reported damage (right)



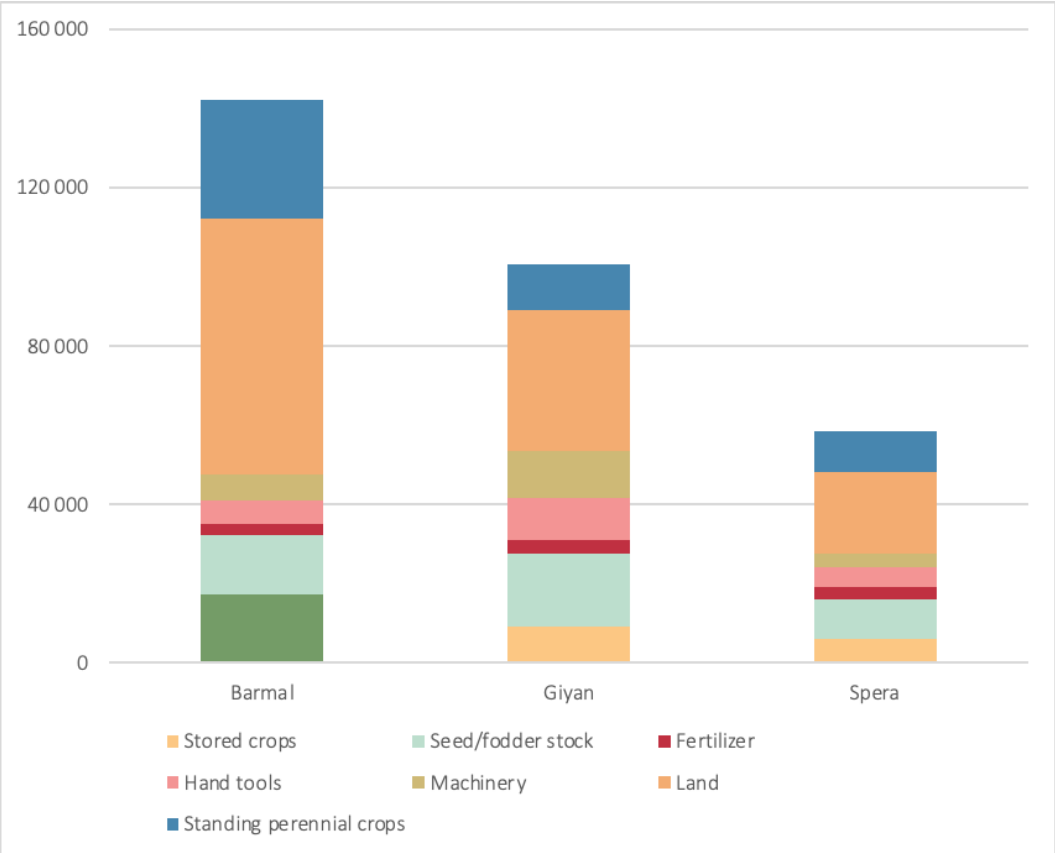

**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Field crops

Forty percent of farmers (25 percent of households) reported damage to their standing crops. Losses in yields and the estimated value were highest in Barmal. Partly because of the lower share of farmers in Spera, the total value of production losses in this district is lower.

Figure 19 shows the estimated monetary value of losses for each category of crops and assets . It is evident that the damages to agricultural land and to seed/food stock (and orchards in Barmal) were the costliest. In addition, damages to land and orchards were more costly, on average, in Barmal, where they represented more than half of the total losses. This comes within the context of increasing input prices – all households reported a price increase, and the share of households reporting more than a 50 percent increase ranged from 56 percent in Giyan to 97 percent in Spera.

Figure 19. Estimated monetary value of damages by district (AFN)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Damages and the equivalent production losses in the livestock sector were also widespread (Table 2). The FAO rapid assessment reported that, given the warm summer weather, most of the animals (mainly sheep and goats) were outside the stables when the earthquake hit, which decreased the mortality rate. However, it is still estimated that 883 animals were killed in Giyan and Barmal alone.

Table 2. Proportion of households affected by damages to the livestock sector

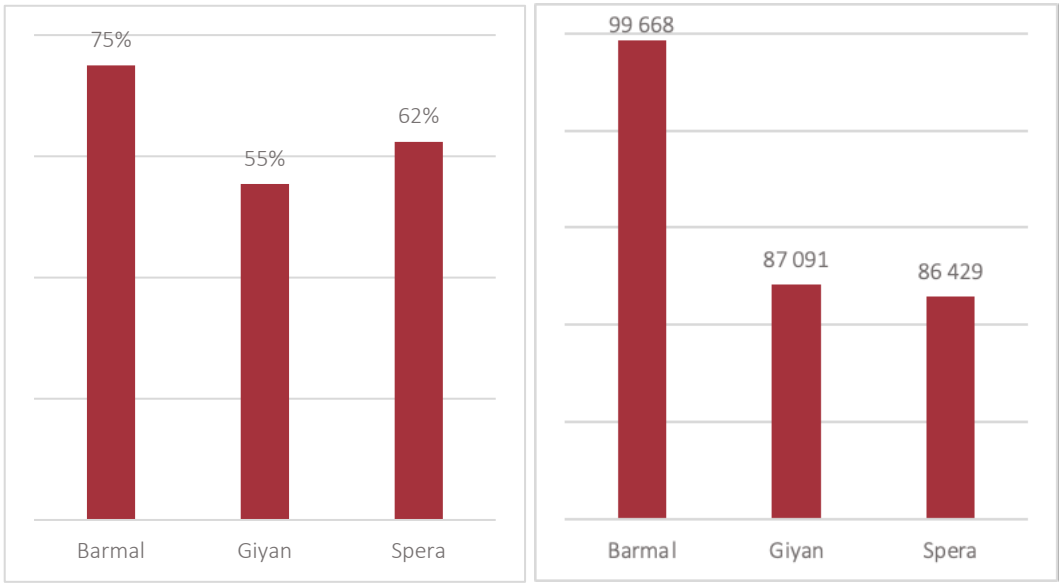
| Category of damage | Barmal | Giyan | Spera |
|---|---|---|---|
| Dead cattle | 75% | 55% | 62% |
| Injured cattle | 48% | 51% | 35% |
| Dead sheep | 65% | 45% | 29% |
| Injured sheep | 48% | 39% | 17% |
| Dead goats | 68% | 54% | 37% |
| Injured goats | 43% | 38% | 18% |
| Dead horse/donkey | 28% | 23% | 4% |
| Dead poultry | 78% | 74% | 50% |
| Destroyed animal shelter | 71% | 77% | 84% |
| Destroyed fodder | 51% | 42% | 37% |
| Destroyed hay | 64% | 61% | 56% |
| Destroyed vaccines | 0% | 8% | 3% |
| Destroyed products | 33% | 30% | 29% |

**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Cattle

The share of households reporting dead cattle was highest in Barmal. The estimated monetary value of these deaths was relatively similar across the districts (Figure 20).

Figure 20. Share of households reporting dead cattle in percentages (left) and their estimated monetary value in AFN (right)

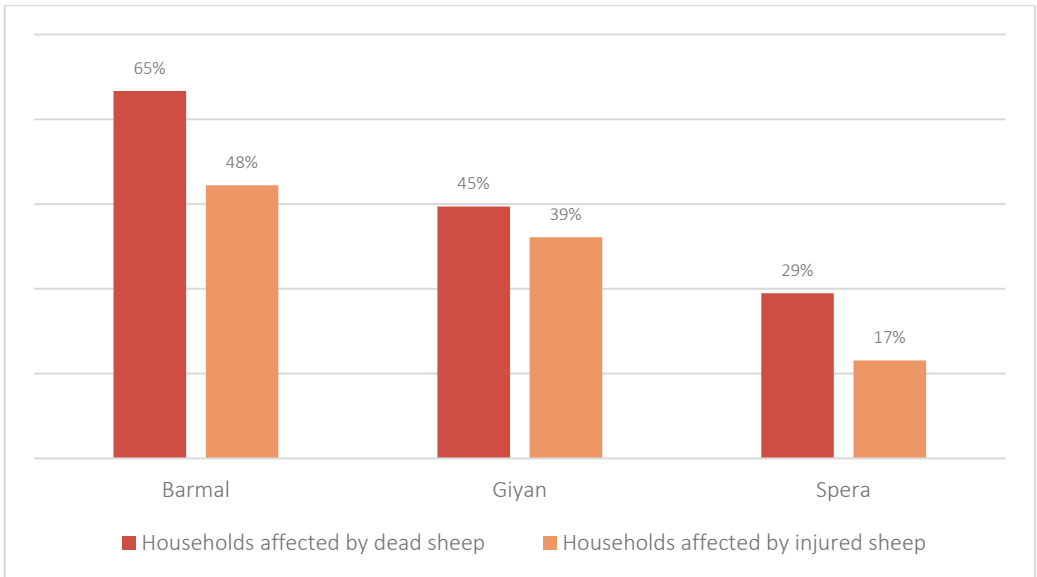



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Small ruminants

Sheep are less common in the affected areas, but a high share of households in Barmal reported dead or injured sheep (Figure 21).

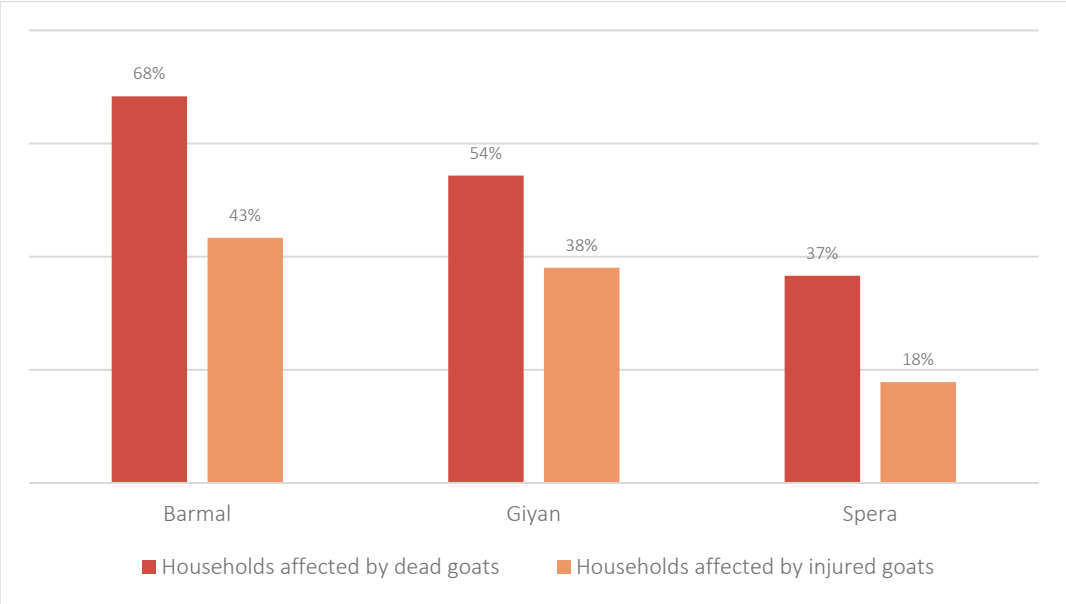
Figure 21. Share of households reporting dead sheep




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Goats are, on the other hand, more common in the three districts. Once again, the district of Barmal was disproportionately affected in terms of households reporting dead/injured animals (Figure 22).

Figure 22. Percentage of households reporting dead goats



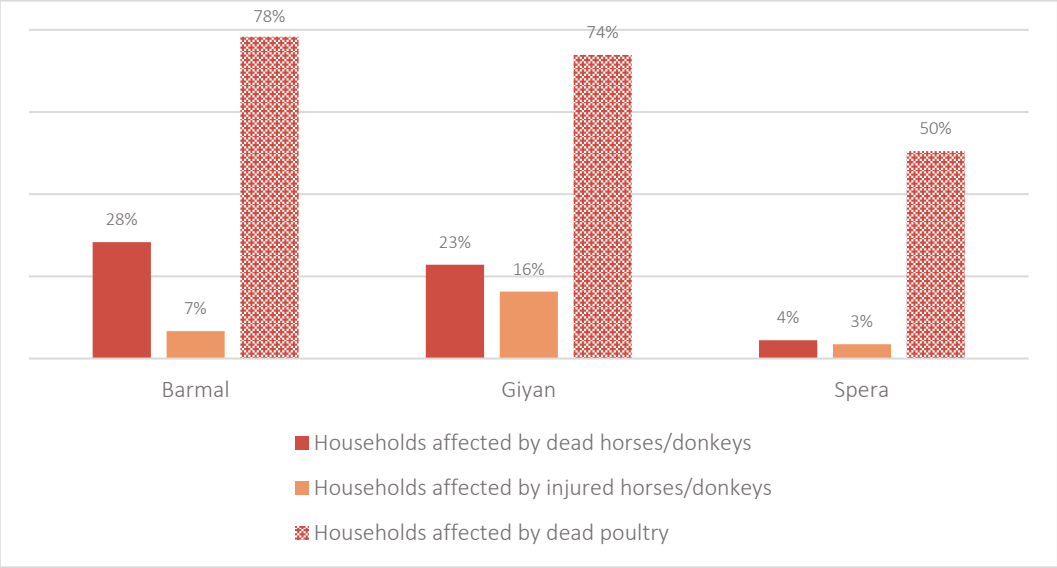

**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Most households lost three to five small ruminants. In Barmal, the worst damages to flocks between 15 and 20 animals were reported, suggesting that more animals were raised there before the earthquake.

## Other animals

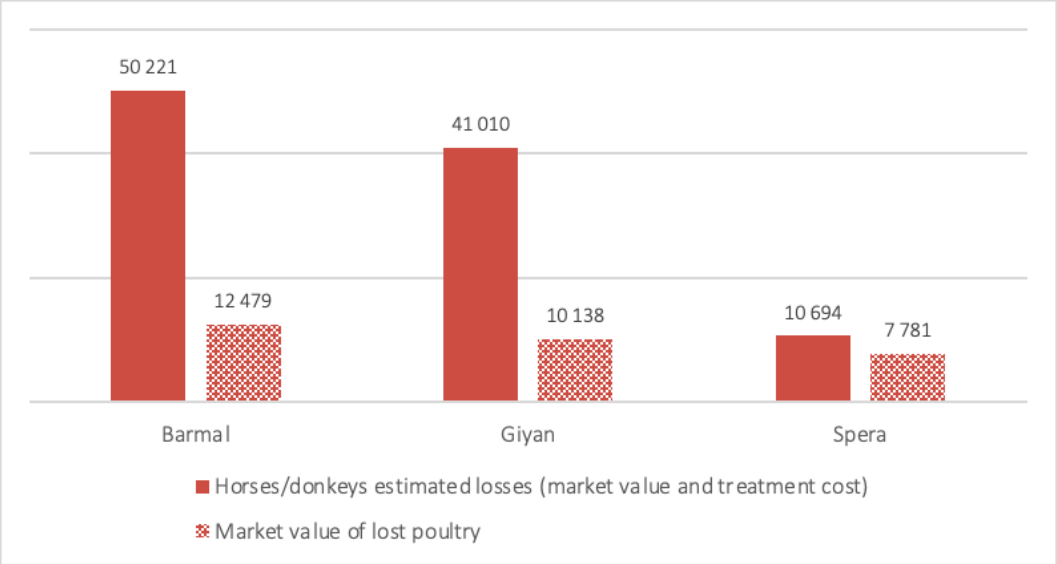
Households rearing other animals, poultry in particular, were also affected. Horses and donkeys died or were injured and are more valuable than poultry (Figure 23). However, the monetary value of these dead animals was much lower than cattle (Figure 24).

Figure 23. Households affected by death of different livestock




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Figure 24. Average monetary value of dead/injured livestock

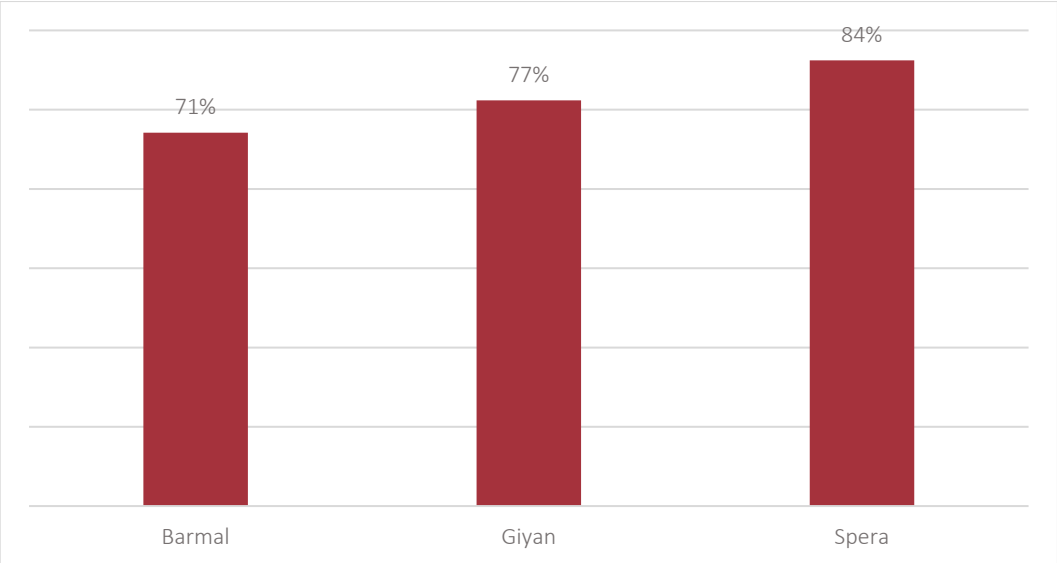



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Animal shelters

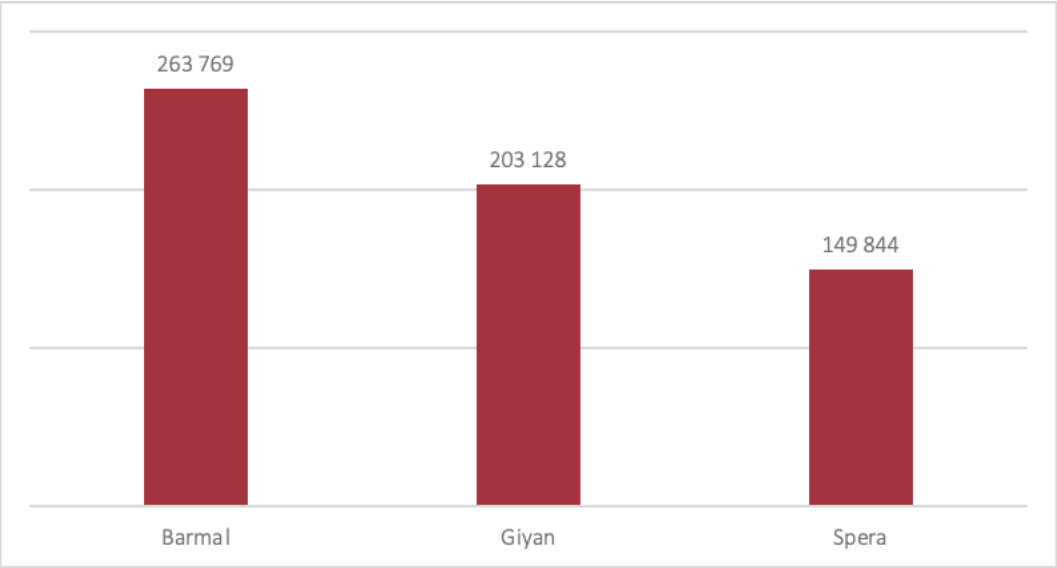
Despite being less affected by direct livestock deaths, households in Spera reported more frequent damage to animal shelters (Figure 25). However, looking at the distribution of the damage and the number of buildings affected, partial damages were more frequent in Spera, but total damages were more frequent in the other districts. The estimated monetary value of damages to animal shelters was lowest, on average, in Spera (Figure 26).

Figure 25. Share of households with damaged animal shelters




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Figure 26. Estimated monetary value of damages to animal shelters

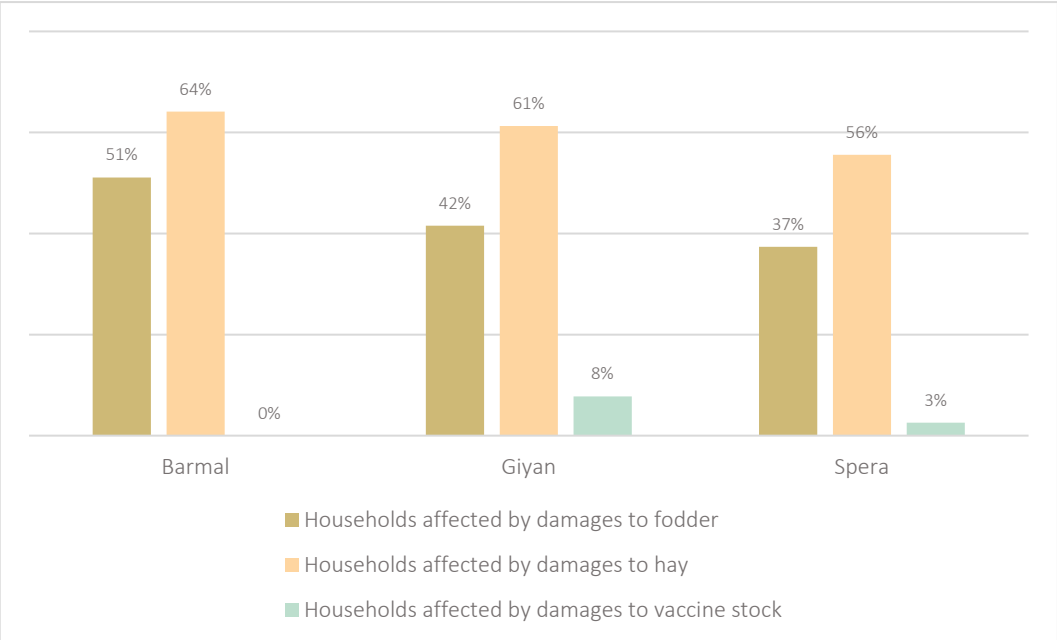



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Livestock inputs

Hay had been recently harvested in the area before the earthquake. Most households reported damages to hay and fodder (Figure 27), but in terms of volume, more hay was destroyed (Figure 28) and accounted for more monetary damages (Figure 29).

Figure 27. Share of households reporting damage to livestock inputs

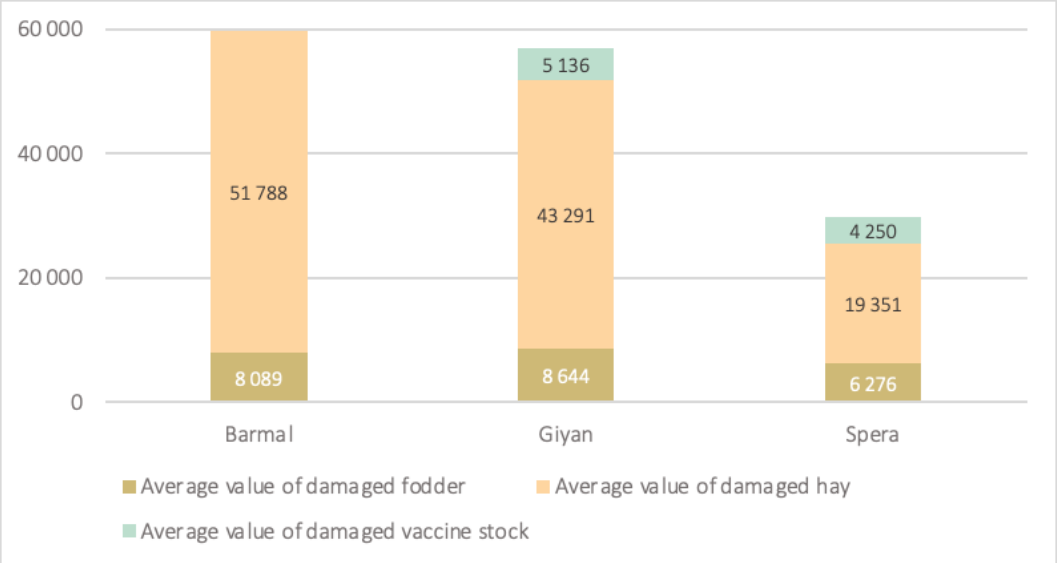



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Figure 28. Average volume of damaged livestock inputs

**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Figure 29. Average monetary value of damaged livestock inputs (AFN)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

In terms of farming inputs, all households in the three districts reported an increase in input prices at the markets. In particular, 95 percent in Spera reported an increase of more than 50 percent of the usual price (compared to 32 percent in both Barmal and Giyan).

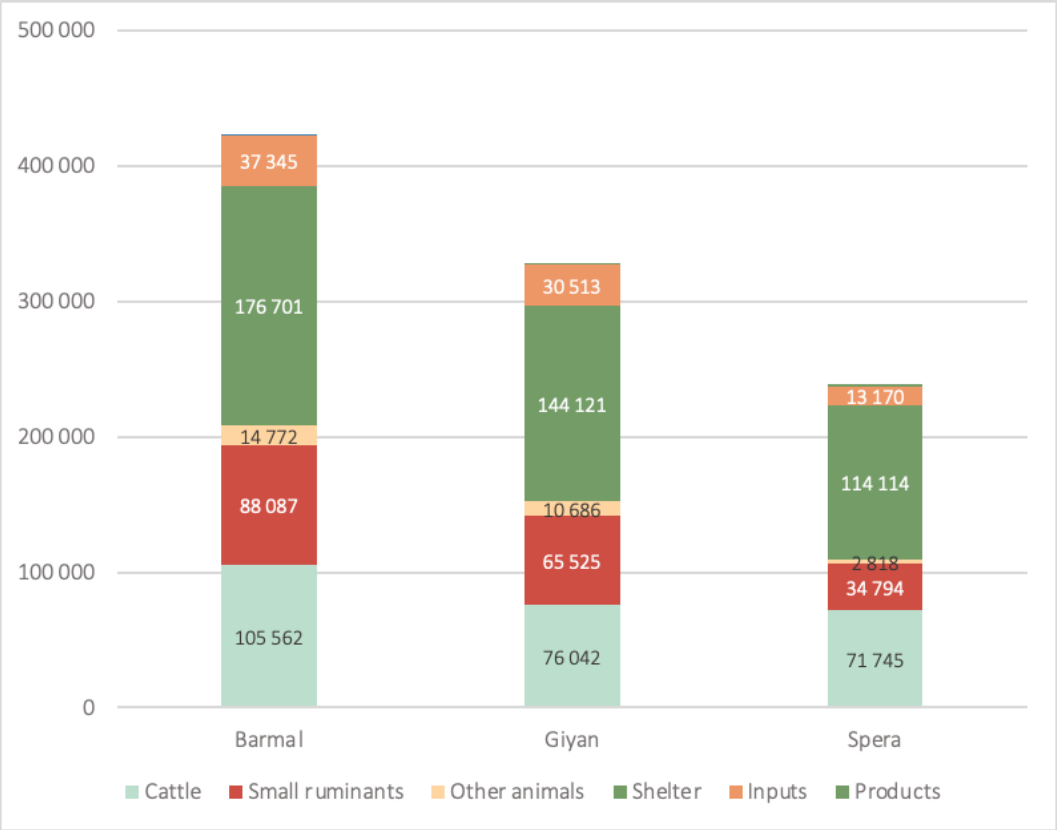
## Livestock products

Most livestock producers reported losses of important products for consumption and sale that were stocked at household level at the moment of the earthquake, such as milk and yogurt. Fewer households, mostly in Giyan, reported losses of cheese. In terms of poultry

related stocked products, almost all households reported losses of eggs. On average, losses were highest in Spera.

Damages to cattle, shelters and small ruminants accounted for the most significant monetary implications in the livelihoods of households in the affected areas. Figure 30 shows the mean value of monetary losses for the districts' entire population, including those households which did not lose assets.

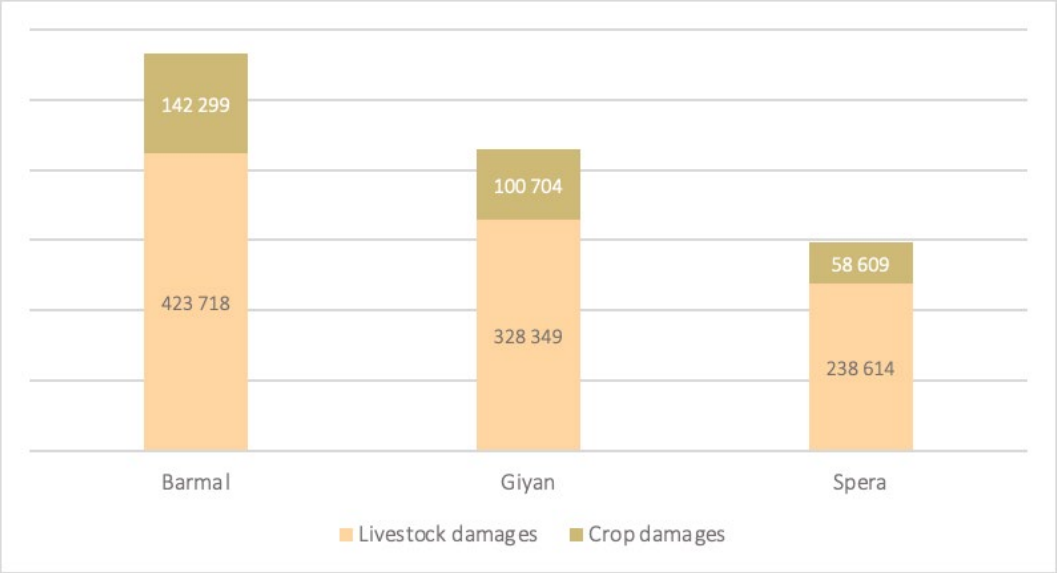
Figure 30. Mean monetary losses due to damages to livestock assets (AFN)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Similarly, Figure 31 indicates that overall damages to livestock production were greater, in monetary terms, than to crop production.

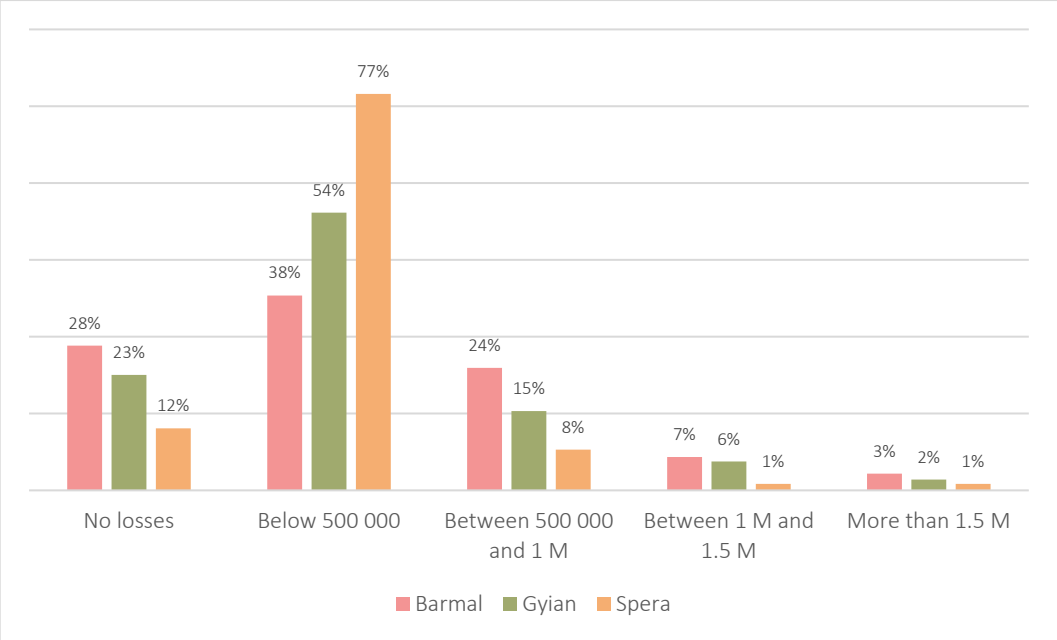
Figure 31. Comparison estimated damages to crop and livestock production assets (AFN)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

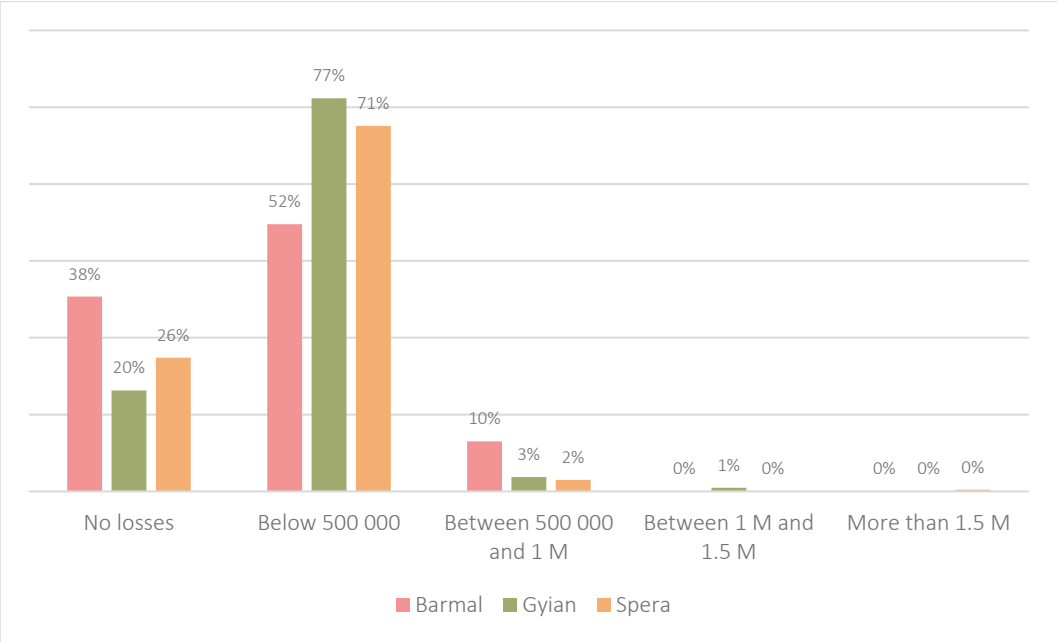
In Barmal, the share of households that did not report any damages was also highest, and district -level averages were based on fewer high estimates. When looking at the distribution of damages (Figures 32 and 33), the largest share of people reported damages in both the livestock and agriculture sectors of up to half a million Afghan afghanis.

Figure 32. Distribution of monetary losses due to damage to livestock production assets (AFN)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Figure 33. Distribution of monetary losses due to damage to crop production assets (AFN)

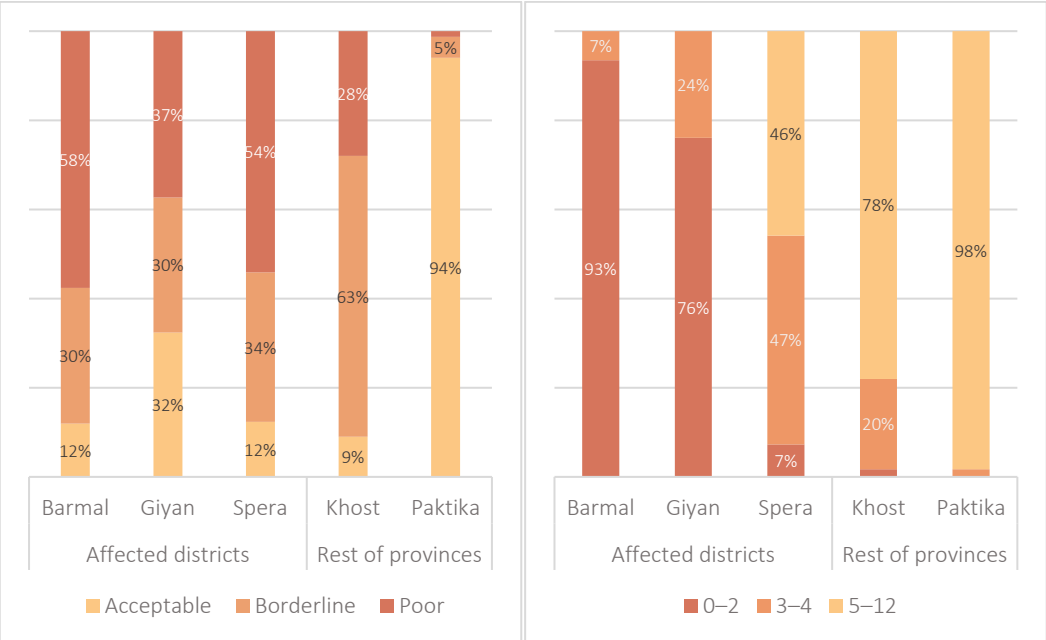



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

## Food security

In a period where food consumption showed relative improvement, as is expected following the harvest, the food consumption score (FCS) and the Household Dietary Diversity Score (HDDS) indicate that diet quality was insufficient for the majority of the population in the affected districts. The FCS and HDDS were significantly worse in the three affected districts than in their respective provinces (Figure 34).

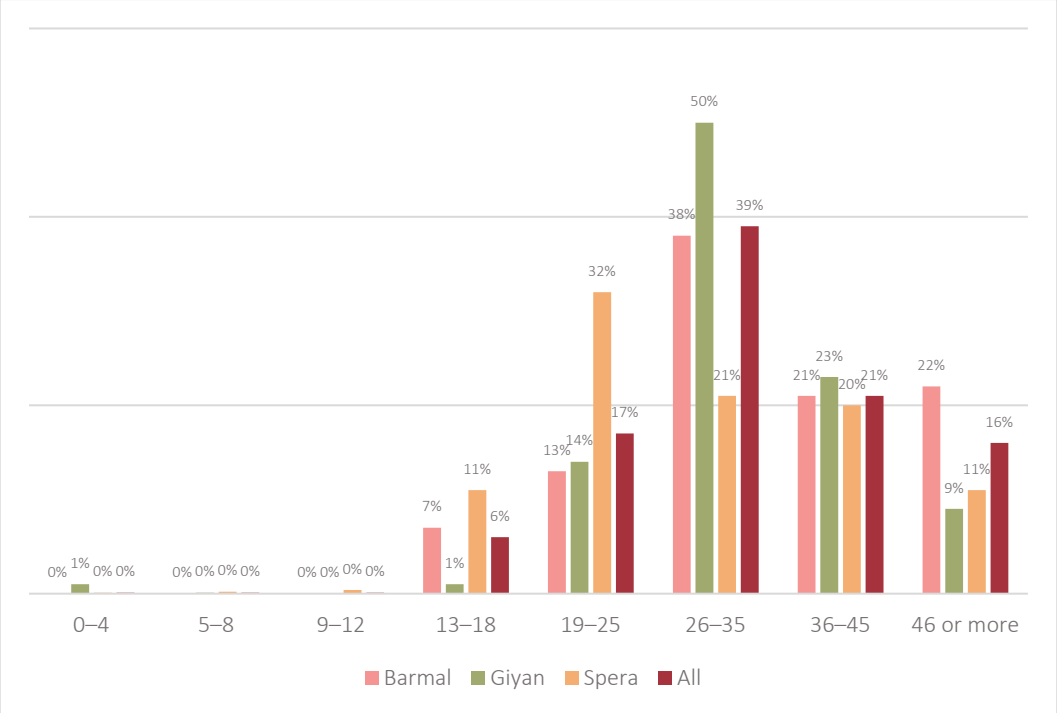
Figure 34. FCS (left) and HDDS (right) in the three districts compared to the rest of the provinces




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

The FCS and HDDS could, however, be misleading at the provincial level. The reduced coping strategy index (rCSI) shows a more complex picture, where households with a score of 19 or above was very high in Paktika (74 percent) and lower in Khost (13 percent). This suggests that a more diversified diet in Paktika could result from more coping in terms of quality and frequency of food intake. Nevertheless, the rCSI is consistently higher in the three affected districts (Figure 35).

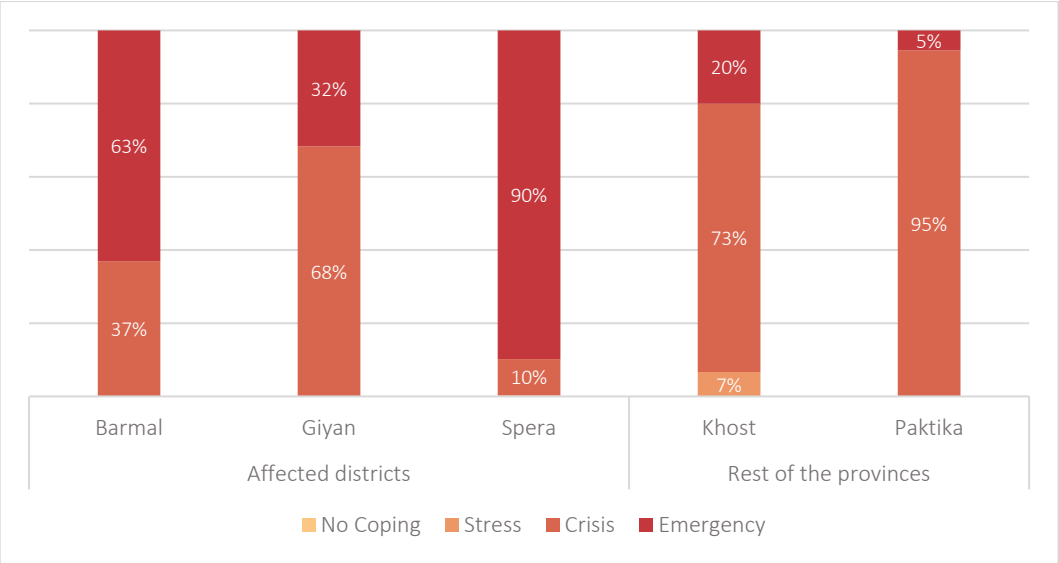
Figure 35. RCSI distribution in the three districts compared to the rest of the provinces




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

The depletion of productive assets was widespread throughout the country. The livelihood-based coping strategy index (LCSI) indicates that almost all households have either engaged in strategies that depleted their productive assets or lost them as a result of the earthquake (Figure 36). The share of households which adopted emergency strategies is particularly high in Spera (nine out of ten).

Figure 36. LCSI in the three districts compared to the rest of the provinces

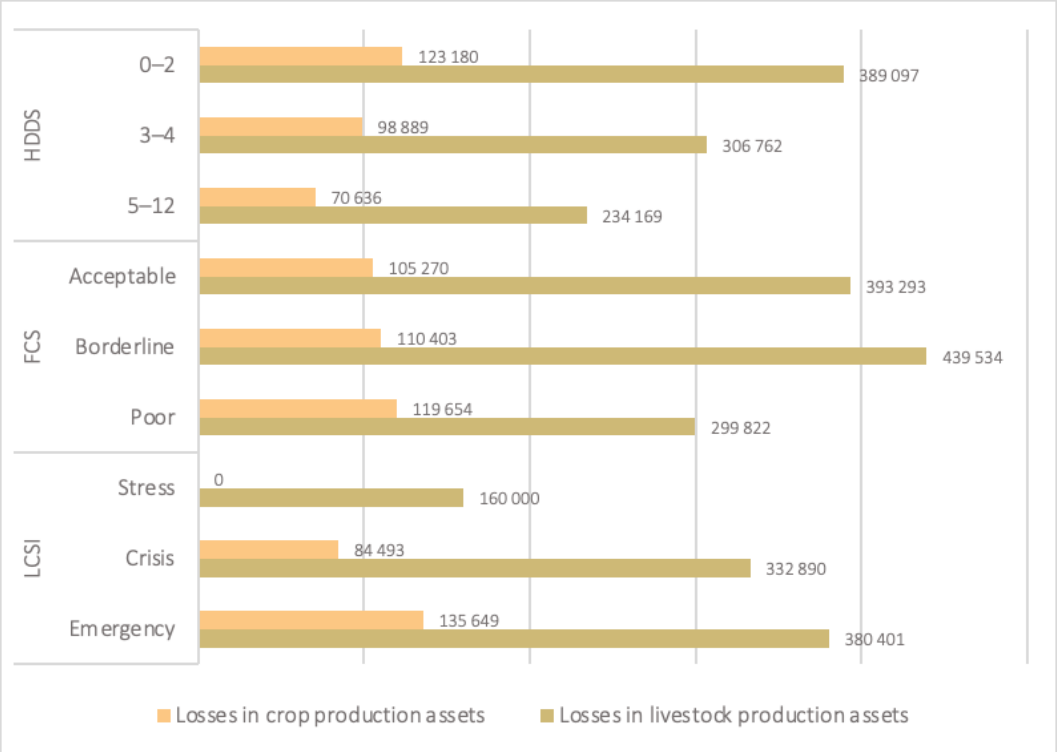



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Given that the results show wide food consumption gaps and severe asset depletion, disaggregating by food insecure profiles is unnecessary. However, exploring the links between household characteristics and food insecurity can help improve understanding of who, how and for how long the affected people are likely to remain food insecure.

Looking at the average losses of livestock and agricultural assets in comparison to LCSI and HDDS, it appears that the value of both agricultural and livestock losses increases when rising from stress to crisis and emergency categories, or as consumption degrades. For FCS, the trend is less clear (Figure 37).

Figure 37. Monetary losses for crop and livestock production by food consumption and livelihood based coping strategy categories (AFN)

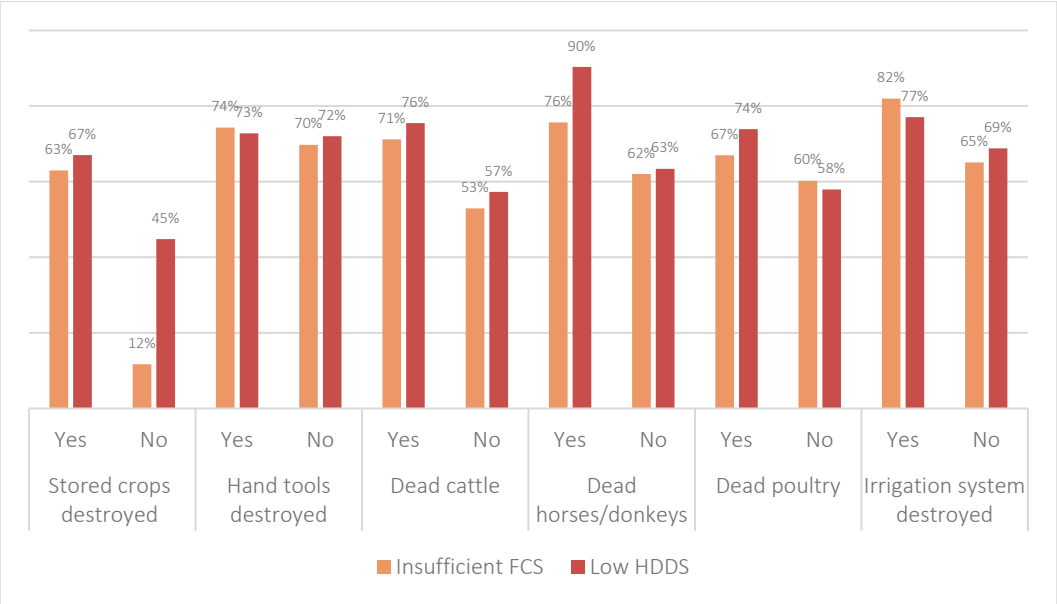



**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Further analysis shows that among livestock assets, only the loss of sheep was associated with insufficient consumption. On the other hand, losses of food stock, tools, and damage to land are all associated with insufficient consumption. A number of losses are associated with low HDDS including, among livestock assets, the value of all dead animals (cattle, sheep, goats, donkeys and poultry), damages to shelters, and the loss of fodder and hay. Among agricultural assets, these losses included the value of lost crops, food stock, tools and damages to land and orchards. This may be because the loss of some assets (such as fertilizer stock, machinery and cattle for the FCS) only affected better-off households.

In terms of households affected by specific losses, those related to stored crops, cattle, donkeys/horses, poultry and damage to irrigation systems seem to have had a greater impact on food consumption (Figure 38).

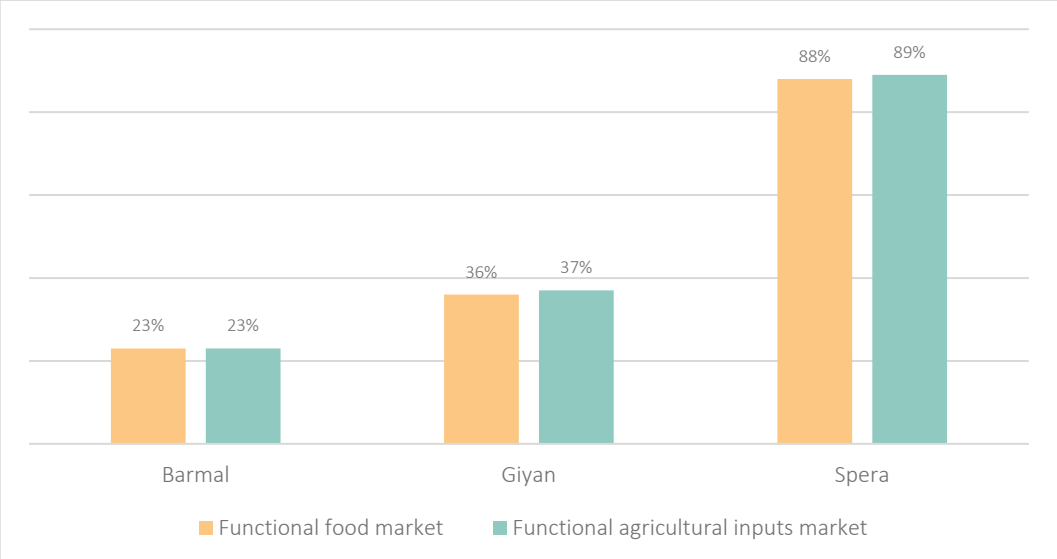
Figure 38. Share of households with poor and borderline food consumption, and with HDDS of 2 or below (by assets lost)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: *FAO Data in Emergencies Hub*. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

Access to food and input markets seems to play a significant role in food security outcomes. This was mainly noted as a challenge in Barmal (Figure 39) where there was a strong association[1] between accessibility to these markets and both insufficient consumption and low HDDS.

Figure 39. Share of households with access to functional markets (by district)




**Source:** FAO. 2022. Afghanistan: DIEM-Impact assessment results (June–July 2022). In: FAO Data in Emergencies Hub. Rome. Cited 12 December 2022. data-in-emergencies.fao.org

[1] The Pearson's Chi-squared test is positive ($p<0.05$), and the Phi coefficients are particularly high, 25 percent for FCS and 60 percent for HDDS.

# Conclusion and recommendations

Damages of the greatest value occurred to livestock assets, in particular cattle and shelter infrastructure. The distribution of these damages suggests that those affected were better-off households. However, because households often own a few milking cows to supplement diet and income, the damages experienced to these productive assets represent an important source of capital, especially for poorer households. At the same time, small ruminants and poultry are an important livelihood source for all households in the affected areas, and substantial damages were reported to these animal groups due to the earthquake.

The depletion of livestock assets had an impact on food consumption. While only the impact to sheep was associated with poor and borderline consumption, animal death and damages to fodder and hay were associated with a less diversified diet. This suggests that even better-off households are struggling with consumption gaps. Damages to farming assets were, in monetary terms, less significant than livestock damages, but they were equally as common, and had a stronger impact on food consumption.

In general, the depletion of productive assets is of concern, particularly considering the winter months. It is unlikely that the next production season will provide food and income to sustain households for either crops or livestock.

It is recommended to:

- distribute agricultural packages, hand tools in particular, in time for the next agricultural season;
- facilitate the provision of machinery hiring services;
- support livestock keepers/herders – especially those who have decapitalized – with livestock protection packages that include concentrated animal feed for the upcoming winter season, deworming services, trainings and linkages to local extension services;
- distribute improved fodder (alfalfa, berseem, sorghum, maize, etc.);
- provide vaccinations against viral diseases (lumpy skin disease, foot and mouth disease, anthrax, enterotoxaemia, and others), and increase community awareness to livestock assets; and
- implement cash-for-work activities for the operation and maintenance of the *Kariz* irrigation system (an underground canal system), land rehabilitation, canal rehabilitation and the construction of retaining walls in some areas.

# Notes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This report is made possible by the support of the American people through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of Food and Agriculture Organization of the United Nations and do not necessarily reflect the views of USAID or the United States of America Government.

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CC3940ENEN/1/01.23