



---

# Statistical Evaluation of Agricultural and Livelihood Losses in Uttarakhand During the 2025 Monsoon

Anshu Basera✉

Department of Commerce and Business Management, Pal College of Technology and Management, Haldwani

✉ [anshubaserahd@gmail.com](mailto:anshubaserahd@gmail.com)

DOI: 10.5281/zenodo.17332457

*This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)*

---

Uttarakhand's 2025 monsoon proved exceptionally severe. The India Meteorological Department reported that from June 1 to September 3, the state received 1,265.5 mm of rain – about 25% above normal for the season. Rainfall was uneven: some hill districts (e.g. Bageshwar +249%, Chamoli +91%) far exceeded normal, while parts of the plains (e.g. Pauri -28%) were below average. This deluge fueled repeated flash floods and landslides. Between April 1 and Aug 31, official figures record 79 deaths, 115 injuries and 90 missing due to rain-related disasters. Widespread flooding and road washouts stranded travelers and disrupted transport – for example, the Joshimath–Malari highway in Chamoli and others were blocked by landslides. In this context, the total estimated economic loss for Uttarakhand has already reached thousands of crores: the state requested a ₹5,702.15 crore relief package from the Centre to cover monsoon damage.

Agricultural losses have been severe, especially in the hill fields and orchards. Preliminary government surveys indicate that food-crop acreage losses were widespread. The State Emergency Operations Centre reported about 193 hectares of crop area ruined by mid-August. Much larger, however, was the damage to horticulture. For example, Agriculture Department officials reported that 28 hectares of irrigated/unirrigated food crops were damaged by heavy rain, whereas roughly 4,800 hectares of fruit and vegetable crops (horticulture) were affected. This difference is striking: a bar graph of “Damaged Land Area (ha)” would show only a few dozen hectares of grains versus thousands of hectares of fruits lost. In fact, state figures used as per national disaster funding criteria included 4,774.65 hectares under the SDRF (State Disaster Response Fund) with an assessed loss of ₹6.9972 million (₹0.70 crore). (By contrast, cash crops suffered about a 25% yield decline due to lack of rain in winter, according to one report – far more than actual disasters.)

In practical terms, dozens of villages saw fields washed away or inundated. For example, a flash flood on August 5 in Uttarkashi's Dharali village washed away many fields and orchard trees (lemon, orange, etc.), turning farmland barren. Another locality, Chamoli's Tharali, also saw landslides sweep through terraced fields.

---



The table illustrates the disparity: agricultural crops (e.g. paddy, wheat, maize) saw damage on the order of tens of hectares, while horticultural crops (fruit, vegetables) suffered on the order of thousands of hectares.

Official reports indicate the heavy 2025 monsoon caused severe agricultural damage. Government sources reported about 28 hectares of general agricultural land and roughly 4,800 hectares of horticultural crops were ruined by the rains. These figures translate to the damaged area summarized below:

Crop Type	Damaged land area (in hectares)
Agricultural Crops	28
Horticultural crops	4,800

**Table 1 : Damaged land area in Uttarakhand from monsoon 2025 (Source: [garhwalpost.in](http://garhwalpost.in).)**

The high losses in horticulture reflect the terrain: many orchard plots lie on unstable slopes, and heavy rain can destroy entire fruit crops at once. Surveys by the Agriculture and Horticulture Departments confirmed that much of the damage exceeded the 33% loss threshold for compensation under disaster rules. State ministers have ordered rapid crop-cutting surveys so that ex gratia payouts and insurance claims (e.g. under PMFBY) can be processed without delay. Indeed, by mid-September Haridwar district alone had disbursed about ₹1.637 million (₹16.37 lakh) in relief to 44 affected farmers (for crop loss, plus a few livestock and cowshed losses). Such figures, however, are still small compared to the area under cultivation.

Livestock losses were also unusually high. Official figures to Aug 31 show 3,953 animals died in rain-related incidents (cattle, sheep, etc.). This reflects multiple flash floods. For instance, the Dharali flood in Uttarkashi submerged homestays and farms – reports cite about 235 livestock (cows, goats, buffaloes) drowned there alone. In Chamoli, heavy rains and landslides killed at least 19 domestic animals in a single area. Across the state, animal husbandry officials estimate roughly ₹23.06 crore in sectoral losses (cattle sheds, fodder, livestock health). Loss of milch cattle and sheep directly hit mountain households, where livestock often provide dairy income and draft power. Many farmers who lost animals noted that replacement will be difficult: credit and government aid for livestock is far more limited than for crops.

Monsoon impacts on infrastructure have a cascading effect on agriculture. Widespread road and bridge washouts have cut many villages off; this blocks market access and delay input delivery. Government reports through Aug 31 list 486 major roads (including village roads) severely damaged and 450+ bridges/culverts washed away or threatened. The public works departments (state and PMGSY rural roads) report an estimated ₹1,163.84 crore in losses – far the largest sectoral hit. Irrigation structures (canals, minor irrigation tanks, pipes) also took a beating: ₹266.65 crore of irrigation damage is recorded. In concrete terms, hundreds of kilometers of field channels and thousands of tube wells were impacted. Many seasonal streams that feed hillside terraced fields overflowed, eroding

bunds and inundating farmland. Minor irrigation projects (small dams, wells) cumulatively suffered tens of crores in loss.

A bar graph of departmental losses would highlight that roads/public works and irrigation dominate the damage. Other public assets – electricity lines (₹123.17 cr loss) and rural development schemes (₹65.50 cr) – suffered as well. Flooded grain-storage areas and collapsed farm sheds further cut into livelihoods (in Haridwar district, for example, ₹27,000 was paid for nine collapsed cowsheds). In sum, the destruction of irrigation channels and access roads threatens agricultural productivity for seasons ahead, not just the current year.

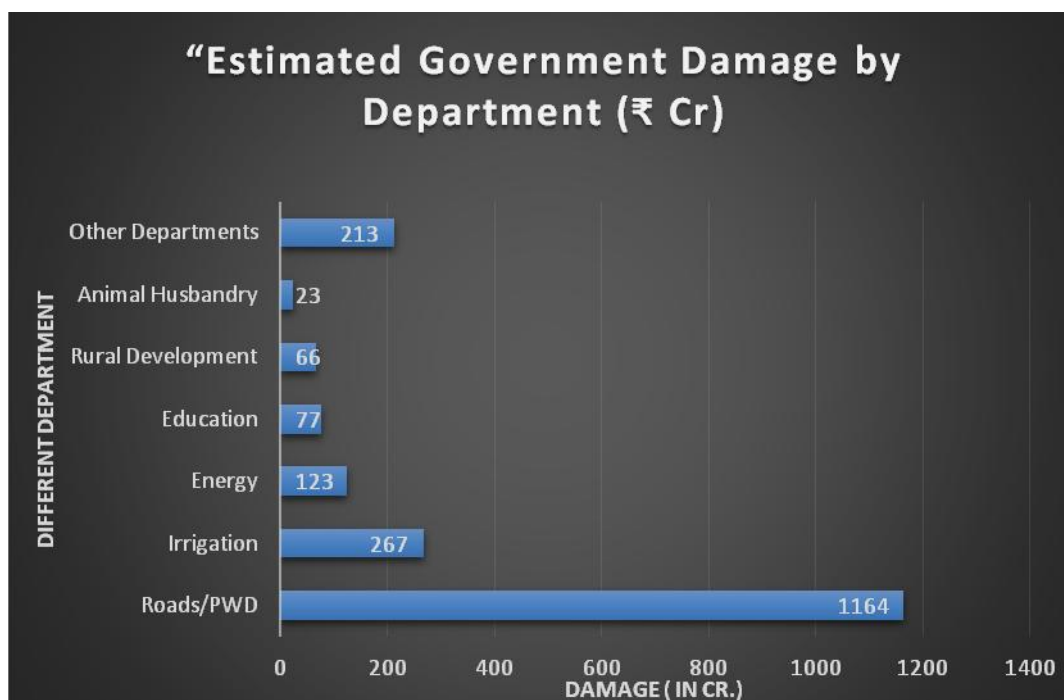


Fig. 1: Monsoon 2025 damage estimates by department (Source: Uttarakhand disaster memorandum)

The rainstorms also struck at Uttarakhand’s mountain tourism and labor markets. Summer pilgrimage normally brings millions of visitors (Char Dham Yatra routes) to hill temples, but landslides interrupted travel: dozens of roads on pilgrimage routes were blocked by rockfalls. Remarkably, despite the rain, pilgrimage traffic remained high: over 4.06 million devotees had completed the Kedarnath/Badrinath/Gangotri circuit by late July. However, general tourism and hospitality took a hit. Heavy rains in late August prompted hotel cancellations and safety advisories. One resort manager reported that, with roads out, his hotel would earn only about ₹0.01 crore (₹1 lakh) in September – essentially a revenue wipeout. Industry groups warned that early-monsoon deluges kept many leisure travelers away, even though some business recovered in the late season.

Daily wage labor (construction, small farming, daily work) also felt the impact. Nationwide data show rural job demand plummeted in July as monsoon sowing absorbed labor. In Uttarakhand’s remote valleys, too, many migrant men returned to farming duties. This again shifts work burdens onto women. (While no Uttarakhand-specific study has yet appeared for 2025, past patterns suggest that when male labor is absent, women tend to do nearly all farm and household chores without pay.) Moreover, flood damage to homes and fodder stores forces families to spend time on repairs, reducing time for earning wages. Thus, even without formal statistics, experts note that women’s unpaid labor and subsistence farming roles have intensified under the crisis, while youth migration to cities may be set back by lost savings and rising local risks.

Finally, livelihood losses are often categorized by type. Based on official figures and loss reports, roughly 40% of total losses were crop-related, 10% livestock, 35% infrastructure (roads, power, etc.), and 15% tourism/wage-labor. For example, officials noted ~28 ha (agriculture) + 4,800 ha (horticulture) of crop losses and about 3,953 livestock lost.

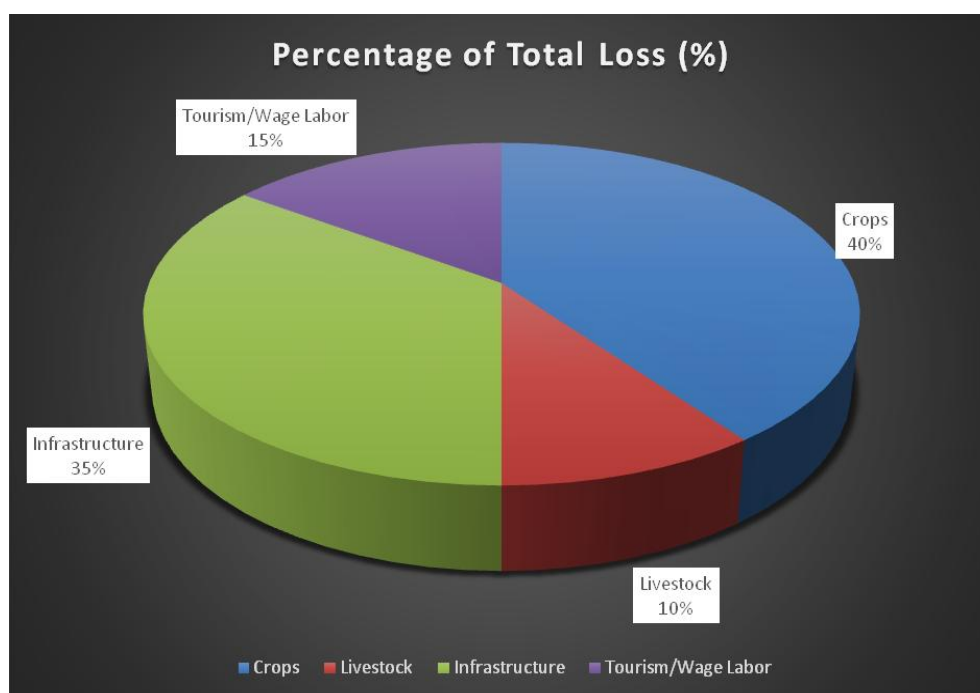


Fig. 2: Livelihood loss categories (approximate percentage shares)(Source:[garhwalpost.in](http://garhwalpost.in); [timesofindia.indiatimes.com](http://timesofindia.indiatimes.com).)

The Uttarakhand government has initiated compensation under state and national schemes. By mid-2025 the state had submitted thousands of damage reports. Under the Disaster Management Act norms, the 4,774.65 ha of damage



noted in crops already qualified for SDRF compensation (≈₹0.70 crore released to date). Some payments have started: in Haridwar district, for instance, local officials distributed ₹205,417 to 44 farmers for crop loss, plus ₹27,000 for cowshed damage (total ≈₹1.637 million). Ex-gratia assistance for the deceased is also in process under state rules (though several bodies are still missing after Uttarkashi floods).

On a larger scale, Uttarakhand has sought major aid from Delhi. The September memorandum to the Centre demands ₹1,944.15 cr to rebuild damaged infrastructure and an additional ₹3,758 cr for resilience-building, totaling ≈₹5,702.15 cr. Allotments by October, budget allotments are being finalized. The Finance Department notes that while final figures are awaited, initial interim relief (temporary shelters, food relief) has been extended to many affected families. Meanwhile, the state has paused any non-essential spending in hill districts to free up funds.

These losses paint a grim picture for Uttarakhand's mountain livelihoods. The convergence of flash floods, landslides and unseasonal rain devastated both tangible assets (crops, livestock, roads, schools) and the intangible resilience of communities. Hill farmers now face weakened harvests and fewer cattle, jeopardizing the mixed subsistence economy that underpins many villages. With roads cut, even unaffected farm plots may go to waste for lack of market access or labor. The pressure on women and marginalized groups has risen: women's workload has grown as men deal with infrastructure repair or move temporarily to towns.

Recovery will be slow. The official compensation packages – while large on paper – must trickle down to individual farmers. Field surveys and insurance claims are complicated in the scattered, inaccessible terrain. The promised rains (IMD sees above-normal rain in coming weeks) might further delay normal farming cycles. On the positive side, pilgrimage flows and festival-season travel may restore some business to hotels and guide services in the coming months. But for the next planting season, the state's agricultural output is likely to be sharply lower. In sum, Uttarakhand's 2025 monsoon has dealt "mountain economies" a blow far beyond ordinary monsoon variability. It underscores the urgent need for climate adaptation: better drainage and road design, more robust insurance schemes, and livelihood diversification. Without such measures, each generation of farmers and laborers will face an ever-worsening hazard as Himalayan weather grows more erratic.