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Navigating Fuel and Fertilizer Shocks following the Iran Conflict

Farm-level Evidence from Myanmar's Monsoon Season

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ABSTRACT

The conflict involving Iran and its broader implications have raised significant concerns about the outlook for the upcoming monsoon harvest and, consequently, food security in Myanmar. These concerns arose because the crisis had its greatest impact during the monsoon cultivation period, the country's main agricultural season. However, no assessments based on primary farm-level data have been conducted to date. We examine the implications using primary data collected through a nationwide survey of crop farmers in August and September 2026, after monsoon land preparation and planting. We find that:

1. **Farm-level fuel prices rose sharply, and access to fuel was constrained.** Twenty-three percent of farmers reported that fuel was rarely available at fuel stations, while 5 percent reported no access. Most farmers paid substantially more than the official station price, suggesting that public fuel quotas for farmers were insufficient. Median diesel prices paid by farmers more than doubled compared with the 2025 monsoon season. Median charges for mechanization services, on which farmers rely extensively, rose by 60 percent for four-wheel tractors, consistent with the large increase in fuel prices.
2. **Despite fuel constraints, cultivated area changed little but flooding at the start of the season had a larger effect on cultivated area.** Average cultivated area nationwide declined by 3 percent, while paddy area fell by 1 percent. However, flooding early in the monsoon season affected 6 percent of cultivated area. The flooding impact was most severe in the Delta and Coastal areas, where 8 percent of cultivated land was affected.
3. **Land preparation practices shifted in response to higher fuel costs.** Most farmers reported no change in their practices compared with the 2025 monsoon season, but adjustments were evident for a number of farmers. The share of farmers using tractors for plowing fell by 6 percentage points, while the share using draft animals rose by 8 percentage points. The share of farmers who dry broadcast their paddy increased by 6 percentage points. This method requires less plowing than transplanting or wet broadcasting, but it is also associated with lower yields. These changes appear to have coincided with more severe weed problems, and the share of farmers using herbicides increased by 12 percentage points.
4. **Fertilizer remained readily available and was less affected by the Iran conflict than fuel.** Four-fifths of farmers reported that fertilizer was always available during monsoon preparation, and the median urea price rose by 21 percent nationwide, well below the increase in fuel prices. Nevertheless, urea use on farmers' largest rice plot declined by 9 percent. However, this finding should be interpreted cautiously, as we could not capture fertilizer application rates among farmers who had not yet applied fertilizer at the time of the survey.
5. **Impacts appear milder than initially feared at the onset of the Iran conflict.** A number of factors may help explain this outcome. First, 41 percent of farmers reported that their land could be confiscated if left uncultivated, reflecting widespread perceived tenure insecurity. Second, fuel prices peaked in March and April but eased in May and June, when most farmers undertake plowing, although prices remained well above 2025 levels. Fertilizer prices also declined substantially from earlier peaks. Third, local authorities set low reference prices for urea, the country's most widely used inorganic fertilizer, which appear to have been broadly respected despite pressure on input distributors' profitability. Fourth, agricultural credit was expanded, including through the Myanmar Agricultural Development Bank (MADB), during the 2026 monsoon compared with 2025, potentially ensuring that a substantial number of farmers to have enough cash to maintain their land preparation activities. Fifth, median prices for paddy, the main monsoon crop, were 26-30 percent higher at the time of the survey than during the same period in the previous monsoon season. This increase was slightly larger than the

rise in fertilizer prices and agricultural wages, though smaller than the rise in the cost of four-wheel tractor services. It may therefore have helped maintain the profitability of rice production and farmers' incentives to cultivate.

6. **Impacts were uneven, with remote and conflict-affected areas hit hardest.** Forty-three percent of farmers in the most insecure areas reported that fuel was rarely or never available at fuel stations, compared with 24 percent in the most secure areas. If available, mean diesel prices were 14 percent higher in very insecure areas than in very secure areas, and 18 percent higher in the most remote areas than in the least remote areas.

Overall, the modest reduction in cultivated area associated with the Iran conflict, the effects of flooding, the shift to dry broadcasting for paddy, and lower chemical fertilizer use suggest that agricultural production in the 2026 monsoon season might be lower than in the 2025 monsoon. Because the survey was conducted several months before harvest, a definitive assessment will only be possible later. Stakeholders interviewed in October (after the survey was completed) reported that, aside from flooding in some areas, weather conditions were relatively favorable this season and pest and disease incidence was lower than in previous years. These factors may therefore partially offset the adverse effects of the Iran conflict on monsoon production.

1. INTRODUCTION

The agricultural sector in Asia, including in Myanmar, has undergone substantial transformation in recent decades and is now heavily reliant on fuel and inorganic fertilizer as key inputs. For plowing and harvesting—two of the most critical operations in the production cycle—most farmers have shifted away from animal traction toward fuel-powered mechanized plowing and combine harvesting, frequently accessed through mechanization service providers (Diao et al., 2020). Agriculture has similarly become far more dependent on inorganic fertilizer in Asia: global use is estimated to have risen by more than 30 percent over the past two decades, with Asia accounting for close to 60 percent of global consumption (FAO, 2023).

Both fuel and inorganic fertilizer are extensively traded on international markets. The Iran crisis disrupted established trade flows for both commodities, driving sharp price increases. Given the centrality of these inputs to agricultural production, considerable concern has emerged regarding the crisis's potential effects on output (Hebebrand et al., 2026; FAO, 2026; Vos, 2026). Although fuel and fertilizer prices have eased since the onset of the crisis, they remain substantially above pre-crisis levels, and important questions persist regarding the crisis's ultimate impact on agricultural production across low- and middle-income countries.

We examine the case of Myanmar. Given its rapid modernization of agriculture—reflected in the swift adoption of tractors and combine harvesters over the past decades (Belton et al., 2021; Minten et al., 2025)—and its substantial reliance on inorganic fertilizer (Takeshima et al., 2025), both largely dependent on imports, Myanmar's agricultural sector is highly exposed to these international disruptions. This exposure has been expected to translate into large negative effects on cultivated areas and agricultural production (USDA, 2026; Masias et al., 2026a). To date, however, no empirical evidence at the farm level has been available to test this expectation. Using unique, nationally representative farm data collected shortly after land preparation and planting, we assess how the fuel and fertilizer crisis affected monsoon cultivation practices in 2026.

2. DATA

The analysis is based on data from the Myanmar Agricultural Performance Survey (MAPS), a phone-based survey conducted with 4,522 crop farmers across all states/regions of the country in August and September 2026, after monsoon land preparation and planting. The paper examines cultivated crop area, fuel accessibility and mechanization prices, fertilizer availability and prices, and paddy prices. We also asked paddy farmers detailed questions about cultivation practices on their largest paddy plot, for both the 2026 and 2025 monsoon seasons. Most of these questions had also been asked in a survey conducted after the 2025 monsoon. Where they had, we use the 2025 survey responses for that season rather than farmers' recall, to reduce recall error. Where they had not, we rely on recall data. We also rely for some analysis on data from the Myanmar Household Welfare Survey (MHWS), fielded somewhat earlier in the season, which in many cases interviewed the same farmers.

The MAPS sample is drawn from households interviewed during the tenth round of the MHWS, conducted in the middle of 2026. The MHWS collected information on household background, welfare indicators, and livelihoods, while MAPS focused specifically on the agricultural activities of crop farmers during the 2026 dry season as well as preparatory work for the monsoon of 2026. MAPS was implemented from August 17 to September 28, 2026. The number of crop farmers interviewed in MAPS is reported by state and region and agro-ecological zone in Table 1. It should be noted that sample sizes are relatively small in Kachin, Kayah, Chin, and Rakhine. For analysis, we divide the country into four major agro-ecological zones commonly used in Myanmar and present

results at this level.[1] To ensure that crop farmers are representative of the crop farming population within their respective agro-ecological zones, a weighting factor was calculated using the methodology applied for the MHWS (see Lambrecht et al., 2023).

Table 1. Sample

	Number of farmers interviewed
Kachin	54
Kayah	46
Kayin	108
Chin	90
Sagaing	618
Tanintharyi	152
Bago	516
Magway	502
Mandalay	512
Mon	173
Rakhine	100
Yangon	144
Shan	702
Ayeyarwady	705
Nay Pyi Taw	100
Total	4,522
Hills	1,000
Dry	1,732
Delta	1,365
Coastal	425
Total	**4,522**

Source: MAPS, Authors' calculations

3. BACKGROUND

3.1. The monsoon in Myanmar

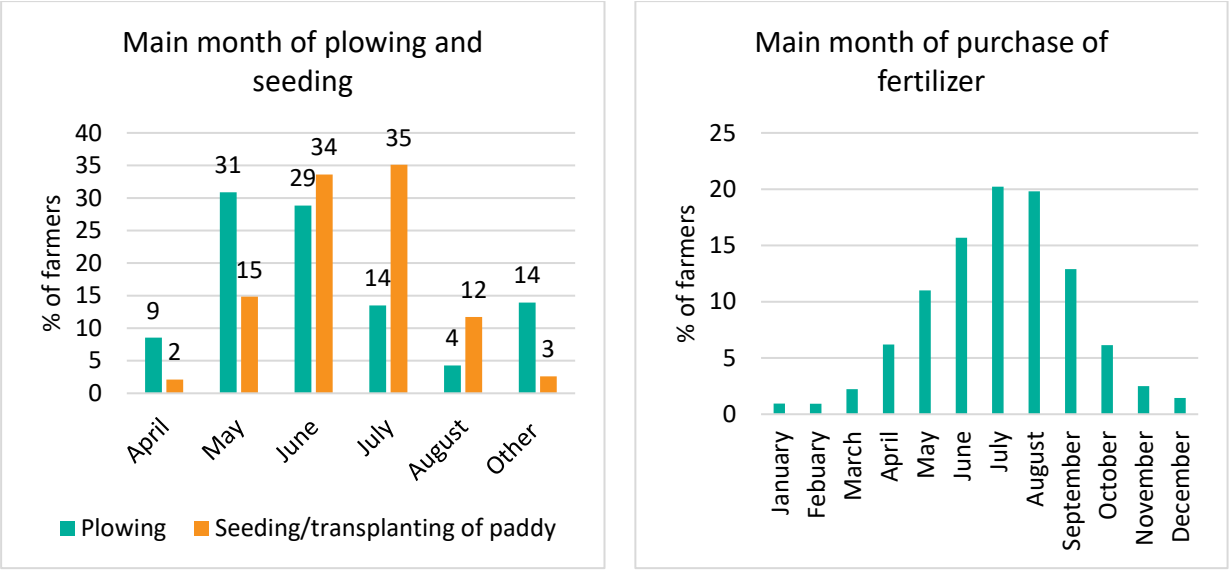
The monsoon is the most important season in Myanmar's agriculture. Almost all agricultural land is used during this season, compared to significantly lower shares during the winter (44 percent) and summer periods (17 percent) (Gumma et al., 2018). The monsoon is particularly important for the cultivation of rice, Myanmar's staple crop: almost two-thirds of farm households nationwide grew paddy during the 2025 monsoon season (Win and Minten, 2026), and monsoon paddy accounts for more than 80 percent of total rice area cultivated over the year (MoALI, 2019). Its share of total annual rice production is somewhat lower, however, given the significantly higher yields achieved during the—mostly irrigated—summer season (Aung and Minten, 2026).

During Myanmar's monsoon season, most rice planting and seeding takes place in June and July (Figure 1). Prior to planting, land is prepared, most often using tractors, making it likely that land preparation was negatively affected by the fuel crisis during this period. Plowing mostly takes place in May and June, while seeding or transplanting is mostly done in June and July (Figure 1). Fertilization typically occurs after seeding/transplanting, with a first dose applied shortly after planting and seeding and a second dose applied 20 to 30 days later. Because fertilizers must be imported in advance and farmers typically purchase them a bit before their first use, fertilizer use might also have

[1] Delta (Ayeyarwady, Bago, Yangon); Coastal (Rakhine, Tanintharyi, Mon); Central Dry (Mandalay, Magway, Nay Pyi Taw, Sagaing); Hills and Mountains (Chin, Kachin, Kayah, Kayin, Shan).

declined because of the crisis. Figure 1 shows the monthly purchasing pattern observed during the 2025 monsoon season.

Figure 1. Main months of seeding and plowing (monsoon 2026) and major purchase month of fertilizer (monsoon 2025)

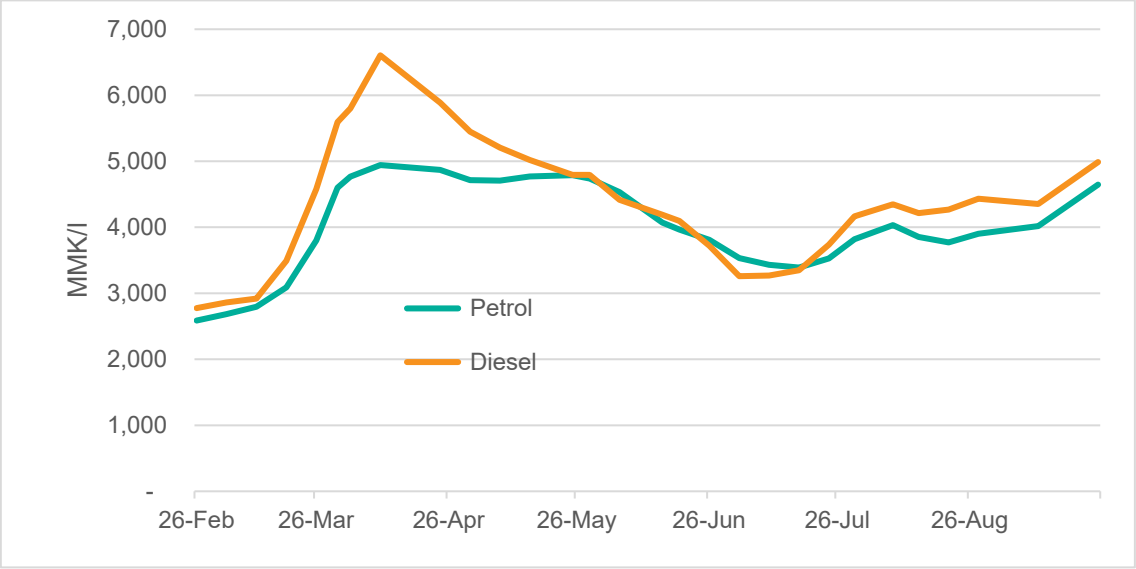


Source: MAPS, Authors' calculations

3.2. Fuel

Fuel prices in Myanmar increased substantially due to trade disruptions linked to the partial closure of the Strait of Hormuz, with the increase among the highest observed in Asia (Masias et al., 2026a). By the end of July 2026, diesel prices were 50 percent higher and petrol prices 51 percent higher than before the start of the conflict (Figure 2). These aggregate figures, however, mask substantial variation over time. Prices rose considerably more sharply in the immediate aftermath of the crisis, with diesel prices more than doubling relative to pre-crisis levels. While prices declined from these peak levels after April, they rose slightly again toward the end of July and August relative to the beginning of July. Most farmers in Myanmar plow for the monsoon in May and June—about 60 percent reported plowing during that period (Figure 1)—and may therefore have avoided the peak in diesel prices (see Section 4).

Figure 2. Official fuel prices in Myanmar (February – September 2026)



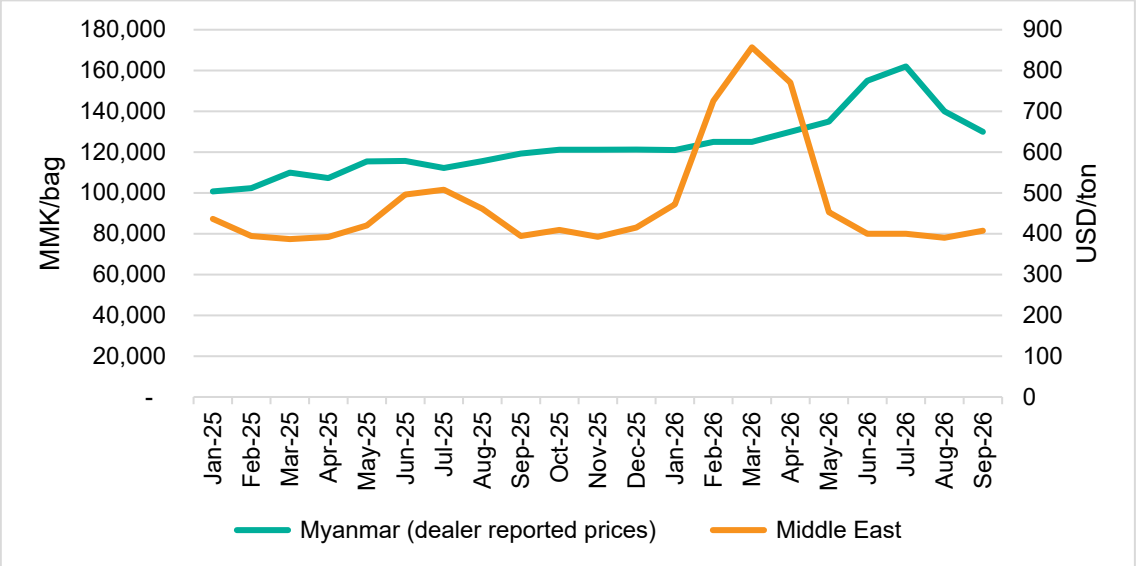
Source: Department of Consumer Affairs

Given the substantial importance of fuel imports for the government budget, local authorities took a number of steps to mitigate the budgetary impact. In early March, they introduced a set of fuel-rationing measures, including alternating access by license plate parity (an even-odd system), quota enforcement through QR code verification, and mandatory remote work for public sector staff. The even-odd system was lifted at the beginning of May, but a monitoring system was put in place whereby fuel trucks were equipped with GPS devices and tracked continuously to prevent fuel from being delivered to unauthorized locations (MITV, 2026a). In areas outside major urban centers, informal caps on cash purchases emerged, such as a 5,000-kyat ceiling on motorcycle fuel purchases. Farmers were subject to a separate set of constraints, receiving allocations based on the size of their cultivated land—roughly one to two gallons per acre—contingent on obtaining recommendation letters from local officials. While these measures succeeded in reducing fuel demand, they also contributed to shortages and the emergence of parallel markets, where fuel prices were substantially above the official rate (World Bank, 2026; see Section 4).

3.3. Inorganic fertilizer

While some fertilizer is produced domestically, Myanmar's production capacity is limited, and the country relies heavily on imports of inorganic fertilizer. International prices rose sharply after the Iran conflict began, then fell back; these movements fed through to domestic prices in Myanmar (Figure 3). Since mid-2024, Myanmar has implemented a reference price system to regulate domestic fertilizer markets, particularly for urea, the most widely used inorganic fertilizer in the country. These reference prices have shifted substantially since the onset of the Iran conflict and the accompanying rise in global fertilizer prices. The reference price for a bag of urea reached 157,000 MMK in May 2026 (GNLM, 2026a) before being lowered to 140,000 MMK by mid-June and to 120,000 MMK by the end of June (GNLM, 2026b), partly reflecting the decline in international urea prices from their peak. Even so, these levels remained considerably higher than the 94,000 MMK per bag recorded during the prior monsoon season (Figure 3).

Figure 3. Wholesale prices urea Myanmar, 2025 – 2026



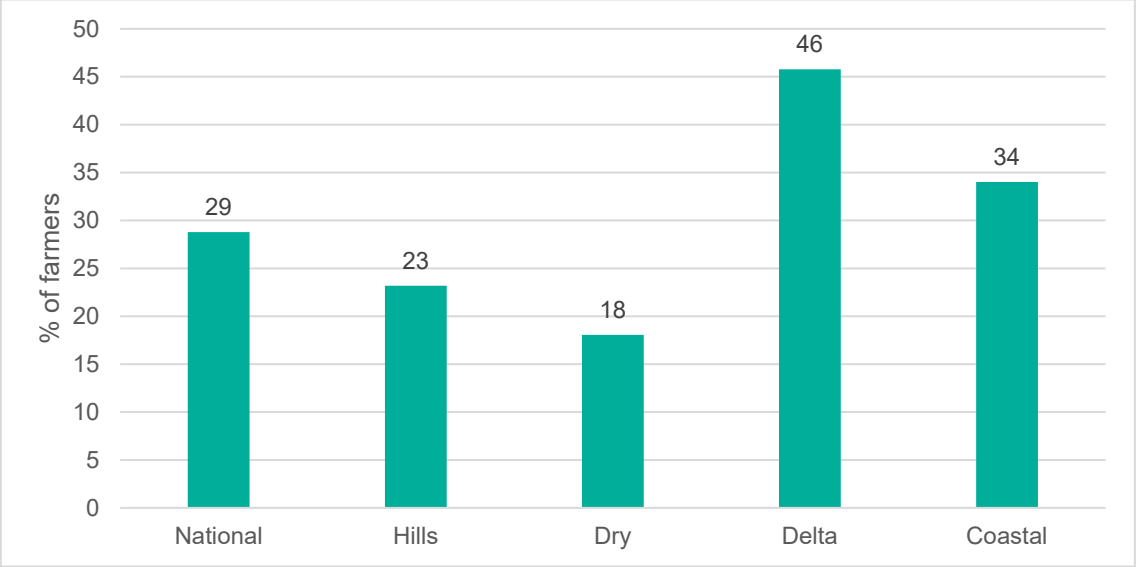
Source: World Bank and Market Information System of the Ministry of Agriculture, Livestock and Irrigation

Moreover, fertilizer imports were organized differently after the spike in international fertilizer prices in 2026. A single company was mandated to import urea from international markets, receiving the appropriate import licenses, duty-free import privileges, and preferential exchange rates. The distribution companies that had previously imported fertilizer themselves were now required to buy urea from this company at slightly below the reference price, and to distribute it in the areas they had traditionally served.

3.4. Agricultural credit

Given the disruptions to fuel and fertilizer markets, local authorities sought to ensure sufficient farm liquidity by expanding credit provision through the Myanmar Agricultural Development Bank (MADB), a public bank that provides banking services to farming communities (Basu et al., 2020). MADB raised loan amounts from 150,000 to 300,000 kyat per acre for paddy and other major crops, while maintaining the interest rate at 5 percent per year (MITV, 2026b). Loan disbursement for the monsoon season began in mid-May. We asked whether farmers were able to obtain credit from the MADB for their largest rice plot this monsoon. Twenty-nine percent of farmers obtained such a loan from the MADB. In the Delta, often called the country's rice bowl, the share was much higher, at 46 percent (Figure 4). Other credit sources were also introduced to cushion the impact of higher input prices, such as those provided under the National Economic Promotion Fund and credit provided by rice exporters in the townships that are part of the Rice Export Zone.

Figure 4. Share of rice farmers that obtained an MADB loan (asked for their largest rice plot), monsoon 2026



Source: MAPS, Authors' calculations

4. FUEL AND FERTILIZER SHOCKS AND FARM PROFITABILITY

4.1. Fuel

Fuel prices rose sharply during monsoon land preparation. Although almost three-quarters of farmers reported that fuel was always or mostly available at fuel stations (23 percent reported that it was rarely available; 5 percent never; Table 2), farmers paid on average substantially more than official prices. This suggests that official supply fell short of demand and that many farmers relied on parallel markets. Median diesel prices paid by farmers during the 2026 monsoon were more than double those paid in the previous monsoon season and approximately 40 percent higher than official prices. Median prices were highest in the Coastal zone and lowest in the Delta, where most fuel enters the country (through the port of Yangon). Fuel availability problems were most prevalent in the Hills, where the largest share of farmers reported that fuel was rarely or never available.

The rise in fuel prices has led to a significant increase in mechanization costs. We asked farmers how the cost of plowing with 4-wheel and 2-/3-wheel tractors had changed over the last two monsoons. Reflecting the large share of fuel in these costs, median rates were 60 percent and 14 percent higher, respectively, than the rates charged in the previous monsoon season (Table 2), much in line with prices reported by the mechanization service providers themselves (Masias et al., 2026b). The larger increase in service fees for four-wheel tractors may reflect both their higher fuel consumption and longer travel distances, as four-wheel tractor services often come from outside the village, while two-wheel tractors are typically available locally.

4.2. Inorganic fertilizer

We also asked about the availability of inorganic fertilizer during the 2026 monsoon. A large majority of farmers (almost 80 percent) reported that fertilizer was 'always available', similar to last year. The change in import policy therefore does not seem to have led to distribution problems in the country. Availability problems were most common in the Hills and Coastal areas. Because fertilizer prices are capped by a reference pricing system, some retailers appear to have offset the capped prices, and the apparent losses implied by high purchase costs, by requiring farmers to buy other inputs

alongside fertilizer: 9 percent of farmers reported being required to also purchase other inputs from the retailer (such as herbicides or pesticides).

Even with this reference price policy in place, inorganic fertilizer prices also rose significantly, but less than mechanization prices did, suggesting the reference pricing system implemented by the local authorities has been largely respected. Median urea prices increased by 21 percent, from 2,400 MMK per kg to 2,900 MMK per kg between the monsoons of 2025 and 2026 (Table 2). While price differences of urea between agro-ecological zones are relatively small, prices are markedly higher in Coastal areas.

4.3. Farm profitability

We also asked farmers how paddy prices had changed compared with last year. Because it was still too early in the season for many farmers to report prices for the new crop, we asked them to report prices for either old or new paddy, depending on what was available. Since the prices of old and new paddy tend to move together, these reports give an indication of paddy price trends.[2] International rice prices rose (the FAO rice price index was 9.5 percent higher in September 2026 than a year earlier[3]), but farm-gate paddy prices in Myanmar appear to have risen considerably more. Regression results show that paddy prices reported by farmers in August and September were 26 and 30 percent higher, respectively, than in the same months of 2025 (Figure 5). Prices also differed widely across agro-ecological zones. They were substantially lower in the Delta than in the Hills.[4] Old paddy sold for about 20 percent more than new paddy.

Paddy prices fell relative to mechanization costs of widely used 4-wheel tractors but rose slightly relative to fertilizer costs, mechanization costs of 2-wheel tractors, and agricultural wages (Table 2). Profitability in the previous monsoon was among the lowest in recent years due to low rice prices (Aung and Minten 2026). This season, however, several factors appear to have pushed rice prices up: the "Export First" policy, which raised prices for exported products such as rice; a reduction in the export earnings retention requirement at below-market exchange rates; depreciation of the local currency; and higher international prices (Minten et al. 2026). Higher rice prices have in turn raised farm-gate paddy prices, and with them profitability compared with the previous monsoon season. The feared large decline in paddy profitability[5] therefore does not appear to have materialized. Two caveats apply. First, the survey took place before harvest, so these profitability estimates should be read with caution. Second, farmers did not know how output prices would move when they began land preparation, and many were coming out of several low-profitability years (Aung and Minten 2026). Some may therefore have adjusted their input use or cultivated area in anticipation of lower margins. We examine the evidence for this in the next section.

[2] However, old rice is generally preferred and therefore more highly valued.

[3] https://www.fao.org/markets-and-trade/commodities/rice/fao-rice-price-update/en/

[4] Similar price gradients are noted in rice retail prices in the country (Htar et al. 2026).

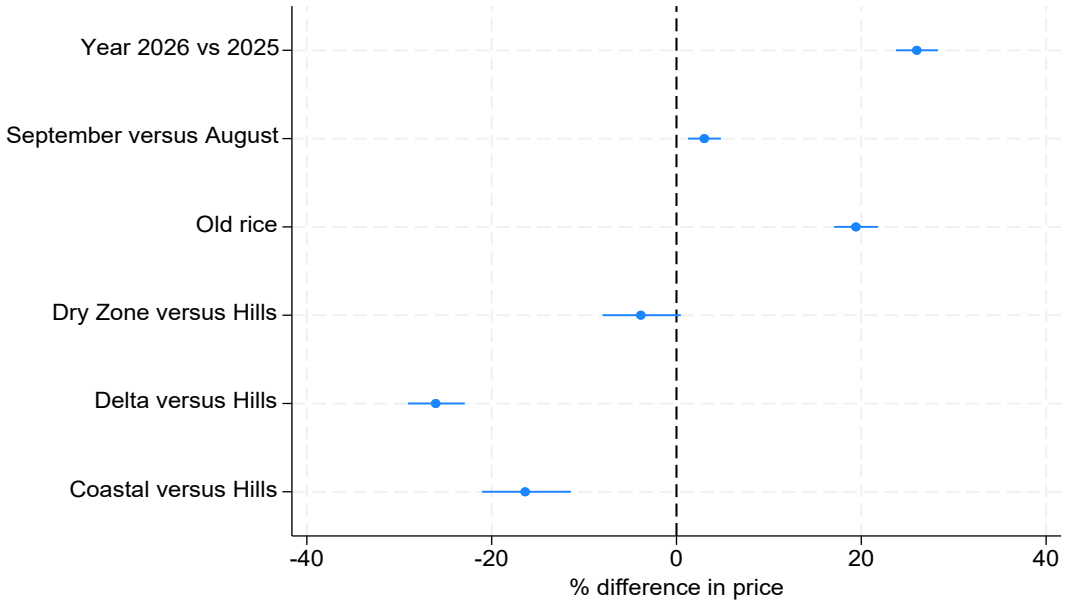
[5] “Farmers say the economics of rice cultivation have become unsustainable. Production costs now average about one million kyats per acre, including land preparation, labor, and agricultural inputs, making it impossible to earn a profit at current market prices.” (Shan, 2026)

Table 2. The fuel and fertilizer situation and agricultural wages (monsoon 2025 and monsoon 2026)

		2025	2026				
	Unit	National	National	Hills	Dry	Delta	Coastal
Fuel							
Fuel availability at fuel station in community							
Always available	%	75.2	39.9	34.1	45.8	38.0	39.3
Mostly available	%	16.6	32.3	32.1	29.2	35.6	34.4
Rarely available	%	7.3	23.0	28.9	21.0	21.4	19.9
Not available	%	0.9	4.8	4.9	4.0	5.1	6.4
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
Fuel availability on informal market (if officially not or rarely available)							
Always available	%		42.7	38.1	48.4	39.8	42.0
Mostly available	%		24.5	26.3	22.8	24.3	25.9
Rarely available	%		17.1	21.1	15.0	16.5	15.8
Not available	%		15.7	14.4	13.7	19.3	16.3
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
Price diesel that most farmers in this community pay							
Mean	MMK/l	3,813	7,310	7,685	7,002	6,850	8,693
Median	MMK/l	3,375	7,000	7,000	6,750	6,250	7,500
4-wheel plowing							
Mean	MMK/acre	80,646	124,147	145,276	116,127	121,608	148,133
Median	MMK/acre	75,000	120,000	140,000	110,000	120,000	150,000
2-wheel plowing							
Mean	MMK/acre	78,590	98,946	114,735	84,306	90,302	148,334
Median	MMK/acre	70,000	80,000	100,000	80,000	80,000	135,000
Inorganic fertilizer							
Fertilizer availability in community							
Always available	%	78.7	79.7	78.5	79.4	84.7	70.6
Mostly available	%	11.7	10.9	10.2	12.4	8.7	13.4
Rarely available	%	5.5	5.0	7.7	4.3	2.1	8.3
Not available	%	4.1	4.4	3.6	3.9	4.5	7.6
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
Urea price (MMK/kg)	Median	2,400	2,900	3,000	2,800	2,800	4,000
Farmers required to purchase other inputs when buying fertilizer							
Yes	%		9.3	9.7	11.0	8.0	5.4
Agricultural wages							
Male – Mean	MMK/day	16,468	19,988	20,930	18,034	19,719	25,166
Male – Median	MMK/day	15,000	20,000	20,000	16,000	20,000	25,000
Female – Mean	MMK/day	13,082	15,560	16,614	13,982	15,283	19,214
Female – Median	MMK/day	12,000	15,000	15,000	13,000	15,000	20,000

Source: MAPS, Authors' calculations

Figure 5. Price differences in reported paddy prices by farmers in August/September 2026 (based on regression results)



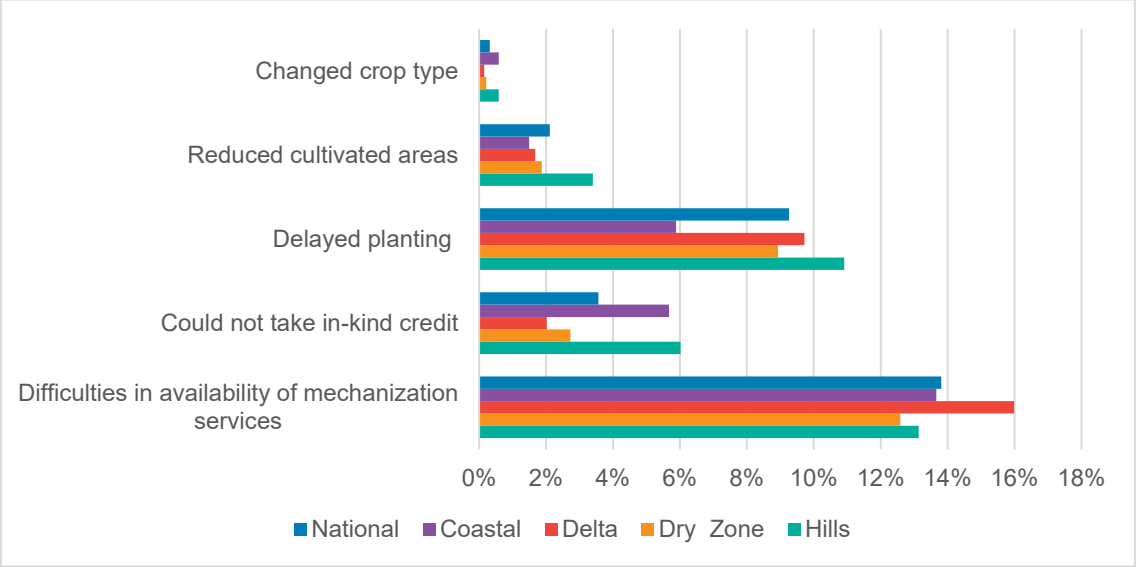
Note: Regression based on logarithm of paddy prices as dependent variable; rice variety measures also included in the regression but not shown. Source: MAPS, Authors' calculations

5. AGRICULTURAL CULTIVATION AND TECHNOLOGY ADOPTION

5.1. Land cultivation

At the start of the monsoon (during the MHWS), farmers were asked what difficulties they had faced because of the fuel and fertilizer problems and what adjustments they had made. Fourteen percent of the farmers indicated that they had faced difficulties accessing mechanization providers (Figure 6). This seems to have led some farmers to delay planting, as reported by 9 percent of the farmers. However, few farmers (2 percent) indicated that they had reduced cultivated areas because of the fuel and fertilizer problems. Even fewer farmers indicated that they had changed crops grown. We see few differences in these stated difficulties by agro-ecological zone.

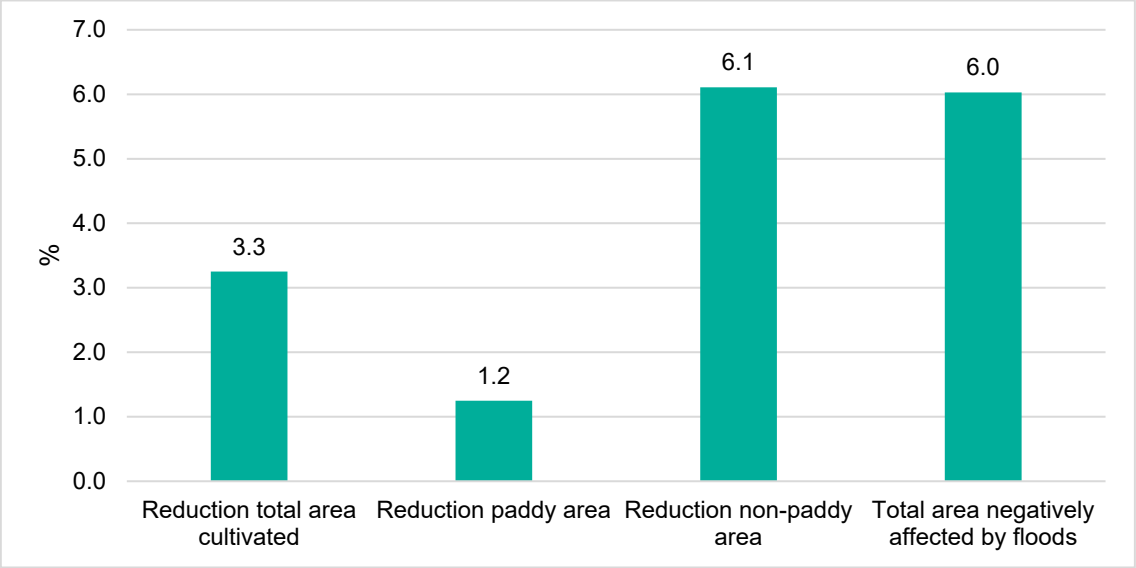
Figure 6. Reported difficulties in crop farming in the 3 months before interview because of the fuel and fertilizer problems (% of crop farmers)



Source: MHWS, Authors' calculations

In MAPS, we also asked for more precise estimates of changes in cultivated area. We find that average total crop area declined by 3.3 percent. The paddy area was reduced by only 1.2 percent (Figure 7). The non-paddy area was reduced more significantly, by 6.1 percent. Flooding was also a major problem during the 2026 monsoon: At the national level, more than 100,000 acres were reported to have been affected by flooding at the beginning of the monsoon (RFA, 2026). We asked farmers about the share of their area cultivated that was negatively affected by flooding. Thirteen percent of farmers reported that some of their land had been affected. At the national level, it is estimated that 6 percent of land cultivated was affected (Figure 6). This does not mean that there was no production on all affected land, as crops sometimes (partially) recover and farmers can in some cases replant their flooded fields once the water has receded. The flooding impact was most severe in the Delta and Coastal areas, where 8 percent of cultivated land was affected.

Figure 7. Changes in land cultivated by crop farmers (paddy and non-paddy) (monsoon of 2026 versus 2025)



Source: MAPS, Authors' calculations

The decline in cultivated area may have been smaller than otherwise expected because of land tenure insecurity in Myanmar (Suhardiman et al. 2019). To assess perceived land tenure insecurity, we asked farmers whether they risked losing their land if they did not cultivate it. Forty-one percent of farmers indicated that their land could be taken away if left uncultivated (Table 3). That share is highest in the major rice-producing Delta area (45 percent). Local authorities in some areas were explicitly encouraging farmers to continue cultivating their land. Six percent of farmers reported being asked to cultivate their land this monsoon, mostly through personal interactions or notices posted in the community.

Table 3. Land tenure considerations (monsoon 2026)

		2026				
	Unit	National	Hills	Dry	Delta	Coastal
"Do you risk that your land will be taken away if not cultivated?"						
Yes	%	41.1	38.9	38.5	45.4	44.4
No	%	56.8	59.0	59.3	52.4	54.3
Do not know	%	2.1	2.1	2.2	2.2	1.2
"Have you been asked by authorities to cultivate your land this monsoon?"						
Agree	%	5.7	5.9	2.8	8.8	7.2
If yes, this was done:						
Personally	%	46.2	47.7	55.1	44.9	35.6
Notices in the community	%	55.5	57.8	42.7	58.2	59.6
Newspaper	%	1.1	0.0	0.0	2.5	0.0
Radio and TV	%	1.5	0.0	2.5	2.4	0.0
Others	%	1.1	0.0	1.1	0.4	5.9
Total	%					
"If not asked, would you have cultivated less or no land?"						
Agree	%	15.2	16.8	16.6	12.7	18.5

Source: MAPS, Authors' calculations

5.2. Technology adoption

To assess changes in technology adoption linked to the increases in fuel and fertilizer prices, we asked for detailed information on farmers' largest paddy plot. We see overall relatively minor changes in technology adoption, comparing practices of the 2025 monsoon to the monsoon of 2026 (Table 4). However, a number of adjustments were made. First, more farmers were using draft animals. During the monsoon of 2026, 40.5 percent of farmers reported using draft animals. This compares to only 33 percent in 2025, an increase of 7.5 percentage points. Use of draft animals was especially high in the Dry Zone, likely reflecting higher cattle ownership there. Tractor use for plowing declined by 6 percentage points nationally. Despite the large increase in the cost of four-wheel tractor services, their use remained widespread, especially in the main commercial farming zones (the Delta and the Dry Zone). Total mechanization expenditures rose by 18 percent, much less than plowing rates for four-wheel tractors did. Because almost half of farmers use four-wheel tractors, this gap suggests either that service providers made fewer plowing passes with them or that farmers partly switched to cheaper plowing methods (Masias et al. 2026b).

Table 4. Plowing practices on biggest rice plot (monsoon 2025 and 2026)

		2025	2026				
	Unit	National	National	Hills	Dry	Delta	Coastal
Draft animals							
Hired	%	13.9	15.0	10.1	28.3	6.7	9.0
Own	%	18.0	23.8	6.8	42.4	13.7	36.6
Both	%	1.2	1.7	0.0	3.0	1.8	2.1
No	%	67.0	59.5	83.1	26.3	77.8	52.3
Tractor for plowing							
Hired	%	56.7	54.4	45.8	61.5	61.3	39.1
Own	%	28.1	23.9	36.6	16.4	21.8	19.0
Both	%	3.3	4.3	4.4	2.7	7.1	2.2
No	%	11.9	17.5	13.2	19.4	9.8	39.7
If tractor used,							
4-wheel	%	44.9	49.2	28.4	62.0	60.3	35.4
2- or 3-wheel	%	50.5	42.9	63.7	31.1	29.5	61.2
Both	%	4.7	7.9	7.9	6.9	10.2	3.4
Total mechanization expenditures							
Mean	MMK	162,184	191,257	236,773	174,398	172,404	202,591
Median	MMK	125,000	150,000	200,000	150,000	150,000	150,000

Source: MAPS, Authors' calculations

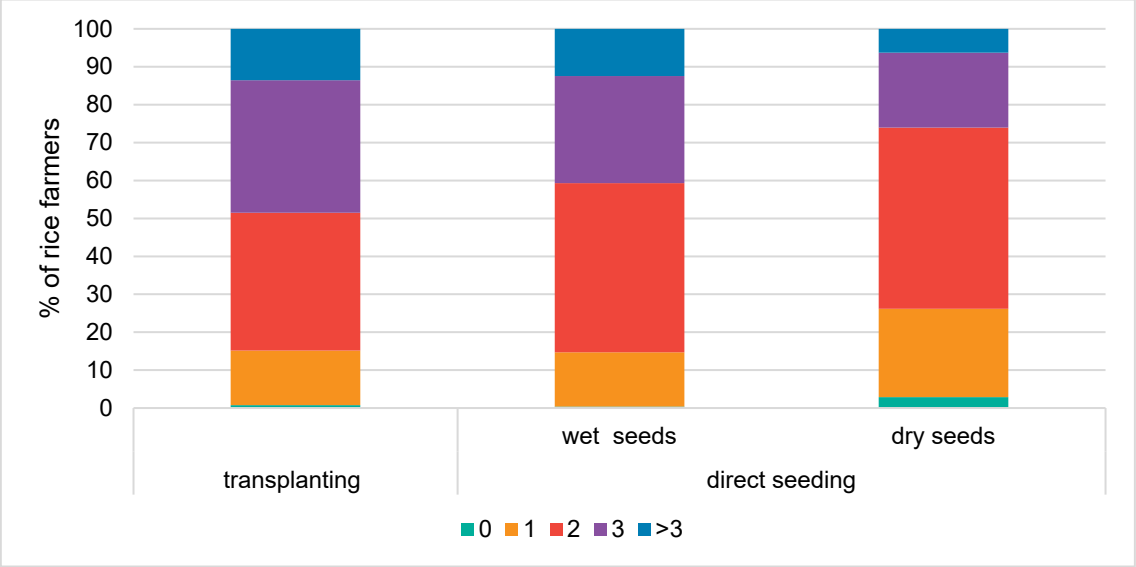
We also assess paddy seeding practices in the 2025 and 2026 monsoons (Table 5). The use of transplanting and wet broadcasting declined, while dry broadcasting (scattering dry seed), which needs less labor but usually gives lower yields, increased. This is in line with trends documented previously (Minten et al. 2025). The share of transplanting farmers declined by 4 percentage points while the random broadcasting of dry seeds increased by 6 percentage points. The increasing use of dry broadcasting seems to be linked to lower plowing requirements for this seeding practice (Figure 8). While almost half of the rice farmers plow or harrow 3 times or more when transplanting, that share is reduced to only 26 percent for the farmers practicing dry broadcasting.

Table 5. Changes in paddy seeding technologies (biggest rice plot) (monsoon 2025 and 2026)

		2025	2026				
	Unit	National	National	Hills	Dry	Delta	Coastal
Transplanting	%	48.1	44.1	51.5	54.2	18.1	56.7
Broadcasting soaked/sprouted seeds randomly	%	20.5	17.7	9.6	13.2	29.3	23.5
Row planting soaked/sprouted seeds	%	2.3	2.1	0.4	3.3	0.3	6.8
Broadcasting dry seeds randomly	%	27.3	33.1	33.8	24.6	51.8	12.6
Row planting dry seeds	%	1.8	3.1	4.7	4.8	0.4	0.3

Source: MAPS, Authors' calculations

Figure 8. Association of number of passes (plowing/harrowing) with paddy seeding practices on largest rice plot



Source: MAPS, Authors' calculations

Finally, questions were asked on agro-chemical use. This is a partial assessment, as data were only available for farmers who had started applying fertilizers and agro-chemicals at the time of the survey. Among these farmers, urea use on the largest rice plot fell by 9 percent between the 2025 and 2026 monsoons, in line with reductions of reported sales by agro-input retailers (Goeb et al. 2026). Organic fertilizer use did not significantly change over the monsoon of 2026 compared to a year earlier. The share of farmers applying it rose slightly, by 1.2 percentage points. Most farmers who apply organic fertilizer (60 percent in 2026) used manure from their own livestock (Table 6).

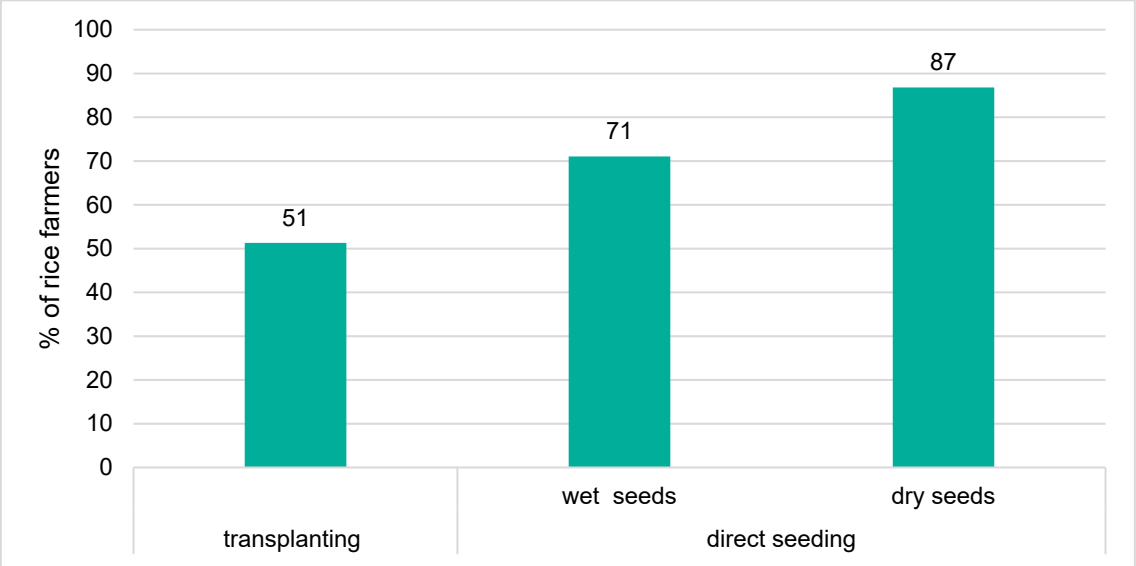
We also note important changes in the use of other agro-chemicals (Table 6). First, more farmers relied on herbicide use this year. The share of farmers using herbicides increased by 12 percentage points. As farmers relied less on plowing by tractors and relied more on dry broadcasting, a number of farmers seemingly used more herbicides to address the increasing weed problems (Figure 9). The share using other pesticides (such as insecticides or fungicides) also increased, from 48 percent in the 2025 monsoon to 57 percent in 2026, an increase of 8.5 percentage points.

Table 6. Fertilizer and agrochemical use (biggest rice plot)

		2025	2026				
	Unit	National	National	Hills	Dry	Delta	Coastal
Herbicides	%	58.1	70.1	74.9	68.9	78.8	32.4
Other pesticides	%	48.1	56.6	64.3	54.0	57.1	37.9
Urea use	kg/acre	46.6	42.2	42.3	40.7	49.7	27.8
Organic fertilizer use	%	44.8	46.0	45.1	57.2	34.6	56.6
if yes, which one?							
Green manure	%	1.0	1.1	0.8	1.1	2.1	0.0
Manure from own livestock	%	65.7	59.5	46.0	64.3	64.6	71.3
Purchased manure (not-branded)	%	24.5	27.1	34.5	30.3	15.5	22.8
Homemade compost/bokashi	%	4.3	6.7	8.3	2.4	12.2	2.8
Purchased compost/bokashi (not branded)	%	1.7	2.3	5.0	0.9	1.4	1.0
Purchased branded organic fertilizer	%	2.8	3.3	5.3	1.0	4.2	2.2

Source: MAPS, Authors' calculations

Figure 9. Association of herbicide use with paddy seeding practices on largest rice plot



Source: MAPS, Authors' calculations

6. THE INFLUENCE OF INSECURITY AND REMOTENESS

Given regulations of fuel access, as well as higher input prices, farmers are unlikely to have been affected equally by these shocks. One would expect that the more remote and the more conflict-affected areas have been more impacted by availability and price shocks. We therefore look at associations of insecurity and remoteness for a number of these indicators. To distinguish secure from insecure households, we rely on self-reported insecurity levels by the farmers. We asked farmers during the interview to assess the overall level of physical insecurity, going from very insecure to very secure. We also asked them if they could move around in the village tract or township without serious concerns for security. For the remoteness, we divide townships into terciles, based on the travel time required to reach a city of at least 50,000 people.[6]

Table 7 shows that 17 percent of farmers reported living in areas that were 'very insecure' or 'insecure'. These shares are higher in the Dry Zone where 22 percent of the farmers reported this to be the case. In line with these results, 16 percent of the farmers reported traveling with concern for security in their communities. This share was again highest in the Dry Zone (21 percent). We also report travel times by agro-ecological zone for an average farmer to a city of at least 50,000 people. This travel time is almost 3 hours (152 minutes) for an average farmer. The median is slightly lower at 122 minutes. Farmers are most remote from cities in the Hills and the Coastal areas.

[6] Travel times are estimated using transport infrastructure and landscape features (land use, rivers, lakes, and slope obtained from the Myanmar Information Management Unit). We assigned a travel speed to each of the road types (major, secondary, tertiary, tracks/other) in the geographic information system (GIS) data, ranging from 75 to 10 kilometers per hour. Then we combined the GIS layers into a friction (or impedance) grid converted into one-kilometer grid cell raster layers. Slope is also considered to model uphill and downhill movement. All input layers were combined into a friction grid using a Python (arcpy) script that runs a "Mosaic to New Raster" function in ArcGIS 10.7.

Table 7. Reported insecurity during the monsoon of 2026 (share of farmers, in %)

	National	Hills	Dry	Delta	Coastal
Insecurity measures					
Reported insecurity level					
Very insecure	5.6	5.2	7.7	3.1	6.3
Somewhat insecure	11.6	10.9	14.6	8.3	11.6
Secure	39.6	43.5	38.7	38.3	35.7
Very secure	42.6	39.4	38.3	50.0	45.8
Prefer not to answer	0.6	0.9	0.6	0.3	0.6
Total	100.0	100.0	100.0	100.0	100.0
Travel with concern because of insecurity					
Yes	16.0	15.5	20.9	10.0	16.7
No	84.0	84.5	79.1	90.0	83.3
Total	100.0	100.0	100.0	100.0	100.0
Remoteness (travel time in minutes to city of at least 50 k)					
Mean	152	186	114	160	181
Median	122	172	90	140	102

Source: MAPS, Authors' calculations

Fuel availability is substantially worse in the most conflict-affected areas (Table 8). Forty-three percent of the farmers residing in those areas indicated that fuel was rarely or not available at the fuel station. This compares with 24 percent of farmers in very secure areas. Similar patterns show up with the variable reporting concern for travel. In areas where farmers had concerns about traveling, 42 percent indicated rare or no availability of fuel. This compares to 25 percent for farmers that indicated no concern. Fertilizer availability shows similar patterns, although the shares reporting rare or no availability are generally lower, as shown earlier. Gradients by remoteness are weaker; for fuel, the most remote tercile in fact reports the lowest share (24 percent).

Table 8. Rare or no availability of fertilizer and of fuel at the fuel station (monsoon 2026), by remoteness and reported insecurity (share of farmers, in %)

	Fuel	Fertilizer
Insecurity measures		
Reported insecurity level		
Very insecure	43.4	19.2
Insecure	39.6	14.1
Secure	26.4	8.7
Very secure	23.7	7.4
Travel with concern because of insecurity		
Yes	42.1	18.3
No	25.1	7.6
Remoteness		
Remote from city of 50k		
Tercile 1 (closest)	28	8
Tercile 2	32	8
Tercile 3 (Most remote)	24	12

Source: MAPS, Authors' calculations

Where farmers could access fertilizer or fuel in their community, we asked them to report the prices they paid in their communities for fuel, plowing costs, and urea (Table 9). We see in general higher prices for the most insecure and the more remote areas. Average diesel prices were 14 percent higher in very insecure areas compared to very secure ones. Average differences in diesel prices between the most and least remote communities were 18 percent. Differences in 4-wheel

tractor plowing costs and urea prices were smaller than for fuel: 6 percent higher plowing costs and 4 percent higher fertilizer prices for very insecure versus very secure areas respectively. Plowing costs differed more by remoteness: they were 16 percent higher in the most remote tercile than in the closest.

Table 9. Input prices (monsoon 2026), by remoteness and reported insecurity

	Diesel prices - MMK/liter		Plowing costs (4-wheel) - MMK/acre		Urea price - MMK/kg	
	Mean	Median	Mean	Median	Mean	Median
Insecurity measures						
Reported insecurity level						
Very insecure	8,231	7,500	130,112	120,000	3,171	3,000
Insecure	7,644	7,000	126,361	120,000	3,168	2,900
Secure	7,212	7,000	123,817	120,000	3,088	2,900
Very secure	7,190	6,500	123,105	120,000	3,046	2,860
Travel with concern because of insecurity						
Yes	7,588	7,000	128,355	120,000	3,151	3,000
No	7,255	7,000	123,317	120,000	3,070	2,900
Remoteness						
Remote from city of 50k						
Tercile 1 (closest)	6,719	6,500	116,318	110,000	2,998	2,840
Tercile 2	6,858	6,500	121,820	120,000	2,987	2,800
Tercile 3 (Most remote)	7,926	7,500	134,407	120,000	3,112	2,900
Total	7,134	6,500	121,192	120,000	3,049	2,900

Source: MAPS, Authors' calculations

7. CONCLUSIONS

The Iran crisis has disrupted established international trade flows of fuel and inorganic fertilizers. Because these inputs are central to agricultural production in Myanmar, there has been considerable concern about how the crisis might affect production this monsoon season. Based on a large farm survey fielded in August and September 2026, we find that farm-level fuel prices rose sharply and access to fuel was constrained. Fuel constraints led to only small changes in cultivated area, but flooding had more impact. Some farmers changed how they prepared their land in response to higher fuel costs: they used more draft animals for plowing, relied more on dry broadcasting of rice, and used more herbicides. Fertilizer was less affected by the Iran conflict than fuel and remained readily available. Even so, farmers reduced fertilizer use on their largest rice plot by 9 percent on average.

Impacts appear milder than initially feared at the onset of the Iran conflict. A number of factors may help explain this outcome. First, 41 percent of farmers reported that their land could be confiscated if left uncultivated, reflecting widespread perceived tenure insecurity. Second, fuel prices peaked in March and April but eased in May and June, when most farmers undertake plowing, although prices remained well above 2025 levels. Fertilizer prices also declined substantially from earlier peaks. Third, local authorities set low reference prices for urea, the country's most widely used inorganic fertilizer, which appear to have been broadly respected despite pressure on input distributors' profitability. Fourth, agricultural credit was expanded, including through the Myanmar Agricultural Development Bank (MADB), during the 2026 monsoon compared with 2025, potentially ensuring some farmers had enough cash to maintain their land preparation activities. Fifth, median prices for paddy, the main monsoon crop, were 26-30 percent higher at the time of the survey than during the same period in the previous monsoon season. This increase exceeded the rise in fertilizer prices, although not the increase in mechanization costs, and may have helped sustain farm profitability and incentives to cultivate.

Overall, the modest reduction in cultivated area associated with the Iran conflict, the effects of flooding, the shift to dry broadcasting for paddy, and lower chemical fertilizer use suggest that agricultural production in the 2026 monsoon season is likely to be lower than last year. Stakeholder interviews conducted in October, after the survey was completed, indicated that weather conditions were relatively favorable this season, apart from flooding in some areas, and that pest and disease problems were less common than in previous years. These factors may partly offset the adverse effects of the Iran conflict on monsoon production.

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