MYANMAR

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Monitoring the Agri-food System in Myanmar

Maize Farmers – Monsoon season phone surveys

To understand the effects of recent economic and political disruptions on Myanmar's maize farmers during the monsoon season, we conducted two telephone surveys with 1,178 farmers in southern Shan and northern Kayah in July and September 2021 with recall data collected for the 2020 and 2019 monsoon seasons for comparisons.

Key Findings

- There were widespread disruptions throughout the 2021 monsoon season: 11 percent of respondents were displaced by violence in July, and most farmers had had enforced transportation restrictions in their village tracts (58 percent) and their townships (84 percent). Seventy percent of farmers expect these restrictions to affect their monsoon marketing.
- Two-thirds of respondents received farm credit for inputs in the 2021 monsoon season, a reported increase of 3 percentage points relative to 2020, and average credit values increased slightly. Most credit was provided by traders (27 percent receiving), which may be unique to maize production as there are broader credit declines in other parts of the country and maize prices have increased in 2021. Additionally, exports to Thailand have been robust and higher than in 2020.
- High fertilizer prices will likely lead to a decline in application rates as 63 percent of farmers reported reduced input use, which will negatively affect yields.
- Median reported maize farm sizes fell by one acre in 2021 relative to 2020, though average maize acreages were stable. Our data show several large farms with stable acreages, while smaller farmers reported declines in maize area planted.
- Pest incidence rates (72 percent reporting problems), especially for fall armyworm (45 percent), were high in July, posing another threat to production.
- There was a decline in reported access to formal extension services in 2021 relative to 2020, particularly for information provided by input companies and government extension agents. Farmers increasingly turned to neighbors for agricultural advice.

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Background

COVID-19 and the recent economic and political disturbances in Myanmar have created multiple challenges for farmers during the 2021 monsoon production season. High and rising input prices[1], crop marketing challenges[2], and a decline in farm credit all point to a likely decline in input use which would have direct impacts on crop yields[3], farm incomes, and rural food security. Yet, evidence of what is happening at the farm level is relatively scarce.

This Research Note presents indicators of monsoon maize production. Maize is the second most important crop in Myanmar in terms of value of production, accounting for 9 percent of total crop output annually.[4] Although maize is used primarily as livestock feed and not for direct human consumption, it is an important input in Myanmar's growing poultry industry as well as an important cash crop, accounting for more than half of crop incomes in southern Shan.[5] Moreover, the export market for maize has been strong and exports increased in 2021.[6] About 60 percent of Myanmar's maize is exported. Prior to 2019, 92 percent of maize exports went to China. However, a sudden enforcement of maize border trade restrictions in 2019 shocked Myanmar's maize market and a significant portion of trade has since rerouted to Thailand.[7]

The data for analysis comes from two phone surveys conducted in July and September 2021 with 1,178 maize farmers in seven townships with high rates of maize cultivation–six in southern Shan and one in northern Kayah (Table 1). There was some attrition in the sample between the July and September rounds, but for consistency in analysis we use only data from respondents in both rounds.

Table 1. Maize farmer survey sample and land areas owned and cultivated

	N or mean	Std Dev
Number of observations	1,178	
Shan	998	
Kayah	180	
Mean land area owned (ac)	9.3	(8.8)
2021 monsoon season mean area planted (ac)		
All crops	8.9	(8.4)
Maize	6.6	(7.5)
Household and respondent information		
Number of household members	4.9	(1.7)
Respondent age	39	(12.1)
Female share of respondents	0.2	(0.4)
Number of cellphones owned by household	2.2	(1.2)
Cellphone signal at home	0.99	(0.1)

Source: Maize farmer survey–September 2021

[1] Myanmar Agriculture Policy Support Activity (MAPSA). 2021. Monitoring the agri-food system in Myanmar: Agricultural input retailers–June 2021 survey round. Myanmar SSP Research Note 57. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134457

[2] Myanmar Agriculture Policy Support Activity (MAPSA). 2021. Monitoring the agri-food system in Myanmar: Agricultural commodity traders–May 2021 survey round. Myanmar SSP Research Note 58. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134462

[3] Myanmar Agriculture Policy Support Activity (MAPSA). 2021. The outlook for Myanmar's inorganic fertilizer use and 2021 crop harvest: An ex-ante assessment. Myanmar SSP Working Paper 10. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134368

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[5] Fang, P., and Belton, B. 2020. Maize and Pigeon Pea Production, Profitability, and Tied Credit in Southern Shan State. Feed the Future Innovation Lab for Food Security Policy, Research Paper 173.

[6] USDA. August 2021. Burmese Corn Exports Increased in 2021 Despite COVID-19 and Coup. https://www.fas.usda.gov/data/burma-burmese-corn-exports-increased-2021-despite-covid-19-and-coup

[7] USDA. April 2021. Burma-Grain and Feed Annual. https://www.fas.usda.gov/data/burma-grain-and-feed-annual-5

The results presented in this paper are focused on maize and may not be indicative of crop production more generally in Myanmar, nor are they representative of all maize farmers. By relying on phone surveys, we potentially introduce bias in the sample as not all maize farmers have regular phone access. Lastly, our sample consists only of farmers growing maize in 2021. Thus, we are unable to identify households that grew maize in previous years but elected not to this year. Still, the results provide useful insights into 2021 monsoon maize production.

The analysis below uses phone survey data with reported recall data back to 2020 and 2019 to examine (i) disruptions caused by the current political and COVID-19 crises and (ii) early data on monsoon maize production including pest incidence rates, extension information, credit, areas planted, and seed use.

Disruptions to 2021 monsoon maize production

To assess the extent of disruptions caused by the political and COVID-19 crises, we asked farmers if they experienced any violence in their village tract (July survey round) and about curfews and transportation restrictions affecting them at the village tract, township, and state/region levels (September survey round). In July, 18 percent of the sample had experienced violence in or near their village and 11 percent were displaced by that violence (Table 2). Thirty-eight percent expected violence to affect their monsoon production. In September, enforced curfews and transportation restrictions were widespread at multiple levels. Over half the farmers interviewed had village-tract level curfews (65 percent) and transportation restrictions (58 percent), and higher shares reported disruptions at the township level (90 percent and 84 percent, respectively). Seventy percent of farmers expected their monsoon marketing activities to be affected by curfews or travel restrictions.

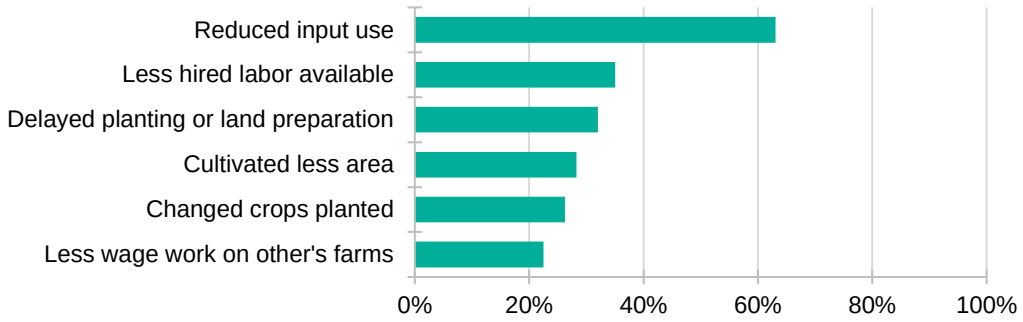
Table 2. Reported disruptions to maize production in the 2021 monsoon season, percentage reporting

	%
Violence in or near village (July)	18
Displaced by violence (July)	11
Enforced curfews at different levels (Sept)	
Village tract	65
Township	90
State/region	90
Enforced travel restrictions at different levels (Sept)	
Village tract	58
Township	84
State/region	85
Expect curfews and travel restrictions to affect monsoon marketing	70
Expect violence to affect monsoon maize production (July)	38
Observations	1,178

Source: Maize farmer–July and September 2021 survey rounds

In September, we also asked farmers about the effects of the political and COVID-19 crises on maize production (Figure 1). Reduced input use was the most common effect cited by 63 percent of respondents. Input prices have risen sharply in 2021 relative to 2020, which is reflected in lower use. Other effects on maize production included lower availability of hired labor (35 percent), delayed planting or land preparation (32 percent), less area cultivated (28 percent), and a change in crops planted (26 percent). Each of these effects will have a negative impact on household and aggregate maize production. Also important for rural incomes, 22 percent of respondents reported less work available on other farms, thus there may be simultaneous declines in demand and supply of hired labor perhaps reflecting overall lower labor mobility.

Figure 1. Effects of political and COVID-19 crises on 2021 monsoon maize production, percentage reporting



Source: Maize farmer–September survey round

Early data on 2021 monsoon maize production

To provide an early assessment of monsoon maize production in the July and September survey rounds, we also asked maize farmers questions about pest problems, agricultural extension, farm credit, acres planted, and seed types used.

Although data from July present only a partial picture of pest problems for the full monsoon season, pest incidence rates were already high (Table 3). Seventy-two percent of respondents reported the presence of at least one pest or disease on their maize plots, a lower reported recall rate than the full 2020 monsoon season (87%) but higher than 2019 (67 percent). Fall armyworm was by a wide margin the most common problem reported by 45 percent of maize farmers in 2021. Fall armyworm is a new threat to maize in Myanmar, first arriving in 2018. It can affect maize at all growth stages. Thus, the incidence rate has likely increased through the season. Cut worm was the second most common pest with 15 percent of respondents experiencing this pest in 2021. Other pests and diseases were less common and were experienced by less than 10 percent of maize farmers. These pests pose serious challenges to maize production in normal times, and when combined with the current context of high and rising input costs and disruptions to extension, they may have greater impacts on yields and crop income.

Table 3. Monsoon maize pest incidence 2019-2021, percentage reporting in July 2021

	2021*	2020	2019
Any pest/disease problems (%)	72	87	67
Fall armyworm (%)	45	57	44
Cut worm (%)	15	19	14
Observations	1,178	1,138	1,121

*Only early season impacts for 2021 monsoon season.
Source: Maize farmer–July 2021 survey round

A higher share of farmers received agricultural advice from neighboring farmers in 2021 compared to 2020 (79 percent and 73 percent, respectively; Table 4). Farmers turned to neighbors more often in lieu of formal extension sources. The share farmers receiving advice from government extension agents fell by half in 2021 to just 4 percent. Input retailers and input company extension agents were also less common advice sources, reaching just 5 percent of farmers each, down from 7 percent and 13 percent in 2020, respectively. Contrary to common perception, Facebook was not a leading source of agricultural information in either 2021 (6 percent) or 2020 (5 percent). Other information sources (not shown) including TV, NGOs, trained farmers, cellphone applications and radio had less 3 percent of farmers reporting in both 2020 and 2021.

Table 4. Agricultural extension sources 2020-2021 and trust level, percentage reporting

	Receiving agricultural advice from source (%)		Trust level among those receiving information (%)	
	2021	2020	Trust (highly/mostly)	Distrust (slightly/ high)
Neighbor farmers	79	73	72	0
Family / Relatives	47	47	90	0
Facebook	6	5	28	6
Agri-input suppliers	5	7	75	3
Input company extension agents	5	13	50	8
Traders / brokers	4	3	61	5
Government extension agent	4	8	44	4

Source: Maize farmer–July survey round

As expected, family was the most trusted source of information (90 percent trusted), followed closely by neighbors (72 percent). Facebook was the least trusted source (28 percent). Government extension also had low trust rates (44 percent).

With rising input costs, farmers increased their agricultural credit taken in over the 2021 monsoon season. The share receiving credit and the average credit amount both increased relative to 2020 and 2019 (Table 5). This is a surprising result given documented declines in other surveys in credit provided by input retailers, crop traders, and rice millers.[8] However, this may be a result unique to maize. The most common source of credit by a large margin was traders and brokers and the market for maize has been robust in 2021, with mostly reliable export channels to Thailand. Maize prices were 50 to 60 percent higher in September 2021 relative to one year earlier.[9] Thus, maize traders and brokers were in a relatively sound position from which to offer credit, and the situation is likely different for other crops and other regions of Myanmar. Lending from the Myanmar Agricultural Development Bank (MADB) declined in our sample. The share of farmers receiving MADB loans in 2021 fell by half relative 2020, and the average loan amount fell by 15 percent. However, Shan typically receives only a small share of MADB loans (Footnote 4).

Table 5. Monsoon season farm credit 2019-2021, share receiving and average amounts

	2021		2020		2019	
	Share receiving (%)	Average amount ('00,000 MMK)	Share receiving (%)	Average amount ('00,000 MMK)	Share receiving (%)	Average amount ('00,000 MMK)
All sources	66	8.3	63	8.1	50	7.7
Trader/broker	27	10.2	25	9.5	21	9.2
Family/friends	7	7.7	6	7.7	5	6.6
MFI/NGO	8	6.4	8	7.6	4	7.3
Input retailer	5	6.7	5	7.3	3	7.6
Private money lender	4	6.9	4	6.8	3	6.5
MADB	3	6.4	6	7.6	6	7.3

Source: Maize farmer–September survey round

[8] Myanmar Agriculture Policy Support Activity (MAPSA). 2021. Monitoring the agri-food system in Myanmar: Agricultural input retailers–September 2021 survey round. Myanmar SSP Research Note 65. Washington, DC: International Food Policy Research Institute (IFPRI).

Myanmar Agriculture Policy Support Activity (MAPSA). 2021. Monitoring the agri-food system in Myanmar: Agricultural crop traders - September 2021 survey round. Myanmar SSP Research Note 67. Washington, DC: International Food Policy Research Institute (IFPRI).

[9] USDA. October 2021. Burma-Rising food prices due to exchange rate and other challenges. https://www.fas.usda.gov/data/burma-rising-food-prices-due-exchange-rate-and-other-challenges

In the July survey, farmers had planted their monsoon maize and we were able to ask about acreages cultivated, seed used, and fertilizer prices with recall to the two previous monsoon seasons (Table 6). Average land area planted, both to all crops and to maize, was relatively stable over the past three years. However, median areas declined by one acre in 2021 relative to 2020. There were 15 farmers cultivating more than 30 acres of maize each year, but the small and medium scale farmers reduced their acreages overall, reflected in the median.

Table 6. Area planted, fertilizer prices, seed types, and maize sales prices, 2019-21

	2021	2020	2019
Area planted to all crops (ac)			
Mean	8.9	9.0	8.9
Median	6.0	7.0	6.0
Area planted to maize (ac)			
Mean	6.6	6.6	6.5
Median	4.0	5.0	5.0
Mean fertilizer price per bag in July			
Urea (MMK)	47,910	30,988	27,594
Compound (MMK)	35,339	26,700	23,929
Seed			
Sources of seed (%)			
Purchased new	98	99	99
Left over (unused) from last year	4	2	1
Saved seed from last year	1	1	1
Main brand* (%)			
CP	54	67	70
Awba	9	8	7
Armo	6	1	2
Golden Tiger	3	3	4
Premier	5	3	2

*We could not identify seed brands for all farmers. This is a common challenge in survey data and we only assigned brand codes to the observations we could confidently identify.
Source: Maize farmer–July survey round

Average fertilizer prices paid by farmers in July increased by 54 percent for urea and by 32 percent for compound relative to 2020. Global fertilizer prices have increased in 2021 and when combined with higher transportation costs and other disruptions in Myanmar the result has been higher prices for farmers. Data from input retailers shows that prices continued to increase throughout the monsoon season (Footnote 8).

A large majority of maize seed is imported from Thailand and there were disruptions and price increases for maize seed ahead of the monsoon season Footnote 8). Our data show that maize farmers were still able to access and purchase seed, with 98 percent buying new seed in 2021, a small decline from 99 percent in both 2020 and 2019. There was a small increase in farmers using leftover seed from the previous season (4 percent in 2021 and 2 percent in 2020). Small farmers were much more likely to use saved seed; average maize areas were 3.4 acres for those using left over seed and 6.7 acres for those purchasing new. CP was still the dominant seed brand in 2021, though their market share among our sample fell sharply to 54 percent from 67 percent in 2020. Competitor firms, including Awba, Armo, and Premier, all had market share increases. This partly reflects a longer trend of increased competition in Myanmar's seed market (Footnote 5) but may also reflect specific challenges with CP seed distribution in 2021. The share of seed classified as

traditional varieties was steady across the three years only accounting for 5 percent of seed in our data.

Looking ahead

Overall, maize farmers in southern Shan and northern Kayah may be relatively better off than farmers for other crops in other parts of the country. However, despite both a relatively stable market with increasing prices and continued access to farm credit–mostly through traders and brokers–maize farmers, especially smaller farms, are unlikely to enjoy higher farm incomes in the 2021 monsoon marketing season relative to 2020 for the following reasons:

- Input prices increased significantly, and other costs of production will also rise. Further, high fertilizer prices will likely lead to a decline in application rates as 63 percent of farmers reported reduced input use, which will negatively affect yields.
- Median maize farm sizes fell by one acre in 2021 relative to 2020.
- Pest incidence rates, especially for fall armyworm, were high early in the season, posing another threat to production.
- There was a decline in access to formal extension services, particularly for information provided by input companies and government extension agents. Farmers increasingly turned to neighbors for agricultural advice.
- Curfews and transportation restrictions at multiple levels together with higher transportation costs may reduce farmer market access or otherwise lead to lower farmgate prices; 70 percent of farmers expect disruptions to their monsoon marketing activities.

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