

STRATEGY SUPPORT PROGRAM RESEARCH NOTE 104

Myanmar Agricultural Performance Survey (MAPS) dry season 2023: Agricultural input markets, credit and extension services

This note provides an overview of agricultural input access and utilization for the post-monsoon (dry season) 2023 based on a nationally and regionally representative sample of 5001 crop farmers undertaken in June – July 2023. Most farmer input use decisions were taken prior to damage inflicted by Cyclone Mocha.

Key findings

- Access to mechanization services, tractors and combine harvesters (or threshers for pulses) was similar to the previous post-monsoon season and even showed recovery in most conflict areas.
- In contrast to mechanization, access to seed was reduced in conflict areas. Almost half
 of all seed purchases nationally are made from neighboring farmers, indicating an
 opportunity to target extension to local informal seed producers to ensure quality.
- Fertilizer application rates increased by 33 percent, driven especially by higher rates of urea application in response to higher paddy prices. The benefit-cost ratio of urea application to paddy crops averaged 2.09 at the urea sales price reported by agri-input dealers and 1.76 at farmer reported prices. The difference in reported prices likely reflects interest charges and local transport costs from the dealer to the farm.
- Labor hiring by farmers increased in a tight rural labor market, resulting in wage increases averaging 1,000 MMK per day. The gap between male and female wages narrowed, especially in conflict areas.
- Extension access deteriorated noticeably from a year ago. In-person extension services from public, private and NGO sources declined for cereals, oilseeds, and pulses, with the exception of private extension for groundnut. NGO extension services were sharply reduced and almost non-existent for some crops. Spatial analysis of extension access indicates that conflict is an important factor in extension access, pointing to an important role for improvements in mobile extension services. Yet increases in mobile extension access were modest and are unlikely to have compensated for the reduction in field extension agent access.
- The share of farmers using credit changed little compared to the year before, but sources
 of credit did change. The share of farmers taking credit from Myanmar Agricultural
 Development Bank (MADB), microfinance institutions, private banks and money lenders
 all fell, while the share receiving credit form agricultural input retailers more than doubled.





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Recommendations

- Improvements in the geographical coverage and content of mobile extension services could play an important role in offsetting reductions in in-person extension access. This is an opportunity for development partners to have a positive impact without increasing risk to beneficiaries or implementing partner staff.
- The prevalence of local farmers as a seed source indicates that mobile extension services targeting informal seed producers could be important, along with facilitating access to certified seed for multiplication.
- As nearly all chemical input distributors and machinery service providers depend on imports, access to foreign exchange is critically important.

Introduction

This research note provides an overview of input access and use by smallholder farmers in Myanmar during the post-monsoon (dry) season of 2023. Results are based on the fourth round of the Myanmar Agricultural Performance Survey (MAPS) conducted with 5001 farmers during the period June to July, 2023 (Figure 1). Seventy percent of respondents cultivated crops in the dry season.





Mechanization

Access to mechanization is important for timely planting and harvesting, thereby maximizing the use of available soil moisture and avoiding weather-related losses at harvest time. Mechanization is arguably more important for post-monsoon crops than monsoon as the cropping cycle is shorter. On a national scale, mechanization access was little changed in the 2023 dry season compared to a year before; 95 percent of rice plots and 80 percent of pulse plots were prepared with mechanical power. There was a slight decline in the use of combine harvesters for rice, from 86 percent of plots in the previous season to 82 percent in 2023, while the use of mechanical threshers for pulses was almost unchanged from the previous year at 51 percent.

At state and region level, access to mechanization for land preparation improved in conflict areas. In Sagaing for example, 87 percent of rice plots were mechanically prepared compared to 74 percent in the previous dry season; in Magway 94 percent were mechanically prepared compared to 76 percent the previous dry season (Figure 2).





The picture is less consistent for combine harvesting, where access improved in some areas and was either unchanged or reduced in others. In Kayah State, access improved from 45 percent in the previous dry season to 88 percent in the most recent one, in Mon access was 100 percent, and in Rakhine access reached 41 percent of plots this year from zero the previous dry season. By contrast, access fell sharply in Kayin State and in Shan (Figure 3).

Note: No cases of land preparation using mechanization were reported in Chin State in either 2022 or 2023.



Figure 3. Access to combine harvesting or mechanical threshing services in the dry season 2023 compared to 2022

Note: No cases of combine harvesting or mechanical threshing were reported in Chin State in either 2022 or 2023.

Seed sources

Almost half the farmers in our sample, 48 percent, purchased seed for use in the 2023 dry season, a small decrease from 52 percent in the previous dry season. There were notable differences in the share of farmers purchasing seed by crop. Almost 55 percent of farmers purchased seed for rice production while 33 percent purchased seed for pulse production. For rice production, 29 percent of farmers purchased their seed from an agri-input retailer or government while 26 percent purchased from an agri-input retailer or farmers purchased their seed from an agri-input retailer of farmers purchased their seed from an agri-input retailer of farmers purchased their seed from an agri-input retailer or government while 15 percent purchased from another farmer.

Although the share of farmers purchasing seed nationally for use in the 2023 dry season was only slightly lower than the previous dry season, there were important differences across states and regions. The share of farmers purchasing seed in conflict areas fell much more than the national average. For example, the share of farmers in Kayin State purchasing seed for use in the 2023 dry season fell by 19 percentage points, from 56 percent in the previous dry season to 37 percent in 2023 (Figure 4). Other states and regions experiencing conflict also source reductions, by 15 percentage points in Tanintharyi, 14 percentage points in Kayah, and 13 percentage points in Chin.



Figure 4. Percent share of farmers who made seed purchases by state and region in the dry season 2023 compared to 2022

Fertilizer use

Fertilizer use rates on rice fields in the post-monsoon (dry) season 2023 increased from an average of 75kg/acre to 99kg/acre, an increase of 33 percent compared to the previous dry season. The increase in fertilizer use was accounted for entirely by increases in the application of urea fertilizer, from 48 kg/acre to 66 kg/acre on average. Compound fertilizer use was almost unchanged at 10kg/acre. Urea application rates in the dry season were double those in the monsoon season, when lack of water control limits the use of improved rice varieties and lower sunlight hours diminish grain yield response. Almost one third of farmers (32 percent) also used purchased organic fertilizer.

Increased fertilizer application on dry season paddy in 2023 reflects higher anticipated profitability compared to the previous dry season. Due to sharp increases in paddy prices, and only modest increases in the price of urea, the benefit-cost ratio of urea application was 2.09 at the urea sales price reported by agri-input dealers and 1.76 at urea prices reported by farmers (Figure 5). This implies a 109 percent return on urea at agri-input dealer retail prices and a 76 percent return at farmer reported prices. The difference between farmer reported urea prices and prices at agri-input dealers is most likely a reflection of interest charges and local transportation charges.

The share of farmers reporting difficulties in fertilizer access fell markedly in the dry season 2023 compared to a year before. Among those who procured fertilizer 73 percent reported no difficulties compared to 44 percent reporting no difficulties the year before. Among those who did report difficulties, about half faced financial constraints while another quarter noted that fertilizers had become more expensive. Only 3 percent of farmers could not find enough of the fertilizers they wanted.



Figure 5. Changes in profitability (Benefit Cost Ratio) and fertilizer use for dry season paddy production 2021 to 2023

Note B:C ratio (high) based on agri-input retailer price of urea; B:C ratio (low) based on farmer reported price of urea.

Pesticides and herbicides

Just over two thirds of farmers (67 percent) purchased insecticides and 46 percent purchased herbicides in the dry season 2023. Almost twice as many farmers used herbicide on rice compared to non-rice crops (65 percent compared to 33 percent). The share of farmers applying herbicide fell slightly compared to the previous dry season when 73 percent of farmers applied herbicide to their largest rice plot and 42 percent to non-rice crops. In the case of chemicals to control insect pests, 73 percent of farmers applied pesticide to their non-rice crops compared to 61 percent for rice.

Labor use

Three quarters of farms hired labor in the 2023 dry season. Although this was the same share as the previous dry season, almost twice as many farmers reported using more labor (21 percent) than less labor (11 percent). The share of farmers hiring labor increased by ten percentage points for maize, sesame, and betel leaves. Pulses and rice saw smaller increases of seven and four percentage points respectively.

Relatively stronger labor demand resulted in average wage increases of 1,000 MMK/day for both men and women, equivalent to a 14 percent increase in the nominal daily wage for men and a 18 percent increase for women. This implies a narrowing in the percentage wage gap for men and women, albeit a small one. Women earned 80 percent of male agricultural daily wage in the 2023 dry season compared to 77 percent of the male agricultural daily wage a year earlier. The gap between women's and men's daily agricultural wage was largest in the Yangon region (where women earned 72 percent of the male wage) and narrowest in Kachin (where women earned 89 percent of the male wage). In general, the wage gap between men and women is smaller in conflict affected states and regions where labor scarcity is more likely to be more acute.

Changes in the daily agricultural wage over the past year varied widely by region and were generally higher in conflict areas for both men (Figure 6a) and women (Figure 6b). Wage increases were highest for both men and women in Rakhine.





Figure 6b. Daily nominal wage rate (MMK/day) for women by state and region dry season 2023 compared to 2022



Extension

Access to in-person extension services has fallen for all crops during the 2023 dry season compared to a year ago. Mobile extension access has improved for some, but not all, crops. Among rice farmers, access to public extension agents fell by more than 5 percentage points, to private extension agents by 9 percentage points, and to NGO extension agents by 3 percentage points compared to a year before (Figure 7a). These represent reductions in access of 21, 33 and 34 percent respectively. Mobile access improved by almost 7 percentage points, an improvement of almost 48 percent, but not enough to compensate for the decline in in-person access. For maize farmers, the decline in access to in-person extension has been even more dramatic, and mobile extension service also declined (Figure 7b). For groundnut farmers there was an improvement in

access to private extension agents, but nowhere near enough to offset a decline in public extension agent access and the near complete loss of NGO services (Figure 7c). Sesame farmers saw sharp reductions in in-person extension services from all sources (Figure 7d), and a similar pattern was observed in pulses (Figure 7e).





Geographically, reductions in in-person extension services appear to be correlated with conflict. Reductions in public and private in-person extension services were largest in Chin, Sagaing, Tanintharyi, Kayin and Mon State. On the other hand, there was some recovery in service provision in Rakhine and Kayah.

Credit

The share of farmers accessing credit for the 2023 dry season fell very slightly compared to a year before, from 44 percent to 42 percent. Credit allocation among crops shifted with notable reductions for betel leaves, oilseed crops, vegetables, and pulses, while there were small increases for rubber, cotton and rice (all of which have seen international market price increases recently). Among farmers not using credit for agricultural inputs in the 2023 dry season, four out of five farmers said that they did not need it; only one out of ten farmers wanted to take credit but could not access it. There were no consistent patterns to regional differences in credit access, suggesting that credit use is determined more by farmer needs and preferences (including crop preferences) than geographical factors.

There were notable shifts in the source of credit. The share of farmers taking credit from MADB, the largest single source of seasonal credit, fell by five percentage points from 48 percent in the previous dry season to 43 percent in the most recent dry season. The share of farmers taking credit from microfinance institutions fell by four percentage points from 14 percent to 10 percent over the

same time period. The share of farmers taking credit from private banks and moneylenders also fell by a combined five percentage points. Offsetting these reductions, the share of farmers taking seasonal credit from agricultural input retailers more than doubled from 9 percent to 21 percent.

Conclusions

Myanmar's agricultural input systems performed well during the dry season of 2023, against a background of rising agricultural commodity prices, especially for rice, and hence improved profitability for farmers. Fertilizer use and labor hiring increased, as did wages for casual laborers. Access to mechanization services was similar to the previous post-monsoon season and even showed recovery in most conflict areas.

In contrast to mechanization, access to seed was reduced in conflict areas. Almost half of all seed purchases nationally are made from neighboring farmers, indicating an opportunity to target extension to local informal seed producers to ensure quality.

In-person extension services from public, private and NGO sources for cereals, oilseeds, and pulses were sharply reduced and almost non-existent for some crops. Spatial analysis of extension access indicates that conflict is an important factor in extension access, pointing to an important role for improvements in mobile extension services. Yet increases in mobile extension access were modest and are unlikely to have compensated for the reduction in field extension agent access.

The share of farmers using credit changed little compared to the year before, but sources of credit did change. The share of farmers taking credit from MADB, microfinance institutions, private banks and money lenders all fell, while the share receiving credit from agricultural input retailers more than doubled.

Going forward, private sector input dealer and mechanization service provider access to foreign exchange will be important for maintaining farmer access. Development partners can make an important contribution by expanding the availability and quality of mobile extension services.

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