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Myanmar Agricultural Performance Survey Round Five: Note on Sample Characteristics and Weighting

Myanmar Agriculture Policy Support Activity

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Introduction

The Myanmar Agricultural Performance Survey (MAPS) is a nationally and sub-nationally representative phone survey with the objective of collecting bi-annual data on agricultural indicators including crop production and sales, input use, crop marketing, farm and livestock assets, and farm services. The Myanmar Household Welfare Survey (MHWS) is a nationally and sub-nationally representative phone survey with the objective of collecting bi-annual data on household and individual welfare indicators, including poverty, food security, dietary quality, subjective wellbeing, and coping strategies. MAPS is a sub-sample survey that includes farming households from MHWS. There are five Rounds of MAPS. MAPS Rounds 1, 3, and 5 were conducted between January and March 2022 and 2024 and collect recall data on monsoon production. MAPS Round 2 and 4 were conducted between June and September 2022 and 2023 and collect recall data on dry season production (pre/post monsoon season).

Phone surveys have several shortcomings including representativeness, enumerator trust, measurement error, and shortened survey length. To help ensure representativeness of our sample we set targets for MHWS data collection from rural, female, lower-educated, and farming households. While there are weaknesses of phone surveys, there are also advantages, particularly in Myanmar. Previous face-to-face socioeconomic surveys in Myanmar failed to reach many townships across the country either due to conflict or remoteness. Round 5 of MAPS includes 280 out of 324 townships (Appendix Table 1).[1]

In this note, we provide details on the data collection of the fifth-round of MAPS. First, we briefly describe the modules present in MAPS data. Second, we discuss the household sampling design of MHWS and each MAPS round and the differences between the datasets. Third, we discuss the calculation of weights for MAPS and provide descriptives of the weighted sample. Most comparisons throughout the paper are between MAPS round 3 and MAPS round 5 because both surveys were carried out following the monsoon season.

MAPS Modules

MAPS Round 5 consists of 11 modules (A-K) that are each included in the clean dataset and unique by household ID (hhid). Modules A, B, and J are introductory and closing modules that only include information on the call and confirmation of demographic information connected to MHWS. The remaining modules provide data on farmer demographics and agricultural production and marketing.

[1] Six townships in the Wa Self Administer Division (Wa SAZ) were excluded from this survey due to active sanctions.

Module C consists of background and demographic information. This includes data on farmer demographics along with farm area and crops grown. Module D provides data on rice production and sales for monsoon 2022 and 2023, including rice variety, amounts produced and sold, and farmgate prices. Module E contains similar information to Module D but pertaining to pulses and oilseeds.

Module F consists of data on farm input use including purchased inputs, mechanization, labor, and the effect of natural shocks. Module G presents information on crop marketing and Module H provides data on farm and livestock assets. Module I contains data on farm services including agricultural extension, credit, mobility issues in the community, travel times to access services, contract farming, crop residues, and changes in rice consumption and paddy growing practices. Module K contains information on changes in rice consumption and paddy growing practices.

Data collection and Sample Design of MAPS

MAPS employs CATI (computer-assisted telephone interviewing) to collect representative data across all states and regions of Myanmar. The fifth-round interviews took place between January 2024 and March 2024. The households were selected based on their participation in MHWS and their status as a farming household.

Table 1 shows the timelines for MAPS Rounds 1 to 5. Each Round asks interviewees about the most recent season as well as recall information from the season one year prior. MAPS Round 1 compares agricultural production in monsoon 2020 and monsoon 2021. MAPS Round 2 compares agricultural production between the dry (pre/post monsoon) season of 2021 and 2022. MAPS Round 3 compares agricultural production in monsoon 2021 and monsoon 2022. MAPS Round 4 compares agricultural production in the pre/post monsoon 2022 and the pre/post monsoon 2023. MAPS Round 5 compares agricultural production in monsoon 2022 and monsoon 2023.

Table 1. MAPS Timeline

Round	Interviews Conducted	Study Period
1	February - March 2022	Monsoon 2020
		Monsoon 2021
2	August - September 2022	Dry (pre/post monsoon) 2021
		Dry (pre/post monsoon) 2022
3	January - March 2023	Monsoon 2021
		Monsoon 2022
4	June – July 2023	Dry (pre/post monsoon) 2022
		Dry (pre/post monsoon) 2023
5	January – March 2024	Monsoon 2022
		Monsoon 2023

MAPS and MHWS are conducted in collaboration with Myanmar Survey Research (MSR), a private survey research company based in Myanmar. To obtain a randomized nationally representative

sample for MHWS, a master database was constructed in which all phone numbers were stratified at the township level, so that the amount of phone numbers in each township was proportional to the population size of each township (from the 2014 Census) (DoP, 2015). Then households were selected randomly to be called in each township. We chose to randomly sample at the township level to minimize oversampling of well-connected and/or wealthier townships. Finally, to ensure that women, famers, less educated, and more remote individuals were not under sampled, minimum quotas by state were set for women (half of all respondents), rural location, farming livelihood, and education level.

MAPS Round 1 sampled from the 5,465 farm households in the first round of MHWS and completed interviews with 3,891 respondents (Appendix Table 2). MAPS Round 2 sampled from the farm households in the third round of MHWS and then from the previous round of MAPS until a target of 5,000 respondents was exceeded (Appendix Table 3). MAPS Round 3 began by sampling from MHWS Round 4 farm households, followed by the previous rounds of MAPS until 4,892 respondents were reached. MAPS Round 4 sampled from MHWS Round 5 households followed by respondents from MAPS Round 3, that were not present in MHWS Round 5. The final MAPS Round 4 sample was 5,001 households. MAPS Round 5 sampled from MHWS Round 6 followed by respondents from MAPS Round 4. The total sample is 4,611 farming households.

An overview of MHWS and MAPS Round 5 farm target sample sizes by State/Region can be found in Table 2. Round 6 of MHWS nearly achieved the farm targets overall, but was short in Yangon, Shan, Kayin, Kayah, and Chin. In Yangon, 75 percent of the farm target was reached, while 89 percent was reached in Shan and 90 percent was reached in Chin. MSR had the greatest difficulty calling back MHWS Round 6 respondents from Yangon. Therefore, Yangon had the highest share of MAPS Round 4 respondents at 20 percent of the sample.

Table 2. MHWS Target Sample Sizes Overall and for Famers by State/Region

	MHWS Target Farm Sample Size	MHWS Round 6 Farm Sample	MAPS Round 5 Farm Sample	MAPS Round 5 Sample from MHWS Round 6	MAPS Round 5 Sample from MAPS Round 4
Ayeyarwady	721	761	636	574	62
Bago	558	621	481	431	50
Chin	158	147	132	109	23
Kachin	175	181	148	127	21
Kayah	144	117	39	39	0
Kayin	170	165	107	92	15
Magway	502	532	475	420	55
Mandalay	624	638	563	498	65
Mon	168	199	141	133	8
Nay Pyi Taw	87	93	82	76	6
Rakhine	241	236	68	61	7
Sagaing	831	856	750	652	98
Shan	1,058	918	684	594	90

Tanintharyi	140	167	136	119	17
Yangon	232	196	169	136	33
National	5,809	5,827	4,611	4,061	550

The MAPS Round 5 sample has 4,611 combined respondents from MHWS Round 6 and MAPS Round 4. This includes 1,003 respondents not previously interviewed for any round of MAPS but interviewed in MHWS. There was a response rate of 47 percent for the households called and 418 households refused to be interviewed. The percentage of the sample coming from each state has changed over the course of the five MAPS Rounds (Table 3). In Round 5, there was a decrease in the proportion of households in Kayah, Shan, and Rakhine, areas with a large degree of violence. There were increases in Mandalay and Sagaing, areas where farm households were oversampled in MHWS Round 5.

Table 3. MAPS Round 1, Round 2, Round 3, Round 4, and Round 5 Response Numbers

State/ Region	Round 1 Farmers	Round 1 Percent of Sample (%)	Round 2 Farmers	Round 2 Percent of Sample (%)	Round 3 Farmers	Round 3 Percent of Sample (%)	Round 4 Farmers	Round 4 Percent of Sample (%)	Round 5 Farmers	Round 5 Percent of Sample (%)
Ayeyarwady	472	12	682	14 **	664	13	644	13	636	14
Bago	432	11	486	10 **	525	11	509	10	481	10
Chin	47	1	95	2 **	95	2	117	2	132	3
Kachin	108	3	159	3	146	3	157	3	148	3
Kayah	45	1	60	1	109	2 ***	105	2	39	1 ***
Kayin	116	3	149	3	148	3	122	2 *	107	2
Magway	422	11	509	10	486	10	488	10	475	10
Mandalay	496	13	608	12	559	11	539	11	563	12 **
Mon	123	3	113	2 ***	111	2	143	3 **	141	3
Nay Pyi Taw	79	2	91	2	81	2	81	2	82	2
Rakhine	158	4	270	5 ***	194	4 ***	242	5 **	68	1 ***
Sagaing	616	16	794	16	702	14 **	744	15	750	16 *
Shan	550	14	721	14	808	16 ***	824	16	684	15 **
Tanintharyi	77	2	101	2	124	2	131	3	136	3
Yangon	150	4	177	4	209	4 *	155	3 ***	169	4
National	3891	100	5015	100	4961	100	5,001	100	4611	100

Table 4 presents the number of households retained in the MAPS panel. Because MAPS samples first from the most recent MHWS round and then from MAPS, panel retention is not the inherent focus. However, the retention rate from MAPS Round 4 was still 65 percent (Table 4). Kayah, an area with high conflict, had the lowest retention rate of 49 percent. Nay Pyi Taw had the highest retention rate of 72 percent. A total of 857 households have remained in every round of MAPS and 1,368 households from Round 1 were present in Round 5 (Appendix Table 3). More households (2,431) from MAPS Round 2 were present in Round 5. Mandalay has the highest number of retention households in the

full MAPS panel with 137. Kayah had by far the lowest panel with only one household remaining in every round of MAPS. Because MAPS starts by sampling the most recent MHWS round instead of the most recent MAPS round, it sacrifices panel retention to ensure effective comparisons with the variables in MHWS.

Table 4. MAPS Panel Retention

State/Region	Panel Respondents (Round 1 – Round 5)	Panel Respondents (Round 4, Round 5)	Percent Retained from Round 1 (%)	Percent Retained from Round 4 (%)
Ayeyarwady	122	407	19	64
Bago	107	304	22	63
Chin	6	70	5	53
Kachin	27	94	18	64
Kayah	1	19	3	49
Kayin	13	54	12	50
Magway	134	337	28	71
Mandalay	137	391	24	69
Mon	8	85	6	60
Nay Pyi Taw	24	59	29	72
Rakhine	14	47	21	69
Sagaing	127	502	17	67
Shan	92	456	13	67
Tanintharyi	14	74	10	54
Yangon	31	96	18	57
National	857	2995	19	65

Figure 1 is a map of respondents in MAPS Round 5 by state/region. Forty-four of the 324 Myanmar townships do not appear in the MAPS Round 5 (13.6 percent of townships) (not including WA SAZ). Out of the 44 townships not enumerated, 30 were not enumerated in any MAPS Round (Appendix Table 4). Six of these are remote townships in Kachin that are home to very few people. Hpruso in Kayah was not enumerated because of its low population. Another three of these townships are in Shan and were not enumerated because of low population. Many other townships were also not enumerated because of conflict (Figure 2). This includes five townships in Shan, Konkyan, Manton, Mongyai, and Namkhanwhich and two in Sagaing, Pinlebu and Wuntho (Figure 2). The remaining townships not enumerated in any MAPS round are in Yangon. They are primarily urban areas with minimal farmland.

The MAPS Round 5 sample did not retain five townships that were present in Round 3. Hpasawng and Mese are in Kayah and have very low populations and had large increases in violence since the end of the Round 4. Kunlong and Namkhan are in Shan and experienced a large increase in violence compared to the prior period. The remaining township not enumerated was Mayangone, in Yangon. This township is an urban area, and no farm households were sampled in Round 6 of MHWS.

Figure 1. Interviews Conducted in the Fifth Round of MAPS, by Township'

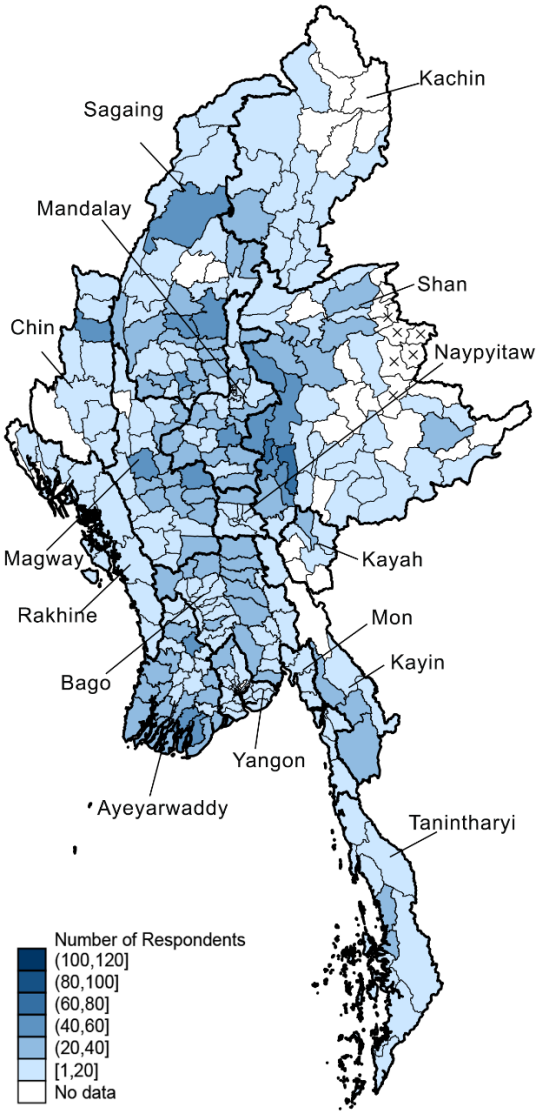
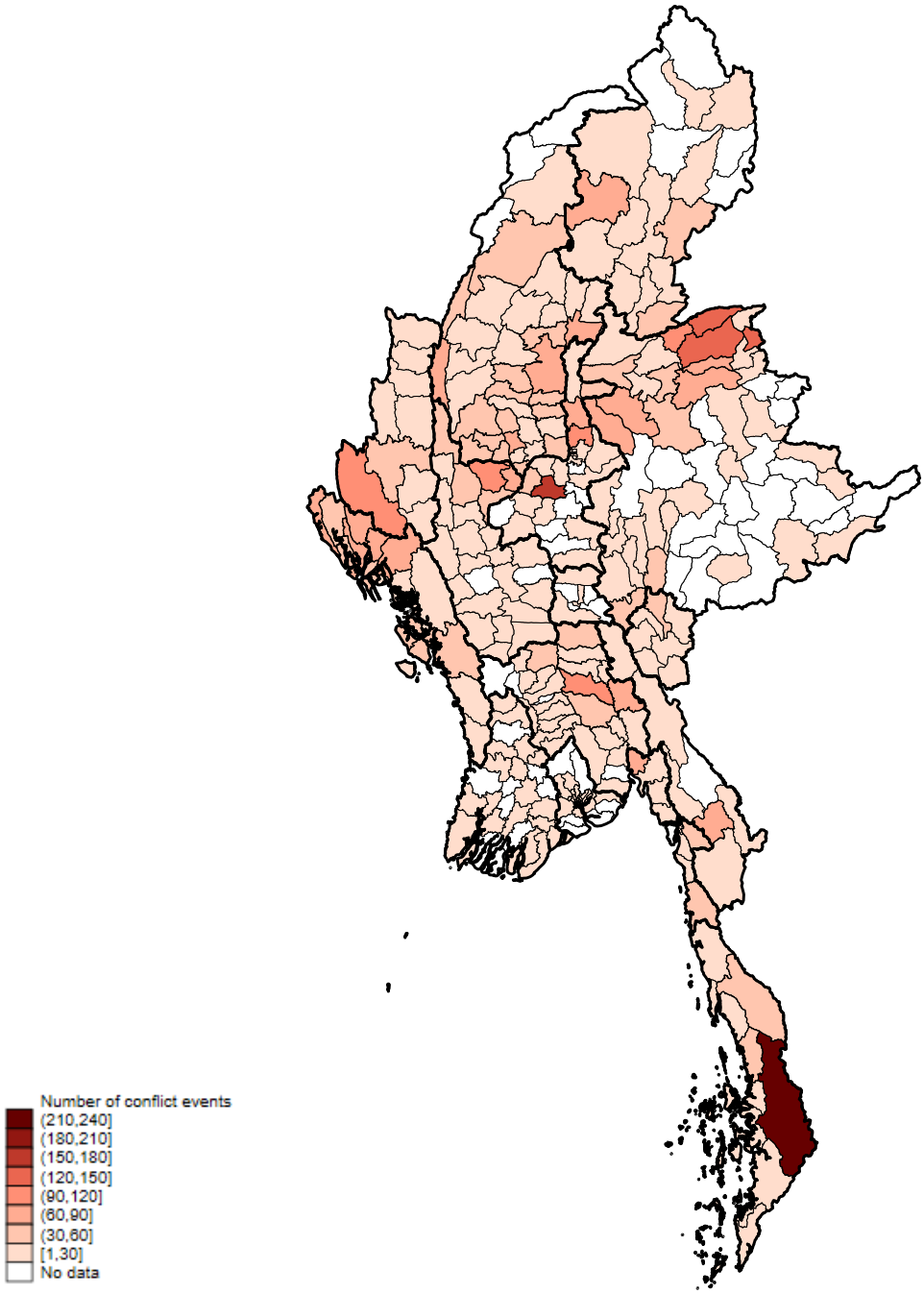


Figure 2. All ACLED Events During the Fifth Round of MAPS R5, by Township



Sample Weights

To ensure that the sample is representative of farmers at the national and state/region level we developed farm-level weights. First, farm households were adjusted for oversampling in each state/region by ensuring that the percentage of farm households was equivalent to the percentage of

farm households found in MLCS (CSO 2017). Second, to adjust for oversampling of more educated respondents, households were reweighted based on the share of adults with low education in each state/region in MLCS. Finally, to minimize selection bias of wealthier households, we used the maximum entropy approach and added constraints for agricultural land owned.

Table 5 shows the difference in the national dispersion of farming households between MLCS 2017, MHWS Round 6, MAPS Round 3, and MAPS Round 5 after weighting. There are no significant differences between the samples and no changes between MAPS Round 3 and Round 5. Shan has the largest share of farming households at 19 percent while Chin and Kayah hold only 1 percent of the national farming households. MAPS Round 3 and Round 5 are representative of farmers at the state/region level.

Table 5. Dispersion of National Farming Households

State/Region	MLCS 2017 Farming Households (%)	MHWS Round 6 Farming Households (%)	MAPS Round 3 Farming Households (%)	MAPS Round 5 Farming Households (%)
Ayeyarwady	14	15	14	14
Bago	11	12	11	11
Chin	1	1	1	1
Kachin	3	3	3	3
Kayah	1	1	1	1
Kayin	3	3	3	3
Magway	9	8	9	9
Mandalay	11	10	11	11
Mon	3	3	3	3
Nay Pyi Taw	2	2	2	1
Rakhine	6	6	6	6
Sagaing	14	13	14	14
Shan	19	16	19	19
Tanintharyi	2	2	2	2
Yangon	3	4	3	3

Note: Asterisks show significance between Round 2 and Round 4 at p-values * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: Authors.

Table 6 highlights the differences between the MAPS Round 3 sample and the MAPS Round 5 sample after weighting. The percentage of rural households and the age of respondents in the sample is consistent from Round 3 to Round 5, other than in Chin. The sample percentage that is female changed significantly between Round 3 and Round 5. The percentage that is female declined in every state/region as well as nationally.

Table 6. MAPS Rural/Urban, Female, and Age Demographic Makeup

State/Region	MAPS Round 3 Percent Rural (%)	MAPS Round 5 Percent Rural (%)	MAPS Round 3 Percent Female (%)	MAPS Round 5 Percent Female (%)	MAPS Round 3 Age	MAPS Round 5 Age

Ayeyarwady	97	97	42	17% ***	46.9	48.0
Bago	95	93	41	19% ***	48.0	48.9
Chin	79	82	43	21% ***	48.6	44.0 **
Kachin	84	77	48	30% **	47.1	46.9
Kayah	78	81	53	30 **	45.3	47.1
Kayin	96	91	43	13 ***	47.1	48.5
Magway	96	96	44	19 ***	48.2	47.7
Mandalay	96	95	37	20 ***	48.4	48.8
Mon	86	87	40	27 *	50.5	51.2
Nay Pyi Taw	93	91	29	27	50.5	50.7
Rakhine	95	90	42	28	51.0	48.9
Sagaing	95	94	46	17 ***	46.8	46.4
Shan	90	92	48	26 ***	44.6	45.3
Tanintharyi	90	91	48	20 ***	49.6	48.0
Yangon	92	92	39	13 ***	47.1	49.2
National	93	93	43	21 ***	47.3	47.6

Source: Authors.
Note: Asterisks show significance at p-values * p < 0.10, ** p < 0.05, *** p < 0.01.

Table 7 compares the unweighted and weighted sample for households with low-educated adults in MAPS round 3 and MAPS round 5. In the unweighted sample, the percentage of lower educated farmers is 51 percent in round 3 and 42 percent in round 5. This is an underestimate of low-education households due to the difficulties of sampling this group. After weighting, low education rises to 68 percent of households in both rounds 3 and 5. There are no statistical differences in education between the two rounds after weighting.

Table 7. Percent of Low-educated and Farming Households, Unweighted and Weighted, MAPS Round 2 & Round 4

	Unweighted		Weighted	
State/Region	MAPS Round 3 Percent Lower-Educated (%)	MAPS Round 5 Percent Lower-Educated (%)	MAPS Round 3 Percent Lower-Educated (%)	MAPS Round 5 Percent Lower-Educated (%)
Ayeyarwady	50%	41%	68%	67%
Bago	41%	35%	68%	67%
Chin	34%	19%	63%	64%
Kachin	41%	37%	59%	60%
Kayah	54%	21%	62%	57%
Kayin	69%	43%	78%	76%
Magway	50%	48%	65%	65%
Mandalay	52%	47%	61%	61%
Mon	56%	41%	68%	67%
Nay Pyi Taw	38%	45%	62%	65%
Rakhine	44%	29%	70%	68%
Sagaing	53%	40%	65%	65%
Shan	65%	51%	76%	78%

Tanintharyi	50%	32%	69%	68%
Yangon	42%	36%	63%	58%
National	51%	42%	68%	68%

Note: Asterisks show significance at p-values * p < 0.10, ** p < 0.05, *** p < 0.01.
Note: Statistical comparison is between weighted values.
Source: Authors' estimates from MHWS and MAPS.

Table 8 shows the difference in the amount of agricultural land owned between MAPS Round 3 and MAPS Round 5 respondents, before and after weighting. In Rounds 3 and 5, MAPS oversamples households with more than 7.5 acres and under samples landless households. In Round 5, the weighting process brings down the number of large farms 6 percentage points and brings up the number of landless farmers by 10 percentage points. Before weighting, there are slight variations in the ownership distribution between the Rounds, but after weighting there are no statistical differences.

Table 8. Difference in Owned Agricultural Land between MAPS Round 3 and Round 5 Respondents.

Agricultural Acreage	MAPS Round 3 Unweighted (%)	MAPS Round 5 Unweighted (%)	MAPS Round 3 Weighted (%)	MAPS Round 5 Weighted (%)
0 Acres	6	5	14	15
0 to 2 Acres	20	21	22	23
2 to 4 Acres	19	19	19	18
4 to 7.5 Acres	22	23	20	20
More than 7.5 Acres	33	31	25	25

Source: Authors.
Note: Asterisks show significance at p-values * p < 0.10, ** p < 0.05, *** p < 0.01.
Note: Statistical comparison is between weighted values.

Table 9 shows the average area cultivated by farmers and the percentage of farmers growing major crops during Round 3 and Round 5 after weighting. Farmers cultivated less land in Round 5 with an average of 6.14 acres in Round 3 and 5.70 acres in Round 5.

In Round 5, significantly less households grew maize, green gram, fruits, vegetables, and spices compared to Round 3. The percentage of farmers growing rice, groundnut, sesame, pigeon pea, betel leaves, black gram, other grains, other pulses and oilseeds, tubers/roots, nuts, other trees, ornamental flowers, and other crops across the two monsoon seasons remains unchanged.

Table 9. Descriptive Crop Farmers, MAPS

	Unit	MAPS Round 3	MAPS Round 5
Total number of farmers	Number	4,961	4,611
Area cultivated - acres	Mean	6.14	5.70 **
Crops grown			

Rice (%)	% of farmers	60%	61%
Maize (%)	% of farmers	10%	9% *
Groundnut (%)	% of farmers	9%	9%
Sesame (%)	% of farmers	9%	8%
Green gram (%)	% of farmers	4%	2% ***
Pigeon pea (%)	% of farmers	7%	7%
Betel leaves (%)	% of farmers	5%	4%
Black gram (%)	% of farmers	2%	1%
Other Grains (%)	% of farmers	3%	3%
Other Pulse/ Oilseeds (%)	% of farmers	4%	4%
Tubers/ Roots (%)	% of farmers	1%	1%
Fruits (%)	% of farmers	10%	8% ***
Nuts (%)	% of farmers	1%	1%
Other Trees (%)	% of farmers	9%	9%
Vegetables (%)	% of farmers	19%	16% ***
Ornamental Flowers (%)	% of farmers	1%	1%
Spices (%)	% of farmers	5%	4% ***
Other Crops (%)	% of farmers	0%	0%

Source: Authors' calculations based on MAPS. Comparisons are with Round 3.
Note: Asterisks show significance at p-values * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Conclusion

MAPS is a socioeconomic phone survey with the aim of being representative for farmers at the national and state/regional levels. However, because phone ownership and phone access are not universal, there may be underrepresentation of lower income, less educated, and more remote households. However, MHWS sets targets for each of these underrepresented groups to mitigate this issue as much as possible. MAPS benefits from the targets set by MHWS.

Due to power outages, disruptions to phone service, violence, and non-responses it was hard to reach some of our previously surveyed townships. Despite limitations, MAPS is representative at the national and state/regional levels. MAPS Round 5 retained 65 percent of respondents from MAPS Round 4 and gender was the only national level demographic variable that was significantly different from MAPS Round 3. There were some significant differences in the percentage of households growing grew maize, green gram, fruits, vegetables, and spices compared with one year ago, but these differences are small. Further, the percentage of farmers growing rice, groundnut, sesame, pigeon pea, betel leaves, black gram, other grains, other pulses and oilseeds, tubers/roots, nuts, other trees, ornamental flowers, and other crops remained unchanged. MAPS, by collecting high-frequency data on agricultural indicators is critical for understanding the state of crop production and sales, input use, crop marketing, farm and livestock assets, and farm services across Myanmar.

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Appendix

Appendix Table 1. Townships Not Enumerated In MAPS Round 5

State	Township	Population Size	Number of Households	Comments
Chin	Paletwa	95,265	19,516	
Kachin	Injangyang	1,420	285	Low Population
Kachin	Khaunglanhpu	11,635	1,711	Low Population
Kachin	Machanbaw	8,353	1,719	Low Population
Kachin	Nawngmun	7,025	1,212	Low Population
Kachin	Sumprabum	2,405	479	Low Population
Kachin	Tsawlaw	6,499	1,073	Low Population
Kayah	Hpruso	28,318	5,910	Low Population
Kayah	Hpasawng	22,823	4,733	Low Population
Kayah	Mese	5,608	1,302	Low Population
Kayin	Hpapun	32,719	6,502	
Magway	Tilin	47,694	10,532	
Mandalay	Mahaaungmyay	217,725	41,927	Urban areas
Rakhine	Pauktaw	143,601	30,544	
Rakhine	Rathedaung	109,989	24,341	Conflict area
Rakhine	Maungdaw	37,548	7,896	
Sagaing	Pinlebu	109,289	21,900	
Sagaing	Wuntho	69,442	14,205	Conflict area
Shan (North)	Hopang	59,438	11,216	Wa SAZ
Shan (North)	Konkyan	59,565	9,665	Kokang SAZ
Shan (North)	Kunlong	55,355	10,392	
Shan (North)	Laukkaing	83,860	15,181	Kokang SAZ

Shan (North)	Manton	37,254	7,683	Pa Laung SAZ
Shan (North)	Matman	19,050	3,318	Wa SAZ
Shan (North)	Mongmao	69,364	10,445	Wa SAZ
Shan (North)	Mongyai	36,747	8,485	
Shan (North)	Narphan	114,724	16,474	Wa SAZ
Shan (North)	Pangsang	88,732	16,457	Wa SAZ
Shan (North)	Pangwaun	96,940	13,969	Wa SAZ
Shan (South)	Kyethi	70,623	14,712	Conflict area
Shan (South)	Laihka	48,831	8,790	
Shan (South)	Mawkmai	33,810	7,194	Conflict area
Shan (South)	Monghsu	68,589	15,867	
Shan (East)	Monghpyak	28,235	6,155	
Shan (East)	Mongyang	102,992	19,404	
Shan (East)	Mongping	65,886	13,299	
Shan (East)	Mongyawng	75,413	17,196	Conflict area
Yangon	Ahlone	48,612	10,943	Urban areas
Yangon	Bahan	78,793	17,426	Urban areas
Yangon	Cocokyun	1,172	351	Low Population
Yangon	Dagon	20,417	4,608	Urban areas
Yangon	Dagon Myothit (East)	155,258	33,913	
Yangon	Dagon Myothit (North)	200,629	42,704	
Yangon	Hlaing	147,191	32,837	Urban areas
Yangon	Kamaryut	72,697	16,299	Urban areas
Yangon	Kyauktada	25,754	6,120	Urban areas
Yangon	Kyeemyindaing	106,702	23,062	Urban areas
Yangon	Lanmadaw	36,302	8,599	Urban areas
Yangon	Latha	18,161	4,473	Urban areas
Yangon	Mingalartaungnyut	126,134	25,918	Urban areas
Yangon	Pabedan	31,328	6,563	Urban areas
Yangon	South Okkalapa	153,687	32,725	Urban areas
Yangon	Thingangyun	201,316	43,320	Urban areas
Yangon	Yankin	66,792	14,637	Urban areas
Yangon	Botahtaung	36,661	8,397	Urban areas
Yangon	Dagon Myothit (Seikkan)	159,313	37,905	Urban areas
Yangon	Sanchaung	87,228	20,635	Urban areas
Yangon	Tamwe	156,340	35,360	Urban areas
Total not enumerated (nationwide) c		4,103,253	848,484	
Total (nationwide) c		51,144,607	11,162,510	
Share of total not enumerated c		8.0%	7.6%	

Appendix Table 2. Number of HH Interviewed For MAPS From Each MHWS Round

		MAPS Round 1	MAPS Round 2	MAPS Round 3	MAPS Round 4	MAPS Round 5
MHWS Round	MHWS Round 1	3,891	365	115		63
	MHWS Round 2		310	103		63
	MHWS Round 3		4,346	256		37
	MHWS Round 4			4,418	306	169
	MHWS Round 5				4,695	218
	MHWS Round 6					4,061
	Total	3,891	5,021	4,892	5,001	4,611

Appendix Table 3. Number of Households Present Across MAPS Rounds

		MAPS Round 1	MAPS Round 2	MAPS Round 3	MAPS Round 4	MAPS Round 5
Prior Maps Round	MAPS Round 1		2,791	1,951	1,547	1,368
	MAPS Round 2			3,294	2,595	2,180
	MAPS Round 3				3,282	2,573
	MAPS Round 4					2,995
	MAPS Round 5					

Appendix Table 4. Townships Not Enumerated in Any MAPS Round

State	Township
Kachin	Injangyang
Kachin	Khaunglanhpu
Kachin	Machanbaw
Kachin	Nawngmun
Kachin	Sumprabum
Kachin	Tsawlaw
Sagaing	Wuntho
Shan (East)	Monghpyak
Shan (East)	Mongping
Shan (East)	Mongyawng
Shan (South)	Kyethi
Shan (South)	Laihka
Shan (South)	Mawkmai
Shan (South)	Monghsu
Kachin	Injangyang

Kachin	Khaunglanhpu
Kachin	Machanbaw
Kachin	Nawngmun
Kachin	Sumprabum
Kachin	Tsawlaw
Sagaing	Wuntho
Shan (East)	Monghpyak
Shan (East)	Mongping
Shan (East)	Mongyawng
Shan (South)	Kyethi
Shan (South)	Laihka
Shan (South)	Mawkmai
Shan (South)	Monghsu
Yangon	Thingangyun
Yangon	Yankin

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