NEW ZEALAND SURVEY OF MAIZE AREAS AND VOLUMES: JUNE 1, 2023

AIMI
Arable Industry Marketing Initiative

FAR

Saville Stat

The objective of this AIMI survey of maize growers in New Zealand (NZ) was to determine:

- *the size of the 2023 NZ harvest of maize grain and maize silage*
- *the percentage of the 2023 NZ maize harvest which was sold as at June 1, 2023*
- *the sowing intentions for the spring of 2023*

Survey details

The data from 87 NZ survey farms as at June 1, 2023 were scaled up to the national level using the most recent NZ Agricultural Production Statistics (the Final 2022 APS) for maize grain and maize silage. As with all surveys, there is a margin of error which needs to be considered in relation to this report. These figures reflect the position at the 1st June 2023 and there will have been changes since this time. **Note for maize grain:** This survey only accounts for farm sales and not what is held by merchants. Also, the maize grain survey sample is relatively small, so the margin for error is relatively high.

Key Points as at 1 June 2023 (figures, from Table 1 and 2, have been rounded to nearest 100):

- Most of NZ experienced a very wet growing season. Above average rainfall and a tropical cyclone caused flooding and wind damage in the North Island, with some crops completely destroyed. The average yield of maize grain for the 2023 NZ harvest, at 9.7 t/ha (including estimates for the crops yet to be harvested), was down on last season (at 11.5 t/ha). The average yield of maize silage (19.0 t dry matter (DM)/ha) for the 2023 NZ harvest was also down on last season (at 20.9 t DM/ha). (Note that these are averages across New Zealand and there will be differences across regions, especially in cyclone effected areas).
- The NZ **maize grain** harvest was 63% complete as at June 1, 2023 which was less than normal (ten-year average was 79% complete), and some of the unharvested area may not be harvestable due to continued wet weather, which means NZ tonnages could be over-estimates. The estimated total tonnage of 164,400 tonnes (including unharvested grain) was down on last season's harvest tonnage (down 13%), as a result of a reduced yield (down 16%) from an increased harvest area (up 4%). Most (89.8%) of the total crop had been sold, leaving 16,700 tonnes unsold, as held by growers, as at June 1, 2023, though most of the unsold tonnage was unharvested as at this date. This compared to 5,600 tonnes unsold at the same time last year, and higher unsold tonnages at the same time in five of the eight previous years. (Note that the quantity of maize grain held by merchants has not been determined in this survey). Spring 2023 sowing intentions as at June 1, 2023 were estimated to be 12% lower than last season.
- The NZ **maize silage** harvest was 99.7% complete as at June 1, 2023 which was normal. The estimated total tonnage of 1,051,600 tonnes DM was down 7% compared to last season's harvest, as the result of a lower yield (down 9%) from an increased harvest area (up 3%). About 65% of the total silage crop had been sold or used, leaving 363,100 tonnes DM unused/unsold as at June 1, 2023 (as compared to 390,200 tonnes DM at the same time last year, and 477,000, 390,400, 456,000, 349,000, 456,700 and 365,100 tonnes DM at the same time in the six previous years). Spring 2023 sowing intentions as at June 1, 2023 were similar to last season (down 3%).

Table 1. Estimated national figures for the 2023 NZ harvest, plus sold tonnages, for maize grain and maize silage as at June 1, 2023.

Number of farmers in the survey who harvested or will harvest this crop in 2023	Units	Maize grain 27	Maize silage 71
2022 harvest			
Estimated NZ total hectares, 2022 harvest	ha	16,325	53,907
Estimated NZ total tonnes, 2022 harvest	tonnes	188,249	1,127,388
2023 harvest			
Estimated NZ total hectares, 2023 harvest	ha	17,000	55,490
Estimated NZ total tonnes, 2023 harvest	tonnes	164,354	1,051,553
Estimated NZ total hectares already harvested by June 1, 2023	ha	10,933	55,370
Estimated NZ total tonnes already harvested by June 1, 2023	tonnes	103,177	1,048,883
Estimated NZ total hectares yet to harvest as at June 1, 2023	ha	6,067	120
Estimated NZ total tonnes yet to harvest as at June 1, 2023	tonnes	61,178	2,670
Percentage of estimated 2023 NZ crop tonnage which had been harvested by June 1, 2023	%	63%	100%
Average over previous 10 years of % of NZ crop tonnage which had been harvested by June 1	%	79%	99%
2023 crop already harvested (by June 1, 2023)			
Sold under pre-harvest contract by June 1, 2023	tonnes	99,008	561,770
Sold at spot/free price by June 1, 2023	tonnes	1,758	
Used on own farm (2023 harvested maize only) by June 1, 2023	tonnes	893	124,058
Unsold/unused stocks on hand (2023 harvest only) on June 1, 2023	tonnes	1,518	363,055
2023 crop yet to be harvested (as at June 1, 2023)			
Unharvested crop sold under pre-harvest contract by June 1, 2023	tonnes	46,010	2,670
Unharvested crop unsold/unused as at June 1, 2023	tonnes	15,168	0
Total sales (2023 harvest): includes unharvested grain			
Sold (of total crop) by June 1, 2023 (includes used on farm)	tonnes	147,669	688,498
Unsold/unused (of total crop) on June 1, 2023	tonnes	16,686	363,055
Comparison of hectares and tonnages between last two harvests			
Estimated % change in hectares, 2022 to 2023 harvest	%	4.1%	2.9%
Estimated % change in tonnes, 2022 to 2023 harvest	%	-12.7%	-6.7%
Comparison of yields (tonnes/ ha) between the last two harvests			
NZ-wide yield, 2022 harvest	t/ha	11.5	20.9
NZ-wide yield, 2023 harvest	t/ha	9.7	19.0
Comparison of unsold/unused tonnages between the last ten harvests			
Unsold/unused (of total crop) on June 1, 2023 (as above)	tonnes	16,686	363,055
Unsold/unused at the same time last year (June 2022 AIMI Report)	tonnes	5,587	390,187
Unsold/unused at the same time, previous year (June 2021 AIMI Report)	tonnes	671	477,018
Unsold/unused at same time, year before that (June 2020 AIMI Report)	tonnes	631	390,373
Unsold/unused at same time, year before that (June 2019 AIMI Report)	tonnes	15,245	455,962
Unsold/unused at same time, year before that (June 2018 AIMI Report)	tonnes	39,327	348,954
Unsold/unused at same time, year before that (June 2017 AIMI Report)	tonnes	18,636	456,678
Unsold/unused at same time, year before that (June 2016 AIMI Report)	tonnes	44,883	365,115
Unsold/unused at same time, year before that (June 2015 AIMI Report)	tonnes	34,645	457,641
Unsold/unused at same time, year before that (June 2014 AIMI Report)	tonnes	23,869	386,917

Statistics New Zealand is gratefully acknowledged for supplying final 2022 NZ Agricultural Production Statistics data on total hectares and tonnes for maize grain, and total hectares for maize silage.

Crops sown in the North Island in the 2022/2023 season experienced a very wet growing season. Wet soil conditions from frequent rain delayed drilling and some crops were flooded and had to be redrilled. Above average rainfall occurred throughout the growing season across New Zealand. A tropical cyclone in February bought heavy rain and winds which flooded and flattened many crops, and delayed harvest of grain crops in many North Island regions. In some areas, particularly the eastern region between Napier and Gisborne, entire crops have been wiped out.

In Table 1 above, the estimated 2023 harvest tonnes of **maize grain** were 13% down on the 2022 harvest, with increased harvest hectares (up 4%) and a reduced yield (down 16%). However, the estimated harvest hectares included an unusually high percentage (37%) of the crop that was still unharvested as at 1 June 2023 (over the previous ten years, the average was 79% complete). Some of these hectares may not be able to be harvested due to continued wet weather; if so, then the estimated NZ harvest tonnes will be over-estimates.

Unsold stocks on hand of maize grain, as held by growers as at 1 June 2023 (16,700 tonnes), were higher than last season (5,600 tonnes), but lower than unsold stocks in five out of the previous eight seasons (see the last eight rows of Table 1). However, much of this unsold stock was yet to be harvested, so this estimate is unconfirmed. (Note that the quantity of maize grain held by merchants has not been determined in this survey).

For **maize silage**, harvest tonnes were down 7% on the previous season, with increased harvest hectares (up 3%) and a lower yield (down 9%). Almost all (99.7%) of the maize silage had been harvested by 1 June, 2023, which is similar to the 10-year average (99.0% complete).

Unsold/unused maize silage stocks on hand (363,100 tonnes DM) were lower than in seven of the nine previous seasons, very similar to one season, and higher than in one season (see the last nine rows of Table 1).

As at 1 June 2023, **maize grain** sowing intentions (hectares) for 2023/24 were 12% down on last season, and **maize silage** sowing intentions were 3% down on last season (Table 2). On the survey farms, 23 growers intended growing maize for grain this coming season (Table 2), as compared to 27 growers this last season (Table 1). Also on the survey farms, 67 growers intended growing maize for silage this coming season (Table 2), as compared to 71 growers this last season (Table 1). However, the numbers for 2023/24 do not include growers who are uncertain as to their intentions.

Table 2. NZ maize sowing intentions as at June 1, 2023, in comparison with previous years' estimates.

	Maize grain	Maize silage
Number of farmers in the survey who intend to sow in the 2023/2024 season	**23**	**67**
Estimated NZ total hectares, 2022 harvest	16,325	53,907
Estimated NZ total hectares, 2023 harvest	17,000	55,490
Estimated NZ total sowing intentions for 2023/2024 season (for harvest in 2024) (hectares)	15,040	53,928
Estimated % change in sowings, 2022/2023 to 2023/2024 seasons	-11.5%	-2.8%

Summary results in June each year

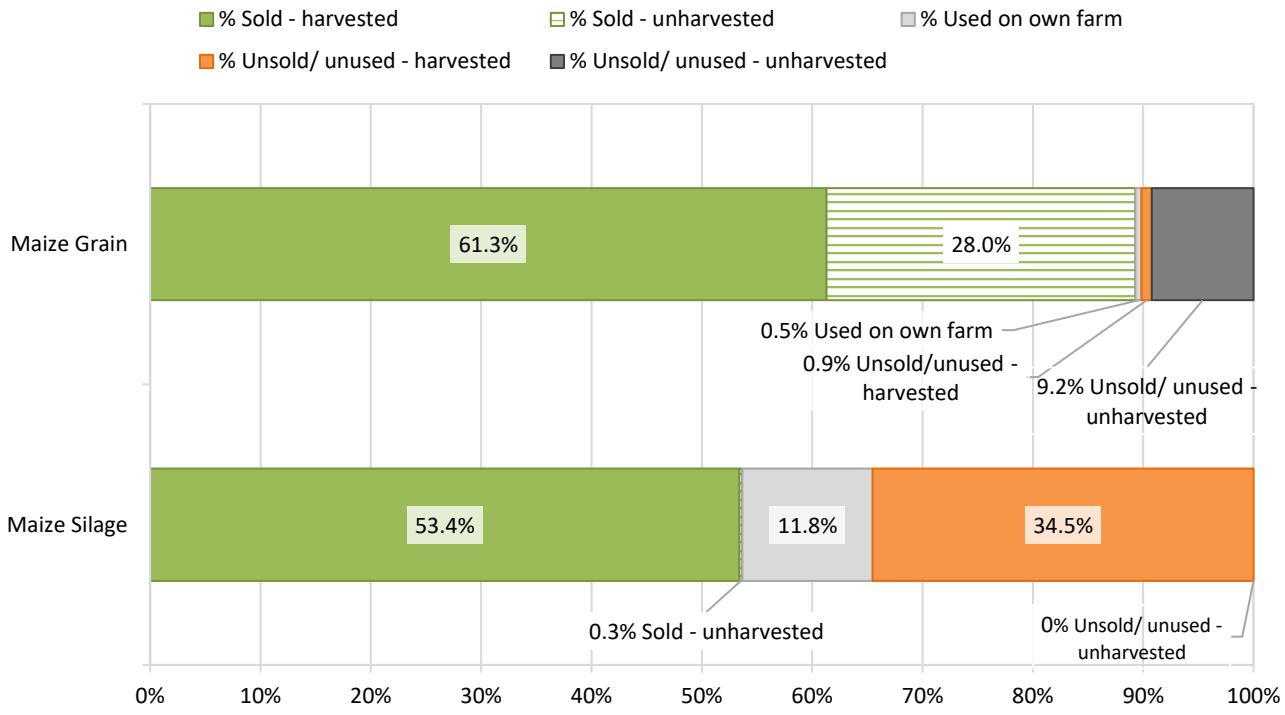

Figure 1. Percentage of maize crop sold, used on own farm and unsold/unused from the 2023 NZ harvest, including unharvested grain, as at June 1, 2023.

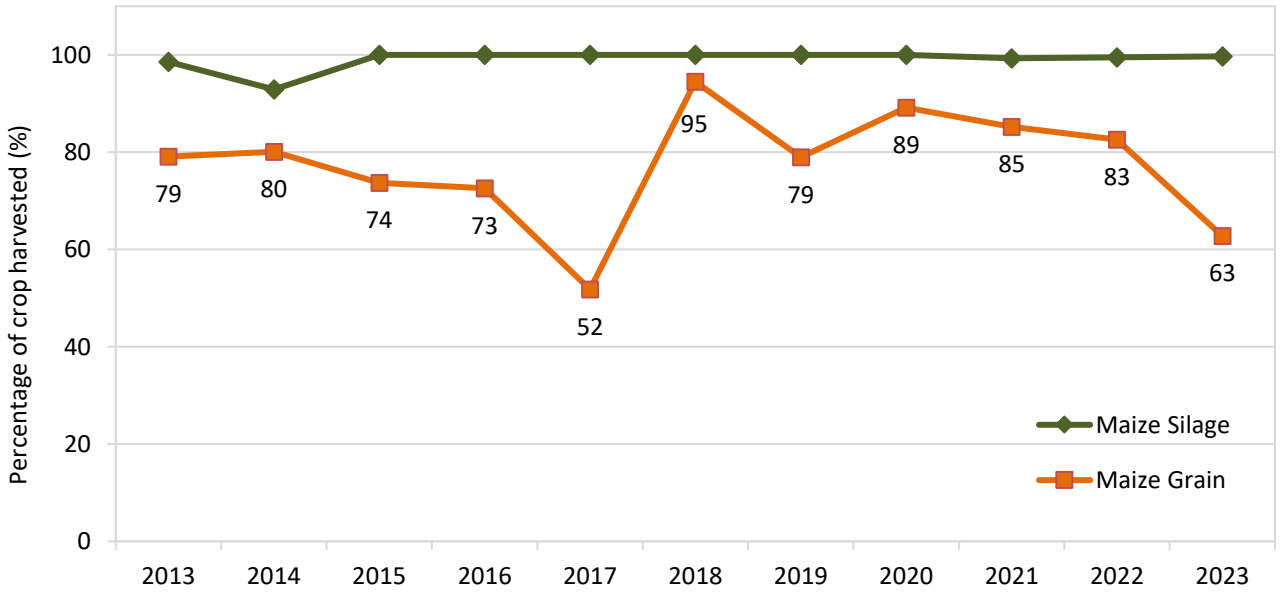

Figure 2. Comparison of percentage of tonnes harvested by June 1 from 2013 to 2023. (Data are sourced from annual June AIMI Maize reports.)

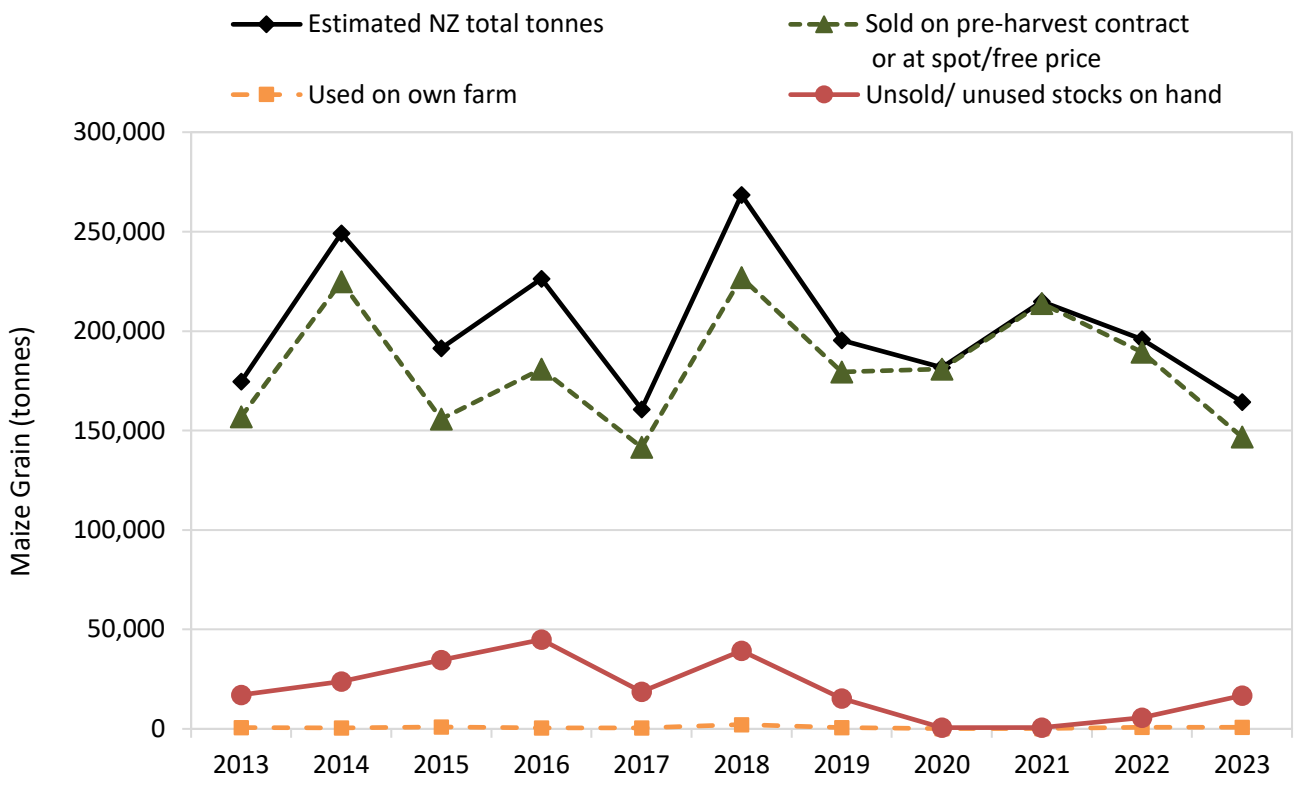

Figure 3. NZ harvest tonnages and sales for maize grain by June 1 from 2013 to 2023. Unharvested grain is included. (Data are sourced from annual June AIMI Maize reports.)

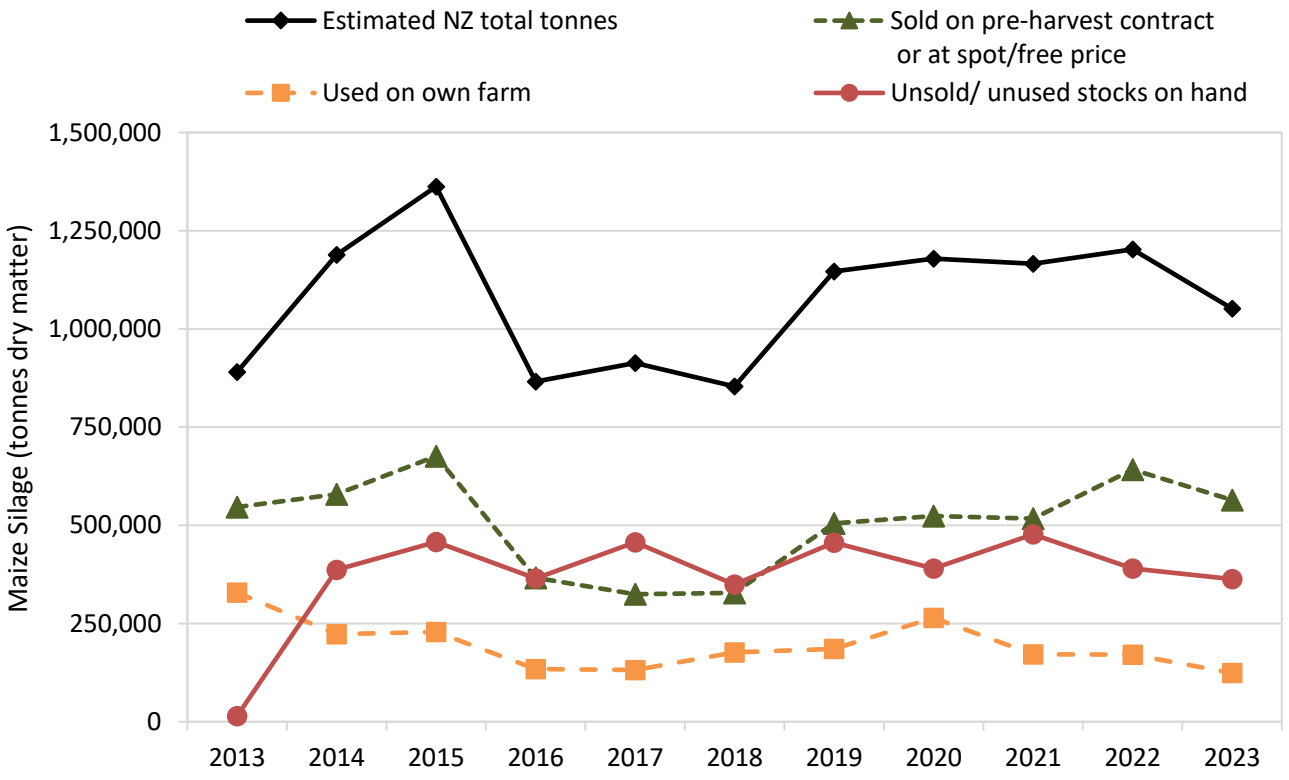

Figure 4. NZ harvest tonnages (dry matter (t/ha)) and sales for maize silage by June 1 from 2013 to 2023. Unharvested grain is included. (Data are sourced from annual June AIMI Maize reports.)

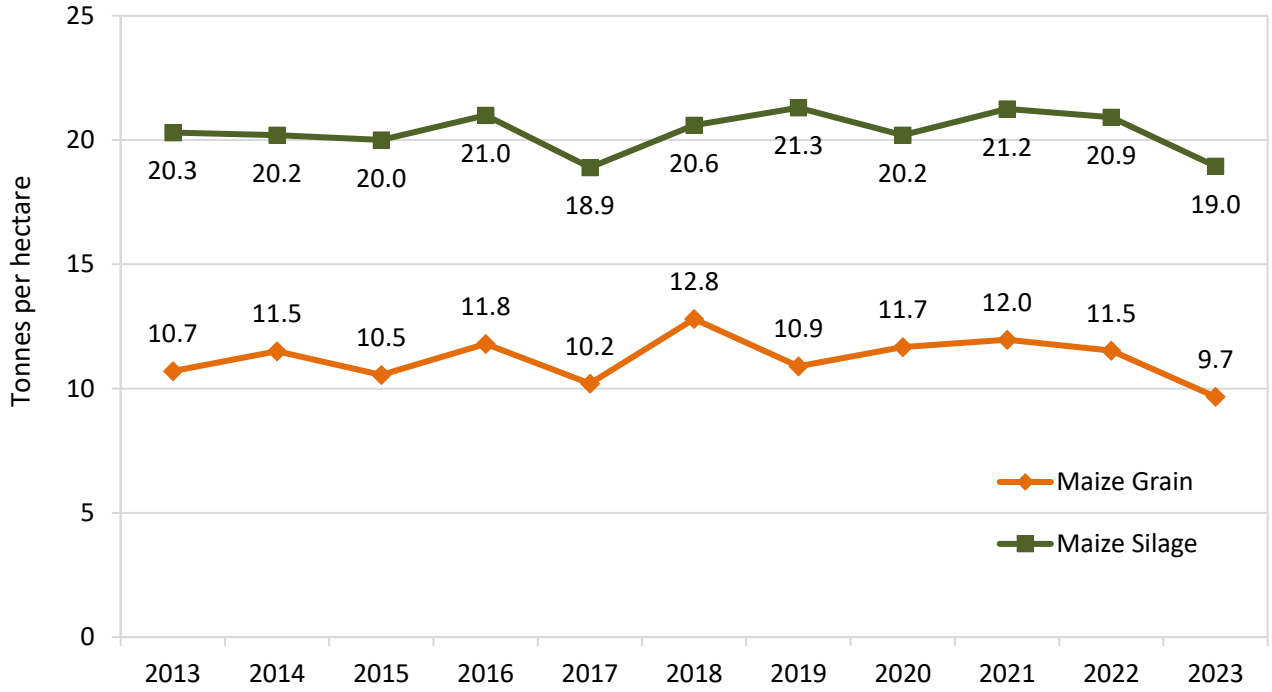

Figure 5. Comparison of estimated NZ-wide yields (tonnes per hectare) from 2013 to 2023. (Data for 2022 and 2023 are matched data from the current report, while other data are sourced from annual June AIMI Maize reports.)

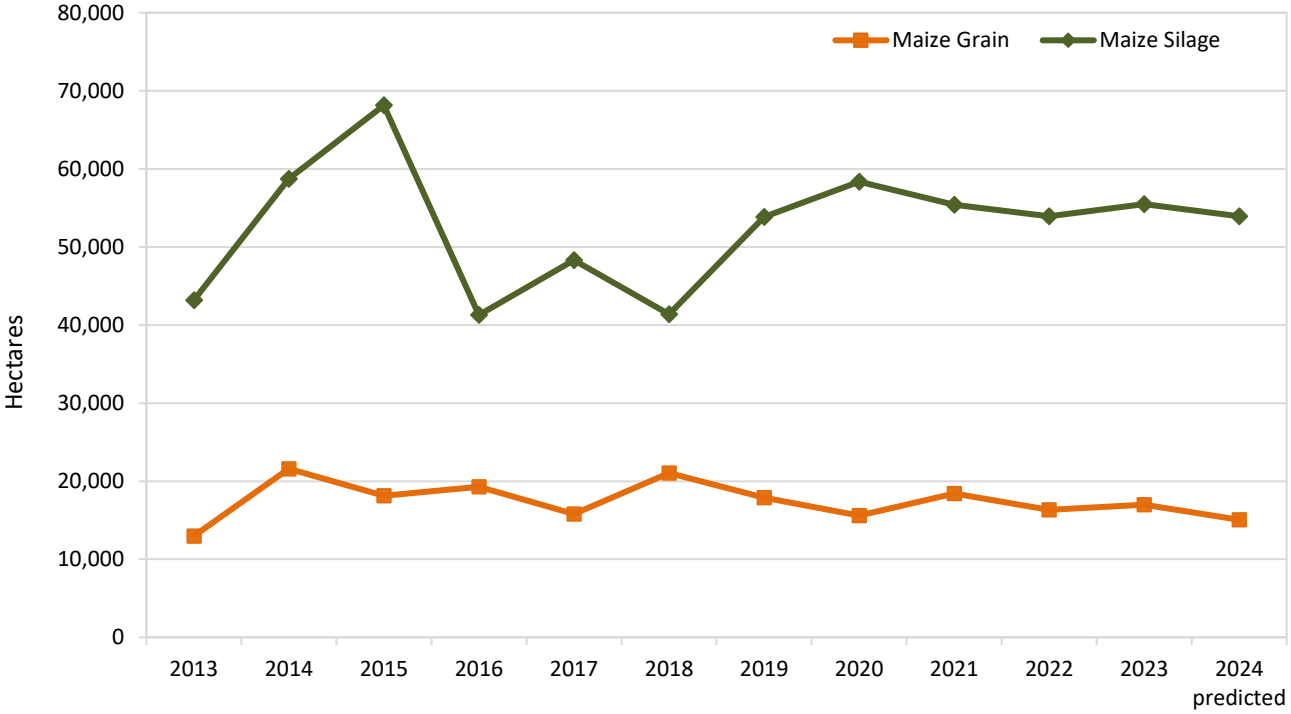

Figure 6. NZ harvest hectares of maize grain and maize silage as estimated in June each year from 2013 to 2023, and predicted harvest hectares for 2024. Note: all figures represent harvest hectares except for 2024 which is made up of hectares intended to be sown for harvest in 2024. Data from 2013 to 2022 are total harvest figures, including hectares yet to be harvested, from annual June AIMI reports, while 2022 to 2024 are a matched comparison (scaled up from a common set of growers) from the current report.

AIMI
Arable Industry Marketing Initiative

APPENDIX & REGIONAL DATA

NEW ZEALAND SURVEY OF MAIZE
AREAS AND VOLUMES: JUNE 1, 2023

Maize survey panel	102
Number completing June survey	87
Report group (must complete October 2022 & current survey)	**87**

NNI	Northern North Island
ENI	Eastern North Island
SWNI	South & West North Island
NSI	Northern South Island
MC	Mid Canterbury
SCNO	South Canterbury, North Otago

Comments

A wet season in the North Island delayed or drowned sowings and a tropical cyclone in February brought strong winds and heavy rain which flattened and/or flooded crops. Yields back in the North Island. Some growers in NNI and ENI won't be able to harvest their crops. Lots of leaf blight.

Costs increasing, slim margins this year due to low yields. Dairy payout having an impact.

REGIONAL DATA (From 87 responses)

Table 1: Maize Grain (MG) - data from 27 growers (scaled to NZ estimates).

Region	Growers harvesting	Hectares MG harvested	Tonnes MG harvested	Average yield (t/ha)	Growers yet to harvest MG	Hectares MG yet to harvest	Growers sowing MG	Hectares MG intending to sow
NNI	9	6,216	48,505	7.8	5	1,815	8	7,402
ENI	10	2,018	21,537	10.7	8	2,939	8	3,803
SWNI	7	2,476	30,407	12.3	3	745	6	3,125
NSI	-	-	-	-	-	-	-	-
MC	1	223	2,728	12.2	1	568	1	710
SCNO	-	-	-	-	-	-	-	-
Total	**27**	**10,933**	**103,177**	**9.4**	**17**	**6,067**	**23**	**15,040**

Table 2: Maize Silage (MS) - data from 71 growers (scaled to NZ estimates).

Region	Growers harvesting	Hectares MS harvested	Tonnes MS harvested	Average yield (t DM/ha)	Growers yet to harvest MS	Hectares MS yet to harvest	Growers sowing MS	Hectares MS intending to sow
NNI	43	33,574	588,076	17.5	-	-	39	32,510
ENI	5	3,029	56,753	18.7	-	-	6	4,433
SWNI	17	14,475	299,009	20.7	1	120	16	13,202
NSI	2	2,169	53,878	24.8	-	-	2	1,883
MC	3	1,866	45,006	24.1	-	-	3	1,694
SCNO	1	257	6,161	24.0	-	-	1	205
Total	**71**	**55,370**	**1,048,883**	**18.9**	**1**	**120**	**67**	**53,928**

Totals over 87 survey responses

In Table A.1, maize grain yields per hectare on the survey farms were down 16% between the last two harvests, 2022 and 2023. Maize silage yields were down 9% from 2022 to 2023.

Table A.1. Maize grain and silage data totalled over all survey respondents.

	Units	Maize grain	Maize silage
Number of farmers in the survey harvesting this crop in 2023		**27**	**71**
Number of survey farmers who have harvested some or all of this crop, as at June 1, 2023		**19**	**71**
Number of survey farmers who have still to harvest some or all of this crop, as at June 1, 2023		**17**	**1**
2022 harvest			
Total hectares on survey farms, 2022 harvest	**ha**	1,610	3,150
Total tonnes on survey farms, 2022 harvest	**tonnes**	18,976	65,871
2023 total harvest			
Total hectares on survey farms, 2023 harvest	**ha**	1,677	3,242
Total tonnes on survey farms, 2023 harvest	**tonnes**	16,568	61,441
Total hectares on survey farms already harvested by June 1, 2023	**ha**	1,078	3,235
Total tonnes on survey farms already harvested by June 1, 2023	**tonnes**	10,401	61,285
Total hectares on survey farms yet to harvest (as at June 1, 2023)	**ha**	598	7
Total tonnes on survey farms yet to harvest (as at June 1, 2023)	**tonnes**	6,167	156
Percentage of survey crop tonnage harvested by June 1, 2023	**%**	63%	100%
2023 crop already harvested (by June 1, 2023)			
Sold under pre-harvest contract by June 1, 2023	**tonnes**	9,981	32,823
Sold at spot/free price by June 1, 2023	**tonnes**	177	
Used on own farm (2023 harvested maize only) by June 1, 2023	**tonnes**	90	7,249
Unsold/unused stocks on hand (2023 harvest only) on June 1, 2023	**tonnes**	153	21,213
2023 crop yet to be harvested (as at June 1, 2023)			
Unharvested crop sold under pre-harvest contract by June 1, 2023	**tonnes**	4,638	156
Unharvested crop unsold/unused as at June 1, 2023	**tonnes**	1,529	0
Comparison of yield (tonnes per ha) on survey farms between harvests			
Survey farms, 2022 harvest	**t/ha**	11.8	20.9
Survey farms, 2023 harvest	**t/ha**	9.9	19.0

In Table A.2, the data in Table A.1 are expressed as percentages. An estimated 37.2% of the maize grain tonnage was yet to be harvested as at June 1, 2023, while almost all (99.7%) of the maize silage had been harvested by this date. An estimated 10.2% of the maize grain tonnage was unsold as at June 1, 2023, while 34.5% of the maize silage tonnage was unused/unsold by this date.

Table A.2. Fate of 2023 maize grain and silage crops, in percentages (by tonnes).

	Maize grain	Maize silage
Number of farmers in the survey harvesting this crop in 2023	**27**	**71**
2023 crop already harvested (by June 1, 2023): % of total crop tonnage		
% Sold under pre-harvest contract by June 1, 2023	60.2	53.4
% Sold at spot/free price by June 1, 2023	1.1	
% Used on own farm (2023 harvest only) by June 1, 2023	0.5	11.8
% Unsold/unused stocks on hand on June 1, 2023 (harvested crop only)	0.9	34.5
2023 crop yet to be harvested (as at June 1, 2023): % of total crop tonnage		
% Unharvested maize sold under pre-harvest contract by June 1, 2023	28.0	0.3
% Unharvested maize unsold/unused on June 1, 2023	9.2	0.0
Total sales (2023 harvest): includes unharvested maize		
% Sold (of total crop) by June 1, 2023 (includes used on farm)	89.8	65.5
% Unsold/unused (of total crop) on June 1, 2023	10.2	34.5

In Table A.3, the 2023 spring sowing intentions as at June 1, 2023 for maize grain and maize silage are given as hectares totalled over the survey farms. For comparison, the total hectares harvested in 2022 and 2023 are given for the exact same set of farms.

For maize grain, sowing intentions were down on last season (12% down). Of the growers responding to the survey, 27 harvested maize for grain in 2023, and 23 growers had intentions of sowing maize for grain in the spring of 2023.

For maize silage, sowing intentions as at June 1, 2023 on the survey farms were slightly down on last season (3% down). Of the growers responding to the survey, 71 harvested maize for silage in 2023, and 67 growers had intentions of sowing maize for silage in the spring of 2023.

Table A.3. Maize grain and silage sowing intentions as at June 1, 2023 (totalled over all survey respondents).

	Maize grain	Maize silage
Number of survey farmers who intend to sow in the 2023/2024 season	**23**	**67**
Total hectares on survey farms, 2022 harvest	1,610	3,150
Total hectares on survey farms, 2023 harvest	1,677	3,242
Sowing intentions for 2023/2024 season on survey farms as at June 1, 2023 (hectares, for harvest in 2024)	1,483	3,151
Estimated % change in sowings, 2022/2023 to 2023/2024 seasons	-11.5%	-2.8%

Calculation of scale-up factors

To scale the 87-farmer survey totals up to NZ national totals, Final 2022 Agricultural Production Statistics (APS) for maize grain and maize silage were used (Table A.4).

For maize grain, the 2022 harvest yields in tonnes/ha are also included in the table, to give an indication of how the survey farms compared with the APS figures; overall, survey farm yields were slightly higher than APS yields (11.8 versus 11.5 tonnes/ ha). For maize silage, the average 2022 harvest dry matter (DM) yield on the survey farms was 20.9 tonnes DM/ ha.

From the scale-up factors, we can see what percentage of the area of each 2022 harvest crop was on the survey farms. For maize grain, it was 100/ 10.140 = 9.9%, while for maize silage it was 100/ 17.115 = 5.8%. That is, the percentages were relatively low in both cases, although higher for maize grain than for maize silage.

Table A.4. Scaling up from survey totals to NZ-wide totals using Final 2022 Agricultural Production Statistics (APS) data.

	Maize Grain	Maize Silage
Total hectares on survey farms, 2022 harvest	1,610	3,150
Total tonnes on survey farms, 2022 harvest	18,976	65,871
Total hectares for 2022 harvest (Final APS data for Silage and Grain)	16,325	53,907
Total tonnes for 2022 harvest (Final APS data for Maize Grain only)	188,249	-
Multiplier for scaling up from 2022 survey farm totals to 2022 APS totals		
Hectares	10.140	17.115
Tonnes	9.920	17.115
Comparison of yields between survey and APS data		
Survey farms, 2022 harvest (t/ha)	11.8	20.9
APS data, 2022 harvest (t/ha)	11.5	-

Matched vs unmatched data:
** Matched data – The same growers are used to compare two seasons of data. Matched data are scaled up from totals over the survey farms to totals for NZ using the same scaling factors (given in Table A.4). Data in the tables consist of matched data except when a previous AIMI survey is referenced.*
** Unmatched data – Data comes from annual AIMI reports and doesn't compare the same set of growers or use the same scale-up factors. The graphs present unmatched data, except when stated otherwise in the caption (as in Figure 5, where the last two years are matched, and Figure 6, where the last three years are matched).*

AIMI receives funding from Ministry for Primary Industries, FAR, Arable Food Industry Council, NZ Flour Millers Association, NZ Feed Manufacturers Association Federated Farmers, United Wheat Growers.

ISSN: 2744-5755