



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

- *final figures for the 2023 harvest of maize grain and silage*
- *sales of the 2023 harvest of maize grain since June 1, 2023*
- *levels of unsold maize grain from the 2023 harvest*
- *sowings and sowing intentions for the current season for maize grown for grain and silage*

Survey details

Data from 84 NZ survey farms who completed all of the last three maize surveys (October 2022 and June and October 2023), were scaled up to the national level using the most recent, 2022, final NZ Agricultural Production Statistics (APS) for maize grain and maize silage. These figures reflect the position at 31st October 2023 and there will have been changes since this time. As with all surveys, there is a margin of error which needs to be considered in relation to this report.

Key Points (figures have been rounded to nearest 100):

- Final average yield of maize grain (9.8 t/ha) for the 2023 NZ harvest was down on that obtained last season (11.5 t/ha), and final average yield of maize silage (19.0 t dry matter (DM)/ha) was down on the 20.9 t DM/ha obtained last season. Note that these are averages across New Zealand and there will be differences across regions, especially in areas affected by a cyclone which caused flooding and wind damage in the North Island, on top of an already wet season.
- The estimated 168,300 tonnes for the **maize grain** 2023 NZ harvest was 11% down on last season's harvest tonnage (188,200 t), as a result of a reduced yield (down 15%) for an increased harvest area (up 5%). An estimated 99.6% of the total crop had been sold as at October 31, 2023, as compared to 93.8% sold as at June 1, 2023. This corresponds to a reduction in unsold tonnage from 10,000 t on June 1, 2023 to 600 t on October 31, 2023. Comparing to the same time last year, the unsold tonnage on 31 October, 2022 was similar, at 700 t. (Note that stocks held by merchants were not considered here).
- For **maize silage**, the estimated 1,050,300 tonnes DM for the 2023 NZ harvest was down 7% compared to last season's harvest tonnage (1,128,000 t DM). This was a result of a decreased yield (down 9%) for an increased harvest area (up 3%).
- Spring 2023 sowings and sowing intentions for **maize grain** as at 31 October 2023, were estimated to be up 5% on the area harvested last season. Sowing was only 51% complete (as compared to a 9-year average of 74%) and an estimated 43% of the 2024 maize grain harvest had been forward sold.
- For **maize silage**, spring 2023 sowings and sowing intentions were estimated to be down 6% on the area harvested last season. Sowing was only 55% complete (as compared to a 9-year average of 68%) and an estimated 74% of the 2024 maize silage harvest had been forward sold.
- A wet spring in the east and north of the North Island has delayed some sowings by 2-4 weeks.

Note: This survey only accounts for sales off farm and not what may be held by merchants.

Table 1. Final estimated national NZ figures for the 2023 harvest of maize grain and maize silage crops, plus sold and unsold tonnages of maize grain, as at October 31, 2023.

		Maize grain 23	Maize silage 68
Number of farmers in the survey who harvested this crop in 2023			
Units			
2022 harvest			
Estimated NZ total hectares, 2022 harvest	ha	16,325	53,907
Estimated NZ total tonnes, 2022 harvest	tonnes	188,249	1,127,967
2023 harvest			
Estimated NZ total hectares, 2023 final harvest figures	ha	17,089	55,397
Estimated NZ total tonnes, 2023 final harvest figures	tonnes	168,321	1,050,279
Sold under pre-harvest contract by October 31, 2023	tonnes	163,204	-
Sold at spot/free price by October 31, 2023	tonnes	2,938	-
Used on own farm by October 31, 2023	tonnes	1,581	-
Unsold stocks on hand (2023 harvest only) on October 31, 2023	tonnes	598	-
Total sales (2023 harvest)			
Sold (grand total) by October 31, 2023 (includes used on farm)	tonnes	167,723	-
Unsold stocks on hand (from 2023 harvest) on October 31, 2023	tonnes	598	-
Comparison of hectares and tonnages between the last two harvests			
Estimated % change in hectares, 2022 to 2023 harvest	%	5%	3%
Estimated % change in tonnes, 2022 to 2023 harvest	%	-11%	-7%
Comparison of final yields (t/ha) between the last two harvests			
NZ-wide estimated yield, 2022 harvest	t/ha	11.5	20.9
NZ-wide estimated yield, 2023 harvest	t/ha	9.8	19.0
Unsold stocks on hand on June 1, 2023, the last survey date (based upon matched data)			
Unsold stocks on hand (from 2023 harvest) on June 1, 2023 (of total crop)	tonnes	9,960	-
2022 harvest sales at same time last year, October 31, 2022 (based upon matched data)			
Sold under pre-harvest contract by October 31, 2022 (2022 harvest)	tonnes	172,513	-
Sold at spot/free price by October 31, 2022 (2022 harvest)	tonnes	13,929	-
Used on own farm by October 31, 2022 (2022 harvest)	tonnes	1,129	-
Unsold stocks on hand (from 2022 harvest) on October 31, 2022	tonnes	678	-

Note: The matched comparisons in the last two sections were based upon scaling up data from the exact same survey farms for the last three AIMI maize surveys. Statistics NZ 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.

In Table 1, the unsold tonnage of the 2023 harvest of maize grain was estimated to be 10,000 t at the time of the AIMI survey dated June 1, 2023, and reduced to an estimated 600 t as at October 31, 2023. This compares to 700 tonnes of unsold maize grain at the same time last year.

Table 2. Estimated NZ sowings, sowing intentions and forward sales of maize grain and maize silage as at October 31, 2023.

	Maize grain	Maize silage
Number of farmers in survey who have sown or intend to sow this crop as at October 31, 2023	20	66
Estimated NZ total hectares, 2022 harvest	16,325	53,907
Estimated NZ total hectares, 2023 harvest	17,089	55,397
Sowings and intentions, 2023/2024 season (hectares, for harvest in 2024)		
Estimated NZ total hectares already sown by October 31, 2023	9,166	28,703
Estimated NZ total hectares intending to sow after October 31, 2023	8,784	23,340
Estimated NZ total hectares (sowings and intentions), 2024 harvest	17,950	52,043
% of predicted NZ hectares which had already been sown by October 31, 2023	51%	55%
Average over previous 9 years of % of predicted NZ hectares which had been sown by 31 October	74%	68%
"Forward sales" of 2023/2024 crop (including "for own use")		
Predicted NZ total hectares that are "forward sold", as at 31 October, 2023	7,789	38,533
Estimated percentage of NZ total hectares that are "forward sold", as at 31 October, 2023	43%	74%
Comparison of hectares between the 2022, 2023 and 2024 (predicted) harvests		
Estimated % change in NZ total sowings, 2022 to 2023 harvest	5%	3%
Estimated % change in NZ total sowings, 2023 to 2024 (predicted) harvest	5%	-6%
Comparison of sowing intentions as at June 1, 2023 with sowings plus intentions as at Oct 31, 2023 (based upon matched data)		
Estimated NZ total 2023 sowing intentions as at June 1, 2023 (hectares, for harvest in 2024)	15,225	53,636
Change in estimated NZ total 2023 sowings & intentions between June 1, 2023 and Oct 31, 2023 (hectares, for harvest in 2024)	2,725	-1,594

Note: The matched comparisons in the last two sections were based upon scaling up data from the exact same survey farms for the last three AIMI surveys.

In Table 2, the estimated area sown plus sowing intentions for maize grown for grain is up 5% this season when compared to the 2023 harvest. The estimated sowings plus intentions for maize grown for silage is down 6% on last season's harvest (2023 harvest). As at 31 October 2023, maize grain sowing was 51% complete, and maize silage sowing was 55% complete. Wet weather delayed sowing by 2-4 weeks in several North Island regions. By comparison, as an average over the previous nine years, maize grain and maize silage sowing were 74% and 68% complete as at 31 October, respectively, so the current season is

substantially delayed. Thus, estimates of the predicted 2024 harvest area are less reliable than usual. Firmer estimates of the 2024 harvest area will be determined in the June 2024 survey.

The 2024 maize grain harvest was estimated to be 43% forward sold to other parties. This left 57% as free grain, unspoken for as at 31 October, 2023. The 2024 maize silage harvest was estimated to be 74% forward sold as at 31 October, 2023, including 43% of the harvest which was estimated to be for the “own use” of the growers.

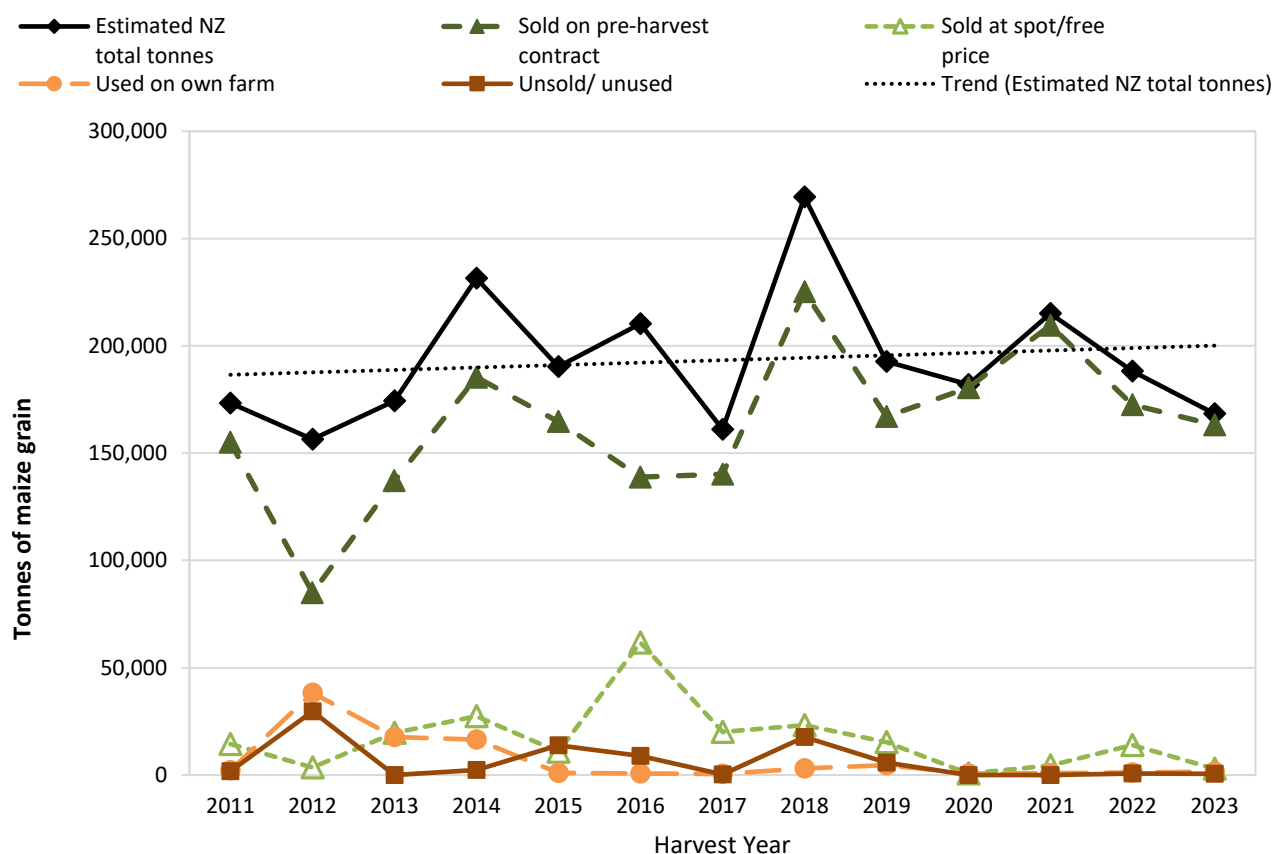


Figure 1. Maize grain final NZ harvest tonnages and sales as estimated in October each year.

Note: Historical data for 2011 to 2021 are from October AIMI Maize Reports, while data for 2022 and 2023 are matched data from the current report. The dotted line shows the trend in the maize grain harvest tonnages.

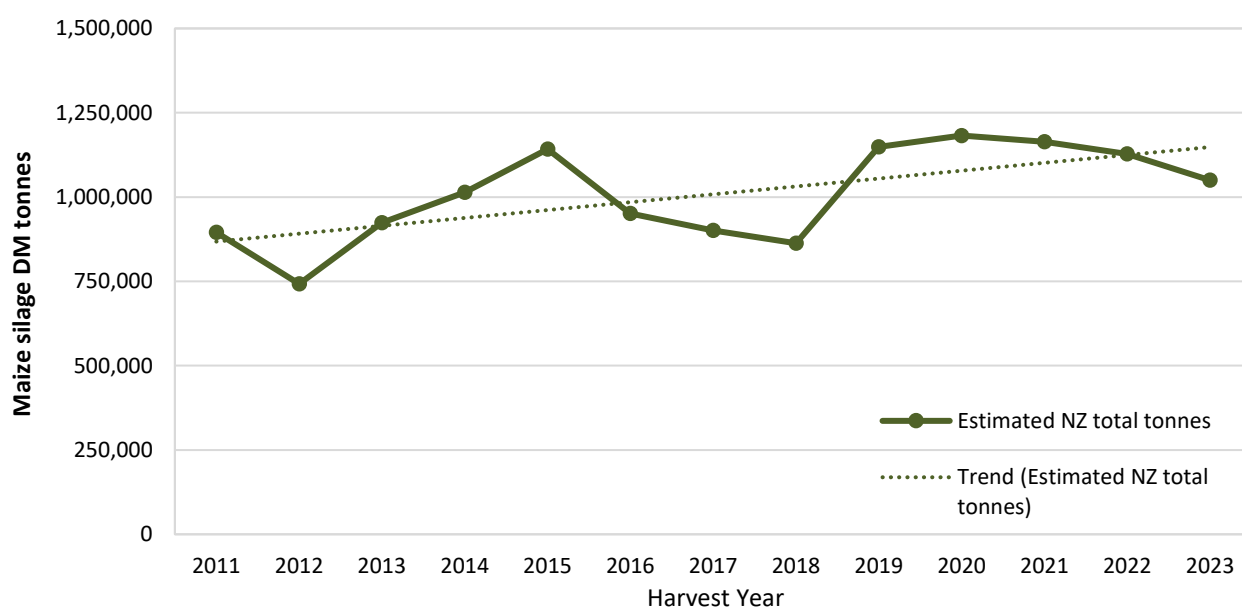


Figure 2. NZ maize silage harvest tonnages (dry matter (DM)) estimated in October each year.

Note: Historical data for 2011 to 2021 are from the annual October AIMI Maize Reports, except that estimates for 2011 to 2014 have been retrospectively adjusted in the light of recently obtained APS hectare estimates for each preceding year. Data for 2022 and 2023 are matched data from the current report. The dotted line shows the trend in the maize silage harvest tonnages.

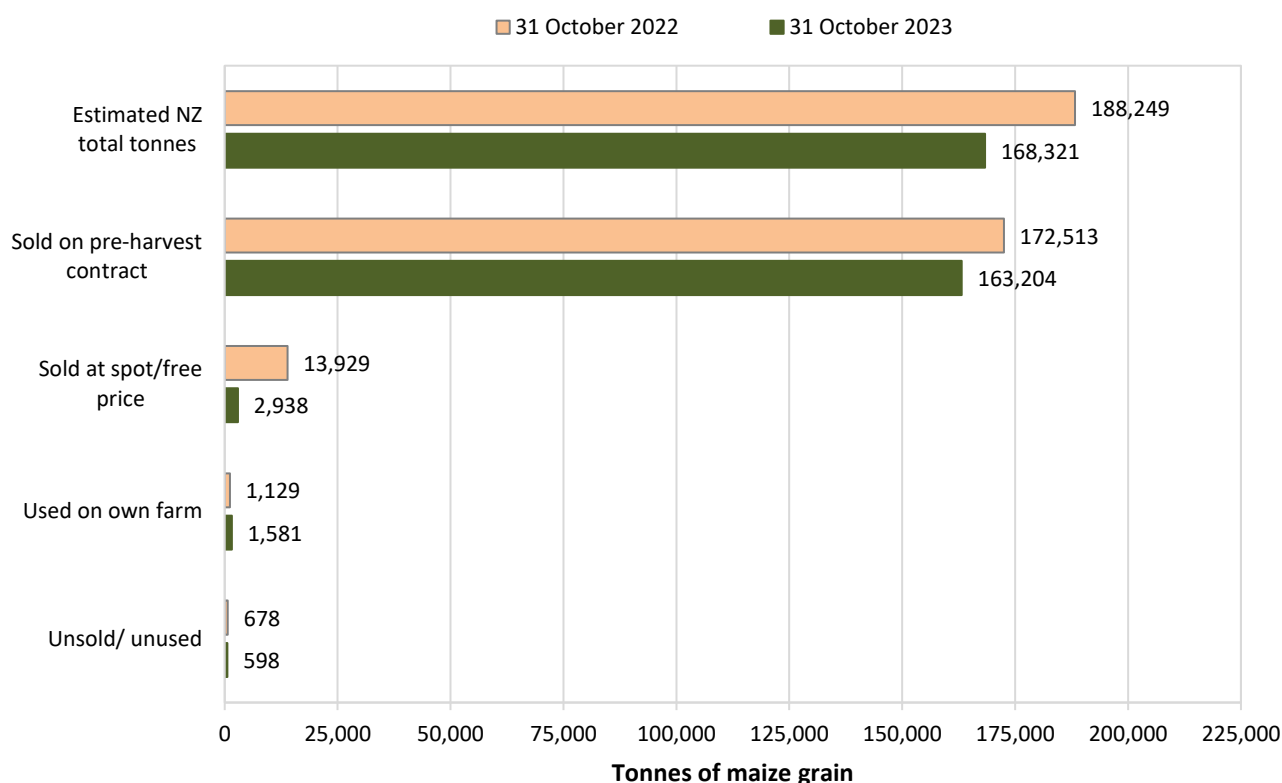


Figure 3. Comparison of maize grain tonnages and sales for NZ harvest between October 31, 2022 and October 31, 2023. These data are also reported in Table 1 and Figure 1. All estimates are based upon scaling up data from growers in the current survey sample, so provide a precise, matched comparison.

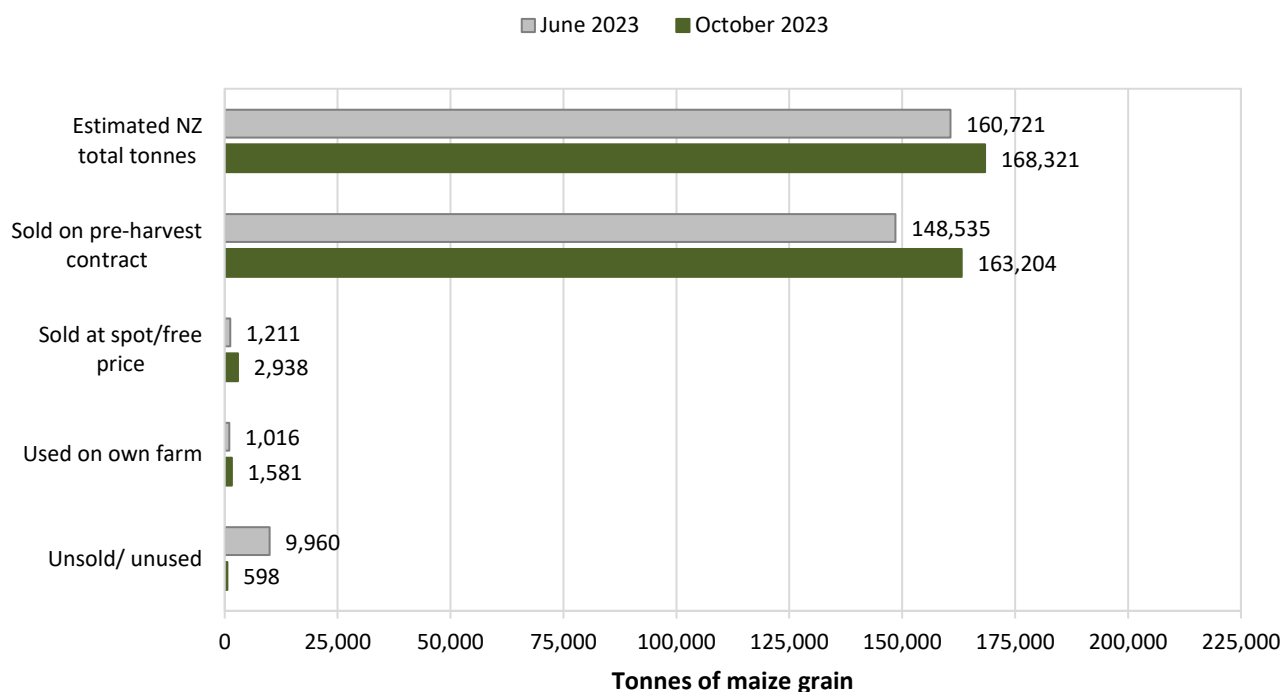


Figure 4. Comparison of maize grain tonnages and sales for the 2023 NZ harvest between June 1 and October 31, 2023.

Note: June estimates contain estimates from unharvested crop. All estimates are based upon scaling up data from growers in the current survey sample, so provide a precise, matched comparison.

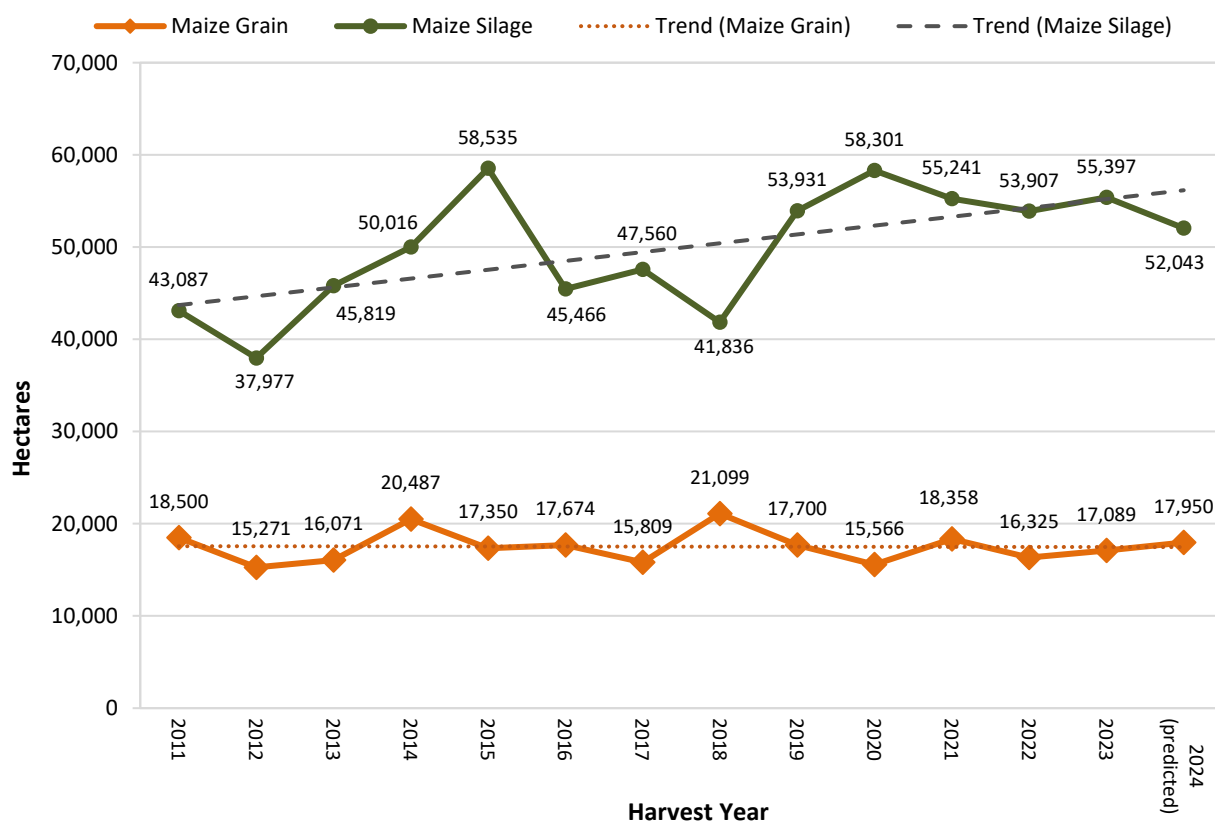


Figure 5. NZ harvest hectares estimated in October each year, from 2011 to 2023, and predicted hectares for harvest in 2024. Trend lines are included as dotted (maize grain) and dashed (maize silage) lines. Note: Figures for 2022, 2023 and 2024 (predicted) are matched data from the current report (Table 2). Other figures are sourced from previous October AIMI Maize Reports except that for maize silage, estimates for 2011 to 2014 have been retrospectively adjusted in the light of recently obtained APS hectare estimates for each preceding year.

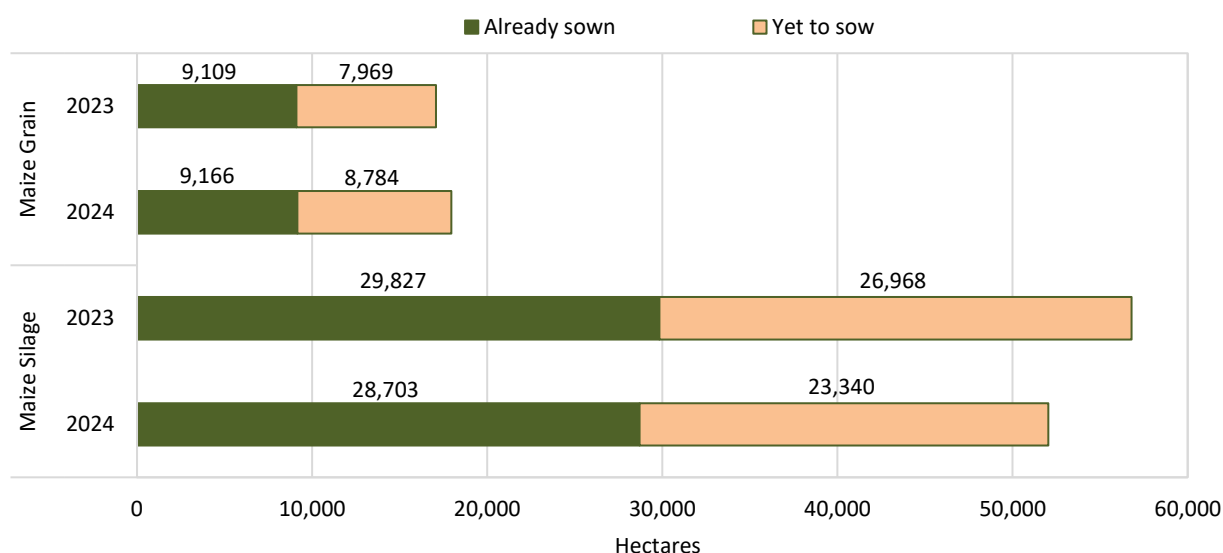


Figure 6. Estimated NZ hectares of maize already sown in spring 2023, together with NZ hectares yet to be sown (spring intentions) for harvest in 2024, based on data collected on October 31, 2023. For comparison, the corresponding 2022 estimates (for harvest in 2023) are also given, based on data collected on October 31, 2022. As in Figures 3 and 4, all estimates are based upon scaling up data from growers in the current survey sample, so provide a precise, matched comparison.

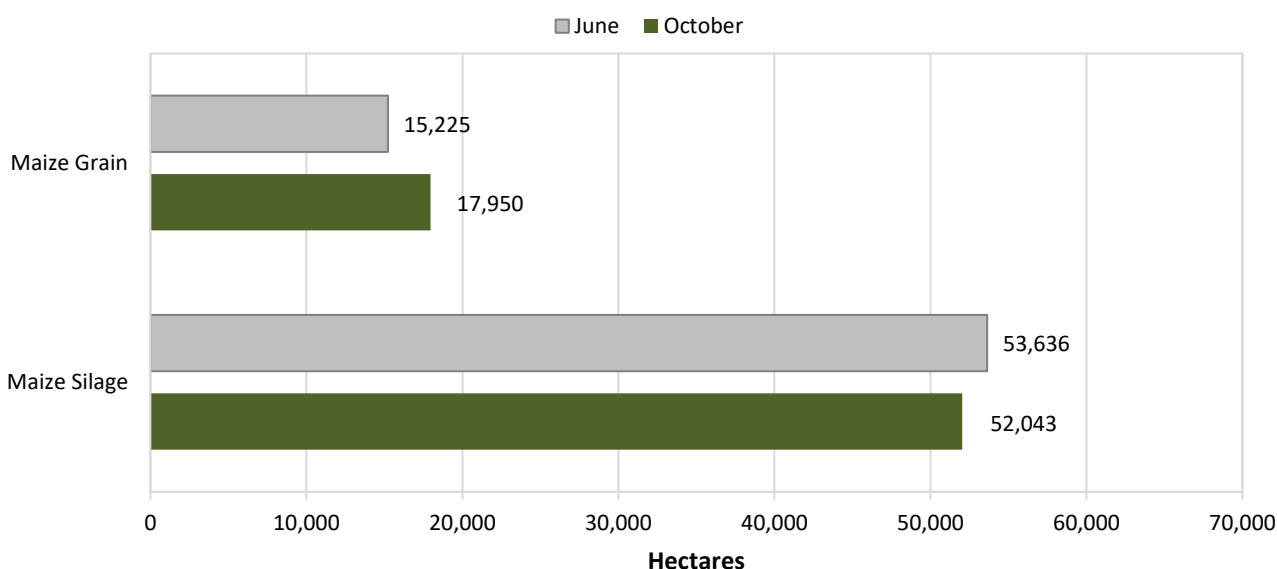


Figure 7. Comparison of NZ spring maize sowing intentions as at June 1, 2023 with actual sowings plus intentions as at October 31, 2023. These data are also reported in Table 2. As in Figures 3, 4 and 6, this is a matched comparison.

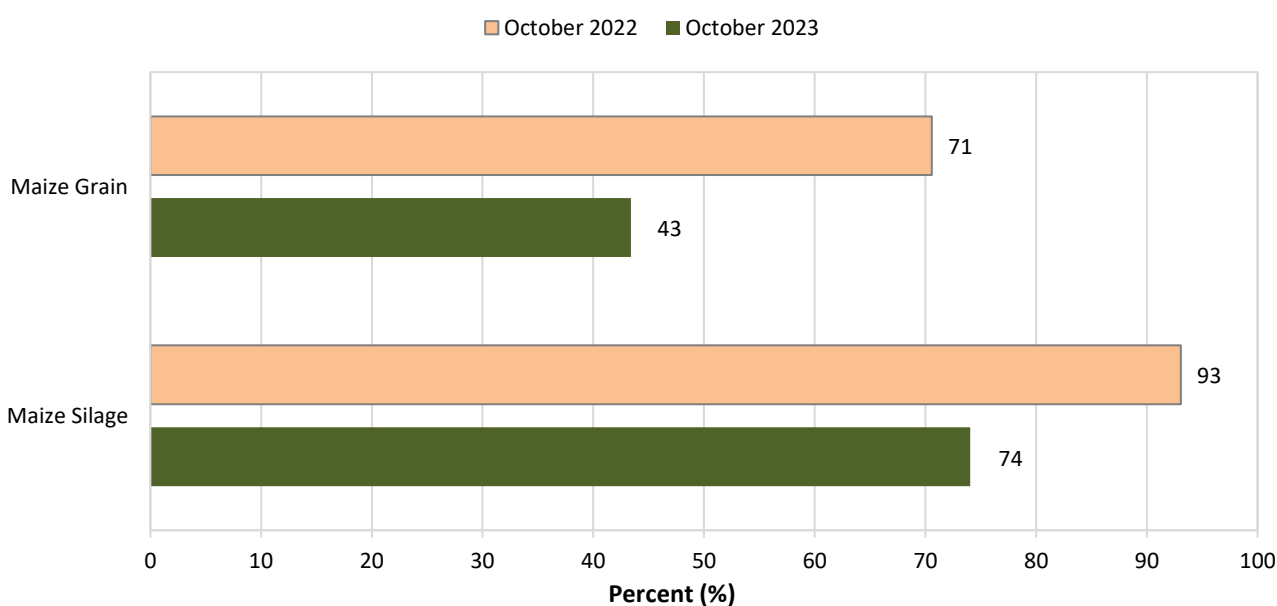


Figure 8. Percentage of total NZ maize crop (spring sowings plus spring intentions) that had been forward sold as at October 31, 2022 (for predicted 2023 harvest) and October 31, 2023 (for predicted 2024 harvest). (Includes silage crops grown for use on own farm.) As in Figures 3, 4, 6 and 7, this is a matched comparison.

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Maize survey panel*	109
Number completing October survey	100
Report group (must complete Oct 22, June 23 & current survey)	84

*Includes 15 new recruits in October 2023

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

Regional Breakdown

Maize Grain 2023 Harvest (data scaled up to NZ figures):

Region	Number harvesting	Hectares harvested	Tonnes harvested	Average yield (t/ha)	Number sowing	Hectares sown	Hectares yet to sow	Total hectares for harvest in 2024
NNI	8	8,254	68,799	8.3	7	3,067	5,609	8,676
ENI	8	5,438	57,670	10.6	7	3,067	3,032	6,099
SWNI	6	2,508	30,842	12.3	5	2,257	143	2,400
NSI	-	-	-	-	-	-	-	-
MC	1	889	11,010	12.4	1	775	-	775
SCNO	-	-	-	-	-	-	-	-
Total	23	17,089	168,321	9.8	20	9,166	8,784	17,950

Maize Silage 2023 Harvest (data scaled up to NZ figures):

Region	Number harvesting	Hectares harvested	Tonnes harvested	Average yield (t/ha)	Number sowing	Hectares sown	Hectares yet to sow	Total hectares for harvest in 2024
NNI	42	34,461	606,384	17.6	41	18,435	16,677	35,113
ENI	4	3,001	56,468	18.8	4	945	2,504	3,448
SWNI	16	13,483	279,028	20.7	15	7,041	3,519	10,560
NSI	2	2,250	55,899	24.8	2	888	-	888
MC	3	1,936	46,108	23.8	3	1,172	639	1,811
SCNO	1	266	6,393	24.0	1	222	-	222
Total	68	55,397	1,050,279	19.0	66	28,703	23,340	52,043

Grower comments:

Expensive to grow. Price too low, no commitment from dairy sector - some not honouring contracts, opting for cheaper imported feed.

Reports of wet conditions delaying sowing in NNI and ENI. Some opting to grow grass instead of maize.

Totals over 84 survey responses

In Table A.1, the average yield per hectare of maize grain on the survey farms was down 1.7 t/ha between the 2022 and 2023 harvests. For maize silage, the average yield per hectare on the survey farms was down 2.0 t DM/ha between the 2022 and 2023 harvests.

Table A.1 Maize grain and silage data totalled over all survey respondents			
	Units	Maize grain 23	Maize silage 68
Number of farmers in the survey who harvested this crop in 2023			
2022 harvest			
Total hectares on survey farms, 2022 harvest	ha	1,432	3,036
Total tonnes on survey farms, 2022 harvest	tonnes	16,670	63,522
2023 harvest			
Total hectares on survey farms, 2023 final harvest figures	ha	1,499	3,120
Total tonnes on survey farms, 2023 final harvest figures	tonnes	14,906	59,147
Sold under pre-harvest contract by October 31, 2023	tonnes	14,453	-
Sold at spot/free price by October 31, 2023	tonnes	260	-
Used on own farm by October 31, 2023	tonnes	140	-
Unsold stocks on hand (2023 harvest only) on October 31, 2023	tonnes	53	-
Comparison of yield (tonnes per ha) on survey farms between harvests			
Survey farms, 2022 harvest	t/ha	11.6	20.9
Survey farms, 2023 harvest	t/ha	9.9	19.0
Unsold grain on June 1, 2023 (last survey) on these SAME survey farms			
Unsold (from 2023 harvest) on June 1, 2023 (of total crop)	tonnes	882	-
2022 harvest sales at same time last year, October 31, 2022, on these SAME survey farms (for a matched comparison)			
Sold under pre-harvest contract by October 31, 2022 (2022 harvest)	tonnes	15,277	-
Sold at spot/free price by October 31, 2022 (2022 harvest)	tonnes	1,234	-
Used on own farm by October 31, 2022 (2022 harvest)	tonnes	100	-
Unsold stocks on hand (2022 harvest only) on October 31, 2022	tonnes	60	-

In Table A.2, the data on sales of the maize grain crop in Table A.1 are expressed as percentages.

Table A.2 Fate of 2023 maize grain crop, in percentages (by tonnes)	
	Maize grain 23
Number of farmers in the survey who harvested this crop in 2023	
2023 harvest	
% Sold under pre-harvest contract by October 31, 2023	97.0
% Sold at spot/free price by October 31, 2023	1.7
% Used on own farm by October 31, 2023	0.9
% Unsold stocks on hand on October 31, 2023	0.4
Total sales (2023 harvest)	
% Sold (of total crop) by October 31, 2023 (includes used on own farm)	99.6
% Unsold (of total crop) on October 31, 2023	0.4

In Table A.3, the 2023 spring sowings and sowing intentions as at October 31, 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, sowings and sowing intentions as at October 31, 2023 on the survey farms are up 5% on what was harvested last season. For maize silage, sowings and sowing intentions as at October 31, 2023 on the survey farms are down 6% on what was harvested last season.

The 2024 maize grain harvest is estimated to be 43% forward sold, while the 2024 maize silage harvest is estimated to be 74% forward sold. The latter included 43% of the silage which was destined for the own use of the grower.

Table A.3 Maize grain and silage sowings and intentions (totalled over all survey respondents)		
	Maize grain	Maize silage
Number of farmers in survey who have sown or intend to sow this crop as at October 31, 2023	20	66
Number of farmers in survey who have sown this crop by Oct 31, 2023	15	45
Number of farmers in survey who intend to sow this crop after Oct 31, 2023	10	31
Total hectares on survey farms, 2022 harvest	1,432	3,036
Total hectares on survey farms, 2023 harvest	1,499	3,120
Sowings and intentions, 2023/2024 season (hectares, for harvest in 2024)		
Hectares already sown on survey farms by October 31, 2023	804	1,616
Hectares intending to sow on survey farms after October 31, 2023	771	1,314
Total hectares (sowings and intentions) on survey farms for harvest in 2024	1,575	2,931
Estimated % change in sowings on survey farms, 2023 to 2024 (pred) harvest	5%	-6%
"Forward sales" of 2023/2024 crop (including "for own use")		
Total hectares on survey farms that are "forward sold", as at Oct 31, 2023	683	2,170
Percentage of hectares on survey farms that are "forward sold", as at Oct 31, 2023	43%	74%

Calculation of scale-up factors

To scale the 84-farmer survey totals up to NZ national totals, Final 2022 APS statistics for maize grain and maize silage were used (Table A.4).

Table A.4 Scaling up from survey totals to NZ-wide totals using Final 2022 Agricultural Production Statistics (APS)		
	Maize grain	Maize silage
Total hectares on survey farms, 2022 harvest	1,432	3,036
Total tonnes on survey farms, 2022 harvest	16,670	63,522
Total hectares for 2022 harvest (Final APS statistics for silage and grain)	16,325	53,907
Total tonnes for 2022 harvest (Final APS statistics for maize grain only)	188,249	-
<i>Multiplier for scaling up from survey farms to APS statistics</i>		
Hectares	11.400	17.757
Tonnes	11.292	17.757
<i>Comparison of yields between survey and APS statistics</i>		
Survey farms, 2022 harvest (t/ha)	11.6	20.9
APS statistics, 2022 harvest (t/ha)	11.5	-

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.

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 similar to APS yields (11.6 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 $100/11.400 = 8.8\%$, while for maize silage it was $100/17.757 = 5.6\%$. That is, for maize grain about 1/11th of hectares was sampled in the survey, while for maize silage about 1/18th of hectares was sampled. That is, a higher percentage of the maize grain area was sampled than for maize silage. Part of the reason may be that maize grain growers are better represented in the FAR levy list than maize silage growers, so a higher percentage of the population of maize grain growers was selected for the survey than of the population of maize silage growers.

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