



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

- *the size of the 2022 NZ harvest of maize grain and maize silage*
- *the percentage of the 2022 NZ maize harvest which was sold as at June 1, 2022*
- *the sowing intentions for the spring of 2022*

Survey details

The data from 101 NZ survey farms as at June 1, 2022 were scaled up to the national level using the most recent NZ Agricultural Production Statistics (the Final 2021 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 2022 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 2022 (figures, from Table 1 and 2, have been rounded to nearest 100):

- The average yield of maize grain (11.6 t/ha) for the 2022 NZ harvest was slightly down on last season (at 12.0 t/ha). The average yield of maize silage (21.0 t dry matter (DM)/ha) for the 2022 NZ harvest was also slightly down on last season (at 21.2 t DM/ha). (Note that these are averages across New Zealand and there will be differences across regions).
- The NZ **maize grain** harvest was 83% complete as at June 1, 2022 which was slightly earlier than normal (over the previous nine years, the average was 78% complete). The estimated total tonnage of 195,900 tonnes (including unharvested grain) was down on last season's harvest tonnage (down 6%), as a result of a reduced yield (down 3%) from a reduced harvest area (down 3%). Most (96.7%) of the total crop had been sold, leaving 5,600 tonnes unsold, as held by growers, as at June 1, 2022 (as compared to 700 and 600 tonnes at the same time last year and the previous year, respectively, and much higher tonnages at the same time in all of the six previous years). (Note that the quantity of maize grain held by merchants has not been determined in this survey). Spring 2022 sowing intentions as at June 1, 2022 were estimated to be 11% higher than last season.
- The NZ **maize silage** harvest was 99% complete as at June 1, 2022 which was normal (over the previous nine years, the average was 99% complete). The estimated total tonnage of 1,202,800 tonnes DM was up 2% compared to last season's harvest, as the result of a lower yield (down 1%) from an increased harvest area (up 3%). About 68% of the total silage crop had been sold or used, leaving 390,200 tonnes DM unused/unsold as at June 1, 2022 (as compared to 477,000 tonnes DM at the same time last year, and 390,400, 456,000, 349,000, 456,700, 365,100 and 457,600 tonnes DM at the same time in the six previous years). Spring 2022 sowing intentions as at June 1, 2022 were similar to last season (down 2%).

Table 1. Estimated national figures for the 2022 NZ harvest, plus sold tonnages, for maize grain and maize silage as at June 1, 2022.

		Maize grain	Maize silage
	Units	27	81
Number of farmers in the survey who harvested or will harvest this crop in 2022			
2021 harvest			
Estimated NZ total hectares, 2021 harvest	ha	17,500	55,522
Estimated NZ total tonnes, 2021 harvest	tonnes	209,300	1,179,797
2022 harvest			
Estimated NZ total hectares, 2022 harvest	ha	16,951	57,283
Estimated NZ total tonnes, 2022 harvest	tonnes	195,921	1,202,801
Estimated NZ total hectares already harvested by June 1, 2022	ha	14,056	57,023
Estimated NZ total tonnes already harvested by June 1, 2022	tonnes	161,833	1,196,759
Estimated NZ total hectares yet to harvest as at June 1, 2022	ha	2,895	260
Estimated NZ total tonnes yet to harvest as at June 1, 2022	tonnes	34,088	6,041
Percentage of estimated 2022 NZ crop tonnage which had been harvested by June 1, 2022	%	83%	99%
Average over previous 9 years of % of NZ crop tonnage which had been harvested by June 1	%	78%	99%
2022 crop already harvested (by June 1, 2022)			
Sold under pre-harvest contract by June 1, 2022	tonnes	147,155	641,817
Sold at spot/free price by June 1, 2022	tonnes	12,693	
Used on own farm (2022 harvested maize only) by June 1, 2022	tonnes	809	170,796
Unsold/unused stocks on hand (2022 harvest only) on June 1, 2022	tonnes	1,176	384,146
2022 crop yet to be harvested (as at June 1, 2022)			
Unharvested crop sold under pre-harvest contract by June 1, 2022	tonnes	29,677	0
Unharvested crop unsold/unused as at June 1, 2022	tonnes	4,411	6,041
Total sales (2022 harvest): includes unharvested grain			
Sold (of total crop) by June 1, 2022 (includes used on farm)	tonnes	190,334	812,613
Unsold/unused (of total crop) on June 1, 2022	tonnes	5,587	390,187
Comparison of hectares and tonnages between last two harvests			
Estimated % change in hectares, 2021 to 2022 harvest	%	-3.1%	3.2%
Estimated % change in tonnes, 2021 to 2022 harvest	%	-6.4%	1.9%
Comparison of yields (tonnes/ ha) between the last two harvests			
NZ-wide yield, 2021 harvest	t/ha	12.0	21.2
NZ-wide yield, 2022 harvest	t/ha	11.6	21.0
Comparison of unsold/unused tonnages between the last nine harvests			
Unsold/unused (of total crop) on June 1, 2022 (as above)	tonnes	5,587	390,187
Unsold/unused at the same time last year (June 2021 AIMI Report)	tonnes	671	477,018
Unsold/unused at the same time, previous year (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 2021 NZ Agricultural Production Statistics data on total hectares and tonnes for maize grain, and total hectares for maize silage.

Crops sown in 2021 experienced variable weather conditions throughout the season. Most maize growing regions had a slow start, with cold wet soil conditions delaying drilling and slowing growth. Some crops were flooded and had to be redrilled. Average to above average summer temperatures across many regions led to some good growth, but also reduced soil moisture levels. Moisture levels were replenished in parts of the North Island and upper South Island via a couple of tropical cyclones which brought heavy rain and also flattened many crops. However, soil moisture remained below average in Northland, Auckland and northern Waikato into the autumn.

In Table 1 above, the estimated 2022 harvest tonnes of maize grain were 6% down on the 2021 harvest, with reduced harvest hectares (down 3%) and a reduced yield (down 3%). For maize silage, harvest tonnes were up 2% on the previous season, with increased harvest hectares (up 3%) and a lower yield (down 1%).

Unsold stocks on hand of maize grain, as held by growers as at 1 June 2022 (5,600 tonnes), were higher than the last two seasons (700 and 600 tonnes, respectively), but down as compared to the previous six seasons (see the last six rows of Table 1). Unsold/unused maize silage stocks on hand (390,200 tonnes DM) were not unusually high or low, being higher than three of the eight previous seasons, very similar to one season, and lower than four of these seasons (see the last eight rows of Table 1).

As at 1 June 2022, maize grain sowing intentions (hectares) for 2022/23 were 11% up on last season, and maize silage sowing intentions were 2% down on last season (Table 2). On the survey farms, 28 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, 78 growers intended growing maize for silage this coming season (Table 2), as compared to 81 growers this last season (Table 1).

Table 2. NZ maize sowing intentions as at June 1, 2022, in comparison with previous years' estimates.

	Maize grain	Maize silage
Number of farmers in the survey who intend to sow in the 2022/2023 season	28	78
Estimated NZ total hectares, 2021 harvest	17,500	55,522
Estimated NZ total hectares, 2022 harvest	16,951	57,283
Estimated NZ total sowing intentions for 2022/2023 season (for harvest in 2023) (hectares)	18,827	56,342
Estimated % change in sowings, 2021/2022 to 2022/2023 seasons	11.1%	-1.6%

Summary results in June each year

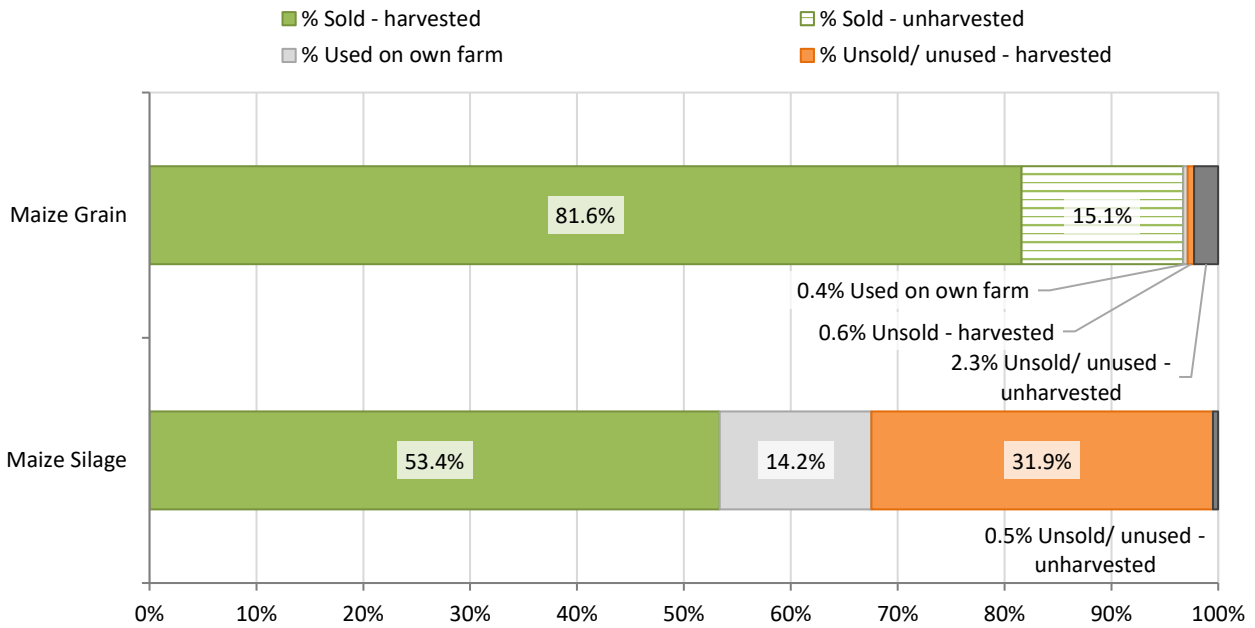


Figure 1. Percentage of maize crop sold, used on own farm and unsold/unused from the 2022 NZ harvest, including unharvested grain, as at June 1, 2022.

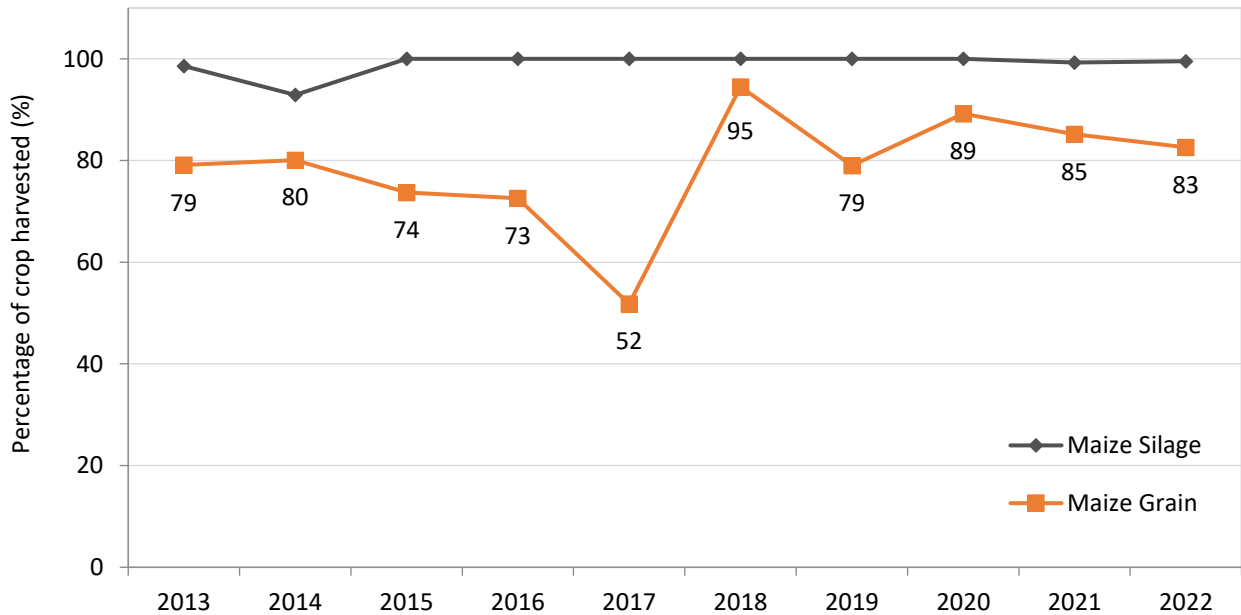


Figure 2. Comparison of percentage of tonnes harvested by June 1 from 2013 to 2022. (Data are sourced from annual June AIMI Maize reports.)

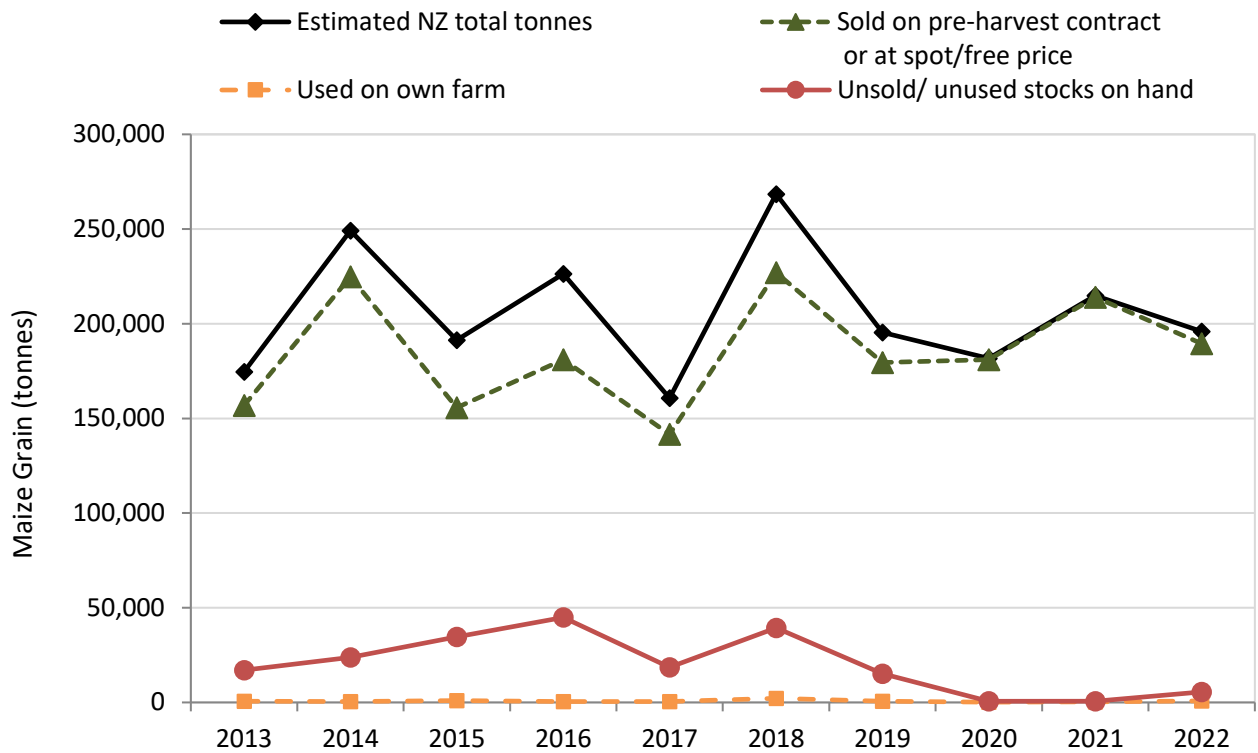


Figure 3. NZ harvest tonnages and sales for maize grain by June 1 from 2013 to 2022. Unharvested grain is included. (Data are sourced from annual June AIMI Maize reports.)

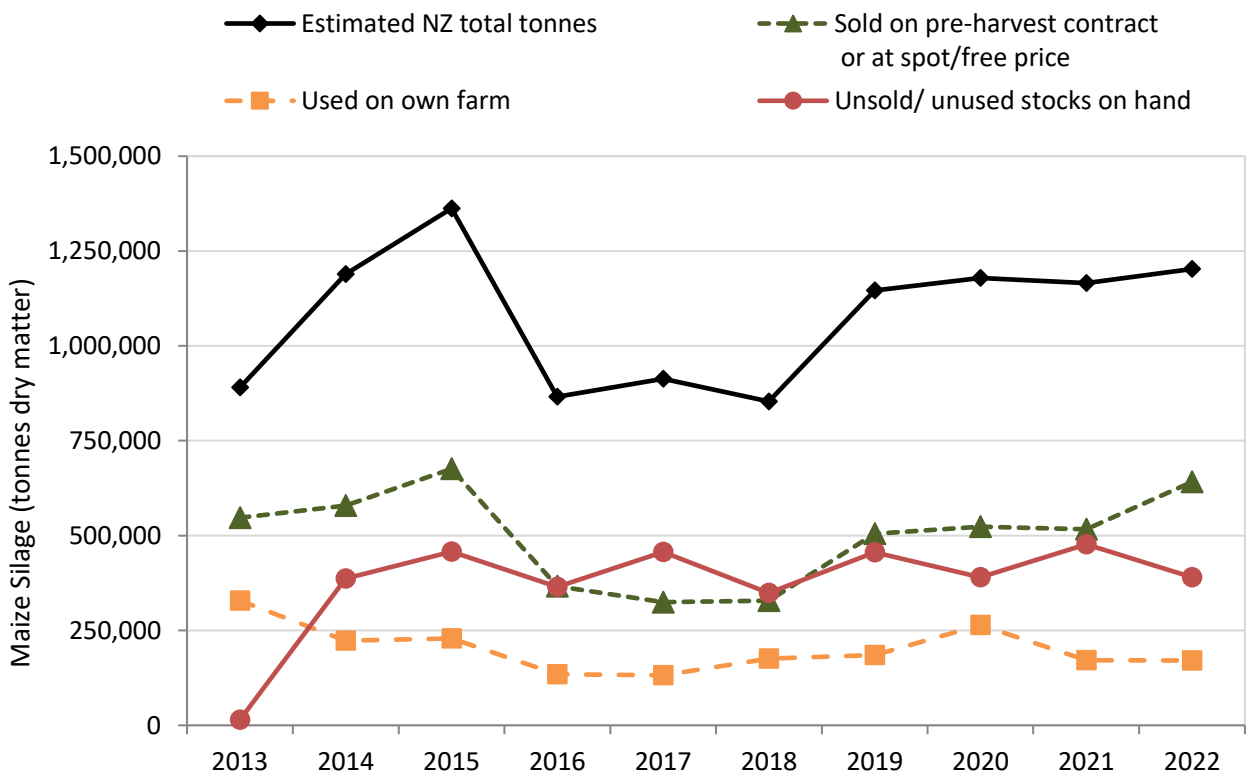


Figure 4. NZ harvest tonnages (dry matter (t/ha)) and sales for maize silage by June 1 from 2013 to 2022. Unharvested grain is included. (Data are sourced from annual June AIMI Maize reports.)

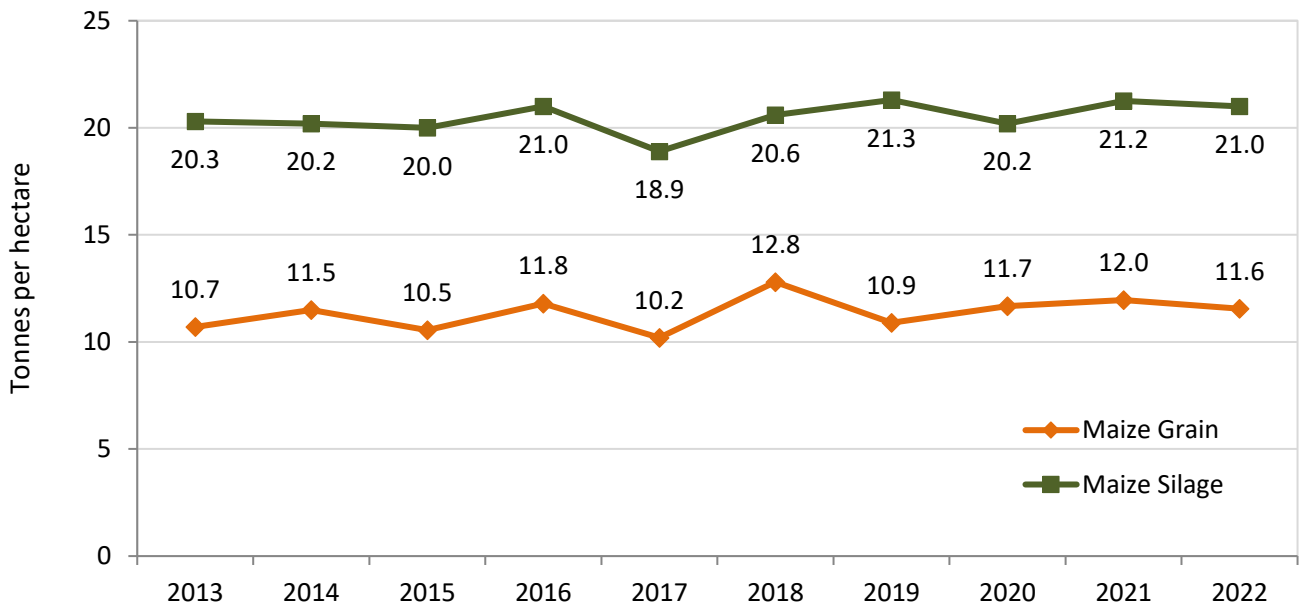


Figure 5. Comparison of estimated NZ-wide yields (tonnes per hectare) from 2013 to 2022. (Data for 2021 and 2022 are matched data from the current report, while other data are sourced from annual June AIMI Maize reports.)

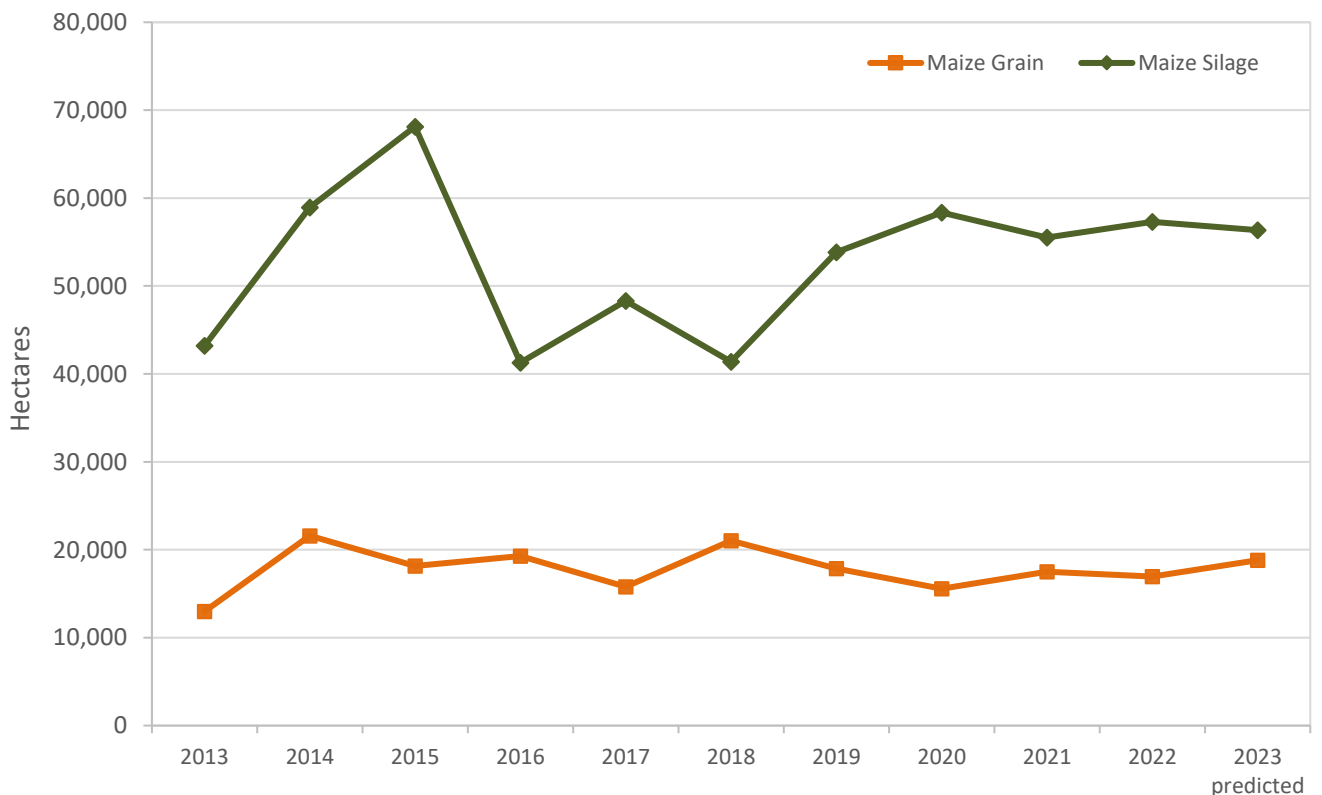


Figure 6. NZ harvest hectares of maize grain and maize silage as estimated in June each year from 2013 to 2022, and predicted harvest hectares for 2023. Note: all figures represent harvest hectares except for 2023 which is made up of hectares intended to be sown for harvest in 2023. Data from 2013 to 2020 are total harvest figures, including hectares yet to be harvested, from annual June AIMI reports, while 2021 to 2023 are a matched comparison (scaled up from a common set of growers) from the current report.

APPENDIX & REGIONAL DATA

NEW ZEALAND SURVEY OF MAIZE
AREAS AND VOLUMES: JUNE 1, 2022

Maize survey panel	107
Number completing June survey	105
Report group (must complete Oct 21 & current survey)	101

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 start, a dry finish for the north of the North Island and a couple of tropical cyclones bringing heavy rain and flattening some crops. Many reported crops yielding better than expected. The warm temperatures making up for the slow start and some rainfall at the right time.

Some good prices being paid for grain. Increase in input costs, logistics getting more expensive/harder to source – means some growers are holding off making decisions about sowing for the coming season.

REGIONAL DATA (From 101 responses)

Table 1: Maize Grain - data from 28 growers (not scaled to NZ estimates).

	Count of growers harvesting	Hectares harvested	Tonnes harvested	Average yield (t/ha)	Hectares yet to harvest	Count of growers sowing	Hectares intending to sow in spring
NNI	8	682	6,570	9.6	38	9	852
ENI	12	814	11,265	13.8	237	12	1,128
SWNI	6	276	4,059	14.7	15	6	336
NSI							
MC	1	10	120	12.0	77	1	70
SCNO							
Total	27	1,782	22,014	12.4	367	28	2,387

Table 2: Maize Silage - data from 81 growers (not scaled to NZ estimates).

Region	Count of growers harvesting	Hectares harvested	Tonnes harvested	Average yield (t/ha)	Hectares yet to harvest	Count of growers sowing	Hectares intending to sow in spring
NNI	48	2,101	44,242	21.1	16	48	2,103
ENI	7	228	5,092	22.4		6	224
SWNI	20	867	17,272	19.9		18	817
NSI	2	106	2,465	23.4		2	105
MC	3	82	1,870	22.8		3	93
SCNO	1	15	375	24.5		1	15
Total	81	3,398	71,315	21.0	16	78	3,357

Totals over 101 survey responses

In Table A.1, maize grain yields per hectare on the survey farms were down 3% between the last two harvests, 2021 and 2022. Maize silage yields were down 1% from 2021 to 2022.

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 2022		27	81
Number of survey farmers who have harvested some or all of this crop, as at June 1, 2022		26	81
Number of survey farmers who have still to harvest some or all of this crop, as at June 1, 2022		9	1
2021 harvest			
Total hectares on survey farms, 2021 harvest	ha	2,218	3,309
Total tonnes on survey farms, 2021 harvest	tonnes	28,471	70,304
2022 total harvest			
Total hectares on survey farms, 2022 harvest	ha	2,149	3,414
Total tonnes on survey farms, 2022 harvest	tonnes	26,651	71,675
Total hectares on survey farms already harvested by June 1, 2022	ha	1,782	3,398
Total tonnes on survey farms already harvested by June 1, 2022	tonnes	22,014	71,315
Total hectares on survey farms yet to harvest (as at June 1, 2022)	ha	367	16
Total tonnes on survey farms yet to harvest (as at June 1, 2022)	tonnes	4,637	360
Percentage of survey crop tonnage harvested by June 1, 2022	%	83%	99%
2022 crop already harvested (by June 1, 2022)			
Sold under pre-harvest contract by June 1, 2022	tonnes	20,017	38,246
Sold at spot/free price by June 1, 2022	tonnes	1,727	
Used on own farm (2022 harvested maize only) by June 1, 2022	tonnes	110	10,178
Unsold/unused stocks on hand (2022 harvest only) on June 1, 2022	tonnes	160	22,891
2022 crop yet to be harvested (as at June 1, 2022)			
Unharvested crop sold under pre-harvest contract by June 1, 2022	tonnes	4,037	0
Unharvested crop unsold/unused as at June 1, 2022	tonnes	600	360
Comparison of yield (tonnes per ha) on survey farms between harvests			
Survey farms, 2021 harvest	t/ha	12.8	21.2
Survey farms, 2022 harvest	t/ha	12.4	21.0

In Table A.2, the data in Table A.1 are expressed as percentages. An estimated 17% of the maize grain tonnage was yet to be harvested as at June 1, 2022, while almost all (99.5%) of the maize silage had been harvested by this date. An estimated 2.9% of the maize grain tonnage was unsold as at June 1, 2022, while 32% of the maize silage tonnage was unused/unsold by this date.

Table A.2. Fate of 2022 maize grain and silage crops, in percentages (by tonnes)

	Maize grain (%)	Maize silage (%)
Number of farmers in the survey harvesting this crop in 2022	27	81
2022 crop already harvested (by June 1, 2022): % of total crop tonnage		
% Sold under pre-harvest contract by June 1, 2022	75.1	53.4
% Sold at spot/free price by June 1, 2022	6.5	
% Used on own farm (2022 harvest only) by June 1, 2022	0.4	14.2
% Unsold/unused stocks on hand on June 1, 2022 (harvested crop only)	0.6	31.9
2022 crop yet to be harvested (as at June 1, 2022): % of total crop tonnage		
% Unharvested maize sold under pre-harvest contract by June 1, 2022	15.1	0.0
% Unharvested maize unsold/unused on June 1, 2022	2.3	0.5
Total sales (2022 harvest): includes unharvested maize		
% Sold (of total crop) by June 1, 2022 (includes used on farm)	97.1	67.6
% Unsold/unused (of total crop) on June 1, 2022	2.9	32.4

In Table A.3, the 2022 spring sowing intentions as at June 1, 2022 for maize grain and maize silage are given as hectares totalled over the survey farms. For comparison, the total hectares harvested in 2021 and 2022 are given for the exact same set of farms.

For maize grain, sowing intentions were up on last season (11% up). Of the growers responding to the survey, 27 harvested maize for grain in 2022, and 28 growers had intentions of sowing maize for grain in the spring of 2022.

For maize silage, sowing intentions as at June 1, 2022 on the survey farms were slightly down on last season (2% down). Of the growers responding to the survey, 81 harvested maize for silage in 2022, and 78 growers had intentions of sowing maize for silage in the spring of 2022.

Table A.3. Maize grain and silage sowing intentions as at June 1, 2022 (totalled over all survey respondents)

	Maize grain	Maize silage
Number of survey farmers who intend to sow in the 2022/2023 season	28	78
Total hectares on survey farms, 2021 harvest	2,218	3,309
Total hectares on survey farms, 2022 harvest	2,149	3,414
Sowing intentions for 2022/2023 season on survey farms as at June 1, 2022 (hectares, for harvest in 2023)		
	2,387	3,357
Estimated % change in sowings, 2021/2022 to 2022/2023 seasons	11.1%	-1.6%

Calculation of scale-up factors

To scale the 101-farmer survey totals up to NZ national totals, Final 2021 Agricultural Production Statistics (APS) for maize grain and maize silage were used (Table A.4).

For maize grain, the 2021 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 higher than APS yields (12.8 versus 12.0 tonnes/ ha). For maize silage, the average 2021 harvest dry matter (DM) yield on the survey farms was 21.2 tonnes DM/ ha.

From the scale-up factors, we can see what percentage of the area of each 2021 harvest crop was on the survey farms. For maize grain, it was $100/7.889 = 12.7\%$, while for maize silage it was $100/16.781 = 6.0\%$. 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 2021 Agricultural Production Statistics (APS) data

	Units	Maize Grain	Maize Silage
Total hectares on survey farms, 2021 harvest	ha	2,218	3,309
Total tonnes on survey farms, 2021 harvest	tonnes	28,471	70,304
Total hectares for 2021 harvest (Final APS data for Silage and Grain)	ha	17,500	55,522
Total tonnes for 2021 harvest (Final APS data for Maize Grain only)	tonnes	209,300	-
Multiplier for scaling up from survey farms to APS data			
Hectares		7.889	16.781
Tonnes		7.351	16.781
Comparison of yields between survey and APS data			
Survey farms, 2021 harvest	t/ha	12.8	21.2
APS data, 2021 harvest	t/ha	12.0	-

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).

This report is intended to provide accurate and adequate information relating to the subject matter contained in it. It has been prepared and made available to all persons and entities strictly on the basis that FAR, its researchers and authors are fully excluded from any liability for damages arising out of any reliance in part or in full upon any of the information for any purpose.

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.