



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

- *the size of the 2021 NZ harvest of maize grain and maize silage*
- *the percentage of the 2021 NZ maize harvest which was sold as at June 1, 2021*
- *the sowing intentions for the spring of 2021*

### **Survey details**

The data from 93 NZ survey farms as at June 1, 2021 were scaled up to the national level using the most recent NZ Agricultural Production Statistics (the Final 2020 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 2021 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 2021** (figures, from Table 1 and 2, have been rounded to nearest 100):

- The average yield of maize grain (11.7 t/ha) for the 2021 NZ harvest was similar to last season (at 11.8 t/ha). The average yield of maize silage (21.0 t dry matter (DM)/ha) for the 2021 NZ harvest was slightly up on last season (at 20.2 t DM/ha). (Note that these are averages across New Zealand and there will be differences across regions).
- The NZ **maize grain** harvest was 85% complete as at June 1, 2021 which was earlier than normal (over the previous eight years, the average was 78% complete). The estimated total tonnage of 214,900 tonnes (including unharvested grain) was up on last season's harvest tonnage (up 13%), as a result of a similar yield (down 1%) from an increased harvest area (up 14%). Almost all (99.7%) of the total crop had been sold, leaving only 700 tonnes unused/unsold, as held by growers, as at June 1, 2021 (as compared to 600 tonnes at the same time last year, 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 2021 sowing intentions as at June 1, 2021 were similar to last season (an estimated 1% down).
- The NZ **maize silage** harvest was 99% complete as at June 1, 2021 which was normal (over the previous eight years, the average was 99% complete). The estimated total tonnage of 1,165,600 tonnes DM was down 4% compared to last season's harvest, as the result of a higher yield (up 4%) from a reduced harvest area (down 8%). About 59% of the total silage crop had been sold or used, leaving 477,000 tonnes DM unused/unsold as at June 1, 2021 (as compared to 390,400 tonnes DM at the same time last year, and 456,000, 349,000, 456,700, 365,100 and 457,600 tonnes DM at the same time in the five previous years). Spring 2021 sowing intentions as at June 1, 2021 were similar to last season (down 1%).

**Table 1. Estimated national figures for the 2021 NZ harvest, plus sold tonnages, for maize grain and maize silage as at June 1, 2021.**

		Maize grain	Maize silage
<b>Number of farmers in the survey who harvested or will harvest this crop in 2021</b>	<b>Units</b>	<b>25</b>	<b>74</b>
<b>2020 harvest</b>			
Estimated NZ total hectares, 2020 harvest	ha	16,100	60,110
Estimated NZ total tonnes, 2020 harvest	tonnes	190,100	1,216,654
<b>2021 harvest</b>			
Estimated NZ total hectares, 2021 harvest	ha	18,414	55,405
Estimated NZ total tonnes, 2021 harvest	tonnes	214,901	1,165,640
Estimated NZ total hectares already harvested by June 1, 2021	ha	15,590	55,070
Estimated NZ total tonnes already harvested by June 1, 2021	tonnes	183,025	1,157,991
Estimated NZ total hectares yet to harvest as at June 1, 2021	ha	2,825	335
Estimated NZ total tonnes yet to harvest as at June 1, 2021	tonnes	31,877	7,649
Percentage of estimated 2021 NZ crop tonnage which had been harvested by June 1, 2021	%	85%	99%
Average over previous 8 years of % of NZ crop tonnage which had been harvested by June 1	%	78%	99%
<b>2021 crop already harvested (by June 1, 2021)</b>			
Sold under pre-harvest contract by June 1, 2021	tonnes	177,602	516,791
Sold at spot/free price by June 1, 2021	tonnes	4,499	
Used on own farm (2021 harvested maize only) by June 1, 2021	tonnes	252	171,831
Unsold/unused stocks on hand (2021 harvest only) on June 1, 2021	tonnes	671	469,369
<b>2021 crop yet to be harvested (as at June 1, 2021)</b>			
Unharvested crop sold under pre-harvest contract by June 1, 2021	tonnes	31,877	0
Unharvested crop unsold/unused as at June 1, 2021	tonnes	0	7,649
<b>Total sales (2021 harvest): includes unharvested grain</b>			
Sold (of total crop) by June 1, 2021 (includes used on farm)	tonnes	214,230	688,621
Unsold/unused (of total crop) on June 1, 2021	tonnes	671	477,018
<b>Comparison of hectares and tonnages between last two harvests</b>			
Estimated % change in hectares, 2020 to 2021 harvest	%	14.4%	-7.8%
Estimated % change in tonnes, 2020 to 2021 harvest	%	13.0%	-4.2%
<b>Comparison of yields (tonnes/ ha) between the last two harvests</b>			
NZ-wide yield, 2020 harvest	t/ha	11.8	20.2
NZ-wide yield, 2021 harvest	t/ha	11.7	21.0
<b>Comparison of unsold/unused tonnages between the last seven harvests</b>			
Unsold/unused (of total crop) on June 1, 2021 (as above)	tonnes	671	477,018
Unsold/unused at the same time last year (June 2020 AIMI Report)	tonnes	631	390,373
Unsold/unused at the same time, previous year (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 2020 NZ Agricultural Production Statistics data on total hectares and tonnes for maize grain, and total hectares for maize silage.

In Table 1 above, the estimated 2021 harvest tonnes of maize grain were 13% up on the 2020 harvest, with increased harvest hectares (14% up) and an almost identical yield (down 1%). For maize silage, harvest tonnes were down 4% on the previous season, with reduced harvest hectares (8% down) and a higher yield (4% up).

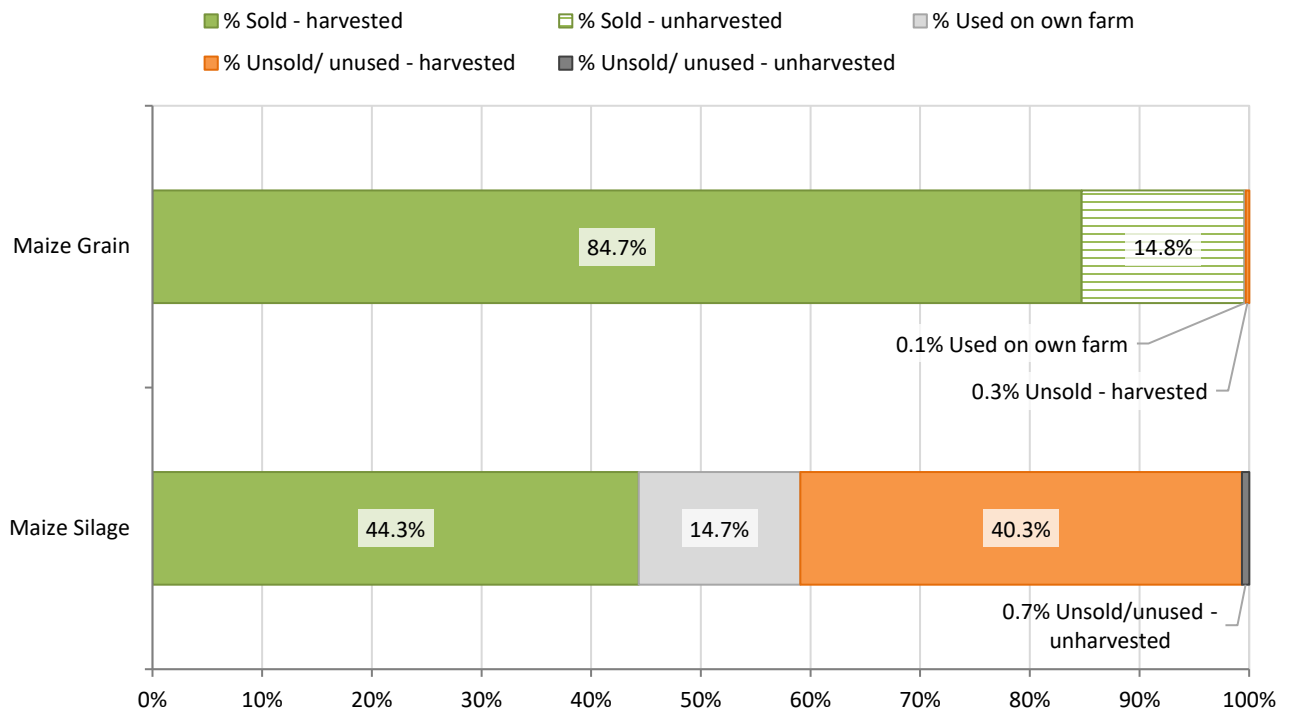
Unsold stocks on hand of maize grain, as held by growers as at 1 June 2021 (700 tonnes), were similar to last season (600 tonnes), but down markedly as compared to the previous six seasons (see the last six rows of Table 1). Unsold/unused maize silage stocks on hand (477,000 tonnes DM) were high, but not unusually high, being higher than all seven previous seasons, but less than 5% higher than three of these seasons (see the last seven rows of Table 1).

As at 1 June 2021, maize grain and maize silage sowing intentions (hectares) for 2021/22 were both similar to last season (both were 1% down) (Table 2). On the survey farms, 23 growers intended growing maize for grain this coming season (Table 2), as compared to 25 growers this last season (Table 1). Also on the survey farms, 72 growers intended growing maize for silage this coming season (Table 2), as compared to 74 growers this last season (Table 1).

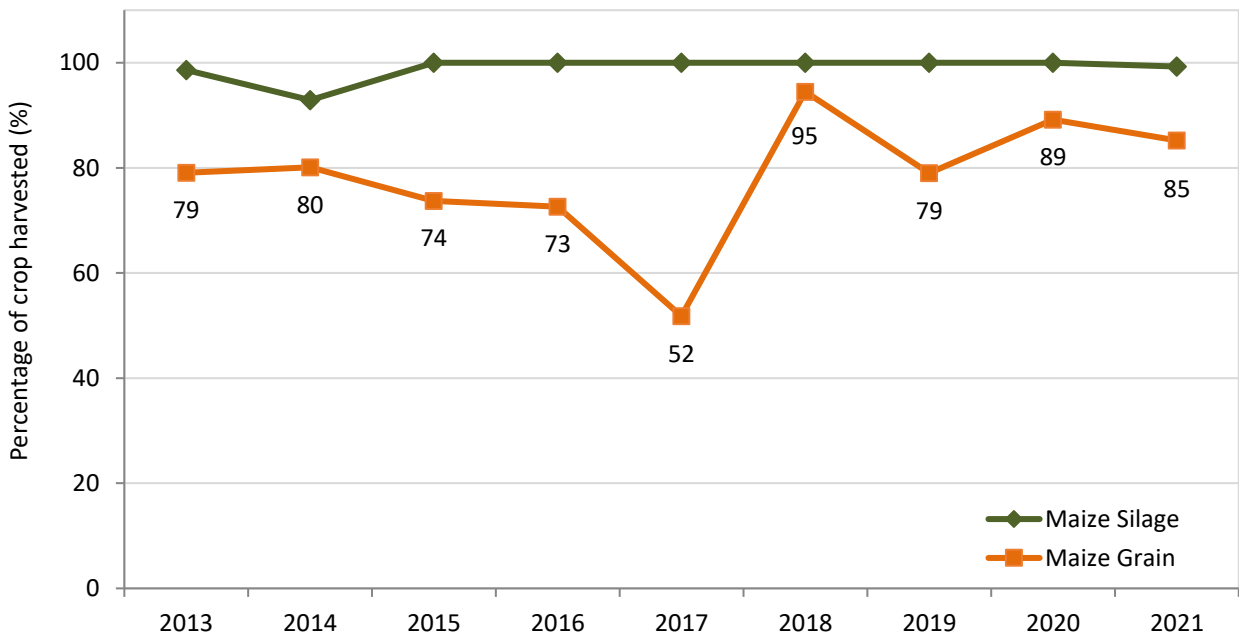
**Table 2. NZ maize sowing intentions as at June 1, 2021, in comparison with previous years' estimates.**

	<b>Maize grain</b>	<b>Maize silage</b>
<b>Number of farmers in the survey who intend to sow in the 2021/2022 season</b>	<b>23</b>	<b>72</b>
Estimated NZ total hectares, 2020 harvest	16,100	60,110
Estimated NZ total hectares, 2021 harvest	18,414	55,405
Estimated NZ total sowing intentions for 2021/2022 season (for harvest in 2022) (hectares)	18,273	55,065
Estimated % change in sowings, 2020/2021 to 2021/2022 seasons	-0.8%	-0.6%

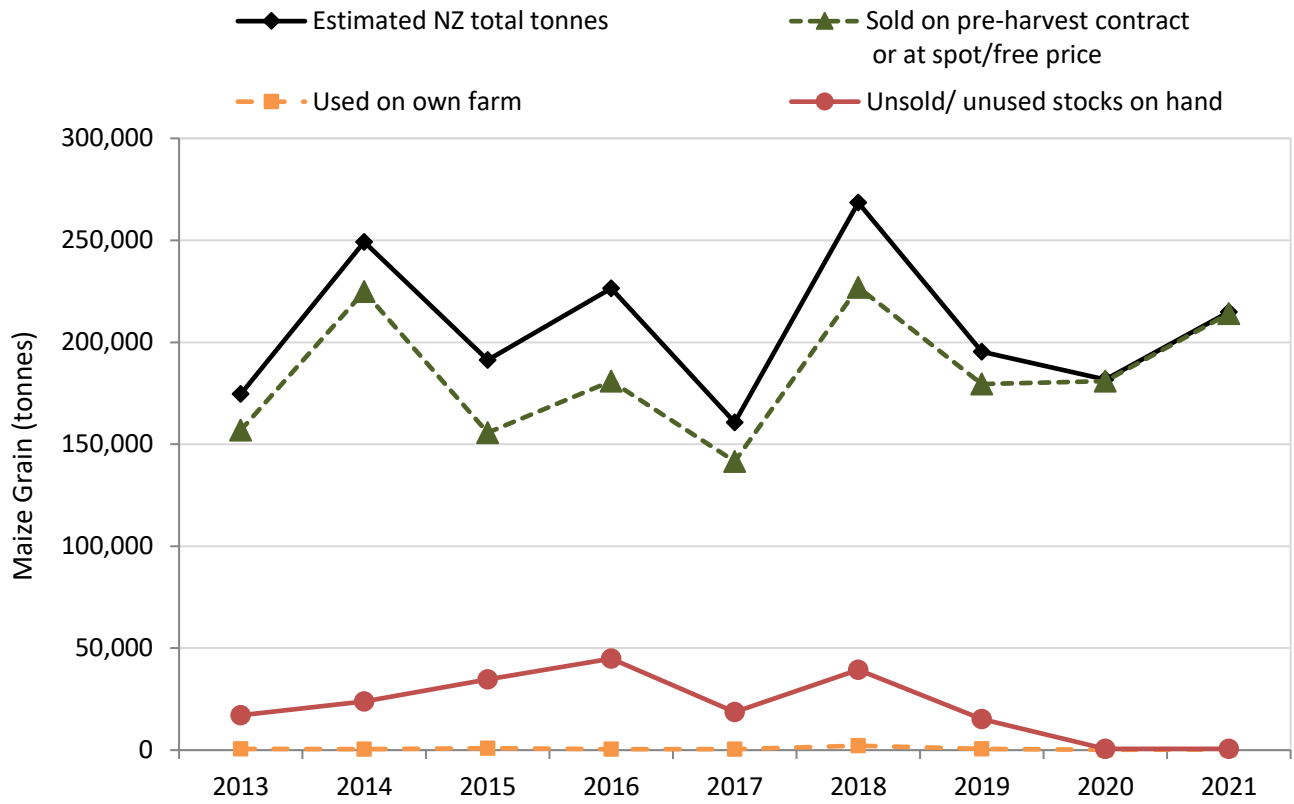
## Summary results in June each year



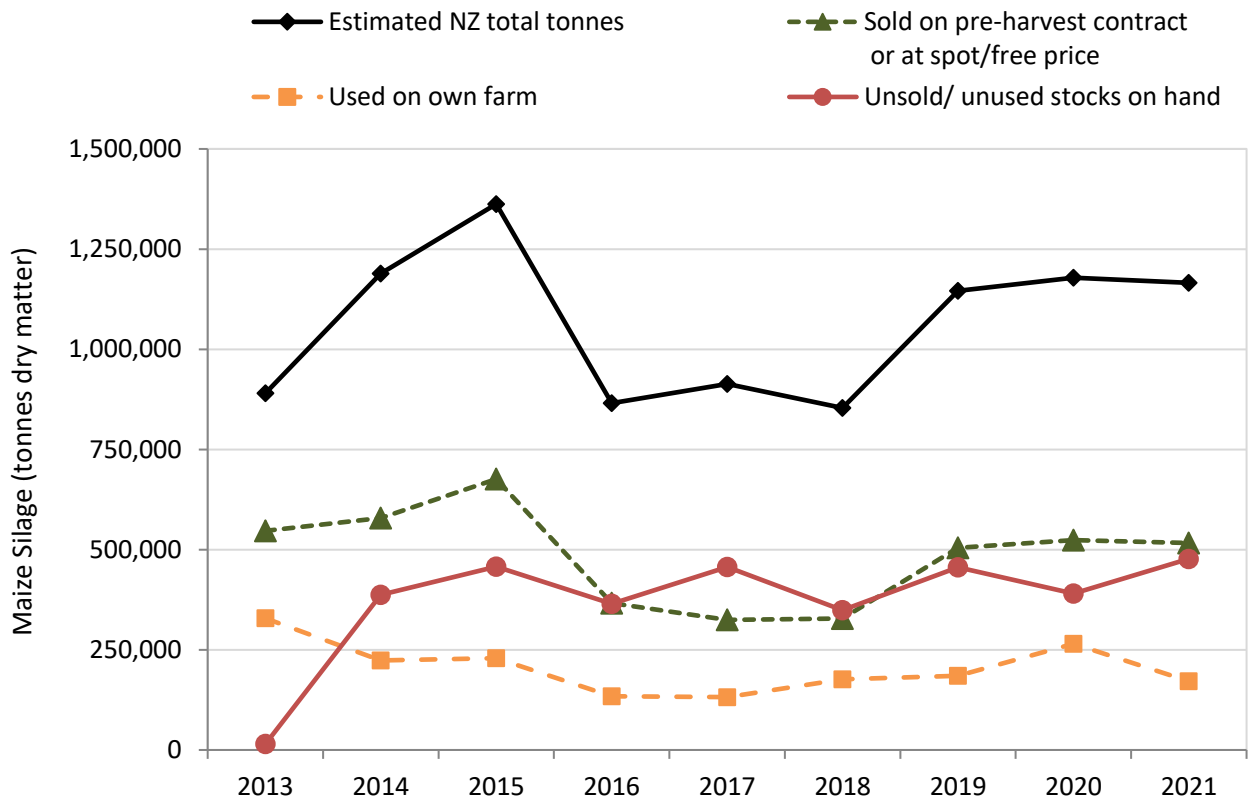
**Figure 1.** Percentage of maize crop sold, used on own farm and unsold/unused from the 2021 NZ harvest, including unharvested grain, as at June 1, 2021.



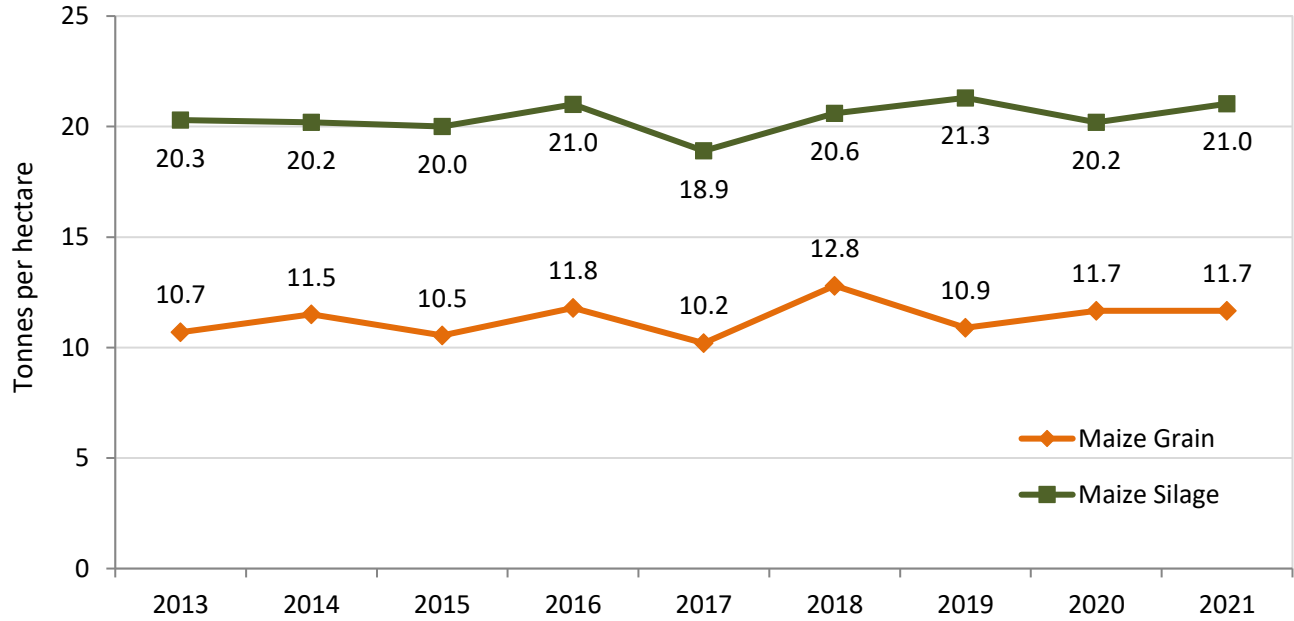
**Figure 2.** Comparison of percentage of tonnes harvested by June 1 from 2013 to 2021. (Data are sourced from annual June AIMI Maize reports.)



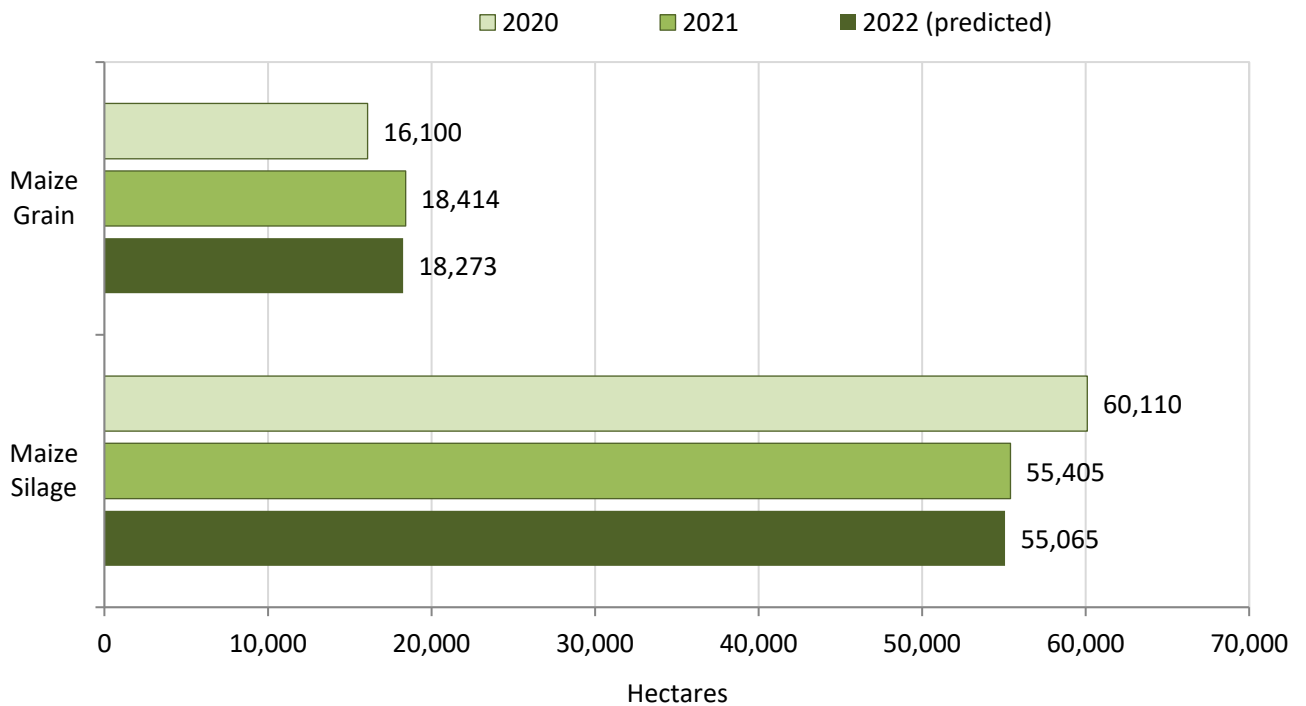
**Figure 3.** NZ harvest tonnages and sales for maize grain by June 1 from 2013 to 2021. Unharvested grain is included. (Data are sourced from annual June AIMI Maize reports.)



**Figure 4.** NZ harvest tonnages (dry matter (t/ha)) and sales for maize silage by June 1 from 2013 to 2021. 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 2021. (Data are sourced from annual June AIMI Maize reports.)



**Figure 6.** Estimated national NZ hectares of maize grain and maize silage for the 2019, 2021 and predicted 2022 harvests, as at 1 June 2021. This is a precise, matched comparison based upon a common (the current) set of survey respondents.



Arable Industry Marketing Initiative

## APPENDIX & REGIONAL DATA

NEW ZEALAND SURVEY OF MAIZE  
AREAS AND VOLUMES: JUNE 1, 2021

Maize survey panel	100
Number completing June survey	96
<b>Report group (must complete October 2020 &amp; current survey)</b>	<b>93</b>

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 dry season reduced yields in most regions, however there were also comments from these same regions saying it was a good season with good yields. Many growers voiced concerns that the price is not high enough to cover the cost of growing the crop and it gets more expensive every year due to regulations, expensive seed and fertiliser increasing in price. Cheap imports are ruining the maize grain market, and some growers will wait to see if the price makes sowing for the season ahead worthwhile.

### REGIONAL DATA (From 93 responses)

Table 2: Maize Grain - data from 25 growers (not scaled to NZ estimates).

Region	Count of growers harvesting	Hectares harvested	Hectares yet to harvest	Tonnes harvested	Tonnes yet to harvest	Average yield (t/ha)	Count of growers sowing	Hectares intending to sow in spring
NNI	9	544	39	7,054	532	13.0	7	574
ENI	8	896	117	11,865	1,372	13.2	9	1,015
SWNI	7	209	95	2,707	1,244	13.0	6	274
NSI	-	-	-	-	-	-	-	-
MC	1	13	50	182	650	14.0	1	85
SCNO	-	-	-	-	-	-	-	-
<b>Total</b>	<b>25</b>	<b>1,661</b>	<b>301</b>	<b>21,808</b>	<b>3,798</b>	<b>13.1</b>	<b>23</b>	<b>1,947</b>

Only two growers had unsold/unused grain (80 tonnes for own use)

Table 2: Maize Silage - data from 74 growers (not scaled to NZ estimates).

Region	Count of growers harvesting	Hectares harvested*	Tonnes harvested*	Average yield (t/ha)*	Count of growers sowing	Hectares intending to sow in spring
NNI	43	1,735	37,150	21.4	43	1,775
ENI	6	217	4,267	19.7	5	199
SWNI	19	741	14,971	20.2	18	727
NSI	2	96	2,056	21.5	2	98
MC	3	80	1,811	22.7	3	68
SCNO	1	13	300	24.0	1	13
<b>Total</b>	<b>74</b>	<b>2,880</b>	<b>60,556</b>	<b>21.0</b>	<b>72</b>	<b>2,880</b>

\* Not including unharvested portion of crop for one grower.

## Totals over 93 survey responses

In Table A.1, maize grain yields per hectare on the survey farms were almost identical (down 1%) between the last two harvests, 2020 and 2021. Maize silage yields were up 4% from 2020 to 2021.

<b>Table A.1 Maize grain and silage data totalled over all survey respondents</b>			
	<b>Units</b>	<b>Maize grain</b>	<b>Maize silage</b>
<b>Number of farmers in the survey harvesting this crop in 2021</b>		<b>25</b>	<b>74</b>
<b>Number of survey farmers who have harvested some or all of this crop, as at June 1, 2021</b>		<b>24</b>	<b>74</b>
<b>Number of survey farmers who have still to harvest some or all of this crop, as at June 1, 2021</b>		<b>9</b>	<b>1</b>
<b>2020 harvest</b>			
Total hectares on survey farms, 2020 harvest	ha	1,716	3,143
Total tonnes on survey farms, 2020 harvest	tonnes	22,651	63,624
<b>2021 total harvest</b>			
Total hectares on survey farms, 2021 harvest	ha	1,962	2,897
Total tonnes on survey farms, 2021 harvest	tonnes	25,607	60,956
Total hectares on survey farms already harvested by June 1, 2021	ha	1,661	2,880
Total tonnes on survey farms already harvested by June 1, 2021	tonnes	21,808	60,556
Total hectares on survey farms yet to harvest (as at June 1, 2021)	ha	301	18
Total tonnes on survey farms yet to harvest (as at June 1, 2021)	tonnes	3,798	400
Percentage of survey crop tonnage harvested by June 1, 2021	%	85%	99%
<b>2021 crop already harvested (by June 1, 2021)</b>			
Sold under pre-harvest contract by June 1, 2021	tonnes	21,162	27,025
Sold at spot/free price by June 1, 2021	tonnes	536	
Used on own farm (2021 harvested maize only) by June 1, 2021	tonnes	30	8,986
Unsold/unused stocks on hand (2021 harvest only) on June 1, 2021	tonnes	80	24,545
<b>2021 crop yet to be harvested (as at June 1, 2021)</b>			
Unharvested crop sold under pre-harvest contract by June 1, 2021	tonnes	3,798	0
Unharvested crop unsold/unused as at June 1, 2021	tonnes	0	400
<b>Comparison of yield (tonnes per ha) on survey farms between harvests</b>			
Survey farms, 2020 harvest	t/ha	13.2	20.2
Survey farms, 2021 harvest	t/ha	13.0	21.0

In Table A.2, the data in Table A.1 are expressed as percentages. An estimated 15% of the maize grain tonnage was yet to be harvested as at June 1, 2021, while almost all (99.3%) of the maize silage had been harvested by this date. An estimated 0.3% of the maize grain tonnage was unsold as at June 1, 2021, while 41% of the maize silage tonnage was unused/unsold by this date.



<b>Table A.2 Fate of 2021 maize grain and silage crops, in percentages (by tonnes)</b>			
		<b>Maize grain</b>	<b>Maize silage</b>
		<b>(%)</b>	<b>(%)</b>
<b>Number of farmers in the survey who harvested this crop in 2021</b>		<b>25</b>	<b>74</b>
<b>2021 crop already harvested (by June 1, 2021): % of total crop tonnage</b>			
% Sold under pre-harvest contract by June 1, 2021		82.6	44.3
% Sold at spot/free price by June 1, 2021		2.1	
% Used on own farm (2021 harvest only) by June 1, 2021		0.1	14.7
% Unsold/unused stocks on hand on June 1, 2021 (harvested crop only)		0.3	40.3
<b>2021 crop yet to be harvested (as at June 1, 2021): % of total crop tonnage</b>			
% Unharvested maize sold under pre-harvest contract by June 1, 2021		14.8	0.0
% Unharvested maize unsold/unused on June 1, 2021		0.0	0.7
<b>Total sales (2021 harvest): includes unharvested maize</b>			
% Sold (of total crop) by June 1, 2021 (includes used on farm)		99.7	59.1
% Unsold/unused (of total crop) on June 1, 2021		0.3	40.9

In Table A.3, the 2021 spring sowing intentions as at June 1, 2021 for maize grain and maize silage are given as hectares totalled over the survey farms. For comparison, the total hectares harvested in 2020 and 2021 are given for the exact same set of farms.

For maize grain, sowing intentions were similar to last season (1% down). Of the growers responding to the survey, 25 harvested maize for grain in 2021, and 23 growers had intentions of sowing maize for grain in the spring of 2021.

For maize silage, sowing intentions as at June 1, 2021 on the survey farms were also similar to last season (1% down). Of the growers responding to the survey, 74 harvested maize for silage in 2021, and 72 growers had intentions of sowing maize for silage in the spring of 2021.

<b>Table A.3 Maize grain and silage sowing intentions as at June 1, 2021 (totalled over all survey respondents)</b>		
	<b>Maize grain</b>	<b>Maize silage</b>
<b>Number of survey farmers who intend to sow in the 2021/2022 season</b>	<b>23</b>	<b>72</b>
Total hectares on survey farms, 2020 harvest	1,716	3,143
Total hectares on survey farms, 2021 harvest	1,962	2,897
Sowing intentions for 2021/2022 season on survey farms as at June 1, 2021 (hectares, for harvest in 2022)	1,947	2,880
Estimated % change in sowings, 2020/2021 to 2021/2022 seasons	-0.8%	-0.6%

### Calculation of scale-up factors

To scale the 93-farmer survey totals up to NZ national totals, Final 2020 Agricultural Production Statistics (APS) for maize grain and maize silage were used (Table A.4).

For maize grain, the 2020 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 (13.2 versus 11.8 tonnes/ ha). For maize silage, the average 2020 harvest dry matter (DM) yield on the survey farms was 20.2 tonnes DM/ ha.

From the scale-up factors, we can see what percentage of the area of each 2020 harvest crop was on the survey farms. For maize grain, it was  $100/ 9.384 = 10.7\%$ , while for maize silage it was  $100/ 19.123 = 5.2\%$ . That is, the percentages were relatively low in both cases, although higher for maize grain than for maize silage.

<b>Table A.4 Scaling up from survey totals to NZ-wide totals using Final 2020 Agricultural Production Statistics (APS) data</b>			
	<b>Units</b>	<b>Maize Grain</b>	<b>Maize Silage</b>
Total hectares on survey farms, 2020 harvest	ha	1,716	3,143
Total tonnes on survey farms, 2020 harvest	tonnes	22,651	63,624
Total hectares for 2020 harvest (Final APS data for Silage and Grain)	ha	16,100	60,110
Total tonnes for 2020 harvest (Final APS data for Maize Grain only)	tonnes	190,100	-
<b>Multiplier for scaling up from survey farms to APS data</b>			
Hectares		9.384	19.123
Tonnes		8.392	19.123
<b>Comparison of yields between survey and APS data</b>			
Survey farms, 2020 harvest	t/ha	13.2	20.2
APS data, 2020 harvest	t/ha	11.8	-

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