



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

- *final figures for the 2020 harvest of maize grain and silage*
- *sales of the 2020 harvest of maize grain since June 1, 2020*
- *levels of unsold maize grain from the 2020 harvest*
- *sowings and sowing intentions for the current season for maize grown for grain and silage*

### Survey details

The data from 100 NZ survey farms who completed all of the last three maize surveys (October 2019 and June and October 2020), as at October 31, 2020, were scaled up to the national level using the most recent, 2019, final NZ Agricultural Production Statistics (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 31st October 2020 and there will have been changes since this time.

**Note for maize grain:** The maize grain survey sample is relatively small, so the margin for error is relatively high. \*Estimated changes in yield between 2019 and 2020 are averages over the survey respondents, and will not reflect changes in all regions. This survey only accounts for farm sales and not what is held by merchants.

### Key Points as at 31 October 2020 (figures have been rounded to nearest 100):

- Final average yields of maize grain were 11.7 t/ha\*, similar to last season (11.7 t/ha) whereas final average yields of maize silage (20.3 t dry matter (DM)/ha) for the 2020 NZ harvest were slightly down on the 2019 NZ harvest (21.4 t DM/ha).
- For maize grain, the estimated final total tonnage of 182,000 tonnes for the 2020 NZ harvest was 7% down on last season's harvest tonnage (196,000 t), as the result of a similar yield from a reduced harvest area (down 7%). An estimated 100% of the total crop had been sold as at October 31, 2020 (as compared to 600 tonnes unsold on June 1, 2020, and 5,900 tonnes unsold on 31 October last year, 2019). Note that stocks held by merchants are not considered here. Spring 2020 sowings and sowing intentions as at 31 October, 2020, were estimated to be down 12% on the area harvested last season. Sowing was 87% complete as at October 31, 2020. An estimated 83% of the 2021 maize grain harvest had been forward sold as at October 31, 2020.
- For maize silage, the estimated final total tonnage of 1,182,500 tonnes DM for the 2020 NZ harvest was down 1% compared to last season's harvest tonnage (1,195,600 t DM), as the result of a reduced yield (down 5%) from a slightly higher harvest area (up 4%). Spring 2020 sowings and sowing intentions as at 31 October, 2020 were estimated to be down 6% on the area harvested last season. Sowing was 72% complete as at October 31, 2020. An estimated 84% of the 2021 maize silage harvest had been forward sold as at October 31, 2020. This figure includes 46% of the maize silage harvest destined "for own use".

**Table 1. Detailed final estimated national NZ figures for the 2020 harvest of maize grain and maize silage crops, plus sold and unsold tonnages of maize grain, as at October 31, 2020.**

		Maize grain	Maize silage
	Units	26	77
<b>Number of farmers in the survey who harvested this crop in 2020</b>			
<b>2019 harvest</b>			
Estimated NZ total hectares, 2019 harvest	ha	16,700	55,827
Estimated NZ total tonnes, 2019 harvest	tonnes	196,000	1,195,624
<b>2020 harvest</b>			
Estimated NZ total hectares, 2020 final harvest figures	ha	15,566	58,301
Estimated NZ total tonnes, 2020 final harvest figures	tonnes	181,960	1,182,461
Sold under pre-harvest contract by October 31, 2020	tonnes	180,520	-
Sold at spot/free price by October 31, 2020	tonnes	661	-
Used on own farm by October 31, 2020	tonnes	779	-
Unsold stocks on hand (2020 harvest only) on October 31, 2020	tonnes	0	-
<b>Total sales (2020 harvest)</b>			
Sold (grand total) by October 31, 2020 (includes used on farm)	tonnes	181,960	-
Unsold stocks on hand (from 2020 harvest) on October 31, 2020	tonnes	0	-
<b>Comparison of hectares and tonnages between the last two harvests</b>			
Estimated % change in hectares, 2019 to 2020 harvest	%	-6.8	4.4
Estimated % change in tonnes, 2019 to 2020 harvest	%	-7.2	-1.1
<b>Comparison of final yields between the last two harvests</b>			
NZ-wide estimated yield, 2019 harvest	t/ha	11.7	21.4
NZ-wide estimated yield, 2020 harvest	t/ha	11.7	20.3
<b>Unsold stocks on hand on June 1, 2020, the last survey date (based upon matched data)</b>			
Unsold stocks on hand (from 2020 harvest) on June 1, 2020 (of total crop)	tonnes	632	-
<b>2019 harvest sales at same time last year, October 31, 2019 (based upon matched data)</b>			
Sold under pre-harvest contract by October 31, 2019 (2019 harvest)	tonnes	169,886	-
Sold at spot/free price by October 31, 2019 (2019 harvest)	tonnes	15,550	-
Used on own farm by October 31, 2019 (2019 harvest)	tonnes	4,630	-
Unsold stocks on hand (from 2019 harvest) on October 31, 2019	tonnes	5,934	-

**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 2019 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 2020 harvest of maize grain was at a very low level at the time of the AIMI survey dated June 1, 2020, and has reduced to zero as at October 31, 2020. This compares to 5,900 tonnes of unsold tonnage at the same time last year.

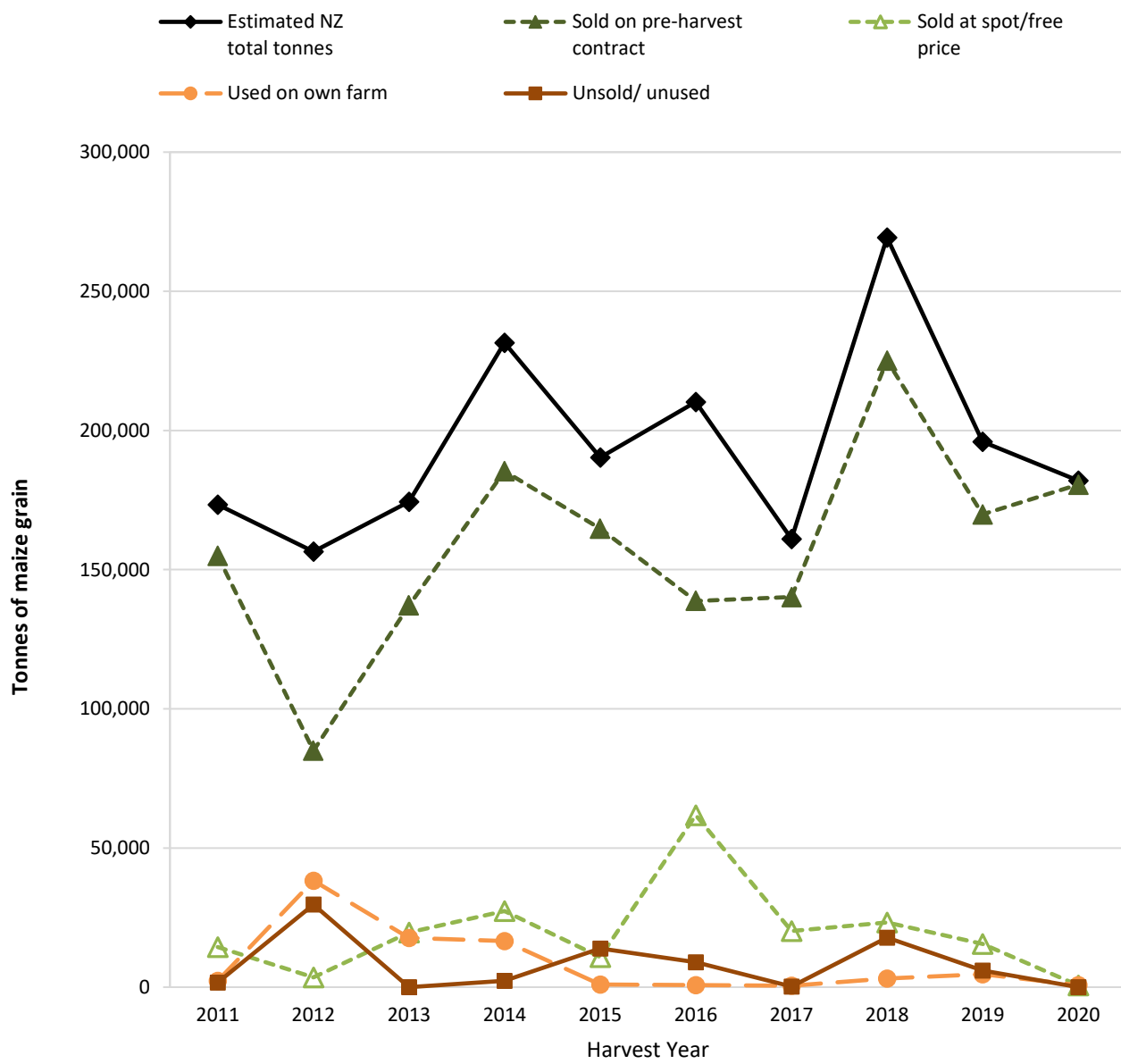
**Table 2. Estimated NZ sowings, sowing intentions and forward sales of maize grain and maize silage as at October 31, 2020.**

	<b>Maize grain (ha)</b>	<b>Maize silage (ha)</b>
<b>Number of farmers in survey who have sown or intend to sow this crop as at October 31, 2020</b>	<b>25</b>	<b>74</b>
Estimated NZ total hectares, 2019 harvest	16,700	55,827
Estimated NZ total hectares, 2020 harvest	15,566	58,301
<b>Sowings and intentions, 2020/2021 season (hectares, for harvest in 2021)</b>		
Estimated NZ total hectares already sown by October 31, 2020	11,996	39,156
Estimated NZ total hectares intending to sow after October 31, 2020	1,725	15,528
Estimated NZ total hectares (sowings and intentions), 2021 harvest	13,721	54,684
% of predicted NZ hectares which had already been sown by October 31, 2020	87%	72%
<b>"Forward sales" of 2020/21 crop (including "for own use")</b>		
Predicted NZ total hectares that are "forward sold", as at 31 October, 2020	11,403	45,829
Estimated percentage of NZ total hectares that are "forward sold", as at 31 October, 2020	83%	84%
<b>Comparison of hectares between the 2019, 2020 and 2021 (predicted) harvests</b>		
Estimated % change in NZ total sowings, 2019 to 2020 harvest	-6.8%	4.4%
Estimated % change in NZ total sowings, 2020 to 2021 (predicted) harvest	-11.8%	-6.2%
<b>Comparison of sowing intentions as at June 1, 2020 with sowings plus intentions as at Oct 31, 2020 (based upon matched data)</b>		
Estimated NZ total 2020 sowing intentions as at June 1, 2020 (hectares, for harvest in 2021)	15,673	59,189
Change in estimated NZ total 2020 sowings & intentions between June 1, 2020 and Oct 31, 2020 (hectares, for harvest in 2021)	-1,951	-4,504

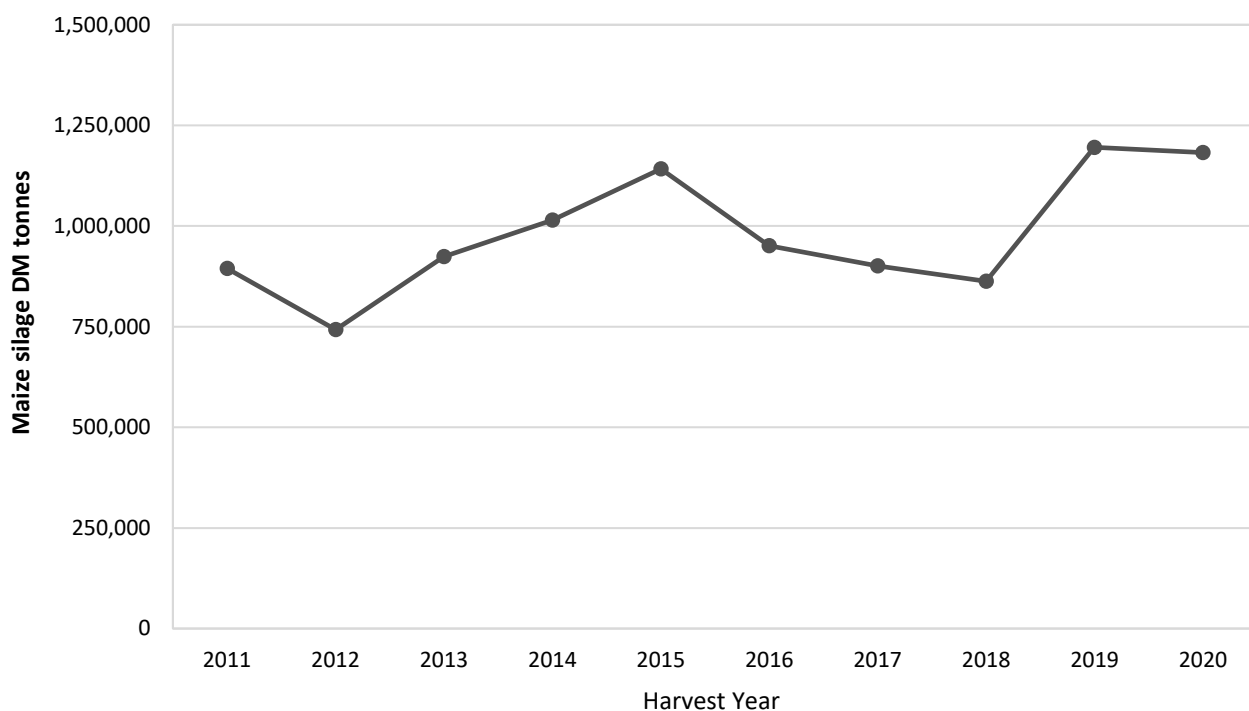
Note: The matched comparisons in the last two sections were based upon scaling up data from the exact same survey farms for the last three AIMI surveys.

In Table 2, the estimated area sown plus sowing intentions for maize grown for grain is down 12% this season as compared to what was harvested last season (2020 harvest). The estimated sowings plus intentions for maize grown for silage is down 6% on what was harvested last season (2020 harvest). As at 31 October 2020, the maize grain and maize silage crops were 87% and 72% sown, respectively.

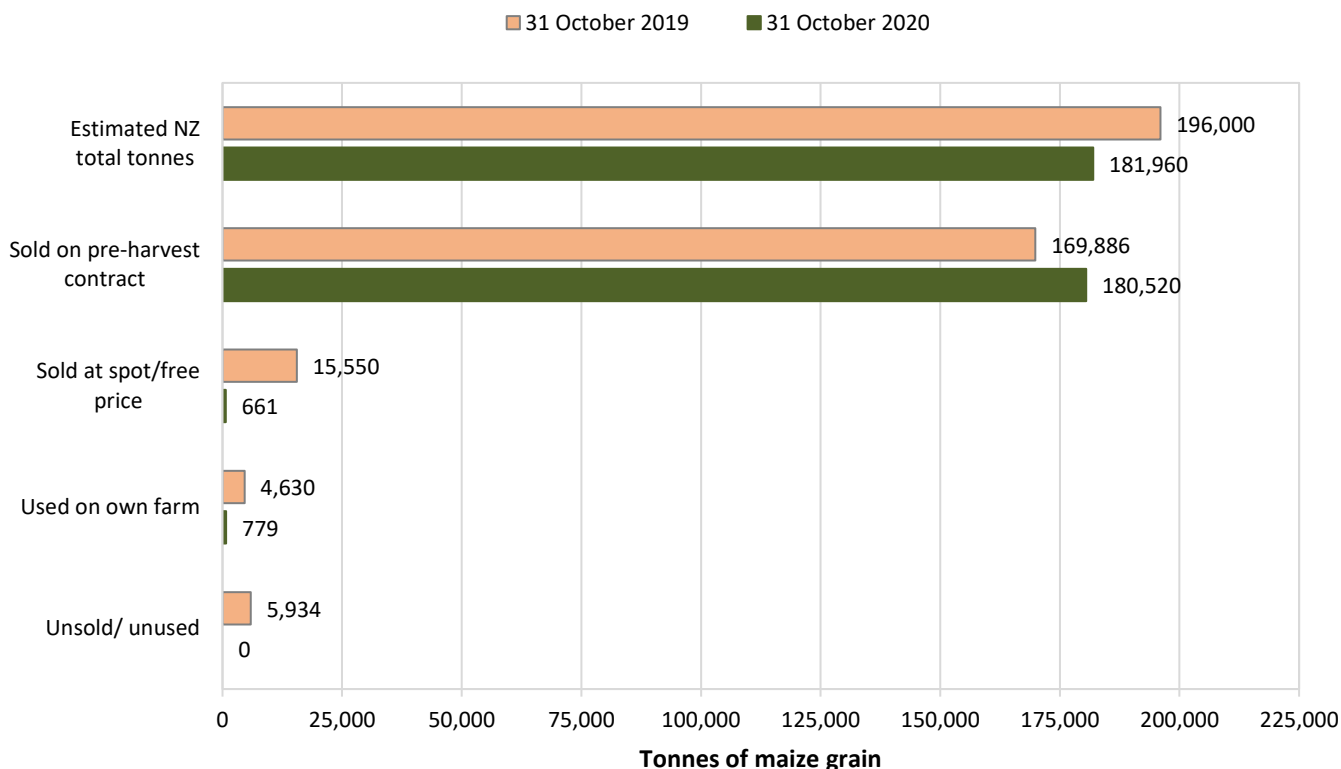
A new question, on forward sales, was included in this survey for the first time. The 2021 maize grain harvest is estimated to be 83% forward sold to other parties, with almost none destined for "own use"; this left 17% as free grain, unspoken for as at 31 October, 2020. The 2021 maize silage harvest is estimated to be 84% forward sold as at 31 October, 2020, including 46% of the harvest which was estimated to be for the "own use" of the growers.



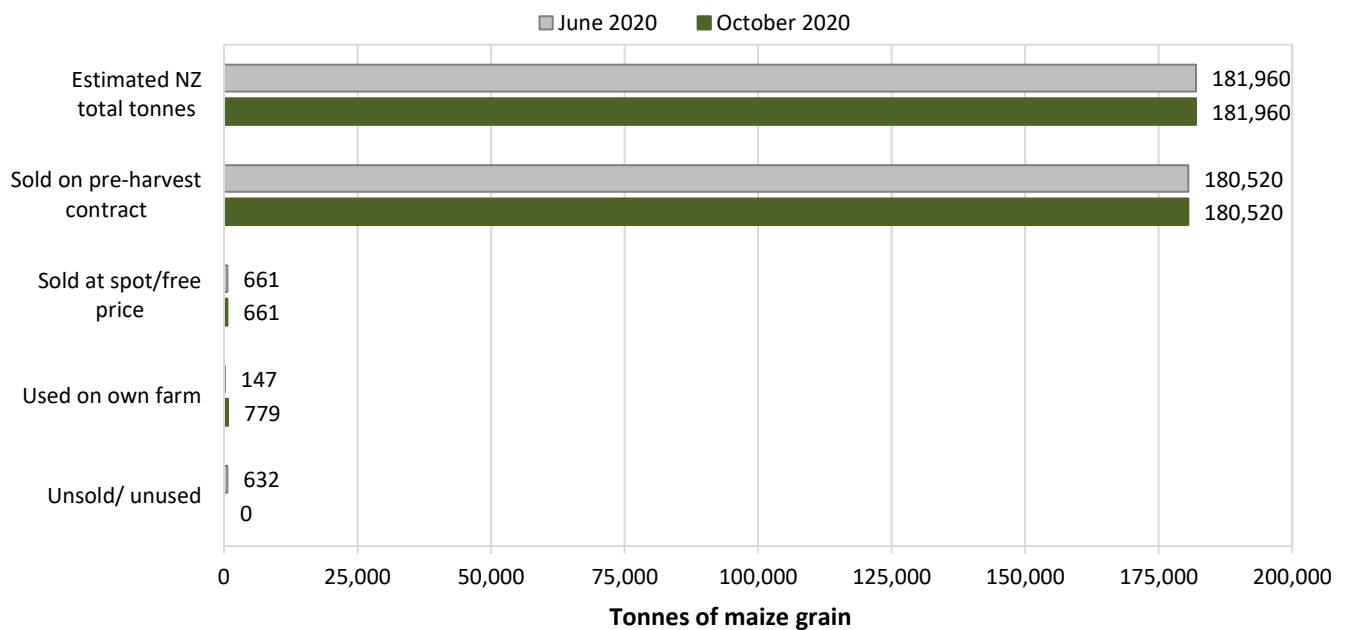
**Figure 1. Maize grain final NZ harvest tonnages and sales as estimated in October each year.**  
 Note: Historical data for 2011 to 2018 are from October AIMI Maize Reports for 2018 and earlier, while data for 2019 and 2020 are matched data from the current report.



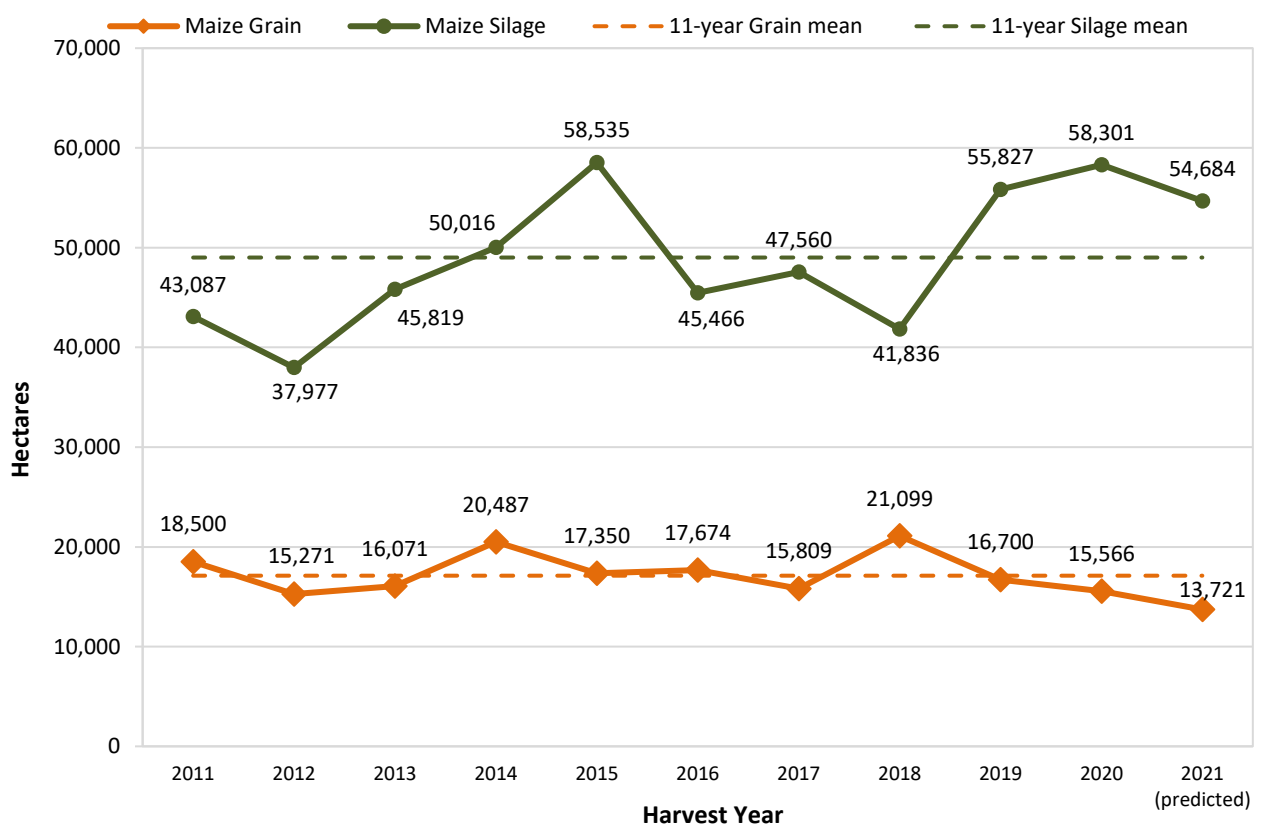
**Figure 2. NZ maize silage harvest tonnages (dry matter) estimated in October each year.**  
 Note: Historical data for 2011 to 2018 are from the annual October AIMI Maize Reports, except that estimates for 2011 to 2014 have been retrospectively adjusted in the light of recently obtained APS hectare estimates for each preceding year. Data for 2019 and 2020 are matched data from the current report.



**Figure 3. Comparison of maize grain tonnages and sales for NZ harvest between October 31, 2019 and October 31, 2020.** All estimates are based upon scaling up data from growers in the current survey sample, so provide a more precise matched comparison.

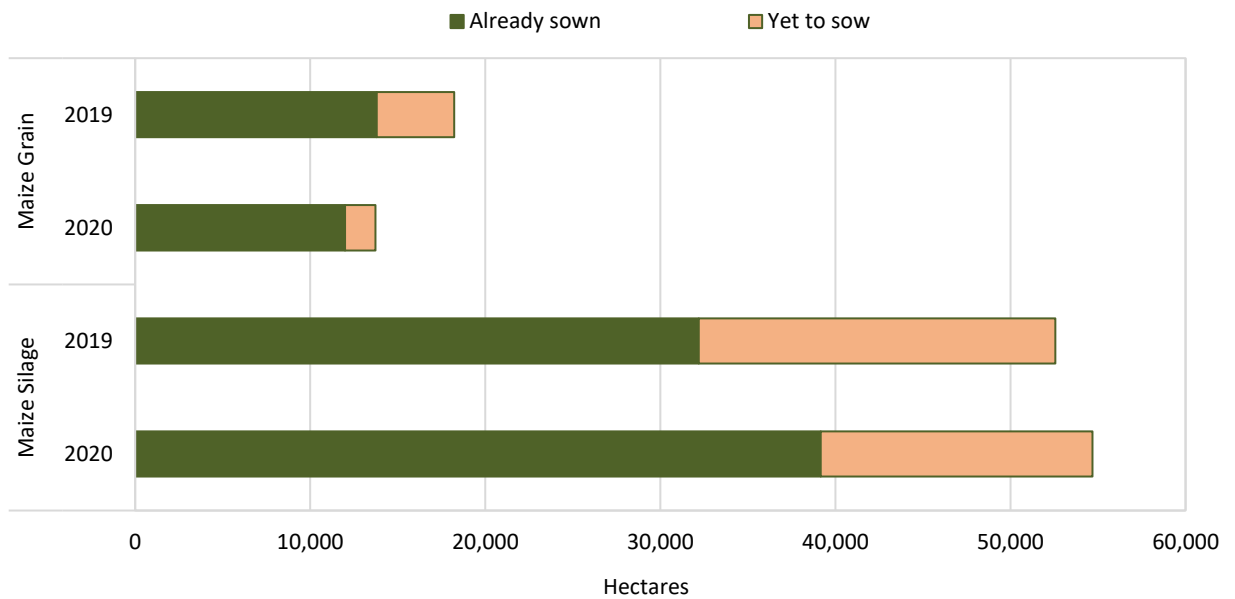


**Figure 4. Comparison of maize grain tonnages and sales for the 2020 NZ harvest between June 1 and October 31, 2020.** All estimates are based upon scaling up data from growers in the current survey sample, so provide a more precise matched comparison.

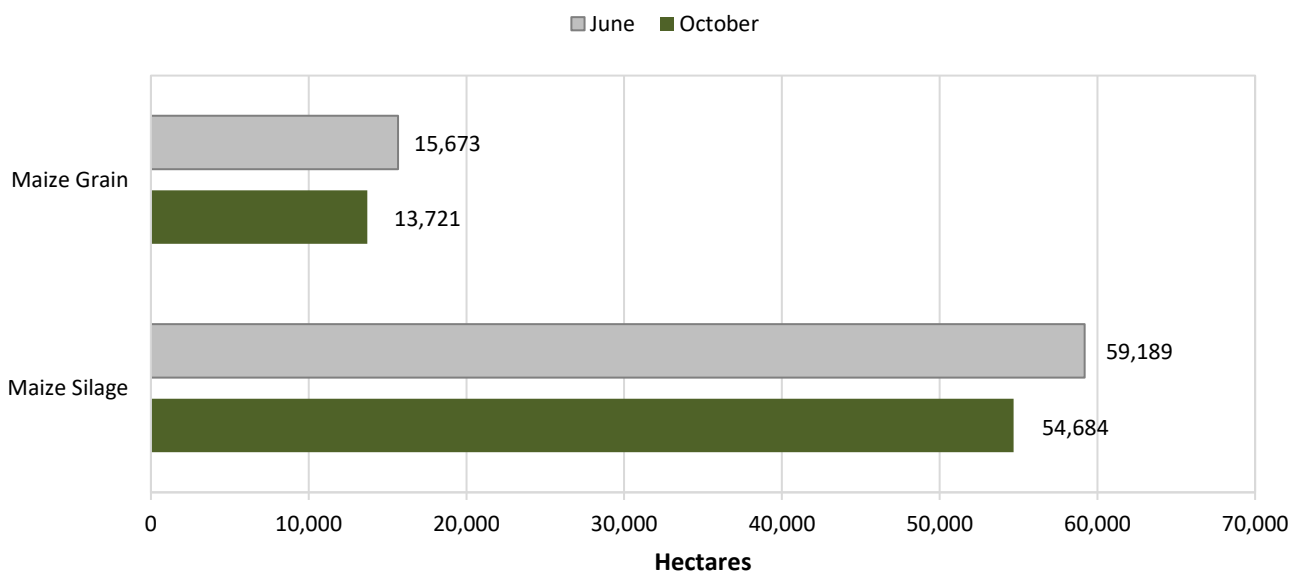


**Figure 5. NZ harvest hectares estimated in October each year, from 2011 to 2020, and predicted hectares for harvest in 2021.** Long-term means (11-year averages) are included as dashed horizontal lines.

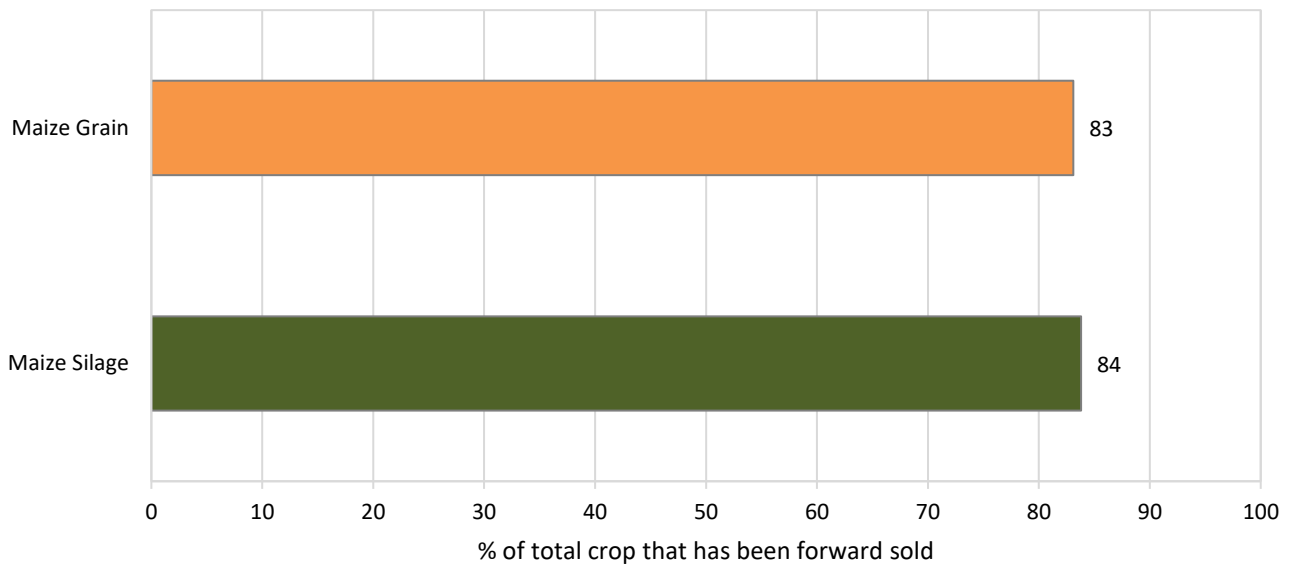
**Note:** Figures for 2019, 2020 and 2021 (predicted) are matched data from the current report. Other figures are sourced from previous October AIMI Maize Reports except that for maize silage, estimates for 2011 to 2014 have been retrospectively adjusted in the light of recently obtained APS hectare estimates for each preceding year.



**Figure 6. Estimated NZ hectares of maize already sown in spring 2020, together with NZ hectares yet to sow (spring intentions) for harvest in 2021, based on data collected on October 31, 2020. For comparison, the corresponding 2019 estimates (for harvest in 2020) are also given, based on data collected on October 31, 2019. As in Figures 3 and 4, the latter estimates are based upon scaling up October 31, 2019 data from growers in the current survey sample, so provide a more precise matched comparison.**



**Figure 7. Comparison of NZ spring maize sowing intentions as at June 1, 2020 with actual sowings plus intentions as at October 31, 2020. 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, 2020 for predicted 2021 harvest. (Includes silage crops grown for use on own farm).**





Arable Industry Marketing Initiative

## FOR AIMI COMMITTEE ONLY: APPENDIX & REGIONAL DATA

NEW ZEALAND SURVEY OF MAIZE  
AREAS AND VOLUMES: OCTOBER 31, 2020

Maize survey panel	102
Number completing October survey	102
<b>Report group (must complete Oct 19, June 20 &amp; current survey)</b>	<b>100</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

### Regional Breakdown

#### Maize Grain (data scaled up to NZ figures):

Region	Number harvesting	Hectares harvested 2020	Tonnes harvested 2020	% of total tonnage	Mean yield (t/ha)	Number sowing	Sowings & Intentions
NNI	9	4,590	47,536	26	10.4	8	4,201
ENI	10	8,207	100,833	55	12.3	10	6,697
SWNI	6	2,311	28,301	16	12.2	6	2,236
NSI	-	-	-	-	-	-	-
MC	1	458	5,291	3	11.6	1	587
SCNO	-	-	-	-	-	-	-
<b>Total</b>	<b>26</b>	<b>15,566</b>	<b>181,960</b>	<b>100</b>	<b>11.7</b>	<b>25</b>	<b>13,721</b>

#### Maize Silage (data scaled up to NZ figures):

Region	Number harvesting	Hectares harvested 2020	Tonnes harvested 2020	% of total tonnage	Mean yield (t/ha)	Number sowing	Sowings & Intentions
NNI	45	34,766	700,122	59	20.1	44	32,880
ENI	6	3,724	65,587	6	17.6	4	3,125
SWNI	20	16,086	338,771	29	21.1	20	15,437
NSI	2	1,446	28,569	2	19.8	2	1,726
MC	3	2,053	44,397	4	21.6	3	1,290
SCNO	1	227	5,014	0.4	22.1	1	227
<b>Total</b>	<b>77</b>	<b>58,301</b>	<b>1,182,461</b>	<b>100</b>	<b>20.3</b>	<b>74</b>	<b>54,684</b>

#### Grower comments:

Mostly around sowing conditions and the season ahead – several commented on the good season, crops in early and are looking good. Reports of dry conditions in NNI, SWNI and MC. Wet conditions and flooding had affected some crops in ENI and SWNI, which will have to be redrilled or sown later than expected.

Comments about the cost of seed being too high and returns too low. Cheaper imported products cutting into margins. A few are switching to silage instead of grain for better returns.

## Totals over 100 survey responses

In Table A.1, the average yield per hectare of maize grain on the survey farms was very similar between the 2019 and 2020 harvests. For maize silage, the average yield per hectare on the survey farms was down 1.1 t DM/ha between the 2019 and 2020 harvests.

<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 who harvested this crop in 2020</b>		<b>26</b>	<b>77</b>
<b>2019 harvest</b>			
Total hectares on survey farms, 2019 harvest	ha	2,189	3,073
Total tonnes on survey farms, 2019 harvest	tonnes	26,671	65,817
<b>2020 harvest</b>			
Total hectares on survey farms, 2020 final harvest figures	ha	2,041	3,209
Total tonnes on survey farms, 2020 final harvest figures	tonnes	24,760	65,093
Sold under pre-harvest contract by October 31, 2020	tonnes	24,564	-
Sold at spot/free price by October 31, 2020	tonnes	90	-
Used on own farm by October 31, 2020	tonnes	106	-
Unsold stocks on hand (2020 harvest only) on October 31, 2020	tonnes	0	-
<b>Comparison of yield (tonnes per ha) on survey farms between harvests</b>			
Survey farms, 2019 harvest	t/ha	12.2	21.4
Survey farms, 2020 harvest	t/ha	12.1	20.3
<b>Unsold grain on June 1, 2020 (last survey) on these SAME survey farms</b>			
Unsold (from 2020 harvest) on June 1, 2020 (of total crop)	tonnes	86	-
<b>2019 harvest sales at same time last year, October 31, 2019, on these SAME survey farms (for a matched comparison)</b>			
Sold under pre-harvest contract by October 31, 2019 (2019 harvest)	tonnes	23,117	-
Sold at spot/free price by October 31, 2019 (2019 harvest)	tonnes	2,116	-
Used on own farm by October 31, 2019 (2019 harvest)	tonnes	630	-
Unsold stocks on hand (2019 harvest only) on October 31, 2019	tonnes	808	-

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

<b>Table A.2 Fate of 2020 maize grain crop, in percentages (by tonnes)</b>		
		<b>Maize grain</b>
<b>Number of farmers in the survey who harvested this crop in 2020</b>		<b>26</b>
<b>2020 harvest</b>		
% Sold under pre-harvest contract by October 31, 2020		99.2
% Sold at spot/free price by October 31, 2020		0.4
% Used on own farm by October 31, 2020		0.4
% Unsold stocks on hand on October 31, 2020		0.0
<b>Total sales (2020 harvest)</b>		
% Sold (of total crop) by October 31, 2020 (includes used on own farm)		100.0
% Unsold (of total crop) on October 31, 2020		0.0

In Table A.3, the 2020 spring sowings and sowing intentions as at October 31, 2020 for maize grain and maize silage are given as hectares totalled over the survey farms. For comparison, the total hectares harvested in 2019 and 2020 are given for the exact same set of farms. For maize grain, sowings and sowing intentions as at October 31, 2020 on the survey farms are down 12% on what was harvested last season. For maize silage, sowings and sowing intentions as at October 31, 2020 on the survey farms are down 6% on what was harvested last season.

The 2021 maize grain harvest is estimated to be 83% forward sold, while the 2021 maize silage harvest is estimated to be 84% forward sold. The latter included 46% of the silage which was destined for the own use of the grower.

<b>Table A.3 Maize grain and silage sowings and intentions (totalled over all survey respondents)</b>		
	<b>Maize grain (ha)</b>	<b>Maize silage (ha)</b>
<b>Number of farmers in survey who have sown or intend to sow this crop as at October 31, 2020</b>	<b>25</b>	<b>74</b>
<b>Number of farmers in survey who have sown this crop by Oct 31, 2020</b>	<b>24</b>	<b>54</b>
<b>Number of farmers in survey who intend to sow this crop after Oct 31, 2020</b>	<b>6</b>	<b>26</b>
Total hectares on survey farms, 2019 harvest	2,189	3,073
Total hectares on survey farms, 2020 harvest	2,041	3,209
<b>Sowings and intentions, 2020/2021 season (hectares, for harvest in 2021)</b>		
Hectares already sown on survey farms by October 31, 2020	1,573	2,156
Hectares intending to sow on survey farms after October 31, 2020	226	855
Total hectares (sowings and intentions) on survey farms for harvest in 2021	1,799	3,010
Estimated % change in sowings on survey farms, 2020 to 2021 (pred) harvest	-11.8	-6.2
<b>"Forward sales" of 2020/21 crop (including "for own use")</b>		
Total hectares on survey farms that are "forward sold", as at Oct 31, 2020	1,495	2,523
Percentage of hectares on survey farms that are "forward sold", as at Oct 31, 2020	83	84

### Calculation of scale-up factors

To scale the 100-farmer survey totals up to NZ national totals, Final 2019 APS statistics for maize grain and maize silage were used (Table A.4).

For maize grain, the 2019 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 (12.2 versus 11.7 tonnes/ ha). For maize silage, the average 2019 harvest dry matter (DM) yield on the survey farms was 21.4 tonnes DM/ ha.

From the scale-up factors, we can see what percentage of the area of each 2019 harvest crop was on the survey farms. For maize grain, it was  $100/7.628 = 13.1\%$ , while for maize silage it was  $100/18.166 = 5.5\%$ . That is, for maize grain about 1/8th of hectares were sampled in the survey, while for maize silage about 1/18th of hectares were 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.

<b>Table A.4 Scaling up from survey totals to NZ-wide totals using Final 2019 Agricultural Production Statistics (APS)</b>			
	<b>Units</b>	<b>Maize grain</b>	<b>Maize silage</b>
Total hectares on survey farms, 2019 harvest	ha	2,189	3,073
Total tonnes on survey farms, 2019 harvest	tonnes	26,671	65,817
Total hectares for 2019 harvest (Final APS statistics for silage and grain)	ha	16,700	55,827
Total tonnes for 2019 harvest (Final APS statistics for maize grain only)	tonnes	196,000	-
<i>Multiplier for scaling up from survey farms to APS statistics</i>			
Hectares		7.628	18.166
Tonnes		7.349	18.166
<i>Comparison of yields between survey and APS statistics</i>			
Survey farms, 2019 harvest	t/ha	12.2	21.4
APS statistics, 2019 harvest	t/ha	11.7	-

Statistics New Zealand is gratefully acknowledged for supplying final 2019 NZ Agricultural Production Statistics data on total hectares and tonnes for maize grain, and total hectares for maize silage

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