NEW ZEALAND SURVEY OF CEREAL AREAS AND VOLUMES: APRIL 1, 2023

The objectives of this AIMI survey of New Zealand (NZ) cereal growers were to determine, as at April 1, 2023:

- *The size of the 2023 NZ harvest of wheat, barley and oats (divided into milling/malting and feed crops)*
- *The sales channels, storage status and unsold amount of the 2023 NZ harvest*
- *The tonnages of carry-over stocks on farms from the 2022 NZ harvest*
- *NZ sowings and sowing intentions of wheat, barley and oats (both milling/malting and feed) for the autumn and winter of 2023*

Survey details

Data from 131 NZ survey farms who completed three of the last four cereal surveys (April 2022, October 2022 and April 2023) were scaled up to the national level using the most recent (Provisional 2022) NZ Agricultural Production Statistics. 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 as at the 1st April 2023 and there will have been changes since this time.

Key Points as at 1 April 2023 (figures have been rounded to nearest 100)**:**

- Overall, harvest yields were up 7% compared to last season (averaged over all six crops). Also, slightly more hectares were harvested than last season (1% up), and the net result was that total tonnage was up 8% compared to last season.
- On the survey farms, the 2023 harvests of malting barley, milling oats and feed oats were 100% completed by 1 April, with feed wheat harvest 99.6% complete and milling wheat and feed barley harvests 99% complete.
- Carry-over stocks (both sold and unsold) of feed wheat and feed barley were low on 1 April. Unsold stocks on hand of last year's feed wheat and feed barley crops were 0.5% and 0.2% of the 2022 harvest tonnages, respectively.
- Stocks of unsold feed wheat from the current harvest are down 20% on unsold stocks at this time last year. Unsold stocks of feed barley are up 47% as compared to this time last year, and unsold stocks of milling wheat are up 34%.
- Autumn/winter sowings of feed wheat are predicted to be similar (down 300 hectares) to predicted sowings a year ago, while feed barley autumn/winter sowings are predicted to be down by 900 ha. Milling wheat autumn/winter sowings are predicted to be up by 1,400 ha, malting barley up by 600 ha, milling oats up 400 ha, and feed oats down 450 ha. However, these predictions are based mostly on intentions as over all six crops, only 4% (feed wheat and feed barley) had been sown by 1 April 2023.

ISSN 2744-5739

Summary

Weather: The South Island experienced favourable harvest conditions across most regions, until March, when parts of Canterbury experienced rain which delayed harvest. It was a different story in the North Island cereal growing regions, with frequent rain through the growing season. Some spring sown crops had a good harvest window, but a cyclone in February flooded ground, delaying harvest, reducing yield and quality and in some cases large portions of crops were lost.
Autumn and winter sowings have been delayed in many regions due to wet weather or wet ground which has not had an opportunity to dry out. South Canterbury was an exception, where it's been dry.

Milling wheat: Estimated total tonnage (103,200 t) was up 49% compared to last year's harvest (69,400 t). Of this total, 71% has been sold (73,000 t), although much of the sold grain is still stored on farm (86%). The amount of unsold grain is 30,300 tonnes (29%). Unsold grain carried over from the 2022 harvest was nil, so the estimate of unsold grain in the market is 30,300 tonnes.

Feed wheat: Estimated total tonnage (303,800 t) was down 3% compared to last year's harvest (313,400 t). Of this total, 72% has been sold (219,900 t), with 75% of the sold grain still stored on farm. The amount of unsold grain is 83,900 tonnes (28%). Unsold stock carried over from last season was 1,600 tonnes, so the estimate of total unsold grain in the market is 85,500 tonnes.

Feed barley: Estimated total tonnage (286,500 t) was up 6% compared to last year (269,100 t). Of this total tonnage, 60% has been sold (173,300 t), with 52% of the sold grain still stored on farm. About 40% (113,200 t) remains unsold. Carryover of unsold grain was 600 tonnes, taking the estimate of total unsold grain in the market to 113,800 tonnes.

For other cereals: Compared to last year, estimated total tonnage for malting barley (62,700 t) was up by 69%, milling oats (19,700 t) was up by 3%, and feed oats (8,400 t) was down by 45%. For malting barley, 8% of the total harvest was unsold, while milling oats had 1% unsold and feed oats had 16% unsold as at 1 April, 2023. There were no unsold stocks carried over from last season for malting barley, and almost no milling oats and feed oats (160 and 210 t respectively).

Sowing intentions: Only a few autumn/winter cereal crops had been sown by 1 April 2023. For feed wheat, 5% of the planned area had been sown, while for feed barley, 4% had been sown. No milling wheat, malting barley, milling oats or feed oats had been sown.

For autumn/winter wheat and barley overall, the total area sown or intending to be sown as at 1 April 2023, was up 2% (or, up by 800 hectares) on sowings plus intentions as at 1 April 2022.

In more detail, feed wheat area sown or intending to be sown in the autumn/winter was down 1% (down 300 hectares) as compared to last year. Autumn/winter feed barley was down 7% (down 900 hectares), and milling wheat was up 24% (up 1,400 hectares). Autumn/winter malting barley was predicted to be up 96% (up 600 hectares) on last year.

Milling oats area sown or intending to be sown in the autumn/winter was up 56% (up 400 hectares), and feed oats was down 80% (down 450 hectares).

Milling Wheat (tonnes)

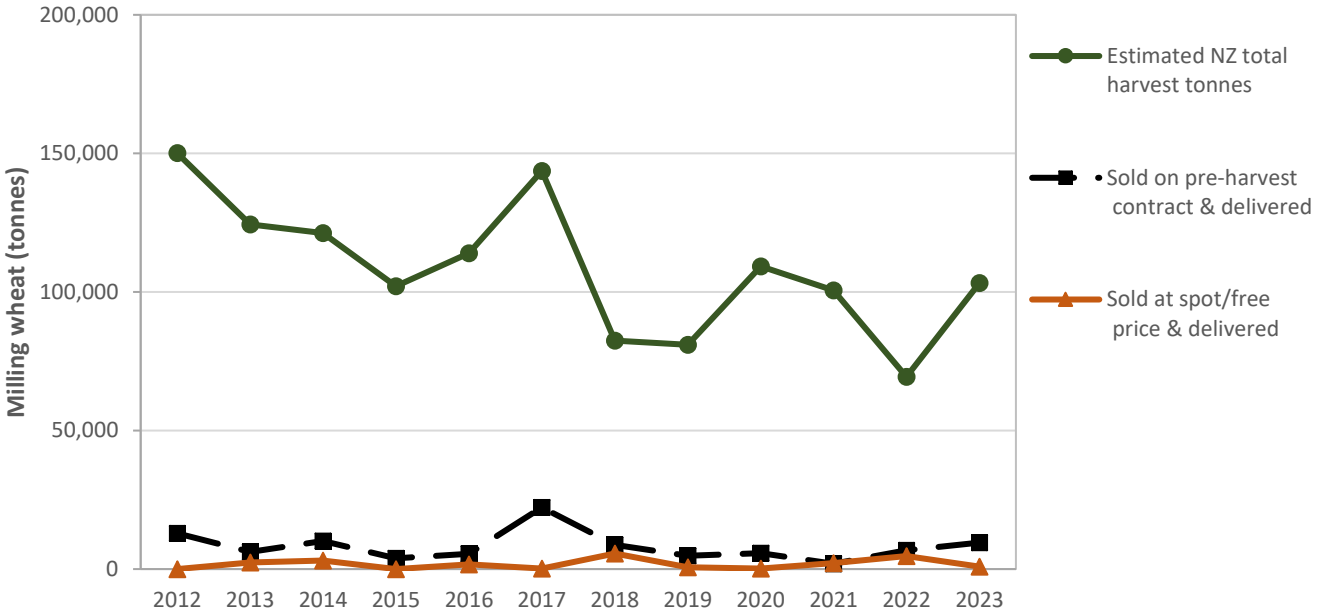


Figure 1a. NZ harvest tonnage and sales channels for milling wheat as estimated on 1 April each year. Note: Historical data for 2012 to 2021 are from April AIMI Reports for 2021 and earlier, while data for 2022 and 2023 are matched from the current report. "Total harvest tonnes" includes harvested and unharvested grain for that season's harvest. "Sold at spot/free price & delivered" includes grain sold for feed.

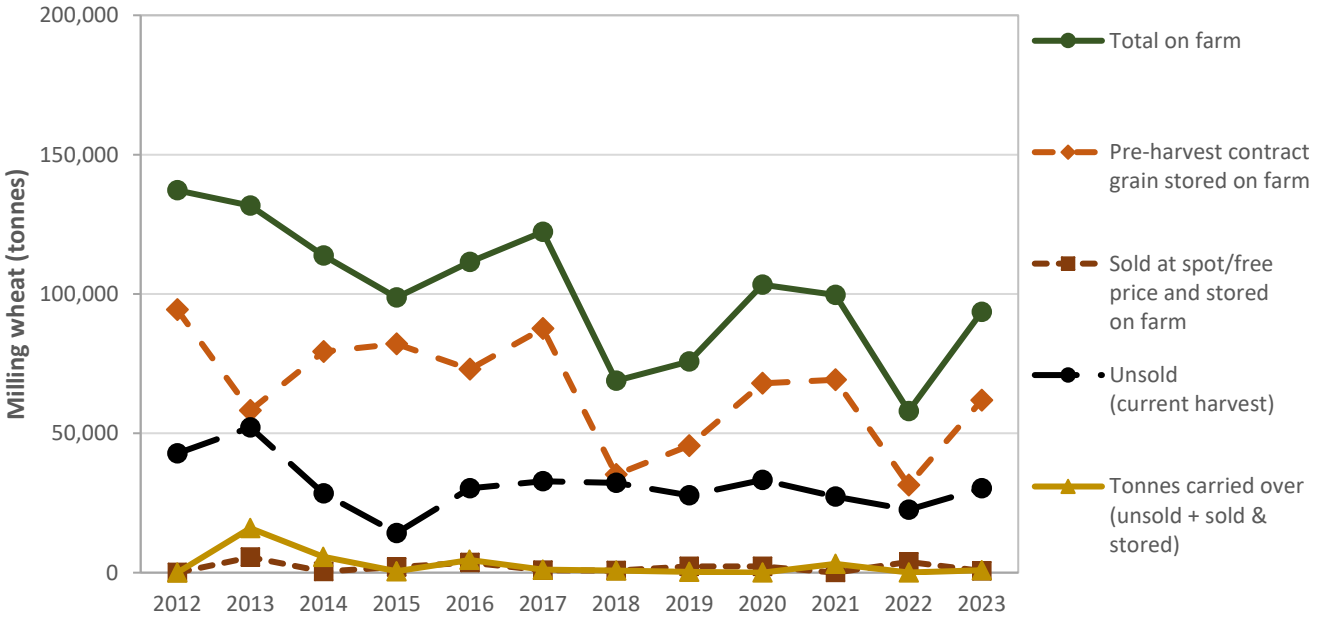


Figure 1b. NZ stock on farms for milling wheat as estimated on 1 April each year.
Note: Historical data for 2012 to 2021 are from April AIMI Reports for 2021 and earlier, while data for 2022 and 2023 are matched from the current report. Unharvested grain is included. For the 2012 and 2013 harvests, the sales status of the unharvested grain was unknown, so it was assumed unsold. After this time, the sales status of the unharvested grain was determined and has been apportioned between "Pre-harvest contract grain stored on farm" and "Unsold". "Tonnes carried over" is the sum of sold and unsold stock carried over (still on farm) from the previous season.

Feed Wheat (Tonnes)

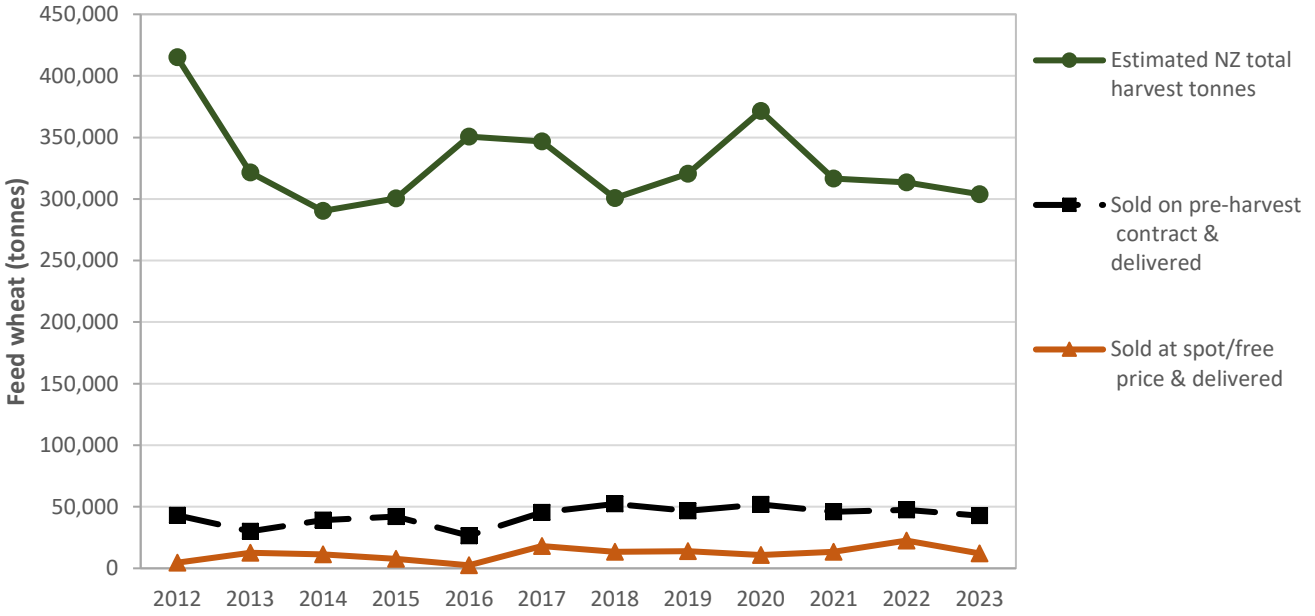


Figure 2a. NZ harvest tonnage and sales channels for feed wheat as estimated on 1 April each year.
Note: Historical data for 2012 to 2021 are from April AIMI Reports for 2021 and earlier, while data for 2022 and 2023 are matched from the current report. "Total harvest tonnes" includes harvested and unharvested grain for that season's harvest. "Sold at spot/free price & delivered" includes grain used on own farm.

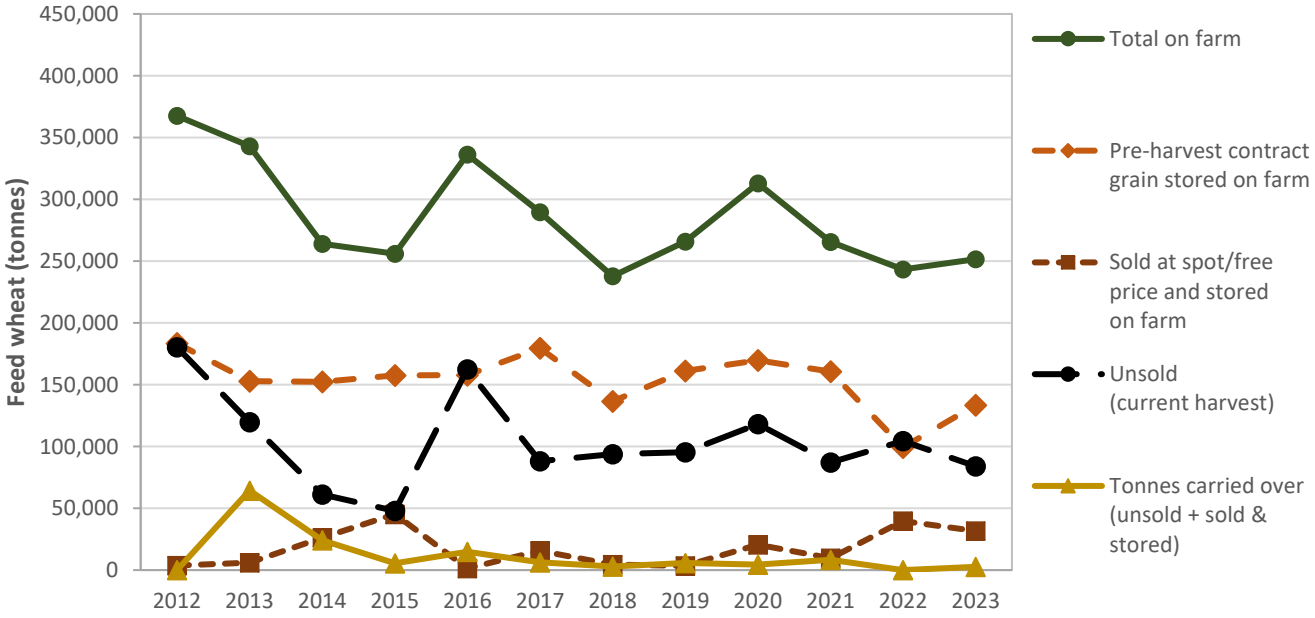


Figure 2b. NZ stock on farms for feed wheat as estimated on 1 April each year.
Note: Historical data for 2012 to 2021 are from April AIMI Reports for 2021 and earlier, while data for 2022 and 2023 are matched from the current report. Unharvested grain is included. For the 2012 and 2013 harvests, the sales status of the unharvested grain was unknown, so it was assumed unsold. After this time the sales status of the unharvested grain was determined and has been apportioned between "Pre-harvest contract grain stored on farm" and "Unsold". "Tonnes carried over" is the sum of sold and unsold stock carried over (still on farm) from the previous season.

Feed Barley (Tonnes)

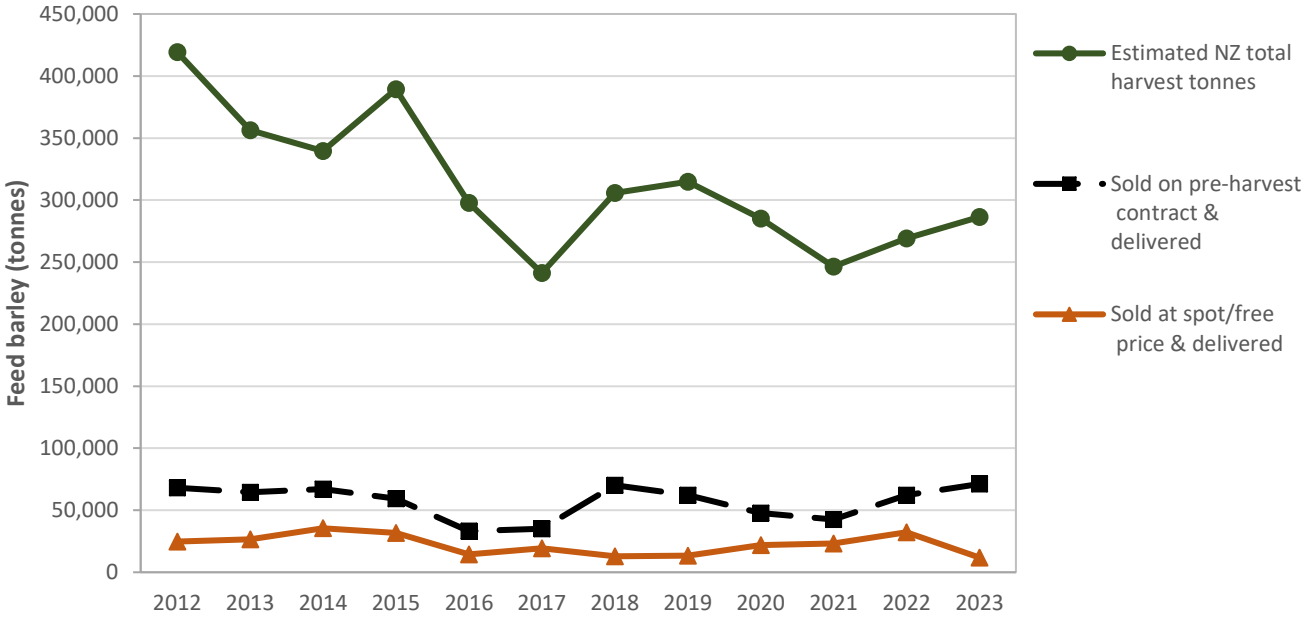


Figure 3a. NZ harvest tonnage and sales channels for feed barley as estimated on 1 April each year.
Note: Historical data for 2012 to 2021 are from April AIMI Reports for 2021 and earlier, while data for 2022 and 2023 are matched from the current report. "Total harvest tonnes" includes harvested and unharvested grain for that season's harvest. "Sold at spot/free price & delivered" includes grain used on own farm.

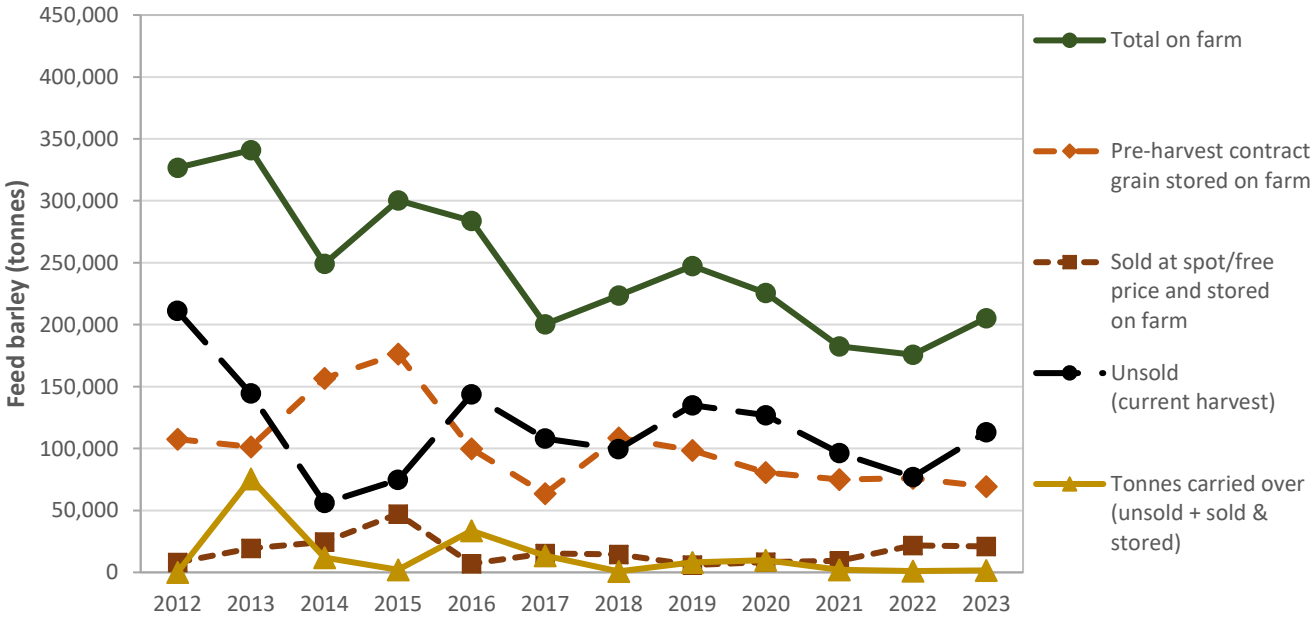
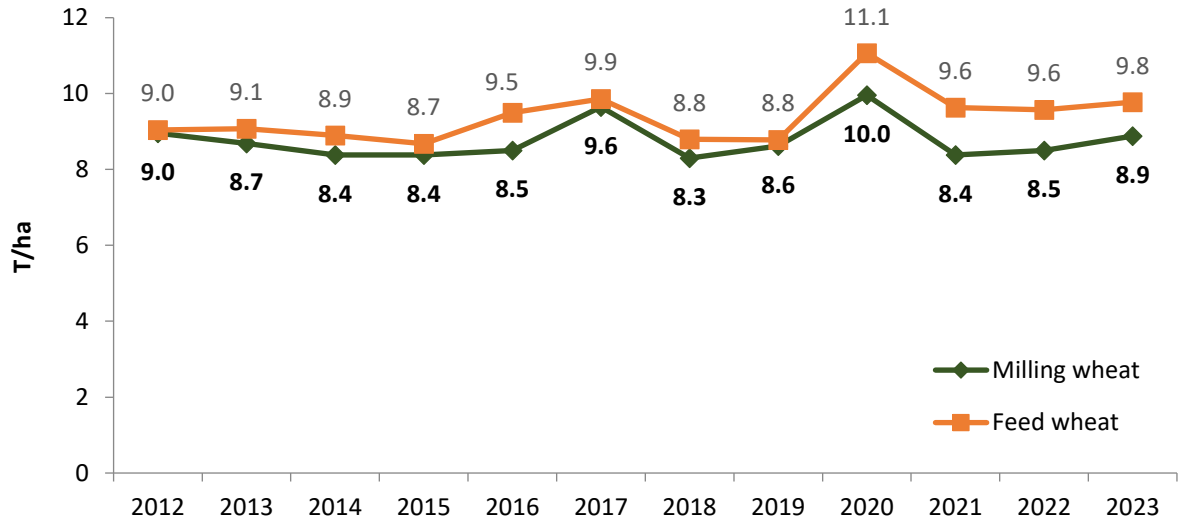
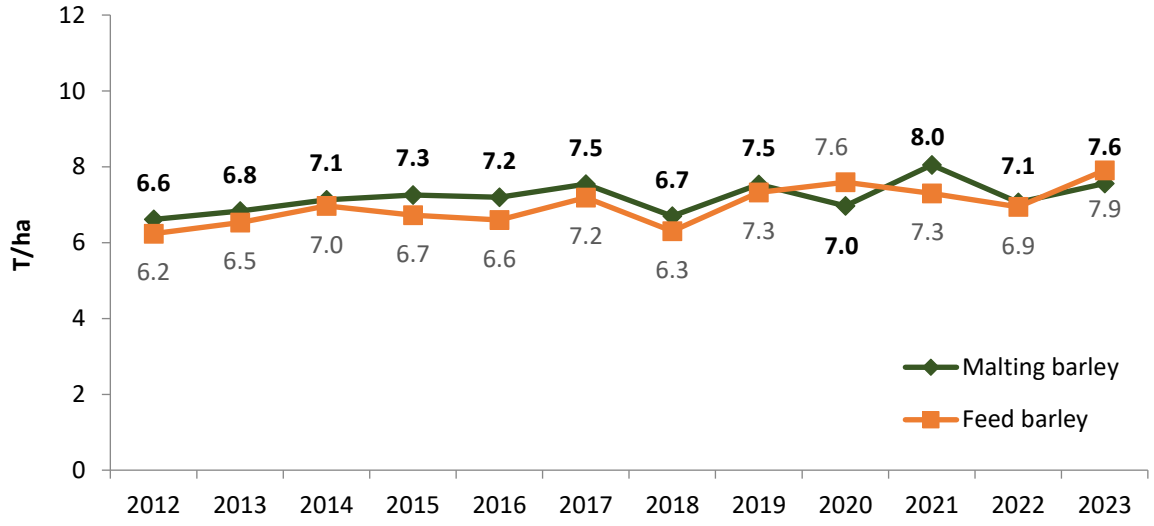


Figure 3b. NZ stock on farms for feed barley as estimated on 1 April each year.
Note: Historical data for 2012 to 2021 are from April AIMI Reports for 2021 and earlier, while data for 2022 and 2023 are matched from the current report. Unharvested grain is included. For the 2012 and 2013 harvests, the sales status of the unharvested grain was unknown, so it was assumed unsold. After this time, the sales status of the unharvested grain was determined and has been apportioned between "Pre-harvest contract grain stored on farm" and "Unsold". "Tonnes carried over" is the sum of sold and unsold stock carried over (still on farm) from the previous season.





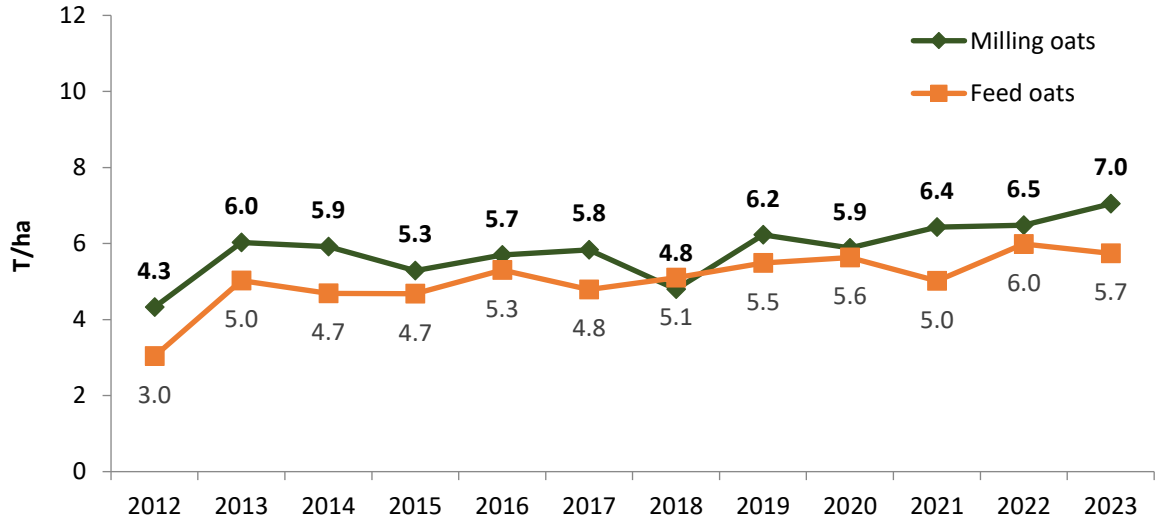


Figure 4. Comparison of yields between the 2012 to 2023 harvests for the six cereal crops.
Data for 2012 to 2021 are from previous April 1 AIMI reports, while data for 2022 and 2023 are matched data from current report. Note: Milling wheat includes biscuit and gristing varieties.

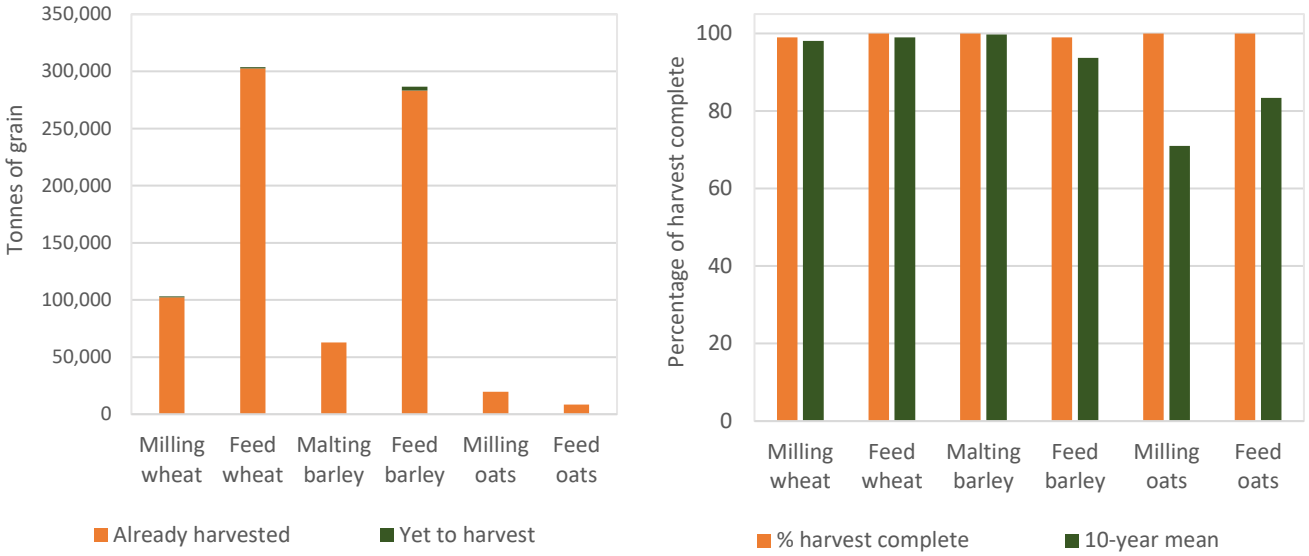


Figure 5. Estimated NZ tonnes for 2023 harvested before 1 April, and yet to harvest as at 1 April, along with percentage harvest complete compared to the 10-year average.

Autumn/winter sowings and sowing intentions as at 1 April each year (spring sowings not included).

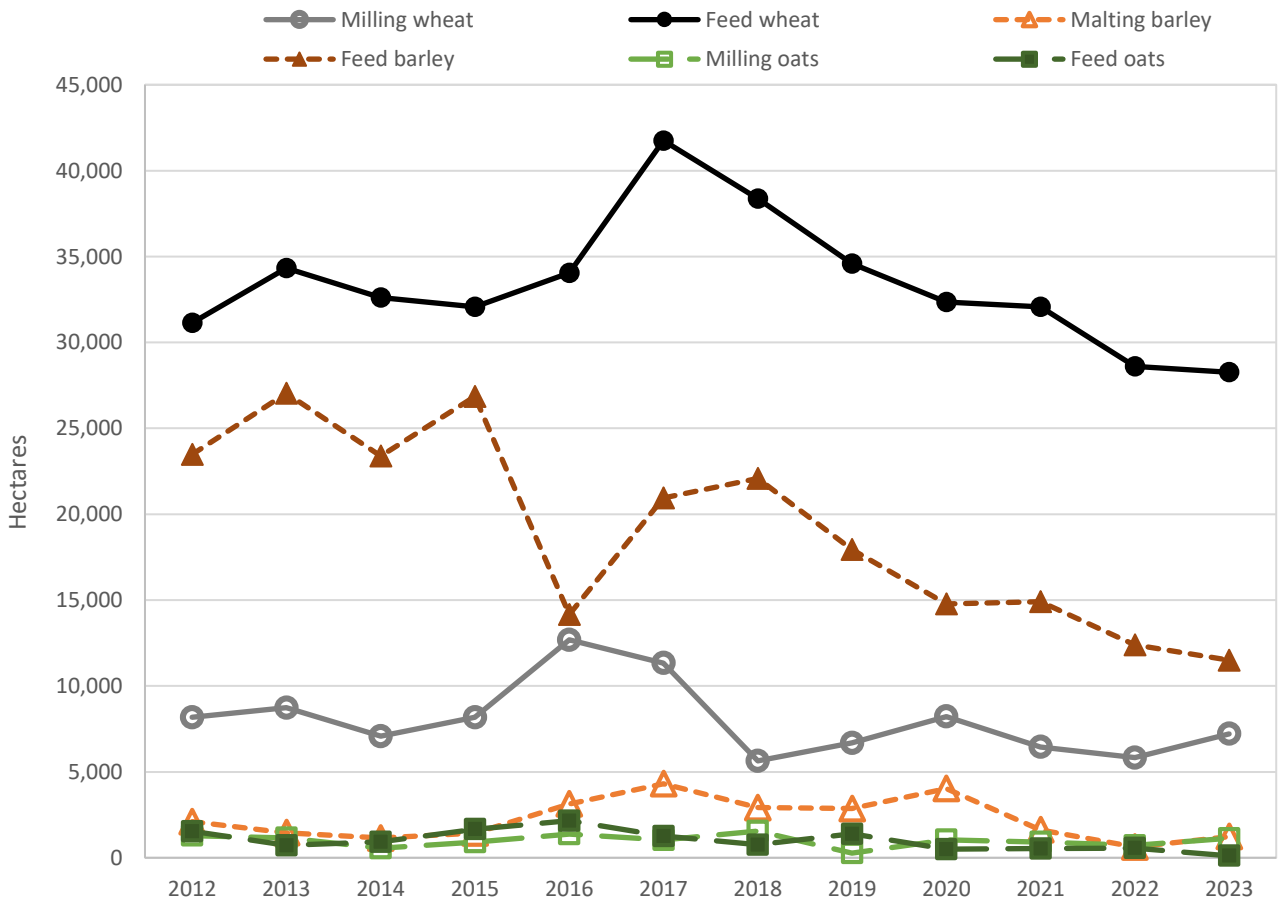


Figure 6. Estimated NZ total hectares sown or intended to be sown in autumn/winter 2023 (spring hectares not included), along with the corresponding estimates from the ten previous 1 April AIMI survey reports. Figures for 2022 and 2023 are matched from the current report, while other figures are from previous April AIMI reports for 2012 – 2021. Note: Data are mostly intentions (see Fig. 7). This information is also presented in Table 3 below.

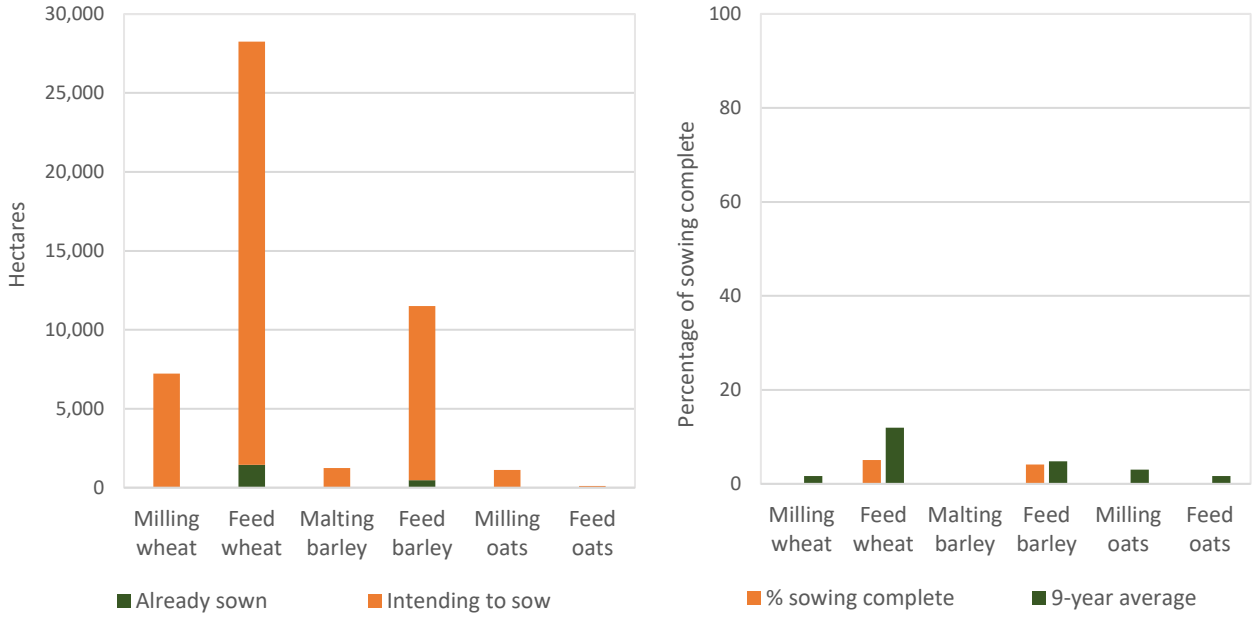


Figure 7. Estimated NZ sowings and sowing intentions for autumn/winter 2023 as at 1 April, 2023, along with percentage sowing complete compared to the 9-year average. Note: Missing bars in the graphs correspond to zero values. Spring intentions are not included.

Table 1. Estimated national figures for the 2023 harvest, plus sold and delivered tonnages, for six cereal crops as at April 1, 2023.

	Units	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats	Total (all crops)
Number of farmers in the survey who harvested or will harvest this crop in 2023		**47**	**86**	**27**	**94**	**11**	**12**	**129**
2022 harvest								
Estimated NZ total hectares, 2022 harvest	ha	8,164	32,736	5,256	38,744	2,958	2,542	90,400
Estimated NZ total tonnes, 2022 harvest	tonnes	69,390	313,410	37,121	269,079	19,181	15,219	723,400
2023 harvest								
Estimated NZ total hectares, 2023 harvest	ha	11,622	31,078	8,297	36,239	2,804	1,455	91,494
Estimated NZ total tonnes, 2023 harvest	tonnes	103,233	303,799	62,694	286,530	19,749	8,352	784,357
Estimated NZ total hectares already harvested by 1 April, 2023	ha	11,506	30,960	8,297	35,614	2,804	1,455	90,635
Estimated NZ total tonnes already harvested by 1 April, 2023	tonnes	102,217	302,688	62,694	283,198	19,749	8,352	778,897
Estimated NZ total hectares yet to harvest as at 1 April, 2023	ha	116	118	0	625	0	0	859
Estimated NZ total tonnes yet to harvest as at 1 April, 2023	tonnes	1,017	1,111	0	3,332	0	0	5,460
Percentage of estimated 2023 crop tonnage which had been harvested by 1 April, 2023	%	99%	100%	100%	99%	100%	100%	99%
Average over previous 9 years of % of crop tonnage which had been harvested by 1 April	%	98%	99%	100%	93%	68%	82%	-
2023 harvest so far								
Sold under pre-harvest contract and delivered by 1 April, 2023	tonnes	9,594	42,731	10,627	71,162	1,845	806	136,764
Pre-harvest contract grain stored on farm on 1 April, 2023	tonnes	61,609	132,353	45,403	69,296	17,645	4,442	330,748
Sold at spot/free price and delivered by 1 April, 2023	tonnes	0	11,541	0	9,621	0	1,647	22,809
Sold at spot/free price and stored on farm on 1 April, 2023	tonnes	661	31,685	464	21,030	0	0	53,840
(For milling or malting only) Sold for feed by 1 April, 2023	tonnes	915	-	1045	-	0	-	1960
(For feed only) Used on own farm by 1 April, 2023	tonnes	-	529	-	2,237	-	109	2874
Unsold stocks on hand (2023 harvest only) on 1 April, 2023	tonnes	29,438	83,849	5,155	109,853	259	1,349	229,902
2023 yet to harvest								
Unharvested grain sold under pre-harvest contract by 1 April, 2023	tonnes	203	1,017	0	0	0	0	1,220
Unharvested grain unsold on 1 April, 2023	tonnes	813	94	0	3,332	0	0	4,240
Sales channels (2023 harvest): includes unharvested grain								
Sold under pre-harvest contract (total) by 1 April, 2023 (includes sold, unharvested grain)	tonnes	71,406	176,100	56,030	140,458	19,490	5,248	468,732
Sold at spot/free price (total) by 1 April, 2023 (includes sold for feed and used on farm)	tonnes	1,576	43,755	1,509	32,887	0	1,755	81,483
Delivery status of sold grain (2023 harvest): includes unharvested grain								
Sold and delivered (total) by 1 April, 2023 (includes sold for feed and used on farm)	tonnes	10,509	54,801	11,672	83,019	1,845	2,562	164,407
Sold and stored on farm (total) on 1 April, 2023 (includes sold, unharvested grain)	tonnes	62,473	165,055	45,867	90,326	17,645	4,442	385,808
Total sales (2023 harvest): includes unharvested grain								
Sold (of total crop) by 1 April, 2023 (includes sold for feed, used on farm, and sold, unharvested grain)	tonnes	72,982	219,855	57,539	173,345	19,490	7,004	550,215
Unsold (of total crop) on 1 April, 2023 (includes unsold, unharvested grain)	tonnes	30,251	83,943	5,155	113,185	259	1,349	234,142

Table 1 (continued).	Units	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats	Total (all crops)
Comparison of hectares and tonnes between last two harvests								
Estimated % change in hectares, 2022 to 2023 harvest	%	42.4	-5.1	57.9	-6.5	-5.2	-42.8	1.2
Estimated % change in tonnes, 2022 to 2023 harvest	%	48.8	-3.1	68.9	6.5	3.0	-45.1	8.4
Estimated change in tonnes, 2022 to 2023 harvest	tonnes	33,844	-9,612	25,573	17,451	568	-6,867	60,957
Comparison of yields (t/ha) between last two harvests								
NZ-wide estimated yield, 2022 harvest	t/ha	8.5	9.6	7.1	6.9	6.5	6.0	8.0
NZ-wide estimated yield, 2023 harvest	t/ha	8.9	9.8	7.6	7.9	7.0	5.7	8.6
Recalculated April 1, 2022 survey breakdown to enable more precise comparisons between April 1, 2022 and April 1, 2023 (based upon matched data)								
Sold under pre-harvest contract and delivered by April 1, 2022	tonnes	6,779	47,475	9,079	62,102	1,851	3,054	130,339
Pre-harvest contract grain stored on farm on April 1, 2022	tonnes	31,436	99,291	21,006	73,584	13,641	7,024	245,982
Sold at spot/free price and delivered by April 1, 2022	tonnes	2,308	21,400	232	25,511	413	1,385	51,249
Sold at spot/free price and stored on farm on April 1, 2022	tonnes	3,889	39,749	0	21,773	0	295	65,705
(For milling or malting only) Sold for feed by April 1, 2022	tonnes	2,440	-	1,687	-	0	-	4128
(For feed only) Used on own farm by April 1, 2022	tonnes	-	1,144	-	6,765	-	264	8172
Unsold stocks on hand (2022 harvest only) on April 1, 2022	tonnes	21,571	104,098	5,116	75,985	3,276	2,914	212,960
Pre-harvest contract grain yet to be harvested as at April 1, 2022	tonnes	0	0	0	2,392	0	284	2,676
Unsold grain yet to be harvested as at April 1, 2022	tonnes	966	254	0	967	0	0	2,188
Comparison of on-farm storage (including unharvested grain) between last April and this April								
Sold but not delivered (total) on 1 April, 2022 (from 2022 harvest)	tonnes	35,325	139,039	21,006	97,748	13,641	7,603	314,364
Sold but not delivered (total) on 1 April, 2023 (from 2023 harvest) (from above)	tonnes	62,473	165,055	45,867	90,326	17,645	4,442	385,808
Unsold (from 2022 harvest) on 1 April, 2022	tonnes	22,537	104,352	5,116	76,953	3,276	2,914	215,148
Unsold (from 2023 harvest) on 1 April, 2023 (as above)	tonnes	30,251	83,943	5,155	113,185	259	1,349	234,142
Change in sold but not delivered (including unharvested grain) as at 1 April (for most recent harvest) between 2022 and 2023	tonnes	27,147	26,015	24,861	-7,423	4,004	-3,161	71,444
Change in unsold as at 1 April (from most recent harvest) between 2022 and 2023	tonnes	7,714	-20,409	39	36,232	-3,017	-1,566	18,994
Change in total grain on farm (both sold and unsold, and including unharvested grain) as at 1 April (for most recent harvest) between 2022 and 2023	tonnes	34,862	5,606	24,900	28,809	988	-4,726	90,438

Note: The comparisons in the last seven rows do not include carryover stock from the previous season (as given in Table 2).

Statistics NZ is gratefully acknowledged for supplying Provisional 2022 NZ Agricultural Production Statistics data on total hectares and tonnes for wheat, barley and oats.

In Table 1, the estimated 2023 harvest tonnes of milling wheat was 49% *higher* than for the 2022 harvest (up 33,800 t). For feed wheat, the estimated 2023 harvest tonnes was 3% *lower* than for 2022 (down 9,600 t), and for feed barley, the estimated 2023 harvest tonnes was 6% *up* on 2022 (up 17,500 t). Estimated 2023 harvest tonnes of malting barley was *up* by 69% (up 25,600 t). Harvest tonnes of milling oats was *up* by 3% (up 570 t) and feed oats tonnage was *down* by 45% (down 6,900 t).

The last few rows of Table 1 show the differences in on-farm storage between 1 April 2022 (of 2022 harvest grain) and 1 April, 2023 (of 2023 harvest grain). Unharvested grain has been included in the estimates to take account of the differing percentages of grain harvested by 1 April between the two years. Overall, on-farm storage is up by 90,400 tonnes on the same time last year.

For feed barley and feed oats there were decreases in the tonnage of grain sold, but not delivered by 1 April between the two seasons (decreases of 7,400 and 3,200 t, respectively). For milling wheat, feed wheat, malting barley and milling oats there were increases in the tonnage of grain sold, but not delivered by 1 April between the two seasons (increases of 27,100, 26,000, 24,900 and 4,000 t, respectively).

In terms of unsold tonnage, there were decreases in unsold tonnages as at 1 April between the two seasons for feed wheat, milling oats and feed oats, for which the unsold tonnage decreased by 20,400, 3,000 and 1,600 tonnes respectively. For two of the other crops, there were increases in unsold tonnage between the two seasons, of 7,700 tonnes for milling wheat and 36,200 tonnes for feed barley. For malting barley, the amount of unsold tonnage was almost identical between the two seasons.

The net effect is that there was a *decrease* in the tonnage of grain from the most recent harvest stored on farms between 1 April, 2022 and 1 April, 2023 for feed oats (with an estimated decrease of 4,700 t). For all other crops, there was an increase, of 34,900 tonnes for milling wheat, 5,600 tonnes for feed wheat, 24,900 tonnes for malting barley, 28,800 tonnes for feed barley and 1000 tonnes for milling oats. These figures do not include any change in the amount of grain carried over from the previous harvest (given in Table 2); this change in tonnage of carry-over grain needs to be added to give the total picture.

Table 2 below shows that for all six crops, *unsold* carry-over stocks on hand on 1 April, 2023 from the previous (2022) harvest were at a low level. Feed wheat had 0.5% of the 2022 crop unsold (1,600 t), feed barley had 0.2% unsold (600 t), milling oats had 0.8% unsold (150 t), and feed oats had 1.4% unsold (210 t). The other two crops (milling wheat and malting barley) had no unsold carry-over grain.

In terms of *sold* carry-over grain stored on farm from the 2022 harvest, there were four crops with a small amount of grain sold and stored. These were milling wheat (800 t), feed wheat (1,000 t), feed barley (1,100 t) and feed oats (80 t).

In the last four rows, Table 2 tracks the movement of unsold grain from the 2022 harvest between 10 October, 2022 and 1 April, 2023. For milling wheat and malting barley, all of the grain (100%) that was unsold as at 10 October, 2022, was sold between these two dates. For feed wheat, 90% of unsold grain was sold between these two dates, and for feed barley, 97% of unsold grain was sold between these two dates. For milling oats, 93% was sold between the two dates, and for feed oats, 88% was sold between the two dates.

When the tonnage of unsold carry-over grain is added to the unsold tonnage from the current harvest, the estimated tonnage of unsold grain as at 1 April, 2023 is 85,500 tonnes of feed wheat and 113,800 tonnes of feed barley; when summed over these two major feed crops, the total amount of unsold feed (wheat or barley) grain is estimated to be 199,300 tonnes, as compared to the amount on 1 April, 2022, of 181,400 tonnes.

Table 2. Carry-over stock on hand from the 2022 harvest, as at April 1, 2023.

	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats	Total (all crops)
Number of survey farmers who harvested this crop in 2022	**42**	**88**	**22**	**100**	**12**	**23**	**127**
Number of survey farmers with carry-over grain from 2022 crop on 1 April, 2023	**1**	**4**	**0**	**6**	**1**	**4**	**14**
Estimated NZ total sold and stored on farm (2022 crop) on 1 April, 2023 (tonnes)	813	1,017	0	1,084	0	78	2,991
Estimated NZ total unsold stocks on hand (2022 crop) on 1 April, 2023 (tonnes)	0	1,576	0	642	155	207	2,580
Estimated NZ total 2022 harvest still on farms on 1 April, 2023 (tonnes)	813	2,593	0	1,726	155	284	5,572
Estimated NZ unsold stocks on hand of 2022 harvest on 1 April, 2023 as a percentage of tonnes harvested in 2022	0.0%	0.5%	0.0%	0.2%	0.8%	1.4%	0.4%
Comparative figures from last year (matched data for 1 April, 2022)	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**	**tonnes**
Estimated NZ total sold and stored on farm (2021 crop) on 1 April, 2022	0	0	0	1,006	0	0	1,006
Estimated NZ total unsold stocks on hand (2021 crop) on 1 April, 2022	102	0	0	77	181	41	401
Comparative figures from year before that (1 April, 2021 AIMI survey)							
Estimated NZ total sold and stored on farm (2020 crop) on 1 April, 2021	597	2,707	2,210	1,392	0	0	6,906
Estimated NZ total unsold stocks on hand (2020 crop) on 1 April, 2021	2,593	5,699	0	700	0	10	9,001
Comparative figures from two years before that (1 April, 2020 AIMI survey)							
Estimated NZ total sold and stored on farm (2019 crop) on 1 April, 2020	0	2,303	0	3,199	2,573	0	8,075
Estimated NZ total unsold stocks on hand (2019 crop) on 1 April, 2020	0	2,062	0	6,686	0	0	8,747
Comparative figures from three years before that (1 April, 2019 AIMI survey)							
Estimated NZ total sold and stored on farm (2018 crop) on 1 April, 2019	288	2,986	0	712	4,118	265	8,368
Estimated NZ total unsold stocks on hand (2018 crop) on 1 April, 2019	0	2,796	0	7,255	44	0	10,095
Comparative figures from four years before that (1 April, 2018 AIMI survey)							
Estimated NZ total sold and stored on farm (2017 crop) on 1 April, 2018	319	745	139	278	4,463	705	6,650
Estimated NZ total unsold stocks on hand (2017 crop) on 1 April, 2018	399	2,066	0	676	371	873	4,385
Comparative figures from five years before that (1 April, 2017 AIMI survey)							
Estimated NZ total sold and stored on farm (2016 crop) on 1 April, 2017	354	2,538	0	9,851	463	819	14,026
Estimated NZ total unsold stocks on hand (2016 crop) on 1 April, 2017	708	3,790	0	3,604	98	1,097	9,297

Table 2 (continued).

	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats	Total (all crops)
Number of survey farmers who harvested this crop in 2022	**42**	**88**	**22**	**100**	**12**	**23**	**127**
Number of survey farmers with carry-over grain from 2022 crop on 1 April, 2023	**1**	**4**	**0**	**6**	**1**	**4**	**14**
Comparative figures from six years before that (1 April, 2016 AIMI survey)							
Estimated NZ total sold and stored on farm (2015 crop) on 1 April, 2016	1,356	3,227	930	3,084	2,040	0	10,636
Estimated NZ total unsold stocks on hand (2015 crop) on 1 April, 2016	3,220	11,578	2,496	30,457	0	35	47,786
Comparative figures from seven years before that (1 April, 2015 AIMI survey)							
Estimated NZ total sold and stored on farm (2014 crop) on 1 April, 2015	399	3,747	227	1,532	0	0	5,904
Estimated NZ total unsold stocks on hand (2014 crop) on 1 April, 2015	68	1,685	0	660	197	395	3,005
Comparative figures from eight years before (1 April, 2014 AIMI survey)							
Estimated NZ total sold and stored on farm (2013 crop) on 1 April, 2014	5,245	17,293	0	11,656	298	0	34,492
Estimated NZ total unsold stocks on hand (2013 crop) on 1 April, 2014	415	6,927	0	375	223	722	8,662
Comparative figures from nine years before (1 April, 2013 AIMI survey)							
Estimated NZ total sold and stored on farm (bumper 2012 crop) on 1 April, 2013	6,838	45,514	2,236	31,266	852	0	86,706
Estimated NZ total unsold stocks on hand (bumper 2012 crop) on 1 April, 2013	9,117	18,909	0	44,372	852	501	73,751
Change in unsold 2022 harvest grain between 10 October, 2022 and 1 April, 2023 (based upon matched data)							
Estimated NZ total unsold stocks on hand (2022 crop) on 10 October, 2022	2,008	16,061	6,339	20,790	2,165	1,664	49,027
Estimated NZ total unsold stocks on hand (2022 crop) on 1 April, 2023 (as above)	0	1,576	0	642	155	207	2,580
Reduction in estimated NZ total unsold stocks on hand (2022 crop) between 10 October, 2022 and 1 April, 2023 (tonnes)	2,008	14,485	6,339	20,147	2,010	1,457	46,447
As a percentage, reduction in estimated NZ total unsold stocks on hand (2022 crop) between 10 October, 2022 and 1 April, 2023	100%	90%	100%	97%	93%	88%	95%

Note: The matched comparison in the last section was based upon scaling up data from the exact same survey farms for the last two AIMI surveys (October, 2022 and April, 2023).

Table 3. Autumn/winter sowings and sowing intentions as at April 1, 2023 and comparisons with previous years' estimates.

	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats	Total (all crops)
Number of farmers in the survey who have sown or intend to sow this crop in the autumn or winter, as at 1 April, 2023	29	73	7	40	6	3	98
Estimated NZ total hectares, 2022 harvest (autumn/winter plus spring sown crops, combined)	8,164	32,736	5,256	38,744	2,958	2,542	90,400
Estimated NZ total hectares, 2023 harvest (autumn/winter plus spring sown crops, combined)	11,622	31,078	8,297	36,239	2,804	1,455	91,494
Estimated NZ total hectares already sown, as at 1 April, 2023	0	1,437	0	472	0	0	1,909
Estimated NZ total hectares intending to sow in autumn or winter, as at 1 April, 2023	7,217	26,826	1,235	11,031	1,128	112	47,548
Estimated NZ total autumn/ winter 2023 sowings and/or sowing intentions as at April 1, 2023 (hectares, for harvest in 2024)	7,217	28,263	1,235	11,503	1,128	112	49,456
Estimated percentage of autumn/ winter 2023 sowings already sown by 1 April, 2023	0.0%	5.1%	0.0%	4.1%	0.0%	0.0%	3.9%
Average over previous 8 years of % of autumn/ winter sowings already sown by 1 April	1.9%	12.8%	0.0%	4.9%	3.4%	1.9%	-
Comparative figures from the same time in twelve previous years (1 April AIMI surveys)							
Estimated NZ total autumn/ winter 2022 sowings & intentions (ha) (matched data, April 2022 Survey)	5,826	28,604	629	12,387	724	558	48,729
Estimated NZ total autumn/ winter 2021 sowings & intentions (ha) (from the April 2021 AIMI Survey)	6,454	32,075	1,622	14,907	917	535	56,510
Estimated NZ total autumn/ winter 2020 sowings & intentions (ha) (from the April 2020 AIMI Survey)	8,217	32,343	4,031	14,770	1,044	496	60,901
Estimated NZ total autumn/ winter 2019 sowings & intentions (ha) (from the April 2019 AIMI Survey)	6,684	34,579	2,860	17,939	270	1,387	63,719
Estimated NZ total autumn/ winter 2018 sowings & intentions (ha) (from the April 2018 AIMI Survey)	5,640	38,371	2,923	22,076	1,553	761	71,323
Estimated NZ total autumn/ winter 2017 sowings & intentions (ha) (from the April 2017 AIMI Survey)	11,330	41,751	4,306	20,949	1,036	1,262	80,634
Estimated NZ total autumn/ winter 2016 sowings & intentions (ha) (from the April 2016 AIMI Survey)	12,688	34,048	3,133	14,167	1,369	2,159	67,565
Estimated NZ total autumn/ winter 2015 sowings & intentions (ha) (from the April 2015 AIMI Survey)	8,171	32,070	1,434	26,849	909	1,658	71,092
Estimated NZ total autumn/ winter 2014 sowings & intentions (ha) (from the April 2014 AIMI Survey)	7,078	32,607	1,148	23,380	554	926	65,692
Estimated NZ total autumn/ winter 2013 sowings & intentions (ha) (from the April 2013 AIMI Survey)	8,733	34,325	1,461	27,041	1,155	719	73,434
Estimated NZ total autumn/ winter 2012 sowings & intentions (ha) (from the April 2012 AIMI Survey)	8,173	31,136	2,101	23,485	1,286	1,540	67,721
Estimated NZ total autumn/ winter 2011 sowings & intentions (ha) (from the April 2011 AIMI Survey)	9,960	32,020	1,650	24,510	1,120	430	69,690
Estimated change in autumn/ winter sowings & intentions, 2021 to 2022 (ha)	-628	-3,471	-993	-2,519	-193	23	-7,781
Estimated change in autumn/ winter sowings & intentions, 2022 to 2023 (ha)	1,390	-342	606	-885	404	-446	727
Estimated % change in autumn/ winter sowings & intentions, 2022 to 2023	24%	-1%	96%	-7%	56%	-80%	1%

Table 3 above shows that most autumn/winter cereal crops had not been sown by 1 April, 2023. For feed wheat, 5% had been sown, and for feed barley, 4% had been sown. No milling wheat, malting barley, milling oats or feed oats had been sown on the survey farms. Therefore, the estimates in the table are primarily sowing *intentions*. The percentages sown for each crop are generally lower than the averages over the previous eight years, as reported in Table 3.

For feed wheat, autumn/winter sowings plus sowing intentions for 2023, as at 1 April, 2023, are *similar* to the same time last year, 1 April, 2022 (down 1%, or down 300 hectares). For feed barley, autumn/winter sowings plus sowing intentions for 2023, as at 1 April, 2023, are *lower* than at the same time last year, 1 April, 2022 (down 7%, or down 900 hectares). Autumn/winter sowings plus sowing intentions for 2023 are *up* 24% for milling wheat (up 1,400 ha), *up* 96% for malting barley (up 600 ha), *up* 56% for milling oats (up 400 ha) and *down* 80% for feed oats (down 450 ha). When the autumn/winter sowings plus sowing intentions are summed over the four wheat and barley crops, the prediction is for a 2% increase in autumn/winter sowings (an 800 ha increase in area sown). This predicted increase in area sown in the autumn/winter of 2023 reduces to an increase of 700 hectares when we add in the two oats crops.

AIMI
Arable Industry Marketing Initiative

FOR AIMI COMMITTEE ONLY: APPENDIX

NEW ZEALAND SURVEY OF CEREAL AREAS AND VOLUMES: APRIL 1, 2023

Report group*	**131**
Completed Survey	137
Out of	**143**

* Must have completed April 22, October 22 and April 23 surveys

Region	Responses
ENI	7
SWNI	5
NSI	31
MC	41
SCNO	21
SOS	26
Total	**131**

Comments:

Harvest/yields

- South Island –Best harvest conditions in a while across all regions. But March rains in parts of Canterbury/NSI wet crops and made harvest/paddock access difficult. Yields were good or average.
- North Island – bad season, continual rain, some spring crops had a harvest window, but Feb Cyclone flooded ground, delayed or stopped harvest, with yield and quality down or lost.

Price/demand – Market softening, demand from dairy sector dropped off, grain slow to move. Input, compliance and general operating costs are up, prices need to remain high to cover costs. Concern/uncertainty which way prices will go.

Sowings – Uncertainty around sowing now vs spring. Wet conditions across the country delaying things, except for South Canterbury – it's dry, could be a concern.

Number of participants that harvested or intend to harvest in 2023 (from 131 responses):

Region	Milling Wheat	Feed Wheat	Malting Barley	Feed Barley	Milling Oats	Feed Oats
ENI	3	4	4	5	-	3
SWNI	-	3	4	-	-	-
NSI	11	14	3	26	-	4
MC	24	29	14	24	1	2
SCNO	8	16	1	15	-	-
SOS	1	20	1	24	10	3
Total	**47**	**86**	**27**	**94**	**11**	**12**

Average yields (t/ha) (from 131 responses, SCALED TO NZ FIGURES):

Region	Milling Wheat	Feed Wheat	Malting Barley	Feed Barley	Milling Oats	Feed Oats
ENI	6.5	4.9	5.1	4.7	-	4.8
SWNI	-	7.0	4.1	-	-	-
NSI	9.3	9.9	7.9	7.7	-	4.6
MC	9.5	11.5	8.2	9.6	6.4	7.1
SCNO	7.7	9.4	7.4	7.2	-	-
SOS	11.5	9.9	1.6	7.5	7.1	5.7
Average	**8.9**	**9.8**	**7.6**	**7.9**	**7.0**	**5.7**

Tonnes of unsold grain (from 131 responses, SCALED TO NZ FIGURES):

Region	Milling Wheat	Feed Wheat	Malt Barley	Feed Barley	Milling Oats	Feed Oats	Region Total
ENI	839	-	851	3,994	-	457	**6,141**
SWNI	-	-	-	-	-	-	**-**
NSI	2,618	4,993	77	16,045	-	114	**23,847**
MC	24,618	24,938	4,226	56,045	-	584	**110,412**
SCNO	1,830	27,488	-	22,794	-	-	**52,113**
SOS	346	26,524	-	14,307	259	194	**41,629**
Total	**30,251**	**83,943**	**5,155**	**113,185**	**259**	**1,349**	**234,142**

Totals over 131 survey responses

Table A.1. Data totalled over all survey respondents

	Units	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats
Number of farmers in the survey who harvested or will harvest this crop in 2023		**47**	**86**	**27**	**94**	**11**	**12**
Number of survey farmers who have already harvested some or all of this crop, as at 1 April, 2023		**47**	**85**	**27**	**92**	**11**	**12**
Number of survey farmers who are still to harvest some or all of this crop, as at 1 April, 2023		**1**	**3**	**0**	**7**	**0**	**0**
2022 harvest (matched data from 1 April, 2022 survey)							
Total hectares on survey farms, 2022 harvest	ha	1,625	6,516	668	4,925	527	453
Total tonnes on survey farms, 2022 harvest	tonnes	13,648	61,643	4,796	34,765	3,712	2,946
Total hectares on survey farms, already harvested by 1 April, 2022	ha	1,605	6,510	668	4,842	527	443
Total tonnes on survey farms, already harvested by 1 April, 2022	tonnes	13,458	61,593	4,796	34,331	3,712	2,891
Total hectares on survey farms, yet to harvest (as at 1 April, 2022)	ha	20	6	0	83	0	10
Total tonnes on survey farms, yet to harvest (as at 1 April, 2022)	tonnes	190	50	0	434	0	55
2023 harvest							
Total hectares on survey farms, 2023 harvest	ha	2,313	6,186	1,055	4,606	500	259
Total tonnes on survey farms, 2023 harvest	tonnes	20,305	59,753	8,100	37,019	3,822	1,617
Total hectares on survey farms, already harvested by 1 April, 2023	ha	2,290	6,163	1,055	4,527	500	259
Total tonnes on survey farms, already harvested by 1 April, 2023	tonnes	20,105	59,534	8,100	36,589	3,822	1,617
Total hectares on survey farms, yet to harvest (as at 1 April, 2023)	ha	23	24	0	80	0	0
Total tonnes on survey farms, yet to harvest (as at 1 April, 2023)	tonnes	200	219	0	431	0	0
2023 harvest so far							
Sold under pre-harvest contract and delivered by 1 April, 2023	tonnes	1,887	8,405	1,373	9,194	357	156
Pre-harvest contract grain stored on farm on 1 April, 2023	tonnes	12,118	26,032	5,866	8,953	3,415	860
Sold at spot/free price and delivered by 1 April, 2023	tonnes	0	2,270	0	1,243	0	319
Sold at spot/free price and stored on farm on 1 April, 2023	tonnes	130	6,232	60	2,717	0	0
(For milling or malting only) Sold for feed by 1 April, 2023	tonnes	180	-	135	-	0	-
(For feed only) Used on own farm by 1 April, 2023	tonnes	-	104	-	289	-	21
Unsold stocks on hand (2023 harvest only) on 1 April, 2023	tonnes	5,790	16,492	666	14,193	50	261
2023 yet to harvest							
Unharvested grain sold under pre-harvest contract by 1 April, 2023	tonnes	40	200	0	0	0	0
Data for these SAME survey farms from April 1, 2022 survey, to enable more precise, matched comparisons between April 1, 2022 and April 1, 2023							
Sold under pre-harvest contract and delivered by April 1, 2022	tonnes	1,333	9,338	1,173	8,024	358	591
Pre-harvest contract grain stored on farm on April 1, 2022	tonnes	6,183	19,529	2,714	9,507	2,640	1,360
Sold at spot/free price and delivered by April 1, 2022	tonnes	454	4,209	30	3,296	80	268
Sold at spot/free price and stored on farm on April 1, 2022	tonnes	765	7,818	0	2,813	0	57
(For milling or malting only) Sold for feed by April 1, 2022	tonnes	480	-	218	-	0	-
(For feed only) Used on own farm by April 1, 2022	tonnes	-	225	-	874	-	51
Unsold stocks on hand (2022 harvest only) on April 1, 2022	tonnes	4,243	20,475	661	9,817	634	564

Table A.1. Continued	Units	Milling wheat	Feed wheat	Malting barley	Feed barley	Millin g oats	Feed oats
Number of farmers in the survey who harvested or will harvest this crop in 2023		**47**	**86**	**27**	**94**	**11**	**12**
Pre-harvest contract grain yet to be harvested as at April 1, 2022	tonnes	0	0	0	309	0	55
Unsold grain yet to be harvested as at April 1, 2022	tonnes	190	50	0	125	0	0
Data for these SAME survey farms for matched comparisons of unsold grain between April 1, 2022 and April 1, 2023							
Unsold stocks on hand (from 2022 harvest) on April 1, 2022	tonnes	4,243	20,475	661	9,817	634	564
Unsold stocks on hand (from 2023 harvest) on April 1, 2023	tonnes	5,790	16,492	666	14,193	50	261
Comparison of yield (tonnes per ha) on survey farms between harvests							
Survey farms, 2022 harvest	t/ha	8.4	9.5	7.2	7.1	7.0	6.5
Survey farms, 2023 harvest	t/ha	8.8	9.7	7.7	8.0	7.7	6.2

In Table A.1, the yields per hectare on the survey farms were higher for the 2023 harvest as compared to the 2022 harvest except for feed oats, which had higher yields in 2022 than 2023. In Table A.2, the data in Table A.1 are expressed as percentages.

Table A.2. Fate of 2023 crop, in percentages (by tonnes)	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats
Number of farmers in the survey who harvested or will harvest this crop in 2023	**47**	**86**	**27**	**94**	**11**	**12**
2023 harvested grain: % of total crop						
% Sold under pre-harvest contract and delivered by 1 April, 2023	9.3	14.1	17.0	24.8	9.3	9.7
% Pre-harvest contract grain stored on farm on 1 April, 2023	59.7	43.6	72.4	24.2	89.3	53.2
% Sold at spot/free price and delivered by 1 April, 2023	0.0	3.8	0.0	3.4	0.0	19.7
% Sold at spot/free price and stored on farm on 1 April, 2023	0.6	10.4	0.7	7.3	0.0	0.0
(For milling or malting only) % Sold for feed by 1 April, 2023	0.9	-	1.7	-	0.0	-
(For feed only) % Used on own farm by 1 April, 2023	-	0.2	-	0.8	-	1.3
% Unsold stocks on hand (2023 harvest only) on 1 April, 2023	28.5	27.6	8.2	38.3	1.3	16.1
2023 unharvested grain: % of total crop						
% Unharvested grain sold under pre-harvest contract by 1 April, 2023	0.2	0.3	0.0	0.0	0.0	0.0
% Unharvested grain unsold on 1 April, 2023	0.8	0.0	0.0	1.2	0.0	0.0
Sales channels (2023 harvest): includes unharvested grain						
% Sold under pre-harvest contract (total) by 1 April, 2023 (includes sold, unharvested grain)	69.2	58.0	89.4	49.0	98.7	62.8
% Sold at spot/free price (total) by 1 April, 2023 (includes sold for feed and used on farm)	1.5	14.4	2.4	11.5	0.0	21.0
Delivery status of sold grain (2023 harvest): includes unharvested grain						
% Sold and delivered (total) by 1 April, 2023 (includes sold for feed and used on farm)	10.2	18.0	18.6	29.0	9.3	30.7
% Sold and stored on farm (total) on 1 April, 2023 (includes sold, unharvested grain)	60.5	54.3	73.2	31.5	89.3	53.2
Total sales (2023 harvest): includes unharvested grain						
% Sold (of total crop) by 1 April, 2023 (includes sold for feed, used on farm, and sold, unharvested grain)	70.7	72.4	91.8	60.5	98.7	83.9
% Unsold (of total crop) on 1 April, 2023 (includes unsold, unharvested grain)	29.3	27.6	8.2	39.5	1.3	16.1

Table A.3. Crops remaining on farms from 2022 harvest (data totalled over all survey respondents)	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats
Number of survey farmers who harvested this crop in 2022	**42**	**88**	**22**	**100**	**12**	**23**
Number of survey farmers with 2022 crop sold and stored on farm on 1 April, 2023	**1**	**1**	**0**	**4**	**0**	**2**
Number of survey farmers with unsold stocks on hand of 2022 crop on 1 April, 2023	**0**	**4**	**0**	**3**	**1**	**2**
Total number of survey farmers with carry-over grain from 2022 crop on 1 April, 2023	**1**	**4**	**0**	**6**	**1**	**4**
Tonnes sold and stored on survey farms (2022 crop) on 1 April, 2023	160	200	0	140	0	15
Unsold stocks on hand (2022 crop) on survey farms on 1 April, 2023 (tonnes)	0	310	0	83	30	40
Total 2022 harvest still on survey farms on 1 April, 2023 (tonnes)	160	510	0	223	30	55
Unsold stocks on hand of 2022 harvest on 1 April, 2023 as percentage of tonnes harvested in 2022 [on survey farms]	0.0%	0.5%	0.0%	0.2%	0.8%	1.4%
Change in unsold 2022 harvest grain on survey farms between 10 Oct, 2022 and 1 April, 2023 (MATCHED comparison on the SAME survey farms)						
Unsold stocks on hand (2022 crop) on survey farms on 10 October, 2022 (tonnes)	395	3,159	819	2,686	419	322
Unsold stocks on hand (2022 crop) on survey farms on 1 April, 2023 (tonnes) (as above)	0	310	0	83	30	40
Reduction in unsold stocks on hand (2022 crop) between 10 October, 2022 and 1 April, 2023 (tonnes)	395	2,849	819	2,603	389	282
As a percentage, reduction in unsold stocks on hand (2022 crop) between 10 October, 2022 and 1 April, 2023	100%	90%	100%	97%	93%	88%

Table A.3 reports on the tonnages of grain (both sold and unsold) carried over on farms from the previous harvest (2022). As a percentage of each crop harvested in 2022, the carryover is low.

At the bottom of the table, the reduction in unsold 2022 harvest grain on the survey farms is calculated for each crop between the last survey date (10 October 2022) and the present survey date (1 April 2023). These percentages are all in the range 88% to 100%.

In Table A.4, autumn/winter sowings and autumn/winter sowing intentions are given as sums over the 131 survey farms.

Table A.4. Autumn/ winter sowings and intentions (data totalled over all survey respondents)

	Milling wheat	Feed wheat	Malting barley	Feed barley	Milling oats	Feed oats
Number of farmers in the survey who have sown or intend to sow this crop in the autumn or winter as at 1 April, 2023	**29**	**73**	**7**	**40**	**6**	**3**
Number of survey farmers who have already sown this crop, as at 1 April, 2023	**0**	**4**	**0**	**1**	**0**	**0**
Number of survey farmers who intend to sow this crop in the autumn or winter, as at 1 April, 2023	**29**	**72**	**7**	**39**	**6**	**3**
Total hectares on survey farms, 2022 harvest (autumn/winter plus spring sown crops, combined)	1,625	6,516	668	4,925	527	453
Total hectares on survey farms, 2023 harvest (autumn/winter plus spring sown crops, combined)	2,313	6,186	1,055	4,606	500	259
Total hectares already sown on survey farms, as at 1 April, 2023	0	286	0	60	0	0
Total hectares intending to sow in autumn or winter on survey farms, as at 1 April, 2023	1,437	5,340	157	1,402	201	20
Autumn/winter 2023 sowings and/or sowing intentions on survey farms as at April 1, 2023 (hectares, for harvest in 2024)	1,437	5,626	157	1,462	201	20
Percentage of autumn/winter 2023 sowings already sown by 1 April, 2023	0.0%	5.1%	0.0%	4.1%	0.0%	0.0%

For scaling up to NZ-wide totals, the most recent figures are the Provisional 2022 Agricultural Production Statistics (APS) figures, as in Table A.5. On average, the yields on the survey farms were higher than the APS yields for barley and oats, and lower for wheat.

From the scale-up factors, we can see what percentage of the area of each 2022 harvest crop was on the survey farms. For wheat, it was 100/ 5.024 = 19.9%. For barley, it was 100/ 7.867 = 12.7%. For oats, it was 100/ 5.612 = 17.8%. That is, the percentages were relatively high for both wheat and oats (with about one fifth and one sixth, respectively, of hectares sampled in the survey), and lower for barley (with about one eighth of hectares sampled).

Table A.5. Scaling up from survey totals to NZ-wide totals using Provisional 2022 Agricultural Production Statistics (APS)	Total wheat	Total barley	Total oats
Total hectares on survey farms, 2022 harvest	8,141	5,593	980
Total tonnes on survey farms, 2022 harvest	75,291	39,561	6,658
APS statistics for 2022 harvest, total hectares	40,900	44,000	5,500
APS statistics for 2022 harvest, total tonnes	382,800	306,200	34,400
Multiplier for scaling up from 2022 survey farm totals to 2022 APS totals			
Hectares	5.024	7.867	5.612
Tonnes	5.084	7.740	5.167
Comparison of yields between survey and APS statistics			
Survey farms, 2022 harvest (t/ha)	9.2	7.1	6.8
APS statistics, 2022 harvest (t/ha)	9.4	7.0	6.3

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.5). 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.*