

Hawke's Bay Farming for Resilience Report

February 2024



Ministry for Primary Industries
Manatū Ahu Matua



Acknowledgements

AgFirst: Phil Tither, Lochie MacGillivray

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Notes

Annual figures are for the year to 30 June 2024 unless otherwise noted.

Currency figures are in New Zealand dollars.

Some totals may not add up due to rounding.

MPI welcomes feedback on this publication via:
onfarmsupport@mpi.govt.nz for general feedback
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Project background

Hawke's Bay is still recovering from the effects of Cyclone Gabrielle. Good decision making will be key for farming families in their recovery and to grow resilience.

NIWA officially declared the arrival of El Niño on 29 September 2023. El Niño can bring increased risks of drought and water scarcity, wildfire, heat-related human and animal health concerns, along with flooding. The Ministry for Primary Industries' (MPI) advice is that "it's important to have a plan and to be prepared".

The Hawke's Bay Farming for Resilience pilot project is a collaboration between AgFirst and MPI initiated to support the region in its readiness for a forecast dry period and the challenging financial pressures sheep and beef farmers are currently experiencing.

We aim to improve resilience through the development of key messages for communications both to rural stakeholders and communities, but also to provide

intelligence to MPI and other agencies on the status of impacts on our farmers and growers.

The project seeks to pilot an integrated framework that includes a panel of local specialists to provide intelligence, insights, and modelled data to communicate near real-time data and forecast scenarios for messaging and potential on-farm interventions.

The reports will be made available to encourage proactive support to the Hawke's Bay farming community. Recipients will include Hawke's Bay Rural Advisory Group (RAG), farmers, and the agribusiness/ rural professional community.

























The pilot project will take place over six months delivering reports from February to July 2024.

For more information about El Niño go to: mpi.govt.nz/el-nino



Farm system model details

This project has established three farm categories providing regional farm system models that statistically represent sheep and beef farms in the Hawke's Bay. The data has been modelled by AgFirst in FARMAX® and calibrated by local specialists.

Farm system model 1 Summer Dry Hill	Farm system model 2 Summer Safe Hill	Farm system model 3 Finishing
 590 effective hectares	 520 effective hectares	 440 effective hectares
 < 1,200 mm annual rainfall	 > 1,200 mm annual rainfall	 < 1,200 mm annual rainfall
 18% flat land	 34% flat land	 78% flat land
 12 ha summer rape 12 ha multi graze brassica for summer and winter use. Used to finish 89% of lambs prime. Balance sold store.	 8 ha winter kale 4 ha summer rape 4 ha herb and clover Finishing 88% of lambs prime.	 10 ha winter kale 8 ha summer rape 4 ha fodder beet 50 ha in specialist finishing forage including lucerne, plantain, chicory and clovers.
 5,166 stock units	 4,823 stock units	 6,313 stock units
 No irrigation	 No irrigation	 Partial irrigation
 60% of feed demand Crossbred ewe flock breeding own replacements and selling a mix of prime and store lambs.	 65% of feed demand Similar to Summer Dry Hill but more lambs finished.	 52% of feed demand Main enterprise is lamb finishing. Lambs typically purchased in the autumn and sold in the late winter/early spring.
 40% of feed demand Self-replacing breeding cows and finishing steers.	 35% of feed demand Similar beef policy to Summer Dry Hill with the addition of dairy heifer grazing consuming 6% of feed demand.	 48% of feed demand Bull beef finishing with a combination of purchased calves and yearlings to finish as 2-year-olds.

February update



Climate

January in the Hawke’s Bay was wet. The region had 184% of average January rainfall with most areas close to twice their average. Tangoio was especially wet receiving 232% of average rainfall.

The high rainfall shifted the declining soil moisture levels to near or above average. River flows were normal or slightly above normal and groundwater levels were normal.

Temperatures were 0.8°C warmer than usual during daytime then climbing to 1.9°C warmer overnight. January’s weather was as bit of a roller-coaster – some beautiful hot days followed by a cooler, wet finale.

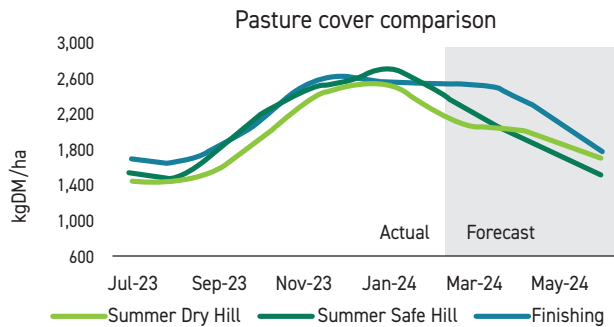


Pasture growth and covers

Across the three Hawke’s Bay farm system models, average pasture growth for January was 33 kgDM/ha per day compared to an average year of 19.6 kgDM/ha, 68% more than expected.

PastureVibe forecasts that pasture growth rates across all farm system models in March and April might be only about 53% of the average because of expected weather conditions. If these more conservative pasture growth rates occur, then by mid-April total pasture covers will have dropped to below 1,500 kgDM/ha and may constrain animal performance. However, AgFirst have used the long-term average growth rate forecasts due to the abnormal El Niño patterns that have been experienced so far. These forecasts will be updated each month as further data is received and local conditions observed.

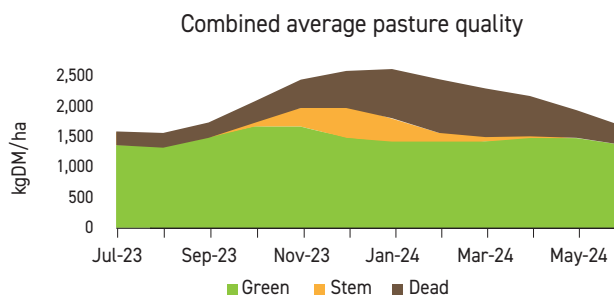
Average farm pasture covers across the three Hawke’s Bay farm system models range from 2,500 to 2,700 kgDM/ha, which is 350 to 700 kgDM/ha greater than an average year.



Pasture quality

Pasture quantity remains high, but feed quality may constrain younger stock, especially lambs, on many farms. Despite the higher pasture covers at the start of February, only 60% of total pasture cover (1,500 kgDM/ha) is green pasture. Farmers have been capitalising on increased feed availability to improve weight gains, especially in cattle, and have postponed the sale of lambs and prime cattle.

Although feed supplies are currently exceeding expectations and processing plants have available capacity, there remains a risk of a dry autumn leading to potential issues, such as inadequate feed supply and congestion at processing plants.



February update

Continued



Economic update

As farms enter the primary processing season, lamb prices are down due to ongoing low international demand. Beef prices have also declined compared to the previous season, however they are showing more resilience compared to lamb prices.

Across the three farm system models, annual meat and wool production has increased by 4% due to pasture availability, yielding an improvement in revenue of \$65/ha. High interest costs and other costs continue to affect farm profit before tax. The weighted average across the three farm system models return a negative (-\$43/ha) farm profit before tax.



Product pricing

AgFirst provide a monthly update of prime schedules and store stock that populate these regional price models and allow us to estimate expected financials and the implications of scenarios.

The weighted average indicator prices currently (February 2024) across the farm system models for prime lamb is a gross schedule of \$5.93/kg and for prime beef, \$5.67/kg. While lamb prices are down, compared to our baseline farm system model prepared at the start of January the improvement in February lamb price is \$0.22/kg and an improvement of \$0.33/kg on prime beef. At this stage, it is anticipated that these prices will not be sustained for the season.

Over the financial year the season average schedule for lamb is currently forecast at \$6.40/kg, for prime beef \$5.90/kg and for bull beef \$5.93/kg.

Current physical summary	Farm system model 1: Summer Dry Hill	Farm system model 2: Summer Safe Hill	Farm system model 3: Finishing
Annual meat and wool production (kg/Effective ha)	204	246	331
Total revenue (\$/Effective ha)	\$924	\$1,138	\$1,796
Total farm expenses (\$/Effective ha)	\$825	\$895	\$1,327
Economic farm surplus (EFS) (\$/Effective ha)	\$99	\$206	\$405
Farm profit before tax (\$/Effective ha)	-\$125	-\$48	\$173

Points to consider

- Hawke’s Bay Regional Council soil moisture monitoring sites show regional variances. While the monitoring indicates better-than-normal soil moisture levels on average, some areas are relatively dry, requiring proactive feed demand management on affected farms.
- Feed quality is negatively affecting livestock growth rates on some farms.
- There is a risk that premium prices for ewes may fall and processing space may tighten. Evaluate the advantages and disadvantages of retaining finishing stock into the autumn. Use quality feed to ensure light breeding ewes achieve condition score targets at mating.

Checklist

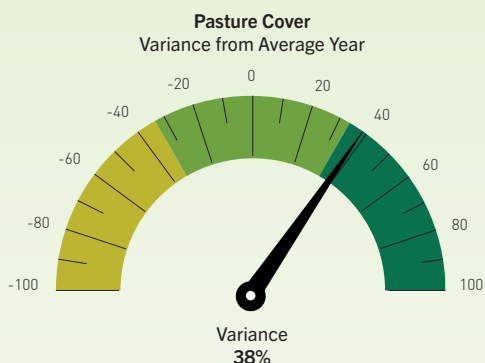
- ☑ Make a plan. Don’t be complacent as your feed situation could turn quickly. Consider your stock class priorities for grazing and develop a feed budget.
- ☑ Look at options for pasture control.
- ☑ Monitor animal health and check spore counts. Keep in touch with your local veterinarian.
- ☑ Check with your stock agent on processor status capacity and potential delays.
- ☑ Cash flow is currently driving many on farm decisions. Keep talking to your bank and/or farm adviser.

Farm system model 1: Summer Dry Hill

Current situation

Summary

Summer Dry Hill farm system's model average pasture cover is 700 kgDM/ha (38%) higher than an average year.



- Breeding farms that have delayed lamb and cattle sales in January have been able to increase liveweight gains on most stock classes, particularly cattle.
- Moderate increases in feed demand have increased annual meat and wool production to 10 kg/ha resulting in a 5% gain on stock sold.
- While prices are down, lamb and beef market prices have held better than anticipated, increasing the forecast for the lamb annual average by \$0.14 to \$6.40/kg carcass. The price increase in annual average prime beef is expected to be \$0.18 to average \$5.90/kg carcass.

Pasture cover

January's actual average pasture covers for the Summer Dry Hill farm system model were reported at just over 2,550 kgDM/ha. This is 280 kgDM/ha higher than last month's predicted outlook and 700 kgDM/ha (38%) higher than an average year for Summer Dry Hill farms in Hawke's Bay. The quantity of feed is high; however, feed quality may limit animal productive performance.

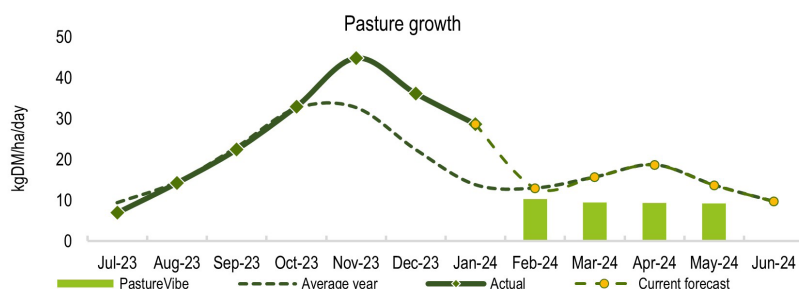
The current forecast suggests that pasture covers will continue to exceed the average levels, due to the unexpectedly higher growth rates over the previous three months. As livestock are retained for longer and pasture growth rates are anticipated to fall, pasture covers should gradually realign with the optimum target range as the season progresses.



Pasture growth

January's actual average pasture growth rate was 28.7 kgDM/ha/day. This is 15 kgDM/ha/day (110%) higher than the average year due to improved soil moisture conditions.

PastureVibe is forecasting pasture growth rates by using daily climate data supplied by NIWA (the National Institute of Water and Atmospheric Research). Based on Summer Dry Hill farm systems in the Hawke's Bay and NIWA predictions, pasture growth may be significantly lower than an average year in March and April. However, AgFirst have used the long-term average growth rate forecasts due to the abnormal El Niño patterns that have been experienced so far. These forecasts will be updated each month as further data is received and local conditions observed.



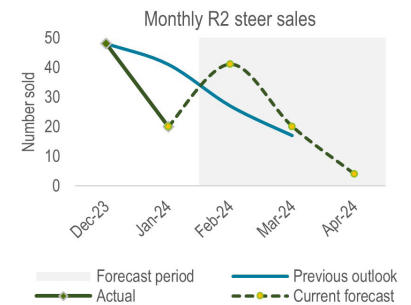
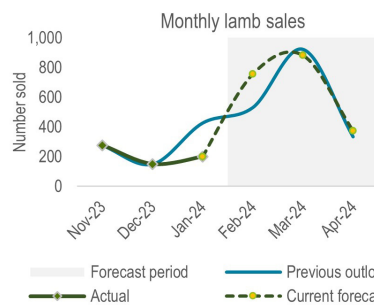
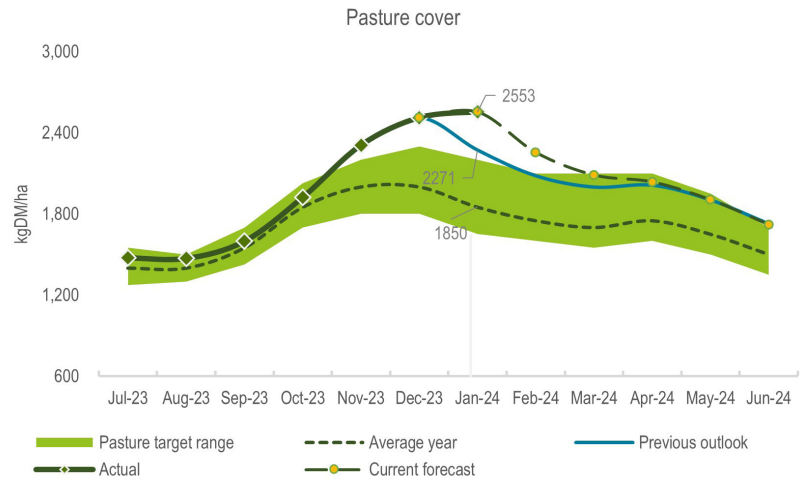
	Actuals							Current forecast					Total
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Pasture cover (kgDM/ha)	1,476	1,472	1,599	1,923	2,308	2,511	2,553	2,254	2,087	2,036	1,905	1,720	
Pasture growth (kgDM/ha/d)	7.0	14.3	22.5	33.0	44.9	36.0	28.7	13.0	15.7	18.7	13.7	9.7	7.9t
Total feed demand (kgDM/ha/d)	12.6	14.8	17.5	19.8	21.2	21.0	20.4	20.4	20.4	20.4	20.4	20.4	6.0t
Supplements/crop (% of total feed demand)	9%	7%	3%			2%	6%	9%	6%			4%	4%

Farm system model 1: Summer Dry Hill

Comparison to previous month

Commentary

- The previous outlook had predicted a pasture cover of 2,271 kgDM/ha. Actual pasture cover has been updated to reflect average covers of 2,553 kgDM/ha for this farm system model. This resulted in an increase of 38% compared to an average year.
- Stock sales forecast as part of the previous outlook have been amended due to increased pasture availability as reflected in the sales graphs.
- The impact of increased meat and wool production is expected to improve revenue by \$135/ha.
- After deducting other farm expenses such as interest, rent and drawings (over and above wages and management) the Summer Dry Hill farm system model is still anticipated to incur an overall loss in farm profit before tax for the year of -\$125/ha.



		Current situation	Previous month	Variance
Production and economic summary	Annual meat and wool production (kg/Effective ha)	204	194.6	5% ↑
	Total revenue (\$/Effective ha)	\$924	\$789	15% ↑
	Total farm expenses (\$/Effective ha)	\$825	\$816	1% ↑
	Economic farm surplus (EFS) (\$/Effective ha)	\$99	-\$27	127% ↑
	Farm profit before tax (\$/Effective ha)	-\$125	-\$247	98% ↑

Assumptions and caveats

When calculating economic performance metrics set out in the table, the change in livestock inventory uses market value of stock/kg multiplied by liveweights.

Product pricing: AgFirst provide a monthly update of prime schedules and store stock that populate these regional price models to estimate expected financials and the implications of scenarios.

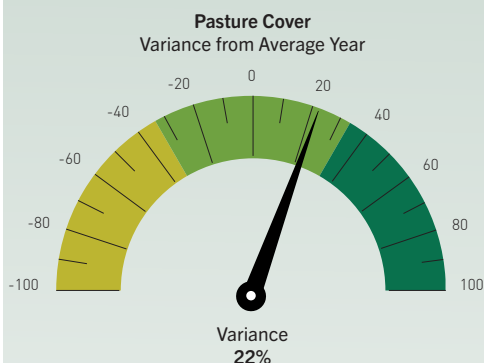
The indicator prices currently (February 2024) used in this farm system model for prime lamb is a gross schedule of \$5.93/kg and for prime beef, \$5.67/kg.

Farm system model 2: Summer Safe Hill

Current situation

Summary

Summer Safe Hill farm system's model average pasture cover is 500 kgDM/ha (22%) higher than an average year.



- Farms that have delayed lamb and cattle sales through January have been able to increase liveweight gains on most stock classes.
- This has resulted in a 3% increase in annual meat and wool production to 246 kg/ha.
- While prices are down, lamb market prices have held better than anticipated, increasing the forecast for the lamb annual average by \$4 to \$105/head.

Pasture cover

January's actual average pasture covers for the Summer Safe Hill farm system model were reported at just over 2,700 kgDM/ha. This is 300 kgDM/ha higher than previous month's predicted outlook and 500 kgDM/ha (22%) higher than an average year for Summer Safe Hill farms in Hawke's Bay. The quantity of feed is high; however, feed quality may limit animal productive performance, such as lambs and weaner calves on some farms.

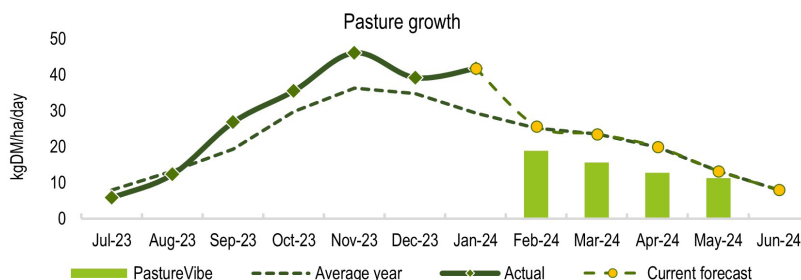
The current forecast suggests that pasture covers will continue to exceed the average levels, due to the unexpectedly higher growth rates over the previous three months. As livestock are retained for longer and pasture growth rates are anticipated to fall, pasture covers should gradually realign with the optimum target range as the season progresses.



Pasture growth

January's actual average pasture growth rate was 41.8 kgDM/ha/day. This is 12.5 kgDM/ha/day (43%) higher than the average year due to improved soil moisture conditions.

PastureVibe is forecasting pasture growth rates by using daily climate data supplied by NIWA. Based on Summer Safe Hill farm systems in the Hawke's Bay and NIWA predictions, pasture growth may be significantly lower than an average year in March and April. However, AgFirst have used the long-term average growth rate forecasts due to the abnormal El Niño patterns that have been experienced so far. These forecasts will be updated each month as further data is received and local conditions observed.



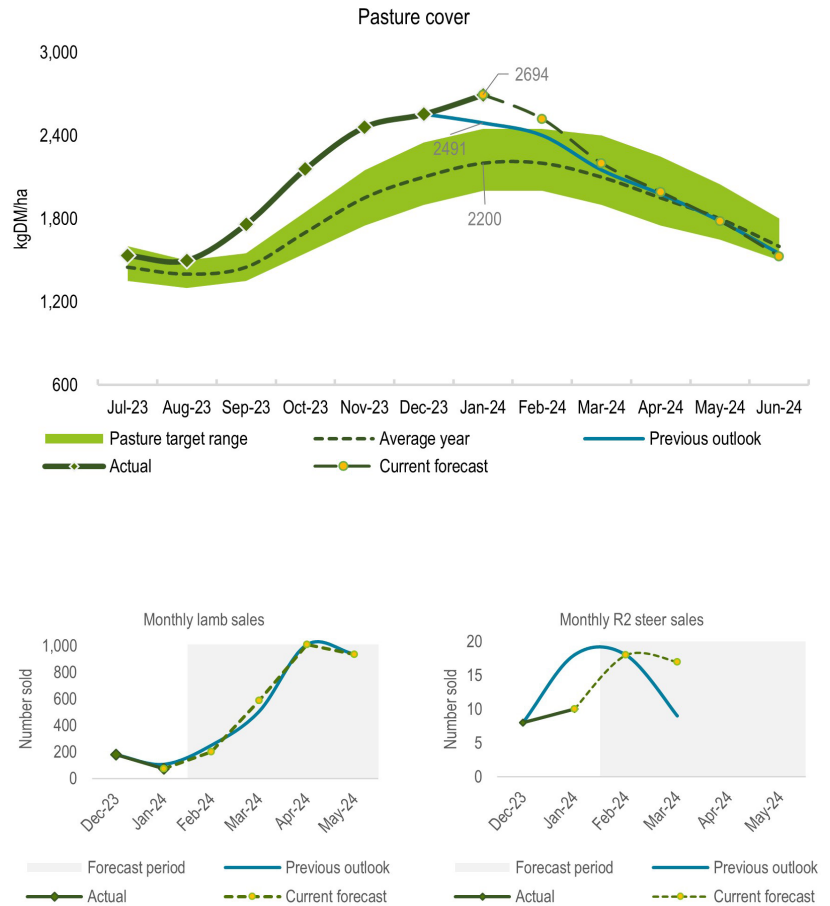
	Actuals							Current forecast					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Pasture cover (kgDM/ha)	1,535	1,500	1,760	2,158	2,461	2,555	2,694	2,520	2,200	1,992	1,783	1,528	
Pasture growth (kgDM/ha/d)	5.8	12.3	26.8	35.5	46.1	39.2	41.8	25.7	23.5	19.9	13.2	8.0	9.0t
Total feed demand (kgDM/ha/d)	12.5	14.4	17.3	20.0	22.9	25.6	24.8	22.1	22.5	19.6	14.4	12.2	6.8t
Supplements/crop (% of total feed demand)	18%	11%	0.6%				2%	2%	0.4%			12%	3%

Farm system model 2: Summer Safe Hill

Comparison to previous month

Commentary

- The previous outlook had predicted a pasture cover of 2,491 kgDM/ha. January's pasture cover has been updated to reflect actual average covers of 2,694 kgDM/ha for this farm system model. This resulted in an increase of 22% compared to an average year.
- Stock sales forecast as part of the previous outlook have been amended due to increased pasture availability as reflected in the sales graphs.
- The impact of increased meat and wool production is expected to improve revenue by \$131/ha.
- After deducting other farm expenses such as interest, rent and drawings (over and above wages and management) the Summer Safe Hill farm system model is still anticipated to incur an overall loss in farm profit before tax for the year of -\$48/ha.



		Current situation	Previous month	Variance
Production and economic summary	Annual meat and wool production (kg/Effective ha)	246	238	3% ↑
	Total revenue (\$/Effective ha)	\$1,138	\$1,007	13% ↑
	Total farm expenses (\$/Effective ha)	\$895	\$925	-3% ↓
	Economic farm surplus (EFS) (\$/Effective ha)	\$206	\$82	152% ↑
	Farm profit before tax (\$/Effective ha)	-\$48	-\$169	72% ↑

Assumptions and caveats

When calculating economic performance metrics set out in the table, the change in livestock inventory uses market value of stock/kg multiplied by liveweights.

Product pricing: AgFirst provide a monthly update of prime schedules and store stock that populate these regional price models to estimate expected financials and the implications of scenarios.

The indicator prices currently (February 2024) used in this farm system model for prime lamb is a gross schedule of \$5.93/kg and for prime beef, \$5.67/kg.

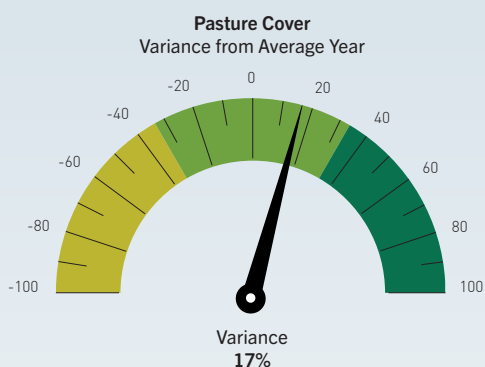
Farm system model 3: Finishing

Current situation

Summary

Finishing farm system's model average pasture cover is 350 kgDM/ha (17%) higher than an average year.

Pasture supplies will be providing finishing farms confidence to allocate higher levels of dry matter to stock on hand.



- Pasture quality may require attention on some farms to ensure stock are achieving optimum weight gains.
- Moderate increases in feed demand have increased annual meat and wool production by 8 kg/ha since the previous month resulting in a 2% gain on stock sold.
- While prices are down, lamb and beef market prices have held better than anticipated, increasing the forecast for the lamb annual average by \$0.14 to \$5.87/kg per carcass. The price increase in annual average prime beef is expected to be \$0.18 to average \$5.58/kg/carcass.

Pasture cover

January's actual average pasture covers for the Finishing farm system model were reported at just over 2,563 kgDM/ha. This is 124 kgDM/ha higher than last month's predicted outlook and 363 kgDM/ha (17%) higher than an average year for average finishing farms in Hawke's Bay.

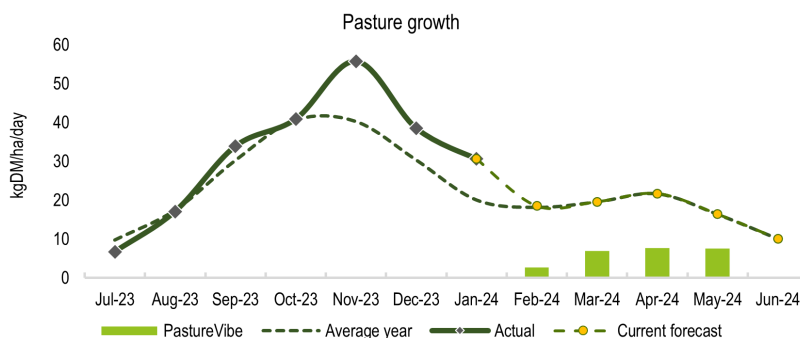
Finishing farms have significantly more feed on hand than normal. The more flexible farm policies will allow some additional feed supply to be utilised through purchase of additional stock and/or delaying sales of finishing stock.



Pasture growth

January's actual average pasture growth rate was 30.6 kgDM/ha/day. This is 10.5 kgDM/ha/day (52%) higher than the average year due to improved soil moisture conditions.

PastureVibe is forecasting pasture growth rates by using daily climate data supplied by NIWA. Based on finishing farm systems in the Hawke's Bay and NIWA predictions, pasture growth may be significantly lower than an average year in March and April. However, AgFirst have used the long-term average growth rate forecasts due to the abnormal El Niño patterns that have been experienced so far. These forecasts will be updated each month as further data is received and local conditions observed.



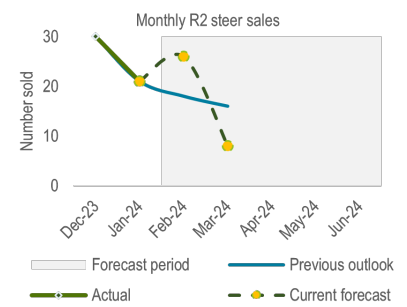
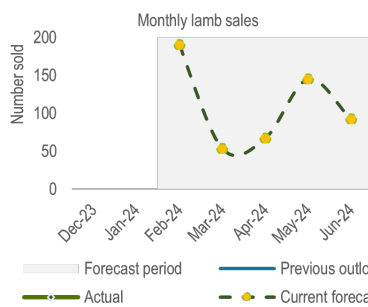
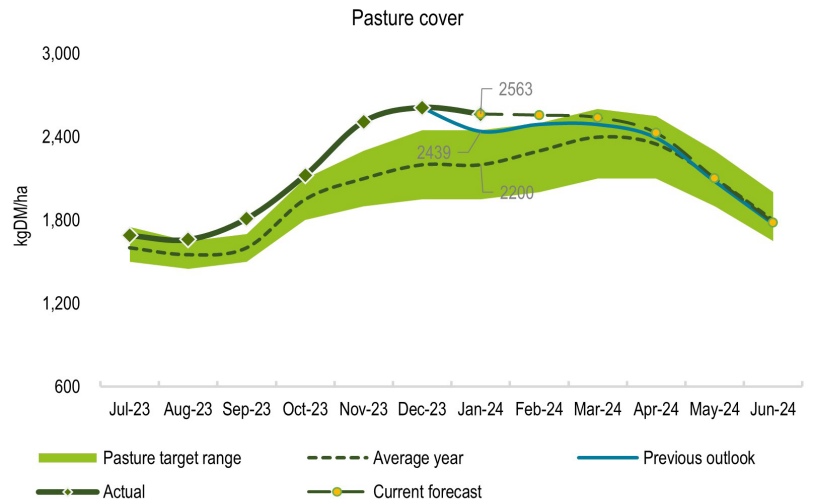
	Actuals							Current forecast					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Pasture cover (kgDM/ha)	1,690	1,661	1,811	2,122	2,508	2,610	2,563	2,555	2,538	2,427	2,101	1,783	
Pasture growth (kgDM/ha/d)	6.7	17.1	33.9	40.9	55.8	38.5	30.6	18.5	19.6	21.7	16.4	10.1	9.4t
Total feed demand (kgDM/ha/d)	20.4	26.2	28.9	25.7	21.7	19.3	15.3	11.1	10.8	14.2	18.3	19.3	7.1t
Supplements/crop (% of total feed demand)	30%	20%	2%			3%	7%	14%	7%		5%	29%	10%

Farm system model 3: Finishing

Comparisons to previous month

Commentary

- The previous outlook had predicted a pasture cover of 2,439 kgDM/ha. January's pasture cover has been updated to reflect actual average covers of 2,563 kgDM/ha for this farm system model. This resulted in an increase of 17% compared to an average year.
- This farm system model has purchased an additional 208 lambs to finish due to increased pasture availability. There has been no change to the planned sales spread which will commence in February. The R2 steers sales forecast has been revised to reflect that stock are being held on farm for longer.
- Compared to the previous outlook, annual meat and wool production has improved by 2% as the Finishing farm system model achieved higher liveweight gains on all stock classes.
- The wool price has improved by around \$0.07/kg greasy which is worth \$2/ha. While wool is not a significant contributor on the Finishing farm system model, in tight financial times everything counts.
- The impact of increased meat and wool production is expected to improve revenue by \$172/ha.
- After deducting other farm expenses such as interest, rent and drawings (over and above wages and management) the Finishing farm system model farm profit before tax is \$137/ha.



		Current situation	Previous month	Variance	
Production and economic summary	Annual meat and wool production (kg carcass/Effective ha)	331	323	2%	↑
	Total revenue (\$/Effective ha)	\$1,796	\$1,624	11%	↑
	Total farm expenses (\$/Effective ha)	\$1,327	\$1,378	-4%	↑
	Economic farm surplus (EFS) (\$/Effective ha)	\$405	\$246	65%	↑
	Farm profit before tax (\$/Effective ha)	\$137	\$16	981%	↑

Assumptions and caveats

When calculating economic performance metrics set out in the table, the change in livestock inventory uses market value of stock/kg multiplied by liveweights.

Product pricing: AgFirst provide a monthly update of prime schedules and store stock that populate these regional price models to estimate expected financials and the implications of scenarios.

The indicator prices currently (February 2024) used in this farm system model for prime lamb is a gross schedule of \$5.93/kg and for prime beef, \$5.67/kg.

Appendix

Climate tools and information

NIWA's Drought Forecasting Dashboard is a one-stop-shop for monitoring and predicting the risk for rainfall, dryness and potential drought across the country and provides week-to-week predictions of up to 35 days.

Access the tool at: shiny.niwa.co.nz/drought-forecast

Hawke's Bay Regional Council has also developed a web tool called the Drought Risk Indicator to help farmers to prepare and plan for dry conditions. Access the tool at: hbrc.govt.nz/environment/farmers-hub/extreme-dry-hub/drought-risk-indicator

For further information visit the Hawke's Bay Regional Council's website to view its State of Environment reports using the latest data gathered by its science team from environmental monitoring projects.

Read the reports at: hbrc.govt.nz/environment/state-of-the-environment/soe-monthly-reports

Definitions used in this report

Term	Definition
Actuals	Each month the farm system models are updated with actual farm data and performance metrics such as animal growth rates, pasture covers, and stock sales.
Current forecast	The current forecasts are derived from a combination of actual data, amendments to planned events such as stock sales and purchases, updated climate forecasts, and insights from the expert panel.
Previous outlook	The forecast that was generated the month before which is compared against the current forecast.
d	Day
t	Tonnes
Pasture target range	The pasture cover target is the zone recommended for the average farm cover measured in kilograms of dry matter per hectare (kgDM/ha). The target depicts the optimum range for balancing pasture growth and animal intake as calculated by long-term FARMAX® modelling.
PastureVibe	PastureVibe is a computer model that calculates pasture growth rate. Supplied with climate data updated nightly by the National Institute of Water and Atmospheric Research (NIWA). PastureVibe can forecast up to three months of future daily pasture growth. For more information go to: www.pasturevibe.com
kgDM/ha	Pasture mass is the amount of pasture per hectare and is usually measured in kilograms of dry matter per hectare (kgDM/ha). Dry matter is the plant material left behind when the water in it is removed. Dry matter per hectare is a unit for measuring pasture production.
Kg product	The net production weight of all animal products produced on farm per effective hectare farmed. This includes: <ul style="list-style-type: none">• open and closing livestock numbers and their liveweights converted to carcass weight (kg);• animal sales and purchase numbers and their weights converted to carcass weight (kg);• liveweight of grazing livestock arriving on the property and grazing livestock leaving the property converted to carcass weight (kg);• wool and velvet production including sales less opening weight on-hand plus closing weight on-hand (kg);• total effective grazing area (ha).
Economic farm surplus (EFS)	A measure of farm business profitability, independent of ownership or funding. It is used to compare performance between farms. Farm income minus farm working expenses. EFS includes an adjustment for unpaid family labour and management.
Farm profit before tax	Includes all items in the EFS, but also includes Rent/Lease and Interest to provide a measure of profitability specific to the ownership and debt structure of the farm.
Annual production	The net production of weight in kilos of all animal products (meat and wool) produced on your farm per effective hectare farmed (livestock weights are converted to a carcass weight).

