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## MANITOBA

# Effects of the 2021 Drought on Livestock Production in Manitoba



In 2021, Manitoba experienced widespread drought conditions throughout most of its agricultural regions. Twenty-two rural municipalities declared State of Agricultural Disaster in 2021 and nine municipalities, three towns, and two cities declared State of Drought Emergency. While the drought affected the entire agriculture sector and associated industries, it has hit the livestock industry and hay producers across the province particularly hard.

This report highlights the effects of the 2021 drought on cattle numbers, hay production, winter feed prices, cattle prices, and cattle and calf farm cash receipts. The report also provides an overview of the forage insurance payout and the financial assistance the federal and provincial government provided to livestock producers under the AgriRecovery program.

### Drought Effect on Cattle Inventory Goes Beyond 2021

The number of cattle on-farms in July of 2021 was the lowest since 1969. Since the peak in 2005 at 1.73 million head, the cattle number has declined by 42.1 per cent (3.2 per cent cumulative decile per year) to reach 1.0 million in 2022. The long-term downward trend in cattle number in Manitoba is driven by many factors, including business restructuring and consolidation, declining profit margins, aging producers, disease outbreaks, and the effects of extreme weather events. The bovine spongiform encephalopathy (BSE) outbreak in May 2003 led to border closures to Canadian cattle and meat exports causing cattle inventories to temporarily increase to an all-time high in July 2005<sup>1</sup>. This has also resulted in severely depressed prices for older animals where producers received as little as 10 per cent of the pre-BSE price for culls<sup>2</sup>. In addition, the restructuring of the beef sector in Western Canada since the late 1970s led to a closure of several beef slaughter facilities in Manitoba between 1979 and 1990 as beef processing plants moved to Alberta<sup>3</sup>. While it is not possible to entirely isolate the effects of drought on cattle inventories from other factors, drought has had significant negative impacts on cattle numbers and operations. The droughts in the late 1930s, 1960s, and 1980s have all led to a large decline in cattle numbers in the short- and medium-terms. More producers are also leaving the industry due to retirement, and younger cattle farmers are not entering the business at the same pace as the exits. Figure 1 shows the trends in the number of cattle on-farm since 1930s.

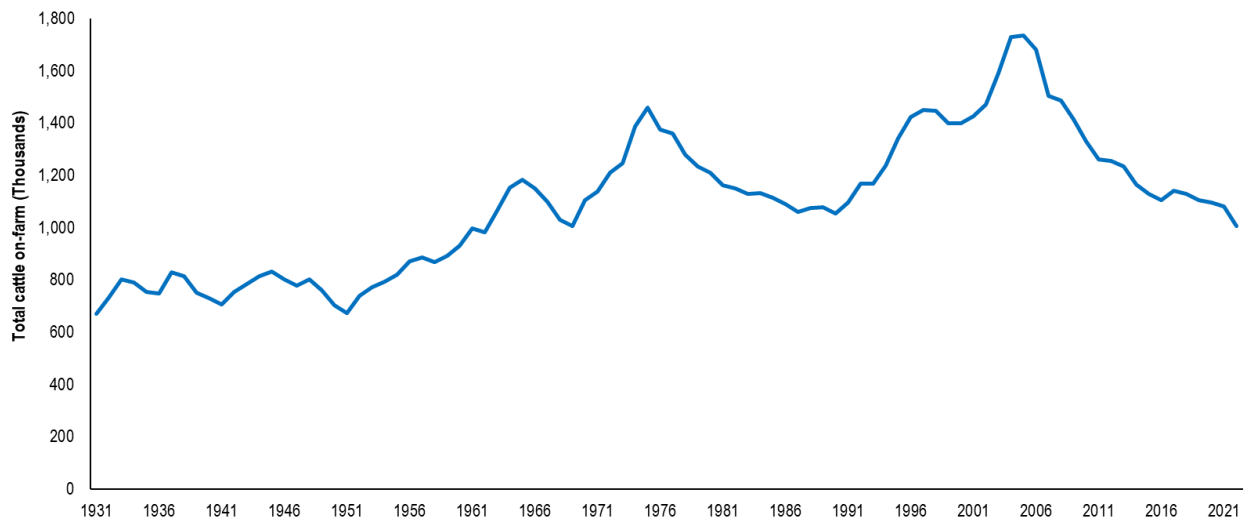
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<sup>1</sup> After a complete ban for over three months, trade with the U.S. resumed for beef harvested from Canadian cattle under the age of thirty months in the fall of 2003 and for live cattle less than thirty months of age in July 2005. However, cull cows and bulls had been banned from entering the U.S. until November 2007<sup>1</sup>.

<sup>2</sup> [raec\\_1460.tex \(umanitoba.ca\)](mailto:raec_1460.tex@umanitoba.ca)

<sup>3</sup> [Manitoba no closer to new beef-processing capacity - Manitoba Co-operator \(manitobacooperator.ca\)](https://www.manitobacooperator.ca/)

**Figure 1. Trends in the Number of Cattle On-farms (July 1<sup>st</sup>) in Manitoba, 1931-2022.**



Source: Statistics Canada, Table 32-10-0130-01

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As shown in Table 1, the total number of cattle in Manitoba declined by 1.4 per cent (15,000 head) in 2021 followed by another 6.9 per cent (75,000 head) decline in 2022. While the decline in 2021 was within the range of the normal year-over-year cattle inventory fluctuations, the selloff in 2022 was the highest in the last fifteen years. Producers mostly sold cattle on feeder and stocker operations where the number of cattle in this class dropped by 8.6 per cent in 2021 compared to 2020 followed by another 7.3 per cent in 2022.

**Table 1. Changes in Cattle Number on Different Types of Cattle Operations.**

Farm type	2016	2017	2018	2019	2020	2021	2022	Per cent change (2021 vs 5-year average)	Per cent change (2021 vs 2020)	Per cent change (2022 vs 2021)
Dairy operations	70.3	75.2	76.9	77.2	76.1	73.7	76.5	-1.9	-3.2	3.8
Beef operations	1,034.7	1,064.8	1,053.1	1,027.8	1,018.9	1,006.3	928.5	-3.2	-1.2	-7.7
Cow calf operations	802.1	823.6	801.7	798.1	785.0	787.8	717.1	-1.8	0.4	-9.0
Feeder and stocker operations	164.0	174.4	187.4	160.7	166.9	152.5	141.4	-10.7	-8.6	-7.3
Feeding operations	68.6	66.8	64.0	69.0	67.0	66.0	70.0	-1.6	-1.5	6.1
<b>All cattle operations</b>	<b>1,105</b>	<b>1,140</b>	<b>1,130</b>	<b>1,105</b>	<b>1,095</b>	<b>1,080</b>	<b>1,005</b>	<b>-3.1</b>	<b>-1.4</b>	<b>-6.9</b>

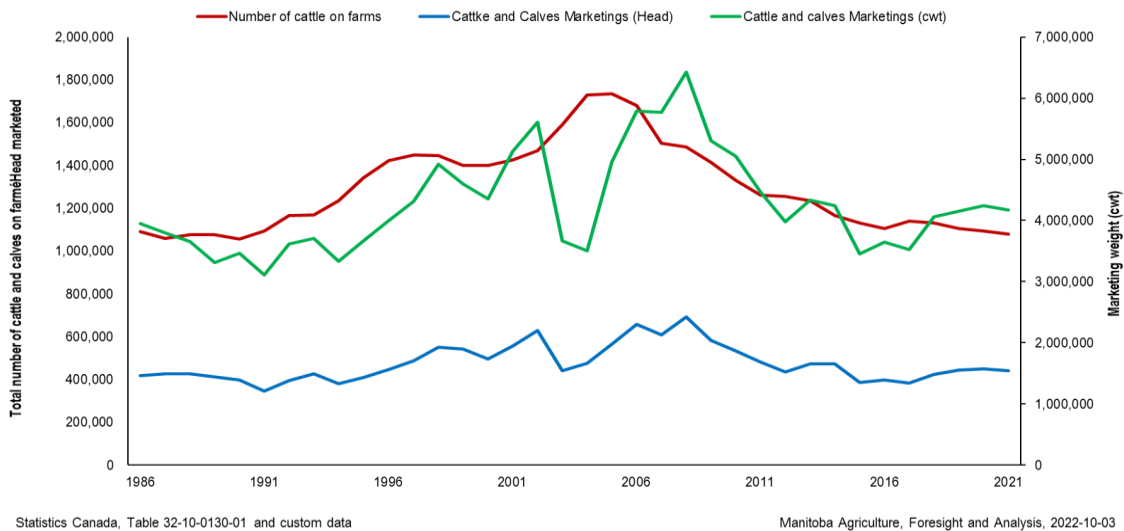
Source: Statistics Canada, Table 32-10-0130-01

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Looking deeper into the data, the number of replacement heifers on beef and dairy operations decreased by 10.5 per cent and 9.6 per cent in 2021 compared to the previous year's inventory numbers, respectively. The number of bulls (one year and older) on feeder and stocker operations also declined by 14.8 per cent. When feed costs are so high, feeder and stocker operations will be impacted much more than the other types of cattle operations. When farmers are forced to sell cattle due to drought, it can take three or more years to rebuild their herd size.

The total number of cattle and calf marketed and their marketing weights follow a similar long-term trend with cattle inventories. Compared to 2020, the total number of cattle and calf marketed was down by 2.4 per cent in 2021 from 451.2 thousands to 440.5 thousands. The total marketing weight declined by 1.6 per cent from 4.239 million hundredweights to 4.174 million hundredweights (Figure 2). Compared to 2007, total cattle and calf inventory was down by 28.2 per cent while cattle and calf marketed by 27.6 per cent, and marketing weights by 27.7 per cent. Overall, the 2021 drought did not have significant affect on the cattle and calf marketed and marketing weights.

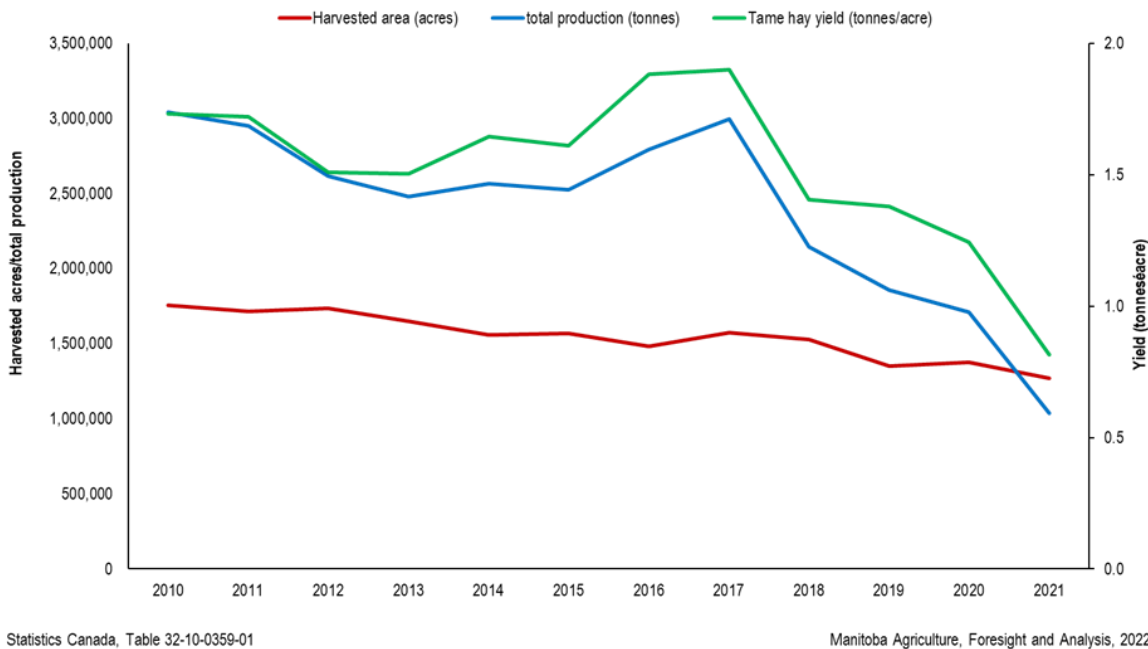
**Figure 2. Number of Cattle on Farms, Number of Marketing, and Marketing Weights, 1986-2021.**



### Drought Led to a Large Decline in Hay Production

Drought has a negative effect on forage production, as it affects hay yield and the number of cuttings producers can make during the growing season. The dry and hot weather conditions in 2021 strained hay and pasture growth, causing substantial reductions in forage and feed crop yield and production. Based on Statistics Canada data, between 2020 and 2021, total tame hay production in Manitoba declined by 39.5 per cent while area under hay production declined by only 7.8 per cent during the same period. Hay productivity per acre declined by 34.3 per cent from 1.14 tonnes in 2020 to 0.82 tonnes in 2021. While hay production is decreasing since 2018, the 2021 drought had led to a much steeper decline. The average hay production per acre for the five years before 2018 was 1.71 tonnes per acre whereas it is 1.21 tonnes per acre for the year 2018-2021, a decline of 29.2 per cent.

**Figure 3. Trends in Hay Acres and Production.**



Manitoba Agricultural Service Corporation (MASC) also provides yield per acre data for certain types of insured forages. The yield decline ranged between 29 per cent to over 50 per cent. The yields of silage corn and greenfeed, which accounted for 16 per cent and 10 per cent of the insured forage acres in 2021, declined by 29 and 51 per cent, respectively. The yield decline was also significant as compared to the previous five-year average.

**Table 2. Effects of the 2021 drought on different types of forage production**

Forage Type	2017	2018	2019	2020	2021	5-year average	Per cent Change in Yield (Metric tonnes/acre)	
							2021 vs 2020)	2021 vs 5-year average
Alfalfa	1.747	1.257	1.421	1.579	0.894	1.3796	-43.4	-35.2
Alfalfa grass mix	1.369	0.924	1.016	1.112	0.714	1.027	-35.8	-30.5
Coarse hay	0.845	0.59	0.413	0.494	0.278	0.524	-43.7	-46.9
Grasses	1.128	0.794	0.636	0.787	0.402	0.7494	-48.9	-46.4
Greenfeed	2.093	1.713	1.686	2.532	1.242	1.8532	-50.9	-33.0
Silage corn	12.45	11.03	11.56	13.256	9.396	11.538	-29.1	-18.6

Source: Manitoba Agricultural Service Corporation

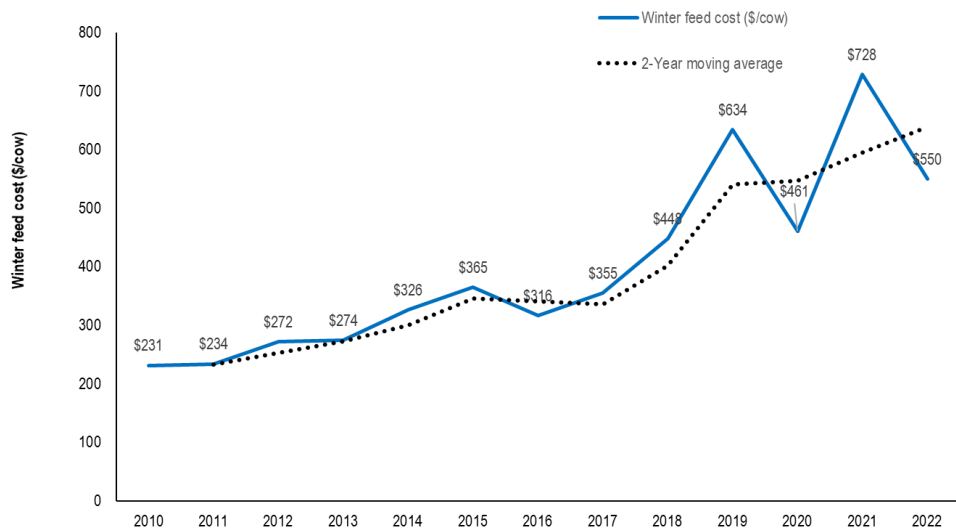
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Statistics Canada estimates total hay production losses in 2021 at 541 thousand tonnes. Since most of the hay produced in Manitoba is for own use and there are high variations in hay quality, it is challenging to come up with an average hay price, making it difficult to estimate the economic losses due to the drop in hay production volume. But, the economic loss from tame hay production due to the 2021 drought was very significant. Assuming the average value of alfalfa grass-hay (the common type of hay produced in Manitoba) was between \$100 to \$120/tonnes<sup>4</sup> and multiplying it with the total hay production losses, the total economic loss from tame hay production due to the 2021 drought could range between \$54 million and \$65 million.

### Drought Caused a Significant Increase in Winter Feed Prices

As a result of the poor pasture conditions and low hay production, cattle producers depleted their feedstock during the summer and fall seasons and headed into the winter with a very low level of feed supply. This low supply of feed resulted in high feed prices (particularly winter feed) in 2021. Thus, cattle producers that were forced to purchase supplemental feed for their herds were faced with much higher feed costs than usual. The trends in total winter feed cost per cow is shown in Figure 4. The total winter feed cost increased by 58 per cent from \$461 per cow in 2020 to \$728 per cow in 2021. Forage feed increased by 70.5 per cent from \$355 per cow in 2020 to \$604 per cow in 2021. Grain and grain concentrates costs also increased by 70 per cent from \$27 to \$45 per cow. The drought in 2018 and 2019 also led to a similar increase in winter feed costs. The total winter feed cost per cow increased by 26 per cent and 42 per cent in 2018 and 2019, respectively.

**Figure 4. Winter Feed Cost Per Cow, 2010-2022.**



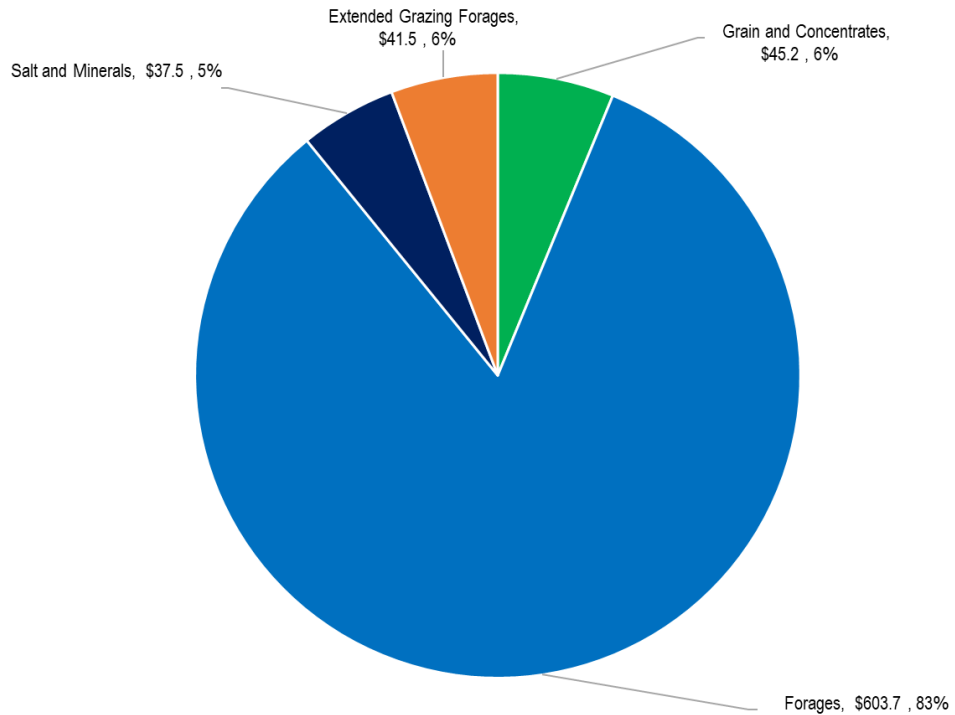
Source: Manitoba Agriculture, Cow-Calve Production Cost Data

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<sup>4</sup> In 2021, MASC insurance price for the select alfalfa hay (top quality hay) was \$187/tonnes, select grass hay (\$134/tonnes), basic high quality hay (\$94/tonnes), and low quality hay (\$56/tonnes). It is challenging to determine average hay price as there is high variation in the quality of hay.

As forage-based feed usually accounts for more than three-quarters of total winter feed costs, having sufficient forage feed stock is important for cattle producers. In 2021, forage costs accounted for 83 per cent of the total feed cost per cow (Figure 5).

**Figure 5. Share of Different Winter Feed on Cow-Calf Operation in Manitoba, 2021.**



Source: Manitoba Agriculture, Cow-Calf Production Cost Data

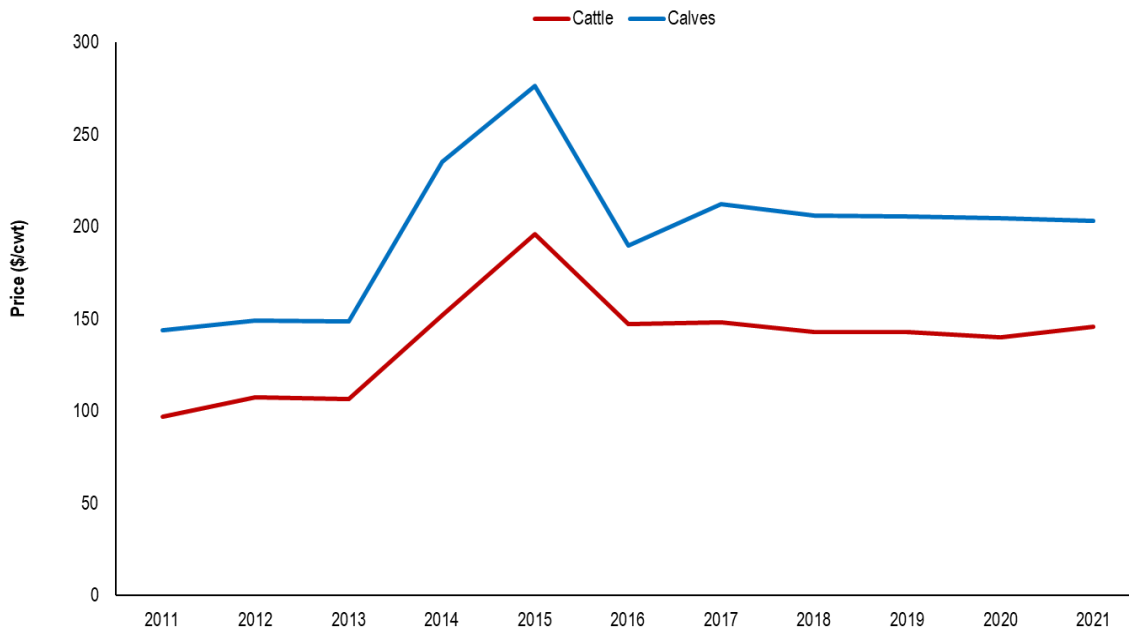
Manitoba Agriculture, Foresight and Analysis, 2022-09-28

### No Significant Change in Cattle and Calf Prices

In 2021, producers were not forced to cull large numbers of breeding animals, helping to prevent excess supply and price decline. The average cattle prices have increased by 4.2 per cent in 2021 compared to the previous year while average calf price decreased by 0.7 per cent.

Cattle and calf farm cash receipt also showed similar trend with prices. While farm cash receipt from cattle production increased by 4.3 per cent, calf farm cash receipt decreased by 17.3 per cent. The drop in the number of calf marketed (12.7 per cent) mostly contributed to the decline in calf farm cash receipt. Calf farm cash receipt accounted for 12.7 per cent of the \$629 million total cattle and calf farm cash receipt in 2021. Although the drought did not have significant effect on cattle and calf farm cash receipt, it is more likely that it negatively impacted producers' net income s because of the high feed costs. The total net income from crops and livestock production dropped by 36 per cent in 2021 compared to the previous year.

**Figure 6. Trends in Cattle and Calf Prices.**



Statistics Canada, Custom data

Manitoba Agriculture, Foresight and Analysis, 2022-10-05

## Large Increase in Forage Insurance Payouts

MASC provides different forage insurance and disaster management programs to livestock producers including forage insurance<sup>5</sup>, forage establishment insurance, silage corn insurance, forage seed insurance, pasture insurance, and pasture days insurance<sup>6</sup>. Producers pay roughly 40 per cent of the premium for these insurance programs. In 2021/2022, there were a total of 660.5 thousand acres insured under different forage types (including forage seeds and silage corn), an increase of 2.7 per cent from the previous fiscal year (Table 3). Select and basic hay accounted for 51.4 per cent of (338.2 thousand acres) the total insured forage acres. Silage corn accounted for 16.4 per cent of total forage acres in 2021/2022.

**Table 3. Insured Acres under Different Types of Forage Crops**

	2017/18	2018/19	2019/20	2020/21	2021/22
Select Hay	179,441	164,087	172,723	180,680	217,671
Basic Hay	97,923	95,434	99,426	106,907	121,532
Forage Establishment	81,008	93,986	117,532	120,737	95,605
Pedigreed Timothy Seed	18,118	12,822	10,960	8,803	5,908
Alfalfa Seed	18,767	16,134	12,188	10,569	11,212
Silage Corn	73,035	97,969	106,848	106,989	108,349
Canary Seed	2,599	1,578	2,719	5,120	6,828
Annual Ryegrass Seed	3,694	5,225	5,572	5,504	3,070
Perennial Ryegrass Seed	15,733	13,735	22,501	17,610	13,589
Proso Millet Seed	2,729	1,955	4,643	6,399	7,310
Tall Fescue Seed	2,150	2,567	2,857	3,586	3,118
Greenfeed	39,184	52,257	68,821	70,294	66,356
<b>Total</b>	<b>534,381</b>	<b>557,749</b>	<b>626,790</b>	<b>643,198</b>	<b>660,548</b>

<sup>5</sup> Several forage insurance options are available to livestock producers.

<sup>6</sup> [MASC - Forage Insurance](#)

As show in Table 4, the 2021 drought led to a large increase in forage insurance payouts. The total payout for the different insurance programs increased by more than three and half fold from \$12.0 million in 2020/2021 to \$57.2 million in 2021/2022. Select hay insurance payout increased by 306 per cent, basic hay by 262 per cent, and silage corn by 764 per cent. Hay insurance (basic and select) accounted for 47.6 per cent of the total forage insurance cost in 2021/2021 fiscal year. The silage corn insurance and hay disaster benefit accounted for 17.6 per cent and 15.6 per cent of the total forage insurance payout in 2021/2021 fiscal year. Hay disaster benefit is a top up feature enabled when large areas of Manitoba experience low forage production to compensate for the increased cost of hay and transportation. Hay disaster benefit was triggered in three of five recent years in 2018/2019 (\$3.2 million), 2019/2020 (\$5.2 million), and 2021/2022 (\$9.8 million). Table 4 provides the summary of the different insurance programs over the last five fiscal year.

**Table 4. Indemnities of Forage Insurance Programs (\$ thousands)**

	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
Select Hay	2,746.6	7,147.4	10,718.8	5,220.3	21,220.4
Basic Hay	450.8	2,184.7	3,486.5	1,660.3	6,016.2
Hay Disaster Benefit	0.0	3,188.7	5,183.4	0.0	8,928.6
Pasture	82.3	279.3	485.9	336.3	1,100.0
Pasture Days	235.9	761.2	522.5	508.6	1,714.0
Forage Establishment	409.4	396.9	791.3	1,198.6	1,885.7
Pedigreed Timothy Seed	86.3	404.9	375.1	384.9	314.5
Alfalfa Seed	242.7	108.6	379.8	28.8	1,189.8
Corn Silage	1,176.7	1,907.5	4,691.0	1,167.7	10,093.5
Canary Seed	6.1	13.6	86.0	335.7	349.2
Annual Ryegrass Seed	51.1	247.5	347.1	176.1	272.7
Perennial Ryegrass Seed	87.2	407.3	829.7	351.1	1,069.0
Proso Millet Seed	32.7	15.8	235.8	82.1	440.6
Tall Fescue Seed	53.3	212.8	147.7	226.8	168.7
Greenfeed	225.8	551.5	986.7	301.8	2,447.0
<b>Total</b>	<b>5,886.9</b>	<b>17,827.7</b>	<b>29,267.3</b>	<b>11,979.1</b>	<b>57,209.9</b>

Source: Manitoba Agricultural Service Corporation

Manitoba Agriculture, Foresight and Analysis, 2022-10-19

## AgriRecovery Program

AgriRecovery is a disaster relief framework under the Canadian Agricultural Partnership that allows the federal, provincial and territorial governments to provide a coordinated and rapid response to large disasters affecting many producers. AgriRecovery works together with the core business risk management (BRM) programs such as AgriInsurance and helps producers recover extraordinary costs beyond what is available through the core BRM programs. Extraordinary costs are costs that producers would not incur under normal circumstances, but are necessary to mitigate the impacts of the disaster, and/or resume farming operations as quickly as possible following a disaster.

In 2021, the federal government and provincial governments announced three different AgriRecovery assistance programs to help livestock producers affected by low moisture conditions in 2021. These programs are the Livestock Feed and Transportation Drought Assistance, the Livestock Transportation Assistance, and the Herd Management Drought Assistance programs<sup>7</sup>. The Livestock Feed and Transportation Assistance program helps livestock producers purchase and test feed for livestock to maintain their breeding herds, including transporting purchased feed from distant locations. Assistance will also be provided to cover extraordinary expenses associated with above-normal costs for accessing additional crop or pasture acres, hauling water, harvesting extra acres, or hauling self-produced feed from distant locations. The Livestock Transportation Assistance program helps livestock producers offset freight

<sup>7</sup> Description of the different AgriRecovery assistance programs, eligibility criteria, and eligible activities and expenses can be accessed here: [AgriRecovery Drought Assistance for Farmers \(gov.mb.ca\)](https://www.gov.mb.ca/agri-recovery/drought-assistance-for-farmers).

expenses associated with moving their breeding herd to an alternate feeding location due to shortages of feed. The Herd Management Drought Assistance<sup>8</sup> program supports producers to offset the cost of replacing breeding animals when culling is above normal due to shortages of feed caused by drought. The document in the footnote link provides a description of the different programs, eligibility criteria, and eligible activities and expenses.

The cost of the AgriRecovery program due to the 2021 drought was one of the highest in Manitoba, compared to previous years. After consulting with industry stakeholders and assessing the extent of the drought, the federal government and provincial governments announced their commitment of up to \$155 million to support livestock producers affected by the drought to buy and transport feed, transport livestock, and rebuild herds. Overall, 2,773 livestock producers have applied to the AgriRecovery drought assistance program. Producers who only reported beef cattle accounted for 83 per cent of the total applicants, followed by those who only reported dairy (3 per cent), and sheep (2 per cent). About 10 per cent applicants reported owning more than one types of livestock.

## **Summary**

Drought conditions in 2021 led to a large decline in hay production and a significant increase in winter feed prices, forcing producers to market more animals than under normal conditions. While estimating the total economic loss associated with the 2021 drought is challenging due to limited data, there is no doubt the 2021 drought had significant negative impacts on the livestock industry. Weather-related production risks such as the 2021 drought underline the importance of business risk management programs for livestock producers, particularly as it relates forage insurance. Programs designed under the AgriRecovery framework have also played a very important role in helping cattle producers to overcome the extraordinary costs associated with the drought.

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<sup>8</sup> The applications for the heard management program are being processed and assistance related to this program is not included in this analysis.