

# **NORTHEAST DAIRY BUSINESS PERFORMANCE**

---

Jason Karszes  
Farm Management Specialist  
Pro-Dairy  
Cornell University



# **Northeast Dairy Business Performance**

---

**Jason Karszes**  
Farm Management  
Specialist  
**PRO-DAIRY**  
Department of Applied  
Economics and  
Management  
Cornell University





## Northeast Dairy Business Performance

**Jason Karszes**  
Farm Management Specialist  
**PRO-DAIRY**  
Department of Applied Economics and  
Management  
Cornell University



## Benchmarks

### Focus in 7 areas

- Profitability
- Investment
- Labor efficiency
- Production
- Cost control
- Milk price
- Size



## Profitability

- **Net Farm Income w/o Apprec.**
  - Positive and growing over time
- **Per cow goal changes based on approach**
  - Grazing, buying feed, utilizing custom services
  - Size
  - Source of labor



## Profitability

- **Rate of Return on Asset w/o Apprec.**
  - Minimum goal = cost of capital
  - Business goal = cost of capital plus
  - Long - term = Greater than 8-10%



## Profitability

- **Return on Equity w/o Apprec.**
  - Minimum goal = inflation
  - Economic goal = opportunity costs
  - Business goal = opportunity plus
  - Percentage rate = 10% and greater.



## Profitability

- **Labor and Management Income per operator**
  - What did you make for your labor and management?
  - Positive and growing
  - At least equal to what is taken out for family
  - Business goal - 2x plus greater than family use
  - Farm and family specific

**NET FARM INCOME**  
219 New York Dairy Farms, 2002

Item	Average 219 Farms		Average Top 10% Farms <sup>12</sup>	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$1,022,454		\$1,278,955	
+ Appreciation: Livestock	-6,689		5,502	
Machinery	9,734		4,094	
Real Estate	38,949		72,257	
Other Stock & Certificates	2,303		-235	
= Total including appreciation	\$1,066,751		\$ 1,360,573	
- Total accrual expenses	984,269		1,057,676	
= Net Farm Income (with appreciation)	\$82,482	\$279	\$302,897	\$870
Net Farm Income (without appreciation)	\$38,185	\$129	\$221,279	\$636

<sup>12</sup> Average of 21 farms with highest rates of return to all capital (without appreciation).

**Profitability**

Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$311,300	\$800	0.23	\$490,988	\$1,018	\$169,943	\$102,486
111,164	544	0.17	190,585	695	46,398	31,785
74,548	422	0.13	120,125	540	19,765	12,137
48,934	321	0.10	76,473	429	6,293	4,230
31,650	250	0.08	51,347	340	-6,706	-4,145
18,485	152	0.05	31,621	213	-17,073	-12,209
6,953	57	0.02	17,028	139	-31,884	-22,091
-3,847	-18	-0.01	5,335	51	-59,274	-40,962
-31,661	-193	-0.06	-21,619	-152	-105,558	-70,856
-173,275	-522	-0.20	-118,492	-453	-272,400	-204,262

**Solvency**

Leverage Ratio <sup>13</sup>	Percent Equity	Debt/Asset Ratio		Profitability	
		Current & Intermediate	Long Term	Percent Rate of Return with appreciation on:	
				Equity	Investment <sup>14</sup>
0.03	97%	0.04	0.00	64%	11%
0.15	87	0.15	0.00	8	7
0.28	78	0.24	0.03	5	5
0.38	73	0.32	0.16	2	3
0.52	66	0.37	0.25	0	2
0.69	60	0.42	0.33	-2	1
0.89	53	0.49	0.41	-4	-1
1.17	46	0.57	0.54	-7	-3
1.53	40	0.65	0.70	-13	-5
9.33	25	0.90	1.02	-37	-10

## Investment

- **How much money is tied up?**
- **Per cow**
  - **Less than \$6,000 total**
- **By category**
  - **Machinery**
  - **Cattle**
  - **Land and Buildings**

## Investment

- **Investment Balance**
  - **All areas running at economic capacity**
  - **No over or under investment**
  - **Depreciation expense**
- **Asset turnover ratio**

**ASSET TURNOVER AND PROFITABILITY**  
219 New York Dairy Farms, 2002

Ratio	No. of Farms	No. of Cows	Farm Capital (average for year)		Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
			Per Cow	Per Worker		
≥ .70	14	737	\$4,921	\$233,520	\$16,915	\$123,593
.60 to .69	28	429	5,860	239,210	5,248	85,789
.50 to .59	48	429	6,890	310,157	-26,177	34,697
.40 to .49	58	252	7,727	297,746	-16,129	31,478
.30 to .39	46	116	8,521	276,876	-20,592	9,115
Less than .30	25	73	11,207	306,406	-19,979	12,776

## Labor Efficiency

### How much work is getting done

- Cows per worker
  - Increasing over time
    - Tie stall - 30 to 35 cows per worker
    - Old, small freestalls 40 cows per worker
    - New systems > 50 cows per worker
  - Doing everything vs specialization
- Some farms 80 cows plus

## Labor Efficiency

- Milk Sold per worker
  - Tie stall - > 600,000 pounds
  - Old, small freestalls >900,000 pounds
  - New systems > 1,100,000 pounds
- Some farms getting close to 2 million pounds per worker
  - Specialization

MILK SOLD PER WORKER AND NET FARM INCOME  
219 New York Dairy Farms, 2002

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (w/o apprec.)	Labor & Mgmt. Income	
					2001	Per Operator
Under 400,000	29	72	16,063	\$13,633	-\$7,045	\$-17,514
400,000 to 499,999	20	74	18,757	11,950	-1,006	-12,362
500,000 to 599,999	26	131	19,400	470	16,398	-23,601
600,000 to 699,999	27	140	20,281	21,380	25,965	-12,577
700,000 to 799,999	21	221	21,951	39,464	31,598	-7,149
800,000 to 899,999	23	261	21,626	56,585	45,207	-2,128
900,000 to 999,999	26	393	23,436	46,001	63,399	-13,698
1,000,000 & over	47	705	23,366	81,112	127,466	-19,658

Traditional Trend

## Production

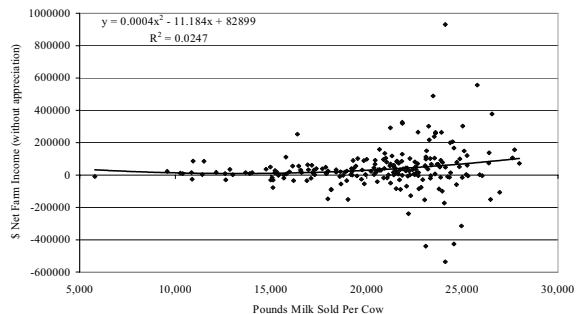
- Milk per Cow
- Components per Cow
- Hay yields
- Corn yields
- Stocking rates
- Cull rates
- Are we maintaining/improving

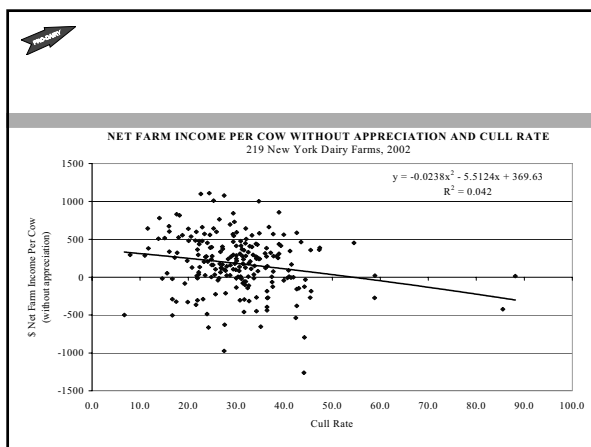
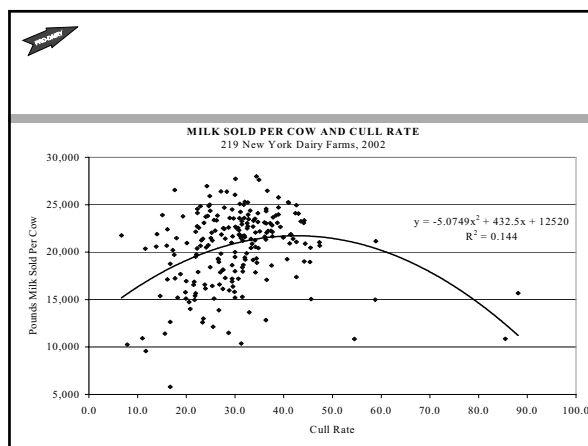
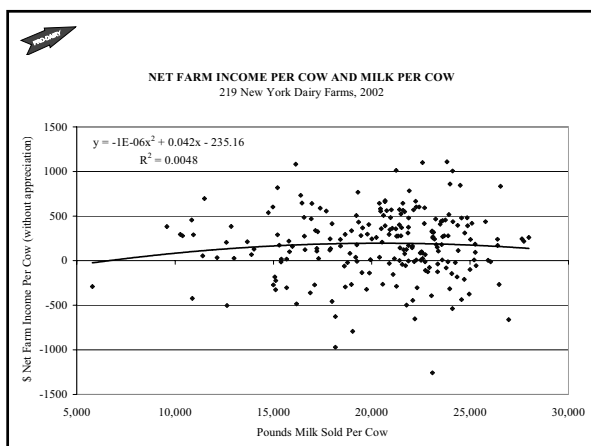
MILK SOLD PER COW AND FARM INCOME MEASURES  
219 New York Dairy Farms, 2002

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Income/Oper.
Under 16,000	33	114	\$11,401	\$100	\$-17,294
16,000 to 16,999	10	111	45,870	413	1,070
17,000 to 17,999	13	131	9,652	74	-11,576
18,000 to 18,999	11	129	-15,321	-119	-24,925
19,000 to 19,999	15	161	15,853	98	-16,371
20,000 to 20,999	19	166	50,773	306	446
21,000 to 21,999	30	360	58,177	162	-6,401
22,000 to 22,999	25	341	7,123	21	-31,137
23,000 & over	63	505	70,547	140	-14,560

Traditional Trend

NET FARM INCOME AND MILK PER COW  
219 New York Dairy Farms, 2002





**CULLING RATE AND DAIRY REPLACEMENT INFORMATION**  
New York Dairy Farms, 2002

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Being Custom Raised
				-----219 Farms <sup>1</sup> -----	\$/head (68 Farms)	-----51 Farms-----	
1	10%	0%	15%	\$200	\$801	0%	0%
2	17	1	21	309	1,026	0	0
3	20	2	24	353	1,239	0	0
4	22	3	27	386	1,398	0	0
5	24	4	29	416	1,487	1	0
6	26	5	31	450	1,605	6	0
7	28	5	33	474	1,758	11	12
8	31	6	35	507	1,907	19	39
9	34	8	39	576	2,332	24	57
10	43	14	50	1,192	5,071	67	93

<sup>1</sup>Average culling rate = 31.8%, sell rate = 26.7%, and death rate = 5.1%. Average number of cows sold for beef = 79, cows sold for dairy = 2, and cows died = 15.

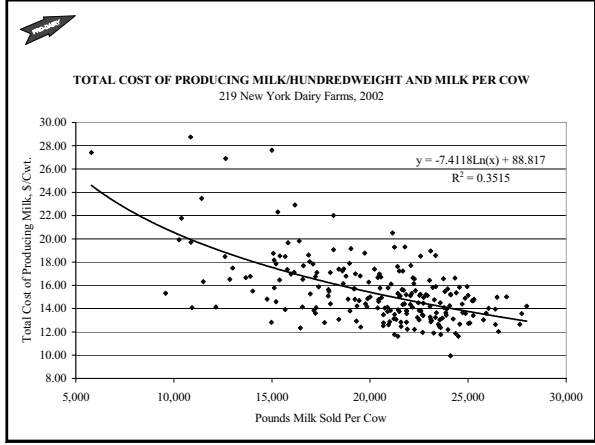
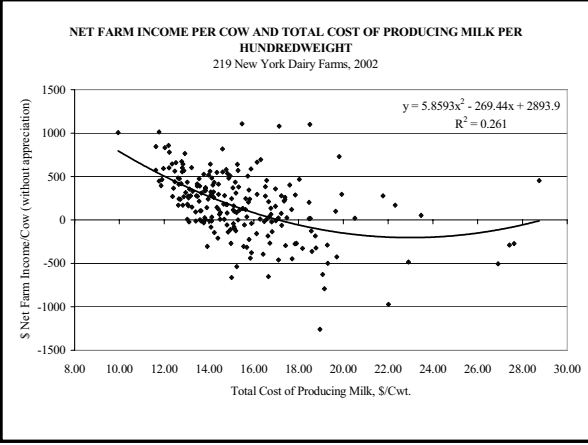
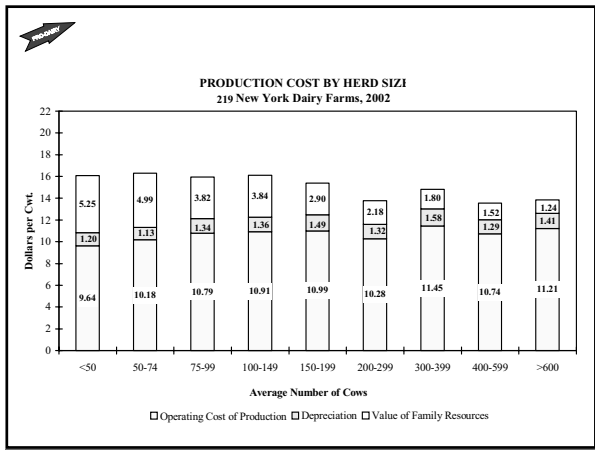
- ## Cost Control
- **Operating costs to run farm**
    - Per cwt.
    - Per cow.
  - **Labor costs**
    - Per worker
    - Per cwt.
    - Per cow

- ## Cost Control
- **Feed Costs**
    - Income over feed costs
    - Per cow per day
    - Per cwt.
    - Per Cow



## Cost Control

- Other Areas
  - Vet
  - Machinery repairs
  - Bst
  - Milk hauling
- Family costs
  - Return on equity
  - Labor



### FARM COST OF PRODUCING MILK BY HERD SIZE 219 New York Dairy Farms, 2002

Number of Cows	Cost per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs				Purchased Inputs		
	Hired Labor	Dairy Grain & Conc.	Total Operating	Total			
Under 50	\$0.99	\$3.81	\$9.64	\$10.84	\$16.09	\$12.69	\$0.92
50 to 74	0.91	3.96	10.18	11.31	16.30	12.85	0.67
75 to 99	1.41	4.12	10.79	12.13	15.95	12.97	0.48
100 to 149	1.83	4.14	10.91	12.27	16.11	13.22	0.65
150 to 199	2.18	3.65	10.99	12.48	15.38	12.75	0.12
200 to 299	1.99	3.88	10.28	11.60	13.78	13.01	1.37
300 to 399	2.51	3.98	11.45	13.03	14.83	13.05	-0.02
400 to 599	2.41	3.58	10.74	12.03	13.55	12.84	0.78
600 and over	2.73	3.87	11.21	12.62	13.86	13.02	0.39

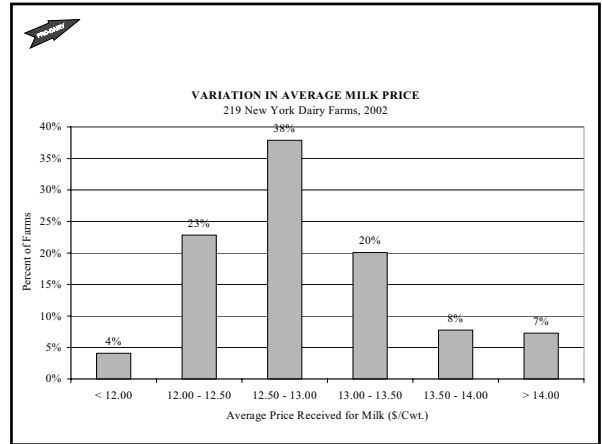
### PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES 219 New York Dairy Farms, 2002

Feed & Crop Exp. Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Apprec.	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
\$6.00 or more	24	140	4.9	17,679	\$-17,429	\$-29,251	\$-209
5.50 to 5.99	25	178	6.0	18,911	34,078	-7,199	-40
5.00 to 5.49	50	355	7.3	23,067	9,544	-30,587	-86
4.50 to 4.99	47	424	7.3	23,048	55,427	-14,544	-34
4.00 to 4.49	39	317	8.4	22,756	63,020	-7,532	-24
3.50 to 3.99	21	182	7.0	22,278	36,810	-767	-4
Less than 3.50	13	237	11.8	22,920	124,265	30,983	131



## Milk Price

- **Component pricing**
- **Over order premiums**
- **Quality**
- **Marketing programs**
  - **Future markets**
  - **Forward contracts**



	Low		High		
<b>Total Component Value per Cwt.</b>	<b>\$10.11</b>	<b>\$10.43</b>	<b>\$10.56</b>	<b>\$10.76</b>	<b>\$11.31</b>
PPD, \$ per Cwt.	1.19	1.27	1.44	1.69	1.99
<b>Base Farm Price per Cwt.</b>	<b>\$11.46</b>	<b>\$11.77</b>	<b>\$12.05</b>	<b>\$12.40</b>	<b>\$13.00</b>
Quality, \$ per Cwt.	0.00	0.06	0.14	0.22	0.33
Volume, \$ per Cwt.	0.00	0.03	0.19	0.30	0.57
Market premium, \$ per Cwt.	0.00	0.06	0.14	0.29	0.68
Total Premium, \$ per Cwt.	0.16	0.36	0.53	0.77	1.15
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$11.95</b>	<b>\$12.44</b>	<b>\$12.70</b>	<b>\$12.96</b>	<b>\$13.66</b>
Promotion, \$ per Cwt.	0.12	0.15	0.15	0.15	0.19
Hauling, \$ per Cwt.	0.30	0.42	0.51	0.69	1.05
Market fees & coop dues per Cwt.	0.00	0.01	0.05	0.07	0.12
Futures/contract fees, \$ per Cwt.	0.00	0.00	0.00	0.00	0.00
<b>Total Marketing Expenses per Cwt.</b>	<b>\$0.49</b>	<b>\$0.61</b>	<b>\$0.72</b>	<b>\$0.89</b>	<b>\$1.24</b>
<b>Base + Premiums - Deductions per Cwt.</b>	<b>\$11.19</b>	<b>\$11.63</b>	<b>\$11.96</b>	<b>\$12.21</b>	<b>\$12.75</b>
Compet, \$ per Cwt.	0.00	0.00	0.00	0.00	0.05
Futures contract, forward contracting, \$ per Cwt.	0.00	0.00	0.00	0.00	0.37
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.42</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.05</b>	<b>\$0.55</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$11.42</b>	<b>\$11.84</b>	<b>\$12.09</b>	<b>\$12.38</b>	<b>\$13.00</b>

## Size

- **Economics of scale**
- **Big enough to meet goals of family**
- **Total costs**

### COWS PER FARM AND RELATED FARM FACTORS 219 New York Dairy Farms, 2002


Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tillable Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 50	38	25,555	4,566	5.3	8.4	\$12,073	\$9.64	\$16.09
50 to 74	62	17,163	4,444	3.2	6.7	7,985	10.18	16.30
75 to 99	84	18,435	5,671	3.6	8.6	8,319	10.79	15.95
100 to 149	122	19,161	5,751	3.2	7.8	8,328	10.91	16.11
150 to 199	170	21,471	6,437	3.5	8.0	8,071	10.99	15.38
200 to 299	257	21,955	9,058	2.4	7.9	6,536	10.28	13.78
300 to 399	346	22,038	8,891	2.0	7.6	6,902	11.45	14.83
400 to 599	493	22,315	9,562	2.0	6.7	6,035	10.74	13.55
600 & over	973	23,724	11,834	1.8	7.6	6,491	11.21	13.86

### COWS PER FARM AND FARM FAMILY INCOME MEASURES 219 New York Dairy Farms, 2002


Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income Without Appreciation	Net Farm Income Per Cow	Labor & Management Income Per Operator	Return to All Capital Without Appreciation
Under 50	16	38	\$17,963	\$473	\$-5,895	-2.2%
50 to 74	29	62	16,501	266	-6,582	-2.4%
75 to 99	24	84	12,931	154	-11,737	-1.6%
100 to 149	34	122	22,280	183	-11,652	-1.5%
150 to 199	23	170	10,102	59	-26,555	-2.1%
200 to 299	18	257	79,911	311	12,662	2.5%
300 to 399	22	346	1,128	3	-41,470	-0.8%
400 to 599	24	493	89,355	181	2,453	2.2%
600 & over	29	973	92,702	95	-29,652	1.8%

Traditional Trend




 **Top 10%**  
**How were they different**


- **Milk Price**
  - Average = \$12.98, Top 10% = 13.18
- **Cattle Income**
  - Average = \$1.02, Top 10% = \$1.36
  - Cull rate average = 31.8%, Top 10% = 30.2%
  - Marketing of animals

 **Top 10%**  
**How were they different**


- **Milk Production**
  - Average = 22,384 per cow, Top 10% = 22,683 per cow
  - Range - <17,000 to >24,000
- **Herd Size**
  - Average = 296 cows, Top 10% = 348 cows
  - Range - < 60 cows to > 1000 cows

 **Top 10%**  
**How were they different**


- **Total Farm Operating Costs**
  - Average = \$13.27 per cwt.
  - Top 10% = \$12.03 per cwt.
- **Out of 27 operating expense categories, top 10% was lower on a per cwt basis in 20 of them.**

 **Top 10%**  
**How were they different**

- **Purchased grain and concentrates**
  - Average = \$3.84 per cwt., Top 10% = \$3.57 per cwt.
- **Interest**
  - Average = \$0.61 per cwt.
  - Top 10% = \$0.45 per cwt.


 **Top 10%**  
**How were they different**

- **Investment Levels**
  - Average = \$6,817 per cow
  - Top 10% = \$6,523 per cow
- **Asset Turnover Ratio**
  - Average = 0.53
  - Top 10% = 0.60

 **Top 10%**  
**How were they different**


- **ROA w/o Appreciation**
  - Average = 0.73%
  - Top 10% = 8.68%
- **Labor and management income per operator**
  - Average = \$-14,243
  - Top 10% = \$91,505





## Summary

- **No one measure**
- **No specific farm size or production method**
- **Use multiple means to keep costs low?**
- **While price was low in 2002, some farms still made a profit**




## Resources

- **Business Summary, New York State, 2001  
(2002 available Nov 03)**

**Contact:**

<http://aem.cornell.edu/research/rb.htm>



## Resources

- **2002 Northeast Dairy Farm Summary**

**Contact:**  
**Local Farm Credit Office**  
**or**  
[www.farmcreditwny.com](http://www.farmcreditwny.com)  
[www.firstpioneer.com](http://www.firstpioneer.com)