



## Case Study - ON-1 vs. AT-25-0

### Farm Descriptions

**ON-1** is a cow-calf, pre-conditioning, and cash-crop operation located in the Lake Simcoe-Rideau ecoregion of Ontario, Canada. This farm keeps Simmental and mixed breed animals, and a 50 head cow herd. The cow-calf enterprise is situated on 131 ac with sandy soils. Mean annual temperature is 6°C, and mean annual precipitation is 900mm.

**AT-25-0** is a cow-calf operation located in Carinthia, Austria. A beef cow herd of 24 head maintains this herd of Fleckvieh animals. The farm is situated on 68 ac with sandy loam soils on partially rocky subsoils. Mean annual temperature is 8°C, and mean annual precipitation is 923mm, distributed evenly across all seasons.



## Production System and Physical Performance Indicators

### Similarities

Comparison of **ON-1** and **AT-25-0** was chosen as these are two smaller-sized herds, and experience similar climatic conditions, which is important for farms that rely on homegrown feeds, as these do. The addition of pre-conditioning and cash crop enterprises on **ON-1** provides an interesting comparison.

### Cow Performance and Weaning

Mature cow weight is similar on **ON-1** (1,465 lb) and **AT-25-0** (1,400 lb). Calves are weaned approximately 7 weeks older, and slightly heavier (617 lb) on **AT-25-0**, as compared to **ON-1** (597 lb). However, the 200d adjusted weaning weight shows a much lower pre-weaning ADG on **AT-25-0**. Calf death loss is the same on both farms (3.0%), as are the number of calves weaned per 100 cows (92 calves).

### Cattle Sales and Prices

As weaners, same price is comparable between farms, at \$1,144/head on **ON-1**, and \$1,137 on **AT-25-0**. However, **ON-1** retains weaned calves for pre-conditioning, whereas **AT-25-0** sells weaned calves to finishing. Despite this, sale weight from the pre-conditioning enterprise (600-670 lb) is in the same range as weaning weights on **AT-25-0** (617 lb).

### Feed

Both farms rely primarily on homegrown feed. **ON-1** purchases 8% of feedstuffs, and **AT-25-0** 0%. Winter diets for cows on **ON-1** consist of hay, oatlage, corn screenings, and mineral, and are fed in confinement. On **AT-25-0**, cows graze through winter (79% of diet), supplemented with grass hay/silage (21%), concentrates (<1%), and mineral. Cows on **AT-25-0** have access to a winter barn.

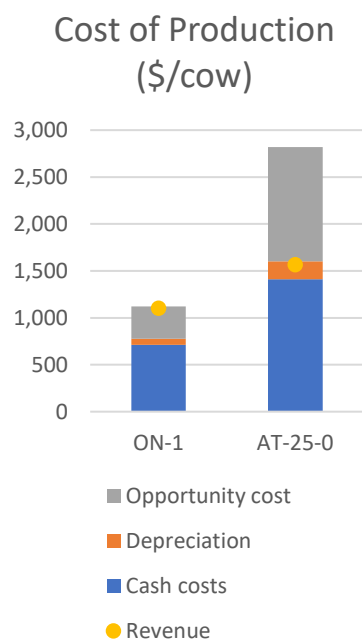
	ON-1	AT-25-0
<b>Beef cows (hd)</b>	50	24
<b>Breeds</b>	Simmental, Mixed	Fleckvieh
<b>Mature cow weight (lb)</b>	1,400	1,433
<b>Weaning age (d)</b>	196	244
<b>Weaning weight (lb)</b>	597	617
<b>200 day adjusted weaning weight (lb)</b>	609	506
<b>Weaning weight as % mature cow weight</b>	43	43
<b>Price per head for weaners sold (\$/hd)</b>	1,144	1,137
<b>Calf death loss</b>	3.0%	3.0%
<b>Calves weaned per 100 cows (hd)</b>	92	92
<b>Replacement rate (%)</b>	9.4%	17.0%
<b>Sale weight (lb)</b>	600-670	617
<b>Feed purchased (% as-is)</b>	8%	0%
<b>Income sources</b>	Cow-calf, retained ownership, crop	Cow-calf

## Cow-calf Enterprise

### Cost and Profit

For comparison of costs and profits, a 5-year average (2016-2020) is used. **Total production ON-1** averaged \$1,122/cow. Total production costs averaged \$2,821 on **AT-25-0**, 2.5 times greater than on **ON-1**.

**Cash costs** include purchased feed, cost of feed production including seed and fertilizer, land rent, wages, machine and building maintenance, interest on liabilities, veterinary and medicine costs, etc. These costs accounted for 64% of total costs on **ON-1**, and 50% of total costs on **AT-25-0**, though are approximately 2 times greater on a per-cow basis on **AT-25-0**.



**Opportunity costs** are calculated for unpaid family labour, owned land, and capital. These account for 31% of total costs on **ON-1**, and 43% of total costs on **AT-25-0**.

On both farms, the largest opportunity cost is opportunity cost of labour (56% and 80% of opportunity costs on **ON-1** and **AT-25-0**, respectively). This is associated with a reliance on unpaid family labour on both farms. Opportunity cost of land is also significant on **ON-1** (44% of opportunity costs). As approximately half of the total land base on **ON-1** is owned, this represents the potential revenue gain from alternative uses of owned land, such as renting land to neighbours.

**Revenue** from the cow-calf enterprise, including weaned calf and cull sales, was \$1,100/cow on **ON-1**. On **AT-25-0**, cow-calf revenue averaged \$1,565/cow. This is only 42% larger than revenue on **ON-1**, as compared to 250% larger total costs. As such, differences arise in profitability measures for the two cow-calf enterprises over the 5-year period.

Both farms are able to cover short-term (cash) costs. Average **short-term profits** (revenue – cash costs) were \$387/cow on **ON-1**, and \$152/cow on **AT-25-0**. However, only **ON-1** is able to cover medium-term (cash and depreciation) costs with average revenue. Average **medium-term profits** (revenue – cash and depreciation costs) were \$323/cow on **ON-1**, and -\$36/cow on **AT-25-0**. However, neither farm is able to maintain profitability of the cow-calf enterprise in the long-term, with average **long-term profits** (revenue – cash, depreciation, and opportunity costs) of -\$23/cow on **ON-1**, and -\$1,256 on **AT-25-0**.

Total costs of the cow-calf enterprise		
Costs (\$/cow)	ON-1	AT-25-0
Cash costs	713	1,413
Depreciation	64	188
Opportunity cost	346	1,220
<i>Land</i>	151	138
<i>Labour</i>	195	978
<i>Capital</i>	0	104
<b>Total cost</b>	1,122	2,821
<b>Revenue</b>	1,100	1,565
Short-term profit	387	152
Medium-term profit	323	-36
Long-term profit	-23	-1,256

## Cost Structure

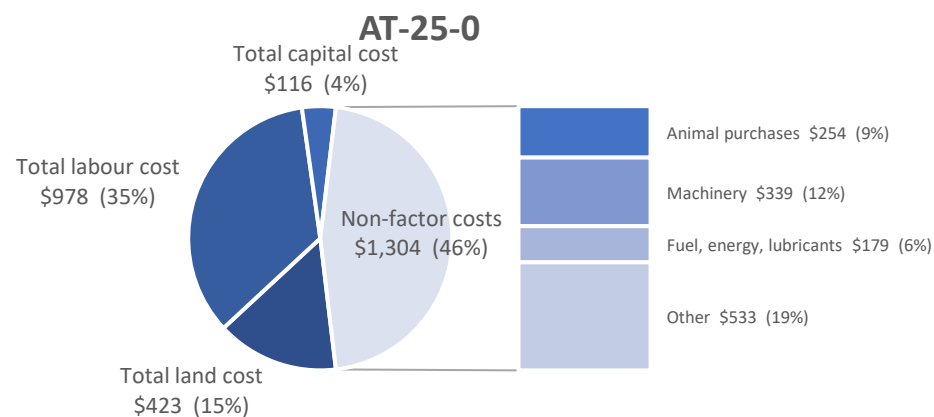
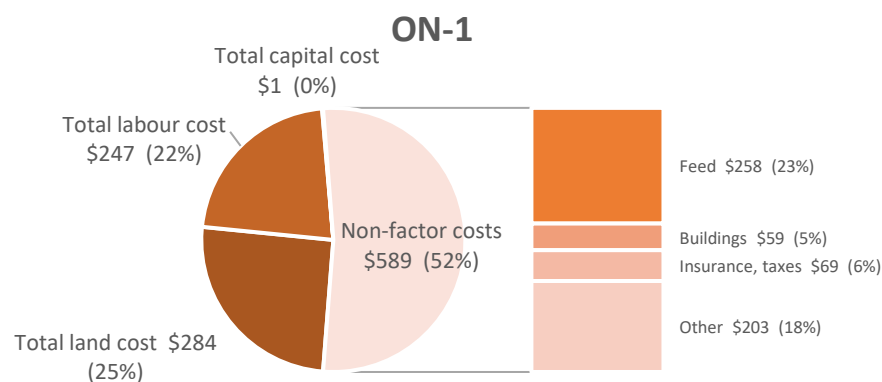
**Total costs** can be broken down as land, labour, capital, and non-factor costs. Due to higher costs incurred on **AT-25-0**, total land, labour, capital, and non-factor costs are all higher on **AT-25-0**. However, interest lies in comparison of cost structure, wherein these costs are presented as a percentage of total costs.

**Land costs** account for 25% of total costs on **ON-1**, and 15% of total costs on **AT-25-0**. Land rent is considerably larger on **AT-25-0**, at \$149/ac for both rented land and rent calculated for owned land. Meanwhile, rents paid on **ON-1** are \$105/ac, and rent calculated for owned land \$111/ac. While **ON-1** maintains a larger land base for the cow-calf enterprise (131 ac) compared to **AT-25-0** (68 ac), the difference in land rents and smaller herd size on **AT-25-0** results in larger per-cow land costs on this farm.

**Labour costs** account for 22% of total costs on **ON-1**, and 35% of total costs on **AT-25-0**. Total labour hours are almost twice as high on **AT-25-0**, at 1,100 hrs annually, as compared to 583 hrs on **ON-1**. Unpaid family labour is the predominant labour type on both farms, accounting for 75% and 100% of total labour hours on **ON-1** and **AT-25-0**, respectively. Labour prices for family labour prices are comparable, calculated at \$22.05/hr on **ON-1**, and \$21.33/hr on **AT-25-0**. Paid wages on **ON-1** are slightly lower, at \$18.63/hr.

**Capital costs** account for the smallest share of total costs on both farms, at for <1% and 4% of total costs on **ON-1** and **AT-25-0**, respectively. On **ON-1**, capital costs are as interest on liabilities. On **AT-25-0**, the majority (89%) of capital costs are own capital.

Costs (\$/cow)	ON-1	AT-25-0
Total land cost	284	423
Total labour cost	247	978
Total capital cost	1	116
Non-factor costs	589	1,304
Animal purchases	17	254
Feed	258	64
Machinery	54	339
Fuel, energy, lubricants	32	179
Buildings	59	14
Vet & medicine	45	44
Insurance, taxes	69	57
Other inputs	55	354
<b>Total costs</b>	<b>1,122</b>	<b>2,821</b>



**Non-factor** costs are the largest costs incurred on both farms, accounting for 53% of total costs on **ON-1**, and 46% of total costs on **AT-25-0**. The largest non-factor cost on **ON-1** is **feed costs**, accounting for 44% of non-factor and 23% of total costs. These costs are associated with feed purchases, inputs for feed production including fertilizer and seed costs, and land improvement. In contrast, feed costs account for only 5% of non-factor and 2% of total costs on **AT-25-0**, which is more reliant on homegrown feed production than **ON-1**. Other significant costs on **ON-1** are associated with **insurance and taxes** (12% of non-factor costs) and **buildings** (10%). On **AT-25-0**, the largest non-factor costs are **machinery** costs (26% of non-factor, 12% of total costs), which may be expected for a farm that relies on homegrown feed production. These costs are primarily as depreciation, followed by contract labour and maintenance. Other significant non-factor costs on **AT-25-0** are **animal purchases** (19% of non-factor costs) and **fuel, energy, and lubricants** (14%), which goes hand in hand with high machinery costs.

## Whole Farm

### Other Farm Enterprises

**ON-1** generates additional market revenue from pre-conditioning and cash crop enterprises. This farm also generates additional revenue from other (custom work, trucking) farm activities. While there are no additional enterprises on **AT-25-0**, there is considerable farm income from government payments.

### Cost and Profit

**Total farm revenue** on **ON-1** averaged \$281,932 over the 5-year period. The largest contributor of farm revenue was other farm activities (48% of total revenue), followed by the cow-calf (20%), retained ownership (18%), and crop production enterprises (15%). Total farm revenue on **AT-25-0** was an average of \$65,312 over the 5-year period, with over half (54%) of this acquired through government payments. The remainder (46%) is market revenue from the cow-calf enterprise.

**Total farm expenses** on **ON-1** were an average of \$177,365 over the 5-year period. The largest source of farm expenses on **ON-1** was the pre-conditioning enterprise, followed by fixed costs (23%) and wages, rent, and interest (21%). The cow-calf enterprise accounted for only 5% of total expenses. In contrast, the cow-calf enterprise was the largest source of farm expenses on **AT-25-0**, accounting for 36% of total expenses on \$44,673. As with **ON-1**, the next largest farm expenses were fixed costs (26%) and wages, rent, and interest (16%).

Whole-farm cost and profit		
Costs (\$)	ON-1	AT-25-0
<b>Revenue</b>		
Market revenue	147,193	30,119
Cow-calf	54,978	30,119
Retained ownership	49,903	0
Crop production	42,313	0
Other farm revenue	134,738	40
Government payments	0	35,153
<b>Total farm revenue</b>	<b>281,932</b>	<b>65,312</b>
<b>Expenses</b>		
Depreciation	16,375	5,395
Fixed costs	40,015	11,616
Wages, rent, interest	36,817	7,138
Cow-calf	9,127	16,015
Retained ownership	50,383	0
Crop production	24,647	4,510
<b>Total farm costs</b>	<b>177,365</b>	<b>44,673</b>
<b>Profits</b>		
Net income	104,567	20,639
Net cash farm income	120,937	25,994

Due to the additional farm revenue generated, whether by the pre-conditioning and cash crop enterprises and other farm activities on **ON-1**, or government payments to **AT-25-0**, both farms are able to maintain whole-farm profitability over the 5-year period. This is in contrast to the cow-calf enterprise alone, which was profitable in only the short- and medium-terms on **ON-1**, and short-term on **AT-25-0**. Whole-farm **net income** averaged \$104,567<sup>a</sup> on **ON-1**, and **net cash farm income** \$120,937<sup>b</sup>. On **AT-25-0**, net income averaged \$20,639<sup>a</sup>, and net cash farm income averaged \$25,994<sup>b</sup> over the 5-year period.

---

<sup>a</sup>This is whole farm profitability, calculated as Market returns (+ coupled payments) (+ decoupled payments) – whole-farm costs +/- changes in inventory +/- capital gains/losses. Whole-farm costs include Direct costs enterprises, overhead costs, paid labour, paid rents, paid interest, depreciation

<sup>b</sup>Net cash farm income = Whole farm profitability + depreciation + changes in inventory + capital gains/losses.