



BC ORCHARDS

Reducing energy consumption is an excellent way to reduce operating costs, as well as minimize environmental impacts. Below are some of the key energy saving opportunities applicable to orchard operations in BC. Consider these opportunities and work towards implementing those applicable to your operation.



photo courtesy of Investment Agriculture Foundation

Low or No Cost Opportunities for Orchards

Quick ways you can reduce your energy costs right now:

- Repair any leaks in your irrigation system to avoid energy and water wastage.
- Early morning irrigation will reduce evaporative losses of water relative to irrigating during the daytime.
- Use the irrigation calculator available from the Irrigation Industry Association of BC (IIABC) to optimize your water application rate, at: www.irrigationbc.com
- Repair leaky walk-in cooler doors to reduce cooling loads.
- Ensure vehicles and mobile equipment are not left idling unnecessarily.
- Regularly check tractor tire pressures. Over-inflated tires can slip on loose or steep terrain, increasing fuel consumption. Under-inflated tires cause unnecessary drag which also increases fuel consumption.

What are the next steps?

1. Implement low cost/no cost energy saving opportunities immediately.
2. Contact the **LiveSmart BC Agriculture Energy Advisor** to evaluate additional energy saving opportunities for your operation.
3. Use the LiveSmart BC Agriculture Energy Advisor to help you access incentive funding.

LiveSmart BC Agriculture Energy Advisor

The BC Agriculture Energy Advisor is a **FREE** resource available to assist producers with the following:

- Provide direction and guidance to reduce on-farm energy consumption;
- Visit farms to identify and quantify energy saving opportunities;
- Help to access financial incentives for energy upgrades where possible;
- Support with implementing energy efficiency measures;
- Monitor and verify energy savings;
- Provide technical information and fact sheets.

Agricultural producers are encouraged to contact the Energy Advisor at any time.

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Additional Opportunities for Orchards

Opportunity	Savings Potential*	Incentives**	Capital Cost	Payback
Implement night set-back of space heating systems of any office spaces. Install or use existing programmable thermostats to drop your night-time heating setpoint.	Variable, but as a rule of thumb, expect 3% savings on your heating bill for each degree you set back your night temperature.	None available	If new thermostats are required, around \$200 per programmable thermostat installed.	Quick. Expect between 0 and 2 years .
Replace diesel or tractor driven irrigation pumps with electric pumps. Electric pumps require considerably less maintenance, further reducing operating costs.	Around \$1,400/yr for replacing a 50hp tractor driven pump with a 20hp electric pump, assuming 2 weeks of pumping per year. Also CO ₂ emissions reduced by 4.8 tons/yr.	None available	Approximately \$4,000 to \$5,000 installed (excluding any power line extensions that may be required).	2.8 to 3.5 yrs
If you irrigate and your load is variable, install a variable frequency drive (VFD) on irrigation pump(s) to vary the pump speed based on demand. Throttling valves are an inefficient method of adjusting flow.	Savings will vary, but as an example, for a 20hp pump running for 2 months/yr, reducing the motor speed from 100% to 75% would save approximately \$800/yr in electricity costs.	BC Hydro PIP / LiveSmart BC - \$140 per horsepower [\$2,800 for a 20hp pump motor]	Approximately \$6,500 for this example with a 20hp pump motor.	Approximately 4.5 years after the incentive for this example.
Lighting upgrades: Replace incandescent lamps with compact fluorescents or LED. Replace T12 fluorescent lamps with T8 or T5 lamps.	Variable, but as an example, for 2 x 110 watt T12 lamps (magnetic ballast), replacement with 4 x 32 watt T8 lamps will save approximately \$40/yr if turned on 12 hrs/day.	BC Hydro PIP / LiveSmart BC – varies depending on lamp type – \$30 per fixture for this example.	Approximately \$200 per fixture installed for this example.	4.8 yrs for this example.

* Savings are estimates only. Savings are based on the following energy costs: Electricity \$0.08/kWh, Gas: \$8/GJ, Diesel: \$1.10/litre

** Incentives may change without notice. Check with the BC Agriculture Energy Advisor for current incentive amounts.

Other Resources

- BC Agriculture Energy Advisor: www.bcagclimateaction.ca/energy
- LiveSmart BC Incentive Program: www.livesmartbc.ca/incentives
- BC Hydro Product Incentive Program: www.bchydro.com/rebates_savings/product_incentive_program.html
- Fortis BC Incentive Program: www.fortisbc.com/NaturalGas/Business/Offers
- Agricultural Irrigation Calculator: www.irrigationbc.com



DISCLAIMER: All savings, capital costs, and incentive amounts shown in this fact sheet are estimates only and are not guaranteed. It is recommended that the producer contacts the BC Agriculture Energy Advisor to better quantify these for their own site before proceeding with a project.