

FARM-SCALE RAINWATER HARVESTING & STORAGE

Additional resources:

Search the following terms online for some great resources

- The Partnership for Water Sustainability in BC
- BC Farm Practices and Climate Change Adaptation - Water Storage
- BC Farm Water Dugouts, Ministry of Agriculture
- Water Sustainability Act of BC
- Keyline Water Management - Field Research

Collect it Today, Use it Tomorrow!

Rainwater:

- Harvesting has been carried out by humans for over 5,000 years.
- Is one of the purest sources of water.
- Falls for free!
- Can be used for potable and non-potable use.
- Can green your landscape and lessen your environmental footprint.
- Promotes self-sufficiency and helps conserve existing water supplies.

Island-wide demand for clean water is growing while supply diminishes.

Water, too precious to waste.

Rain & surface water: Slow it, Sink it, Spread it & Store it!

Cover photo credit: worldagroforestry.org

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ALBERNI-CLAYOQUOT
REGIONAL DISTRICT



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Water is a vital component of every agricultural operation. Ground water resources on Vancouver Island are being depleted, and in our drought-subject climate, producers need to adapt and innovate to fully take advantage of our abundant seasonal rains.

Here are some proven techniques which can help create a more resilient farm water system:

1

Active rainwater harvesting

Water is collected from roof structures and stored in large volume cisterns, with overflow directed to other rainwater harvesting structures, which slow the movement of water through the landscape.

2

Passive rainwater harvesting

This is one of the simplest, yet most often ignored, ways to improve water retention on a farm. Land forms capture water flows from roadways, paths, and other hard surfaces and directs it to further landforms, such as swales or ponds. By developing these systems, we are able to hold or slow the movement of immense quantities of water. Planning and design is an important first step in any passive process. Please consult the key regulatory points and reference materials listed within this brochure.

3

Keyline planning

Keyline planning and ploughing are management and implementation tools that use natural landscape contours and a series of soil rips to **slow, sink, spread** and **store** rainwater and **build soil fertility**. Using a detailed contour map, keyline plans also help determine the optimal placement for farm elements such as irrigation ponds, cropping and orchard rows, roads, fences, livestock rotation, etc. Vancouver Island has a Keyline research project underway in the Capital Region.

4

Agroforestry

This integrated land use system combines elements of agriculture (agro) and trees (forestry) in a sustainable production system. The emphasis is on managing the complexity of a farm's ecosystem, and creating functional and bio-diverse systems that balance productivity with environmental enhancement and protection. The forest elements, in part, provide shade, windbreaks, and a temperature moderation in order to reduce the water needs of other agricultural crops.



5

Two-stage ditch design

This system incorporates floodplain zones, called benches, into a ditch by removing the ditch banks roughly 2-3 feet above the bottom for a width of about 10 feet on each side. This allows the water to more area to spread out on and decreases its velocity. Water quality, soil biological conditions, and production capacity increases.

6

Compost and soil biology

There are over 7 billion microorganisms in one tablespoon of healthy soil, but often years of farming have depleted this microbiological life. Through applications of high quality compost and compost tea or extract we can reintroduce soil organisms, leading to better quality soils which have larger water holding capacities. Each 1% increase in soil organic matter helps soil hold 20,000 gallons more water per acre!

7

Hügelkultur

This production technique employs large raised beds constructed from decaying wood debris and other compostable plant materials. Inside the mounds, the huge reservoir of rotting wood acts as a holding sponge for water over extended time periods. The process also helps to improve soil fertility and soil temperature, thus benefiting the plants grown on or near such mounds.



Key Regulatory Points

The Water Sustainability Act (WSA) was adopted in 2016. It is the principal law for managing the diversion and use of water resources, and includes the regulatory requirements for licensing and use of groundwater, streams, and dams, and other water resources.

Generally, if water is diverted from a stream or groundwater for a pond, a water license is required. If it is filled with surface water run-off or snow melt, it does not require a license. Referencing the WSA is an important step when planning any surface or ground water initiative.