



In 2021 Record Heat
we Adjusted Irrigation
to 64% and 52%
due to Enhanced Absorption
And “Out-Yield” Neighboring Farms

D.I.R.T.

dynamic irrigation
recommendation technologies

chemical free
enhanced absorption
powered by 
FLOW-TECH GROW

21st century **D.I.R.T.** farming

Treat

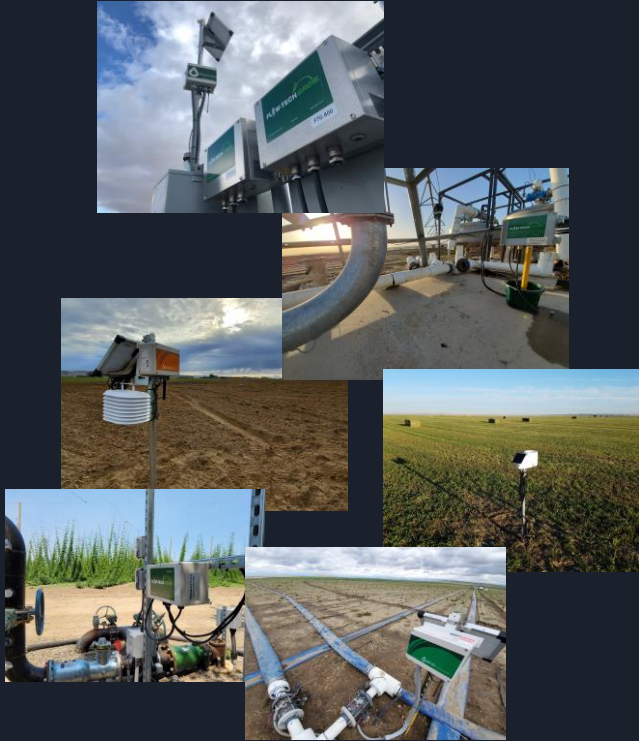
Treat irrigation water, electronically, to reduce its surface tension.
Energized "Unbonded water" absorbs dynamically in varying soils.

Monitor

Monitor unbonded water's enhanced absorption with field sensor data
to learn NEW Field Capacities and Filled and Refill rates.

Adjust

Adjust irrigation strategies to match the soils' new absorption rates and
wider wetting patterns, as well as predictable root available water.



a case for **D.I.R.T.** strategies

Enhanced Absorption → Reduced Irrigation → Higher Yield

Evergreen Farm Brooks, OR Blueberries Blackberries	July 10 th - Aug 16 th	2020 Non-Treated Standard Runs	2021 D.I.R.T. Adjusted Runs	2021 Adjusted to
Amity Silt Loam Soil	All Blueberry Zones Hrs	175.75	85.5	51.4%
Drip irrigation Valve Automation Capacitance Probes	One Blackberry Zone Hrs*	98.37	62.58	63.4%
	Avg. High Temp Brooks, OR	85.89°	90.37°	+ 4.48°
	2021 Yield Comp			+ >1 Ton/ac.

* Of the four Blackberry zones, ONLY the data from Black SE pressure switch was used to calculate year over year run-time comparisons. Two of the Blackberry zones were combined due to a field replant in spring of '21, and the 3rd zone pressure switch failed in-season.

Evergreen Farm
Brooks, OR
Blackberries

2020 vs 2021
Drop Control
Soil Moisture Graphs
and
Irrigation Run Charts



Note in this tight silt loam soil, there is relatively limited percolation below 12", during Blackberry pre-harvest and harvest irrigations, using **nontreated water**

Irrigation sets for the four Blueberry zones, as was typical in prior years and from July 10th to August 16th of 2020, ran 1 to 2-hours plus occasional 3 and 6-hour sets and a rare 12-hr set – totalled **175.75 hours**

Irrigation sets for the Blackberry SE zone, as was typical in prior years, ran 6, 8, and 12 hours, plus a rare 24-hr set – totalled **98.5 hours**



Executing **D.I.R.T.** strategies

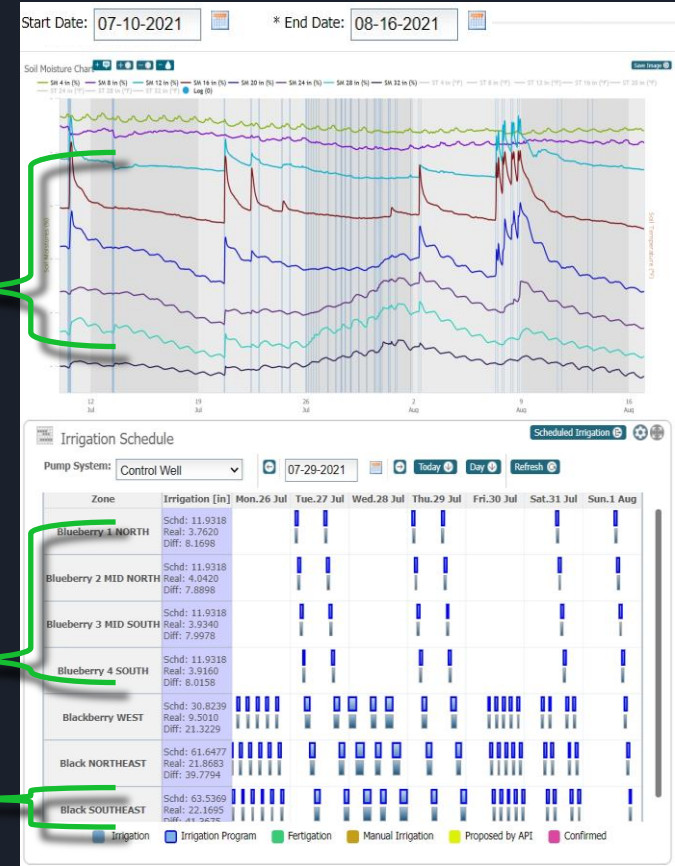
In April of 2021, WaterPoint began **Treatment** of Evergreen Farms irrigation water with energy from the Flow-Tech Grow signal generator

As in previous years, the Volumetric Water Content of the soil was measured and **Monitored** at each 4" depth to 32". However, in 2021, the charts revealed Enhanced Percolation rates that required the dynamic Field Capacities be reset for each depth

Traditional irrigation schedules were **Adjusted** to accommodate the soil's enhanced absorption rates. Short 1 to 3-hr. sets were run to Fill, Refill, and Maintain the soil's Plant Available Water

Irrigation run times for the four Blueberry zones totalled **85.5 hrs.** a **48.6%** reduction in water applied vs. 2020

The Blackberry SE zone ran **63 hours** – a **36%** reduction in water applied vs. 2020



12/11/17



To verify findings from a waste-water filtration study WaterPoint conducted in 2017, in Boardman, OR; 1100 lbs of Winchester Sand soil was collected from the study fields for OSU Crop and Soil Science researchers to conduct Wetting Pattern observations in a controlled Lab environment.

The researchers built twin tanks 3' by 3' tall and long by 6" wide to observe the Wetting Patterns of simultaneous controlled drip into each tank. After approx. 5 hours, the Lab observations confirmed what the field sensor data had led to discovery – RF Treated **“Unbonded Water”** increased saturation by **>33%** in the upper 16" over nontreated water.

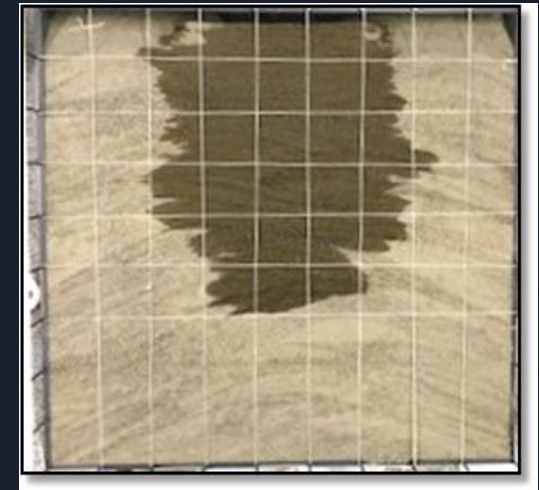
Wetting Pattern Lab Observations

Winchester Sand Soil

Nontreated Water



Treated Water



2021
Echo, Oregon
Fields 551 and 555
Drip Tape Onions
Shano Silt Loam

Flood dams built below the field
irrigated with **Nontreated-water**



Throughout the season, the grower noticed reduced runoff and Wider wetting patterns in the field irrigated with the Treated **Unbonded-water**



The grower noticed **wider** wetting patterns across the treated field and **similarly smaller** patterns in the non-treated fields



D.I.R.T.

Treat
Monitor
Adjust