

# Flower Greenhouses: Success Stories

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**Water Smart**  
Farming Project



- First coalition of its kind, formed in 2012. Whole sector approach – all types of farmers and associated businesses working together.
- Funded by members, sponsors, projects.
- Common goal – building public trust in food and farming.

**Why is public trust important?**



# How do we get our 'social license'?

**Definition:** The privilege of operating with minimal formalized restrictions based on maintaining public trust by doing what's right.

**Public Trust:** A belief that activities are consistent with social expectations and the values of the community and other stakeholders.



## Why is public trust important?

Unilever, Kellogg, Mars  
Drop Major Palm Oil  
Supplier After RSPO  
Revokes Its Certification





# Enviro-Stewards Inc.

*Enviro-Stewards Inc. is an engineering firm and Certified B Corporation that helps clients:*

- *increase their profits*
- *sustain the environment, and*
- *compellingly benefit society.*

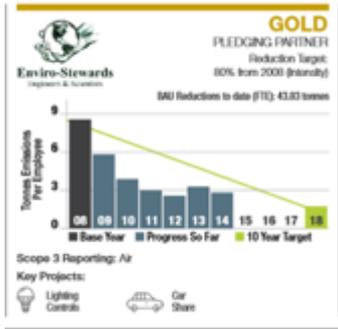
**What makes us a better company?**

### B Impact Report

Certified since: September 2011

Summary:	Company Score	Median Score*
Environment	39	9
Workers	33	22
Customers	6	N/A
Community	42	32
Governance	20	10
<b>Overall B Score</b>	<b>140</b>	<b>80</b>

80 out of 200 is eligible for certification  
\*Of all businesses that have completed the B Impact Assessment  
\*Median scores will not add up to overall



# Approach

**SAVE**



## Increase Profits

Comprehensive Assessments Save an Average of \$215,000 per Facility (With 1 Year Payback)

**SUSTAIN**



## Sustain the Environment

Team Approach Yields a 90% Implementation Rate and Footprint Reductions of 10 to 90%

**SHARE**



## Benefit Society

Safe Water Project Provides Clean Water and Sustainable Employment

# Examples of who we work with:

## ***Sampling of Successful Environmental Projects:***

- Campbell Soup
- Chudleighs
- PepsiCo Foods – Frito Lay
- Gay Lea Foods

## ***Environmental Sustainability Recognition:***

- Tim Horton's Fruition Fruits & Fills – 2014 Clean 50 Top 5 Projects in Canada
- Andrew Peller (Global Vintners) – 2016 Clean 50 Top 15 Projects in Canada

## ***Water Efficiency Projects In Progress:***

- Holland Marsh vegetable processors & irrigators
- Ontario Tender Fruit Growers washing & packaging
- Vegetable greenhouses – Leamington
- Flower greenhouses



# Water Smart Assessments | Water Use Efficiency for Greenhouse, Washing Facilities, Irrigation



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**Ontario**

# Ontario Flower Greenhouses: Good News Stories



- \$787 million in farm gate sales
- 3.9% increase in farm gate sales 2014-2015
- Farm gate per hectare= \$2.2 million (2015)
- Current estimated contribution of \$1.36 Billion to Ontario's economy (through production activities)
- 7,643 direct employees (4,274 seasonal, 3369 permanent)
- Increase in # of permanent employees in 2015
- Exported \$200 million to USA in 2015

# Our observations of growers who have successfully accepted the challenge of dealing with waste water



# 1) Take OWNERSHIP of the Problem: Take the Pledge!



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I, \_\_ (name) \_\_, add fertilizer to water to feed my plants & make them grow.

It's my responsibility to ensure that nutrients do not make their way into any nearby water courses.



## 2) KNOWLEDGE

You know your systems...

You are the experts!

- Water source(s), storage, recapture
- Fertilizer injection, filters, disinfection
- Control systems (when, how much, how often)
- Drainage where does every drain go
- Tanks, cross-connections
- Strengths, risks and weaknesses
- Contingency and back-up



# 3) Role of TECHNOLOGY: What might you need to better utilize your systems?

- Better understanding of system (blame it on grandpa):
  - Where does that drain go?
- More tanks or redundancy
- Flexibility to meet changing market
- Does a recirculation system fit?
- Disinfection systems, filters?
- Looking for a “one-step solution”
  - A treatment technology
  - A place to truck it
  - Sewers



## 4) MANAGEMENT: How might we run the system differently if the goal is zero or minimal discharge?

- Are there trade-offs required to get better wastewater control?
- Are there changes to watering, timing, amounts, zone size, crop order, disinfection, operator training?



# Potted Plants – Dan



- Water availability was an issue from day 1
- 5 acres, year round & seasonal production
- Collects all water from planting lines & wash water
- 100% Closed Loop: Trough watering recirculation system
- Treatment: filtration, chlorine dioxide, copper deionization
- Roof water collection – cistern
- Pond = back-up water supply (needed this year)
- Prevent cistern overflow by filling stock tanks

**‘We made production decisions that align with good environmental decisions.’**

***Water security, production needs:*** driver behind systems chosen



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# Wholesale Bedding Plants – Rodd



- As production increased, needed more water
- Rain water sole supply as of 5 years ago with pond backup
- Roof water collection – cisterns
- Flood floor recirculation system, extra capacity
- Closed loop: Feed water to woodchip bioreactor, to silo, to UV & chlorine treatment to cisterns, to recirc system
- Woodchip bioreactor also effective for pathogen control

***Production increase, flexibility, crop sensitivity, water supply:*** drivers behind systems chosen

***Flood Floor Benefits:*** improved product quality, labour savings, increased production, dry environment, shipping easier

***Advice to others:*** plan ahead, start in small pieces, it feels good once it's operating, not as scary once it's done, more is planned



# Cut Tulips & Seasonal Plants – John



- Flood bench (tulips) & flood floor (seasonal) recirculation system
- Cut & capped tile drains – everything goes through wetland
- Closed loop: Excess water to constructed wetland to address turbidity/colour before UV treatment, then back to recirc system

**Flood Floor Benefits:** ship large volumes of production, versatile (off-season storage space), move plants in & out quickly, drivers behind system chosen

**Address excess tulip water leaving farm via tile drains:** additional driver (water colour/quality)

**Advice to others:** do your research, had to learn how to grow differently, use less labour. 'It's the way to go.'



# Potted Plants – Gerard

- 10 yrs ago started recapturing nutrients
- Heated flood floor recirculation system installed last year
- Closed loop: 100% flood floor water captured, treated, then back to floor
- Propagation: 1<sup>st</sup> stage (rain) water
- Boiler condensate water blends with irrigation water
- Infrastructure in place for future expansion

***Expansion allowed incorporating closed loop & flexibility for the future:*** driver behind systems chosen

***Flood Floor Benefits:*** flexible, high level of automation possible, more uniform crop with gravel floor, addresses environmental concerns

***Advice to others:*** can you afford to dump water? H<sub>2</sub>O, fertilizer & treatment are expensive



# Cut Flowers – Glenn



- Drains collect leachate under each bed, to catchment basin, to cistern
- Subsurface infrastructure already in place
- Additional cisterns for separating fresh & return water
- Extra capacity as a contingency
- Filtration & hydrogen peroxide water treatment
- Monitoring system for pathogen levels
- EC monitoring tells you exactly what's going on, mixing & blending valves give flexibility

***Tile outlet sampled & found leaching more than we thought. Catch it & reuse it, don't lose it:*** driver behind systems chosen

***Leachate collection benefits:*** fertilizer & water savings, fine tune control, flexible, more storage capacity

***Advice to others:*** It's the best thing I ever did. It's the way to go. It's better to be ahead of the game than to be legislated.



# The good news is:

- Other growers have been successful
- Not one way to solve this issue => creative solutions
- Ontario's knowledge base is growing – start the conversation
- Start planning & building it into your budget
- Yep, this all costs money
- But, it can be done
- It can **BENEFIT** your business



**‘When you change the way you look at things, the things you look at change.’**

Wayne Dyer

***Questions:***

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