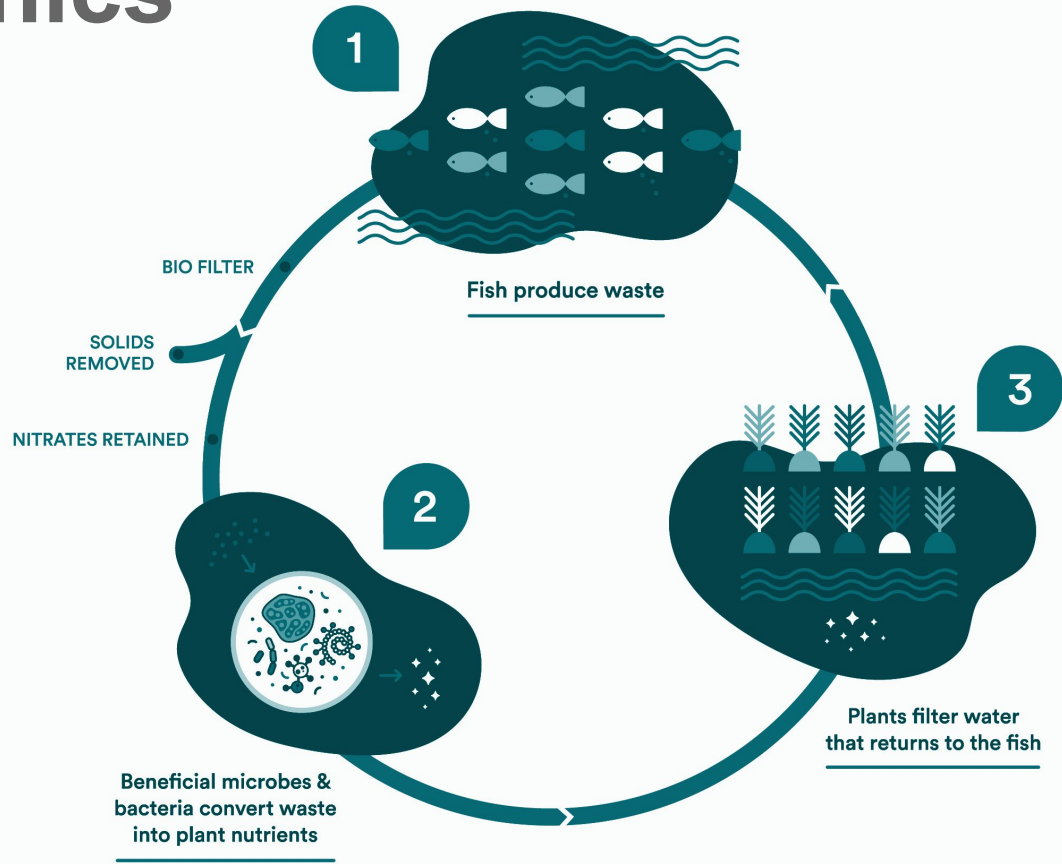




EDUCATION  
INNOVATION  
LOCAL FOOD



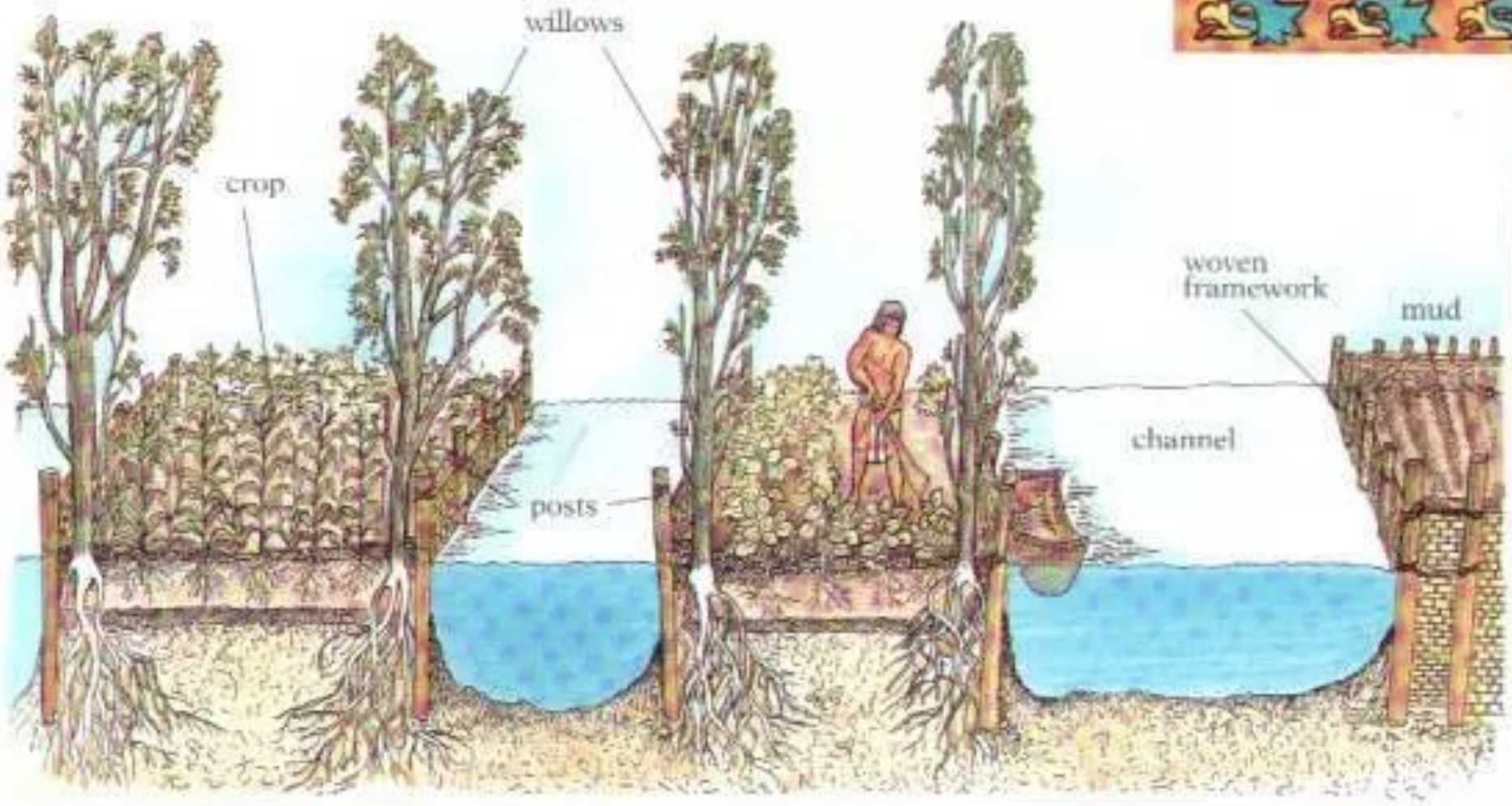
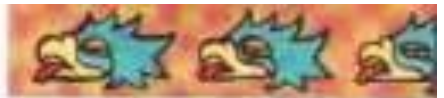
# Aquaponics



# History of Aquaponics



**Aztec  
Chinampas**





# RIPPLE FARMS

Toronto's Most Dynamic  
Urban Agriculture Enterprise



Aquaculture



Hydroponics



Micro Greens

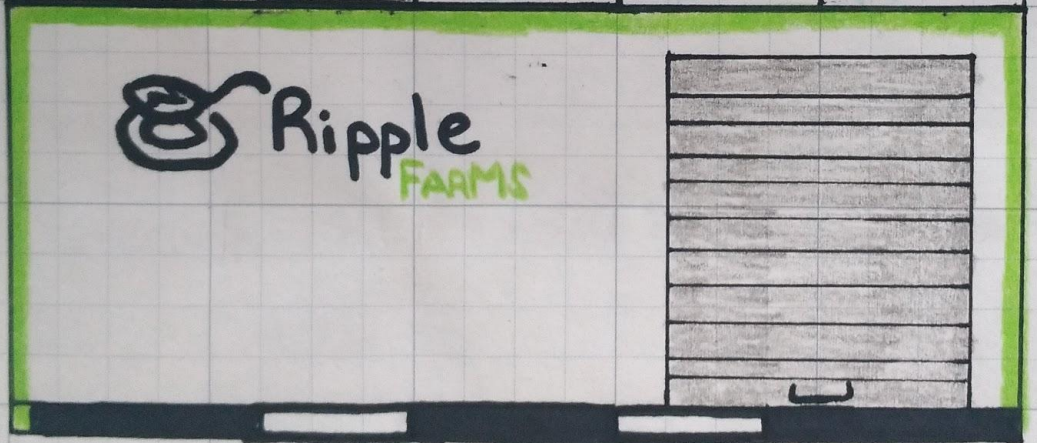
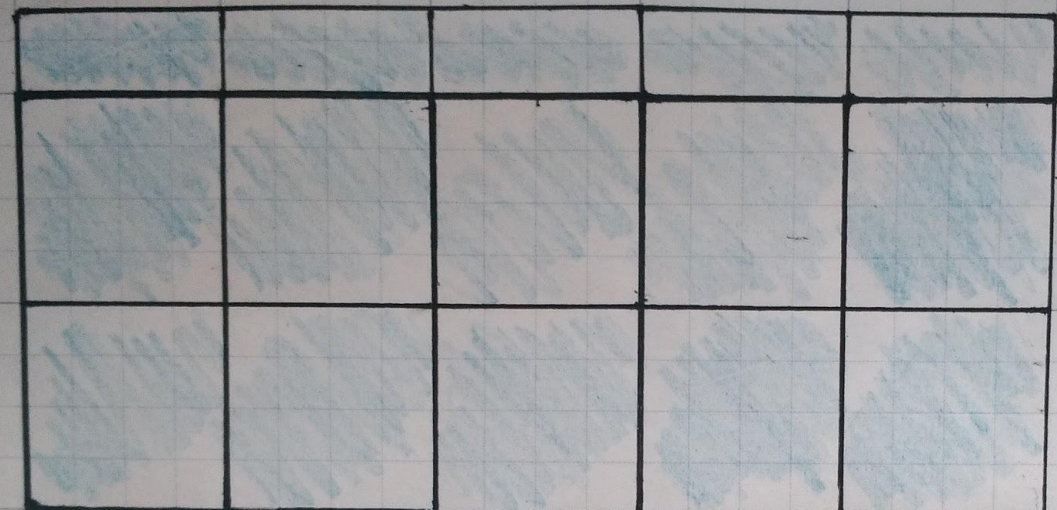


Soil - Organic

1.5'

8'

8.5'



$M_1 = 5,200 \text{ lbs}$

6'

1.5'

$H = 18 \text{ ft.}$

$L = 20 \text{ ft.}$

$W = 8 \text{ ft}$

$S_{a_1} = 170 \text{ ft}^2 \text{ Bottom}$

$S_{a_2} = 185 \text{ ft}^2 \text{ Top}$

$S_{a_T} = 355 \text{ ft}^2$   
 $\approx 360 \text{ ft}^2$



# EDUCATION HUB



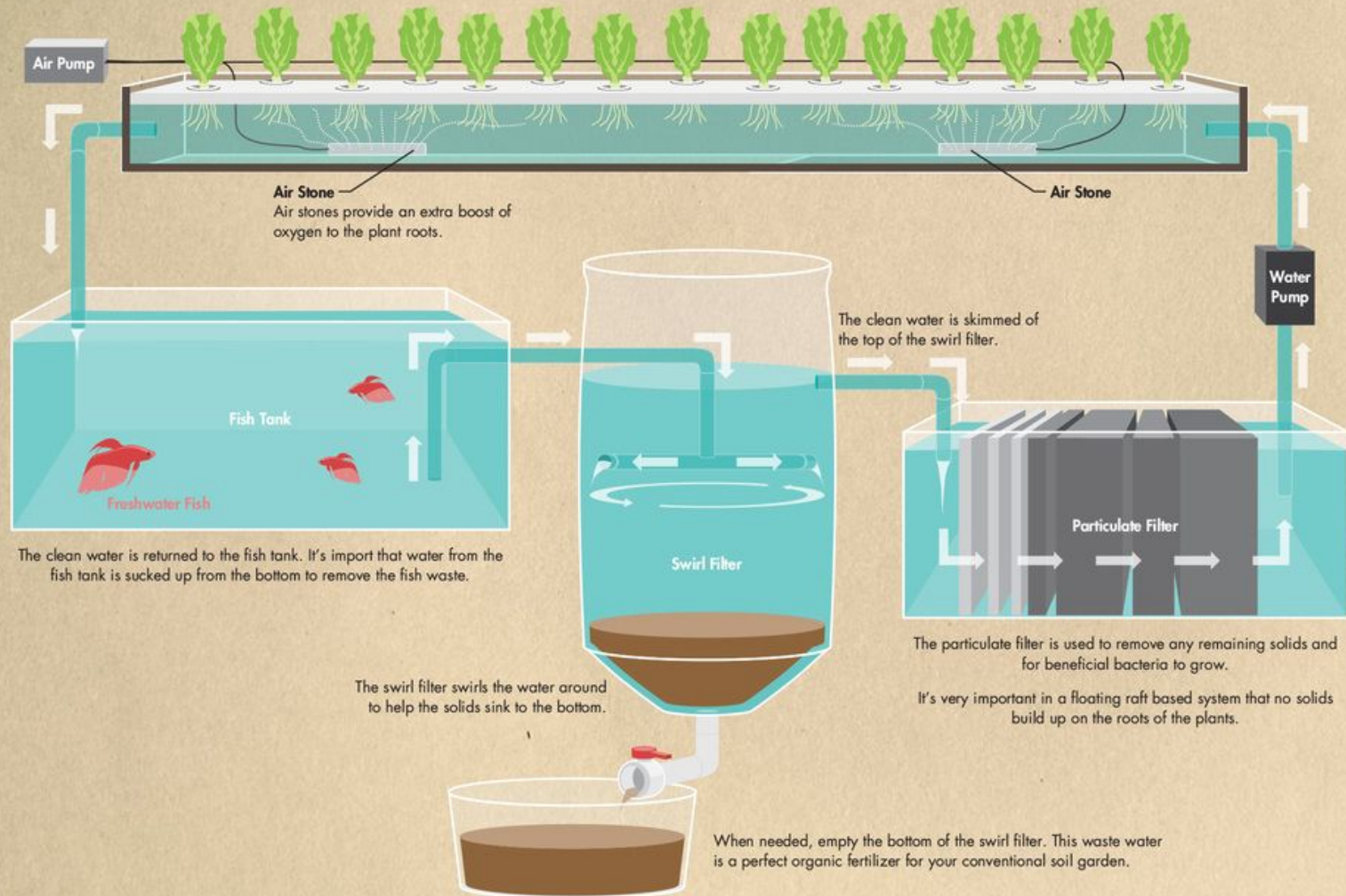
@ Evergreen Brickworks



# INNOVATION HUB

@ Seneca College





# PRECISION AGRICULTURE





Ripple Farms



Nelson & Pade



Ripple Farms

# Nelson & Pade Montello, Wisconsin

*Aquaponics  
Centre of  
Excellence*

Classroom

UWSP - AIC

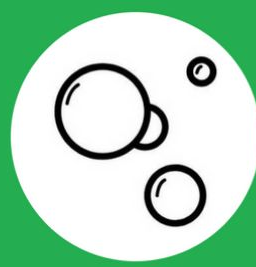
Commercial  
Systems

Hobby  
Greenhouse

Nelson & Pade  
The Best Based Name in Aquaponics!



# URBAN AQUACULTURE



Toronto's  
Freshest Seafood  
~ \$8.50 /lb ~









# Community Garden Project

*Toronto, Ontario*







# Turn-Key Aquaponics Solutions

*Concept to Construction + Seed to Sale*

- Home & Classroom Systems
- Hobby Farm / Community Garden Systems
- Commercial Production Systems
- Cannabis Production Systems
- De-Coupled Systems

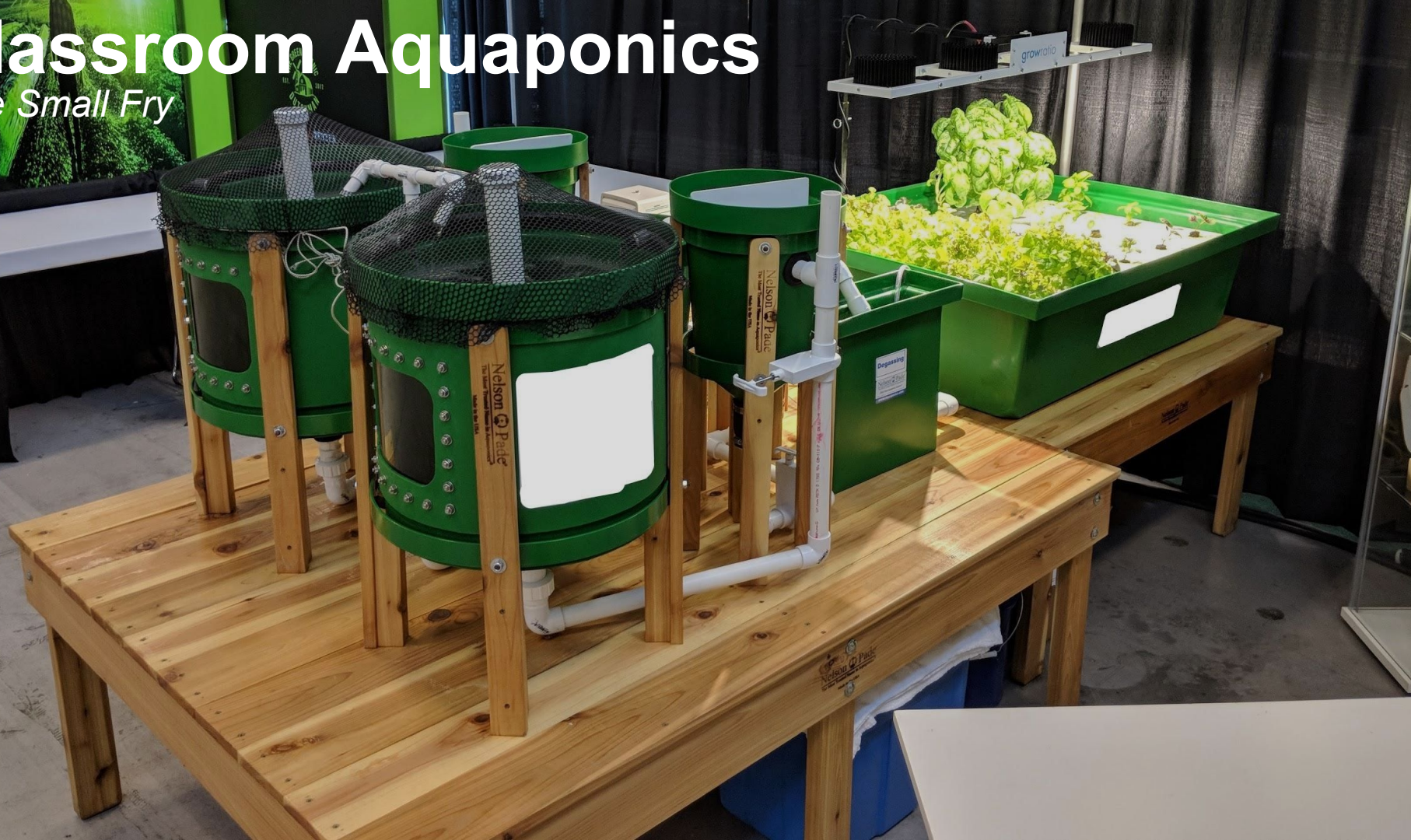
50ft<sup>2</sup>



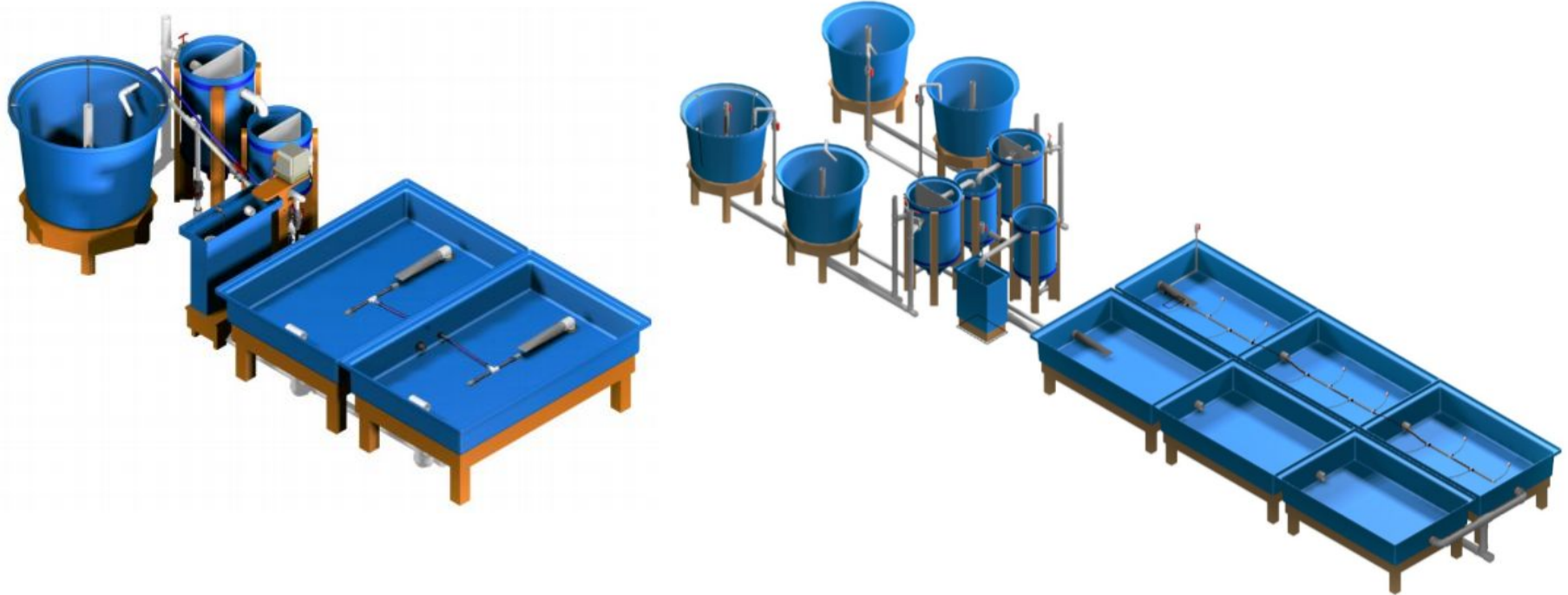
200,000ft<sup>2</sup>

# Classroom Aquaponics

*The Small Fry*



# The Family & School Food Factories



# Micro Farm *Small-Scale*

## Production Details

**Vegetables:** 6,600 heads / year

**Fish:** 970 lbs / year

**Estimated Labour:** 2-4 hours

**Electrical Requirements:** 40 amps / 120v

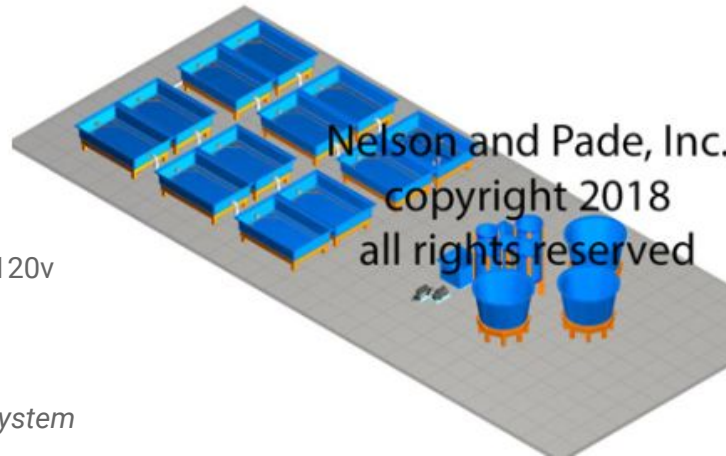
**Dimensions:** 1,344ft<sup>2</sup> (Greenhouse)

**Approx. Cost:** \$55,000 CAD

*Includes Greenhouse & Aquaponics System*

The **MicroFarm “Small-Scale”** is ideal for diverse crop production. It includes 3 – 200 gal fish tanks, filter tanks (clarifiers and mineralization tanks), degas and sump tanks, plumbing and aeration systems and 12 individual 4' x 6' rafts tanks.

Our smallest Aquaponic MicroFarm, the MicroFarm 1, is a great starter system to get into aquaponics, especially if you want to grow a variety of crops to sell at a roadside stand or farmer's market



# Micro Farm *Mid-Scale*

The **MicroFarm “Mid”** includes 3 – 200 gal fish tanks, filter tanks (clarifiers and mineralization tanks), degas and sump tanks, plumbing and aeration systems, plumbing and aeration systems, and 2 – 6' x 24' rafts tanks. The full length raft tanks allow a grower to use the super efficient “conveyor-belt” method of growing lettuce, moving the plant rafts forward as the crops mature.

As a complete package including the MicroFarm “Mid”, greenhouse, accessories, training and support, it costs less than \$75,000 and may be funded through Farm Credit Canada. The MicroFarm 2 is an excellent low-cost way to get started with an aquaponics business.

## Production Details

**Vegetables:** 8,250 heads / year

**Fish:** 970 lbs / year

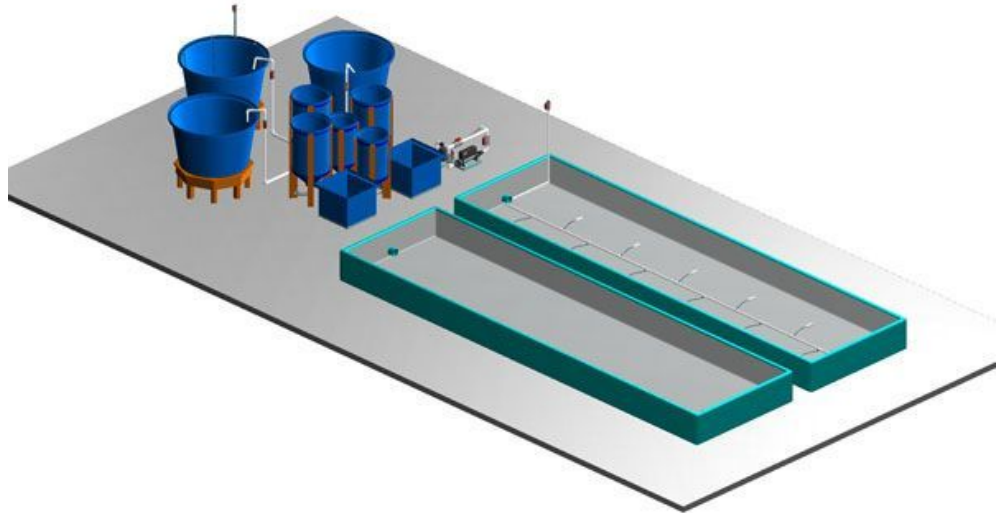
**Estimated Labour:** 2-4 hours / day

**Electrical Requirements:** 60 amps / 120v

**Dimensions:** 1,344ft<sup>2</sup> (Greenhouse)

**Approx. Cost:** \$ 75,000 CAD

*Includes Greenhouse & Aquaponics System*





# Micro Farm *Large-Scale*

The MicroFarm “Lrg” uses our same proven Clear Flow Aquaponic System® design and incorporates our Accelerated Plant Nursery system to use indoor growing space most efficiently while increasing production. With four fish tanks, both fish and vegetable production is increased.

The MicroFarm “Lrg” includes 4 – 200 gal fish tanks, filter tanks (clarifiers and mineralization tanks), degas and sump tanks, plumbing and aeration systems, plumbing and aeration systems, 2 – 8’ x 24’ rafts tanks and a 10’ x 12’ accelerated plant nursery.

## Production Details

**Vegetables:** 18,500 heads / year

**Fish:** 1,305 lbs / year

**Estimated Labour:** 4-6 hours

**Electrical Requirements:** 80-100 amps / 120v

**Dimensions:** 1,920ft<sup>2</sup> (Greenhouse)

**Approx. Cost:** \$85,000 CAD

*Includes Greenhouse & Aquaponics System*



# Micro Farm *Financials*

## Assumptions

- Leafy Greens Retail  
@ **\$1.85 / unit**
- Tilapia Retail @ **\$5.50 / lb**
- Labour @ **\$17 / hr**

### Small

\$55,000 CAD

#### Greens

6,600 Units

\$12,120

#### Fish

970 lbs

\$5,335

Annual = **\$17,455**

### Medium

\$75,000 CAD

#### Greens

8,250 Units

\$15,260

#### Fish

970 lbs

\$5,335

Annual = **\$20,595**

### Large

\$85,000 CAD

#### Greens

18,500 Units

\$34,225

#### Fish

1,305 lbs

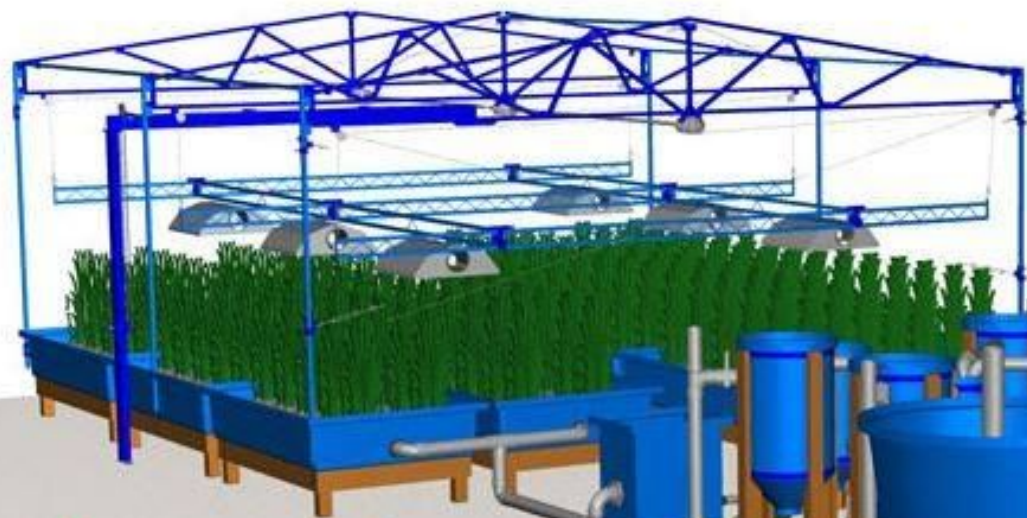
\$7,177

Annual = **\$41,402**





**Green Relief**  
*Hamilton, Ontario*

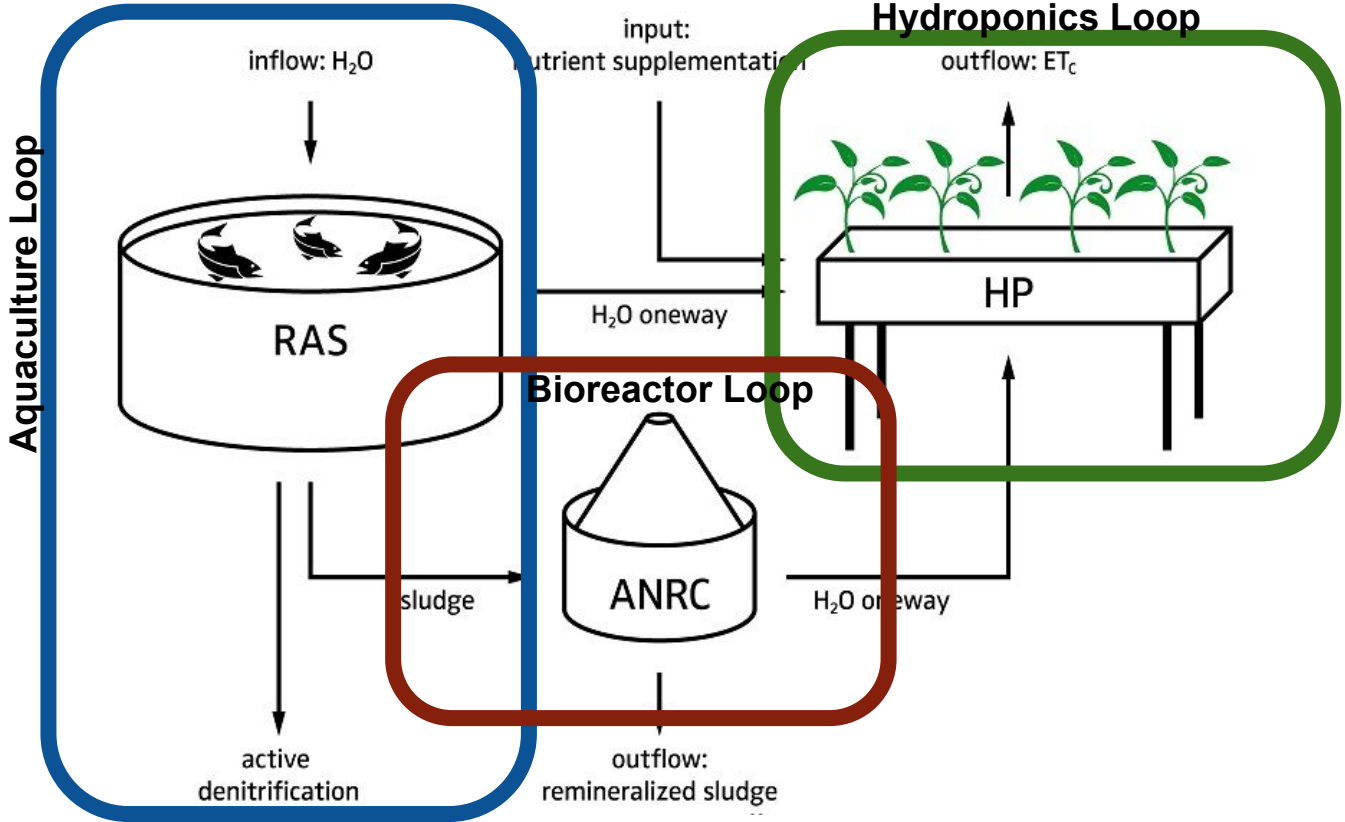


Nelson  Pade<sup>®</sup>  
The Most Trusted Name in Aquaponics<sup>®</sup>

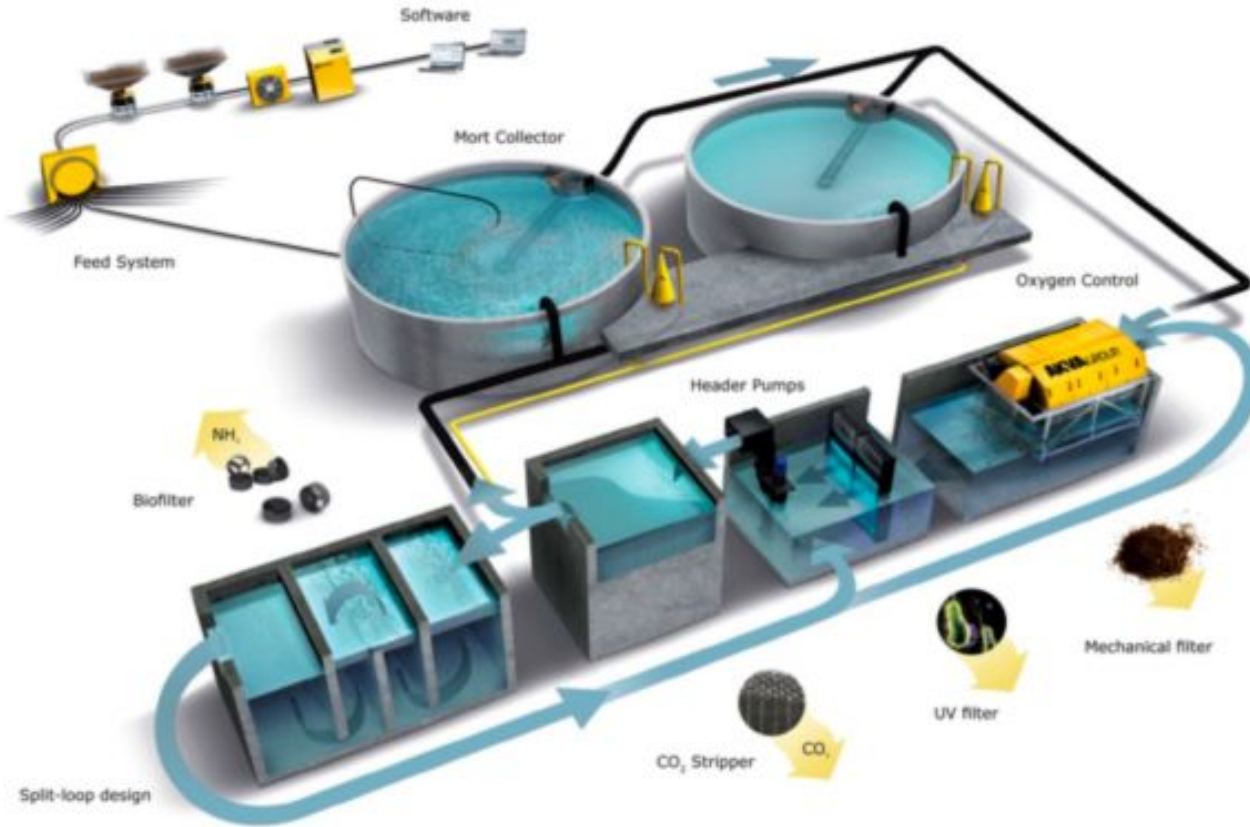
Aquaponic  
Hemp Growing System



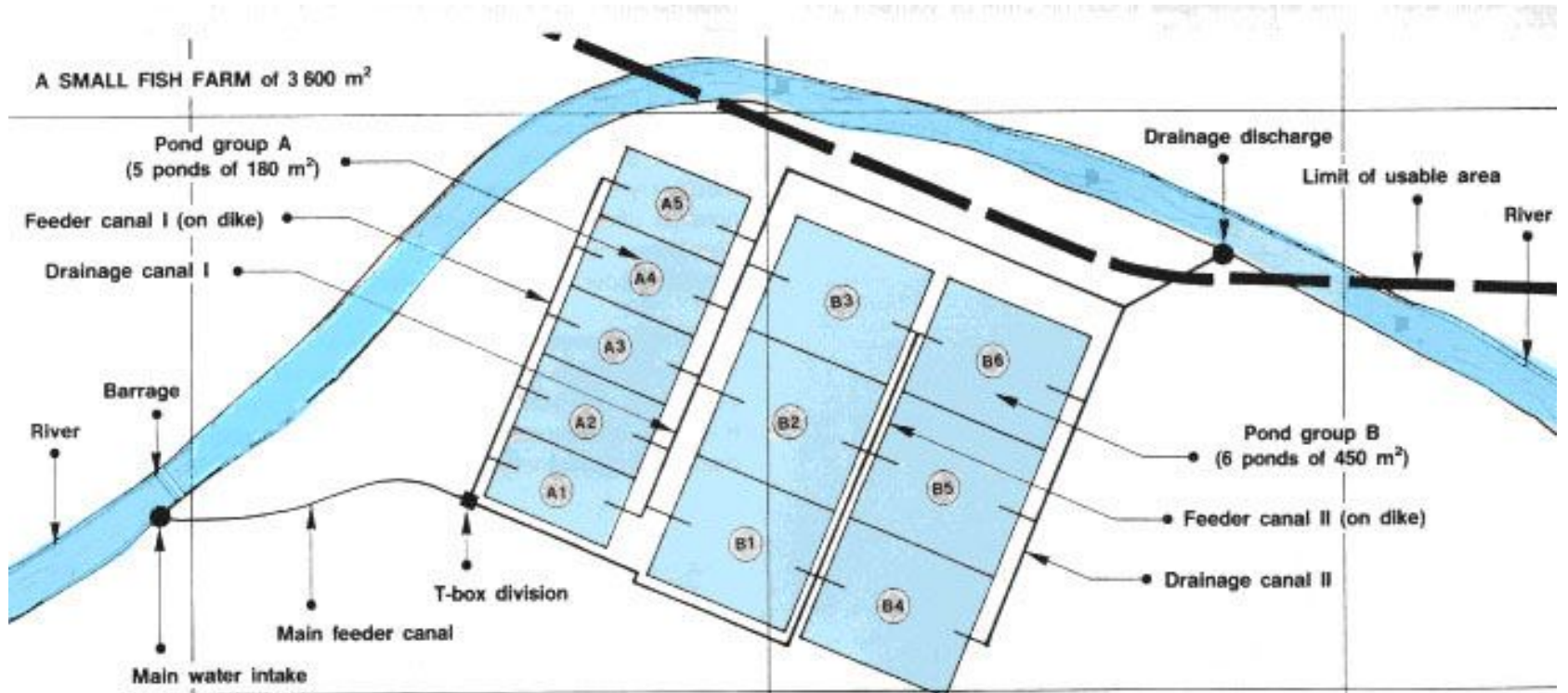
# Decoupled Aquaponics Systems (DAPS)



# RAS System Design



# Flow-Through Aquaculture

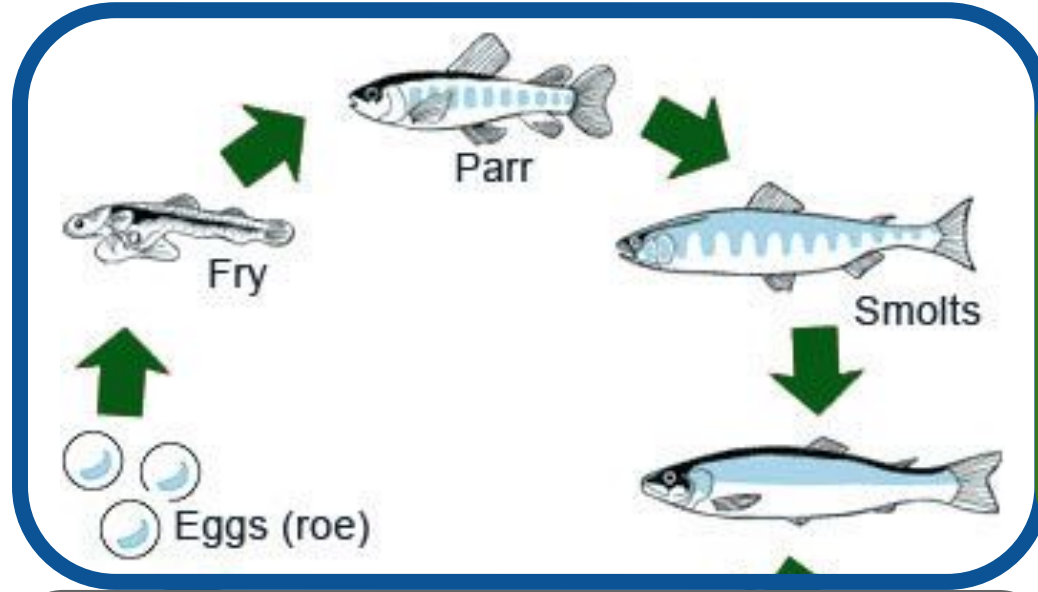




RAS /  
Raceways



Open Water  
Net Pens



Hydroponics





# Cedar Crest Trout Farms





# Thank You

[www.ripplefarms.ca](http://www.ripplefarms.ca)  
[bhebor@ripplefarms.ca](mailto:bhebor@ripplefarms.ca)