Team: A10
Team members: Zong Yu He, Huanyu Liu, Danny Ho

Capture Stakeholder statements (Danny Ho and Zong)

1. A large amount of labor is directed to cleaning the boards after each growing cycle.

2. Currently customers clean the raft by hand using scrubbing brushes and the hose for 6-8 hours out of the 30 hours a week.

3. The boards weigh around 2 pounds, the size is 32 in x 24 in.

4. There are 82 rafts in a facility, ¼ of them are cleaned every week.

5. Number one priority is easy use, cleanability, and 3rd is space (if you meet the space requirements, good. But if you can get a better or faster clean then that trumps it).

6. Able to clean all surfaces & contours of the board. Current degree of clean is: If you can't see any algae buildup on the boards, its clean (ie. Visual inspection).

7. Willing to increase budget and needs to be durable - 5 years for a max of boards before being replaced.

Interprete the Stakeholder statements (Danny Ho)

A large amount of labor is directed to cleaning the boards after each growing cycle:
- Reducing the amount of labor means reducing the time spent on cleaning.
- Workers are getting tired because of all of the work put into scrubbing.
- Not enough work is getting done in the institution due to all of the labor being put towards cleaning.

Currently customers clean the raft by hand using scrubbing brushes and the hose for 6-8 hours out of the 30 hours a week; There are 82 rafts in a facility, ¼ of them are cleaned every week:
- The workers are using a very long and tedious method to clean these rafts.
- It is time consuming and tiring.
- A quarter of their time working in a week is put into cleaning instead of focussing on other work.
- They need to find or get a method that'll automatically clean the boards or clean the boards quicker so that workers can do other tasks.
- A lot of vegetables are grown at a time.
- At Least 20 boards need to be cleaned each week.
- A machine that could clean multiple boards at a time would be extremely useful.

The boards weigh around 2 pounds, the size is 32 in x 24 in:
- They are relatively light.
- Can hold a couple of vegetables each raft.

- Takes a while to clean each raft considering its size and how fast and the amount of space that algae can grow and take place of.

Number one priority is easy use, cleanability, and third is space (if you meet the space requirements, good. But if you can get a better or faster clean then that trumps it):

- This machine or method needs to be executed easily.
- Needs to be safe and easy for farmers who are not familiar with technology.
- Cleaning needs to be top notch and visibly clean.
- The process needs to be relatively fast but also do a good job.

Able to clean all surfaces & contours of the board. Current degree of clean is: If you can't see any algae buildup on the boards, its clean (ie. Visual inspection):

- First priority is to get boards clean enough so algae isn't visible.
- Every part of the boards needs to be cleaned; cannot be done recklessly since algae will grow back quicker.
- The boards need to be wiped clean and left to dry so algae doesn't come back through the water.

Willing to increase budget and needs to be durable - 5 years for a max of boards before being replaced:

- Cost is not a top issue, cleanliness and easy use is top priority.
- Durability is important and the material used needs to be a component that won't rot away quickly and can withstand bacteria and algae.

Convert the interpreted statement (Zong)

1. Reducing the time spent on cleaning.
2. Find a method that will automatically clean the boards.
3. At Least 20 boards need to be cleaned per week.
4. Prefer to use machines.
5. Size of the tools need to be considered.
6. Safety is one of the most important things.
7. The product can be used without replacement for more than 2 years.
8. Cannot see any algae on the board after completing the cleaning process.
9. No or short training time required for farmers.

Develop Metrics (Zong and Huanyu)

Characteristic	Unit	Process
1. Length of the method	Inches	Read the product details on the web page.
2. Width of the method	Inches	Read the product details on the webpage.
3. Height of the method	Inches	Read the product details on the web page.

4. Cost	Canadian dollars	Look at the price on the webpage.
5. Cleanability	Stars	Read the user's ratings or comments on the webpage.
6. Clean Efficiency	Square feets per hours	Search the data of the product on google and do some simple calculations.
7. Level of automation	1. Humans need to do everything. (Traditional cleaning method) 2. Require humans during the cleaning process 3. The method does every thing.	Read the user's manual and measure the level of automation.
8. Training time	Minutes	Test the time needed to read and understand the product's instructions. Then take the average time spent by the teammates.
9. Durability / Quality	Years	Check the product warranty period and policy on the webpage.
10. Safty	1. Low: people need to pay attention and get injured easily. 2. Moderate: people need to pay little attention. 3. High: people do not need to pay any attention.	Read the user's ratings or comments on the webpage.

Define specification (Zong and Huanyu)

Plan A: High pressure washer - Sun Joe SPX3000 (Amazon)

Plan B: Dishwasher - Frigidaire FFCD2413UW (Best Buy)

Plan C: Electrical Scrubber - LABIGO Electric Spin Scrubber (Amazon)

Plan D: Chemical Dipping - Scotts Moss EX 5M (Amazon)

Characteristic #	Plan A	Plan B	Plan C	Plan D	Prefer	Relation	Target Value
1	14.5	25	17	10	Lower	<=	72
2	13.5	24	6.69	14	Lower	<=	48
3	33.9	35	2.75	20	Lower	<=	96
4	229	485	69	17	Lower	>=	100

5	4.4	4.0	4	4.8	Higher	>=	3
6	100	52	34	40	Higher	>=	30
7	2	3	2	2	Higher	>=	2
8	12	16	14	10	Lower	<=	20
9	2	1	2	1	Higher	>=	2
10	2	3	2	2	Higher	>=	2

Task Plan (Huanyu)

Task completed: Project deliverable B

Task to be completed:

Project deliverable C:
- 1st step: Danny
- 2nd step: Zong and Danny
- 3rd step: Zong and Huanyu
- 4th step: Zong and Huanyu
- 5th step: Danny, Zong and Huanyu
- Conclusion: Danny, Zong and Huanyu

Project deliverable D: 10.10 - 10.16
- Step 1 and 2: Zong and Huanyu
- Step 3 and 4: Danny and Zong
- Step 5: Danny, Zong and Huanyu
- Step 6: Huanyu
- Conlusion: Zong

Project deliverable E: 10.17 - 10.23
- Step 1 and 2: Zong and Danny
- Step 3 and 4: Danny and Huanyu
- Step 5: Danny, Zong and Huanyu
- Conlusion: Danny

Project deliverable F: 10.23 - 10.30
- Step 1 and 2: Danny and Huanyu
- Step 3 and 4: Zong and Huanyu
- Step 5 and 6: Danny and Zong
- Step 7: Danny, Zong and Huanyu
- Conlusion: Huanyu