“THE SUPER IMPLODER DEVICE”
IMPLOSIVE WATER TREATMENT

INSTALLATION and TESTING
INSTRUCTIONS with Dan Winter
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1. Connect device so that the Nozzle is the INPUT end.
2. Circulate water thru the IMPLODER with any normal pump and pressure.
3. Water source: Use any water which would normally be used to feed plants

Note:

1. Device has strong magnetic field, please avoid placing next to electronic equipment
2. Locate away from any metal objects (strong magnetic field can attract objects)
3. Treat it as you would a strong magnet: take normal precautions, locate away from metal surfaces
4. Treat the device as somewhat fragile, avoid heavy shaking (although it was a tough design)

If possible:

1. If feasible use a diaphragm pump rather than piston or impeller, ideal is a peristalsis pump - but usually not readily available.
2. Simply use standard home or farm water supply
3. Normal pressures probably between 20 - 40 psi. Super imploder can use higher psi if necessary.
4. Theoretically the molecular effect is probably best at generally lower pressures- less than 30 more than 15.

General Testing Protocols

Please note: Advanced Testing Protocols at last section of this document

Set up for basic testing:

1. Seedlings, approximately same mass / size / same seeds / same soil / same ‘batch’ / same location / same amount / count seeds
2. Use standard agricultural protocols
3. All variables same (identical growing conditions) except water with treated vs. untreated water
4. Water one seed tray with the NORMAL WATER (place sign)
5. The other seed tray being feed the IMPLODER WATER (place sign)

6. Make sure the two types of water do not mix / spread / spray
7. Please use digital camera – take as many photos as possible to record growth / germination
8. Please use a new logbook. Date. Water pressure. General conditions. Season. Seed type. Batch number. Keep careful records of technique used.
9. Record amount of water and how frequent water was used e.g. twice per week (depending on recommended water required for type of seed)

Suggested testing protocol for water treatment imploder:

Test for:

1. Germination success: count how many successful seeds were germinated in both trays
2. Crop yield: remove the soil from both testing trays and weigh the seeds after about 2 weeks (depending on seed type, this could be earlier / later depending on seed growth).
3. Repeat measurements over the rest of the growing season on a regular basis e.g. approx. every 2 weeks

Also test for:
Redox factor
Ph values
Resistance
Surface tension
Entropy
Measurements of dissolved solids

NOTE: We also suggest testers to take some water themselves for drinking- and take notice of any health effect- we only expect the best as the water is a form of 'healing water" it hydrates you more- as it de-clusters the water molecules and has higher 'redox potential'

A simple test you can do at home:

1. Take some imploder water and normal water home with you. Carry in a non- metal container.
2. Pour into two separate see thru glass containers
3. Add into each the same tea bag
4. Notice the tea bag extraction rate i.e. how fast tea bag ingredients dissolve into the water
5. Take some pictures. Note which is the imploder water
6. Drink the tea- feel the buzz !

Advanced Testing

Accelerated Growth Effects Testing Protocols

Introduction

90% of the water is used by the plants to carry nutrients to the cells and then is transpired into the air. Only 1-2% of the water is used for photosynthesis

The enhanced growth effects we noticed in our experiments in the UK under controlled lab conditions are believed to occur via the facilitation of bringing the required nutrients into the plants by causing a de-clustering effect on the water.

This de-clustering effect would create smaller clusters of hydrogen bonded water molecules that would more efficiently 'solvate' the nutrients (i.e., metal ions, carbs, etc.) and thus create a more efficient vehicle for bringing the nutrients into the plant for photosynthesis.

Plant needs Nitrogen, phosphorous, K, Ca, Mg, S Fe Mn Cu Zn Boron, moly, CHO. How the imploder deals with these ions? The imploder with magnet stack merely facilitates the delivery of these and other vital nutrients to the plants. There is or should not be any 'chemical' alteration due to the action of the imploder/magnet stack on the water.

It is in our best interests to test the Imploder in various growing season under the widest variety of growing conditions, (soil, water quality, turbidity, and abundance; temperature extremes and variation, seed types etc.) as well as field testing for durability, ease of use, in different cultural conditions.

How can the tests be standardized enough for the data to be meaningful and comparable?

Ideally for us it is important to have **standardized water test results**, so the tests can be comparable. We have set up a number of trials with growers around the world (New Zealand, Australia, India, Canada, Europe, USA, South America), using various conditions and scenarios. We realize that many of the growers undertaking these trials have limited access to lab testing, however basic seed germination and crop yields can be recorded and validated, and at the end of the day- the proof is in the pudding- if you get better germination, better bio-mass, it proves it works!

A standard lab suite of tests would include:

- Analysis of the dissolved solids and their percentages: for sedimentation effect
- Alkalinity / pH: although we do not expect the pH to vary much
- Redox Potential Eh: important for determining reducing ability/environment
- Electrical Resistivity/conductivity: Very important. Could very well give us critical data we need to be ahead of the competition
- Surface tension: will give us a good idea of the imploder's effect on wetability
- Entropy: tested with a GDV
- Viscosity and surface tension
- Dissolved oxygen
- Total suspended solids: give us data on sedimentation effects
- Turbidity: gives physical results of the water
- Dissolved metals and metalloids, including heavy metals: we want to compare essential nutrients in the treated water versus the tap water
- Dissolved organics: for sedimentation effects

Notice any difference in:

- Greater yield kg
- Earlier to market/ faster maturing produce
- General health/ curb appeal of the produce

Don't bother with testing for:

- Size of produce
- Amount of pesticides
- Amount of fertilizer

Field Testing Assumptions

Problems for testing in commercial greenhouses

The typical operation has an acre of greenhouses and they are usually all connected by same water system so in order to make comparative tests the grower has to be willing to isolate a bed or a green house to do the test.

A greenhouse is 30' wide and 150' long so a hose needs to stretch that far.

As far as flow rates are concerned, they don't use high rates of flow, in drip systems 500ml/hour and more in the nutrient film system, which uses eaves troughs that slope with a tank at the end with a submersible pump. This slow flow rate is to our advantage.

As far as pricing goes, if a grower could be guaranteed a 20% better yield they would pay for that. Farming associations we have talked to have seen a grower pay $40k for a Russian Ionizer that did not make for greater yields but it did take KCl and makes active chlorine which helps the root zone problem.

What effects would make the growers more profitable with a competitive advantage?

- Greater yield (yes).
- Earlier to market (yes).
- Better curb appeal (yes).

We recommended an experiment with cucumbers in a backyard greenhouse with 10-20 plants control group and 10-20 plants with imploder water using standard nutrition. It only takes 60 days from seed to first harvest.

Growers get better prices if their produce gets to market earlier. For example, they use artificial light greenhouses and when cucumbers are ready in December the price is $25/dozen and when the Mexican cucumbers hit the market in late Dec or early January the price goes down to $8/dozen which is the average price over the year.

What not to test for:

- Larger fruits not really worth testing for as cucumbers are picked at one pound in size and tomatoes have many varieties only a few of which are big varieties like beefsteak. Better to know that once the fruit is set that it will grow fast
- Fewer pesticides – as they don't use much now, instead use bug predators for things like white flies and spider mites etc. It is important for the cells not to be too soft nor too hard. They stress the plants a little by increasing the fertilizer in order to limit water as fewer uptakes due to osmotic pressure and low light conditions because that makes the cells narrow and stronger.
- Less fertilizer not worth testing as plants need what they need to grow well.

Germination Test

Question: "Do seeds fed only Imploder water have more complete germination than seeds fed regular water?" We anticipate it will be similar to what Dr. Salvatore Giandinoto PhD did to determine a germination rate expressed as a percentage –done in our lab in the UK 2009 with remarkable results.

Total Yield Test

Question: "Do Imploder watered plants yield more produce than regular watered plants?" This would involve two plant populations, a control group that receives only regular water and a group that receives only Imploder Water. How we set up the test depends on the nature of the plants. Does a plant yield more produce if it is harvested continually for first picking to freeze up like zucchinis or does the plant yield more produce if the plant is left to develop produce the whole growing season like carrots? Options are:
The produce from each group is allowed to grow the entire growing season, and then is weighed separately. Produce cannot be allowed to "rot on the vine" however, or the produce is picked continuously from first harvest

through to the end of season and is weighed and tallied according to which group the plants belong to. (Yes, produce yield is probably the single most important thing to test for)

Time to First Harvest Test
Question: “Does produce from Imploder watered plants reach maturity sooner than regular watered plants?” This would involve two plant populations, a control group that receives only regular water and a group that receives only Imploder Water. Produce is picked on the day that it is deemed ready for market and photographed and weighed for each group. We envision a simple graph of x-axis = days versus y-axis = weight of produce picked when first ready for market.

Circulation Test
Question: “Does it make any difference to growth and productivity if the water is passed through the Imploder once or circulated for 5 minutes or 15 minutes or half hour or 1 hour? We set up a growing bed to be fed only water from each scenario Circulation time has been shown by other testing methods and trials using magnetic water to peak at about 90 minutes. Our magnets are 47 times stronger than what was used in these trials.

What is the best quick measure of how “imploded” the water is?
Surface tension measured with a tensiometer? Contact angle? Viscosity? Electrical Conductance/Resistivity? We might come up with a cumulative weighted equation for this. On the research team is Pat Flanagan as he has much experience with water research

Hose Length Test
Question: “Does Imploder water loose its growth effects when it travels through varying lengths of hose? Straight pipes? A specially designed left hand spiral coily path hose perhaps…. We assume that this will NOT make a difference.

Storage time Test
Question: “Does Imploder water loose its growth effects when stored over varying periods of time? How potent is it right after being treated, after 1 day, 2 days, and 4 days a week, 2 weeks, and a month, two months, three months? Also, in addition to this we should find out what substance the water is best stored in, i.e., wood, plastic, glass, etc.
Overall- best to deliver imploded water straight away onto seeds/plants

General Notes
- In commercial greenhouses, their economic measure is produce kg/m2 or $/m2
- Most greenhouses grow:
  Cucumbers, 1.5 plants/m2
  Tomatoes, 2.5 plansts/m2
  Lettuce
- Peppers 3.2 plants /m2 are the most major crops for hydroponic systems

- Cucumbers are a fast growing crop with 3 per years in the Northern Hemisphere:
  Dec-May
  June – August
  Sep – Nov
- Tomatoes and peppers are one large crop per year.
- January plant and harvest end Nov or early Dec
- About 500kg water through a plant to get 1 kg of dried matter -drying the whole plant fruit stems leaves and roots.
- NOTE: This could be a good way of calculating growth efficiency but it would be a lot easier to water both the control and experimental samples with exactly the same amount of water and simply measure the overall yield. Water is cheap. Simpler experiments usually yield better and more definable results.
- Growing mediums: rock wool and foam that don't hold water, and coconut fiber holds water (we used a cellulose mat easily purchased at your local nursery in our original UK experiments). Best is hydro gel
- Amount of watering depends on amount of sunlight and temp: if <14 C then plants can't take up water. Refer to basic plant biology.

References:

- Understanding Seed vigor by ISTA (International Seed testing Association) Courtesy of Wally Dalgliesh, New Zealand.
  A definition
  Seed vigor is defined as the sum of the total properties of the seed, which determine the level of activity and performance of the seed or seed lot during germination and seedling emergence

Standard form for
IMPLODER TESTER

NAME OF TESTER:

LOCATION:

TYPE OF SEED PLANTS USED:

QUANTITY OF SEEDS USED:

SIZE OF TESTING TRAYS:

DATE TESTING BEGAN:

DATE OF WATER SAMPLES TAKEN:

DATES OF PHOTOS TAKEN:

FREQUENCY of WATERING PER WEEK:

HOW MUCH WATER USED:

PSI OF WATER SUPPLY:

RECIRCULATION USED YES / NO

IF YES:
WATER STORAGE TIME AND SIZE OF CONTAINER:

GENERAL MATERIAL USED AND LENGTH OF HOSES:

Observations to keep track of include from BOTH non-treated watered plants and IMPLODER treated plants:

Germination success rate:
Measurements of plant height against dates:
How many fruiting sites per plant on given dates:
Number of fruits, total weight of fruits picked per given day:
Dry weight of each plant after harvesting and desiccation (dry biomass grams):

Other testing done: