Negative Pressure Irrigation System
by Porous Ceramic Pipe

For eco-friendly greenhouse agriculture

J-Tech Transfer and Trading
Fukuoka, Japan

http://jtechtt.com/
1. How it works?

DON'T SUPPLY WATER, LET PLANT ABSORB WATER whenever it requires.

- With making maximum use of natural gravity, surface tension, and capillary phenomenon through high quality porous ceramic pipe, Negative Pressure Irrigation System (NPIS) works without electricity.
- A proper quantity of water is automatically absorbed continuously through root in soil. (We don’t supply water, but plant absorbs water, this is why NPIS is called “negative”.)
NPIS can save 90% of water in greenhouse agriculture compared to existing surface water supply system.

Surface water supply

Negarive Pressure Irrigation

10% : 100% ⇒ 1/10
3. Easy Installation with tube and rack
4. Case Study shows “Ultra-Less Plant Disease”
(Report by GIFU Agriculture Research Institute)

[Result]
No insect gather on surface of soil due to "no water". Therefore no bacteria gathered, no plant disease (anthracnose) was detected after 35 days research.

Anthracnose check test 育苗方式と炭疽病の発病推移

<table>
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<th>Percentage Of disease</th>
<th>Days of test</th>
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<td>60</td>
<td>35</td>
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<tr>
<td>70</td>
<td>40</td>
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Surface Water supply

NPIS

頭上灌水 底面給水
5. Easy control in water supply volume

If you want to supply more water to cover wider area, you have only to move water level up in control tank.

If you want to save water to cover narrower area, you have only to move water level down in control tank.
6. Growth speed comparison in lettuce

(Report by Department of Agriculture, Saga National University)

- 1. Liquid fertilizer in normal water
- 2. Liquid fertilizer in machinery-magnetized water
- 3. Liquid fertilizer in porous ceramic pipe

![Weight of Lettuce Graph]
7. What are advantages of NPIS?

(1) Drip watering   (2) Spray watering   (3) NPIS
   Much water/2-3 times a day   Less water/20-30 times a day   sufficient water on time

Major advantages of Negative Pressure Irrigation System
① Better quality, bigger harvest, less disease, higher value
② Less waste water disposal to protect environment
③ No need of disinfection on soil
④ Can be operated without water
If you install Porous Ceramic Pipe in your greenhouse agriculture, what will be possible?

(Ⅰ) More harvest with bigger size vegetable/fruit
1. Less soil, group plantation
2. Less disease, less waste vegetable
3. Vivid vegetable, longer period in harvest

(Ⅱ) More value with high quality irrigation
1. Dry surface of soil → Less bacteria and insect
2. Easy control in water supply → Plant don’t take excessive water
3. Less evaporation, lower temperature → Less disease

(Ⅲ) Cost reduction
1. Less waste water disposal → No need to dispose waste water
2. 100% absorption of water → Less fertilizer cost
3. Prevention of disease → Less agrochemical usage
4. No weeds on soil surface → Labor saving in cutting weeds
5. Less salt accumulation → No need to remove salt accumulation
6. No electricity required → No power cost
7. Easy installation → Tube, rack, fittings are available in your country

Do you want to make your agriculture business more profitable, healthier, eco-friendly?
Thanks for reading

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