ONIONS TRANSPLANTS

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Off to the best start: Production of high quality onion plug transplants, tips for small-scale production

- Set Up
- Growth Requirements
- Timing of Seeding
- Temperature, Lighting
- Water Management

- Fertility
- Trimming plants
- Disease Issues
- Hardening off transplants
Onion Transplants

Advantages of transplanting:
- Earliness
- Uniform size and stand
- Conserves valuable seed
- May reduce pest and disease damage

Disadvantages:
- Cost
- Specialized equipment
- Labour and time
Transplants – Greenhouse

Double poly plastic
Consistent heat supply
Easy assess to good water
Ventilation and air circulation
Clean - no weeds, insects
Plants off the ground – root pruning
Transplants – Using Plugs

Plugs grown in soilless mix

Plugs provide plants with healthy compact roots

Easy to move

Plug transplants help to reduce transplant shock
Transplants – Start Up

Plug size

288s - 1 - 1\(\frac{3}{4}\)" deep

200s – bigger cell

Use good seed

Spanish Onions - 1 seed/cell

Yellow/Red Onions – 3 seeds/cell

Don’t over fill plugs - leave room for seed
Transplants – Start Up

Soilless mix

ASB, Pro Mix

Several mixes – may include peat, perlite and vermiculite

Sterile, easy to handle, uniform, fertilizer charge

Fill plugs to a uniform depth, press down soil prior to seeding
Transplants – Seeding
Transplants – Seeding
Transplants – Temperature

55-65 days to transplanting

Germination: 65 - 75°F

7 - 8 days to emerge

Ensure plugs have been watered thoroughly after seeding

Cool temperatures can delay onion emergence - uneven stands
Transplants – Heating

Growth control: DIFF method night temp 10°F warmer than day
65°F night - 55°F day
Avoids onions stretching and becoming spindly
Transplants – Lighting

Supplemental lighting - generally not required

Sunny days in early March – days are getting longer

Onions don’t require additional lighting for early development
Transplants – Watering

Avoid overwatering - can lead to damping off, poor growth, poor root development

Edges of greenhouses dry out quicker – need extra nozzles for overhead watering

Water in AM only

pH – 5.5 - 6.5 is ideal - up to 7.0 is ok

High salts in water can build up in soil, damage small onions
Transplants – Fertility

Soilless mix has a starter charge

Start 2 - 3 weeks after onions emerge

After 1st true leaf is developed
Transplants – Fertility

Dosatron® equipment

Weekly applications of 100 ppm of nitrogen

Balanced fertilizer solution

20-20-20 or 15-5-15

Lower concentration if fertilizing with every watering – 50 ppm N
Transplants – Trimming

Important to trim onions

Ensures stronger plants – stops leaves from getting too long

Easier for mechanical transplanting

Avoids onions stretching

Trim to 4″ - after 1st true leaf develops
Transplants – Trimming

Lawn mowers can be used to trim onions

Use scissors for small batches of onions

Ensure blades stay sharp

Clipping are removed off of onions

Trim on sunny days
Transplants – Trimming
Transplants – Hardening off

- Move outside one week prior to transplanting
- Can reduce transplant shock
- Slowly reduce water, fertilizer
- Cooler temperatures and environment
- Apply insecticide before planting
Transplant Onions

What should a healthy plug look like?

- 2-3 green leaves
- Actively growing
- White roots — hold plug together
Mycorrhizae
Microscopic fungi that live in root of plants
Enhance root growth
Faster plant development
Mine nutrients from the soil
Works well in greenhouse environment
Transplant Onions – What’s New

MYCORRHIZAL INOCULANT

Mycorrhizae fungi are micro-organisms that link to plant roots to create an underground network of filaments carrying water and nutrients to the roots.

- Improved plants established for an increased field population.
- More vigorous growth.
- Increased tolerance to plant damages caused by stress.
- Increased yield.
- Easy to use: the inoculant is incorporated in the seed coating.

During the summer of 2016, Norseco, in collaboration with Prisme, proceeded with a comparative treatment trial on onions in muck soil. The goal was to measure the possible increase, on a quantitative level, of onion yields treated with the addition of mycorrhizal inoculant on the seeds.

Our results:

<table>
<thead>
<tr>
<th>SOIL TYPE</th>
<th>YIELD DIFFERENCE</th>
<th>ADDITIONAL YIELD (OF BAGS/ACRE)</th>
<th>POTENTIAL OF ADDITIONAL INCOME/ACRE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good quality soil</td>
<td>↑ 0.87 %</td>
<td>15 bags</td>
<td>150$</td>
</tr>
<tr>
<td>Lesser quality soil</td>
<td>↑ 5.6 %</td>
<td>93 bags</td>
<td>930$</td>
</tr>
</tbody>
</table>

* Based on an average yield of 150 lbs/bag.
Transplants – Disease Issues

Pythium – damping off

Use treated seed – carbachliin/thiram, metalaxyl-M, azoxystrobin

2 weeks after emergence is highest risk

Allow soil to dry between watering – good air circulation

Possible chemical treatment – if registered

Onion smut – no issue with soilless mix
Transplants – Disease Issues
Transplants – Issues

Low light levels – poor growth
Wet and dry areas in the greenhouse
Plants are yellowish
Over fertilizing can build salt levels in plugs
Cold temperatures at planting – delayed planting, old plants
Old plants – prematurity bulbing
Need soil for insecticides – good plug
Onion Transplanting
Onion Transplanting
Onion Transplanting
The End Result