

PLANT PROPAGATION

PLS 3223, 3223L

PLS 5222C

Chapter 8

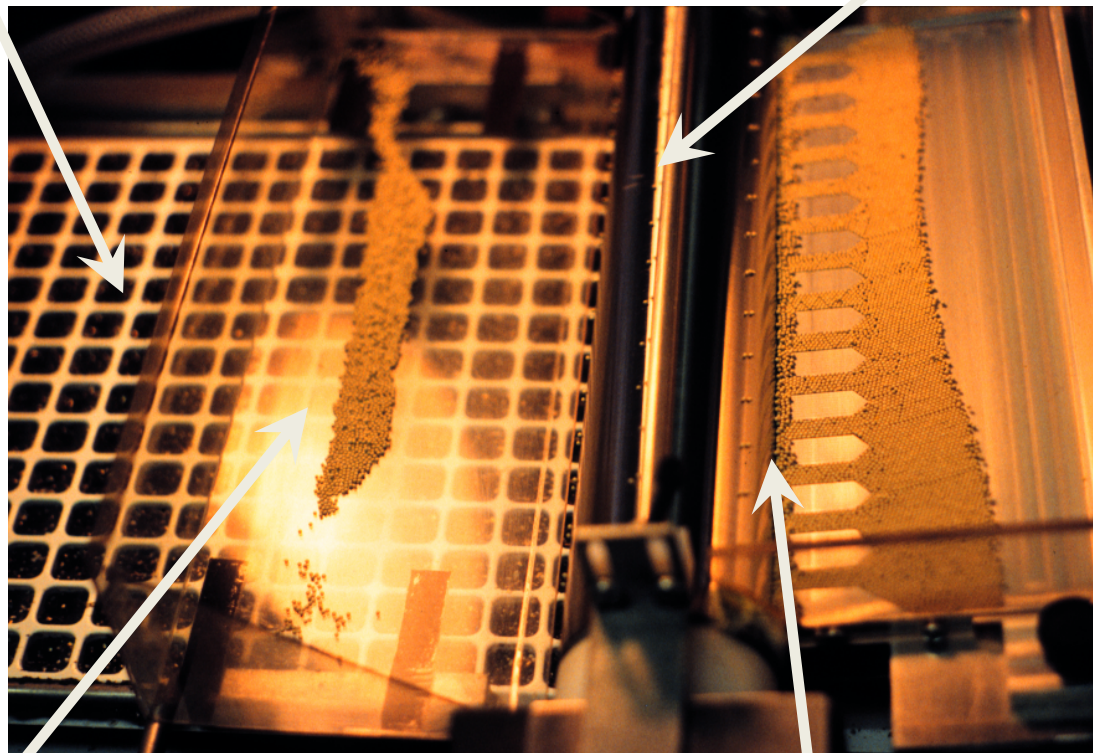
Techniques of Propagation by Seeds – Use of Plugs

What is a plug?

- A plug is
 - *a containerized transplant*

Individual cell

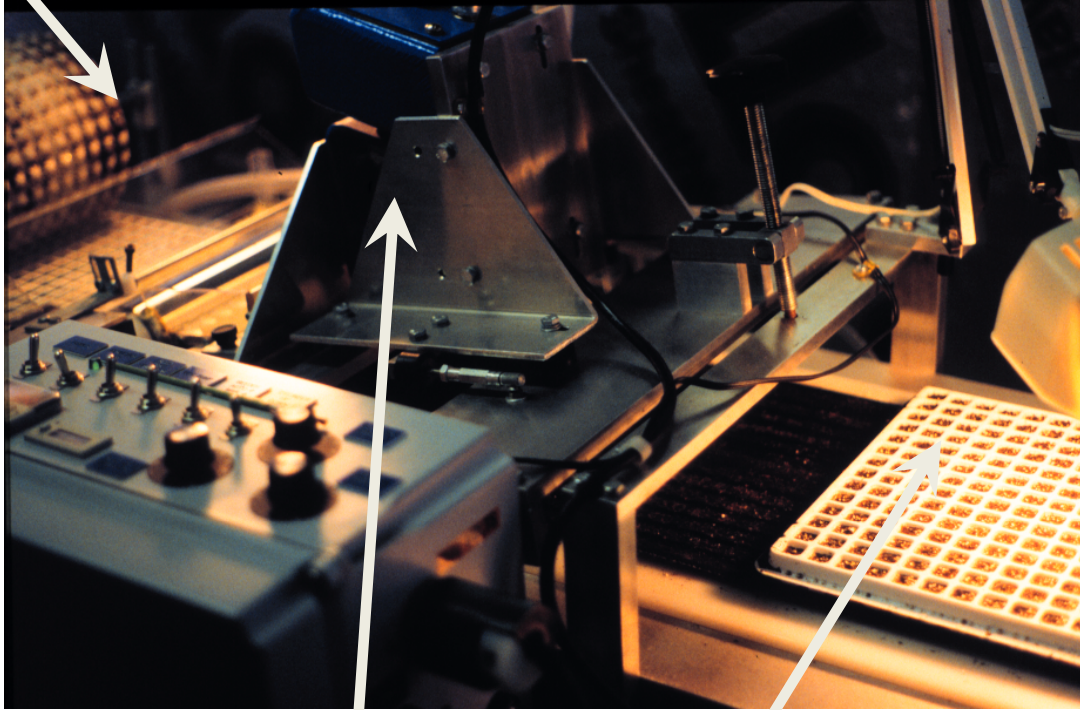
Vacuum with seed



Seed

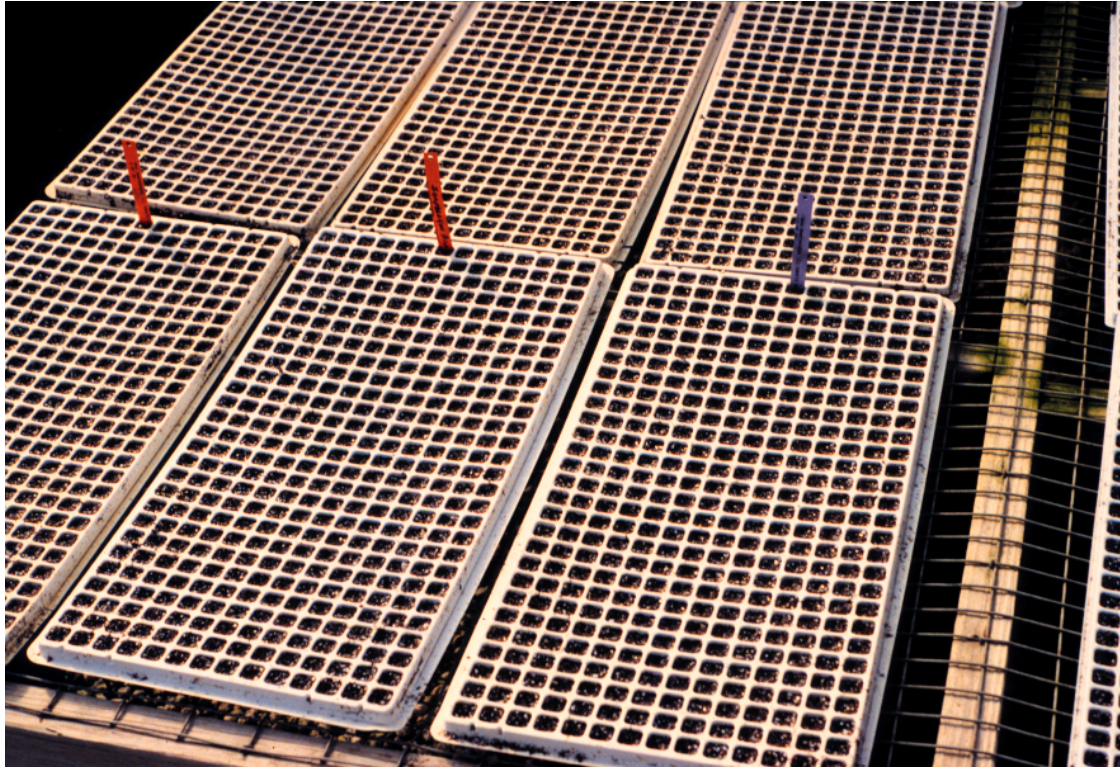
Loading seed

Dimple



Automatic seed sower

Finished flat



Seed Coatings



- Uniform shape and size
- Improve flowability
- Beneficial microbes and fungicides

Seed Enhancement

- Seed hydration
 - *Priming*
 - *Pre-germination*

Plugs

- Stage 1 – Germination
- *No fertilization; high moisture*

Plugs

- Stage 2 – Transition
- *No fertilization; high moisture*

Plugs

- Stage 3 - True leaves
- *Fertilization; moderate moisture*

Plugs

- Stage 4 - Ready for shipping, transplanting, or holding
- *Cut back fertilization and irrigation*

Plugs

- Optional Stage 5 - Holding

Nutrition and Moisture

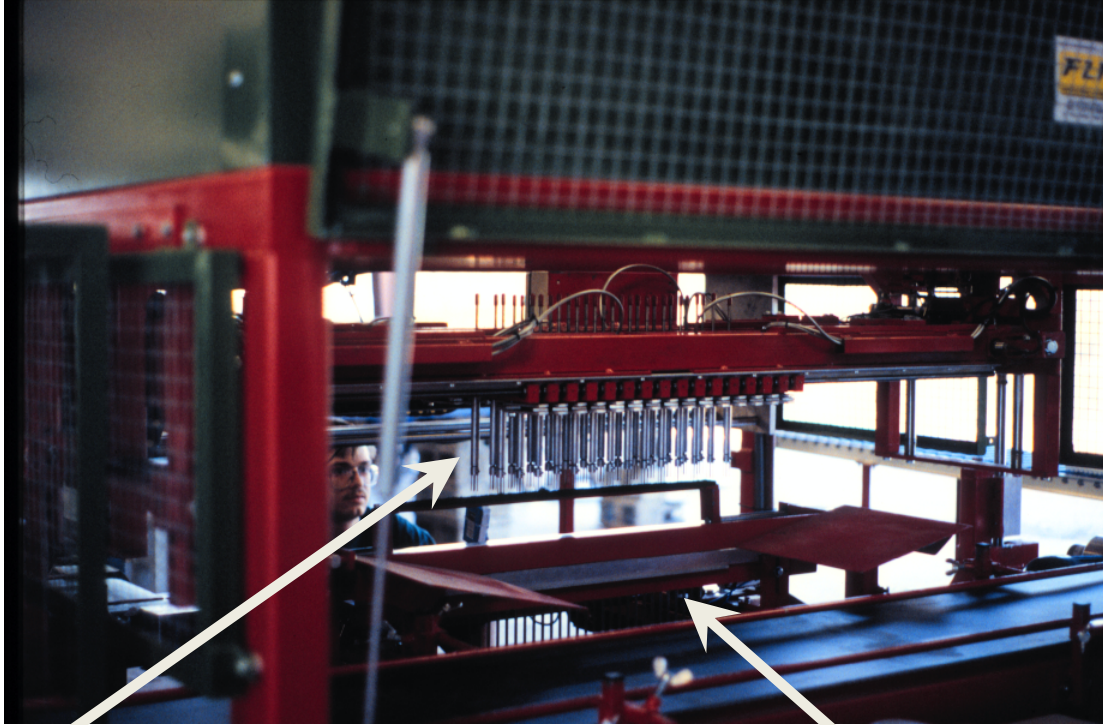
- Stage 1 – no fertilization; high moisture
- Stage 2 – no fertilization; high moisture
- Stage 3 – start fertilization
- Stage 4 – cut back fertilization and irrigation

Advantages of Plugs

- Separate root systems
- Damage to roots is minimal
- Little transplant shock
- Grow longer time before transplant
- Less spread of disease
- Easier to handle
- Automation



Automated Plug Transplanter



Prongs that grab plugs

Pins to push plugs

What makes plugs successful?

- Seed performance
 - Quality
 - Viability
 - Vigor
 - Longevity

Vigor

- *An estimate of the seed's ability to germinate when the environmental conditions are not ideal for germination*
- *High vigor seed lots have high germination percentages and uniform seedling emergence*

Tests for Vigor

- Accelerated aging
- Cold test
- Cool test
- Electrolyte leakage
- Seedling growth rate

Ball Vigor Index



Ball Vigor Index



Ball Vigor Index





3766
Germ Test 99%
Lot 37506000 0
5M SEEDS



HIGH ENERGY
IMPATIENS
DAZZLER (TM)
WHITE

Germination Tips
Soil Temperature: 75-78 F
Time: 10-18 days
Cover seed very lightly
with sowing medium.

BALL VIGOR INDEX 755
YIELD POTENTIAL 99%
COUNTRY OF ORIGIN - USA

MS1-0A

Ba

Ball Vigor Index
is redefining
the way the
industry measures
seed quality.