Use of RPM® Containerized Seedlings vs. Bareroot Seedlings

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What is RPM®

- Root Production Method
- Multi-step container production method
- Emphasizes the root system
- Primarily root volume

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Effects of RPM®

- Transform taproot into fibrous root system
- Container Size
- Air root pruning
- Timing
- Higher Survival
- Accelerated Growth rate in field
- Believed earlier maturation
RPM® Method

- Seed Selection
  - Collection
  - Processing

- Step I
  - Seeding
  - Stratification
  - Germination
  - Air Root Pruning

- Step II
  - Transplanting
  - Processing

- Step III
  - Transitioning Period
    - Misted 48 hrs.
  - Transplanting

Seed Selection

- Seed from phenotypically superior trees
- Target wetter sites
- Seed is cleaned
- Seed is graded
- Density gradient
- Weight is most important

RPM® Step I

- Seeding
  - Seed placed in bottomless mesh flat
  - Growing medium
    - 40% Composted rice hulls
    - 40% Pine bark
    - 20% Sand
  - Fertilizer
  - Micronutrients
  - Wetting Agent
  - Mycorrhizae inoculation
RPM® Step 1
- Air space is most important
- Media provides 35% air space
- Stratification via cold storage
- 1°C. (34°F.)

RPM® Step II
- Timing
  - Move out of stratification Feb. 1
- Germination
- Shallow root pruning
- Force fibrous roots higher on the root collar

RPM® Step II
- Processed
- Transplanted
  - Plastic square bottomless pot
  - Pots measure 3.75 inches
  - Shorter pot improves root distribution
- Transplants set on bottomless benches
- 60 days
- Air pruning on secondary lateral roots
RPM® Step III
- Transitioning period
- Misted 48 hrs.
- Dibble transplanted into 3 gallon squat pots

Bareroot Method
- Find seed source
- Collection
- Processing
- Planting
- Lifting
- Process
- Storage

Seed Selection
- Seed trees
- Quantity
- Ease of collection
Seed Collection
- Want large quantities
- First seed to fall is generally poor
- Pick by hand
- Collected by nets

Seed Processing
- Clean seed
- Viability tests
- Prepare seed for storage

Planting
- Plant at recommended:
  - Spacing (species specific)
  - Depth (species specific)
Lifting
- Lifter mounted on tractor
- Cut to depth
- Lift
- Store in cooler

Seedling Processing
- May separate into classes
- Process and bag

Storage
- Store:
  - Dark
  - 40°F
  - Must keep roots moist!
Conclusion

- RPM® survival has been reported at 95%
- Planted with tractor mounted auger or shovel
- Less transplant shock
- Costly shipping
- Bareroot typically shows 65 - 70% survival
- Can be planted with dibble bar
- Transplant shock
- Less costly shipping

Is RPM® The Answer

Depends on the Customer

References

Photo Credits

- Photos courtesy of:
  - Forest Keeling Nursery
  - University of Tennessee Tree Improvement Program
  - East Tennessee State Nursery

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Questions?