

# Reforestation of Mined Lands



**United States Department of Agriculture**  
Natural Resources Conservation Service



# Planting on Mined Lands

- Several techniques can work for forest and American chestnut establishment
  - Bare-root seedlings
  - Direct seeding
  - Containerized transplants

# Bare-root seedlings



# Bare-root seedlings



# Bare-root Seedlings

- Advantages

- Inexpensive
- Excellent survival
- Easy to transport and plant

- Disadvantages

- Some species do not transplant well
- Some species may not be available

# Direct Seeding



# Direct Seeding

- Advantages
  - Inexpensive
  - Relatively easy to instruct and plant
  - Good survival
- Disadvantages
  - Predation requires shelters
  - Success depends on germination

# Containerized Seedlings





# Containerized Seedlings

- Advantages

- Can be planted a bit later into the growing season
- Additional nutrients and drainage benefits seedlings
- More species may be available

- Disadvantages

- Costly
- More difficult to handle and plant

# Some things to consider

- **Problems are mostly the same as non-mined land plantings**
  - **“Three C’s”**
    - **Compaction - Excessive grading**
    - **Competition – Grasses and legumes, invasives**
    - **Consumption – Deer, elk, rodents, insects**
  - **Additional problems**
    - **Poor fertility – Many sites are initially lacking in N, C, and OM**
    - **Poor material – pH may be too high or low, too much fine material**



# Mitigating Compacted Lands

**Ripping with a bulldozer**



**Push-up method with a blade**



# Competition

- Can be as detrimental to seedling success as compaction
  - Best handled by mechanical and chemical controls



# Competition

- Keep an eye out for invasives
  - Vary by region and site
  - Can be native or non-native
  - Even if not initially present, disturbing the surface and exposing mineral soil can present opportunities for invasives to establish

# Consumption

- Animal – Deer, Elk, Rodents, Insects
  - Shelters
    - Relatively inexpensive, can save a planting
    - I don't recommend anything over 3'
  - Fencing
    - Expensive
    - Necessary for some areas
  - Repellants
    - Inexpensive, but time consuming and results vary
  - Insecticides
    - Sometimes may be required

# Poor Material or Fertility

- Low Fertility
  - Most common problems with mined lands is the lack of initial N, C, and organic matter
  - Inorganic fertilizers, mulching, biosolids
- Poor material
  - May just take time to weather, other remedies can be costly
  - Proper species selection can be key