

Survival Enhancing Products

In 1994, the Natural Resources Conservation Service, Colorado State Forest Service and Colorado State extension installed a tree planting demonstration site at the Southwestern Colorado Research Center in Northern Montezuma County. They wanted to look at how tree plantings responded to different planting conditions. They chose drought tolerant tree and shrub species well suited to the area. Including caragana, cotoneaster, lilac, native plum, sumac and rose for the shrubs and Rocky Mountain juniper, Eastern red cedar and Austrian pine for the trees.

The planting regimes were initially broken in to two main categories – dryland and irrigated. Half were irrigated with a drip system and the other half were watered at planting and again three weeks later. After that, no more supplemental water was given, but all the dryland plantings had water absorbing polymer granules incorporated into the backfill. All plots received fertilizer tablets and some form of rodent protection. Evergreens were shaded with aspen shakes or corrugated tree protectors.

Across both watering regimes, different survival enhancers and growth promoters were installed: fabric weed barrier, corrugated tree protectors or nothing at all. All plots without the weed barrier were rototilled and kept weed free approximately 3 feet on either side of the plant.

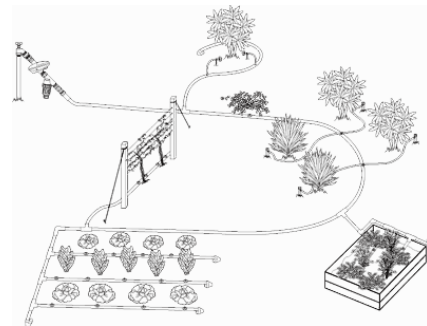
Between April of 1994 and October of 1995, changes in height and diameter were measured annually to compare growth. Seedling survival was also evaluated. The most influential factor affecting survival was control of vegetative competition around each plant. Growth rates were influenced more by water application than any other factor. As expected, trunk diameters were higher on the irrigated plots than the dryland plots.

DRIP IRRIGATION

Drip irrigation entails applying water at a very slow rate to individual trees and shrubs.

Advantages:

- High tree survival rates
- Easy installation
- Costly irrigation time eliminated
- Low irrigation system maintenance
- Relatively small amount of water needed
- Uniform water distribution
- Low evaporation loss



POLYMERS

Synthetic water-absorbent products that increase long-term water availability. When mixed with water, Hydrosorce granules form a gel with a bead-like appearance. It is mixed in with the backfill soil. Hydrosorce particles create a slurry when mixed with water. Bare-root seedlings are dipped in this slurry before planting.

Advantages:

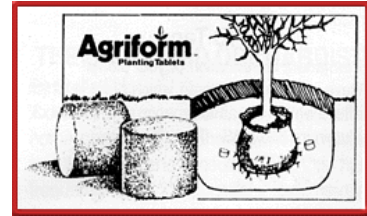
- Increases available water to roots
- Increases aeration in clay soils

FERTILIZER TABLETS

Provides a 2-year supply of major nutrients (20-10-5) which are gradually released by the action of soil bacteria.

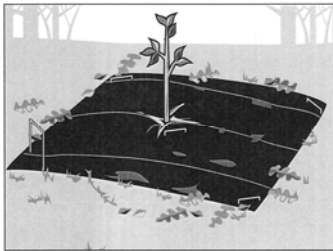
Advantages:

- Ease of use
- Efficient
- Versatile



WEED BARRIER/FABRIC MULCH

Woven polypropylene fabric put down around a seedling to reduce vegetative competition and increase soil moisture.



Advantages:

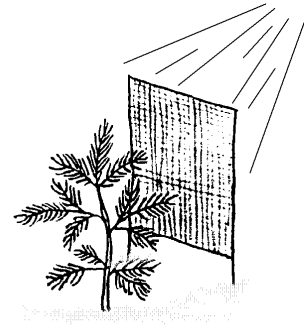
- Allows for water permeability
- Low maintenance
- Conserves moisture
- Reduces/eliminates vegetative competition

SHADE & WIND PROTECTION

Plants vary in tolerance to direct sun, conifers especially benefit from shade. Commercial products are available as well as reusing objects such as wood shingles, stumps or logs.

Advantages:

- Protection from intense sun & desiccating winds



WILDLIFE PROTECTION

Fencing is the most effective way to protect seedlings from wildlife. Mesh guards provide protection while the seedlings are small. They are held in place with a 3 foot bamboo stake and biodegrade after 3-5 years. Repellents such as Plantskydd repel animals by emitting an odor that browsing animals associate with predator activity.

Advantages:

- Mesh guards can be effective against rodents as well as browsers.

