

Imprinting is done with a heavy roller that first places inoculum below ground, then presses seed into a pattern of small watershed divots. The divots are about one per square foot in area. These trap water and allow infiltration, even if a crust has formed on the soil. The imprints also promote air exchange between the soil and the atmosphere. The important step is the pressing of the pattern into the soil. Other methods of forming a pattern depend on roughening the surface or just scooping soil out of scattered pits, but these treatments, although an improvement over no surface action, usually result in the soil melting into a smooth crusted pile in the first serious rain. (R.Riefner, et al, 1998)

Imprinting with mycorrhizal inoculum works well in restoring ecosystems because a key component, the network of mycorrhizal fungi in the soil, links the roots of plants, even of different species. In a functional ecosystem, the above ground plants photosynthesize, reproduce and feed herbivores, but the remainder of functions occur below ground. The network absorbs nutrients, holds soil into aggregates and favors important groups of soil bacteria and free-living fungi. Inoculating new seedlings allows them to establish a place in the plant community. The network dominates both microbial and plant ecology and can make the difference between an ecosystem and a weed patch. (R.Riefner, et al, 1998)

Successful restoration requires the re-establishment of this network and must occur in a carefully planned succession of events. Mycorrhizal inoculum must go into the ground at the right depth, followed quickly by germination of the right set of mycorrhizal host plants. Without the host plants, the fungi quickly can die and host plants without mycorrhizal fungi languish while exotic weeds retake the site. Fungi must be waiting below ground for the roots of the new seedlings.

The land imprinting is accomplished by a machine modified to place mycorrhizal inoculum and seed into the divots that are created. Methods suggested for successful imprinting include the following considerations:

1. Soil is moist enough for imprints, but not muddy. Soil that is too hard will not imprint.
2. Imprinter must have good contact with the soil. Imprinting can be done over dead mulch or cut weeds, but not over green vegetation.
3. Select seed that includes mycorrhizal net-builders. Select species that will germinate early and grow as quickly as exotics. Select some fall natives as well.
4. Place mycorrhizal inoculum into the root zone.
5. Utilize island plantings with closely space mycorrhizal plants.
6. Never fertilize soil that has a high load of weed seeds. Flail-mowing done in the fall leaves a decaying thatch that helps to deplete nitrogen from the soil. In addition, the thatch helps to form safe sites for seed germination.
7. Herbicide treatments may be done prior to or immediately after imprinting for exotic control, if necessary.

(R.Riefner, et al, 1998)