

RootMaker® RootCaps®
A Practical Way to Save Water and Minimize use of Herbicides.

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Two major problems with growing plants in containers are water management and excessive water loss and weeds. Because of the way water is retained in a container, there is always more moisture in the bottom and very little at the top. This results in few or no roots in the top 15 to 20% of the volume of growth medium. This is growth medium purchased, installed and maintained but that is not productive in terms of supporting plant growth (Figure 1). Like mulch in a landscape, by shading the surface of the growth medium and creating a coarse textured barrier that minimizes upward movement of moisture, water loss due to evaporation is reduced 30% or more. By contrast, a surface weed barrier or disk material that is finer textured than the growth medium may actually increase water loss.



Figure 1. Because of high water loss and drying of the surface, there are typically few or no roots in the top 15 to 20% of the container volume. RootMaker® containers (left) stimulate root branching and stop root circling and typically have roots closer to the surface, compared to conventional containers (right), however there remains a zone absent roots.

In addition to conserving significant quantities of water, RootMaker® RootCaps® effectively reduce weeds without the use of herbicides. Nearly all weed seed require light to germinate; therefore excluding light from surface of the container growth medium reduces weeds. RootCaps® are made of short pieces of coarse recycled synthetic fibers that have a long life and like all plastics have a ‘memory’. When RootCaps® are placed on surface of a container; they spring back into their original shape giving cover over the container surface. Because the surface of the growth medium is shaded and insulated by the RootCaps®, roots grow in the moist upper growth medium that is typically void of roots (Figures 2 and 3).



Figure 2. Note the fine roots growing into and holding the RootCap® in place.



Figure 3. The catalpa tree on the left was grown without a RootCap® and mix had to be brushed away to observe white roots. However, when a RootCap® was in place during production of the tree at right, many fibrous roots were present at the surface and utilizing a greater portion of the container volume which contributed to increase growth.

If weed problems are severe, typically one application of herbicide either just before or just after instillation of RootCaps® can provide season long control. Greater herbicide longevity is the result of protecting the chemical from UV degradation plus cooler temperatures which reduce volatility. RootMaker® RootCaps® come in an assortment of sizes and even fit 30 gallon containers or larger (Figure 4). To install RootCaps® simply flex the unit open to expose the center, place around the stem of the plant and press in place. RootCaps® are sufficiently heavy that they stay in place even in most winds. In windy locations such as here in Oklahoma, with 30 gallon size containers or larger, after installing the Root-

RootCaps® we staple the edge to the container at about six locations using a Arrow P-35 stapler.



Figure 4. On larger containers and where mix is filled to the surface, securing the edge of the RootCap® to the container wall keeps the weed and water conserving protection in place.

Container surface disks made from organic fibers can wick moisture to the surface and become covered with algae. With some of the units I have tested, the algae can become sufficiently hard and crusted as to restrict water entrance, yet increase water loss to evaporation (Figure 5). Because RootCaps® are made from coarse synthetic fibers, algae does not become a problem.



Figure 5. When weed disks are made of organic materials or with dense fibers, water moves from the growth medium to the disk, accelerating water loss. In addition, when the disk remains moist, algae growth is likely to be a problem.

RootCaps® are so effective at restricting water loss and improving the environment for root growth at the surface of the growth medium that often roots grow into the base of the RootCaps® further securing them in place. In some cases, sufficient root growth into the RootCaps® is noticeable when the cap is removed. Not a problem. Simply leave the RootCap® on the root ball at time of planting and allow it to continue to work. Because RootCaps® are

made from short fibers, as roots grow the fibers will separate and no root restriction occurs.

Advantages:

- Reduce herbicide use -- can be a substantial savings.
- Reduce or eliminate chance of herbicide injury.
- Reduce or eliminate herbicide runoff.
- Reduce weeds without chemicals.
- Reduce root zone temperature
- Reduce water evaporation from surface.
- Reduce algae growth on surface.
- Increase plant growth.
- Increase water use efficiency.
- Increase root growth in upper 20% of growth medium.
- Increase fertilizer use efficiency.
- Neat in appearance.
- Reusable.
- Save Money.

For information on other RootMaker® products please visit www.rootmaker.com.