How often should you Water Your Raised Bed Cloche?

In 2008, OSU Extension produced a publication entitled "How to Build Your Own Raised-Bed Cloche" that has gained popularity among gardeners along the coast for promoting early starting of vegetables. This color publication is free online at http://extension.oregonstate.edu/catalog/pdf/ec/ec1627-e.pdf. A cloche looks like a mini-greenhouse with a plastic that helps warm plants in a raised bed (see photo).

As more people adopt this technology, there is one question that has not been answered – how often should the plants in the cloche be watered? With this question in mind, OSU Extension approached The Siletz Tribal Charitable Contribution Fund with a proposal to study water usage in a cloche. The proposal was funded in 2010 and this article summarizes findings from the study.

A group of OSU Master Gardeners volunteered to raise beans (Derby bush beans) using a section of their cloche (3ft by 4 ft) and water the beans using different cycles. The cycles were every 4 days, every 7 days and every 14 days. Each watering cycle used about 55 gallons of water using a soaker hose that delivered enough water to wet the whole 10-inch soil profile in the raised bed. They were asked not to alter any of their day-to-day management on how they used the cloche. The following table shows pounds of produce and amount of water used at the end of the season:

Approx. Distance from Ocean	Watering Cycle	Harvest lbs/12 ft^2	Harvest Tons/acre	Sun Exposure	Gallons of Water Applied/12 ft^2
2 blocks	4 days	1.8	3.3	Half day	1,100
6 blocks	4 days	1.5	2.7	Half day	935
1 mile	7 days	1.8	3.3	full day	550
7 miles	7 days	10.8	19.6	full day	660
2 miles	14 days	1.62	2.9	half day	385
1 mile	14 days	7.5	13.6	full day	385

From these results, three things stand out: 1) watering very often does not translate to more produce, 2) full day exposure helps translate your watering into plant growth and more produce and 3) you can save upwards of 60% on your water bill if you water once in 10-14 day cycles rather than every 4 days and still get good yields. The further inland you live, away from the coast, the better your chances of converting water applied to higher yields. Of course, vegetables do not use water equally. Leafy vegetables may use more water especially if your cloche is open for longer times during warmer days. Still our recommendation will be to water more deeply and less often at minimum once every week.

In summary, what this study has shown is that we can conserve water especially in summer when we do not have lots of water but still maintain our healthy lifestyle of engaging in vegetable production especially if we use a cloche. If each gardener with a cloche were to change their watering habits this way, there is potential to save nearly half of the water we currently use.