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Cycled Irrigation Improves Irrigation Efficiency

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Cycled irrigation is a practice where irrigation cycles water container blocks in short intervals several times during the day. This practice can improve irrigation efficiency. Rather than applying irrigation to each growing block in one hour long interval, cycled irrigation practices apply water in short cycles, possibly 15 minutes long,. After a short cycle, an automated controller would turn water on for another growing block and cycles irrigation through the nursery before irrigating the first block again. Between irrigation cycles, water that has entered the pot forms a wetting front after the irrigation shuts off. This wetting front may be at three or four inches depth in the container. Water then moves laterally above and along the wetting front and has time to seep into organic particles and move between and over the surface of substrate particles. A better wetting of the substrate occurs. When irrigation begins again possibly an hour or two later, water enters the container, the wetting front is pushed deeper into the pot. When irrigation stops, the capillary movement of water between substrate particles occurs again. Ideally, the last cycle pushes the wetting front just to the bottom of the container with minimal leaching. Many growers using cycled irrigation apply 3 to 5 irrigation cycles throughout the day. Irrigation efficiency is improved in three ways. First of all better wetting occurs in the container. Secondly, single irrigation cycles tend to push water all the way through the pot with little lateral water movement and considerable channeling. Dry areas often can be observed in containers recently irrigated. The third efficiency has to be experienced by the grower. If irrigation volume applied was measured and compared between cycled irrigation and one standard cycle, growers have verified that up to 25% less water volume is required. Irrigation is stopped when water begins to leave the pot on the last irrigation cycle. With thorough wetting in the container and limited leaching, water supplies are conserved, less runoff from containers occurs, less pump time and electricity is consumed and less fertilizer runs out of the pot. Money is saved! Better irrigation makes healthier

happier plants.

The down side to cycle irrigating is that irrigation distribution needs to be fairly uniform within each block. If distribution is not uniform, plants in drier areas of the block may show moisture stress symptoms within a few days.

Research at N.C. State over the last two years has shown that when irrigation cycles are extended into the afternoon or early evening, plants grow larger than if cycle irrigated in early morning only. Water use is more efficient with afternoon irrigations as well. We observed that less water runs out of pots with afternoon irrigations.