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Alfalfa Irrigation – Know when the water arrives near the tail edge of a field through a cellular text message

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Figure 1 shows a wetting front sensing and wireless communication system that can detect the wetting front arrival at a desired position in a check and generate a cellular text message and alert the irrigator when the water supply needs to be cutoff so that the tail drainage can be minimized in surface irrigated crops. The system consists of simple contact type wetting front sensing devices (sensor poles) that are capable of communicating with a central module using wireless technology. The central module can monitor several wetting front sensing units located within a radius of 0.5 mile and generate a cellular text message to alert the irrigator that the water has arrived in a specific check at the desired location. Note that this system depends on irrigator's judgment to cut the water off at the right time (i.e., irrigator puts the wireless contact type sensor at a location in the check which s/he feels is the most appropriate based on prior experience).

It should be noted that a more advanced system that monitors the wetting front advance rate and decides when the irrigator should cut off irrigation water would require three sensors per check to monitor the wetting front advance rate. In addition, it would also require information on the inflow rate and water depth in the check. Such a system completely eliminates irrigator's judgment on the cutoff distance from tail edge of the check.

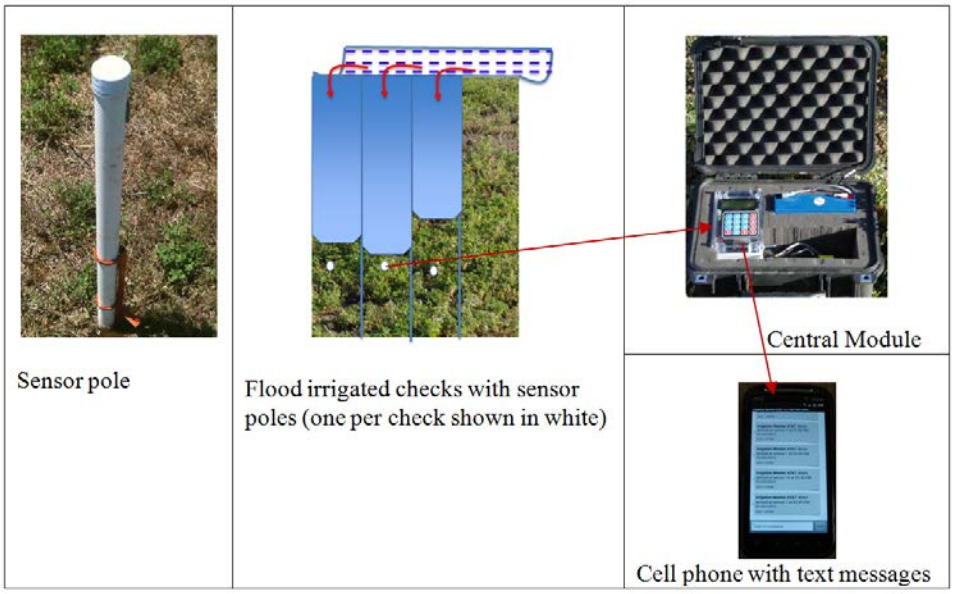

Figure 1. Components of the wetting front monitoring and wireless communication system.

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