

**Weekly Ag Report**  
**Tom Getts, Weed and Cropping Systems Farm Advisor**  
**March 14, 2018**

Morning this is Tom Getts with your Weekly Ag Report.

Thankfully we have gotten a little bit of moisture out of the past couple systems, hopefully it continues to come! As this is gearing up to be a tight water year, I just wanted to share a bit of information about LESA irrigation packages.

Many people in the Intermountain Region who used to rely on wheel lines for irrigation have made the switch to center pivots. Center pivots, while expensive, can run at lower pressures than wheel lines, and can often give better irrigation uniformity. Another advantage of center pivots is that they do not need to be moved in the middle of the night, as can be the case utilizing 12 hour sets with wheel lines. Not to say pivots do not have their fair share of problems. Many center pivot users can have problems with the wheel tracks filling up with water, ruts forming, and pivots getting stuck. Which can certainly be a bear to deal with.

When center pivots first hit the market, they were similar to wheel lines, and operated high pressure impact sprinklers on top of the pipes. The water that was being applied needed to fall great distances to the ground, with large amounts of evaporation occurring. After a while people realized that lowering nozzles on drops from the top of the center pivot pipe to about 4 feet above the ground greatly helped reduce the amount of evaporation. Lowering the sprinklers also lowered the operating pressure of the machine. Most people today have these mid-elevation sprinkler packages installed on their pivots.

In recent years, Troy Peters from Washington State University and Steve Orloff with UC Cooperative Extension have been doing research on LESA sprinkler packages. LESA stands for low energy spray application. The idea with these sprinkler packages is to lower the nozzles even closer to the ground, down to approximately 18 inches. This can further help reduce evaporation and interception during the irrigation. Because the nozzles are so low to the ground, in order to keep irrigation, more nozzles need to be installed closer together. On most older machines with nozzles 4 feet above the ground there is a drop every 60 to 90 inches. In a LESA system there needs to be a nozzle every 30 to 40 inches. Older machines can be retrofitted with goose necks to increase the number of drops needed for a LESA system. As there are more nozzles, each one doesn't need to spray the water as far, and the pivots can be operated at even lower pressures, further reducing pumping costs. The research also shows that using the LESA irrigation packages can increase irrigation efficiency, as less evaporation occurs and more water get can to the soil.

However, it is not for everyone. LESA sprinkler packages can be problematic on heavy soils, or on steep slopes as the nozzles lead to an increase in erosion potential, or ponding. And with smaller nozzle sizes, there is an increased risk of clogging the tips.

If you need new nozzles for your pivot, or if you are looking to potentially reduce your operating pressure, a LESA sprinkler package could be worth looking into. I will post some links with more information about LESA systems to the posting for this Weekly Ag Report on the Lassen County Cooperative Extension website:

<http://irrigation.wsu.edu/Content/Fact-Sheets/LEPA-LESA%20Short%20Handout.pdf>

<http://alfalfa.ucdavis.edu/+symposium/2016/PDFfiles/6%20Peters%20Troy.pdf>