

University of Nebraska–Lincoln engineers have developed an online spreadsheet to help irrigators evaluate their pumping plant efficiency, said a UNL irrigation specialist at a recent extension workshop.

Using this new tool, developed by Tom Dorn, Lancaster County Extension Educator, irrigators can calculate the amount of money they could save by improving the efficiency of their system, said Bill Kranz, irrigation specialist at the UNL's Haskell Agricultural Laboratory.

The first step is to determine whether a pumping plant uses more energy than the Nebraska pumping plant performance criteria suggest it should. That's done by entering data from your irrigation records into the UNL online spreadsheet.

Factors that enter into energy use include the depth of the well, required pressure at the pump outlet and gallons per minute. Irrigators will be asked the energy type and price per unit, water meter readings, pumping water level, pressure at the discharge head and total energy used during the test period.

Instructions will help users navigate the spreadsheet to determine their own plant's efficiency and the amount of money they could save if the pumping plant were operating up to Nebraska performance standards.

With that information, irrigators can calculate how much they can afford to spend, based upon the interest rate available.

When considering inefficiencies in the system, irrigators should look at the whole system, including the pump, gearhead, PTO shaft and power unit, Kranz said. Inadequacies in any part of that system can increase energy use.

While it's costly to pull a pump, sometimes the cost of unneeded energy is quite high, too, Kranz said.

The spreadsheet is available at http://lancaster.unl.edu/ag/crops/Long_Term_Pump.xls.

Those who do not have Internet access should contact their local extension office to get in touch with one of UNL's agricultural or biological systems engineers across the state.

In the 20 counties of the West Central District, Water Resources/Irrigation Engineer Simon van Donk will help irrigators make these calculations. Van Donk can be reached at (308) 696-6709.