

# IRRIGATION NEWS

## Growers Seek Solutions for Metal Thefts

Nothing is worse or more frustrating than discovering that something that you own has been stolen. When that something is required to maintain your livelihood, the consequences can be disastrous.

Copper thefts are not only a local problem; they are rapidly increasing both nationally and globally. Thieves are targeting everything from the copper wires in street lights, telephone lines, cellular towers and new construction, to electrical substations and gas and water lines. Some have even cut the copper out of air conditioners and the wind turbines in Altamont Pass. With prices at \$3.50 per pound, heavy gauge copper wire can bring a quick return at the recycler.



Figure 1. An example of pump company built wire protection.

While copper is the focus of this article, other metals (brass, aluminum e.g.) have been targeted as well. A favorite target is irrigation pumps, as they are usually located in remote locations where thieves can slip in and out unobserved. While the amount of wire taken is generally low, the damage caused by the theft

and the delay caused by the repair process can potentially ruin a crop. A theft of \$100 of wire can run several thousands in repair costs.

So how does a grower prevent or minimize the risks? Several methods are available.

**GATES:** Access control generally works well, although a determined thief will bypass gates and walk to the pump. Also, access through a neighbor's property exposes your well to potential action.



Figure 2. An example of grower-built wire protection.

**CAGES:** These can be expensive to purchase and setup but provide

good security. They would need to be dismantled for repairs. Many also require a concrete pad, which is an added expense. The cage is only as good as the lock on the door, which can be defeated given enough time. Anyone who has lost agricultural materials from a storage shed knows just how easy it is to defeat a lock with bolt cutters.

**LIGHTS:** This option is good for areas that can be observed from a home or other structure. There is the added cost of light installation/operation, plus it acts as a beacon for pests as well as thieves.

**PATROLS:** This option can be expensive if outside security is hired, or if you normally do not have employees working nights. The approach of a vehicle will scare off some thieves, but once the patrol has left, they will likely return. It is also important to recognize the motivation of the thief, and the potential that such people may be violent.

- continued on back -

## Regional Board Opens Up Coalition Membership

The Regional Water Resources Control Board (Regional Board) has created an "open enrollment" period for those growers that want to become members of their local Coalition and failed to do so prior to December 31, 2006. Those growers that elect to become members will not be assessed a late fee (amount yet to be determined) by the Regional Board. Failure to enroll now may jeopardize your ability to become a member of a Coalition in the future. The deadline under this program is June 30, 2008.

Those who should enroll as members are landowners with irrigated parcels adjacent to surface water bodies, where the possibility of irrigation or stormwater discharges into that water body exists. Failure to become a member could lead to significant administrative fines if discharges of contaminated water are traced back to your parcel.

For additional information or inquiries, you may contact the Kings River Sub-Watershed Authority at (559) 476-0539.

# Growers Seek Solutions *continued*

**PASSIVE PROTECTION:** This is where many growers have become quite innovative. Some growers who have been hit several times have additional protection built around the motor by their pump company, or have constructed protection out of miscellaneous materials.

An example of purpose-built protection is shown in figure 1. This box is built from steel plate, welded and painted for a neat appearance, and is anchored to the concrete at the top of the well casing. Based on the bolt pattern, it is a one-way installation; the box would have to be cut off at the “dog-ears” to remove the unit and access the pump motor.



Figure 3. Junction box protection.

The drawback is the increased cost of a repair, since this would need to be removed and replaced, but it does provide excellent protection.

Other growers have put together protective shields over the wire conduit using old steel pipe, cut and welded in such a way as to surround the conduit, yet make it possible to access it later by simply cutting at strategic points. Such structures would be next to impossible to defeat given the thickness of the material, and are very cheap since the pipe is not likely usable for any other purpose. Examples of this are shown in figures 2 and 3. Figure 3 shows that the grower remembered to protect where the wires exit the junction box and goes underground to the pump motor.

These systems function in two ways. First, access to the wires is denied, unless the thief is very determined. Second, it takes a considerable amount of time to defeat these measures, and time is not the thief’s friend. The longer it takes, the greater the risk of discovery before the act is completed. No method is fool-proof, but deterrence can be an effective way to combat wire theft.

## New Means of Nitrate Runoff Control?

Recently published research from the University of Illinois has suggested that the creation of “bioreactors” can effectively remove nitrates from tailwater. The design, according to agricultural engineer Richard Cooke, “doesn’t restrict drainage, requires little maintenance, and does not remove cropland from production.”

The bioreactor is basically a trench filled with woodchips. Tailwater enters the ditch, and the action of bacteria feeding on the woodchips removes the nitrates from the water. The woodchips have a very low carbon to nitrogen ratio (lots of carbon, little nitrogen), so the available nitrogen is eagerly removed from the water by the bacteria.

Excess nitrogen encourages rapid growth of algae, which removes dissolved oxygen from the water, thus harming other species within the water body. Anaerobic microbes convert the nitrates to nitrogen gas, which then vents harmlessly to the atmosphere. Water within the trench percolates into the surrounding soil, recharging local

groundwater. Excess water is allowed to exit at the lower end of the trench.

A demonstration project had a trench 6 feet deep, 30 inches wide, and 155 feet long filled with 75 cubic yards of woodchips. It is estimated that this trench serviced 27 acres, and denitrification took about 5 hours. According to Cooke, “about 60 percent of the nitrate is removed from the tailwater under normal drainage conditions.”

The article did not specify the amount of nitrate in the water to begin with, or the amount at the drain. An active system where the woodchips are in the process of decomposition may also work to intercept and bind other agricultural chemicals that are prone to leaching or runoff, especially during the winter rainy season.

The original article can be found at: [www.cornandsoybeandigest.com/ag-issues/soybean-nitrate-neutralizer-0301/index.html](http://www.cornandsoybeandigest.com/ag-issues/soybean-nitrate-neutralizer-0301/index.html).

**Is your contact information accurate?**

**Please update us by phone at 559-237-5567 or e-mail at: [comments@krcd.org](mailto:comments@krcd.org)**

# KRCD

**Kings River Conservation District**

Reprint freely with credit to:

*Kings River Irrigation News,*

a bimonthly publication of the  
Kings River Conservation District

For more information, contact Eric Athorp

(559) 237-5567 ext 117

[www.krcd.org](http://www.krcd.org)

Kings River Conservation District  
4886 E. Jensen Avenue  
Fresno, CA 93725

**RETURN SERVICE REQUESTED**

Nonprofit Org.  
U.S. Postage  
**PAID**  
Fresno, CA 93706  
Permit # 1687