



solar irrigation for a remote orchard site

Posted by [seth.jones](#)

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[seth.jones](#)

[solar irrigation for a remote orchard site](#)

April 02, 2017 04:15PM

Hello all

Wondering if anyone has experience with affordable solar irrigation systems. We're putting in a 2.5 acre second orchard starting this spring. G.222, G.935 on tight grid (adding Bud118 next year) and want to drip irrigate for a couple years. We dont have electric at the site. It's on a gradual slope so will probably need enough pressure to push the water uphill slightly.

Recommendations and warnings are welcome. The water source will either be a shallow collection pond, if possible or we'll have to use IBCs filled at our main pond and pulled across the road on a trailer to start. Hope to have a system in place by mid June. Help.

Thanks

Seth Jones

East Hollow Cider

Petersburgh, NY

Cider From Here

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[Claude Jolicoeur](#)

[Re: solar irrigation for a remote orchard site](#)

April 02, 2017 08:09PM

Why need for solar?

If I follow you well, your orchard is on a slope, and you are already considering using IBCs that would be pulled at the site of the orchard.

Then, following this reasoning, I would bring the IBCs at the highest point, and the water would then simply flow by gravity.

Claude

Registered: 7 years ago

Posts: 12

Registered: 11 years ago

Posts: 226

[Jolicoeur Orchard](#)

Zone 4 in Quebec

Author, [The New Cider Maker's Handbook](#)

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[seth.jones](#)

[Re: solar irrigation for a remote orchard site](#)

April 02, 2017 08:34PM

Thanks Claude

Hmm. Could be I am asking the wrong question. Would a gravity fed irrigation system across a gradual slope have enough pressure for the emitters (or holes) to drip at an adequate rate? My experience is on level ground and without back pressure the flow is very reduced. It would sure be simpler if it would! Anyone done this?

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[David Maxwell](#)

[Re: solar irrigation for a remote orchard site](#)

April 02, 2017 09:14PM

I have no experience with large-scale applications like this, but perhaps my own experience with moving water in a solar greenhouse is germane. (This may get complicated... I learned a lot of lessons along the way.) 12 volt pumps (designed for solar) are remarkably efficient in terms of the amount of water they can move with only relatively small inputs of energy from a P-V panel. (My little setup will easily pump 10 l/min, using just a 90Watt P-V panel, which cost me \$150). You will have to do your own arithmetic to determine how much water you need to move, and hence how big a pump and how big a panel you need, but on the whole, I think it is entirely economically feasible to pump water from A to B using a solar panel. What is not nearly so feasible is seeking to run the system continuously, rather than only when the sun shines, (or more accurately, only when there is an adequate amount of light - it will work even in cloudy-bright weather). This requires battery storage, and that costs easily twice as much as the P-V panel itself. Personally, the way I would approach this would be to install a storage tank at a high point in the orchard, and plan on pumping the total amount of water you need, during sunny periods, and allowing gravity trickle irrigation to distribute the water over time. (ie. forget about trying to store solar energy in battery banks - store the energy in the pumped water itself).

Registered: 11 years ago

Posts: 197

There were some wrinkles I learned in the course of my own installation. My panel was labelled "12 Volt, 90 Watt". Seems pretty straight-forward. Except that a "12 Volt" panel does not actually put out 12 Volts - it puts out as much as 22.5 volts in full sun. The "12 Volt" rating means it will charge a bank of 12 Volt batteries, (which actually requires a minimum of 14.2 volts). If you connect something designed simply to run on 12 volts, you will fry it. (Took less than 60 seconds in my case). This caveat does not extend to appliances specifically designed for direct connection to solar panels, (which may actually tolerate as high as 24 volts without complaint, but will still operate down to below 12 volts). Or, the alternative is to insert a "voltage regulator" into the circuit - a simple black box, available on eBay for very small amounts of money, which will adjust the input to

put out a standard 12 volts., (and actually cut off the load if the voltage falls too low).

It is probably important to note that I was not assembling my system from "official" components purchased from fancy solar equipment vendors. Most of the bits came from China, purchased over eBay, mostly at prices less than \$20 apiece. But once I cottoned on to the points where things could go wrong, my cheap kludged system works entirely satisfactorily.

[Broomholm Orchard](#)

Zone 5b in Nova Scotia

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[Chris Vlitaz](#)

[Re: solar irrigation for a remote orchard site](#)

April 04, 2017 07:30PM

Edited for brevity

Registered: 10 years ago

Posts: 47

Edited 1 time(s). Last edit at 09/30/2022 05:43PM by Chris Vlitaz.

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