

Solar Tents – A New Twist on an Established Method for Inactivating Plant Propagative Material

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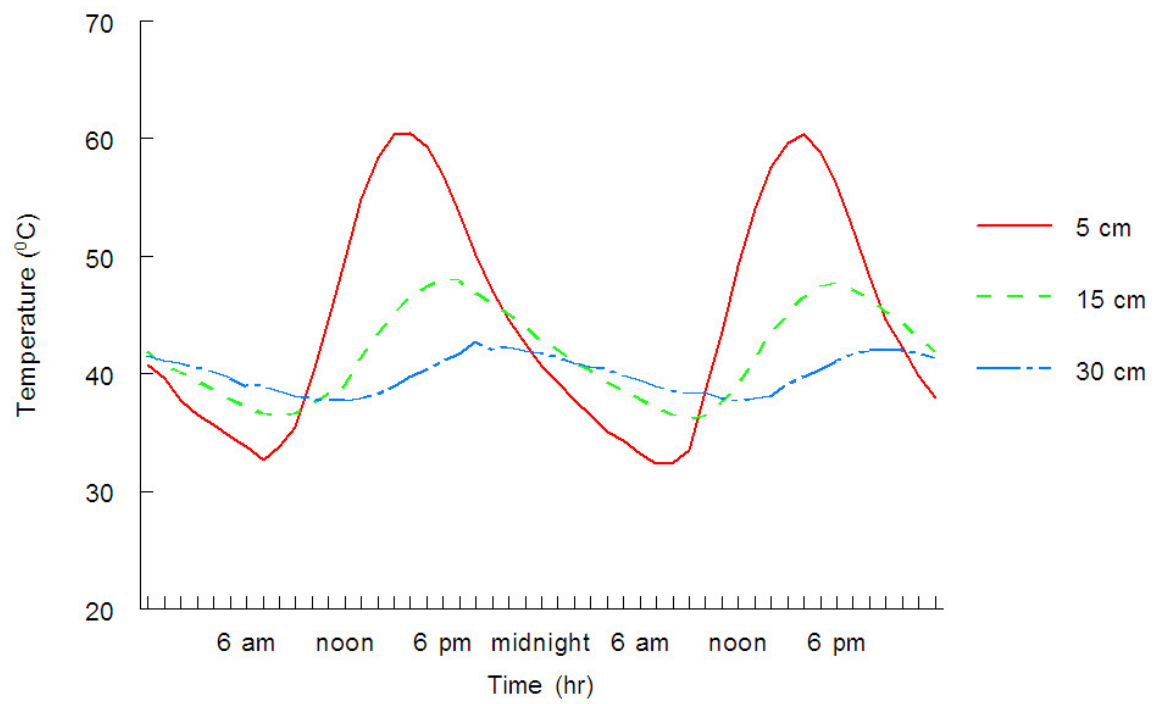
SOLARIZATION

Powered by

PASSIVE

SOLAR HEAT

ENERGY





“Double-tent” solarization has been approved by CDFA for production of nematode-free nursery stock

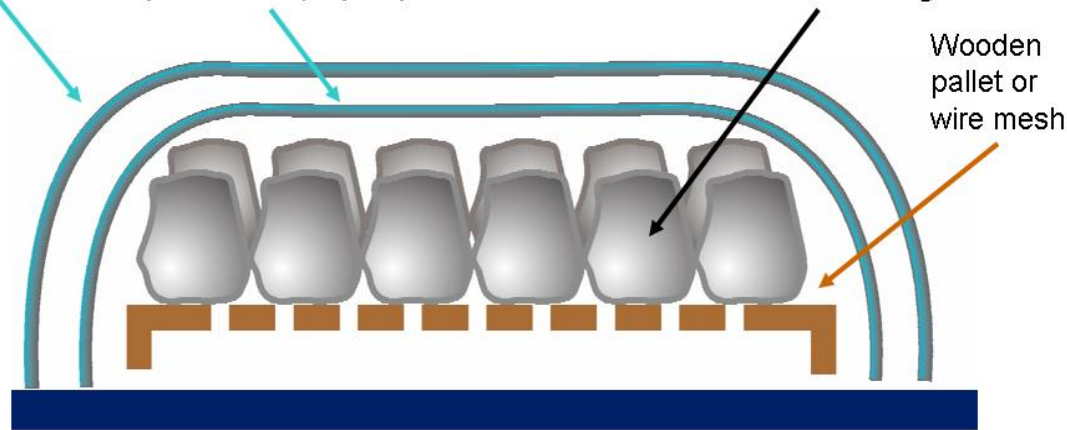
Soil Solarization by the Double-Tent Method

Second layer of clear polyethylene film

First layer of clear polyethylene film

Soil in polyethylene planting bags or in piles not more than 12 inches high

Wooden pallet or wire mesh



Layer of polyethylene film, concrete pad, or other material which will not allow reinfestation of soil

QUESTION:

Can solarization techniques be adapted and used to eradicate seedbanks from localized infestations of invasive weeds?

To Clean up Seedbanks of Invasive Plants by Solarization:

- Inactivation of seeds fallen to the ground
- Inactivation of seeds in living and skeleton plants and debris

Requires two approaches!







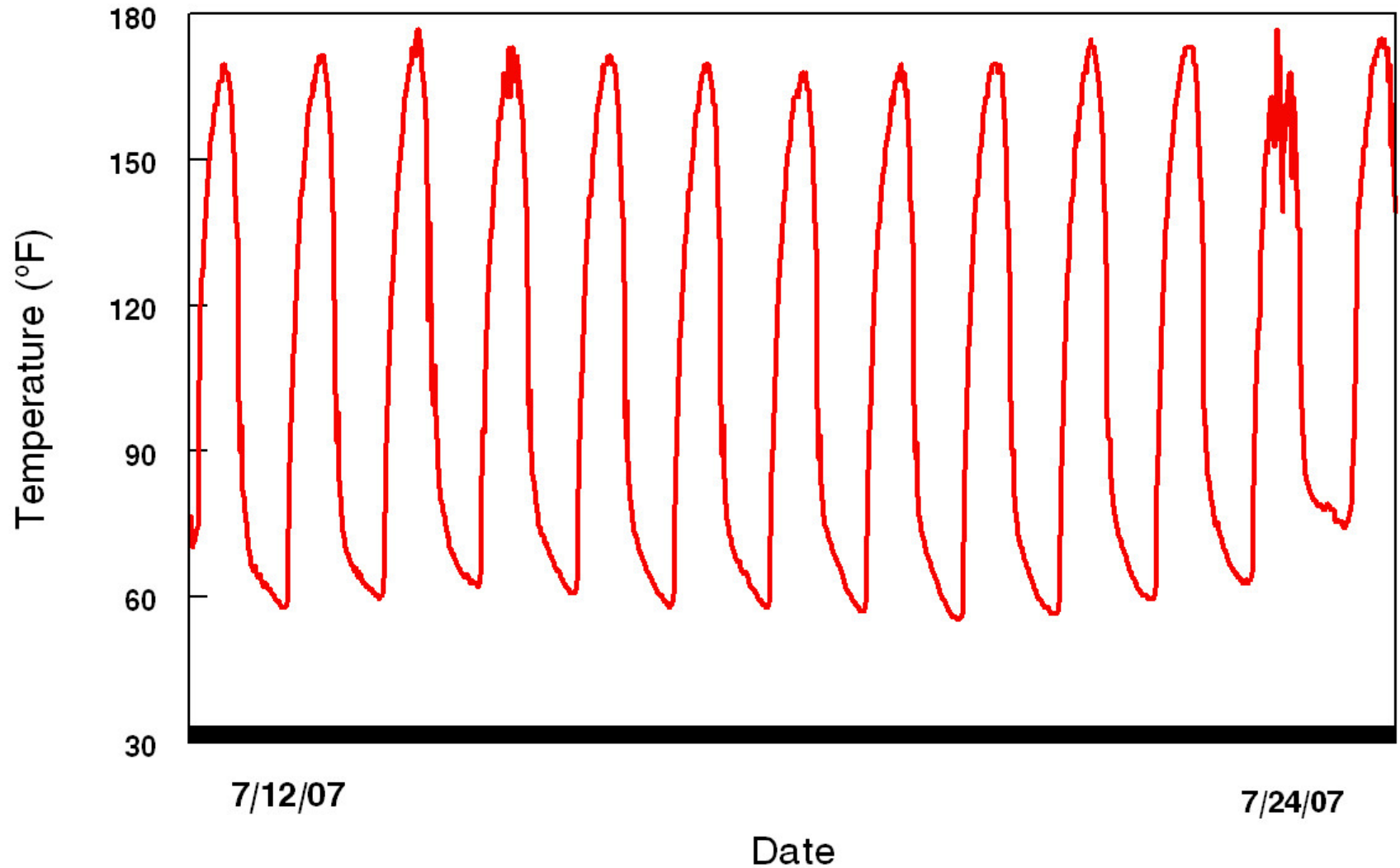
How to Set Up Tent Solarization Using Locally Available Materials







2007 Double Tent Solarization - Ned Gulch



Temperature Data

- **Air temperature 82 F**
Bags only - 107 F;
Double Tent - 143 F
- **Air temperature 87 F**
Bags only 114 F;
Double Tent 164 F





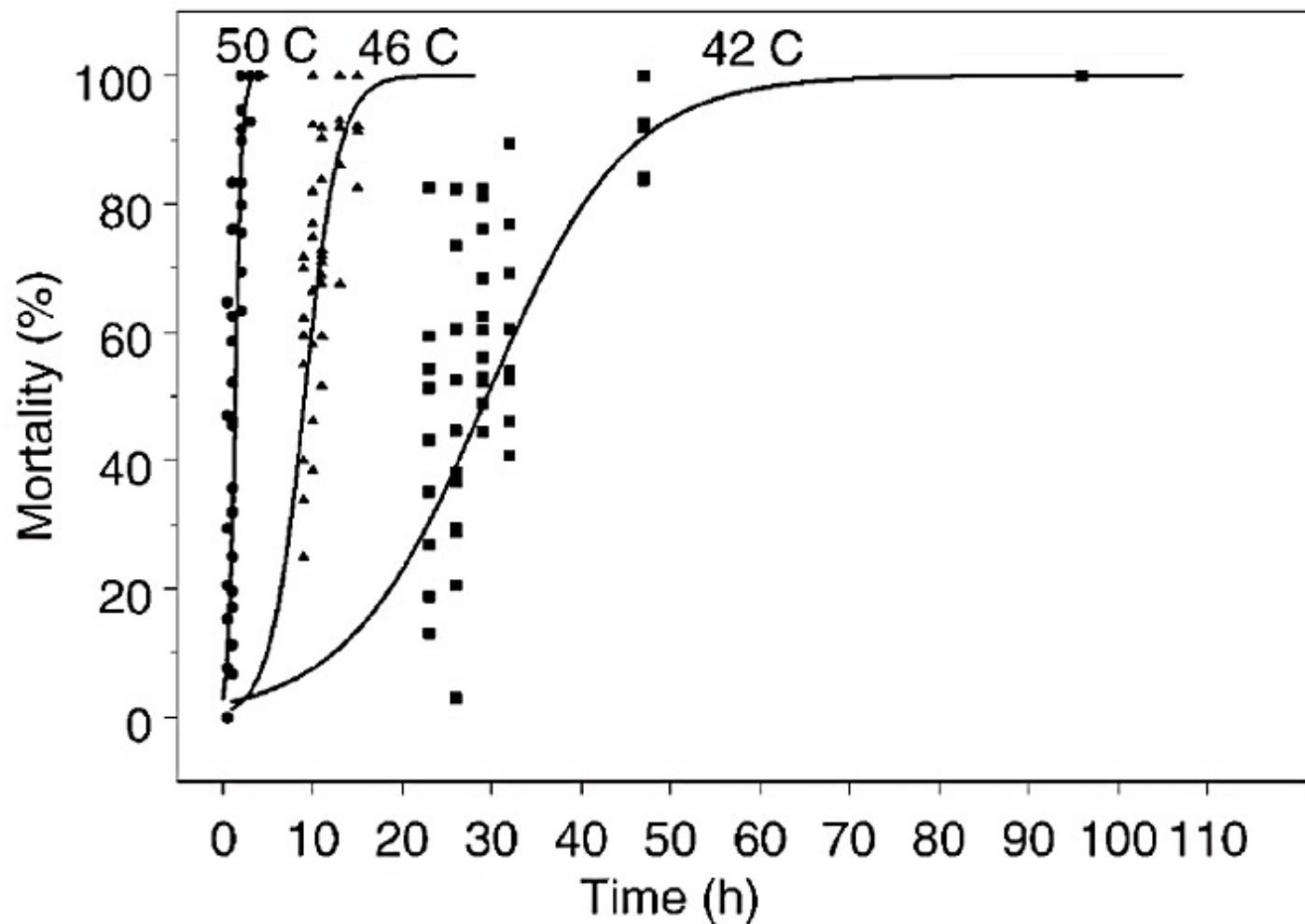
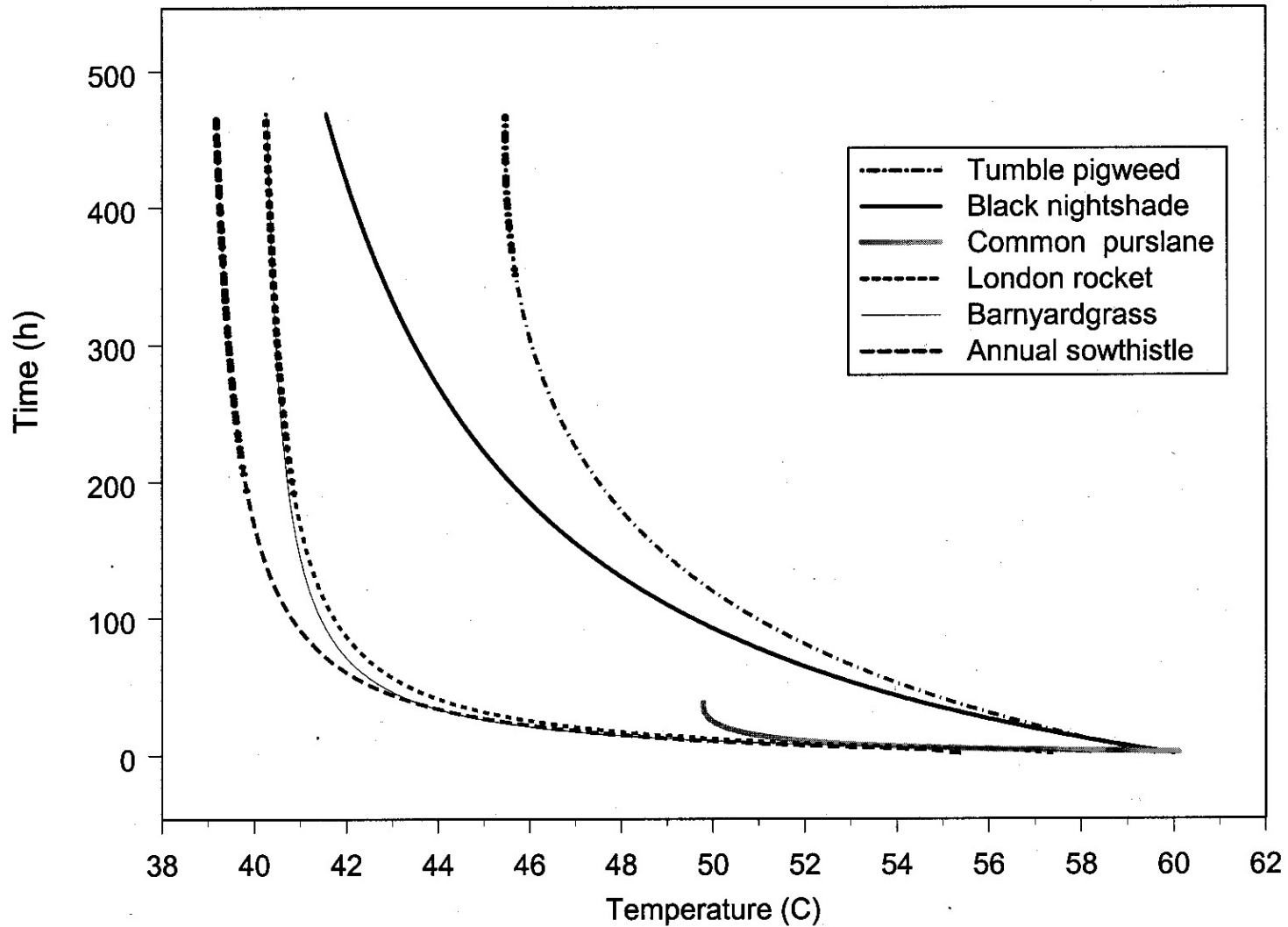


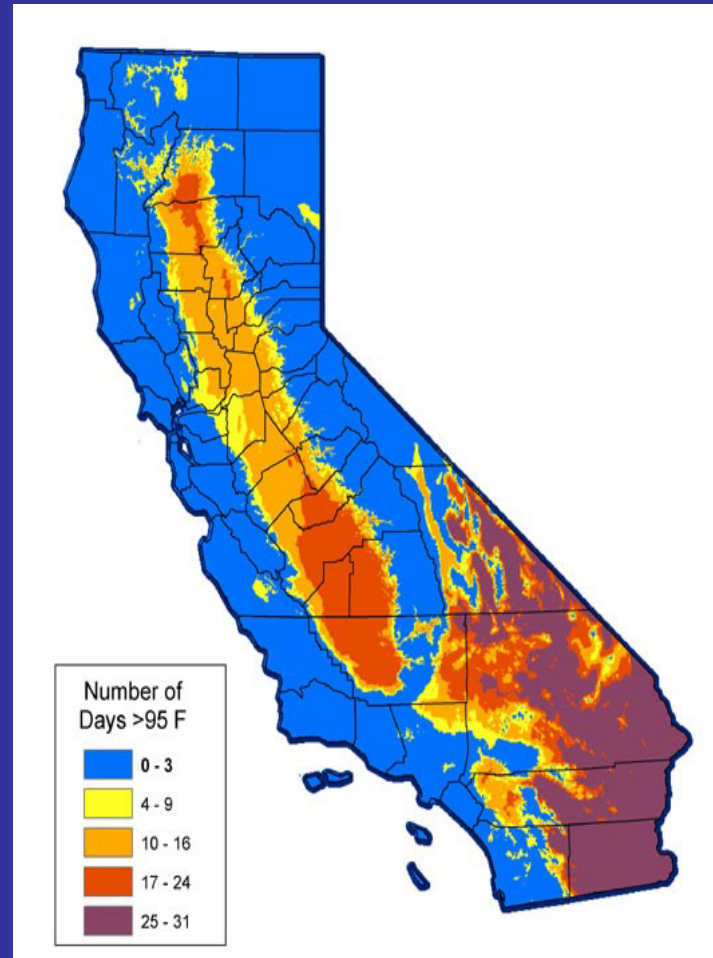
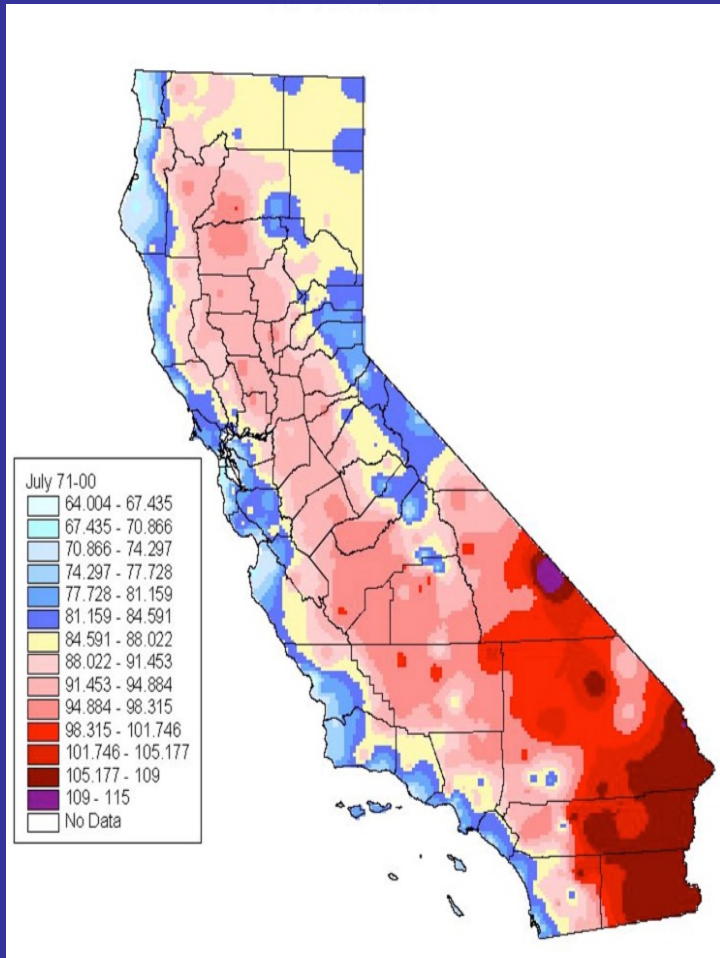
Figure 1. Annual sowthistle percentage mortality vs. time at constant temperatures. At 42 C, % mortality = $1/\{1 + e^{[-0.129(d - 29.459)]}\}$, pseudo $R^2 = 0.93$; at 46 C, % mortality = $1/\{1 + e^{[-0.525(d - 9.109)]}\}$, pseudo $R^2 = 0.96$; at 50 C, % mortality = $1/\{1 + e^{[-2.665(d - 1.313)]}\}$, pseudo $R^2 = 0.96$, where d = duration of exposure at each temperature.

Hours to 90% mortality vs. temperature

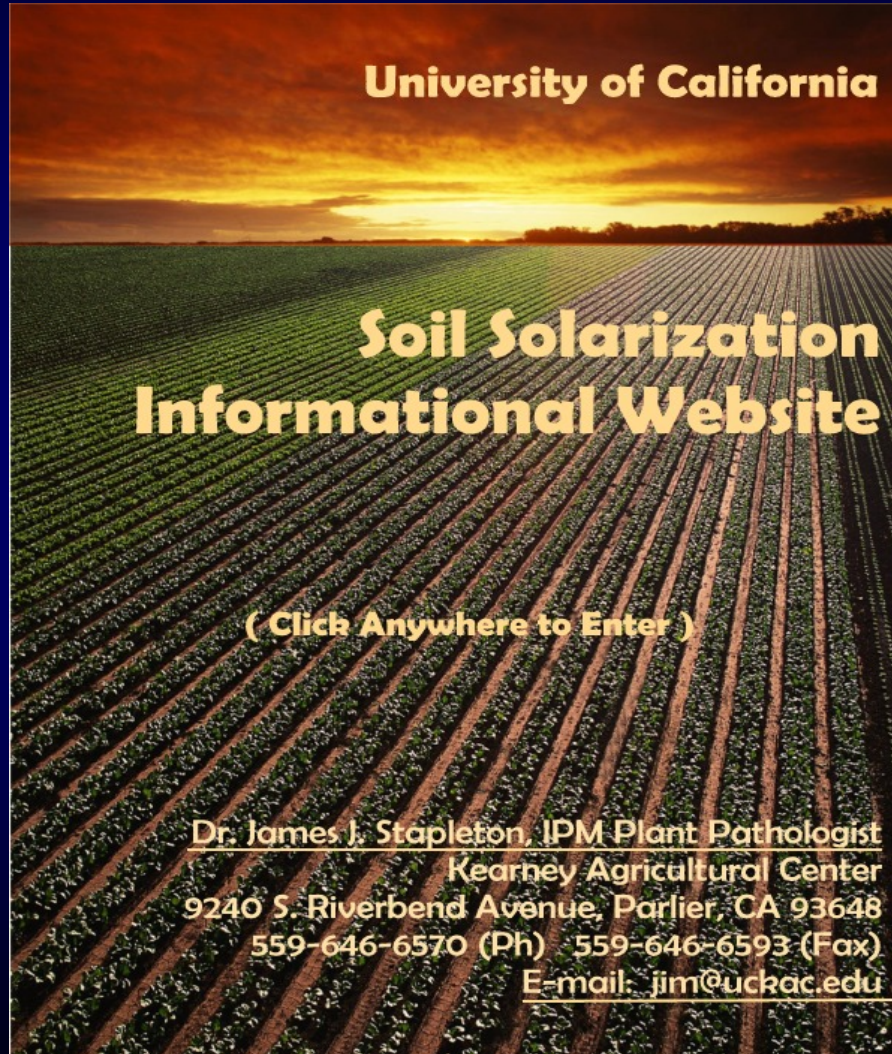


CONCLUSION:

Yes, solarization techniques can be adapted and used to eradicate imbibed seeds in soil and aerial seedbanks.



<http://solar.uckac.edu>



University of California

**Soil Solarization
Informational Website**

(Click Anywhere to Enter)

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