Solar Tents Demonstrated to be Effective in Several California Climatic Areas for Inactivating Plant Propagative Material

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Invasive Plant Control usually takes place in remote areas

- Leaving cut plant material on the ground can lead to re-infestation.
- Hauling the material out of the area can just spread the infestation around.
  - It is also requires added labor and cost
- Solar tents can be used to destroy plant material on-site at low cost
Sanitation!
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.
QUESTION:
Can tent solarization techniques for weed inactivation be adapted and used throughout California?
Constructing a solar tent in a remote location.

- You need to bring;
  - Clear plastic UV resistant sheeting
  - Black Plastic sheeting
  - Large plastic trash bags
  - Knife or scissors, duct tape, shovel

- Local materials;
  - Rocks
  - Tree branches or twigs
Max Air Temperature Data

July 25-Aug 7, 2009

• Riverside 81-98 F
• LaJolla 70-75 F
• Otay Lake 75-91 F
Germination results from three sites in southern CA in 2009.

- Riverside:
  - Shortpod mustard – solar tent – 0%
    - Untreated control – 76-92 % germination

- Del Mar
  - Bristly oxtongue – solar tent – 0%
    - Untreated control - > 90% germination

- Lakeside (inland San Diego County)
  - Bristly oxtongue – Solar tent – 0%
    - Untreated control – 94-98 % germination
  - Curly dock – Solar tent – 0%
    - Untreated control – 34-40% germination
Moisture is important!
CONCLUSION:

Yes, tent solarization can be adapted and widely used to eradicate weed propagative materials in California.
http://solar.uckac.edu