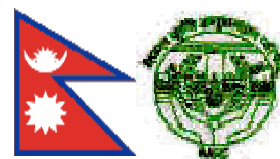


Soil Solarization for Healthy Seedlings & Improved Production



Solarization involves the solar heating of moist soil covered with clear plastic prior to nursery planting. It is a simple, low cost, non-chemical technology for improving rice root health and controlling pathogen problems such as root knot nematode, sheath blight and other soil borne diseases. Soil solarization has been used worldwide as an IPM technique for fruit trees, vegetables and grain legumes.

What are the benefits of Soil Solarization?

- Low cost investment – only plastic sheet for seedbed area
- Saves seed - increased germination and emergence
- Taller, greener seedlings with healthy root systems – disease-free seedbed promotes vigorous seedlings for transplanting; also known as “Healthy Seedlings”
- Less re-infection in main field by root knot nematode, sheath blight and other pathogens
- Larger / bolder rice grain from Healthy Seedlings
- Yield increases of 10-25%



How is Soil Solarization done?

Solarization should be done during bright, sunny days to capture maximum solar radiation. In South and Southeast Asia the best period before rice is March-May. Solarization is also possible in South Asia immediately after the monsoon recedes in September-October for rabi vegetable crops.



- Prepare rice nursery seedbed and irrigate the soil well
- Cover the seedbed with transparent plastic sheet of moderate thickness (200-300 gauge).
- The plastic edges should go into small ditches dug around the outside of the seedbed. Use soil from the ditches to bury and seal the edges of the plastic, making it airtight.
- The soil should remain covered for 3-4 weeks.
- After solarization, remove the plastic and lightly till the soil surface.
- Rice seed can be broadcast after 2 days. Due to improved germination, the seed rate can be reduced by 20-30%.

Key Indicators of Successful Solarization

- Water droplets collect on the underside of the plastic
- The surface of the plastic will be very hot
- Weed seeds will sprout and grow under the plastic but within a few days the weeds will die
- When the plastic is removed, the soil surface will be black and covered with dead weeds, no living weeds should be visible

For more information: Visit the Nepalese Rice Knowledge Bank at www.knowledgebank.irri.org/regionalSites/nepal/default.htm

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