

Solar Drying of Horticultural Crops in Bangladesh

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Amrita Mukherjee, Rezaul Islam, Michael Reid, James Thompson,
Angelos Deltsidis and Elizabeth Mitcham
Department of Plant Sciences, UC Davis, CA, USA
horticulture@ucdavis.edu
Email: amukherjee@ucdavis.edu

Chimney dryer construction

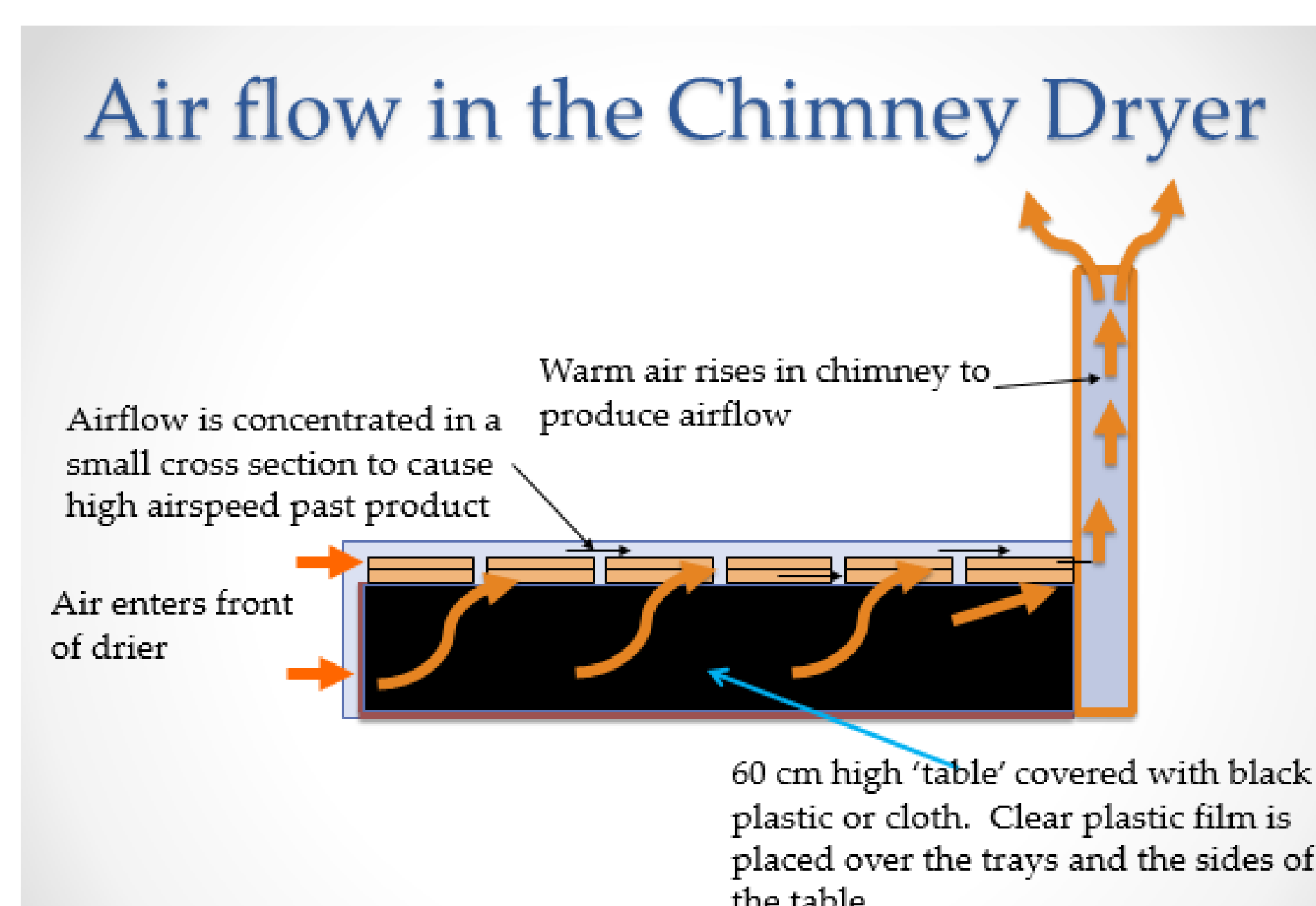


Objective

Improve the livelihood of small-scale vegetable growing farmers, especially women farmers, in Southern Bangladesh by enabling them to drying high value horticultural crops to extend the marketing and consumption season.

Strategy

- Use a clear plastic tunnel to collect solar energy – free heat.
- Use a chimney to draw the air through the tunnel
- Place the product at the top of the tunnel, where the warmer air is.
- Fill unused parts of the tunnel to increase air speed past the product



First steps

- Community organization
- Two target districts in the South
- Goal to seek farmer buy-in & include women farmers



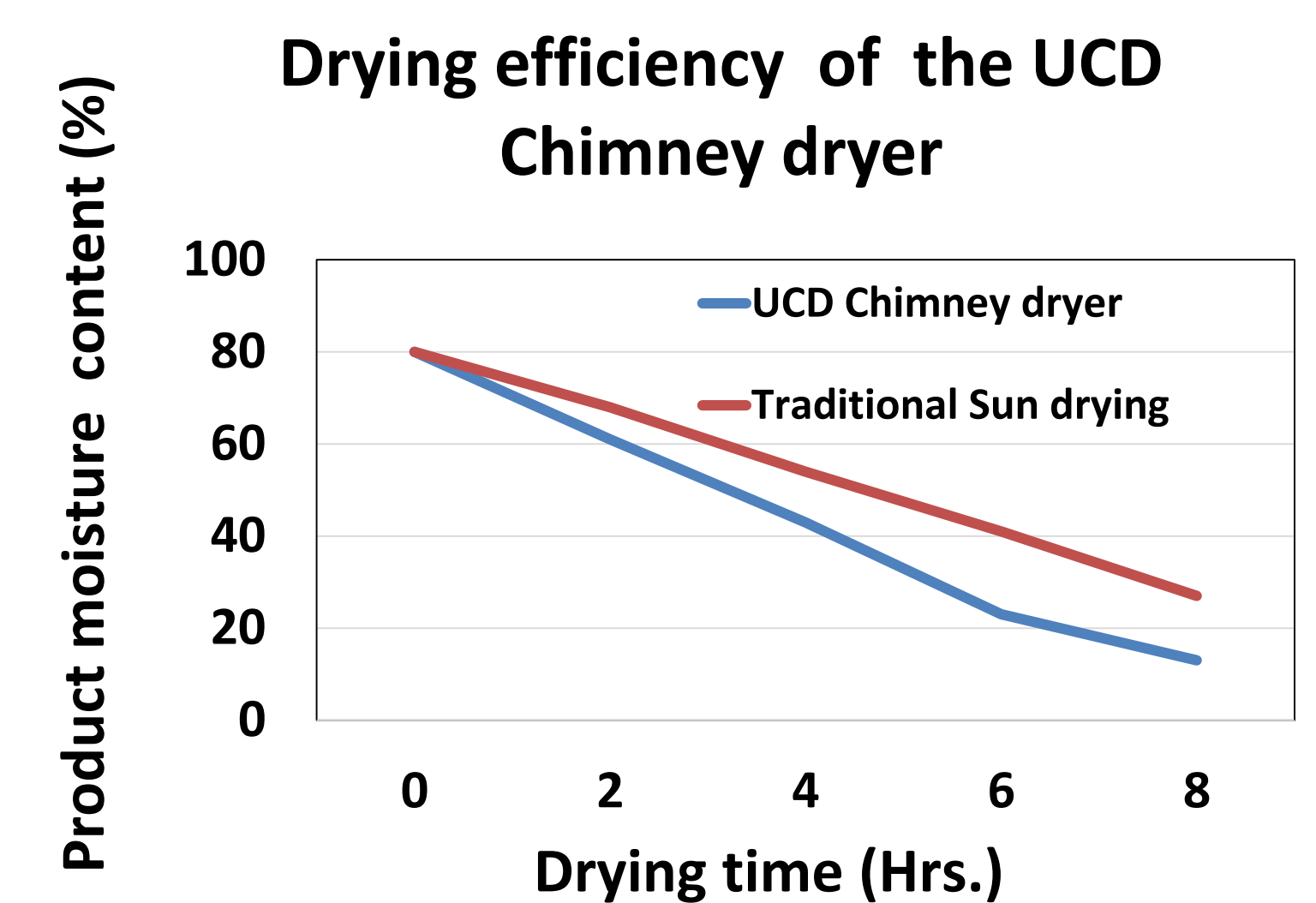
Issues

- Drying was not possible during periods of continuous rain or heavy clouds (more than 1 day).
- For commercial purposes dryer capacity (16kg at a time) was not sufficient. Farmers need a larger dryer or multiple dryers
- The chimney must be secured to the ground to prevent toppling in high winds.

Drying experiment Results



We worked with farmer collaborators to reach consensus on community involvement (left) and (above) to randomize harvested vegetables and fruits into samples for drying in the chimney dryer or by traditional methods



Chili dried for 6 hrs.
Traditional drying



Chili dried for 6 hrs.
Chimney dryer



Sweet potato dried for 6 hrs.
Chimney dryer



Sweet potato dried for 6 hrs
Traditional sun drying



Conclusion:

Chimney dried product are hygienic compared to open sun drying and functions even when there are sudden or light rain. Drying is faster due to 15-20°C higher hot air flow, where chimney-dried crops have better appearance and color than open sun drying.

Reference:

Bangladesh Aquaculture Horticulture for nutrition Collaborative Research Program funded by USAID.

