

Measuring and Mitigating Pesticide Exposure of Handlers and Strawberry Harvesters

TRANSFERABLE SURFACE RESIDUE (TSR) SAMPLING METHODS

R. I. Krieger, J. J. Keenan, Y. Li, H. Vega
 Personal Chemical Exposure Program
 University of California, Riverside

1. External Dose = $DFR_{\text{Rinse}} \times TC_{\text{“Universal”}} \times \text{hours}$

Potential

2. Exposure = $DFR_{\text{Rinse}} \times TC_{\text{Strawberry}} \times \text{hours}$

3. Harvester Exposure (biomonitoring, potential)

$$\frac{\left[\frac{\text{Urine biomarker}}{\text{ml}} \right] \left[\text{Dermal absorption} \right] \left[\text{Clothing penetration} \right] \left[\frac{\text{Pesticide}_{\text{FW}}}{\text{Biomarker}_{\text{FW}}} \right] \left[\frac{1.7_{\text{♂}} \text{ or } 1.0_{\text{♀}}}{\text{day}} \right]}{\text{Creatinine (g/ml)}}$$

4. Harvester Exposure (measured, external)

$$TSR_{\text{available}} \times TC_{\text{revised}} \times 8 \text{ hours}$$

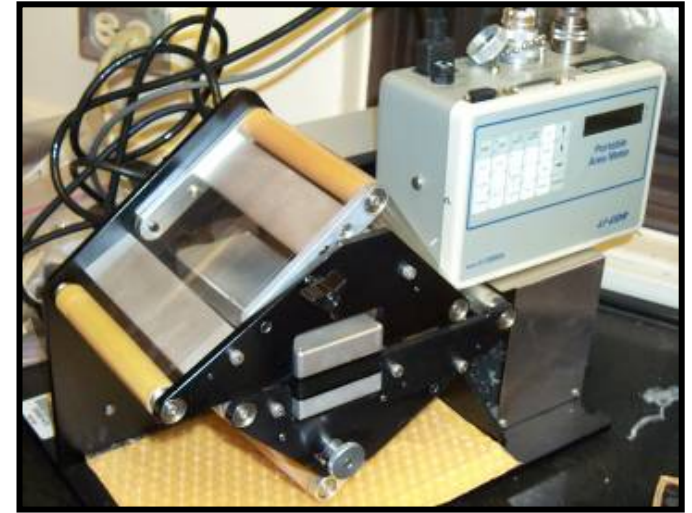
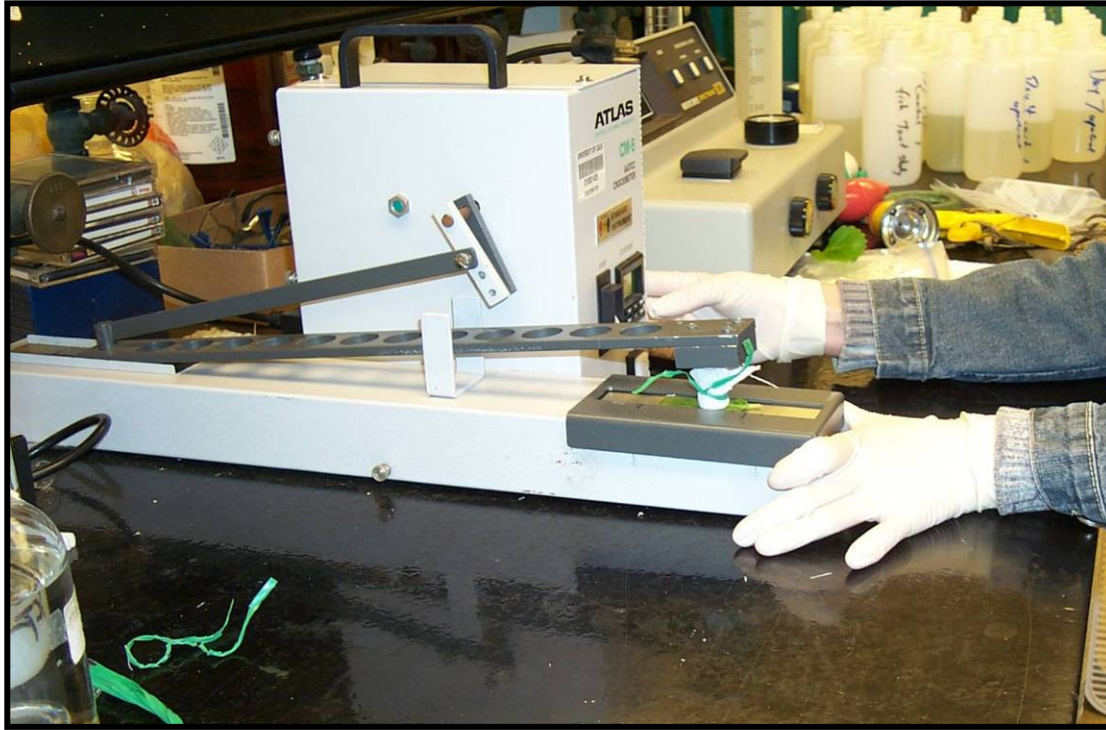
LEAF PUNCH



Circular disks cut from leaves into jar (40 disks per jar).

Leaf disks washed in Sur-Ten solution (0.01%) and the pesticide residue extracted for analysis ($\mu\text{g}/\text{cm}^2$)

CROCK METER



**PORTABLE AREA METER
(cm²)**

Leaf placed on base.

Aluminum foil and cloth cover the leaf contact device (rubbing hammer).

Meter set to contact leaves preset number of times.

Transferable surface residue extracted from cloth ($\mu\text{g}/\text{cm}^2$)

BENCH TOP ROLLER (BTR)



Leaves on layer of cotton cloth and aluminum foil, folded and passed through BTR.

Transferable surface residue extracted from cloth ($\mu\text{g}/\text{cm}^2$)

