

Alternatives to insecticides: High impact solutions without environmental trade-offs

Silent Spring Series Forum: October 17, 2012



Professor Stephen Welter (left) and Professor Stanley Maloy, moderator (right)

The first forum of the Ethics Center's 2012 *Silent Spring Series* focused on biological alternatives to insecticide use in American agriculture that would eliminate adverse environmental effects and appeal to consumers' needs. Professor Stephen Welter, the Vice President for Research at San Diego State University (SDSU) and a long-time professor of Entomology at UC Berkeley, spoke at the forum on October 17, and presented his research on economically sustainable alternatives to pesticides.

Welter stressed the trade-offs required for consumer safety, consumerist appeal, and environmental safety. Insecticides have become an integral aspect of the agricultural system because people working in agriculture are faced with the dilemma of producing what customers want in an economic way. Welter illustrated the conflict between what customers want from their food supply and what is economically feasible. While we want organic food that has low input and is locally grown, we also want to feed the world, have cheap and safe food, and stable food prices. At the same time, we want low nitrogen inputs, sustainable land use, and low energy use to sustain our environment. Inevitably, these interests cannot all be achieved, and insecticides, which make food appealing and low-priced, are used.

Welter explained that pesticides provide perfect produce at a low cost and allow them to be available all year long. Pesticides, he said, are "like an insurance policy": They guarantee that our crops will not fail and minimize loss. They also allow for produce to be internationally traded because they can be stored for extensive periods and quarantine insects. If we want cheap food, Welter said, we need a better system.

Welter presented the use of pheromones as one alternative. Pheromones only work on a particular species of codling moths, which often damage fruit such as apples and pears. However for those fruits, pheromones can substantially mitigate the need for insecticides. Pheromones attract the moths through chemical signals and then eliminate them. The advantages of pheromones are that they do not leave residue on the food, do not have known non-target effects, and do not have farm worker safety issues.

Through improved scientific research, there can be alternatives that will lessen the compromises on consumer and environmental safety for the affordability of food.