# Determine Emission Reduction Using Totally Impermeable Film and Waiting Period for Tarp Cutting in a Large Field Fumigation Trial

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## PROJECT SUMMARY

### Objectives:

- Determine the emissions of soil fumigants when using a totally impermeable film (TIF) to cover treated fields.
- Determine when the tarp can be cut to avoid high worker and by-stander exposures to off-gassed fumigant(s) collected under tarp.
- Compare the ambient air monitoring with soil flux chamber monitoring method.
- Provide data to regulatory authorities to assess whether TIF tarps can be used to reduce fumigant emissions and protect workers and by-standers.

### Background:

What makes soil fumigants such valuable tools in soil pest management – their mobility – is also what makes them difficult to manage for by-stander safety and air quality. Due to these concerns, the use of soil fumigants is being ever more limited by both EPA and CDPR.

Recently developed tarps have shown the ability both in the lab and the field to essentially prevent most off-gassing of applied soil fumigants. These totally impermeable tarps (TIF) could be used to reduce the emission exposure concerns.

However, there is concern about worker exposure when cutting the tarps, and whether the cumulative emissions are really reduced in terms of reducing VOC emissions.

The primary focus of the project is to develop the data necessary for regulators to assess whether the use of TIF tarps can reduce risk concerns.

TIF may also provide more consistent fumigant efficacy by maintaining soil concentrations better, thus soil concentrations at different depths will be monitored.

The project is also an opportunity to compare two different methods for assessing the off-gassing emissions. California Department of Pesticide Regulations (CDPR) currently requires the use of ambient air monitoring, which is fairly expensive. Similar data has been collected using soil flux chambers, which is less costly. However, to date no direct comparisons of the two methods has occurred.

As this is a larger effort, ABC is a co-funder with the USDA-ARS, California Strawberry Commission, and CDPR.

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