HIGH-REFLECTIVE METALIZED TIF FOR REPELLING INSECTS AND MODIFYING THE GROWTH OF PLANTS

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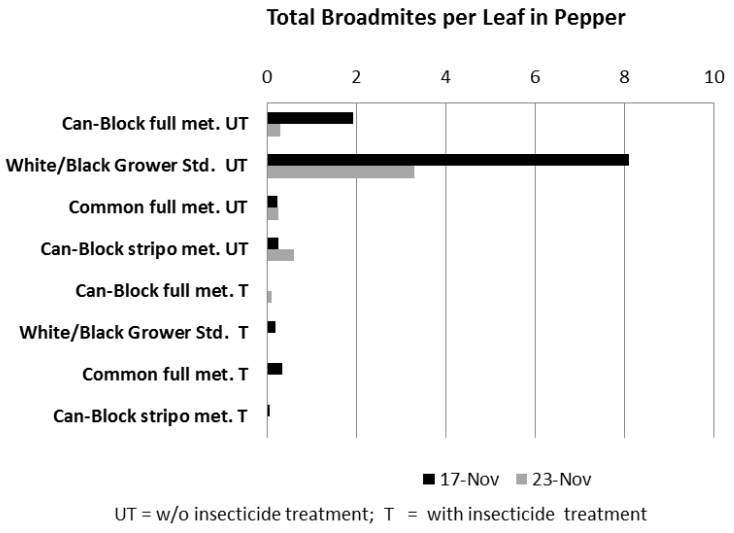
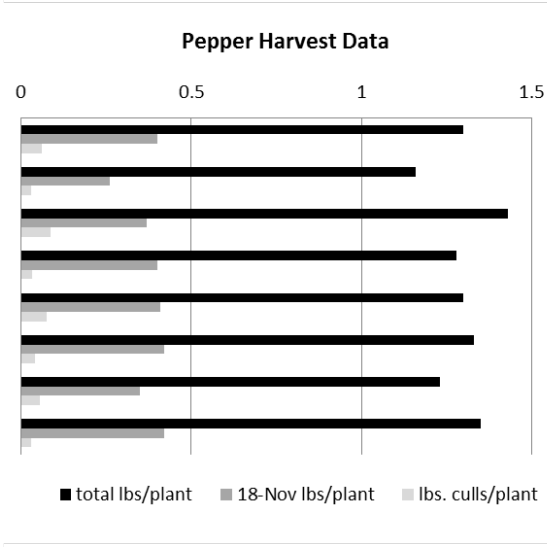
High-reflective metalized mulch films are surface-modified with a thin aluminum metallic mirror. Only an aluminum mirror is capable to reflect more than 90% of infrared (IR), visible (incl. PAR) and ultraviolet (UV) solar radiation. It is scientifically proven that high UV/visible radiation reflected by aluminized mulches repel diurnal insects and consequently reduce insect-vectored diseases, even with less insecticide applications.

Although metalized films outperform common VIFs in fumigant retention in the field under high rel. humidity conditions, their barrier properties are not sufficient to meet the standards for a 60% buffer zone reduction (BZR) set by US-EPA and CDPR or in other words to qualify as TIF. Growers using metalized films in sustainable vegetable production for a decade are forced to switch to non-metalized TIF and increased insecticide applications or to face a reduction in production area. Simply metalizing current EVOH-TIF film is not an economic viable option.

Metalized CAN-BLOCK XSB v-TIFs are made from an advanced material that provides high fumigant retention at cost-effective fractural gauges and although EVOH-free are qualified as TIF for 60 % BZR by US-EPA and CDPR for common soil fumigants, fully and partially metalized. Metalized CAN-BLOCK XSB v-TIFs are embossed for a better laying convenience compared to common smooth metalized films.

Results from field trials performed in cooperation with UFL/IFAS SWFREC and GREC indicate that all metalized films provide statistically equivalent insect control, but without insecticide treatments, and marketable yields in pepper like the grower standard with insecticide treatment.





Metalized films increased early and overall higher marketable yields in strawberries compared to current grower best practices.

		Yield (t/ha)				
Cultivar	Mulch color	Nov.	Dec.	Jan.	Feb	**Total**
Florida Radiance	Black Grower Std.	0.67	4.65	6.77	5.86	**12.09**
	Common full met.	1.01 (51%↗)	5.67 (22%↗)	6.50 (4%↘)	6.68 (14%↗)	**13.18 (9%↗)**
	Can-Block strip met.	1.03 (54%↗)	5.49 (18%↗)	7.71 (14%↗)	6.33 (8%↗)	**14.23 (18%↗)**
FL12.121-5	Black Grower Std.	0.91	4.19	6.11	5.61	**11.22**
	Common full met.	0.95 (5%↗)	4.74 (13%↗)	7.21 (18%↘)	6.33 (13%↗)	**12.90 (15%↗)**
	Can-Block strip met.	1.10 (21%↗)	4.73 (13%↗)	7.83 (28%↗)	6.40 (14%↗)	**13.66 (22%↗)**

In both trials no significant efficacy differences were detectable between embossed Can-Block and common smooth metalized films.