Protecting whitebark pine from mountain pine beetle with SPLAT® Verb.

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Applying SPLAT ® verb with calibrated caulking gun

7 gram verbenone pouches and tree bait on whitebark pine

Verbenone is the most effective anti-aggregation pheromone for protecting pine trees from mountain pine beetle (MPB) infestation. Verbenone in 7 gram pouches has been used for many years to protect high-value whitebark pine. SPLAT® Verb, a new formulation of verbenone, has been consistently successful in protecting lodgepole pine from MPB. We tested SPLAT® Verb on whitebark pine in Montana (MT), Oregon (OR), and California (CA) 2015-2017.

Methods

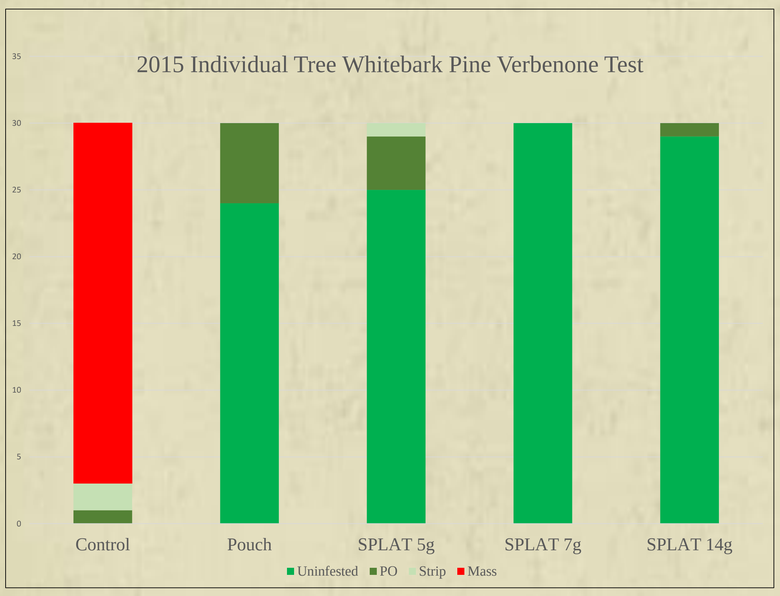
Different doses of SPLAT® Verb along with 7 gram pouches were tested on individual trees at Branham Lakes, MT. Pouches and SPLAT® Verb with the same amount of active ingredient were tested on one acre plots on Strawberry Mtn., OR and Ball Mtn., CA. Treatments were:

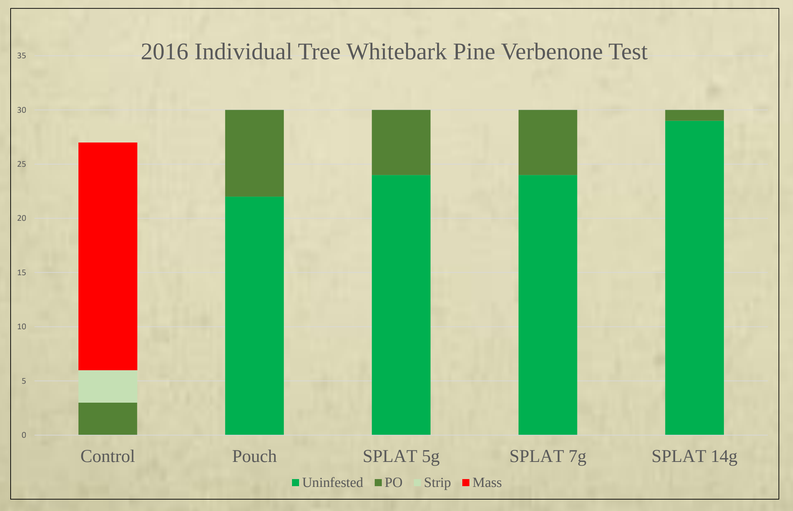
Individual Trees (30 in each treatment)	One-Acre Area Plots (5 or 6 reps)
Two 7 g pouches	7 g pouches at 40/acre
5 g SPLAT® Verb	7 g SPLAT® Verb at 40/acre
7 g SPLAT® Verb	Control
14 g SPLAT® Verb	
Control	

SPLAT® Verb was applied with a caulking gun with 4 dollops on 4 sides of each tree. Pouches were stapled to the north side of trees. All individual treatment trees and the center of each area plot in CA were baited with a MPB attractant to increase beetle pressure. Baits were not used in OR plots because of high beetle populations in the surrounding area.

SPLAT stands for "Specialized Pheromone and Lure Application Technology". It is applied in a matrix-type diffusion controlled dollop. The SPLAT matrix is made up of waxes, vegetable oils, water and other food grade materials which are non-toxic and biodegradable.

SPLAT dollops on whitebark pine bole



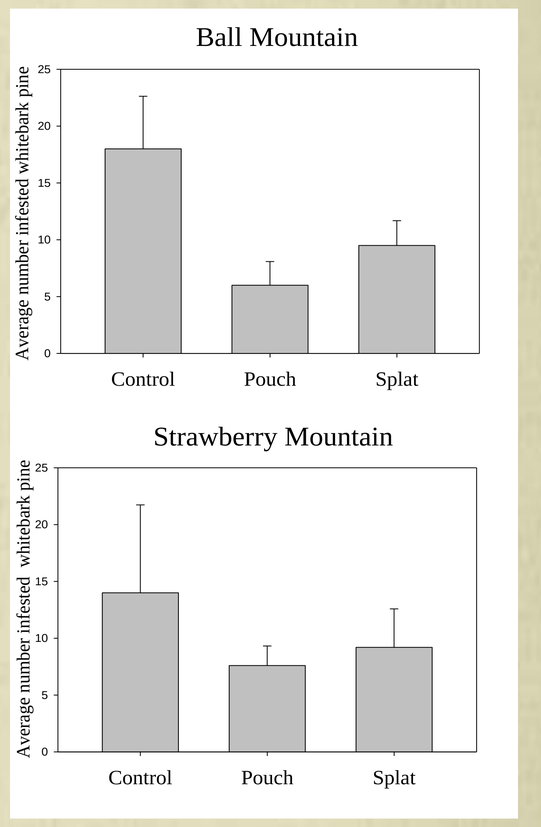


Note: Three control plots were missing baits.

Results

In the individual tree test, no verbenone treated trees were mass attacked compared to 90% of control trees killed in 2015 and 2016. Verbenone treatments were not significantly different from each other.

In the area tests, % mass attacks were summarized by treatment for 2015-2017. In both locations, mass attacks were greater in control plots than treated plots. However, mass attacks were <9% in the control plots.



Conclusions

Both SPLAT® Verb and verbenone pouches protected individual whitebark pines from MPB attack compared to untreated controls. The effect of verbenone treatments in area tests is not clear because of low numbers of mass attacks in control plots.

Advantages of SPLAT® Verb are that it is cryptic and biodegradable. A disadvantage is that it is easily rubbed off of treated plus trees by tree climbers caging and collecting cones.