

## Band-Steam Applicator Field Demo and Trial Results – 2023 Southwest Ag Summit

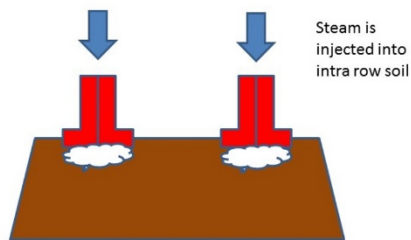
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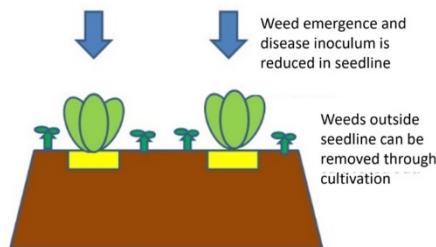
Over the last couple of years, we have been investigating the use of band-steam to control weeds and soilborne pathogens. The technique has been discussed in previous mechanization UA Veg IPM articles ([link](#)). Briefly, the concept behind band-steam is to disinfest narrow bands of soil centered on the seedline using high temperature steam prior to planting. After the soil cools (<1 day), the crop is planted into the disinfested band (Fig. 1). Weed emergence and disease inoculum is reduced in the seedline. Weeds outside the seedline can be easily removed through cultivation.

Trial results have been impressive, particularly for in-row weed control (Fig. 2). We'll be demonstrating our 2<sup>nd</sup> generation prototype band-steam applicator and sharing study results at the 2023 Southwest Ag Summit Field Demo, February 22<sup>nd</sup> (Fig. 3) We'll also discuss and like to get your input on a new project – development and evaluation of a commercial scale band-steam applicator. The goal of the project is to build a self-propelled steam applicator and evaluate the viability of band steaming at the commercial field scale level. We're in the preliminary design process now; a concept sketch is shown in Fig. 4. We'd love to get your input/feedback at this stage of the process. Please feel free to reach out to me anytime.

1)  
Seed lines disinfested with steam



2)  
Seed crop into the disinfested band



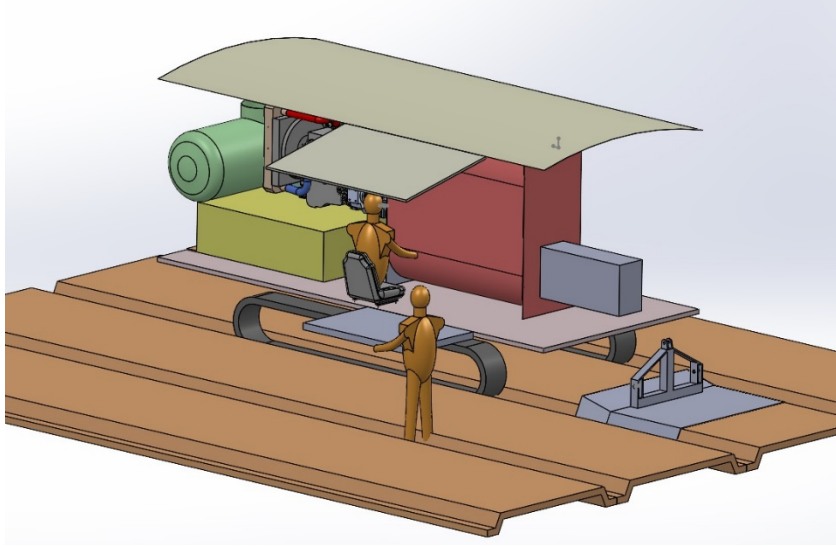
**Fig. 1. Treatment sequence: 1) steam is injected into soil where seedline will be located, then 2) later the crop is planted in the steamed seedline.**



**Fig. 2. Weed control in lettuce seedlines of beds treated with band-steam (right) and untreated (left).**



**Fig. 3. 2<sup>nd</sup> generation band steam applicator to be demoed at the 2023 Southwest Ag Summit Field Demo held February 22<sup>rd</sup>, 2023 in Yuma, AZ (<https://yumafreshveg.com/southwest-ag-summit/>).**



**Fig. 4.** Concept drawing of a proposed commercial style steam applicator. The unit has a propane fueled engine and steam generator. The steam injection occurs at the back of the machine. Water is carried in tanks below the engine, and rubber tracks are proposed to disperse the weight and avoid soil compaction.