



Cover Crop Termination

Knife rolling, or crimper rolling, is a practice used in the northern hemisphere to inhibit or terminate cover crops without using herbicide.

The knife roller has metal ribs that crimp the stem of the plants that are rolled (Figure 1).

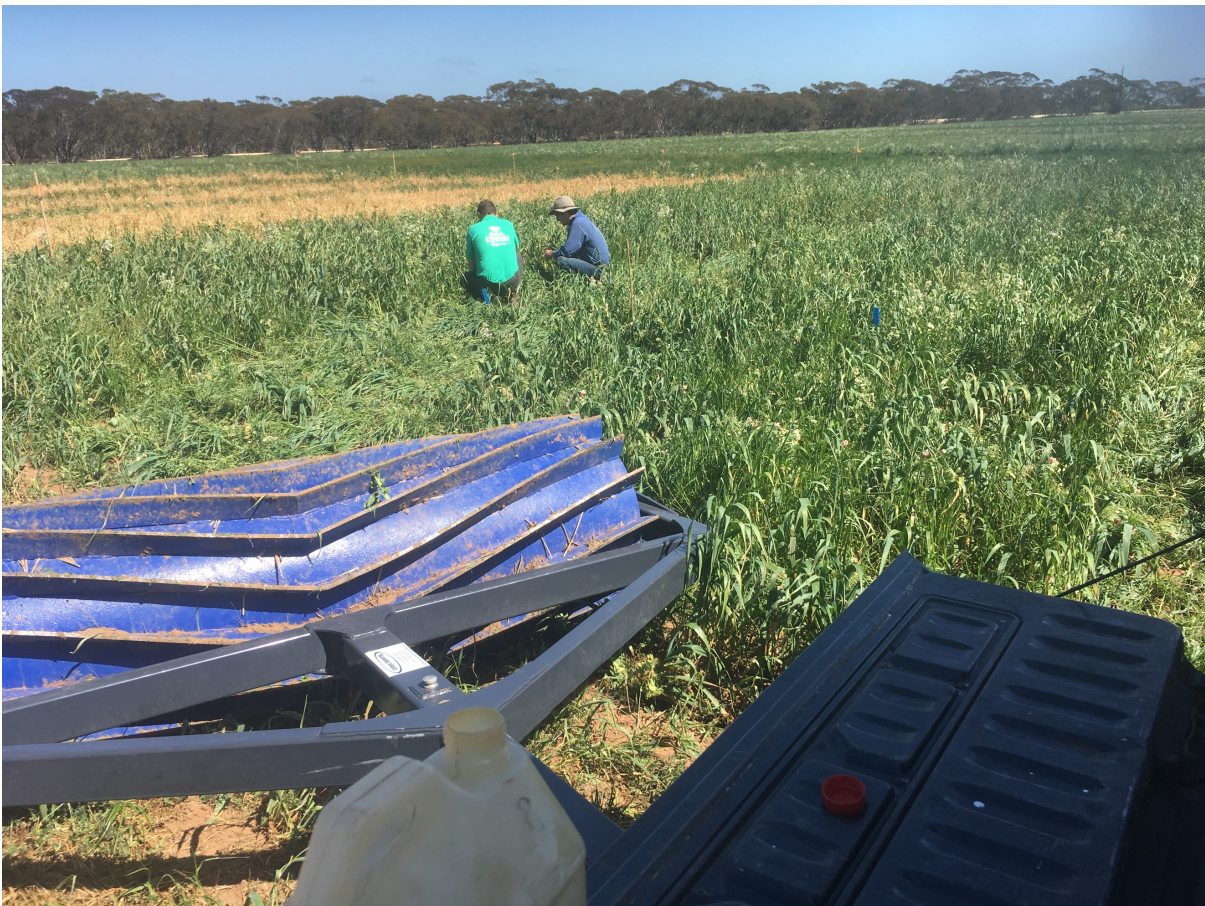


Figure 1: The knife roller has metal ribs that crimp the plant stem.

The warm and cool season cover crop project tested knife rolling at several sites across south eastern Australia to demonstrate efficacy. Figure 2.

Across a number of trial sites, the know roller was applied at different crop stages and compared to the efficacy of herbicide.



Figure 2: The knife rolling trial site at Parilla was one of nine sites where knife rolling was trialled.

The knife rolling exhibited a large range of efficacies; from poor to excellent.

At trial sites with stunted or droughted crops, that are to be expected when growing over summer in Southern Australia, the efficacy was generally much lower whereas; at trial sites where the plants grew tall, the knife roller efficacy was significantly better.

To be effective, it appears that the plant stem should be crimped by the knife roller multiple times, and therefore, taller plants receive more crimps. By that same logic, stunted plants and rosette type brassicas were not well controlled.

Applying the knife roller treatment at different crop growth stages, for example, at flowering or at pod set, showed that application timing may be optimised for specific plant types.

The repeated application of multiple knife rolling events over the same plants did increase efficacy, and in some, but not all cases, to a point that knife rolling was comparable to herbicide.

Nevertheless, herbicide was generally much more effective at all sites over a range of conditions however, at some sites, the combination of knife rolling and herbicide provided the absolute best result.

The termination trials showed that whilst in certain situations non-chemical (knife roller) means of termination could be effective, chemical means of termination was most successful. In some areas, crops effectively “self-terminated” due to lack of water, which from a disease, weed, and pest management perspective, has the desired outcome without chemical or labour inputs.

Figures 3 & 4 are indicative of the outcomes across the majority of trial sites.

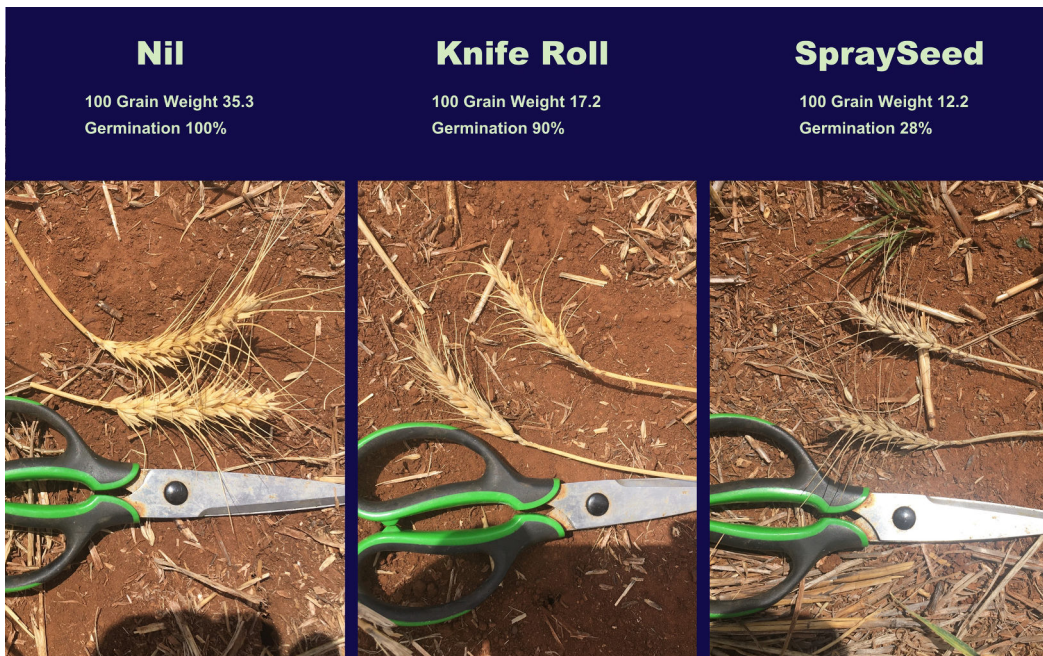


Figure 3: Seed head formation and grain fill was inhibited by knife rolling.

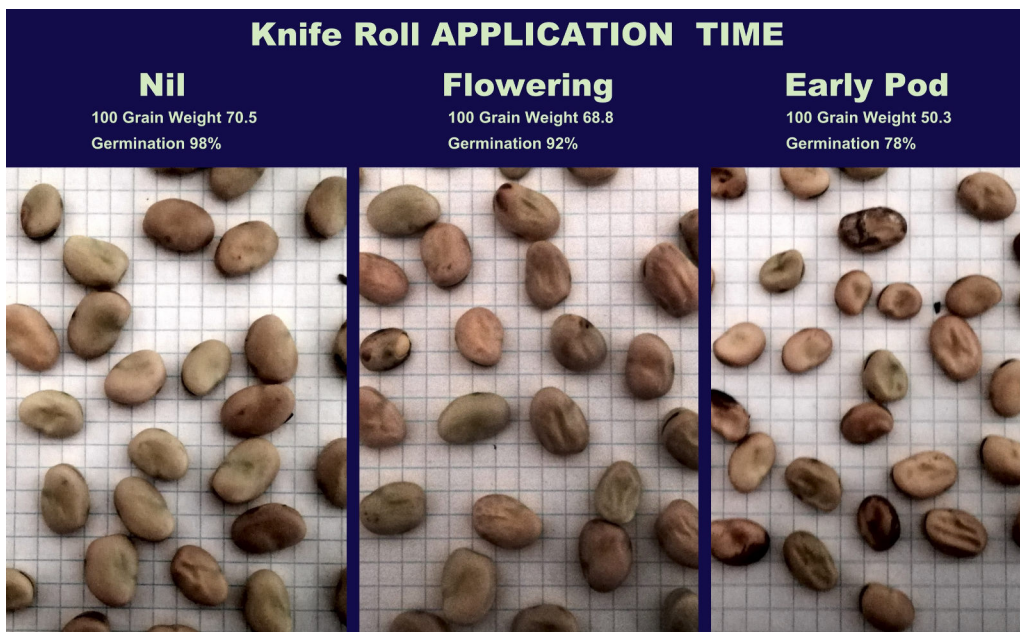


Figure 4: The impact of knife rolling was also influenced by the application timing.

Project Proponents



Project Funders



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