

Disturbance Favors Weeds

In December '03, *Leading Edge* published an article by Randy Anderson on reducing weed pressure with low-disturbance no-till. A four-year study in Saskatchewan supports Anderson's conclusions. Eric Oliver, an SSCA agronomist, compared four drill opener designs that vary considerably in amount of soil disturbance during operation, *with each opener type used on the same plots for the duration of the study.*¹ Openers were the Barton Gen.-I disc, 0.75-inch knife, 2.25-inch spoon, and a 12-inch sweep. All were on 9-inch row spacing. Four crop species were grown in each of the four years, with four replications of each.

Over all four years, the angle disc resulted in the highest percentage of crop establishment in all crops. However, the high-disturbance openers *were* successful in planting more weed seeds. Burndown and in-crop herbicide programs were used. Because occasional weed escapes produced seed that remained in the plot, weed pressure changes were ongoing much like on an actual farm. The graph presents weed pressures averaged over the last 2 years of the study. Yields in the final two years tended to be slightly lower for the higher-disturbance openers, due to both weed pressure and residue destruction.



Photo by Ken Flower, WANTFA

This photo, from Western Australia, shows wheat that was seeded with a low-disturbance disc opener. Ryegrass—a terrible weed problem in Australia—has emerged in the perpendicular 'stripes' where a shank opener had run the previous season. Disturbance 'banks' weed seeds.

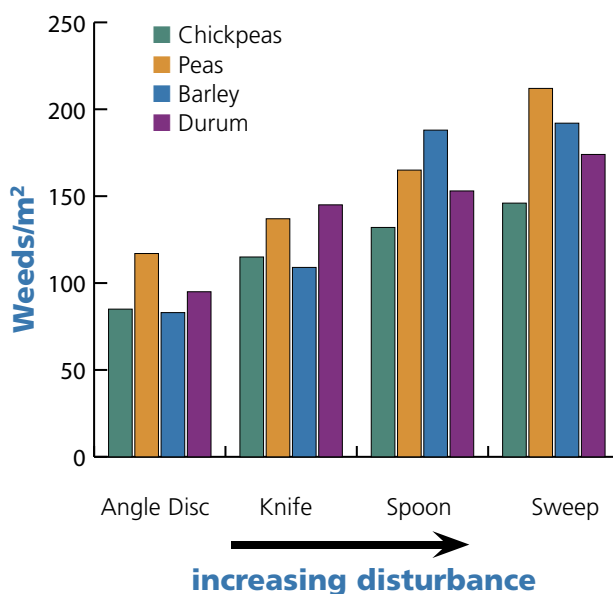


Photos by Matt Hagry.

Soil disturbance 'plants' weed seeds. Here, a field had been in no-till a few years when a gas pipeline was dug across it. The greenish-yellow vegetation in the disturbed streak was sprayed with herbicide about a week before the photo was taken. The close-up shows the weed population was probably more than 100 times greater in the disturbed area.

Obviously, increased weed germination results in reduced crop yield or requires more herbicide (or both). Anderson's article provides solid evidence that even quite shallow disturbance preserves more weed seeds for future years. Why give weeds these advantages? 🌿

2000-2001 Weed Densities



¹ This study had technical oversight by Doug Derksen, a scientist with Agri-Food Canada, and others.