

Crops can do their own weed control

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Wheat sowed in a field with high weed pressure provided by rapeseed. Left photo: Low crop density, crops sowed in rows. Middle photo: High crop density, crops sowed in rows. Right photo: High crop density, crops sowed in grid pattern.

In conventional farming, the most frequently used herbicides for weed control have a negative impact on the environment. On the other hand, organic farmers enlist machines to battle unwanted growth. These machines guzzle fuel and produce CO₂, while their tyres compact soil and damage its structure. New research results from the University of Copenhagen's Department of Plant and Environmental Sciences report that weeds would have a tough time competing against crops such as corn, grains and beans if farmers were to alter their sowing patterns.

"Our results demonstrate that [weed control](#) in fields is aided by abandoning traditional seed sowing techniques. Farmers around the world generally sow their crops in rows. Our studies with wheat and corn show that tighter sowing in grid patterns suppresses [weed growth](#). This provides increased [crop yields](#) in fields prone to heavy amounts of

weeds," states Professor Jacob Weiner, a University of Copenhagen plant ecologist.

Weeds battered, crop yields bumped

Research studies performed in Danish wheat fields, together with recent studies in Colombian cornfields, demonstrate that modified sowing patterns and the nearer spacing of crops results in a reduction of total weed biomass. The amount of weeds was heavily reduced - by up to 72% - while grain yields increased by more than 45% in heavily weed-infested fields. The trick is to increase crop-weed competition and utilize the crop's head start, so that it gains a large competitive advantage over the neighbouring weeds.

Jacob Weiner explains:

"Our results make it possible for agriculture to be conducted in a far more sustainable manner while maintaining consistently high grain production. This requires affordable new technologies to make it proactical out in farmers' fields. We can develop methods for outcompeting [weeds](#) even more if we learn more about how plants interact."

More information: Effects of density and sowing pattern on weed suppression and grain yield in three varieties of maize under high weed pressure, [onlinelibrary.wiley.com/doi/10 ... 1/wre.12101/abstract](https://onlinelibrary.wiley.com/doi/10.1111/wre.12101/abstract)

Provided by University of Copenhagen

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