

Witchweed:

a curse on Swaziland's maize crops

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Farmers say this parasitic plant is worse than drought or erosion. Lindsay Stringer investigates.

Maize is amongst the world's most important food crops. But in southern Africa, harvests are failing and families are going hungry. Farmers blame the 'curse' of witchweed.

I've been researching land degradation in Swaziland and its effects on people's lives. Most of the 274 farmers involved in my study considered witchweed their biggest problem, more so than drought and soil erosion. As Dudu, one of the farmers, said, 'The yields would be much greater without it... It does something bad to stop the maize growing up.'

The witchweed in Swaziland is *Striga asiatica*. It thrives in poor, dry soils. Most of Swaziland gets less than 1000mm of rain on average each year, and my measurements showed fairly low soil nitrogen levels. So Swaziland is ideal for witchweed.

Striga asiatica is about 50cm tall with innocent red flowers. But appearances can be deceptive. Unlike most weeds, it's parasitic. Its seeds wait in the soil until the germinating maize releases a chemical that wakes up the witchweed. The parasite then attaches itself to the young maize roots, stealing nutrients and water before the maize has even emerged from the ground, and disrupting its growth. The witchweed flowers then produce hundreds of thousands of seeds, which lie in wait in the soil for future maize crops.

Witchweed isn't new to Swaziland, but farmers think the problem is getting worse. Unlike drought, which occurs from time to time, the mass of seeds can attack the maize year after year. Witchweed's seeds are also very hardy, and can remain dormant for over a decade, waiting for perfect conditions for their assault.

Swaziland's policies offer farmers little support. The country's National Action Programme to Combat Desertification is meant to target the land degradation problems with the biggest effects on people's livelihoods. It focuses on drought and the very visible problem of soil erosion, but farmers say witchweed is a

bigger concern.

They are trying to fight back. They weed their fields, grow other crops like cowpeas amongst the maize, and add fertilisers. But because so much of the damage occurs below ground, farmers can't see how the witchweed operates. They need help to understand why some of their measures are more successful than others. For example, adding fertiliser works not because it makes the maize 'strong' as farmers believe, but instead, it makes the soil conditions unsuitable for the witchweed.

Globally, more than 100 million farmers are affected by various different varieties of witchweed. Farmers, scientists and policymakers need to work together to break its evil spell. Simple and inexpensive strategies could make all the difference.

Want to know more?

Want to know more about the science behind *Striga*? Take a look at some of the latest research from the University of Sheffield: *Ecology* vol. 93, pp67–78 or check out *New Phytologist* vol. 169, pp199–208.

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