



## Disease, weed and pest management in cereal/legume intercrops

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The beneficial effects of intercropping for crop protection are well known, but not sufficiently well quantified. Here we report some of the evidence of the beneficial effects in terms of reduction of diseases, pests and weeds from our trials:

- Chocolate spot (*Botrytis fabae*) on faba bean and Ascochyta blight (*Didymella pinodes*) on pea were reduced in intercrops with cereals, particularly barley and oat. Reduction has been ascribed to restricted air movement and spore dispersal.
- Rust (*U. viciae-fabae*) on faba bean and powdery mildew (*Erysiphe pisi*) were reduced on pea intercropped with barley and wheat. Rust and powdery mildew were also reduced in susceptible cultivars mixed with resistant ones. A barrier effect on spore movement is considered the main explanation.
- There are prospects for reducing several other diseases reported in the literature, but not tested by us. Interesting cases include reduction of brown spot in lupin; bacterial blight, angular leaf spot and anthracnose in common bean; damping off in lentil; soybean mosaic virus in soybean; early and late leaf spot in peanut.
- The parasitic weed broomrape (*Orobanche crenata*) infection on legumes can be reduced in intercrops with cereals, suggesting that cereal roots might exude substances that inhibit *O. crenata* seed germination. Previous studies also showed reduction in intercrops with other legumes like fenugreek or berseem clover.
- Intercrops with cereals also contribute to general weed control in legumes. This is relevant as temperate legumes usually grow slowly in the early season and compete poorly with weeds.
- Beneficial effects of intercropping have also been suggested for controlling pests such as pea leaf weevil, bean aphid, flower bud thrips.

In all cases, keep in mind that these reductions, although significant and beneficial, do not offer complete crop protection and are influenced by environmental factors. Monitoring of weeds, pests or diseases in the crop is important to decide if additional control measures are needed.

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