

Mustard Cover Crop

Famous for:

Appearing each spring in Sonoma County vineyards. Thought to improve soil.

Flip Side:

When I see gorgeously vibrant yellow mustard flowers, I see an indication of poor soil management. Mustard is one of those plants that prefers a heavy, clayey, or compacted soil. In consequence, only vineyards with heavy soils (or those that were tilled when the soil was too wet) will sprout mustard as a nearly continuous cover crop. Bright-yellow mustard-fields are actually an indicator of poor drainage, improper tillage, and a special influence known as allelopathy.

Doctor of Chemistry Rick Knoll has researched the science of allelopathy—the study of toxic or antagonistic chemicals (aka secondary metabolites) that some plants produce. These compounds act, in Knoll’s words, “as ecological chemicals to gain an advantage over other plants and act like an ‘immune system’ for the plant.” Such chemicals have multiple impacts, such as stunting the growth of other plants or suppressing their germination of seed. For example, Knoll points out, “All *Brassica* roots exude a secondary metabolite (glucosinolates —related to mustard gas) which inhibits grass-seed germination; this slows down the grasses and lets the *Brassica* get a really strong start. It doesn’t kill the grasses; it’s just a mechanism for competition.”

