Diversifying crops may protect yields against a more variable climate

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A survey of how farmers could protect themselves by growing a greater diversity of crops, published in the March issue of *BioScience*, has highlighted economical steps that farmers could take to minimize the threat to crops from global climate change, including a greater frequency of extreme climate events.

Adaptation to ongoing climate change is considered a policy priority for agriculture. The survey, by Brenda B. Lin of the Australian Commonwealth Scientific and Industrial Research Organization, documents multiple instances of farmers protecting economically important crops, such as rice and other cereals, alfalfa, and coffee, from outbreaks of pests and disease, often associated with climate change, or simply from changed physical conditions. The farmers succeeded by switching from growing a single variety of crop to growing a broader range of species or varieties, either at the same time or in rotation, or by introducing structural variety into uniform fields.

Such techniques work, in general, because they make it harder for pathogens and pests to spread, and they may modulate climate extremes the crops experience. Not all attempts at agricultural diversification lead to such benefits, Lin points out. Yet increasingly, farmers have access to crop modeling techniques that can evaluate when a given adaptation technique might provide an economic benefit. Because accurate modeling requires extensive knowledge of on-the-ground data, such as soil profiles for water and nutrients, Lin argues for the development of extension and research staff who can assist farmers in gaining the

information they need to use modeling techniques for adaptation.

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