

Study assesses the benefits of alfalfa-almond intercropping

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The practice of growing different but complementary plants within a given area, also known as intercropping, has numerous positive effects, such as reduced soil erosion, weed suppression, nitrogen fixation (the conversion of atmospheric nitrogen to nitrogen compounds that can be

used by plants and other organisms), and pollinator benefits.

Research published in [*Agrosystems, Geosciences & Environment*](#) reveals the increased land use efficiency and environmental benefits in an [alfalfa](#)–almond intercropped ecosystem under a Mediterranean climate.

Investigators found that intercropping alfalfa plants with [almond trees](#) during the winter (when almond trees are dormant) reduced field water loss via evaporation and significantly reduced winter soil nitrate leaching compared with control plots.

The findings indicate that intercropping alfalfa can be a viable approach to capture and convert winter rain and nitrogen losses into revenues for almond farmers.

"The ecosystem benefits observed in this unique alfalfa-almond intercropped agroecosystem were mainly attributed to augmentation in farm resource use efficiency and revenues generated during the normally non-productive winter season," said corresponding author Touyee Thao, Ph.D., of USDA-ARS, San Joaquin Valley Agricultural Sciences Center.

"Other aspects such as tree growth and productivity, soil microbial activity, and plant root interaction are also being investigated by colleague researchers."

More information: Intercropping Alfalfa During Almond Orchard Establishment Reduces Winter Soil Nitrogen and Water Losses, Provides On-farm Revenue, *Agrosystems, Geosciences & Environment* (2025). [DOI: 10.1002/agg2.70024](https://doi.org/10.1002/agg2.70024).
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