

Science for Sustainable Orchard Systems

Waste Not

Almonds grow in a shell, protected by a hull, on a tree. The California Almond industry has always sought beneficial uses for these coproducts, like dairy feed, livestock bedding and generating electricity.

Thus, everything harvested from the orchard is used, minimizing waste and getting the most out of the resources used to grow almonds.

A changing market for these materials has led ABC to focus research investment on new uses for almond coproducts, embracing a zero-waste approach to ensure everything that comes from the orchard is used, addressing needs across multiple industries.



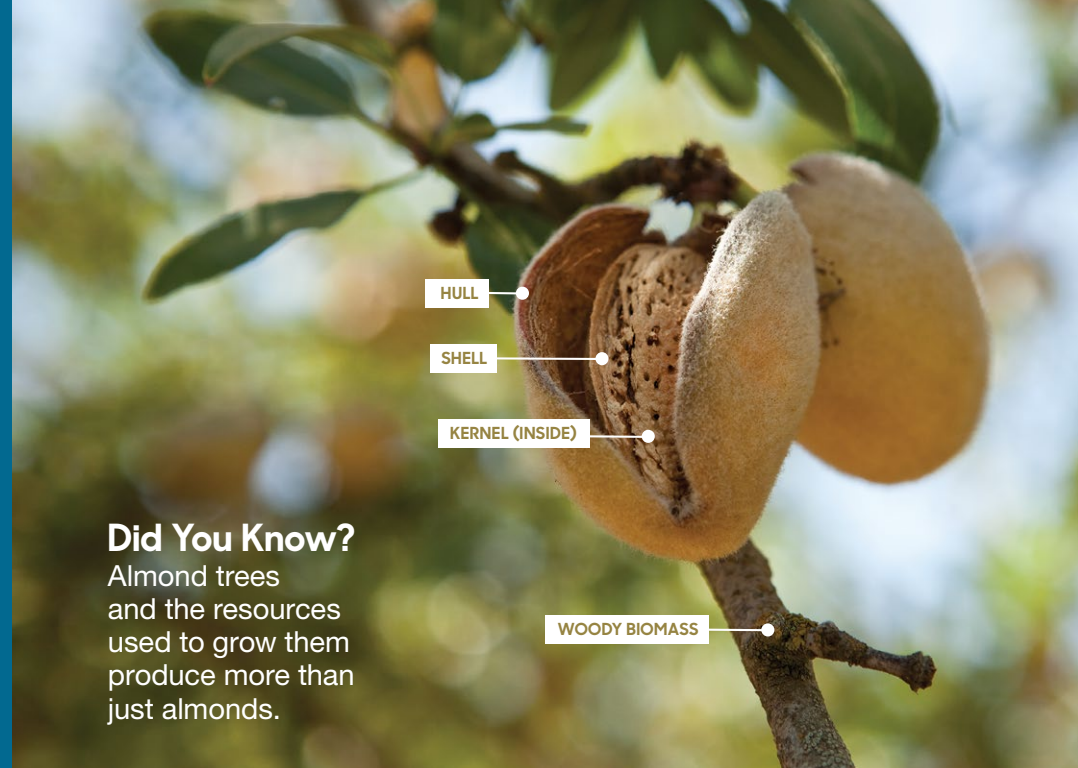
SHELLS

HULLS

TREES

RESEARCH EXPLORATION AREAS

- Soil Amendments for Almonds + Other Crops
- Plastic Additives for Strength + Color
- Feeding Insect Larvae for Poultry Feed
- Mushroom Growing Medium



HULL

SHELL

KERNEL (INSIDE)

WOODY BIOMASS

Did You Know?

Almond trees and the resources used to grow them produce more than just almonds.

Our Orchards' Foundation

Healthy soils. They're vital to backyard gardens and almond orchards alike. Much is known about improving soil health in annual crops, but not all cropping systems are created equal. Those that stay in the ground for many years, like almonds, have unique needs and challenges.

ABC is investigating what healthy soil looks like for almond orchards and how farmers can take steps to ensure those conditions are found in their fields. Research currently underway is exploring a variety of management options, some utilizing almond coproducts. The goal of these projects is to improve soil health by increasing the soil nutrients, organic matter, microbial activity and beneficial organisms, as well as water infiltration and water-holding capacity.

IN ESTABLISHED ORCHARDS

- Spreading Compost: applying various sources of compost to orchard floors
- Spreading Hulls and Shells: grinding almond hulls and shells into smaller pieces and spreading across orchard floors
- Intentional Cover Cropping: planting appropriate stature crops in tree rows that will still allow for other cultural and harvest practices while minimizing additional water use

WHEN REPLANTING ORCHARDS

- Whole Orchard Recycling: grinding and discing entire almond orchards back into the soil
- Anaerobic Soil Disinfestation (Biosolarization): using hulls, shells, water, tarps and the sun to naturally deplete the soil of oxygen, making it inhospitable to key harmful soil pests

● Soil health research utilizing almond coproducts.