

A Life Cycle Assessment of Greenhouse Gas Emissions for Almond Production in California

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PROJECT SUMMARY

Objectives:

- Develop a comprehensive computer-based life cycle model for assessing the direct and indirect greenhouse gas (GHG) emissions, as well as the associated criteria air pollutants and energy usage involved in the production, processing, and distribution of almonds in California.
- Use the model to calculate the GHG emissions, criteria pollutants, and energy per unit of production.

Background:

California almond growers have to contend not only with significant environmental variables, but also with a complex regulatory environment. Accordingly, in running operations and formulating their business plans, they have to take into account such factors as energy use, GHG emissions, and other forms of air pollution in both the short and long run.

This project is designed to furnish growers, processors and others in the almond industry with a model that will enable them to better understand the production processes and practices that contribute to GHG emissions, air pollution and energy use.

In the 2010-2011 project cycle, we created the baseline orchard management model to simulate all energy and resource inputs and waste, pollution, and co-product outputs, such as prunings and wood from removed trees, and to calculate carbon flows and nitrous oxide emissions on a per acre basis.

In the 2011-2012 project cycle we will expand this model to include almond transport off-farm, hulling and shelling, and distribution. The expanded model will be able to calculate a GHG and energy footprint, and will be useful for estimating the relative impacts of different orchard and supply chain management options on total GHG emissions and energy use.

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For More Details, Visit

- Poster location 18, Exhibit Hall, Session 2 or on the web (after January 2012) at AlmondBoard.com/AICposters
- 2010 - 2011 Annual Report CD (10-AIR8-Kendall); or on the web (after January 2012) at AlmondBoard.com/ResearchReports
- Related projects: 11-AIR2-Smart; 11-PREC1-DeJong; 11-STEW CROP4-Kimmelshue