



Maddox Dairy

Riverdale, California

Winner: Outstanding Dairy Farm Sustainability

Pioneer spirit paves the way for others

The pioneer spirit of the Maddox family has been a source of pride and growth for the second-generation, 3,400-cow dairy farm. With a passion for animal care and advancing innovative ideas, owner Steve Maddox aims to do more than discover and test new solutions – he shares his experiences with other farmers so that they may find similar success.

Local experts, organizations and funding programs are a crucial component to any Maddox research project. Most recently, such resources have enabled the family to determine better ways to use electricity on the farm; pilot a dual fuel program that would reduce their dependence on diesel; install a 1-megawatt solar power generator; and add high-efficiency irrigation technology.

Best Practices

1 Dual fuel engines

Summary

The recent addition of a dual fuel retrofit system, which uses 50 percent propane and 50 percent diesel fuel, has reduced fuel costs by 25 percent and diesel consumption by 50 percent. The system is estimated to save \$25,000 annually, not including labor or operation and maintenance of equipment, which will result in even greater savings.

Key benefits

The dual fuel engines will be a model for future industry projects, once regulatory standards are determined. This project has allowed Maddox Dairy to reduce its diesel fuel use and improve air quality via fewer exhaust emissions – benefits that have not only saved money but also garnered support from the local community.



2 Solar power

Summary

The Maddox family installed a 1-megawatt solar power generator in 2012. Currently generating enough electricity to cover 80 percent of electricity demand, the project is on track to meet its three-year return on investment.

Key benefits

The solar project reduced grid-based energy use from 2,197,301 kilowatt hours (kWh) annually to solar-based 2,101,924 kWh annually. This represents a 95.6 percent reduction in carbon-intensive grid power from a renewable source.

3 Irrigation technology

Summary

Maddox Dairy added high-efficiency, variable-speed pumps and mixing boxes to blend irrigation water with manure water using gravity instead of mechanical blending. This innovation allowed for greater efficiency irrigation, both in time and uniform distribution.

Key benefits

The irrigation technology decreased the number of pumps used to move irrigation water across fields, contributed to more uniform distribution of nutrients and reduced commercial fertilizer purchases. By distributing the nutrients in a more uniform manner, the Maddox family also was able to increase the amount of land mass on which to use the blended water, improving crop production.

Through early adoption of technologies, the Maddox family has moved the needle in terms of animal care, dairy sustainability and overall environmental health – all while also ensuring financial stability for future generations. Following their long, proud tradition of sustainable farming and innovation, they plan to continue their efforts to make new ideas into feasible solutions for dairy farms across the country.



The Sustainability Awards are part of the U.S. Dairy Sustainability Commitment, an industrywide effort to measure and improve the economic, environmental and social sustainability of the dairy industry. The award program recognizes dairy farms, businesses and collaborative partnerships for their contributions to healthy people, healthy products and a healthy planet and showcases that sustainability makes good business sense. An independent panel of judges evaluates all nominations based on the program's or project's results as measured by triple-bottom-line success – economic, environmental and social. For more information, please visit USDairy.com/Sustainability/Awards.