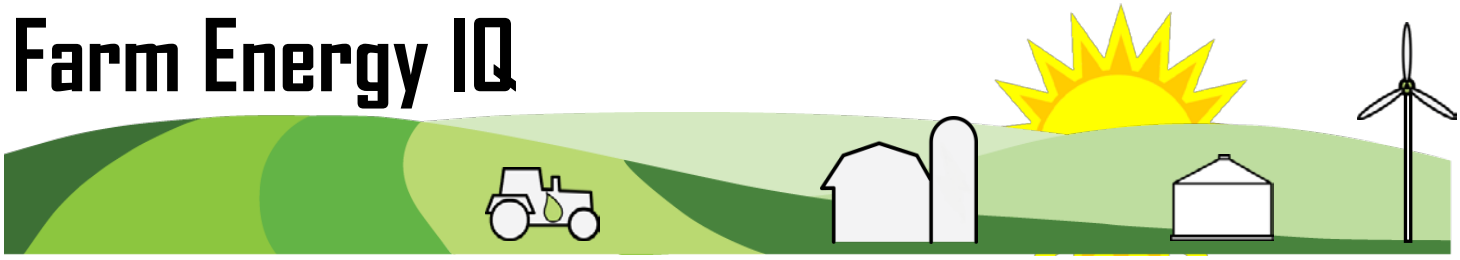
Farm Energy IQ



Energy Efficiency for Direct Farm Markets –ASP Presentation Outline

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Slide 1-3	Title and introduction
Slide 4	Not only do direct market operations differ widely in the forms of marketing, but an individual farm may engage in several different types of direct sales as well as serving wholesale markets. Each approach has its own energy issues, so improving energy use typically requires solutions tailored to the specific operation.
Slide 5-6	Typically, direct market farming operations are inherently less energy efficient than larger, wholesale farms. Part of this inefficiency is attributable to economies of scale. A diversified, smaller farm has fewer options for optimizing energy performance (centralized cooling and heating facilities, for example). A farm that produces many different products has more complex needs for storage, processing, material handling and transportation. This complexity often translates into more, smaller energy using devices (smaller trucks, multiple small coolers, hoop greenhouses) that are not as efficient as larger systems.
Slide 7	Advanced GPS not only provides directions to a destination but can adjust the route according to traffic conditions and minimize the number of left turns required. Route optimization and scheduling is fairly complex, and computerized optimization schemes may be beyond the resources of many direct market farms. Nonetheless, consideration of routes and scheduling to reduce miles traveled and time spent can provide significant cost savings. Improved vehicle performance (aerodynamics, tires, fuels) may be an option with an existing vehicle and should also be considered whenever purchasing a new vehicle.
Slide 8	Newer lighting technologies present energy savings opportunities as well as additional considerations when replacing lights or installing new fixtures. Initial cost, Color rendering, light temperature, lumen depreciation and cold weather performance are all factors that can influence lamp selection. Improving lighting efficiency should focus on high use areas.

Slide 9	The defrost cycles for cooling and refrigeration equipment should be adjusted to meet the systems needs. Sensors should be calibrated or checked annually or seasonally or more frequently for high humidity or dirty environments. Sensors should be kept clean. Sensors should measure conditions at a location that is representative of the space. This means that the height and position should correspond to the area where cooling is desired (for example, 3 to 5 feet high for human occupants). Sensors should not be in direct sunlight, near heat sources and either aspirated or well ventilated. Failure of cooling or ventilating equipment can be disastrous in agricultural operations. The safeguard of providing alarms for high or low temperatures is well worth the effort involved in setting up an alarm system.
Slide 10-12	SEER and EER can provide a basis for comparing similar equipment. They often are not a reliable indicator of projected use in agricultural operations.
Slide 13	Some cooking equipment comes with ENERGY STAR ratings. For exhaust hoods in conditioned spaces, energy recovery can reduce energy use significantly. Variable Frequency Drive controllers may improve vacuum pump performance. For motorized equipment, use efficient motors. For larger motors (more than 1 hp), where three phase power is available, three phase motors can be more efficient.
Slide 14	Tips for motor efficiency
Slide 15	Tips for pump efficiency
Slide 16	Tips for air compressor efficiency
Slide 17	Retail energy consumption considerations
Slide 18	Greenhouse energy efficiency overview
Slide 19	Questions?

This project supported by the Northeast Sustainable Agriculture Research and Education (SARE) program. SARE is a program of the National Institute of Food and Agriculture, U.S. Department of Agriculture.
Significant efforts have been made to ensure the accuracy of the material in this report, but errors do occasionally occur, and variations in system performance are to be expected from location to location and from year to year.

Any mention of brand names or models in this report is intended to be of an educational nature only, and does not imply any endorsement for or against the product.