

SARE convened a symposium on Feb. 13, 2006 in Washington, D.C. to address the growing interest in the intersection of sustainable agriculture and renewable energy entitled '[Renewable Energy and Sustainable Agriculture: Exploring the Crossroads.](#)'

The following is a summary of questions and concerns raised in the symposium discussion.

### **Use a Systems Approach to ask Questions and Solve Problems**

- Seek solutions that address multiple problems, including environmental, economic and community development. Sustainable energy should provide net environmental benefits to improve soil and water and the lives of rural communities, involve farmers in a meaningful way, and integrate energy production into a whole-farm conservation plan
- The focus should reach beyond the farm to a larger ecological scale—wildlife, wetlands, watershed and diversification should all be part of decision-making.
- The most effective level of scale (community, cooperative, local, regional) to produce biofuels should be analyzed, and benefits and disadvantages of local and regional energy production considered carefully.

### **Environmental Stewardship**

- Increasing demand for feedstocks will increase demand for land.
  - How will competition for resources, including food vs. energy production be addressed?
  - How will marginal land be kept out of production?
- Switchgrass is being put forward as the most promising energy crop. What questions/issues still need to be addressed?
  - Stand establishment can be a challenge. Poor stands can lead to heavy soil erosion.
  - What will be the impact of large swaths of switchgrass on wildlife and diversity?
  - How can switchgrass be integrated into existing sustainable rotations or used to develop new ones?
  - Converting from corn to switchgrass may be environmentally preferable, while shifting from pasture to switchgrass could have a negative impact on soils and landscape.
  - What are the environmental and economic impacts of moving CRP land to switchgrass?
- Some areas of the country have excess residue, some have deficiency. What will be the impact on soil quality and carbon storage on residue removal, carbon storage. [View](#) *Crop Residue Removal for Biomass Energy Production: Effects on Soils and Recommendations* from USDA-NRCS.
- What will be the role of C-sequestration and carbon trading?
- Place efforts on the focus to on-farm or close-to-farm processing (one current vision to replace 30% of liquid fuel from biomass would require millions of semi-truck miles. This does not seem sustainable or feasible).

### **Community/Rural Development**

- How can the bio-based industry be developed to address not just energy needs, but other social and economic issues?
- The corn/soybean belt is the area where most large biofuel projects are occurring and are projected to occur. How can other regions of the country and other types of agriculture benefit from the new bio-economy?
- One size does not fit all. Focus on a range of technology scales. For example can processors/digesters be made to be used on-farm and smaller farms?
- How can diverse groups of farmers be engaged in these discussions?

- Land ownership—20% of Iowa is owned by people outside the state, leading to decreased incentives for land stewardship. Will tenants make long-term investments?
- How can businesses be structured so that profits stay local (county, state, regional level)?

### **Economics**

- Biofuel plants will need feedstocks to stay in business, but crops grown and prices paid will be driven by market and commodity forces.
  - How can farmers capture more value from behind the farm gate?
  - Who will own the production facilities?
  - Focus on identification of and education about alternative models of ownership.
  - What other opportunities are there for value-added from bio-energy?
- Could green payments or green labels encourage a premium/fair price for sustainably produced biofuels?

### **What Roles Should National, State and Local Government (including USDA, DOE and other) Play Regarding Policies and Technologies?**

- There is a current lack of infrastructure to support energy crops—how will this infrastructure be developed, and who will it benefit?
- The current commodity program encourages over-production of certain crops, keeping prices artificially low. How can USDA facilitate a successful transition through structural issues such as these?
- What farm bill titles/policies will be promulgated to encourage bio-energy across a variety of sectors?

### **What Information Needs to be Added to the Discussion?**

- Sustainable farms already use less energy.
- Increase the focus on energy use (conservation), not just the cost of added energy
- What impact would converting large amounts of land to bio-energy crops have on the environment?
- What will conservation groups accept on sustainability on bioenergy?

### **Potential Topics for Research**

- Which plant-based fuels lend themselves to both environmental sustainability and positive energy balance?
- How can digesters be scaled to work on smaller farms?
- What are effective current and/or new energy/agronomic sustainable rotations?
- Development of other sustainable energy crops
- Can grass mixtures used for ethanol be developed to improve bio-diversity?
- Can more perennial sources of energy be developed?
- Are there new crops that can be sustainably produced for profitable energy feedstocks?