Report on Session

"Effects of energy crop cultivation on soil functions"

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Session "Effects of energy crop cultivation on soil functions"

Main topics:

- Effect on physical soil properties (erosion) and C sequestration
- competition of C demand for biogas production vs. SOM reproduction
- Greenhouse gas balance, in particular (N_2O) emission
- Contribution of biogas residues to SOM
- CO_2 emissions after biogas residues application
- role of management for effect of energy crops on soil

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Main results and outcomes:

- Effects of energy crops depend on site and management
- Dedicated energy crops more beneficial than removal of crop residues
- Energy crops reduce CO_2 emission, increase N_2O production
- N_2O production can be minimized by management
- Only few hot spots of C demand for biogas production and sustainable SOM management identified in Central Germany
- Amendment with biogas residues can contribute to proper management in energy crop production
- Bioenergy crops have potential for sustainable energy production

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Outlook and research need:

- Site specific effects of energy crops Þ general recommendations for farmers are still difficult
- More information on root biomass of energy crops is needed for prediction of long-term effects on SOM
- Contradictory results on priming effects of biogas residues
- Energy crops can contribute to maintaining or even increasing soil quality and functions if the appropriate energy crops are grown at appropriate sites with appropriate land management

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