

A Case study of Zero Tillage Organic Soybean Production in Brazil
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ABSTRACT

Submission to :

ORGANIC FARMING and SOIL MANAGEMENT session (SSS10.3)

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This Scientific Session invites you to contribute with your experience in organic farming in relation to:

-Soil changes (biota, water, mineral and organic matter, erosion) - Plant protection

-Soil productivity - Food quality

-Socio-economic aspects.

To supply demand for organic soybean ingredients in their organic food products, Gebana Switzerland's Brazil subsidiary is giving technical and certification support to small farmers planting soybeans with zero tillage/conservation agriculture in southern Brazil and Paraguay. Technical recommendations on pest and disease control include neem insecticide and Trichoderma natural fungicide as seed treatment. Innovative weed control is achieved with electric shock treatment for pre-planting desiccation and inter-row cultivation with a self-cleaning cultivator, leaving old crop residues in place. The median farm size is 30 hectares???, all farms are mechanized. Soil organic matter levels have improved from an average under conventional disc tillage (CT) of between ??? and ??? % to between ??? and ??? % with ZT/CA. Soil Potassium levels rose due to lower leaching, while phosphate fertilizer efficiency increased with lower Iron and Aluminium fixation in soil. Earthworm counts are considerably higher than CT and soil biota activity doubled or trebled. Rainfall infiltration rates increase, minimizing surface runoff and soil erosion. Fungal diseases are controlled with Bordeaux mixtures, while lower incidence of the serious Asian Soybean Rust is achieved by earlier planting, shorter cycle varieties and natural frost or electric shock control of volunteer soybeans prior to rotational wheat planting. Cover crops are seldom used due to the need for cash crops. University studies show variable results in cost and return data due to climate and lower yields, as compared to non-organic farmers, are compensated by organic premia, leaving satisfactory gross margins. The entrepreneurial role of Gebana is vital to provide small farmers with innovative technology, a market outlet with fair prices through organic group certification for Instituto Bio-Dinâmica and Responsible Soy and access to expensive weed control machinery. In collaboration with state extensionists, Gebana also assists farmers to comply with government regulations, especially the revised Forest Code, record-keeping

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and technical training; exemption from regulations on pesticide storage and use were obtained.