

## **Effect of Soil Separation Technique with Integrated Catch Crops and Manure on Yield and Quality of Potatoes in Organic Farming**

*Herwart Böhm*

Christian-Albrechts-University of Kiel, Hermann-Rodewald-Str. 9, 24118 Kiel  
Germany, [herwart.boehm@fal.de](mailto:herwart.boehm@fal.de)

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The quality of potatoes in stony soils can be improved by the soil separation technique. If this technique is used in autumn in combination with integrated catch-crop growing and fertilization of stable manure or slurry a higher yield was observed, but also a lower leaching rate of nitrate over the winter period. This was tested in field trials under organic farming conditions in 1999 and 2000 on the experimental farm Lindhof of the University of Kiel.

Catch crops as oil radish or yellow mustard were able to fix 60 - 70 kg N<sub>t</sub> ha<sup>-1</sup>. Tuber yield after oil radish (36.4 t ha<sup>-1</sup>) was higher than after yellow mustard (33.0 t ha<sup>-1</sup>) and was significantly higher compared to the control (30.3 t ha<sup>-1</sup>). Cowshed manure (80 kg N<sub>t</sub> ha<sup>-1</sup>) or slurry (40 kg N<sub>t</sub> ha<sup>-1</sup>) increased yield in a similar range as catch crops. The highest yield (41.7 t ha<sup>-1</sup>) was recorded after oil radish combined with manuring of 40 kg N<sub>t</sub> ha<sup>-1</sup> slurry. Also the nitrogen uptake by the tubers was highest after oil radish combined with slurry 87.1 kg ha<sup>-1</sup> compared to 57,7 kg ha<sup>-1</sup> in the control. The comparison of the soil separation technique in autumn in the year before or in spring just before planting the potatoes showed higher yield after the use in autumn.