

## Impact of Different Agricultural Systems and Patterns of Consumption on Greenhouse Gas Emissions in Austria

Freyer, B.<sup>1</sup>, Weik, S.<sup>2</sup>

Keywords: greenhouse gas emissions, CO<sub>2</sub>-equivalents, organic farming, nutrition patterns, scenarios

*Agricultural systems as well as consumer patterns influence the greenhouse gas emissions. Therefore, the aim of the study was to investigate the impact of agricultural production systems and different nutrition patterns on greenhouse gas emissions in Austria. The potency of the individual greenhouse gases is taken into account by the concept of the global warming potential (CO<sub>2</sub>-equivalents). Based on this indicator, we compared the current status quo with three scenarios to make a total of four scenarios.*

Table 1: Scenarios on greenhouse gas emissions based on agriculture system and nutrition patterns

Agriculture and Nutrition Pattern	Total Food Consumption	CO <sub>2</sub> -Equivalent (E)	Savings versus Scenario 1	
			kg CO <sub>2</sub> -E	%
Scenarios (S)	kg FM capita <sup>-1</sup> yr <sup>-1</sup>	kg capita <sup>-1</sup> yr <sup>-1</sup>		
Conv. Agriculture, current nutrition (S1)	644	1230	-	-
Org. agriculture, current nutrition (S2)	644	856	374	30.4
S1+recomm. nutrition (S3)	723	1031	199	16.2
S2+recomm. nutrition (S4)	723	742	489	39.7

Source: own

*The change of products from conventional (S1) to organic production (S2) reduces the emissions by 30%. A change of nutritional pattern from the average (S1) to the recommended level of conventional products (S3) results in a reduction of the emissions by 16%, but the emission further reduces to 39% if there is change to the recommended level of organic products (S4). The realization of scenario 4 means a tremendous change in nutritional style; the food quality change (to organic products) as well as the daily food consumption pattern (to recommended levels). Based on a total of 10.6t CO<sub>2</sub>-equivalents per capita and year, the adaptation contributes to a reduction of 4.7%.*

<sup>1</sup> Division of Organic Farming; University of Natural Resources and Applied Life Sciences (BOKU), Gregor-Mendelstr. 33, A-1180 Vienna, e-mail: Bernhard.Freyer@boku.ac.at, Internet [www.nas.boku.ac.at/oekoland.html](http://www.nas.boku.ac.at/oekoland.html)

<sup>2</sup> Division of Organic Farming; University of Natural Resources and Applied Life Sciences (BOKU), Gregor-Mendelstr. 33, A-1180 Vienna