

Organic agriculture in North-Rhine-Westphalia: Empirical Analysis of the heterogeneous spatial distribution

Guido Haas

Institute of Organic Agriculture, University of Bonn, Katzenburgweg 3, D-53115 Bonn, Germany

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ABSTRACT (extended abstract, publication in German, full file for download available)

In North-Rhine-Westphalia (NRW), the German state with the largest population (18 Mill. people), 2.6% of the agricultural area was farmed organic at 1.1.2002. Based on data derived from the NRW statistical office, the statewide extension agencies and the organic farmers' organisations we investigated the spatial distribution of the organic farms by correlating general conditions and the economical and natural environment of the 34 administrative districts of NRW. The organic farmed area varied widely - from 0.1% to 7.5% - over the districts. Aim of this contribution is analysing the agricultural structure for reasoning the heterogeneous distribution of organic farms in NRW.

In certain parts of NRW, highly specialised farming causes a high environmental burden. Although organic agriculture clearly has a lower negative environmental impact, the number of organic farms in regions with specialised intensive production is low. Inherent needs of the system restrict the options to simplify the organic farming process and for some products (e.g., pork, sugar beets) only a very small organic market exist. Therefore, the potential for increasing the rate of transition of specialised conventional farms to organic farming is very limited within the current agro-political framework. In districts with a high number of conventional intensive livestock farms or stockless arable cash crop farms (25 - 31% and 56 - 78% of all farms, respectively) there is only a very small amount of organically farmed area and number of organic farms (both below 0.7%). These districts have predominantly a high rent (up to 400 EUR/ha arable area), a high standardised farm income (up to 65,600 EUR/farm and 2,300 EUR/ha) and a high selling value of the land (up to 40,000 EUR/ha). They include specialised intensive crop production with a high share of sugar beet, potato and field vegetables (up to 28%, 16% and 11%, respectively) of the farmed arable area or high livestock density (up to 2.4 LU/ha), especially pigs (up to 940 pigs/100 ha). The share of organic farms decreases if the share of conventional intensive livestock farms or mostly stockless arable farms increases ($r = -0.56^{***}$ and -0.39^* , respectively), whereas the share of predominantly forage-producing farms shows a positive correlation ($r = 0.45^*$). Organic farms are concentrated in the hilly grassland and forest regions in the southern parts of NRW (5 - 7% organically farmed area). The districts there are dominated by marginal land and contain a high share of grassland (up to 95% grassland of the farmed area), low share of marketable high value crops and a medium livestock density (1.0 - 1.5 LU/ha). Currently, predominantly forage-producing farms with a high share of grassland and mostly cattle keeping are primarily converting to organic farming. The average share of grassland of the organic farmed area in NRW is 59% in contrast to only 28% of the conventional farms. The correlation between the share of grassland and the share of organic farms in the 34 districts is close ($r = 0.66^{***}$). In average more suckler cows for beef production are kept in organic than in conventional farms (22.2% and 3.8%, respectively). In contrast, pigs are only a 5.6% share of the organic while the share is 36.0% of the conventional farms. The correlation between the density of pigs and the share of organic farms is negative ($r = -0.57^{***}$). The analysis of the heterogeneous spatial distribution of the organic farms illustrates the need for a different supporting payment for organic areas, which in NRW for the first two years is high compared to other states in Germany but lower afterwards (409 EUR/ha for the 1st and 2nd year of conversion, 204 EUR/ha for 3rd - 5th year, 153 EUR/ha after the 5th year) and always equal for arable and grassland area, but should be differentiated. Measures supporting organic farming should not necessarily be restricted to financial support. The competitiveness of the organic farms can also be improved by eliminating or altering some EU common regulating market policies (e.g., sugar beet quota) and by more consistently implementing environmental protection schemes and directives in conventional farming (e.g., nitrate sensitive area schemes, reducing P-eutrophication, enhancing soil and habitat protection).