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Evaluation of the National Apiculture Programme in Austria, 2004-2007: General lessons learned regarding support programmes

Abstract: *To improve production and marketing of honey, the European Commission has laid down general rules for the application of specific measures within national programmes of the Member States (Council Regulation No. 1221/1997, updated by Regulation No. 797/2004). These national programmes are part of the first pillar of the CAP and are co-financed by the EU with a share of 50%. In 2009, an evaluation of the Austrian apiary subsidy programme for the period 2004-2007 was commissioned by the Federal Ministry of Agriculture, Forestry, Environment and Water Management for the purpose of identifying the relevance of these measures for the apicultural sector.*

The present paper is based on the study "Evaluation of the Apiculture Subsidy Programme 2004/05 to 2006/07" and comprises selected results of those programme measures which appear to be most interesting in an international context. Towards this end, application and payment data were analysed using descriptive statistics to reflect the direct effects of the programme on the Austrian apiary sector. The evaluation results permit the deduction of several recommendations having general validity for the implementation of support programmes in rural areas.

Keywords: *Austria, apiculture, support programme, subsidy, evaluation*

Beyond its direct contribution to agricultural output through the production of honey, the Austrian apiary sector helps satisfy an important precondition for farming by pollination activities of bees. Moreover, beekeeping in Austria contributes to rural development, as the small-structured yet area-wide apiary sector provides additional sources of income that help keep rural populations in the countryside.

The European Commission has laid down a set of rules for the application of specific measures within national programmes of the Member States, for the purpose of improving production and marketing of honey (Council Regulation No. 1221/1997, updated by Regulation No. 797/2004). These national programmes are part of the first pillar of the Common Agricultural Policy (CAP) and are co-financed by the EU with a share of 50%. In 2009, the Federal Ministry of Agriculture, Forestry, Environment and Water Management for the first time commissioned an evaluation of the Austrian apiary subsidy programme for the period 2004-2007, with the aim being to identify the relevance of this programme for the Austrian apicultural sector. An additional goal was to use the evaluation results to make recommendations for the design of the next National Apiculture Programme from 2010/11-2012/13. Besides providing a general overview of the apiary sector in Austria, this paper presents the evaluation results most relevant for international interests. The entire results of the evaluation have been published in “Evaluation of the Apiculture Subsidy Programme 2004/05 to 2006/07” by Neuwirth, Hambrusch and Wendtner (2010).

Apiculture in Austria

The structure of beekeeping in Austria is characterised by numerous small and middle sized enterprises scattered over the entire national territory. Figure 1 shows a decline in the total number of beekeepers (-22%) and bee colonies (-18%) between 1995 and 2008. At the same time the average number of bee colonies per beekeeper rose from 13.8 to 14.4. Although about 22,250 apiculturists were members of a beekeepers' association in 2008, most Austrian apiarists keep bees as a leisure activity or to supplement their regular income. While only one percent of Austrian apiarists can be classified as professionals – and are members of the Austrian association of professional beekeepers (ÖEIB) – this group keeps 13% of all bee colonies. The majority of beekeepers are members of the (non-professional) Austrian association of beekeepers (ÖIB). On average, a member of ÖEIB keeps 175 colonies whereas a member of ÖIB keeps about 13 colonies in 2008.

The focal point of the Austrian apiary sector is located in Upper Austria: 45% of beekeepers and 43% of bee colonies can be found in this federal state. In terms of the density of bee colonies per km², Vienna has the highest concentration (12.3 colonies/km²) followed by Upper Austria (7.4 colonies/km²).

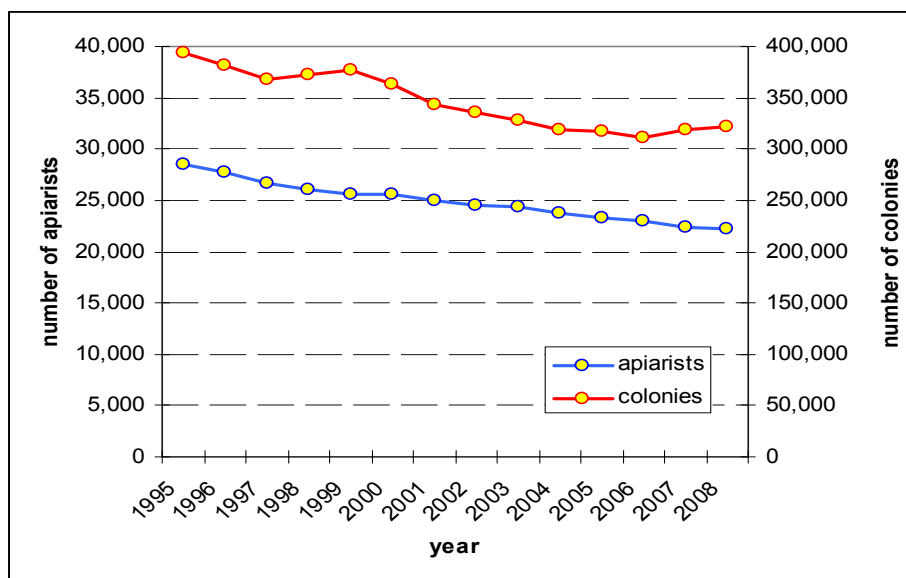


Figure 1: Number of apiarists and colonies in Austria, 1995-2008

Source: Biene Österreich (2009), Steirisches Imkerzentrum (2009)

A study completed in Upper Austria (Österreichisches Imkereizentrum, 2003) provides more in-depth and qualitative information about the structure of apiculture in this federal state. Some results, especially those regarding the age structure and overall share of female beekeepers, mirror the national situation. Interviews conducted with 3,881 apiculturists in Upper Austria came to the following results:

- Apiculture is dominated by men: only 5% of beekeepers are female.
- The average age of apiarists is 61.5 years (49% of beekeepers are between 51 and 70 years of age).
- On average, an apiarist has been active for 26 years (17% of interviewees reported keeping bees for no more than 10 years, while 15% had done so for more than 50 years).
- The main share of apiarists keeps bees for leisure, though beekeeping served as a source of income for 14% of interviewees.
- Beekeepers are mainly retirees (49%), while 20% are employees, 14% are workers and 12% are farmers.
- The bee species *Carnica* is most often kept (95%).

Over the five previous years, average annual honey production in Austria amounted to 6,160 tons, however a trend towards smaller harvests could be observed since 2000. The annual average yield per colony was 21.56 kg, but this figure ranged from 16.2 kg in 2008 to 27.5 kg in 2000. Statistik Austria data shows higher prices for honey under declining production. The 2008 price of € 6.15/kg was a record high in Austria.

In terms of the national supply balance sheets, Austrian demand for honey exceeds production: In fiscal 2007/2008 the Austrian apiary sector produced 5,700 tons of honey, of which 1,100 tons were exported. To meet the average demand of 1.2 kg per inhabitant, some 5,000 tons of honey had to be imported (self-supply rate 59%). The main export country for Austrian honey is Switzerland, while imports stem mainly from Germany and Hungary (Statistik Austria).

The National Apiculture Programme in Austria 2004/05-2006/07

In 1997, the first National Apiculture Programme to be co-financed by the EU was implemented in Austria, with the duration set to last one year based on Council Regulations (EC) 1221/1997 and 2300/1997. In September 2004, the new Regulation (EC) 797/2004 extended the duration to three years, with the main focus of the programme remaining on the maintenance of the nationwide beekeeping and apiary sector. A new structure in the apiary sector was also implemented: From this time forward, the new organisation *Biene Österreich* has acted as an umbrella organisation that includes the ÖEIB and ÖIB associations.

The contents of the new programme are similar to the first programme of 1997, but have been extended in scope and duration. The new programme contains the following measures and sub-measures:

- Technical support for beekeepers and their organisations
 - » Educational and advisory measures
 - » Investment support
 - » Support for small equipment purchases
 - » Support for newcomers
- Abatement of *Varroa destructor* mites by authorised experts
- Support for the restocking of bee colonies through breeding measures
- Rationalisation of transhumant beekeeping
 - » Support of on-site controls
 - » Investment support
- Improvement of honey quality
- Chemical analyses of honey, pollen and bee diseases by laboratories
- Research projects

Figure 2 shows the development in spent subsidies compared to the total amount of subsidies available. In the first year of the new programme period, only 64% of the available subsidies were spent, whereas in the last year all available monetary subsidies were dispensed to the beekeeping sector. Figure 2 also shows the changing importance of individual measures: e.g. while the abatement of *Varroa* mites was the most important measure in 2002/03, receiving 45% of subsidies, it became less important in the new programme period. On the other hand, technical support gained importance in terms of spent subsidies (from 40% in 2002/03 to 57% in 2008/09). Also worth noting is the expenditure trend for laboratory analyses: In 2002/03 only 7% of spent subsidies went to chemical analyses, but in the following years this measure received between one-fourth and one-third of all support monies.

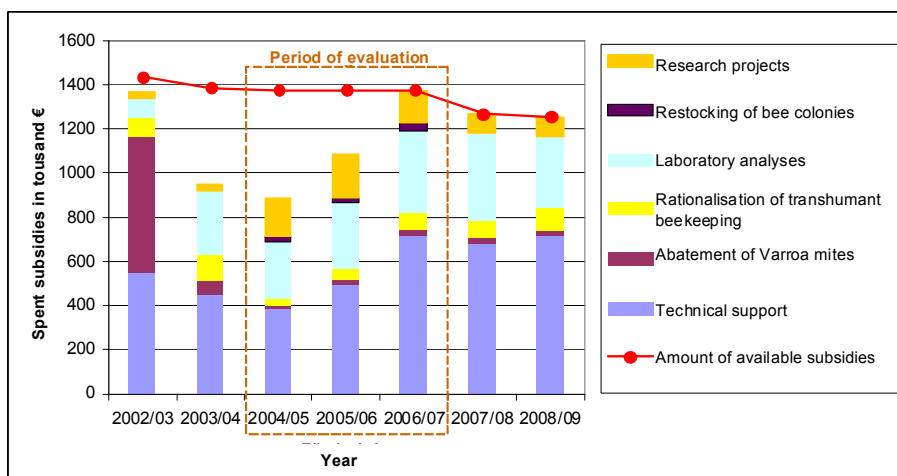


Figure 2: Subsidies spent per measure vs. total amount of available subsidies, 2002/03-2008/09

Source: AMA payment data; own illustration

Evaluation of the National Apiculture Programme

Data used and methods applied

For the evaluation of the Austrian Apiculture Programme a concept consisting of three evaluation questions was elaborated (see fig. 3). The first question highlights the direct effects of the provided measures especially the quantitative acceptance by apiarists. Whether the supported research projects met the demand on research from the experts' point of view and which scientific topics could be of interest in future are subject of the second question. The third evaluation issue concentrates on the impacts of the newly established umbrella organisation "Biene Österreich" on the Austrian apiary sector. As the last two questions seem to be relevant mainly for national interests, the further paper focuses on selected results of the first evaluation question regarding measures that have been judged to be interesting for an international readership: investment support, support for small equipment purchases, laboratory analyses of American foulbrood, trainings and courses, as well as laboratory analyses of honey.

The results of the complete study are published in "Evaluation of the Apiculture Subsidy Programme 2004/05 to 2006/07" (Neuwirth et al. 2010).

Most data used in the evaluation derived from the application and payment database of AMA (Agrarmarkt Austria). These data comprise information about the structure of supported enterprises, the number of subsidy applications filed and the amount of subsidies paid, with each category subdivided by year and federal state. The data were analysed using descriptive statistics and, if required, compared with official data (e.g. existing data on the structure of Aus-

trian apiculture). Information about the Austrian beekeeping sector as a whole originated from the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), from Biene Österreich (the umbrella organisation of Austrian beekeepers) and from ÖEIB (the Austrian association of professional beekeepers).

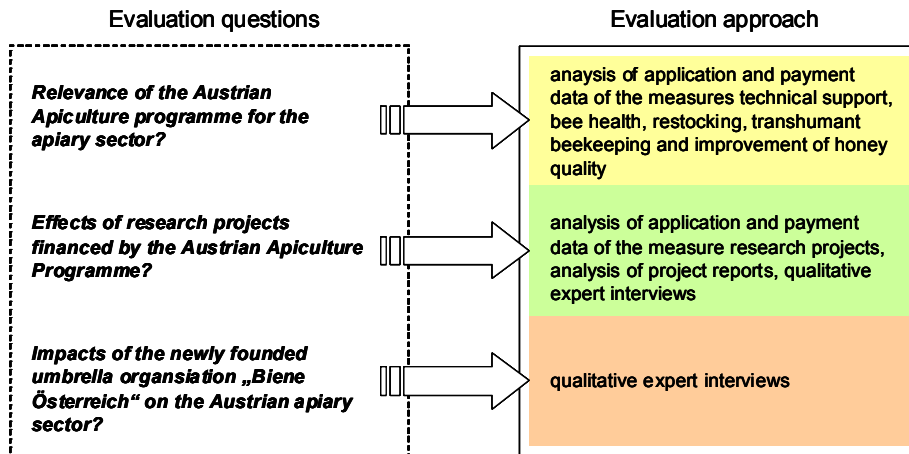


Figure 3: Concept of evaluation
Source: Neuwirth et al. (2010)

Results of the evaluation

The paper focuses on the evaluation results for the following selected measures: investment support, support for small equipment purchases, laboratory analyses of American foulbrood, trainings and courses, as well as laboratory analyses of honey.

Measures related to investments

Investment measures comprise investment support (including investment support for transhumant beekeepers), support for the purchase of small equipment and support for newcomers. In sum, these three sub-measures accounted for 22% of all subsidies spent.

The measure investment support offers a subsidy of up to 42% of the purchase price for machines and equipment having a minimum total value of € 2,000, including transport equipment, honey separators, filling and storage pots, honey liquefiers, etc. If a beekeeper participates in the Austrian Honey Quality Programme, the subsidy rate increases to a maximum of 48%. Applicants must keep at least 58 bee colonies to qualify. Within the programme period, 123 beekeepers received approx. € 287,000 in subsidies – an average of € 2,340 per applicant – in this support category.

The share of beneficiaries who participated in the Honey Quality Programme increased annually, from 79% of supported beekeepers in 2003/04 to 98% in the last year of the programme period (see Table 1).

With 184 bee colonies, the size of supported enterprises was much larger than the national average for Austrian apiarists (14 colonies in 2008), but also larger than the national average for professional beekeepers (175 colonies in 2008).

Table 1: Characteristics of support for investments and small equipment purchases (by year)

Characteristic	Investment support			Support for small equipment		
	2004/05	2005/06	2006/07	2004/05	2005/06	2006/07
No. of applications	34	46	43	73	410	651
Average no. of colonies per application	192	189	172	51	33	30
Paid subsidies in €	71,365	112,646	103,345	21,623	98,188	195,209
Average subsidy per colony	12.02	12.94	15.01	5.82	7.19	10.07
Share of participation in HQP* in %	79	89	98	100	100	100

* Austrian Honey Quality Programme

Support for small equipment purchases was offered for the first time in the National Apiary Programme 2004/05 to 2006/07. Participation in the Honey Quality Programme is obligatory to receive subsidies for such purchases – tools such as filling and storage pots as defined by the regulations. During the entire period, 1,100 beekeepers received subsidies worth a total of approx. € 315,000. The number of applications jumped from 73 in the first year to 651 in the last year of the programme period (see Table 1). On average, each project was awarded € 278. The costs submitted were one fifth higher than the maximum allowable costs (see Table 2).

The size of supported enterprises decreased significantly during the programme period. While the average of kept colonies was 51 during the first year, by the last year more and more smaller apiary enterprises had applied for subsidies, thus driving the average down to 30 colonies per enterprise in 2006/07 (see Table 1). Nevertheless, during the overall programme period the size of supported enterprises remained 2.5 times higher than the Austrian mean. As a trend, smaller enterprises received higher subsidies per colony.

Table 2: Average share of submitted costs vs. maximum eligible costs by federal state (in %)

Federal State	2004/2005	2005/2006	2006/2007	Total average
B	35	130	114	107
K	89	151	80	106
NÖ	96	146	90	107
OÖ	107	157	109	129
S	113	165	123	136
ST	106	137	85	105
T	93	165	109	125
V	94	115	121	119
W	-	122	119	119
Austria	103	151	101	119

Sub-measures within this category are laboratory analyses of American foulbrood in transhumant bee colonies, efforts to abate Varroa mites or other bee diseases by experts, on-site controls of transhumant bee colonies by experts, and breeding towards Varroa tolerant bees. In the programme period under evaluation, some 16% of subsidies were used for the improvement of bee health. For example purposes, only the evaluation results of the measure “laboratory analyses of American foulbrood within migrating bee colonies” are presented in the following passage.

Within the bundle of sub-measures related to bee health, more than half of the monies spent were dedicated to analyses of American foulbrood. This bacteria-caused disease occurs again and again in Austria, but the number of reported outbreaks varies significantly from year to year. Because the disease is highly contagious, spreads quickly and has a high potential for doing damage, professional apiarists are particularly affected. This is evident in the evaluation results: nearly half of the analysed specimens were submitted by members of ÖEIB. The number of analysed specimens climbed enormously in the last evaluation year (see Figure 4).

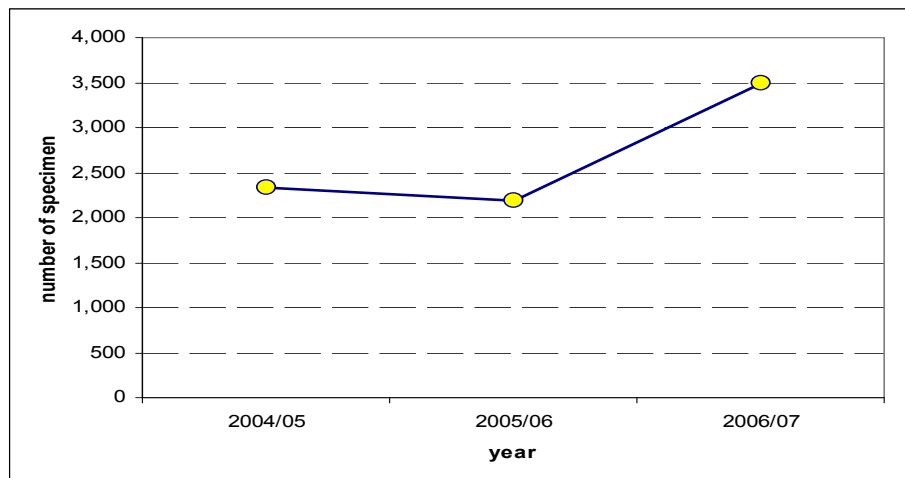


Figure 4: Development in the number of examined specimens for American foulbrood analysis (by year)

Educational and advisory measures

A main emphasis of the National Apiculture Programme between 2004/05-2006/07 was on educational and advisory measures: € 922,000, or 28% of the total subsidies, was spent on basic seminars for newcomers, advanced trainings on bee health, production and marketing of bee products, and breeding of queen bees. Allowable costs are travel costs, remuneration for expert

trainers, costs for advisory services, material costs and certain administrative costs. The rate of subsidy is 80%. Four categories can be funded through this measure:

- Seminars, trainings and courses
- Advisory services for single enterprises
- Large events, conferences and information materials
- General material costs of the umbrella organisation Biene Österreich

Nearly three-quarters of all monies related to educational and advisory measures went to training activities having two, four or eight lessons. Within the programme period under evaluation, 3,191 seminars took place. During these three years, the number of participants increased by 13%, to roughly 25,150 individuals by the last year (see Table 3). Theoretically, this equates to each apiarist in Austria attending one course.

Beekeepers showed the highest interest in courses dealing with the topic “management of colonies and enterprises”, which approx. 19% of all participants attended. About 8,200 of all beekeepers who attended an educational event (or 12% of all participants) were interested in the production and marketing of bee products. Trainings related to this topic show the highest growth in the number of participants during the three-year period.

Table 3: Number of courses and participants, 2004/05-2006/07

Year	No. of courses	No. of participants	Subsidies in €
2004/05	1,049	22,213	213,850
2005/06	991	22,386	214,650
2006/07	1,151	25,148	252,902
Total	3,191	69,747	681,402
<i>Change 07/04 in %</i>	<i>10</i>	<i>13</i>	<i>18</i>

Measures to improve honey quality

The bundle of measures for improving the quality of honey comprises subsidies for physical-chemical laboratory analyses of honey specimens. The eligible analysis groups were: analyses relating to honey quality (5 different types of analysis), pollen analyses for the identification of honey varieties (2 types of analysis), analyses of residua in honey and bee products (3 types of analysis). The national programme subsidises 80% of the cost, which is a fixed flat rate charge depending on the type of analysis. In addition, eligible beekeepers were able to receive expert consultation for improving their products.

The evaluation results show an increase in the number of beneficiaries (apiarists and apiary organisations) and number of submitted specimens during the period (see Table 4). In relation to the total number of Austrian beekeepers, the share of apiarists who had their products analysed increased from 9% to 13%. Indeed, this share is a maximum because some beekeepers may have

submitted honey specimens several times during the evaluation period, and some honey batches may have been analysed more than once. Unfortunately, the data available do not allow conclusions as to the number of individuals who posted honey specimens.

Table 4: Selected characteristics of honey analyses

Characteristic	2004/05	2005/06	2006/07	Total
Number of beneficiaries *	2,203	2,444	3,049	7,696
<i>Share of total number of apiarists (in %)</i>	9	10	13	11
Number of specimens	3,255	4,136	4,764	12,155
Average number of specimens per beneficiary	1.48	1.69	1.56	1.58

* the submission of several specimens per apiarist was possible

Recommendations and conclusions

The results of the evaluation of Austria's National Apiculture Programme during the period 2004/05-2006/07 permit the deduction of the following conclusions:

- The combined measures of investment support and support for the purchase of small equipment are an incentive for beekeepers to participate in the National Honey Quality Programme and therefore support the improvement of bee product quality in Austria.
- Smaller enterprises receive higher subsidies per bee colony than larger ones. In part, this is dependent on the positive economies of scale of larger enterprises (e.g. shorter amortisation periods and a higher degree of capacity utilisation compared to smaller enterprises). On the one hand, this means that financial support for investments can be used more efficiently in larger enterprises than in smaller ones. On the other hand, smaller enterprises tend to have a higher pent-up demand for investments. The latter observation is circumstantiated by the reduction in size of supported enterprises over the course of the evaluation period.
- The need for purchasing small equipment appears to be very high, as the amount of submitted costs markedly exceeded the maximum eligible costs.
- The increasing number of specimens submitted for American foulbrood analysis – in particular during the last year of evaluation – can be interpreted in one of two ways: either the disease is spreading more rapidly, or it is an indication of the rising attention paid to the disease by apiarists and, along with it, of their stronger desire to partake in preventive efforts against the disease.
- The contents of most educational courses reveal that the demand for fundamental knowledge remains strong. Furthermore, the high participation rates in seminars focusing on production and marketing of bee products reflect a desire for product differentiation and new distribution channels among stakeholders in the Austrian apiculture sector. Future educational programmes should thus relate to the most demanded topics as a means of extending and differentiating the available supply.

- Measures for improving honey quality contribute to a rising willingness among beekeepers to have their apiary products analysed. Thus, this measure supports quality awareness for honey and other bee products.
- Summa summarum, the Austrian National Apiculture Programme between 2004/05-2006/07 is assessed to contain a well-balanced package of measures. The programme has been able to meet the various demands of a heterogeneous apicultural society and enhance the quality of bee products at the same time. The broad approach of the National Apiculture Programme is an important basis for the nationwide maintenance of sustainable apiculture in Austria.

Finally, several general recommendations for agricultural support programmes can be derived from the above conclusions about the National Apiculture Programme of Austria:

- The implementation of new measures needs time! Larger enterprises are the first to apply for subsidies, while smaller enterprises behave in more reserved fashion. Therefore, the implementation of new support measures should be accompanied by comprehensive information and advisory activities to reach all potential beneficiaries, and to ensure that interventions take effect quickly.
- For each support programme, the same questions arise with respect to the group of beneficiaries: Should bigger enterprises receive the monetary support because they are able to utilise the subsidies more efficiently? Or, should smaller enterprises profit more from financial support because they have a higher demand? Should all enterprises be targeted so that everyone gets a slice of the cake? Of course, the answers to these questions depend on the specific intervention goals – but the benefit of spreading money efficiently and effectively should make finding the answers worthwhile.
- The measures offered should create synergy effects as a means of targeting several goals with a single measure. The linkage of financial incentives to certain desirable behaviours on the part of beneficiaries seems an appropriate tool for guiding developments in the favoured direction.
- If implementation of an interventional programme is to be successful, accompanying the programme with educational measures is absolutely indispensable! The EU's call for lifelong learning should be heard and implemented in every supportive package of measures. Not only do educational measures contribute towards achieving the desired long-term effects of interventions, but broad learning opportunities are also able to meet the manifold demands and interests of target groups.

Undoubtedly, agricultural support programmes need to be multidimensional to achieve comprehensive results. This means they should comprise measures related to quality, marketing, production, innovation, investment, education, health and the environment.

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