Schweiz - Suisse - Svizzera

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Zusammenfassung

Landwirtschaftssysteme mit hohem Naturwert ("High Nature Value Farming", HNV) weisen eine hohe Vielfalt an halbnatürlichen Lebensräumen, extensiv genutzten Landwirtschaftsflächen und wildlebenden Pflanzen und Tieren auf. Der vorliegende Artikel ist einem Buch über HNV-farming entnommen. Dieses beschreibt die Situation in 35 europäischen Ländern und informiert über ökonomische, politische, naturschutzfachliche und landwirtschaftliche Themen.

Ein Drittel der Fläche der Schweiz wird landwirtschaftlich genutzt. In den letzten fünfzig Jahren wurde die Schweizer Landwirtschaft zunehmend intensiviert. Heute fördert die Direktzahlungsverordnung die Anlage von ökologischen Ausgleichsflächen (öAF). Diese umfassen 12% der landwirtschaftlichen Nutzfläche sowie 2.2 Millionen Hochstamm-Obstbäume. Die öAF wirken sich positiv auf landwirtschaftliche Praktiken zur Biodiversitätsförderung aus. Dennoch konnte der Rückgang von an Landwirtschaftsflächen gebundenen Arten sowie z.B. von Streuobstwiesen, nicht aufgehalten werden. Für Alpweiden werden frühestens ab 2014 ökologische Direktzahlungen verfügbar sein. Viele Landwirte und Landwirtinnen pflegen die Biodiversität auf ihren Betrieben ganz bewusst. Trotzdem ist das Bewusstsein in der Bevölkerung für Biodiversität auf Kulturland noch zu gering. Organisationen wie IP Suisse gelingt es durch Marketingstrategien, die an Massnahmen zur Förderung der Biodiversität geknüpft sind, einen Schritt in Richtung Wertschätzung von HNVfarmland zu tun.

Résumé

Les systèmes agricoles à haute valeur naturelle ("High Nature Value Farming", HNV) ont une grande diversité d'habitats semi-naturels, de surfaces agricoles extensives, et de plantes et d'animaux sauvages. Cet article fait partie d'un livre sur l'agriculture HNV qui présente la situation dans 35 pays européens et informe sur l'économie, l'agriculture, la nature et la politique dans ce contexte.

Un tiers de la Suisse est couvert par des surfaces agricoles. L'agriculture Suisse s'est considérablement intensifiée ces 50 dernières années. Aujourd'hui, l'ordonnance sur les paiements directs oblige les agriculteurs à intégrer des surfaces de compensation écologique (SCE). Ces surfaces s'élèvent à 12% de la surface agricole utile, s'y ajoutent 2.2 mio. d'arbres fruitiers à haute tige. Les SCE s caractérisent par des pratiques agricoles favorables à la biodiversité. Malgré tout, les espèces liées à l'agriculture et certains habitats, tels que les vergers traditionnels, continuent à diminuer. Pour les estives, des payments directs écologiques ne seront pas disponibles avant 2014.

De nombreux paysans et paysannes s'efforcent de favoriser la biodiversité sur leur exploitation. Toutefois, la prise de conscience parmi la population de la valeur de la biodiversité dans les paysages agricoles est trop faible. En appliquant des stratégies de marketing liées à des mesures bénéfiques pour la biodiversité, certaines organisations comme IP Suisse ont réussi à faire augmenter l'estime pour les surfaces HNV.

Switzerland

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Land Area	41,285 km ²
Population	7.78 million (2009)
Pop. Density	189 inhabitants/km²
Land Use	23.9% utilised agricultural area
	13.0% alpine pastures
	30.8% forest
	25.5% natural unproductive areas
	6.8% settlements and infrastructure
Characterisatio	n of agricultural sector:
Utilised Agricult	cural Area (UAA): 1.06 million ha
Arable crops	26%
- Grassland	70%
- Permanent cro	ops 2%
Organically cult	ivated land 11%

Schweizer Landwirtschaft, Taschenstatistik 2010, Bundesamt für Statistik

Situated in the centre of Europe, Switzerland is marked by its mountains – the Alps, which occupy 60% of the country and the more rolling Jura on the French border (10%). The remaining 30% is the central plateau, which extends from Lake Geneva in the southwest to Lake Constance in the northeast.

The climate ranges from rainy and cold in the Jura and snow and ice in the high Alps to the Mediterranean climate in the southern Alps. The extreme relief (altitudes range from 200 m to 4,600 m) and the variable geology have created a very broad spectrum of soils. The most fertile land is found on the central plateau on the outwash deposits of the last glaciation, whereas in the mountain regions, wet and immature soils are predominant.

Switzerland's agriculture

More than one third of Swiss land area is farmland, only 40% of which is located in the lowlands (central plateau and major

valley floors). The majority is in the alpine foothills and the mountains.

In the central plateau, mixed family farms predominate, whereas grassland-based livestock farms dominate mountain agriculture. Given the importance of mountains in the country, it is therefore no surprise that permanent grassland makes up 70% of the UAA. Nevertheless, the country has a significant indoor intensive sector - as well as 1.6 million cattle, 430,000 sheep and 85,000 goats, there are 1.5 million pigs and 9.5 million poultry, (BLW, 2010). Farm size varies – there are a few larger farms with more than 50 ha in the lowlands and some very small farms in the mountains. The average farm has an area of 17.4 ha.

Organically-cultivated land accounts for 11% of the UAA, with strong regional differences – organic farms are more common in the mountain areas. In the largest mountain canton in the eastern Alps, Graubünden, almost half the farms are certified organic.



Fig. 1: Wooded pasture in the Jura mountains (A in Fig. 11).

Fig. 2: Summer pasture in eastern Switzerland (B in Fig. 11).



HNV farmland and farming

Farm management is relatively intensive Ecological cross-compliance was introduced in 1999, so that farmers qualify for direct payments only, for example, if they manage at least a certain percentage of the UAA as ecological compensation areas (ECA). The most prominent ECA types are extensively managed grasslands, subject to restricted fertilisation and cut late in the year. Others include traditional orchards, hedgerows and sown flower strips. In 2009, 98% of the UAA was cultivated in accordance with these rules and the ECAs were 12% of all farmland (120,000 ha) and 2.2 million high-stem fruit-trees. This percentage reached 40% in some mountain areas. with a lower proportion on the central plateau (BLW, 2010).

In order to promote further farmland biodiversity, the Ordinance on Ecological Quality (OEQ) came into force in 2001 (BLW, 2011). Farmers can qualify for bonus payments for ECA meadows if certain target species are present. Quality criteria relating to habitat structure have also been defined for traditional orchards. hedgerows and pastures. 80% of the ECA in mountain regions qualifies for such bonus payments, but only 20% of lowland ECA (Herzog & Walter, 2005).

The most important system for sustaining HNV-farmland is summer pasturing or vertical transhumance, which is still a common practice in the mountain regions. 550,000 ha, or 13% of the country's total land area, are managed in this way by 20,000 herders. Every summer, they accompany 400,000 cattle and 190,000 sheep to 7,300 summer farms, both private and co-operative, where they graze for about three months (Dreier et al., 2004, see also www.alpfutur.ch).

In addition to summer farming, there are three more farm types which contribute decisively to HNV farmland (figure 11):

Thomas Baumann - Aargau, north-western Switzerland. Thomas Baumann aligns farming with nature. His farm derives 70% of its income from ecological direct payments, managing 21 ha of ECA. He has introduced innovations such as the production of organic flax, the creation of habitats for endangered amphibians such as the natterjack toad, by keeping two outdoor pigs and through the creation of a carp pond. HNV farmland is very important for him, living in an area where conflicts between farming, traffic infrastructure and urban areas are common. His vision is of an agriculture where high-quality products equate with sound ecology.

Kurt and Ida Schaffter - traditional orchards in the Basel region. Kurt and Ida Schaffter manage a mixed farm with traditional orchards, dairy and suckler cattle and arable production. The cherries harvested from the standard fruit trees are processed and sold on the farm. Picking cherries from standard trees is very time-consuming. Kurt Schaffter gets support from his extended family. Ida Schaffter focuses on the direct marketing of homemade cherry products. They are aware of the value of biodiversity and participate in the local habitat networking project.

Anton Epp - mountain farm in Silenen. Young farmer Toni Epp lives in the canton of Uri, in central Switzerland. He keeps 17 dairy cows on his 14 ha traditional mountain farm. more than 30% of which is extensively-used ECA meadows. The main reason for the high biodiversity on his meadows is, according to him, the late first cut. He observed that many plant species (e.g., several lilies) re-appeared when he adapted meadow management accordingly. He also manages a summer farm where tourists can enjoy the beauty of the landscape, lodge under simple conditions and are served simple traditional food.

Giaccomo Fiori in Brontallo, Maggia Valley. In the Maggia Valley of Ticino (southern Switzerland), the inhabitants of the small village of Brontallo took matters into their own hands. Under the leadership of farmer Giacomo Fiori, a regional development project was launched, aiming to ensure through sustainable means the survival of agriculture, thereby preserving the species-rich cultural landscape. As part of the project, the farmers collaborate with a biologist to ensure that the management of their land continues to benefit biodiversity.





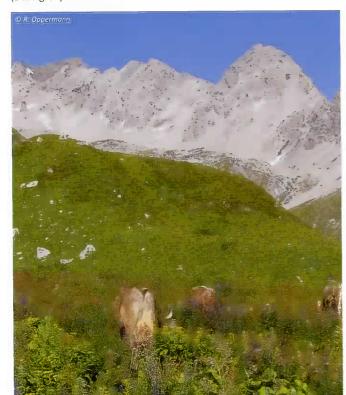








Fig. 3: Farmer in Stalden (Central Swiss Alps) scything a steep meadow (B in Fig. 11).



- 1) Mountain farmers: 41% of all Swiss farms are situated in the mountains and about 95% of their farmland is managed as meadows and pastures. The topography limits intensification although the development of new machinery is progressing and intensification is happening in the lower mountain areas. However, there is still a high proportion of HNV farmland in these regions.
- 2) Wine and fruit growers in the Valais: The south-exposed slopes of the Rhone Valley, having a dry and sunny climate as well as poor soils, provide exceptional habitats for specific species. These geographic conditions lead to HNV farmland.
- 3) Traditional fruit orchards in north-east and north-west Switzerland: standard fruit trees are still common on many Swiss farms and are characteristic of those two regions. Although the grassland beyond the trees is often intensively pastured, the orchards host specific bird and arthropod species.

HNV farmland types

Most HNV farmland is grassland. There are 37,000 ha of protected dry meadows and pastures – the most species-rich grassland of Switzerland (BAFU, 2011). 95% of these are managed by farmers; more than 50% of these HNV sites are on summer pastures. Over and above the grasslands on this Federal Inventory, a large proportion of other mountain meadows and pastures can be considered HNV – the ones which are still traditionally-managed, neither intensified nor abandoned (e.g. Dietl & Grünig, 2003) (A and B in figure 11).

Species-rich vineyards and orchards which fulfil the OEQ criteria also qualify as HNV farmland (Clavien & Delabays,

Fig. 4: A species-rich alpine meadow with grazing cows.



Fig. 5: Traditional haymaking in the Griesalp valley.

2006). Although occupying a very small area (only 80 ha in 2009), species-rich vineyards provide habitats for specialised plants (e.g. *Tulipa sylvestris, Gagea pratensis, Muscari spp.*). Around 50% of these vineyards are situated in the canton Valais, where climatic and soil conditions favour high biodiversity (C in figure 11), with other sites located in Vaud and Neuchatel.

In the 1950s, 15 million standard fruit trees were spread all over Switzerland, since when numbers have declined continuously, reaching 2.6 million trees by 2001 (Walter et al., 2010). In 2009 2.2







Fig. 7: St. Bruno's Lily (*Paradisea liliastrum*) on an extensively managed pasture in the Central Swiss Alps.

Fig. 8: Traditional apricot orchard in Valais.

million were made eligible for ecological compensation. Most of the remaining traditional orchards are located in traditional fruit-growing regions, namely the Jura near Basel (cherries), the Thurgau in the north-east and the Lucerne region in central Switzerland (apples) (D in figure 11). In addition, some apricot orchards survive on the slopes of the Rhone Valley.

In the southern Alps, where agriculture has been abandoned on a large scale since the middle of the last century, the remaining chestnut groves, the so called "Selvas", have regained some importance in the last few years, with several restoration projects underway.

In the Jura mountains a traditional form of silvo-pastoral system survives, the so-called "Wytweiden" or "Pâturages boisés". These are pastures with scattered trees and free-ranging horses and cattle.

42% of the traditional flora associated with arable crops is threatened (Moser



Fig. 9: Chestnut "selva" in Ticino, southern alps (D in Fig. 1)

et al., 2002). In some crop-dominated regions as the Klettgau (canton Schaffhausen) and the Champagne Genevoise, ecological restoration measures have been set in place to promote the sowing of flower strips which include some of the threatened weed species. At the landscape scale, flower strips in combination with additional ECA types improve habitat quality for birds. Recent increases in their abundance prove the high potential for increasing biodiversity on cropland (E in figure 11, refer to Chapter 5.6 by Simon Birrer et al., Swiss Ornithological Station, in the same book).



Fig. 10: Brontallo, Maggia Valley: Each autumn 50 sheep graze the chestnut groves. The chestnuts are collected by volunteers and brought to the refurbished drying plant, where they are made into chestnut flour. The flour and the locally produced wine are sold at the information point of the association.



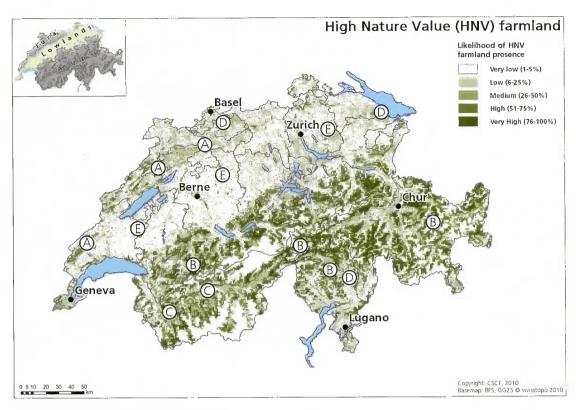


Fig. 11: High nature value farmland in Switzerland.

The letters indicate:

- (A) Calcareous grasslands and wooded pastures of the Jura mountains
- (B) Quality ECA meadows and pastures as well as alpine summer pastures across the Alpine arc
- (C) South-exposed vineyards and orchards in the Valais alpine valley
- (D) Traditional fruit orchards in north-western Switzerland, near Lake Constance and in Ticino (chestnut selva)
- (E) The Swiss Plateau with low shares of quality ECA, but regional projects promoting biodiversity in arable fields

Fig. 12: Sown flower strip fallow in arable lowlands (E in Fig. 1).





Fig. 13: Pigs create and maintain important habitats for amphibians.

Tendencies and developments

The ECA framework, introduced in the 1990s, was described above. Its objectives in terms of area covered (10% of UAA) have largely been achieved. Species diversity on ECA is consistently higher than on reference areas (figure 14, Aviron et al., 2009).

Achieving specific ecological standards, e.g. the presence of certain grassland species in meadows, is a much more ambitious aim. In this respect, the ecological quality of lowland ECA is often unsatisfactory, while only 20,000 ha of lowland ECA met the OEQ criteria in 2005 (policy goal: 65,000 ha; Herzog & Walter, 2005). In mountain grassland, on the other hand, 80% of the ECA qualifies for the OEQ bonus payments and even 20–43% of reference meadows (depending on altitude) which are *not*

managed under the constraints of the ECA meet the OEQ standard (Weyermann et al., 2006).

Whilst many mountain grasslands are still HNV and while ECA payments are contributing to protecting them from both intensification and abandonment (Kampmann et al., 2011), intensification is still an ongoing problem. This trend is more pronounced in the lower mountain regions, where, on average, farmers dedicate less than 10% of their farmland to ECA – this share is higher not only in the high mountains but also in the lowlands (BLW, 2010).

The most ambitious policy goal – the protection and recovery of threatened species – was not reached (figure 14). Only occasionally are threatened species observed on ECA (Herzog & Walter, 2005). Such species require additional targeted protection measures, which

Fig. 14: Level of ambition of objectives regarding farmland biodiversity and degree to which the objectives were reached (Herzog & Walter, 2005).

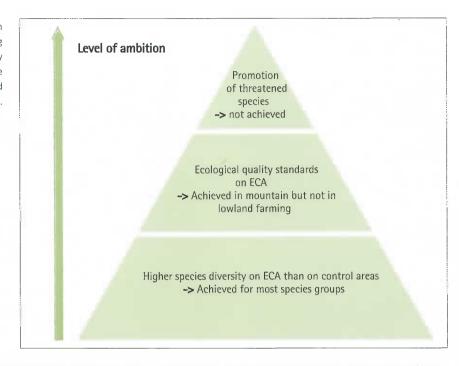


Fig. 15: The restoration of the numerous dry-stone walls is an ongoing project. They attract reptiles such as the green lizard (*Lacerta bilineata*) and the smooth snake (*Coronella austriaca*).





Fig. 16: The smooth snake (Coronella austriaca) is still part of farmland biodiversity in Ticino.

often need co-ordination between agricultural managers, conservation managers, land-use planners and so on. (Aviron et al., 2009).

Opportunities for the future

The payments for ECA to some extent encourage the appropriate management of HNV farmland and support the maintenance of its biodiversity:

The ECA scheme contributes to maintaining traditional management of mountain meadows and pastures and to protect them from intensification as well as from abandonment. Summer pastures, where land abandonment is most pronounced (Baur et al. 2006), might become eligible for this scheme from 2014 onwards if the agricultural policy is revised accordingly.

- Species-rich vineyards are supported with ecological quality payments. In addition, the species diversity on vineyards is increasingly used as an argument for wine marketing (e.g. Delinat, 2011).
- The decline of traditional fruit orchards has been ongoing, despite the ECA payments. Recently, however, pioneer farmers have started to establish modern agro-forestry systems, which are expected to have higher profitability, while still providing environmental benefits (Kaeser et al., 2011).

In 2008, environmental objectives were formulated for the agricultural sector in order to improve its environmental performance with respect to biodiver-

Switzerland

sity and landscape, climate and air, and water and soil (BAFU & BLW, 2008). The biodiversity objectives relate to the conservation and fostering of target species (red-listed species) and of characteristic farmland species. Suitable habitats are to be made available in sufficient quantity, quality and spatial distribution. In the near future, existing policy instruments will be adapted to pursue those environmental objectives.

At present, 90% of organic farming is grassland. A higher proportion of organically-farmed arable on the central plateau could increase the percentage of HNV farmland in this region. Other labels that impose rules on the production, e.g. AOC labels, or labels for integrated production, contribute to the maintenance of HNV farmland. The "IP-Suisse" association, for example, to which about one third of Swiss farmers belong, has developed a point-ranking system in co-operation with the Swiss Ornithological Station. Farmers have to reach a minimum threshold of "biodiversity points" in order to sell their products under the IP-Suisse label and obtain the associated premium. The label aims at higher standards than the ECA scheme. for example by implementing extensification measures in arable fields to promote skylark (Alauda arvensis) and hare (Lepus europaeus) (IP-Suisse, 2011).

Awareness of the value of HNV farmland has to be raised amongst the general population as well as among farmers. Recent studies have shown that citizens prefer biodiverse grasslands (Schüpbach et al., 2009). New farm business called "green care/social farming", as well as agri-tourism and direct marketing measures, can help raise their appreciation (Wydler & Picard, 2010). Regional nature parks are being established in traditional cultural landscapes in order to strengthen multifunctional agriculture

(www.bafu.admin.ch). The value and the appropriate management of biodiversity also need to receive more attention from farmer training and extension services.

Conclusion

In Switzerland one third of the area is used for farming. Ecological Compensation Areas under Swiss regulations account for 12% of all farmland. In addition, 2.2 million high-stem fruit-trees are managed as ECA. In some mountain areas, farmers declare up to 40% of their land as ECA. In the lowlands, where the productive potential is quite high, this proportion is 9–10%. Moreover, only one fifth of lowland ECAs qualify as being of high ecological quality, compared to 80% in the mountains.

Since the 1990s, the ECA system has encouraged biodiversity-friendly practices, and agricultural policy has provided incentives to maintain HNV farmland by ensuring environmental payments, but for most farmers, especially in the productive central plateau and the valleys, production and productivity remain of greater importance. Until now, the system has failed to halt the decline in some key farmland species and in the area of some totemic cultural landscapes, including traditional orchards. Ecological inter-relations and the economic value of ecological performance are not sufficiently appreciated. The formulation of new environmental objectives for agriculture should result in a new incentive for maintaining HNV farmland being launched.

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References

- Aviron S., Nitsch H., Jeanneret P., Buholzer S., Luka H., Pfiffner L., Pozzi S., Schüpbach B., Walter T., Herzog F., 2009: Ecological cross compliance promotes farmland biodiversity in Switzerland. Frontiers in Ecology and the Environment, 7(5), 247–252.
- BAFU, 2011: Trockenwiesen und –weiden. Bern, Bundesamt für Umwelt, http://www.bafu. admin.ch/schutzgebiete-inventare/07849/index.html?lang=de (accessed 5.5.2011).
- BAFU and BLW, 2008: Umweltziele Landwirtschaft. Hergeleitet aus bestehenden rechtlichen Grundlagen. Umwelt-Wissen Nr. 0820. Berne, Bundesamt für Umwelt. http://www.bafu.admin.ch/publikationen/publikation/00097/index.html?lang=de (accessed 6.5.2011).
- BFS, 2010: Schweizer Landwirtschaft. Taschenstatistik 2010. Neuchâtel, Bundesamt für Statistik.
- BLW, 2010: Agrarbericht 2010. Berne, Bundesamt für Landwirtschaft. http://www.blw.admin.ch/dokumentation/00018/00498/index.html?lang=de (accessed 6.6.2011)
- BLW, 2011: Öko-Qualitätsbeiträge. Bern, Bundesamt für Landwirtschaft, http://www.blw.admin.ch/themen/00006/00051/index.html?lang=de (accessed 5.5.2011).
- Clavien Y. and Delabays N., 2006: Inventaire floristique des vignes de Suisse romande: connaître la flore pour mieux la gérer. Revue suisse Vitic. Arboric. Hortic. 38 (6), 335–341.
- Delinat, 2011: Charter for vineyards with high biodiversity. http://www.delinat-institut.org/ (accessed 6.5.2011).
- Dietl, W., Grünig, A., 2003: Artenreiche Wiesen der Schweiz. In: Oppermann, R., Gujer, H.-U. (eds) Artenreiches Grünland bewerten und fördern MEKA und ÖQV in der Praxis. Stuttgart, Ulmer, 55–64.
- Dreier, S., Ramsauer, M., Herzog, F., 2004: Alpine Summer farms in Switzerland. In: Bunce, R.G.H., Pérez-Soba, M., Jongman, R.H.G.,

- Gomez Sal, A., Herzog, F., Austad, I. (Eds.) 2004: Transhumance and biodiversity in European mountains. IALE Publication Series Nr. 1, 191–207.
- Herzog, F., Walter, T., 2005: Evaluation der Ökomassnahmen Bereich Biodiversität/Évaluation des mesures écologiques Domaine de la biodiversité. Zürich, Schriftenreihe der FAL 56
- IP-Suisse, 2011: Biodiversität / Biodiversité. http://www.ipsuisse.ch/?id=143&fid=4271 (accessed 19.05.2011)
- Kaeser, A., Sereke, F., Dux, D., Herzog, F., 2011: Agroforstwirtschaft in der Schweiz/Agroforesterie en Suisse. Agrarforschung Schweiz/Recherche Agronomique Suisse 2(3), 128–133.
- Kampmann, D., Lüscher, A., Konold, W., Herzog, F., 2011: Grassland biodiversity protection in the Swiss Alps across socio-economic and altitudinal gradients. Land-use Policy (under review)
- Moser D., Gygax A., Baumler B., Wyler N., 2002: Rote Liste der gefährdeten Gefässpflanzen der Schweiz. Berne, BUWAL-Reihe Vollzug Umwelt, 118 pp.
- Schüpbach, B., Junge, X., Briegel, R., Lindemann-Matthies, P., Walter T., 2009: Ästhetische Bewertung landwirtschaftlicher Kulturen durch die Bevölkerung. Zurich, ART-Schriftenreihe 10.
- Walter, T., Klaus, G., Altermatt, F. et al., 2010: Landwirtschaft. In: Lachat, T., Pauli, D., Gonseth, Y. et al. (eds) Wandel der Biodiversität in der Schweiz seit 1900. Berne, Haupt, 64–122.
- Weyermann, I., Kampmann, D., Peter, M., Herzog, F., Lüscher, A., 2006: Bergwiesen haben eine hohe ökologische Qualität. Agrarforschung 13(4), 156–161.
- Wydler, H., Picard, R., 2010: Care Farming: Soziale Leistungen in der Landwirtschaft. Agrarforschung Schweiz 1(1), 4–9.

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