

**EXTENSIFICATION OF SMALL RUMINANT PRODUCTION IN
THE NEW FEDERAL STATES OF GERMANY: CAUSES,
TRENDS AND PERSPECTIVES****H. J. Schwartz****Abstract**

Livestock enterprises in the new federal states of Germany, the former East Germany, underwent dramatic structural changes during the past six years. Sheep populations dropped to less than one third of the pre-1989 levels. Many large scale wool and mutton production enterprises have disappeared completely, whereas niche-type production combined with direct marketing of products like lamb sausages, smoked meat, sheep skins rugs, felt etc. are on the increase. Biologically produced lamb has a limited market for baby food.

The fastest growing niche for sheep farmers had been contract landscape maintenance, which granted an acceptable income on land with rather limited productive potential. This development, however, appears to have peaked by now and is presently stabilising or starting to decline since public spending on environmental programs in general is shrinking too. A further drop in sheep populations can be expected, which might lead to a critical shortage of animals to maintain open grasslands of various types, which are of great ecological value but marginal in economic terms. Efforts are made to develop extensive grazing systems, which allows proper landscape maintenance with reduced animal numbers and reduced production costs.

The Problem

With the reunification of Germany agricultural enterprises in the former East Germany had to adopt structures and production methods viable within the new market economy. In particular the high-input production of poor soils could no longer be continued. As one result of this substantial proportions of farmland were taken out of agricultural production because of their limited proportions of farmland were taken out of agricultural production because of

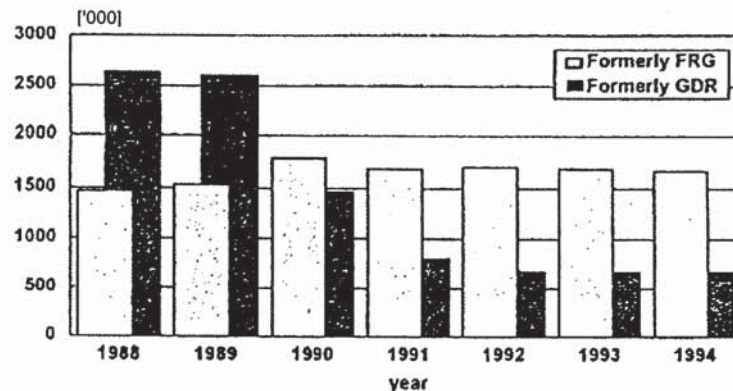
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their limited natural potential and were turned to forestry or other non-agricultural uses. For many other areas, croplands and intensive grasslands alike, the only feasible agricultural land use alternative left was conversion into extensive grassland systems.

In a parallel development ruminant livestock numbers dropped to approximately one third between 1989 and 1992. The changes in sheep numbers between 1988 and 1994 are shown in Figure 1. There is no marked change in sheep populations in what was previously West Germany. The East German sheep population, however, dropped from 2.6 million to approximately 0.7 million within three years and have stabilised at that level since. A major part of this reduction was through culling of the large proportion of wethers which were kept in the regional herd. Figure 3 shows the development for Brandenburg. For a short time selfsufficiency in lamb and mutton production in Germany rose to over 80% but fell rapidly to the long term normal levels known in earlier times in West Germany of approximately 45% by 1994 (Figure 2).

Figure 1. - DEVELOPMENT OF SHEEP POPULATIONS IN GERMANY 1988 TO 1994



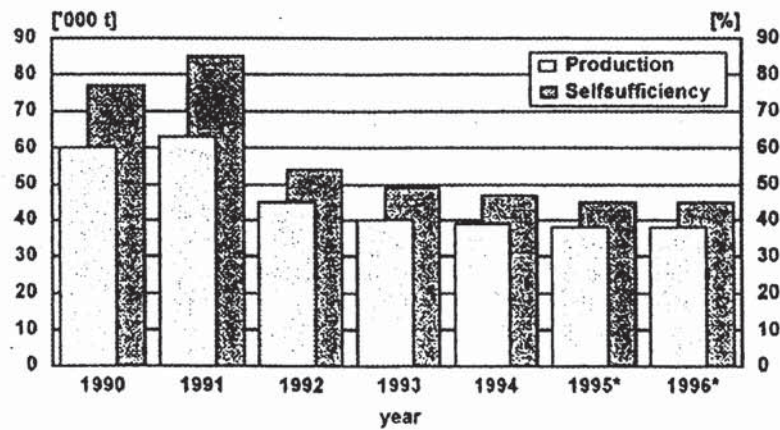
Source: Statistisches Jahrbuch BMLFF 1991-95.

According to Deblitz et al (1994) the new federal states have in common some characteristics which favour the establishment of large scale extensive grassland systems:

- Sites which can no longer be used as they were before, such as marginal cropland and grasslands without a milk quota, are abundant,
- the introduction of the milk quota system generally increased availability of grassland and pastures,

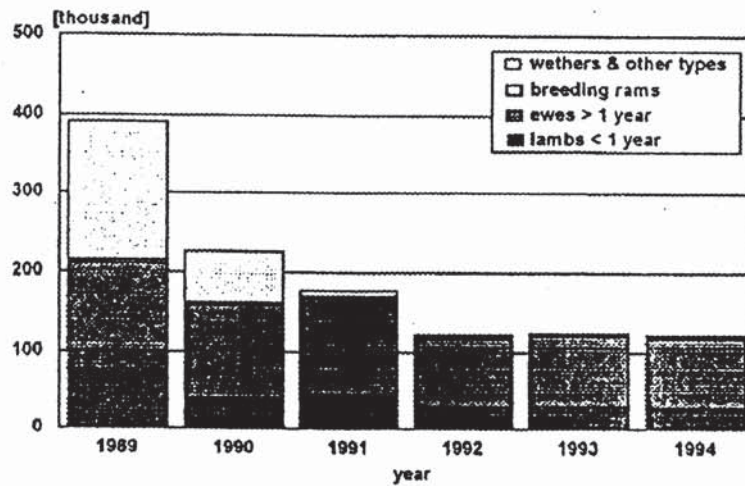
- the change from East German dairy breed SMR to the higher yielding Holstein-Friesian set free additional pasture areas,
- farm sizes are large, prices for farm land and rents are relatively low and
- most agricultural enterprises lack capital for investments.

Figure 2. - LAMB AND MUTTON PRODUCTION [‘000 t] AND DEGREE OF SELF-SUFFICIENCY [%] IN GERMANY



Source: Agrarwirtschaft 45 (1996), Heft 1

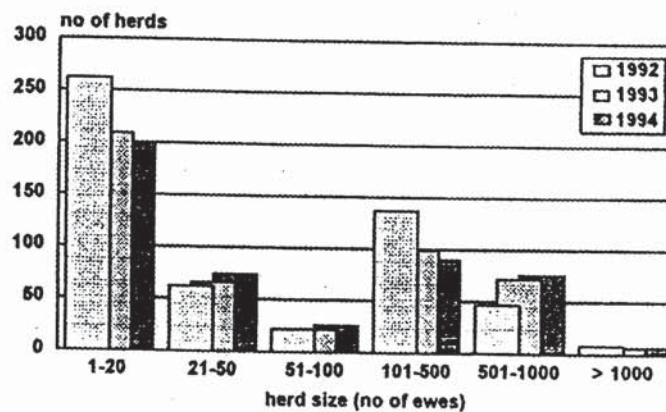
Figure 3. - DEVELOPMENT OF SHEEP POPULATIONS IN BRANDENBURG 1989-1994



Source: Tierzuchtreport, Land Brandenburg, 1994

As a result large areas of grassland are underutilised or not utilised at all. Löhn et al (1994) state that in Brandenburg alone approximately 50,000 ha grasslands are fallow and another 30,000 ha are used only sporadically. There has been a certain increase in cow-calf-operations in the new federal states, but not sufficient to take over all areas set free from cropping and dairy production. With the recent reluctance of consumers to buy beef a further expansion is unlikely in the foreseeable future.

Figure 4. - DEVELOPMENT OF SHEEP HERD SIZES IN BRANDENBURG FORM 1992-1994



Source: Tierzuchtreport, Land Brandenburg, 1994

Sheep production

The sharp reduction of sheep numbers has already been mentioned. Parallel to the virtually all intensive production has been given up with the exception of the "Easter lamb" production which requires an intensive in-door fattening period in late winter. This, however, is limited to a few enterprises only. Wool, which had been an important product until 1989, contributes less than 5% of the monetary value of the total product output today. Lamb contributes approximately 85% and mutton from older animals and culls around 10%. Subsidies and compensation payments as a rule account for 50 to 65% of the gross income in sheep farming. Hardly any sheep farm would survive without these payments today.

At present there is little room to improve the income from sheep production. There are still some reserves in cost reduction, particularly labour costs and feed costs. Improved income can also result from direct marketing of quality products. Some specialities have appeared on the market in small quantities such as cured and smoked lamb and various types of lamb sausages, which fetch good prices but can only hope for a very small niche on the market.

Sheep skin rugs, knitware and felt products play a minor role in marketing wool, which is also used as "biological" insulation material for building purposes.

Paying for nature conserving services

At present society is safeguarding the very existence of farmers by paying vast sums in form of subsidies and compensations. On the other hand farmers services in maintaining the cultivated landscape and conserving natural resources are not recognised properly. Given the present producer prices farmers are forced to achieve maximum conversion of material and financial inputs into agricultural production. This leads to accelerated intensification of production on productive sites and the virtual abandonment of any land use in marginal areas, as can be observed on a large scale in the new federal states. This takes place without considering ecological and environmental implications, such as detrimental effects on site specific and regional biological diversity or the productive and scenic value of historic landscapes.

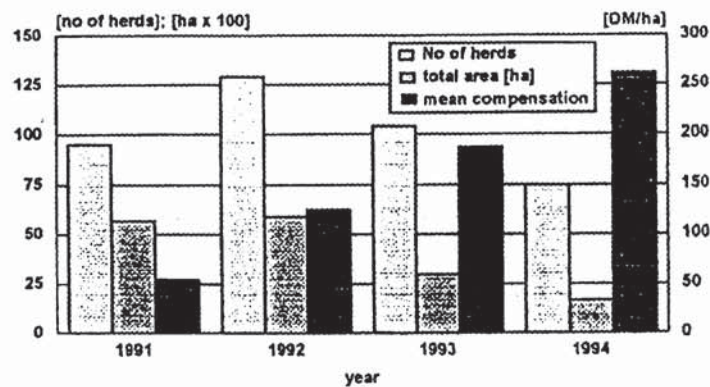
Contract nature conservancy carried out by farmers to given standards and paid for by the public is a way to counteract some of this development and can stabilise farming economically. Usually agricultural production within the framework of contract nature conservancy or landscape maintenance programmes is performed with additional production constraints. This may be a ban on use of fertilisers, herbicides and/or insecticides, a delayed use of the land in the season, a restriction of stocking rates etc. This in turn will result in reduced output for which the farmer will need to receive payment. Table 1 gives an example of the difference in daily gains of lambs of different breeds grazed under the conditions of a landscape maintenance programme and the resulting monetary losses. It should be noted that the Merino (country type) sheep with the lowest genetic potential for growth performs distinctly better in relative and in monetary terms than the other breeds with much higher potential.

Table 1 - RELATIVE REALISATION OF OPTIMAL DAILY GAIN AND DAILY MONETARY LOSS IF LAMBS OF DIFFERENT BREEDS ARE GRAZED ON EXTENSIVE PASTURES (LANDSCAPE MAINTENANCE) AFTER G. RAHMANN 1995, MODIFIED

Breed	daily gain [g] on extensive pasture	daily gain [g] at optimal feeding	% realisation of optimal daily gain	daily monetary loss [DM/lamb]
Merinolandschaf	190	300	63	0.60
Schwarzkopf	210	350	60	0.70
Ostfriesisches				
Milchscharf	245	400	61	0.78
Texelschaf	190	350	54	0.80

Contract nature conservancy and landscape maintenance programmes have been established and have been taken up by a considerable number of farmers in the new federal states (Table 2). Initially, i.e. from 1990 to 1992 the number of participants in these schemes was rapidly increasing (Figure 5) but decreasing sharply again from 1992.

Figure 5. - PARTICIPATION IN NATURE CONSERVANCY PROGRAMMES IN BRANDENBURG FROM 1991 - 1994



Source: Tierzuchtreport, Land Brandenburg, 1994

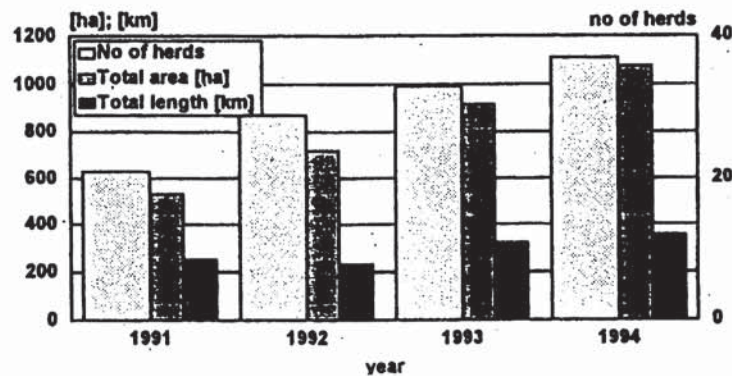
Table 2. - NUMBER OF HERDS IN LANDSCAPE MAINTENANCE PROGRAMMES IN BRANDENBURG AFTER JURKSCHAT & BRANTSCH 1995

Herd size	1992	1993	1994	mean area in the programme [ha]
21 - 50	62	66	74	2.6
51 - 100	22	22	26	18.2
101 - 500	137	99	90	58.5
> 500	55	78	83	85.2

Number of participants with small herds are decreasing or stagnating at best whereas numbers of participants with large herds increasing significantly (Table 2). A special form of landscape maintenance is dike maintenance. The new federal states and Brandenburg in particular have many kilometres of river embankments which are grazed with sheep to control green biomass. The participation in this programme has been increasing steadily over the last years (Figure 4) but appears to level off recently because most existing dikes are covered now.

The dike maintenance with sheep is widely recognised as a true service and payments and their determination does not pose major problems. This is different with other forms of landscape maintenance or nature conservancy services. The assessment of the value of the services rendered is not so simple and straightforward. The present practice is to calculate the amount of compensation payment from estimated average losses incurred by farmers all over the respective state, and to pay a fixed sum per hectare disregarding specific conditions in the participating enterprises. This leads to a bias in the participation in such schemes and may be the reason of the earlier fluctuation of participants. In particular farmers on land of higher potential appear to be less motivated to participate in the programmes, which place production constraints on them resulting in overall reduced returns which are not fully compensated for.

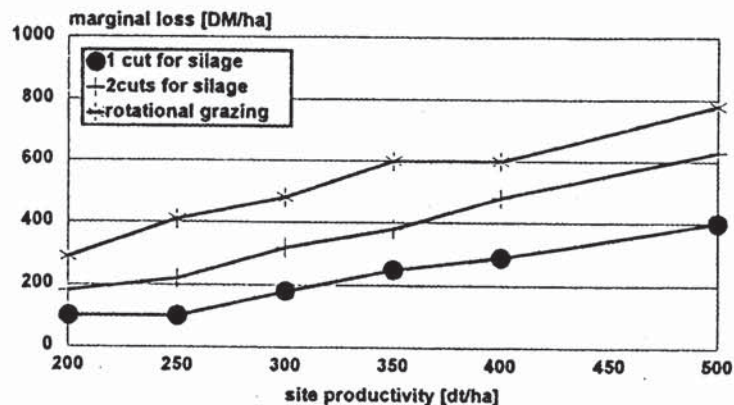
Figure 6. - PARTICIPATION IN DIKE MAINTENANCE PROGRAMMES IN BRANDENBURG FROM 1991- 1994



Source: Tierzuchtreport, Land Brandenburg, 1994

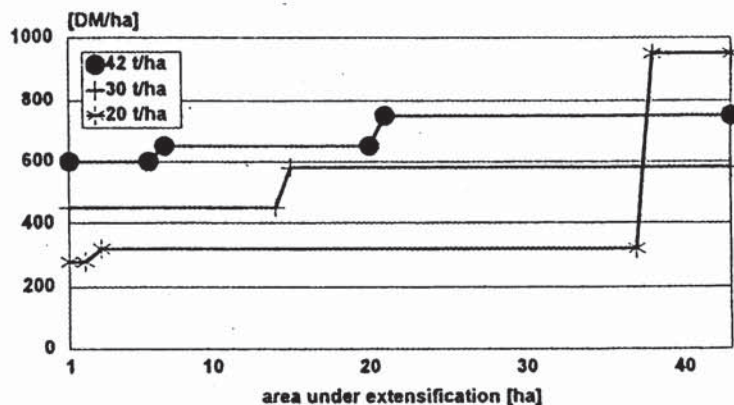
In an attempt to clarify some of this Mosler (1995) used a linear programming approach to calculate the marginal losses incurred by participants in such schemes depending on site productivity, production alternatives, scarcity of major production factors and price-cost ratios. Figure 7 shows the marginal losses resulting from participation in a grassland extensification programme as a function of site productivity in three different production systems. The results indicate that with increasing site productivity, expressed as potential productivity (forage yield per hectare) under conventional management, marginal losses increase in all production systems, whereby rotational grazing with dairy cows incurs the highest marginal losses (DM/ha).

Figure 7. - MARGINAL LOSS [DM/ha] RESULTING FROM EXTENSIFICATION AS A FUNCTION OF SITE PRODUCTIVITY IN THREE DIFFERENT PRODUCTION SYSTEMS



Source: Mosler & Jahnke, 1995

Figure 8. - MARGINAL LOSS [DM/ha] RESULTING FROM EXTENSIFICATION AS A FUNCTION OF AREA INCLUDED AT THREE LEVELS OF LAND PRODUCTIVITY



Source: Mosler & Jahnke

Figure 8 shows the effect of the size of the area included in the extension programme if total farm size is 60 hectares. It can be noted that initially lower potential still leads to lower marginal losses. It is only when more than 60% of the total farm area are managed extensively that this relation is reversed. Obviously there are threshold values affecting the functions which are most likely determined by technology switches or labour requirements. Mosler used the model to evaluate numerous simulations of differently structured farms

ranging from 20 to 1200 hectares in size, using only family labour or also hire labour, and testing various production constraints. He stated some general tendencies of the development of marginal losses per area unit land after extensification:

- The higher the production potential of the site, the higher is the marginal loss,
- the larger the proportion of land managed under an extension scheme, the higher the loss per hectare, and
- the fewer production constraints were effective previously, the higher the loss per hectare, and
- the fewer production constraints were effective previously, the higher the loss per hectare.

Figure 9. - SCHEMATIC PRESENTATION OF THE EXPECTED MARGINAL LOSS DUE TO EXTENSIFICATION PER UNIT LAND [DM/ha] OR PER EWE [DM/ewe] IN RELATION TO VARIOUS PRODUCTION FACTORS

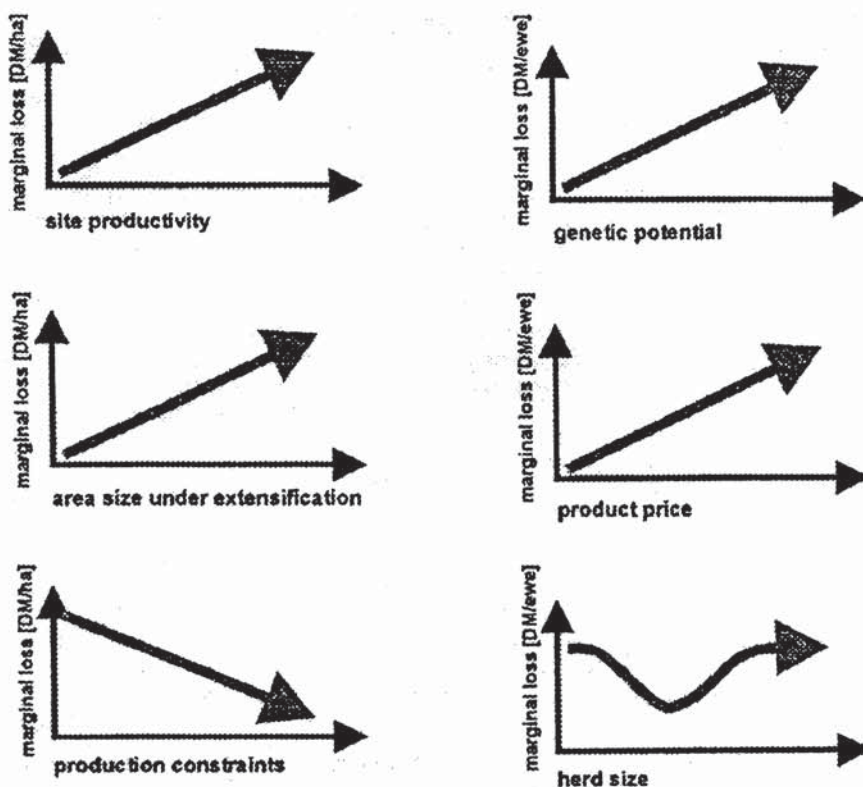


Figure 9 shows a schematic presentation of Moslers results regarding marginal losses per area unit land. In addition one can safely state some other tendencies relating to the marginal losses per ewe, although they cannot be quantified exactly at present. It is supported by the figures presented in Table 1 that with increasing genetic potential for growth, but also for other productive traits, marginal losses per animal will increase in any form of extensification programme. The same tendency is obvious for the product price. Various reports and some of the authors observations suggest that herd size may have an effect as it is shown in Figure 9. Minimal marginal losses may occur under the conditions in north-eastern Germany in herded flocks of 400 to 500 animals. In paddocked flocks this figure will be completely different, most likely much lower.

Conclusions

Sheep producers in the new federal states in Germany realise less than 50% of their gross income from product sales. Adequate remuneration for ecological and environmental services could give them greater independence from subsidies and compensation payments which can be subject to rapid politically motivated changes. Marginal losses due to imposed production constraints within such programmes can occur in relative to the area unit land and the producint animals. They would need to be considered separately and cumulative and according to the farm specific situation. Farms on very marginal land would probably go out of business even if they would receive their full marginal loss as payment, since this by definition is very low. It would therefore need a third valuation regarding the intrinsic value of the landscape which is to be maintained as a base to calculate payments to farmers engaging in this exercise.

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**POVEĆANJE PROIZVODNJE MALIH PREŽIVAČA U NOVIM FEDERALNIM DRŽAVAMA
NJEMAČKE: UZROCI, TENDENCIJE I IZGLEDI**

Sažetak

Poduzeća za uzgoj stoke u novim federalnim državama bivše Istočne Njemačke doživjela su dramatične strukturne promjene tijekom zadnjih šest godina. Populacije ovaca pale su najmanje od jedne trećine razine prije 1989. Mnoga velika poduzeća za proizvodnju vune i ovčetine potpuno su nestala dok je porasla specijalizirana proizvodnja povezana izravno s tržištem proizvoda poput janjećih kobasica, dimljenog mesa, sagova od ovčje kože, pusta itd. Biološki proizvedena janjetina ima ograničeno tržište u dječjoj hrani.

Za uzgajatelje ovaca najbrži oblik rasta bilo je uzimanje zemlje u zakup što je pružalo prihvatljiv prihod od zemlje prilično ograničenim proizvodnim potencijalom. Taj je razvoj, međutim, čini se dosegao svoj vrhunac, te se sada stabilizirao ili počeo padati budući da se smanjuje javno trošenje na programe okoliša. Očekuje se dalji pad broja ovaca, što bi mogao dovesti do kritične nestašice životinja na raznim otvorenim pašnjacima, od velike ekološke vrijednosti ali ekonomski nevažnih. Ulažu se napore za razvoj ekstenzivnih sistema paše što omogućuje pravilno održavanje krajolika sa smanjenim brojem životinja i troškovima proizvodnje.

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