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Farm management tasks in pig farming

Unlike the situation with production-related activities, there is a dearth of work-economics data on management tasks in pig husbandry, making it difficult to formulate reliable work-planning statements. Based on purposeful classification and a method of data collection and data modelling the presented study serves to establish key work-economics figures for management in pig fattening and piglet production. The challenge was to identify the necessary influencing factors for each individual farm and adapt the calculation models.

Keywords
Working time requirement, farm management, pig farming

Abstract
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As in other sectors, working-time requirement for farm-management tasks is gaining in importance in pig husbandry. However, unlike with production-related tasks (e.g. feeding), there are no work-economics planning aids available for farm management. In order to give a complete illustration of the production methods involved in pig rearing and fattening in work-economics terms, a knowledge of key work-economics figures for farm management is essential.

The aim of the present study was to compile the relevant key work-economics figures for piglet production and pig fattening. Base was a purposeful classification and a method of data collection and data modelling [1]. The main focus of the task was to develop a calculation system on the basis of which the individual inputting of influencing factors would enable the calculation of farm-specific working-time requirement for the relevant tasks. For this, it was necessary to adapt existing calculation models from the dairy-farming sector [2] to pig-fattening and piglet-production methods. Depending on the activity in question, in some cases a majority of the calculation modules required slight modification only, whilst in others they had to be developed entirely from scratch.

Material and methods

Based on a systematic breakdown of all farm-management tasks, a previously developed method was to be applied to the pig-husbandry sector. The appropriate coding of the different tasks allowed for the corresponding adaptation of the dynamic classification system. Data was collected separately according to work elements and influencing factors. Whereas the work elements were filed in a database irrespective of type of production, the influencing factors were surveyed specifically for each farm. For this, an already-existing questionnaire was adapted to the requirements of pig fattening and piglet production.

Because data was collected in both Switzerland and Germany, a wide range of herd sizes could be taken into account. Working-time-requirement influencing factors for farm management were collected on a total of 26 pig-fattening farms and 18 piglet-production farms. The pig-fattening farms had 300 to 6 000 fattening places, and between 100 and 1 200 breeding sows were kept on the piglet-production farms.

Results

Farm-neutral work elements and farm-specific influencing factors filed in databases are logically linked in a modularly structured calculation system. The structure of the system arises from the fundamental systematic classification. This made it possible to adapt the calculation system to the conditions of piglet production and pig fattening. Furthermore, the potential applicability to different production methods obviates the need to resurvey already-verified work elements from the farm-management field. For the pig-husbandry studies, it was necessary to adapt and modify the corresponding calculation models. The influencing factors were surveyed empirically on the basis of an existing questionnaire that had been specially adapted to the requirements of pig fattening and piglet production.

Working-time requirement for pig fattening

Calculations of working-time requirement in pig fattening show that different amounts of time are spent in the individual farm-management categories. Thus, planning and organisation, control tasks and purchasing take up a particularly large amount of time (**table 1**). By contrast, and contrary to expectations, the 'Records' and 'Accounts' categories take up only a small proportion of the total farm-management time. The impression that many of these tasks occasionally represent a heavy burden – in some cases not just in terms of time – is not only subjectively correct and well-founded; however, considered over the entire

year, the time requirement becomes less onerous, particularly in comparison with planning, organisational and control tasks.

In total, around 100 and 70 manpower hours (MPh) respectively per 100 feeding places and year are spent on farm-management tasks in the pig-fattening sector (**figure 1**). If we calculate around one manpower hour per feeding place and year for tasks directly related to production (e.g. feeding), around 50 per cent of working time in pig fattening is spent on farm-management tasks. Per farm, this equates to an annual working-time requirement of approx. 400 MPh (400 feeding places) up to around 2760 MPh (4000 feeding places). Consequently, large pig-fattening farms require one manpower unit for farm management alone. The decrease in the time requirement per place and year is especially pronounced up to a herd size of 1500 feeding places. Upwards of around 3500 feeding places, working-time requirement once again increases slightly. This is to do with the different trends in the time requirement of individual farm-management tasks. Whereas the time requirement for information and further training shows a strongly decreasing trend, the time spent on control tasks decreases only slightly as herd size increases. For the 'planning and organisational tasks' sector, after a decrease in time requirement up to about 1000 feeding places we then once again see a marked increase. Irrespective of production method, these effects always manifest themselves when additional outside manpower units need to be hired as a function of farm size. Additional expenditure on task planning and business discussions in particular then increases disproportionately.

Table 1

Working time requirements for farm management in pig fattening

	Anzahl Mastplätze *Number of places*					
	400	800	1200	2000	3000	4000
	AKh je 100 Mastplätze und Jahr *MPh per 100 places and year*					
Planung *Planning*	23,6	21,5	21,4	23,4	24,7	26,5
Kontrolle *Control*	22,9	21,1	20,5	20,9	21,1	21,3
Aufzeichnungen *Records*	7,8	6,0	5,4	4,9	4,6	4,5
Antragswesen *Applications*	3,7	2,0	1,5	0,9	0,6	0,5
Einkauf *Purchasing*	3,9	2,0	1,4	0,9	0,7	0,5
Verkauf *Sales*	10,5	10,3	10,2	10,1	10,1	10,1
Geldverkehr *Finance*	3,8	2,5	2,0	1,8	1,8	1,7
Buchführung *Accounts*	2,7	1,4	1,0	0,7	0,5	0,4
Weiterbildung *Further training*	14,5	8,4	7,7	5,5	3,7	2,7
Beratung *Consultation*	5,3	3,3	2,6	1,8	1,2	0,9
Betriebsführung *Farm management*	**98,7**	**78,5**	**73,7**	**70,9**	**69,0**	**69,1**

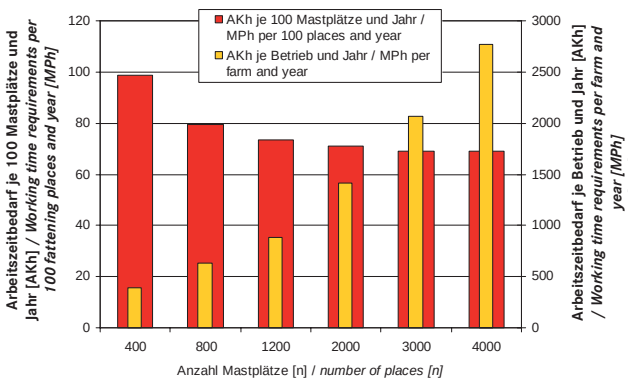
Working-time requirement for piglet production

Piglet production is another case where the different farm-management categories vary widely in terms of time requirement. Planning and organisation as well as control tasks make particularly heavy demands on the farmer's working time. Depending on herd size, up to over 80 per cent of total farm-management working hours are devoted to these two categories. Consequently, the importance of these activities is still far more pronounced in piglet production than in pig fattening, where planning, organisational and control tasks account for up to around 60 per cent of farm-management working hours.

In piglet production, a total of between around 5.7 and 4.4 MPh per sow and year are spent on farm-management tasks, depending on herd size (**figure 2**). Per farm, this equates to an annual working-time requirement of about 565 MPh (100 breeding sows), up to around 2622 MPh (600 breeding sows). Up to a herd size of about 300 sows, the time requirement per sow and year shows a decline. This decline halts once the herd size reaches around 500 sows and more, however.

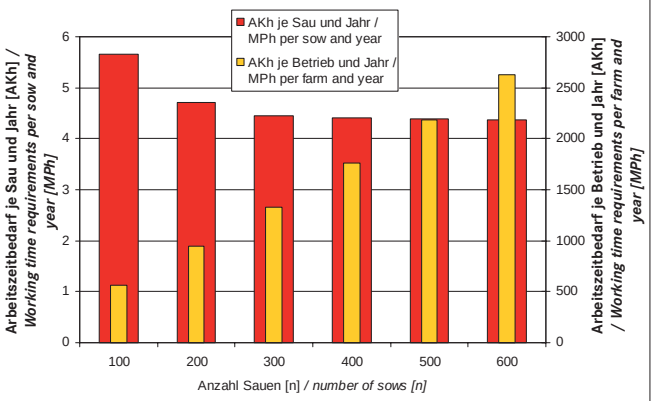
Once again, the different time-requirement trends in the individual farm-management categories are the cause of these effects. The time requirement for planning and organisation once again increases markedly from a herd size of 400 sows and up. For a herd of 600 sows, the time requirement per sow and year reaches even higher values than for a herd of 100 sows. The figures for the control tasks show a similar trend. Here, however, only a slight rise in time requirement per sow and year is recorded for a herd of 300 sows and up. Viewed as a whole, both of

Fig. 1



Working time requirements for farm management in pig fattening in subject to the number of places

Fig. 2



Working time requirements for farm management in pig breeding in subject to the number of sows

these trends certainly underscore the importance of planning, organisational and control tasks in piglet production.

Conclusions

The method developed for data collection and the model developed to calculate the working-time requirement for farm-management tasks were applied within the framework of this task to pig fattening and piglet production, or to the requirements of these two sectors. By entering influencing factors specific to individual farms into the calculation model, each pig farmer is now also able to calculate the working-time requirement for farm-management tasks for the farm in question. A planning instrument is therefore available whose validity is not only limited to the farms studied, but which can be used individually by varying the factors influencing the working-time requirement.

In addition to key work-economics figures for farm management in dairy and cash-crop farming, the corresponding data for pig fattening and piglet production are now also available. Thanks to this, further data gaps in the farm-management activities sector can be filled. For pig production it is now also possible to calculate and plan the overall working-time requirement for farm management, including the important tasks. This means that in the event of farm expansion and restructuring, the necessary planning resources will also be available within the framework of farm planning.

Literature

[1] Moriz, C.: Model-based planning of working time requirements for farm management. In: Increasing work efficiency in agriculture, horticulture and forestry, XXXI CIOSTA-CIGR V Congress Proceedings, Stuttgart-Hohenheim, September 2005, pp. 44–51

[2] Moriz, C.: Arbeitszeitbedarf für die Betriebsführung in der Landwirtschaft – Ein kausal-empirischer Ansatz für die Arbeitszeitermittlung in der Milchproduktion. Dissertation. Eidgenössische Technische Hochschule Zürich (ETH), 2007

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