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Working-Time Requirement in Organic Pig Fattening

State-of-the-art field data on working-time requirements in organic pig fattening is in short supply in the literature. In Agroscope Reckenholz-Tänikon ART's project 'Working-Time Requirement in Pig Production according to the EU Organic Regulation', conducted within the framework of the 'Calculation Bases' work programme of the Association for Technology and Structures in Agriculture (KTBL), current practical key figures were determined. These tasks link to Löser and Aubel's project, 'Pig Production in accordance with the EU Organic Regulation – Description of the Production Process and Survey of Cost- and Performance Elements'. In particular, Löser and Aubel's animal housing plans were referred to for the calculation of working-time-requirement values.

Keywords
Fattening pig, pig husbandry, working-time requirement, Organic Regulation, model calculation, time measurement

Abstract
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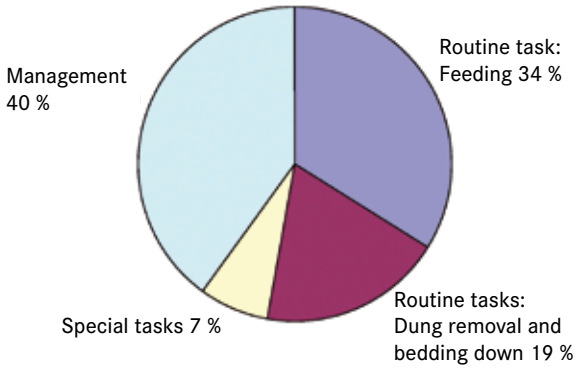
The work processes to be surveyed are broken down into work elements. Some work elements crop up in several work processes, whilst others can be specially allocated to a single work process. The former, for example, include 'walking without a load' and 'climbing onto tractor and starting up'. The latter include work elements such as e.g. 'Bedding down pen, long straw from small bales' and 'Preparing ear tags and pliers'. The working times are recorded via direct measurements made during observations on commercial farms, with the times per element being recorded via a pocket PC with time-recording software. In addition, all other influencing factors relevant for drawing up standard working times (number of animals, distance travelled, quantities, frequencies) are recorded on the farms. The standard times drawn up are processed in a model calculation system allowing calculations to be made

Fig. 1



Relative proportions of routine, management and special tasks in pig fattening. Example with 200 feeding places

Table 1

Work-economics key figures for routine tasks in organic pig fattening. Example with 200 feeding places

Action	Working-time requirement per 10 animals and day [MPmin]
Feeding at automatic dry-feed dispensers	
2 x daily: set-up tasks before and after	0.7
2 x daily: inspect automatic feed dispenser	0.3
Every 2 days: roughage in racks (400 g/[animal • d])	1.5
Bedding down of square bales	
Pen: 1 x per week (300 g/[animal • d]), front loader	0.2
Run: 2 x per week (500 g/[animal • d]), front loader	0.2
Mucking out directly onto the dung heap	
Pen: dung removal with front loader 1 x after fattening cycle	0.2
Run: shunt (with a blade mounted on the front loader) 2 x a week	0.8
Total per 10 animals and day [MPmin]	**3.9**
Total per feeding place and year [MPh]	**2.2**
Total per herd and year [MPKh]	**437.1**

for an individual commercial farm with a minimum of effort.

Model-farm influencing factors

A non-insulated housing system containing pens with two compartments (deep-litter lying area and solid-concrete feeding area) is taken as a typical practical example. A total of 200 fattening places in two early fattening pens and six finishing pens are available, with early fattening and finishing being spatially separated for reasons of hygiene, and the respective fattening stages being managed according to a 'all in/all out' system.

All animals have access to a partially roofed-over outdoor run.

2.3 fattening cycles are reckoned with per year (147 days duration of fattening, 10-day gap). Each early fattening pen contains 40 animals (0.8 m^2 per animal in the pen and 0.6 m^2 in the run); each finishing pen, 20 animals (1.3 m^2 per animal in the pen and 1.1 m^2 in the run).

Feeding in the pen takes place at automatic dry feeders, with two different rations being supplied for early fattening and finishing stages. The feeders are filled automatically by tube delivery. In the run, roughage in the form of silage and hay is distributed manually in racks.

Dung removal and bedding down are performed in a mobile manner with the aid of a front loader. Depending on the weather, the solid-concrete run is mucked out and bedded down once or twice weekly.

The deep-litter area in the pen is mucked out after each fattening cycle. Both areas are bedded down with long straw from square bales – weekly in the pen, 0.3 kg per animal and day, and twice weekly in the run, 0.5 kg per animal and day.

Since the basic ration is distributed fully automatically via (automatic) dry feeders, the daily inspection of the pipes and automatic dispensers is the only task that needs to be performed. All inspection tasks belong to the management sphere. For better comparability with other feeding methods, the inspection of the feed pipes is allocated to the working-time requirement for the feeding of the animals, i.e. to the routine tasks.

The working-time requirement for the animal and drink inspection performed during the routine tasks is also allocated to the routine tasks. Any further inspection rounds pertain to the management sphere.

"Special tasks are activities occurring at irregular intervals, some of which are to be dealt with by a particular deadline, others of which are not associated with a deadline. Special tasks may be directly allocated to a production method, to a production branch or to the entire farm." [2].

To calculate the special tasks in livestock fattening, the following principles must be borne in mind: The animals are rehoused in the transition from early fattening to finishing; the pens are always cleaned and disinfected after the pigs are rehoused or moved out. In addition, the early fattening animals are also weighed when they are moved into the pens, and are wormed once during the fattening cycle. The finisher animals are moved out and loaded onto transport. The piglets and animals to be slaughtered are transported by a haulier.

Model-farm results

Table 1 shows the work-economics key factors for the routine tasks in the present example.

For the special tasks as described above, a working-time requirement of 0.5 MPmin per 10 animals and day or 0.2 MPh per feeding place and year are to be expected. „Management tasks include the activities for running, administering and inspecting farms. The management tasks yield different degrees of apportionability" [2]. In this example, management tasks directly ascribable

Table 2

Work-economics key figures for routine, management and special tasks in pig fattening. Example with 200 feeding places

	Total per 10 animals and day [MPmin]	Total per feeding place and year [MPh]	Total per herd and year [MPh]
Routine tasks	3.9	2.2	437.1
Management	2.9	1.8	352.3
Special tasks	0.5	0.2	98.8
Totals	7.3	4.2	888.2

to pig fattening on a farm account for 2.9 MPmin per 10 animals and day or 1.8 MPh per feeding place and year. For the model-farm calculation, it was assumed that management and special tasks were performed with average intensity.

Table 2 shows the total working-time requirement in pig fattening. The value of 4.2 MPh per feeding place and year – fairly high, given the heavy mechanisation of this model farm – is chiefly due to the relatively small herd size. If herd size is increased to 520 feeding places, the working-time requirement for routine tasks under otherwise identical conditions drops to 1.9 MPh per feeding place and year. Management activities then still come to 0.8 MPh per feeding place and year, whilst the working-time requirement for the special tasks per feeding place remains the same. Hence, in a farm with 520 feeding places, 2.9 MPh per feeding place and year are required in total. This corresponds to a total working-time requirement of 1641 MPh per herd and year.

Management and special tasks can be performed with varying intensity, with the result that their working-time requirement is subject to significant fluctuation. Depending on the degree of mechanisation of the routine tasks and other influencing factors such as e.g. quantity of straw and number of animals, management and special tasks take up varying proportions of the total working-time requirement (cf. **Figure 1**).

Conclusions

For routine tasks, the working-time requirement in organic pig fattening consists essentially of the work processes 'feeding of roughage', 'bedding down pens' and 'mucking out pens'. As part of the management process, the examination of the animals also accounts for a large share of the annual working-time requirement per feeding place.

Herd size also plays a major role in organic pig farming in terms of the working-time requirement per feeding place and year.

Keyword: herd-size degression.

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