

Housing for growing/finishing

Continuing our report on the housing designs proposed in West Germany by Dr JOSEF LORENZ and Dipl. Ing. agr. FRIEDRICH BERKNER, this month the focus is on accommodation between 25-100kg liveweight.

In our view, to invest in pig finishing operations will in future be a reasonable undertaking only on the premise that feeding and management are designed so that the pig completes the 25-100kg period and is ready for slaughter within 100 days. To achieve that, the average rate of daily liveweight gain must be at least 750 grams; also the feed conversion should be better than 3.0, with a mortality rate of less than 2%.

A number of planning criteria need to be followed in setting the plan for the finishing house, apart from the essential fact that its capacity should be geared to the output of weaning pigs from the breeding enterprise. One is an all-in, all-out regime, for reasons of hygiene. Another is the separation of sexes together with taking growing-finishing as a single phase, rather than dividing it into pre-fattening and final finishing.

The additional capital requirement for all-in, all-out finishing (in Germany we calculate this extra at 15%), as compared with pig finishing operations in single-room houses, will be rapidly repaid. Such repayment will come from up to a 3.5 times throughput per pig place per year, from improved performance and from better sanitation.

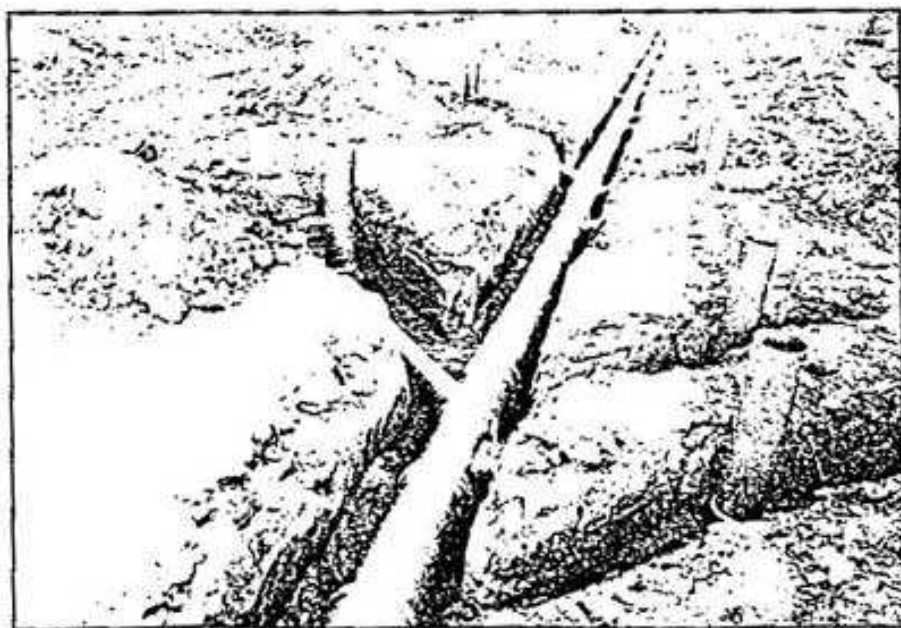
Male and female pigs have different temperature requirements. That is why separate-sex finishing produces improved results, which in fact are made better still by single-phase finishing between 25-100kg liveweight. Our concept of single-phase operation provides for the pigs to be housed in the same pen throughout this period, although the feeding systems installed should still permit a change in feed from pre-finisher to finisher at the appropriate moment.

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For layout, we advise what is sometimes called a comb arrangement, with the house divided into a series of compartments all leading at right-angles from the main corridor or passage (see Figure 1). A single-comb pattern of rooms connected to a side passage is proposed for units of up to approximately 400 pigs; above that size, 2 rows of compartments would link to a central passage as shown here.

Each compartment would hold between 80-120 pigs, on a group size of 10-12 pigs per pen. There is a subsidiary passage between the pens inside the room, and transverse troughs are provided for rationed liquid feeding.

Among the design details are the use of slatted flooring throughout, above enough liquid manure storage to hold the waste output from one throughput of pigs—tying in, of course, with the all-in, all-out approach. This manure system should incorporate a rinsing function.



For liquid manure collection and removal from the finishing house, a central pipe network is suggested.

As for ventilation, we propose it should be done by negative pressure, with underfloor extraction. Fresh air is introduced through the ceiling; the minimum height from pen floor to house ceiling is 3 metres and good insulation is essential. Another point is that the fresh air should be pre-heated, using a heat-recovery system working on the principle of capturing the warmth of the used air as it accumulates centrally under the floor before its removal.

Our design additionally provides for a warning/alarm system plus stand-by power; there is also a weighing machine in the house, for registering pigs' weights both on arrival and at departure.

The stated preference on pen type (troughs placed across the longitudinal axis of pens that offer accommodation for 10-12 pigs) is because this still represents the most space-saving system of housing in the finishing stage. With 33cm of feeding space per pig and 200-220cm of pen space behind the trough, the effective floor area becomes 0.66-0.73m²/pig—not counting the area taken up by the trough.

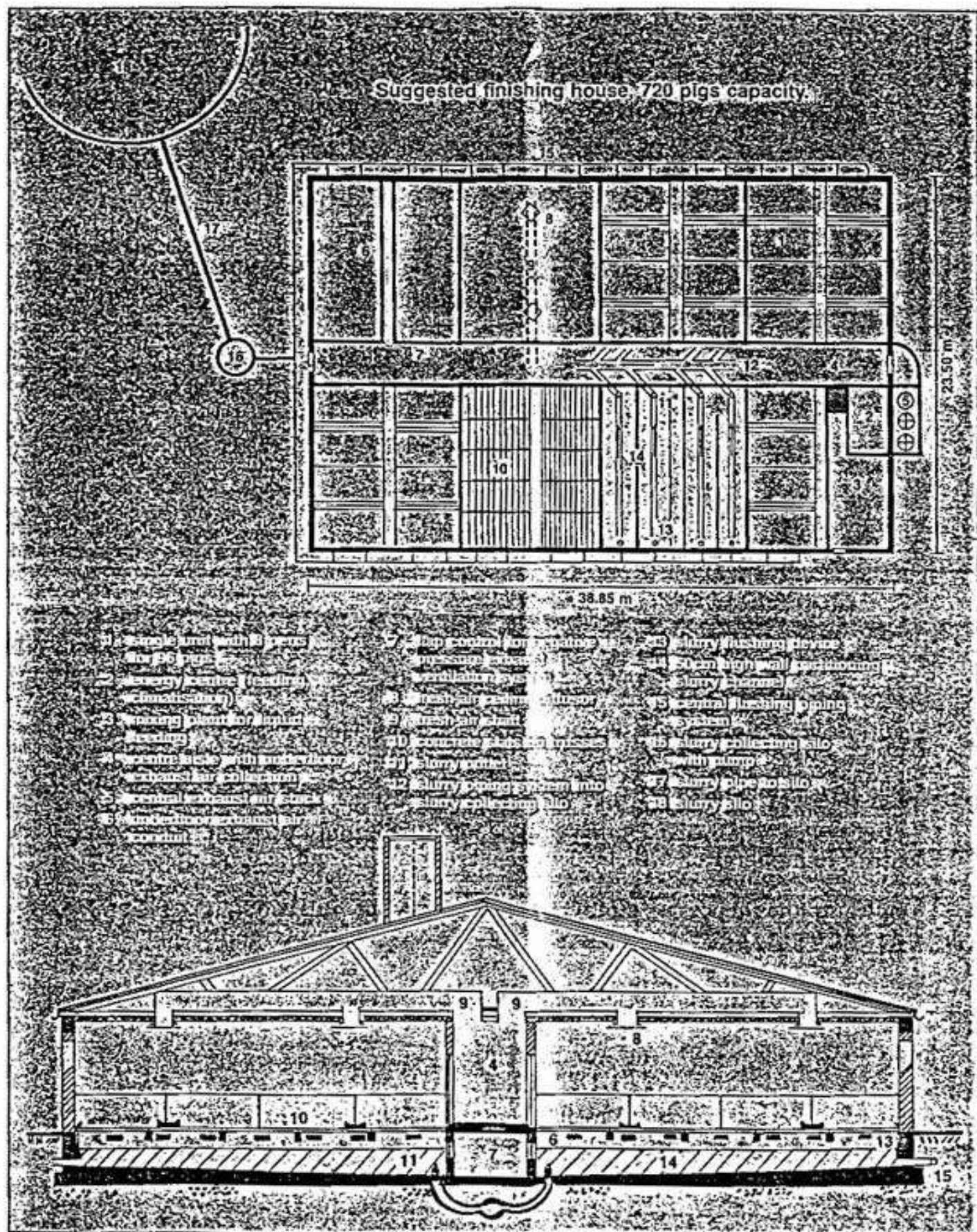
This is with fully-slatted floors. If the floor was only partly of slats, an extra section at least 130cm wide would be needed which would add 38-40% to the net pen floor area. Provided that they are well-made, 8.5cm wide with 17mm gaps, the full slats should keep cleaner and perform as well as partial slats. And in fact where liquid feeding is employed, they will even be better than the partly-slatted version.

Liquid feeding can be applied from about 25kg liveweight. The type of system will depend on the housing capac-

ity—from the simple installation for up to 300 places, to the fully automatic layout serving a unit which is already at 700 pigs in size and may well expand even

further. For the latter, the computerisation involved should today be capable of connection to other computer systems, notably those for management control.

So far, computers have been used on pig units primarily for the planning of sow herds and the control of liquid feeding. For the future, however, they hold





Computerised control such as of feeding systems needs to be capable of integration with management computers.

out the chance for performance to be improved still further also in the finishing houses, where they would allow direct evaluation as the basis for immediate changes to be made.

The computer's disadvantage must be seen in the fact that the operators of the unit are also those responsible for

collecting the data on which electronic analysis depends. Future data transfer from the pig-house must be simplified, such as by a portable hand-carried terminal which the operator can take with him as he walks around the house. For finishing, he is then in a position to monitor feeding, lighting and hygiene pro-

grammes, as well as weights for the calculation of growth and feed conversion, and also those aspects of the house environment which determine performance.