# Batch finishing place
# Finishing space requirements

In any batch programme the aim is all-in/all-out. To achieve this across the whole of the pigs growing period is a key component to modern pig farming. In an ideal world the pig flow should start with the finishing herd and the space available and then work backwards through the flow to the gilt pool.
However, in practice this proves to be difficult.

Part of the problem is seasonality associated with pig growth - they grow slower in the summer than in the winter, thus the space required is not constant throughout the year.
Then we have the "problem" of variation within the group. Many systems will produce targets for pig growth, what they are predicting is the average pig - not the last pig to leave the farm from a batch. On many farms the time from the first bacon pig to leave the batch to the last takes 6 weeks. On some farms it is much longer.
Then how much time do we allow for cleaning the finishing (and other) buildings.
We have issues with mortality and disease outbreaks, swine influenza can significantly slow down the growth potentials.

For this and other reasons, the batch farrowing place can be seen as a more predictable starting point in predicting finishing output and requirements. Note floor space is unobstructed floor space - the space available for the pigs (eating, sleeping, exercise and dunging). It does not include, walls, feeder space or passageways.

**Comments from examination of the table on the next page:**
"Space" can be considered in two forms:
The number of batches or rooms required to achieve all-in/all-out
The unobstructed floor space required in each of these rooms/batches.

The number of batches required is depend on the batch time and the age of the pigs at each respective weight. As the batch time (weeks) increases, less actual batches are required and increases in performance can be accommodated without the need for new buildings.

When the farm considers changing the number of farrowing places, this has an impact on the whole farm - all the way to the slaughterhouse - it impacts the size of the truck taking the pigs to slaughter!

Improving weaning numbers has moved the industry forward tremendously. But with all progress, there is a cost - increasing the numbers weaned also means that the farm needs to provides more room in each of the batches - to accommodate the extra pigs (and their weight). Note this also applies to the provision of feeders space, waters, ventilation rates etc., not just to the floor space! Increasing the numbers weaned by one pig a litter, in our default model, increases the finishing space per weekly batch by 12 $m^2$ per batch.

Changing the weaning age makes a significant impact on the number of batches required, the relative cost of farrowing housing and the extra feed required for young nursery pigs vs the cost of the nursery or even wean to finish building needs to be to taken into consideration - and this does not include the additional advantages of 4 week weaning vs 3 week weaning. Note in the EU 3 week weaning is illegal and not a consideration anyway.

Note the impact of crossing the average live-weight of 110 kg upper limit (set by legislation). The space required per pig increases dramatically from 0.65$m^2$ to 1.0 $m^2$. This is covered by EU 91/630 legislation.

## Finishing pigs space requirement

If we start with our standard farm's output calculator:

You can customise the yellow boxes:

| | | | | | |
|---|---|---|---|---|---|
| Batch time | 1 | week | | | |
| Batch farrowing place | 20 | | | | |
| Weaned per place | 10 | | | | |
| Weaning age | 3 | weeks | | | |
| Finishing rate | 95 | % | | | |
| Post-weaning mortality to | 30 | kg | 3 | % | |
| Live-weight | 110 | kg | | | |
| Age at slaughter | 24 | weeks | (check) | | |
| **Space required** | | | | | |
| Nursery per batch | 58.2 | sq m | | | |
| Finishing per batch | 123.5 | sq m | | | |
| Total unobstructed space | | | | | |
| Nursery | 407.4 | sq m | Batches | 7 | |
| Finishing | 1729 | sq m | Batches | 14 | |

| Legal issues | | |
|---|---|---|
| **Floor space EU requirement** | | |
| <=10 | 0.15 | sq m |
| <=20 | 0.2 | sq m |
| <=30 | 0.3 | sq m |
| <=50 | 0.4 | sq m |
| <=85 | 0.55 | sq m |
| <=110 | 0.65 | sq m |
| >110 | 1.0 | sq m |

This allows us to simply build an entire farm, which will be illustrated in another paper.

It allows again some What if? Questions to be asked:

**What if I changed my batch time?**

| | | Rate of change 5 kg | **100** | 105 | **110** | 115 | 120 | kg |
|---|---|---|---|---|---|---|---|---|
| Batch Time in Weeks | 1 week | Batches required in finishing | 13 | 13 | 14 | 14 | 15 | Batches |
| | | Total space required in finishing | 1606 | 1606 | 1729 | 2660 | 2850 | sq m |
| | 2 weeks | Batches required in finishing | 7 | 7 | 7 | 7 | 8 | Batches |
| | | Total space required in finishing | 1606 | 1606 | 1729 | 2660 | 2850 | sq m |
| | 3 weeks | Batches required in finishing | 5 | 5 | 5 | 5 | 5 | Batches |
| | | Total space required in finishing | 1606 | 1606 | 1729 | 2660 | 2850 | sq m |
| | 4 weeks | Batches required in finishing | 4 | 4 | 4 | 4 | 4 | Batches |
| | | Total space required in finishing | 1606 | 1606 | 1729 | 2660 | 2850 | sq m |

**What if I changed the number of batch farrowing places?**

| Rate of change 5 | **10** | 15 | **20** | 25 | 30 | places |
|---|---|---|---|---|---|---|
| Total space required in nursery | 204 | 306 | 407 | 509 | 611 | sq m |
| Total space required in finishing | 865 | 1297 | 1729 | 2161 | 2594 | sq m |

**What if I changed my numbers weaned?**

| Rate of change 0.5 | **9** | 9.5 | **10** | 10.5 | 11 | |
|---|---|---|---|---|---|---|
| Batches required in finishing | 14 | 14 | 14 | 14 | 14 | Batches |
| Total space required in finishing | 1556 | 1643 | 1729 | 1815 | 1902 | sq m |

**What if I changed my weaning age?**

| | **3** | **4** | **5** | weeks |
|---|---|---|---|---|
| Batches required in nursery | 7 | 6 | 5 | Batches |
| Total space required in nursery | 407 | 349 | 291 | sq m |
| Batches required in finishing | 14 | 14 | 14 | Batches |
| Total space required in finishing | 1729 | 1729 | 1729 | sq m |

**What if I changed my live-weight?**

| Rate of change 1 kg | **108** | 109 | **110** | 111 | 112 | |
|---|---|---|---|---|---|---|
| Batches required in finishing | 13 | 14 | 14 | 14 | 14 | Batches |
| Total space required in finishing | 1606 | 1729 | 1729 | 2660 | 2660 | sq m |

**What if I changed a number of targets?**

| | **Current** | **Proposed** | |
|---|---|---|---|
| Batch time | 1 | 1 | weeks |
| Batch farrowing place | 20 | 25 | |
| Weaned per place | 10 | 10.5 | pigs |
| Weaning age | 3 | 3 | weeks |
| Nursery pig move | 30 | 30 | kg |
| Live-weight | 110 | 111 | kg |
| Batches nursery | 7 | 7 | Batches |
| Total space required in nursery | 407 | 535 | sq m |
| Batches finishing | 14 | 14 | Batches |
| Total space required in finishing | 1729 | 3491 | sq m |