

Three week batch production

One survival tactic for indoor farms below 350 sows (44 a batch to farrow) and possibly 600 sows outdoors, is to reinstate the family farm concept and reduce labour bills. All farms need to instigate and gain all the health advantages of all-in/all-out and maximise legal farm output through strict pig flow. Three week batch production could provide all of these opportunities for family farms.

Three week batch farrowing is not a new or cutting edge concept. It is a well proven system widely used in the UK until the 50's when the drive for early weaning and industrialisation moved farms towards weekly systems. But the three week batch system still works well throughout central Europe.

What is 3 week batch production?

The farm turns every three weeks. Every three weeks the farm weans pigs. The system is based on the pig's natural biology as the pig flow can be divided into 3 weekly lots and the sow's reproduction cycle is every 3 weeks. The system weans piglets at 4 weeks of age.

Farm Layout

This is summarised in Table 1.

Table 1

Building requirements

| Farm area | Gilts | Dry sows | Farrowing | Weaners 7 - 30 kg | Grow/finish 30 - 95 kg |
|------------------|-------|----------|-----------|----------------------|---------------------------|
| 3 weekly batches | 3 | 6 | 2 | 2 - 3 | 4 - 5 |
| Weekly batches | 9 | 16 | 5 | 7 | 12 - 14 |

The gilts

Gilt inputs control 3 week batch systems and problems can occur if they fail to cycle appropriately, but this is true for all batch systems. It is vital to have an adequate gilt pool which is correctly integrated into the herd. The gilts arrive at 95-100 kg or come from the finishing herd in 3 weekly batches, 7 or 10 weeks before their expected mating date. Gilts will generally cycle around 5 days post-arrival. Following pig flow models breeding targets are met for gilts served on their 2,3 or 4th heat. If there are problems synchronising gilts it is possible to use chemicals such as Regumate (a progesterone like substance - similar to the pill), this would need to be discussed with your vet. There are 3 groups of gilts including a group in isolation for 3 weeks.

Breeding sows

As with all farms, breeding targets have to be met. The advantage of 3 week batching is that normal returns (80% of returns) of 21 or 42 days fall into the system. The irregular returns are either recycled (possibly synchronised with Regumate), served out of sequence when breeding numbers are below target or culled.

There are 5 groups of breeding and pregnant sows, although 6 pens will be needed to allow for movement requirements.

The replacement rate in French herds utilising 3 week batching is 40% which is possibly better than weekly batches, indicating the system is not wasteful on sows.

All sows are weaned on a Thursday and the bulk of the sows will then cycle the following Monday/Tuesday. Because this only occurs once every 3 weeks the family member best at breeding can do all the serving and optimise the results. On weekly systems at holiday times, service routines are poor with a subsequent reduction in farrowing rate.

Boars

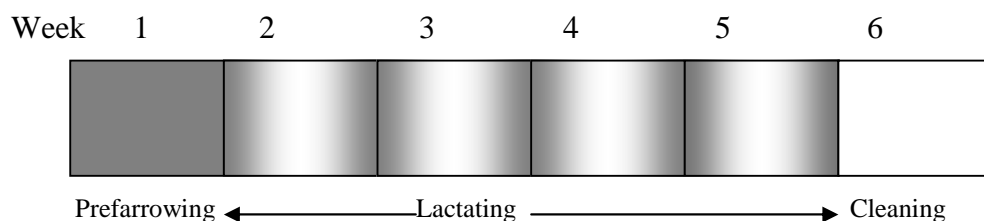
The three-week batch system does not fit well into recommendations regarding natural service with boars. However, embracing AI makes 3 week batching very easy. Current results with AI services are now at least as good (and even better on many farms) than either natural or combined services. The farms can even utilise on-farm AI by working the boars every 10 days and discarding the semen. On a theoretical farm of 10 sows a week (about 250 sows) which is now a 30 sows a batch farm, only 3-4 boars will be required at the on-farm AI stud. This is one boar per 83 - 62 sows. It can be expected that an on-farm AI boar will produce 16 to 20 doses of diluted semen. To collect the boars will take about 10 to 15 minutes per boar every 10 days. If AI is purchased, retained finishing boars can be utilised to produce male stimulation.

Farrowing and lactating sows

With 3 week batch farrowing and 4 week weaning only 2 farrowing rooms are required. Room occupancy is shown in figure 1.

Figure 1

Farrowing room occupancy flow



The system allows for a week of cleaning and resting of the farrowing accommodation. This provides for better disease control and room preparation. However, having a room empty for a week is not a usual situation within the UK.

Moving from the traditional set up of weekly batches based on 5 farrowing rooms creates a dilemma for the farm.

- A) To maintain output an extra weeks farrowing space will be required - to take it to '6 farrowing rooms' which can then be divided into 2 equal lots, or
- B) To reduce output and divide the current farrowing area into two equal lots.

Each of these two options has merits and profits can be increased in both depending on the whole farm costing and space allowances. On most farms all-in/all-out is easier to achieve with a 3 week system where the total farm is divided into 2 rather than the weekly system when the farrowing facilities have to be divided into 5 equal lots.

One additional model is to rationalise the farrowing accommodation by using multi-suckling in groups of 4 sows after 10 days of lactation. Therefore one farrowing room utilises traditional crates, the second a straw based multi-suckling system, however, the work load associated with moving and cleaning has increased.

The larger group of sows farrowing makes cross-fostering and uniformity of litters within the first 3 days much easier. For example a conventional 100 sow unit may only farrow 3 sows a week and they all have 14 to 16 piglets - chaos, the following week the 3 all have 8 and frustrations occur. With batching these extremes are less likely.

Because farrowing is an intense time and will now occur every 3 weeks, additional family members can be called in to assist with the farrowing and on several farms a shift management is practised. If service routines are tight, farrowing can also be tight and this can be assisted by the use of prostaglandin where necessary. Families do not generally object to helping when the work load is regulated and this system is about families or at least co-operating teams.

As weaning is also regulated, as it occurs every 3 weeks, this allowing for cleaning to be carried out efficiently.

It is also possible to leave the weaners in the farrowing crates for an additional 5 days, still allowing time to adequately clean the farrowing area. This can allow for weaners to learn about food and water and produces a more stable and heavier pig being moved into the hot nursery.

Weaners

There are two possibilities with weaners. As the pigs are weaned at 7 kg and are 4 weeks old and the aim to get them to 30 kg at 10 weeks of age, this means 2 nursery batches are required. This can be provided either by:

- a) One room of hot nursery for 7 to 18 kg for 3 weeks (note time is required for cleaning) and then the pigs are moved to the second room of cold nursery for the additional 3 weeks. Or
- b) The weaned pigs remain in one of the two nurseries for 6 weeks and move out at 30 kg. This does involve providing heating facilities in the current cold 2nd stage. But it does reduce cleaning and moving time.

With fewer rooms working in the weaner and grow/finish area, climate control is easier to standardise.

Growing and finishing pigs

At 30 kg the pigs either are placed into the finishing accommodation until finishing some 10 - 12 weeks later ie 4 batches. Or a grower room is utilised taking pigs to 45 kg ie one 3 week batch.

Whatever system is utilised 4 grower-finishing rooms are utilised. If growth rates of 22 weeks to finish cannot be realised, additional rooms will be required. Note however, it is imperative to stay within EU stocking rate requirements which force pigs to either move around 30 kg or 50 kg, but not 65 kg.

With an ideal system of weaning to 30 kg to 95 kg, this means that the pigs are only moved twice before slaughter. This reduces the stress on the pigs and stockpeople, reducing cleaning times and moving workload. There is even the potential to embrace wean to finish options being investigated in the USA and Spain.

Streaming of pigs

Utilising streaming of pigs where the 10% smaller weaners are sidelined into care accommodation, can still be utilised with 3 week batching. The 10% are sidelined for an extra 3 weeks and either reincorporated at 6 or 9 weeks post weaning. It is imperative not to put them back with the newly weaned pigs. The aim is to reduce variability at finish and not to place vulnerable weaned pigs under more stress than absolutely necessary. One additional advantage of batching is that it produces a larger group of compromised pigs and thus makes it worth while the effort required to look after them. For example a 10 sow a week unit with 10% weaners streamed results in only 10 pigs, whereas a 30 batch unit produces 30 pigs.

Selling pigs

Three week batching of pigs allows for producers to reduce transportation costs by having larger groups of animals to sell. For weaner producers this is very

advantageous, for in a 10 sows a week farm there are 100 weaners to sell. In a 30 sows in a 3 week batch system there are now 300 weaners, which will open more contracts to fill yards in one go and achieve all-in/all-out easier.

At finishing, animals can still be sold every week if required, and here the finishing house has 3 weeks to empty before it has to be emptied and cleaned ready for the next batch. In this way it is possible for finishing houses to be as clean as today's farrowing accommodation. Reduction in number of sale points reduces transport costs.

Pig Flow

With 3 week batches, pig flow is easier to understand. Because of the pig's biology, 3 week batching uniquely allows for concentration and specialisation of activities on family farms. This allows for holidays and weekends to happen. The routines of pig farming are broken up allowing for a more socially acceptable workload. This may in fact make it easier to find employees if they can be afforded.

Because the pigs are 3 week different, all-in/all-out can be more easily achieved and the farm more disciplined.

Table 2

Time schedule of events in sow production in 3 week batching

| Week | Farrow Group | Wean Group | Serve Group |
|-------------|---------------------|-------------------|--------------------|
| 1 | 1 | | |
| 2 | | 7 | |
| 3 | | | 7 |
| 4 | 2 | | |
| 5 | | 1 | |
| 6 | | | 1 |
| 7 | 3 | | |
| 8 | | 2 | |
| 9 | | | 2 |
| 10 | 4 | | |
| 11 | | 3 | |
| 12 | | | 3 |
| 13 | 5 | | |
| 14 | | 4 | |
| 15 | | | 4 |
| 16 | 6 | | |
| 17 | | 5 | |
| 18 | | | 5 |
| 19 | 7 | | |
| 20 | | 6 | |
| 21 | | | 6 |
| 22 | 1 | | |
| 23 | | 7 | |
| 24 | | | 7 |
| 25 | 2 | | |

Advantages of a family farm moving to a 3 week batch system

- Strict all-in/all-out pig movements in all parts of the growing herd which should lead to a reduction in disease challenge and thus an improvement in efficient growth of the pigs
- Regular pressure washing and disinfection of all growing herd buildings
- Use of feed developments – phase feeding
- Less movement back of pigs through the system
- Better utilisation of vaccines i.e. bigger groups the bottles are used fully, part bottles which are currently discarded are less common.
- Specialisation of staff during the different weeks
- More concentration on breeding routines
- Easier fostering routines
- Possible reduction in transportation costs
- More socially acceptable farming system – a family farm with time off

Disadvantages of a family farm moving to a 3 week batch system

- To maintain predicted output extra farrowing accommodation is required
- Reliance on gilt cycling, but this is also true of any batch system
- Need to change to the new system, puts pressure on the current system, loss of all-in/all-out on many farms required for 6 months.

Other alternative batch systems

Once the farm is driven on output rather than pigs per sow per year and pig flow models embraced, a number of options to achieve all-in/all-out can be reached. These vary from twice weekly, once weekly, 10 day or 2,3 or 5 week batching options, all of which can be investigated and then depending on farm size, the model which maximises income and minimises effort can be selected.

Moving from a weekly to a 3 weekly batch system

As with any change in the enterprise this requires thought and planning. The system revolves around the gilt pool and temporarily changing the weaning ages to coping with the variability of weaners and growers which then come through the farm. The timetable of events is shown in table 3. It is essential to have the absolute co-operation of the breeding company supplying the gilts. The temporary weaning of some piglets below 21 days is acceptable as it is part of a plan to improve the long term welfare of the pigs.

The system assumes an 8 week gilt introduction period. Note serve gilts either on their 2, 3 or 4 th heat post arrival to ensure breeding targets met. Timed gilt introduction is essential to this programme, gilts must arrive in a weaning week (i.e. assuming they will have a transport heat 5 days after arrival).

To create a group of sows from 3 different weekly weanings:

- It is necessary to wean one week of sows and place them on Regumate for 7 days, to delay their cycling for one week. Alternatively the sows are moved out of the farrowing accommodation with their piglets on to straw, (for example) and are then weaned at 5 weeks.
- The next week wean normally sows at 4 weeks
- And an additional group of sows at 3 weeks lactation.

This results in the large batch and releases the farrowing crates necessary for this weeks expected farrowings originating from the old weekly serving system.

The programme therefore takes 30 weeks before the breeding side is in sequence. An additional 16-18 weeks is required before the finishing side is completed.

Table 3

3 Week Batching, moving from a week system Sequence of events

| Week | Farrow | Wean | Serve | Gilt Delivery |
|------|----------------|---------------------|---------------|---------------|
| 1 | Farrow | Wean | Serve | |
| 2 | Farrow | Wean | Serve | Delivery |
| 3 | Farrow | Wean | Serve | |
| 4 | Farrow | Wean | Serve | |
| 5 | Farrow | Wean | Serve | Delivery |
| 6 | Farrow | Wean | Serve | |
| 7 | Farrow | Wean | Serve | |
| 8 | Farrow | Wean | Serve | Delivery |
| 9 | Farrow | Wean | Serve | |
| 10 | Farrow | Wean Regumate | Serve | |
| 11 | Farrow | Wean (3-5W) Group 1 | | Delivery |
| 12 | Farrow | | Serve Group 1 | |
| 13 | Farrow | Wean Regumate | | |
| 14 | Farrow | Wean (3-5W) Group 2 | | Delivery |
| 15 | Farrow | | Serve Group 2 | |
| 16 | Farrow | Wean Regumate | | |
| 17 | Farrow | Wean (3-5W) Group 3 | | Delivery |
| 18 | Farrow | | Serve Group 3 | |
| 19 | Farrow | Wean Regumate | | |
| 20 | Farrow | Wean (3-5W) Group 4 | | Delivery |
| 21 | Farrow | | Serve Group 4 | |
| 22 | Farrow | Wean Regumate | | |
| 23 | Farrow | Wean (3-5W) Group 5 | | Delivery |
| 24 | Farrow | | Serve Group 5 | |
| 25 | Farrow | Wean Regumate | | |
| 26 | Farrow | Wean (3-5W) Group 6 | | Delivery |
| 27 | | | Serve Group 6 | |
| 28 | Farrow Group 1 | Wean Regumate | | |
| 29 | | Wean (3-5W) Group 7 | | Delivery |
| 30 | | | Serve Group 7 | |
| 31 | Farrow Group 2 | | | |
| 32 | | Wean (4W) Group 1 | | Delivery |
| 33 | | | Serve Group 1 | |
| 34 | Farrow Group 3 | | | |

Summary

A three week batching system may offer many farms a means of optimising output, profit and make farming more sociably acceptable. However, as on all major restructuring decisions, a lot of discussion is required.