Batch Farrowing Place

What is the point of the farrowing rate %?

The farrowing rate is an assessment of the minimum number of females required to be mated to ensure that all the farrowing places in a batch are filled with a sow which farrows.

The farrowing rate % is not an assessment of how good you are breeding sows
This is not relevant to profit. Being great at breeding - but having empty farrowing places - losses your farm around 800kg of pig meat for each empty farrowing place (**See cost of production**).

There are many "farrowing rates"
Classically the farrowing rate is calculated as the

(The number of sows which farrow over a period/Number of sows and gilts bred over the same period)*100%

This is an average number - it has no specific bearing on the batch requirements. It can be useful as a guide, but this number has significant failings. Being an average, it means that 50% of the time you will have a farrowing rate higher than this number (for any single batch) and more significantly, 50% of the time you will have a farrowing rate lower than this number and this has the potential of leaving an empty farrowing place.

But I can play catch up on batches where the results are poor
No. This is a primary problem within the pig industry. If the farm is going to adopt all-in/all-out and batching, there is no concept of "catch up". If you have more sows farrowing than the farm has farrowing places this results in more piglets being available to wean - but only within this batch. If you start moving sows, early weaned piglets to make room for extra farrowing sows etc, all that happens is all-in/all-out is destroyed, piglets enter the nursery too young, sows and gilts are weaned too early. All these events have negative consequences on production and may cause the farm to break stocking regulations or weaning age legislation and increases diseases and poor health.

Examination of the efficiency of batch breeding to fill the batch farrowing place
Obtain, a group of breeding reports. Note that the start of each batch is the day after weaning (**Batch definition**)

Place your actual numbers bred and farrowed, for each batch, into the yellow table on the next page.

Batch Farrowing Rate analysis

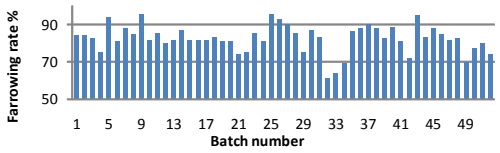
The yellow boxes can be customised to your farm. The model is set up for 52 batches

10 % Varience to determine comments

Batch	Bred	Farrow	FR%	Broad Comments	
1	25	21	84		
2	25	21	84		
3	17	14	82	Check under breeding	Check, empty farrowing place
4	20	15	75	Check under breeding	Check, empty farrowing place
5	33	31	94	**Check over breeding**	**Check too many farrowing**
6	21	17	81	Check under breeding	Check, empty farrowing place
7	25	22	88		
8	26	22	85		
9	21	20	95	Check under breeding	
10	22	18	82	Check under breeding	Check, empty farrowing place
11	27	23	85		**Check too many farrowing**
12	25	20	80		
13	22	18	82	Check under breeding	Check, empty farrowing place
14	23	20	87	Check under breeding	
15	33	27	82	**Check over breeding**	**Check too many farrowing**
16	27	22	81		
17	22	18	82	Check under breeding	Check, empty farrowing place
18	24	20	83	Check under breeding	
19	26	21	81		
20	26	21	81		
21	23	17	74	Check under breeding	Check, empty farrowing place
22	20	15	75	Check under breeding	Check, empty farrowing place
23	27	23	85		**Check too many farrowing**
24	21	17	81	Check under breeding	Check, empty farrowing place
25	22	21	95	Check under breeding	
26	28	26	93	**Check over breeding**	**Check too many farrowing**
27	20	18	90	Check under breeding	Check, empty farrowing place
28	27	23	85		**Check too many farrowing**
29	24	18	75	Check under breeding	Check, empty farrowing place
30	23	20	87	Check under breeding	
31	30	25	83	**Check over breeding**	**Check too many farrowing**
32	26	16	62		Check, empty farrowing place
33	25	16	64		Check, empty farrowing place
34	26	18	69		Check, empty farrowing place
35	29	25	86	**Check over breeding**	**Check too many farrowing**
36	25	22	88		
37	30	27	90	**Check over breeding**	**Check too many farrowing**
38	25	22	88		
39	29	24	83	**Check over breeding**	**Check too many farrowing**
40	26	23	88		**Check too many farrowing**
41	26	21	81		
42	25	18	72		Check, empty farrowing place
43	20	19	95	Check under breeding	Check, empty farrowing place
44	24	20	83	Check under breeding	
45	25	22	88		
46	26	22	85		
47	27	22	81		
48	23	19	83	Check under breeding	Check, empty farrowing place
49	23	16	70	Check under breeding	Check, empty farrowing place
50	22	17	77	Check under breeding	Check, empty farrowing place
51	25	20	80		
52	27	20	74		
	25	20	82		
	Averages				

Analysis of the batch breeding and farrowing

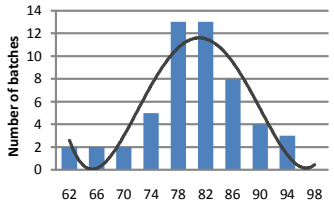
Farrowing places per batch: 20



Breeding Model	
Bred	FR%
22	91
23	87
24	84
25	80
26	77
27	75
28	72

Analysis of variation of farrowing rate

	Farrowing rate % categories										
Greater than	62	66	70	74	78	82	86	90	94	98	Total batches
Rate of change 4	2	2	2	5	13	13	8	4	3	0	



The "farrowing rate %" is 82 %
How many batches are below this farrowing rate?
25 which is what "average" means

Lowest farrowing rate % is 62 %

What was the average farrowing places filled per batch? 20
How many batches was a farrowing place empty 19
But what was the range? Min 14 Max 31

Assume having too many to farrow is not significant - only adds to weaning numbers

What is the cost of having the empty farrowing places?

How many places were empty over the 52 batches 56 farrowing places

Number of pigs weaned per farrowing place	10		Post-weaning finishing rate	95 %
Dead weight per pig sold	78 kg		Cost per kg dead weight	1.24 £
Total costs per farrowing place	918.84 £		Income per kg dead weight	1.34 £
Feed as a % of total cost	60 %		"Fixed" costs per farrowing place	551.304 £

Over these batches the farm has "lost" 30873 £ worth of fixed costs which increases the real cost per kg
Together with loss of profit 4150 £
Potential income 1032658 £ over all the batches
Likely income based on averages 1032658 £ over all the batches

To cover these losses is going to take a different approach to looking at the farrowing rate %

Rate of change 10	Percentile	50	60	70	80	90	100	
	This is achieved at a FR% of	82	81	80	77	73	61	likelihood that the batch will be full farrowing rate %
	Females bred per batch	25	25	25	26	28	33	Females
	Approx herd size	450	450	450	456	468	498	

Weaning age 4 weeks

Calculation = roundedup((Breeding pool *6 weeks)+(farrowing place *10)+((farrowing place*(weaning age+1)))

Cost of keeping the "extra" sows

Sow feed cost 200 £ Sow feed 1.1 tonnes per year
Litters per sow per year 2.2

Sow feed costs		0	0	1320	3960	10560 £
Possible empty places	56	42	26	24	12	0
Farm lost costs	35023	23155	14334	13231	6616	0 £
Advantages in saved costs		11868	20689	20471	24447	24463 £

Comment

The analysis indicates that on 'average' the production figures were ok. The farm needs to farrow 20 a batch - which it did. The 82% farrowing rate is acceptable.

However, on 19 batches, out of the 52 examples, the farm actually failed to fill all of the farrowing places.

Over the 52 batches, there were actually 56 farrowing places which were empty. This was 560 piglets not weaned (10 weaned per farrowing place), these piglets were not weaned, finished, sold or slaughtered. All of the "fixed" costs associated with these animals had to be borne by other animals in this batch. These "fixed" costs, in this example, equated to £31K.

In order to fill all the available farrowing places (in 52 batches) the breeding target would have to be calculated from a different percentile farrowing rate. Traditionally the mean or average farrowing rate is used - this is the 50 percentile.
For example:
If we decided we had to fill all the farrowing places all the time, then the breeding target would be based on the lowest farrowing rate recorded - which in the above example is 62%. The breeding target would then be 33 a batch - a 500 sow unit compared to the 450 sow unit targeted.
These "extra" "insurance" sows cost money - largely in terms of feed. But models can be created to accommodate other costs. In the model above 10% extra is added. There are no lost production costs to be added - these animals are only to fill the available space.
In the example above, the extra sows to breed 33 a batch would cost an additional £12K. But this is still much less than the £35K loss of cost and profit associated with these empty farrowing places.

The health team needs to analyse previous performance to determine an acceptable breeding target. Obviously finding room for these "extra" sows also need to be considered.

Summary

The above example is only a model - although based on real farm data. The example farm also overproduced pigs in other batches, which is not taken into account in the above losses. On average the farm still produced it expected output. It could have achieved this output with less variation and thus stress on the system.

But the model does demonstrate that failure to fill each batch farrowing place results in enormous loss. On the other hand, a few extra breeding sows to ensure the majority batches are filled, costs less than the potential losses. Extra sows would not be required if the farm bred 25 a batch, had a farrowing rate of 80% of more and farrowed 20 a batch. This production could have been accomplished with the target 450 sow unit.

However:

Traditional production values need to be set aside and used as guides to production only, for example

Non productive Days
Pigs per Sow per Year