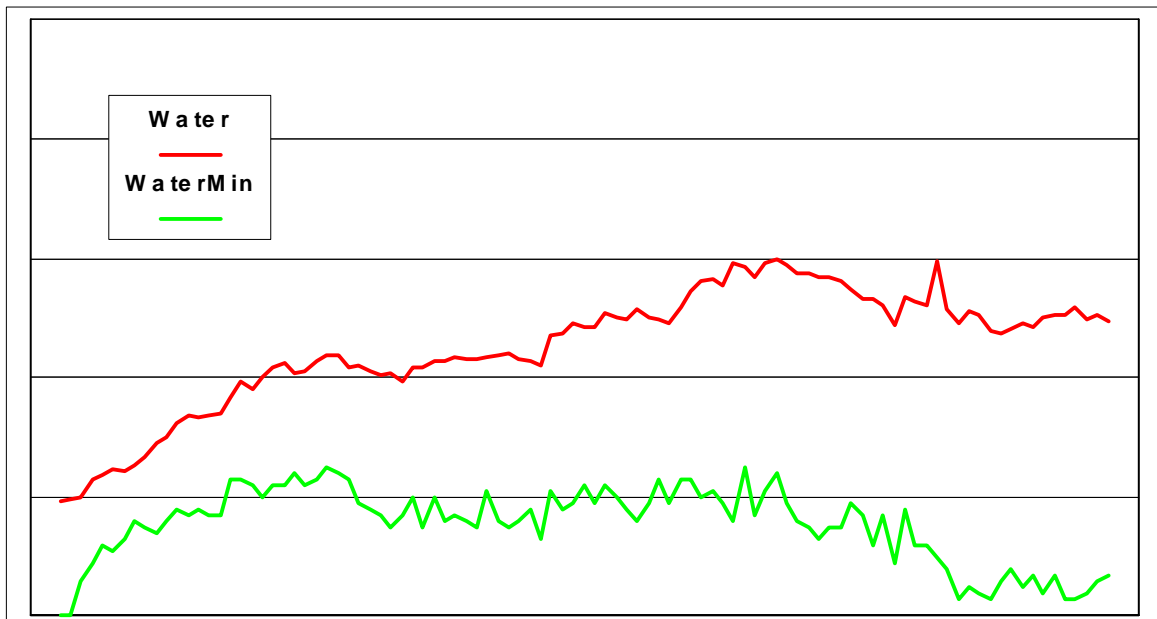


Water Zero Level : Special Cases

We have several sites exhibiting the following kind of characteristic :

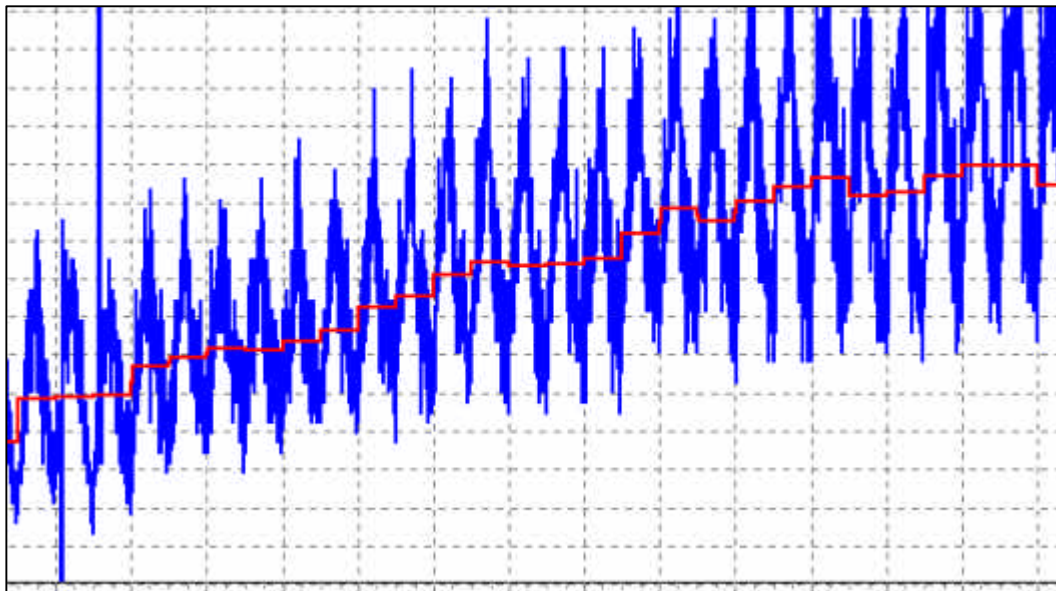


Water is the totalised reading over a 24 hour period.

WaterMin is from the lowest water use count in any 24 hour period. (The two lines are on different scales, and the total period above is about 4 months.)

Most sites have a point (usually around 4 or 5 am) when water use falls to zero.

I have previously assumed that a non zero reading (either it never drops to or close to zero) to be most probably due to leakage. (From the lowest value assumed to be leakage, I have therefore projected water leakage rates.)



This second chart shows the water pattern over about the first month.

These two sites are both adamant that there is no significant water leakage from drinkers, and yet significant departures from zero can be seen.

In the second chart, it is clear that - in the early stages at least - the zero level is increasing in line with the total use per day.

If is not leakage, it is actual water consumption. Whilst it evidently goes up and down over each biological day, it never goes to zero.

In the batch shown above, it rises to a maximum level, then stays at around the same level for 2 months, and then drops over a fortnight to a more or less "noise" level, and stays there until the end of the batch.

What does this mean?

In my view, this indicates competition for resources.

The non zero min level falls off at just the point where pig numbers are starting to drop as some pigs are sold out of the building, and where feed intake has flattened off. At higher weights, water intake as related to feed intake (Feed : Water ratio) goes down.

There are two possible reasons :

Firstly, that the pigs do not particularly want to drink during the day or conversely, do want to drink at night. In other sites (particularly with natural ventilation), there is a very strong and clear relationship between sundown and intake pattern. It is possible these pigs are in totally enclosed rooms with no access to natural light, so there are no particular cues as to when the natural day is. That is, their bodies have no particular idea when day and night are, so they may be only weakly locked to natural day. (This has been observed in some fan ventilated buildings.)

This seems a little unlikely here, as the minimum point is exactly at the same time as naturally lit rooms.

The alternative is that there is intense competition for water. Clearly, there is no shortage of water as such (the total daily volume is higher when later on when minimum level is falling.) Peak flow rates increase later on, making it seem unlikely it is an issue with problems in, say, the water supply pressure.

The conclusion therefore, is that the competition is in terms of access to a drinker. There are not enough "peak drinker minutes", and hence some pigs are having to time shift to when drinkers are available.

This may be more of an issue with younger than older pigs. Younger pigs make more visits to the drinker, but do not take a proportionately shorter time. As pigs get older, visits are fewer, and the volume per visit increases. Competition may well be greater in the case of combined feeder drinkers (such as single space feeders) where a much longer time will be needed to eat and drink.

On these sites, the indications are that there are insufficient drinkers, and quite possibly insufficient feeders as well, to meet peak demand which has resulted in pigs time-shifting the feed and water intake.

It seems highly likely that time shifting is by less dominant pigs, and may well mean their consumption is significantly less than more dominant pigs, with spread of weight ranges. Increase in vice is also a likely result.