EFFECTIVE FROM 28/01/2022 in EUROPE !

DIRECTIVE 90/167/EEC on the preparation & marketing of medicated feed
IS REPEALED by EU Regulation 2019/4.

WHAT CONSEQUENCES FOR PIG FARMS?

- ✓ This development modifies the prescription of medicated feed
- ✓ This new directive puts an end to preventive treatments (prophylaxis) mainly used in the feed, a historical factor of overconsumption of antibiotics.
- ✓ The necessary curative or metaphylactic treatments prescribed will now be administered mainly via drinking water (targeted groups) or by injection (individual).

HOW TO PREPARE FOR IT ?

While respecting the good veterinary practices & the recommendations of the European Medicines Agency EMA/CVMP/508559/2019

FOR YOUR TREATMENTS OR VACCINES ADMINISTERED VIA DRINKING WATER

THINK ABOUT A PROPORTIONAL DOSING PUMPS HAVING THE MINIMUM REQUIRED PERMORMANCES…

(Knowing that piglets drink only a few minutes per day over variable periods at each drinker visit, you must be able to guarantee them equal access to the right dose at any time throughout the entire treatment duration)

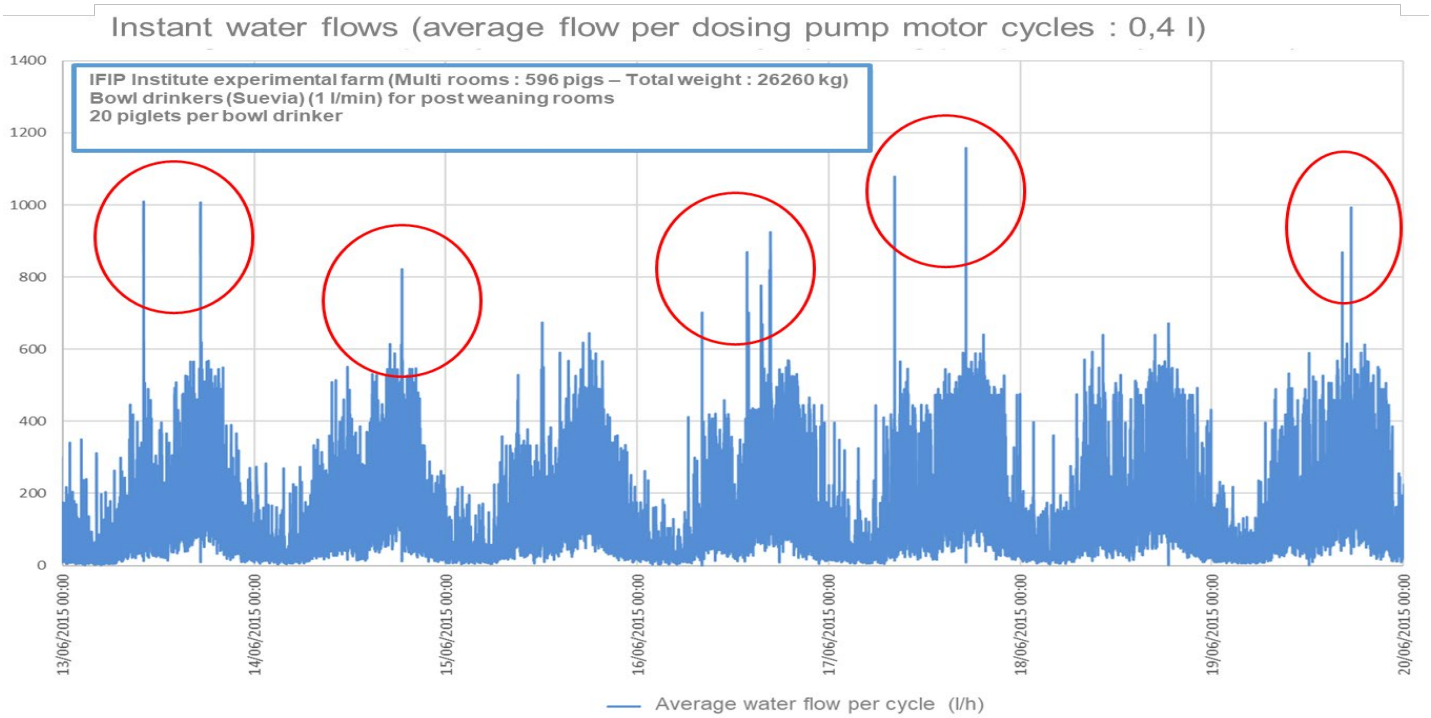
THE 5 ESSENTIAL CHARACTERISTICS OF THE DOSING PUMP :

1. **High dosing capacity to guarantee the solubility of the oral treatments in the mixing tanks & to reduce the residues at the end**. (Dosage up to 5% is recommended for low solubility tetracycline, amoxicillin, TMP Sulfa, Paracetamol, some wormers, vitamins, probiotics & for vaccination to lower residual doses at the end)

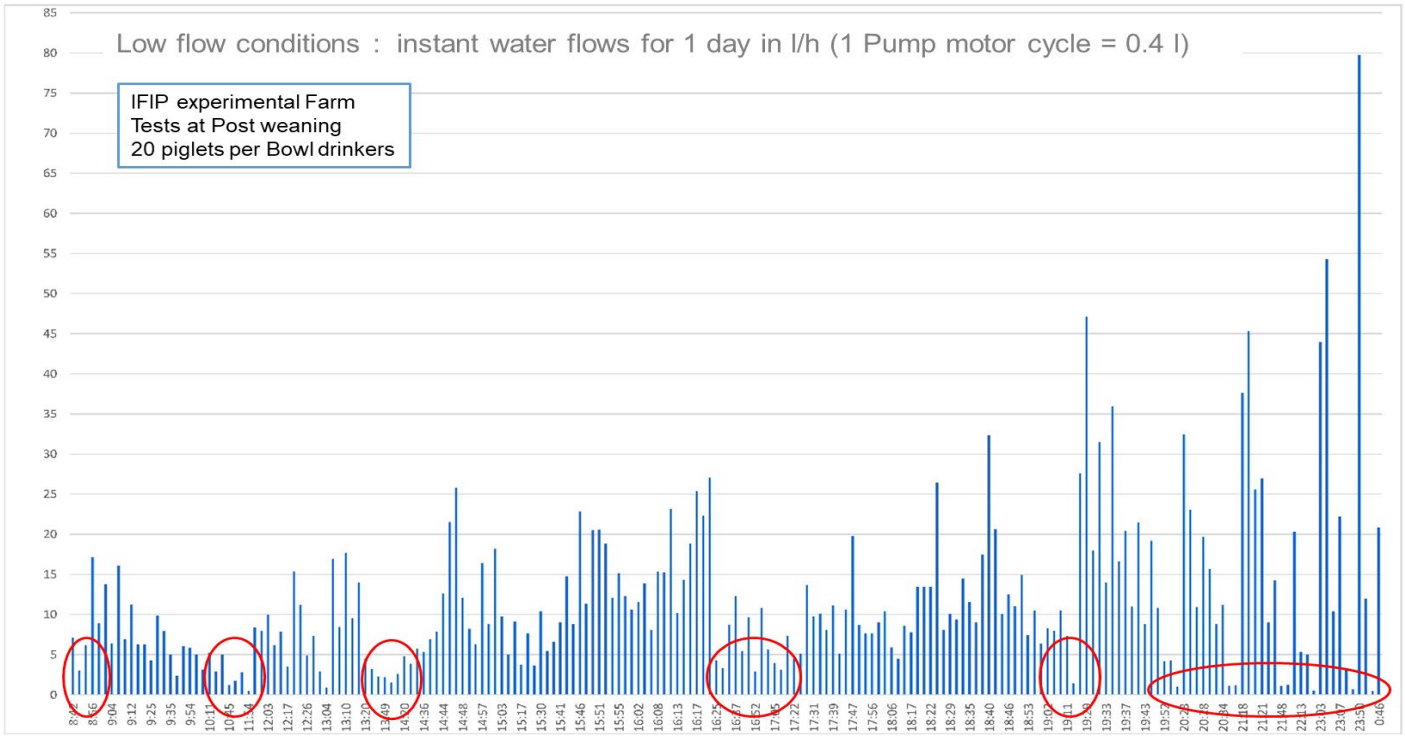
Key points regarding solubility to get all advantages of curative/metapylactic oral treatments via drinking water :
An acidic medicine will be more soluble in alkaline water and vice versa. Water temperature will affect the solubility limits. Hard water will generate precipitation with some medications. A stirrer will improve the mixing of low solubility medicines. Any medication should not last more than 24H (stock solution to be renewed for stability reasons). Refer to recent local legislation on authorized medicines and always respect veterinary prescriptions & the European Medicine Agency recommendations EMA/CVMP/508559/2019 for Curative or Metaphylactic treatments. Consult the pharmaceutical companies to check the solubility of the commercial medicine gallenic form and if necessary compatible solubilizing agents not affecting the medicine stability. The hereunder data are given for the purpose of information only.

Source : Ceva Animal Health Ispaia Conference 06/2017 L'eau vecteur de médication:Solubilité des spécialités, impact de la qualité de l'eau	Water type	Water Temp.	Solubility max.	Required dilution rate (can vary with posology)	Dosing Pumps (Dosing rates in % > Stock solution concentration)			
					10%	5%	3%	2%
AMOXICILLIN 10% Oral Soluble Powder (+ tepid water & alkaline solubilizer when necessary)	Soft & Acidic	20°C	~20g/L	1g/L	10g/L	20g/L	33g/L	50g/L
	Soft & Alkaline		~20g/L	1g/L	10g/L	20g/L	33g/L	50g/L
	Hard & Acidic		~15 - 20g/L	1g/L	10g/L	20g/L	33g/L	50g/L
	Hard & Alkaline		~15 - 20g/L	1g/L	10g/L	20g/L	33g/L	50g/L
AMOXICILLIN 50% Oral Soluble Powder (+ tepid water & alkaline solubilizer if necessary)	Soft & Acidic	20°C	~20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Soft & Alkaline		~20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Acidic		~15 - 20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Alkaline		~15 - 20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
OXYTETRACYCLIN 50% Oral Soluble Powder (+ tepid water & acidic solubilizer depending on the galenic form - Tank with a stirrer)	Soft & Acidic	20°C	~20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Soft & Alkaline		~20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Acidic		~15 - 20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Alkaline		~15 - 20g/L	0,5g/L	5g/L	10g/L	16,7g/L	25g/L
SULFADIAZINE / TMP (8,33 / 1,665) Oral Solution (+ alkaline solubilizer if necessary)	Soft & Acidic	20°C	up to 100 ml/L for Adjusol TMP Sulfa Liquide (source Virbac)	3ml/l	30ml/L	60ml/L	100ml/L	150ml/L
	Soft & Alkaline			3ml/l	30ml/L	60ml/L	100ml/L	150ml/L
	Hard & Acidic			3ml/l	30ml/L	60ml/L	100ml/L	150ml/L
	Hard & Alkaline			3ml/l	30ml/L	60ml/L	100ml/L	150ml/L
SULFADIMETHOXINE / TMP (18.7 / 4.0) Oral Solution (+ alkaline solubilizer if necessary)	Soft & Acidic	20°C		1ml/L	10ml/L	20ml/L	33ml/L	50ml/L
	Soft & Alkaline			1ml/L	10ml/L	20ml/L	33ml/L	50ml/L
	Hard & Acidic			1ml/L	10ml/L	20ml/L	33ml/L	50ml/L
	Hard & Alkaline			1ml/L	10ml/L	20ml/L	33ml/L	50ml/L
DOXYCYCLINE Oral Soluble Powder (+ acidic solubilizer depending on the galenic form)	Soft & Acidic	20°C		0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Soft & Alkaline			0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Acidic			0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Alkaline			0,5g/L	5g/L	10g/L	16,7g/L	25g/L
COLISTIN Oral soluble Powder / Solution	Soft & Acidic	20°C	> 200g/L	0,83g/L	8,3g/L	16,6g/L	27,7g/L	41,5g/L
	Soft & Alkaline			0,83g/L	8,3g/L	16,6g/L	27,7g/L	41,5g/L
	Hard & Acidic			0,83g/L	8,3g/L	16,6g/L	27,7g/L	41,5g/L
	Hard & Alkaline			0,83g/L	8,3g/L	16,6g/L	27,7g/L	41,5g/L
TIAMULIN Oral Solution	Soft & Acidic	20°C	> 100g/L	0,5 - 1 mL/L	5 - 10 mL/L	10 - 20 mL/L	16,7-33mL/L	25-50mL/L
	Soft & Alkaline			0,5 - 1 mL/L	5 - 10 mL/L	10 - 20 mL/L	16,7-33mL/L	25-50mL/L
	Hard & Acidic			0,5 - 1 mL/L	5 - 10 mL/L	10 - 20 mL/L	16,7-33mL/L	25-50mL/L
	Hard & Alkaline			0,5 - 1 mL/L	5 - 10 mL/L	10 - 20 mL/L	16,7-33mL/L	25-50mL/L
NEOMYCIN 50% Oral Powder	Soft & Acidic	20°C		0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Soft & Alkaline			0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Acidic			0,5g/L	5g/L	10g/L	16,7g/L	25g/L
	Hard & Alkaline			0,5g/L	5g/L	10g/L	16,7g/L	25g/L
TYLOSIN TARTRATE Oral Soluble Powder	Soft & Acidic	20°C	50g/L (Source: ChemicalBook)	0,3g/L	3g/L	6g/L	10g/L	15g/L
	Soft & Alkaline			0,3g/L	3g/L	6g/L	10g/L	15g/L
	Hard & Acidic			0,3g/L	3g/L	6g/L	10g/L	15g/L
	Hard & Alkaline			0,3g/L	3g/L	6g/L	10g/L	15g/L
FLUMEQUINE Oral Soluble Powder / Solution (+ akaline solubilizer if necessary)	Soft & Acidic	20°C		0,12g/L	1,2g/L	2,4g/L	4g/L	6g/L
	Soft & Alkaline			0,12g/L	1,2g/L	2,4g/L	4g/L	6g/L
	Hard & Acidic			0,12g/L	1,2g/L	2,4g/L	4g/L	6g/L
	Hard & Alkaline			0,12g/L	1,2g/L	2,4g/L	4g/L	6g/L
PARACETAMOL 20% Oral Solution (Glycol Solubilizer if necessary)		5°C Cold water	~50 - 60 mL/L	1,5mL/L	15mL/L	30mL/L	50mL/L	75mL/L
		20°C Normal temp.		1,5mL/L	15mL/L	30mL/L	50mL/L	75mL/L
		40°C Tepid water		1,5mL/L	15mL/L	30mL/L	50mL/L	75mL/L

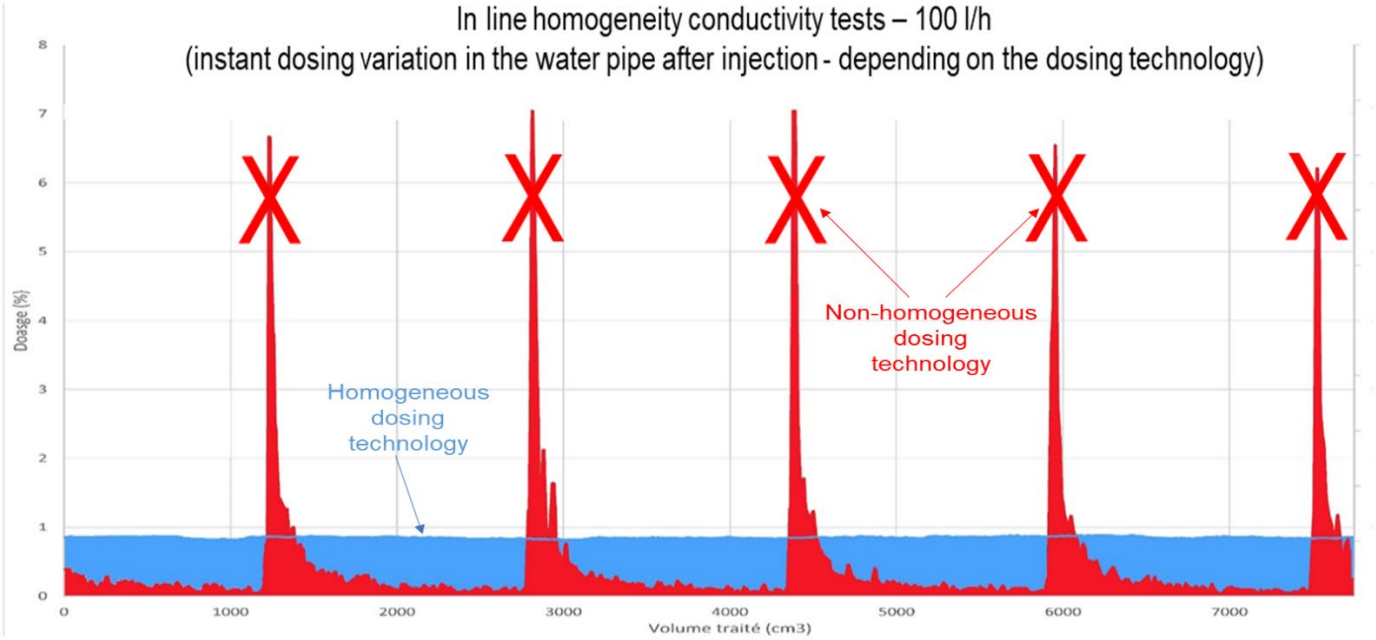
2. **A high dosage guaranteed during peaks of water consumption thus avoiding any risk of under-dosing of treatments or vaccines during high consumption**.
   (Maximum flow in l/h representing up to 70% of the daily water consumption of the piglets)
   Example: for a peak water consumption of 2500 l/h & a dosage set at 5% the dosing pump should have an injection capacity of 2500 x 5% = 125 l/h of treatment to avoid under dosing. (Whatever the technology, always provide a safety margin to avoid making the pumps work too often at their maximum capacity)



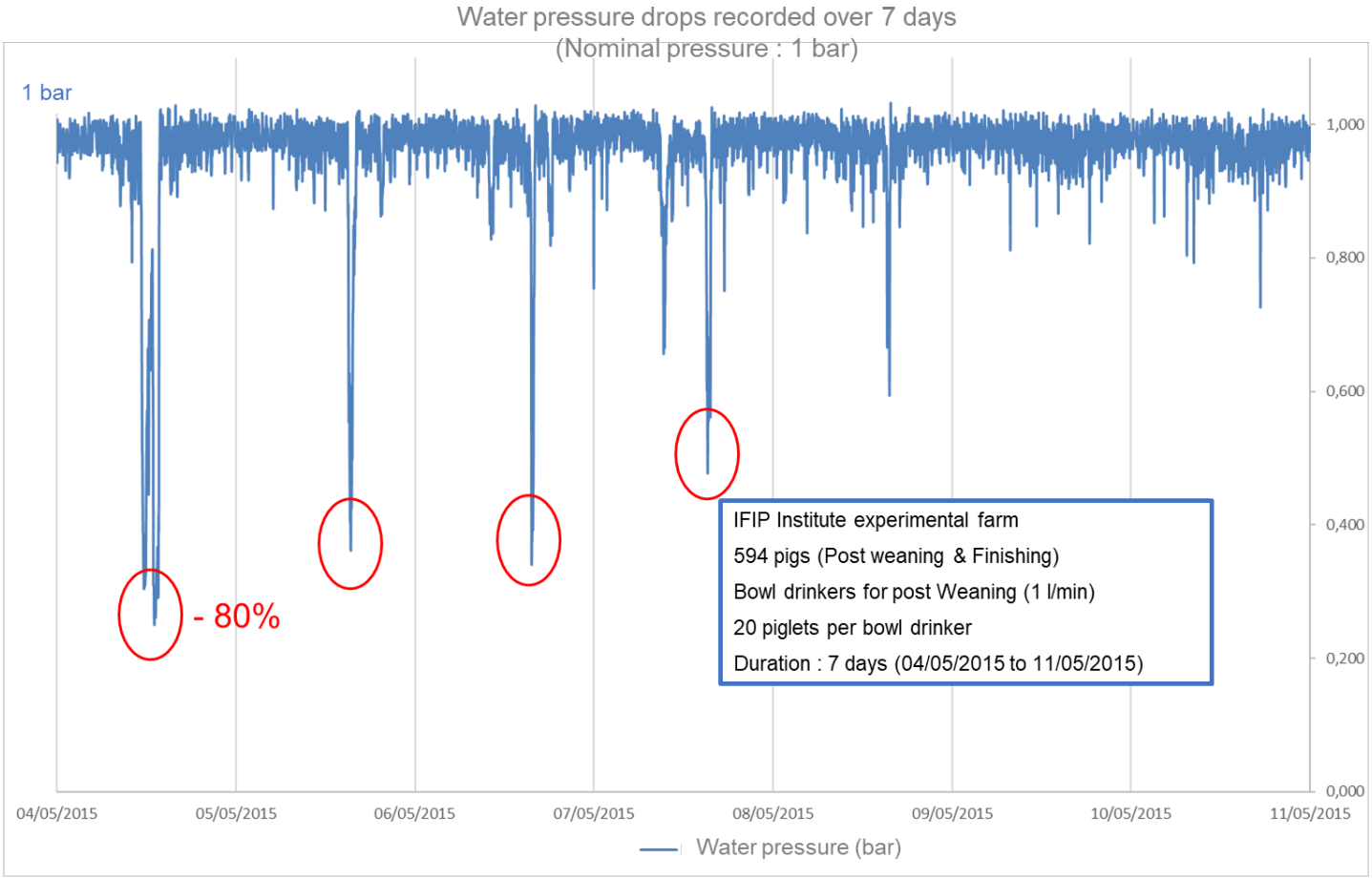
3. **Low flow operation when only one drinker is activated**.
   (Dosing capacity at 10 to 15 l/h to keep a safety margin with respect to the flow rate of some drinkers starting from 24 l/h or 0.4 l/min minimum)



4. **A sufficiently homogeneous in-line dosing**
   (Water + treatment or vaccine mixing in the water circuit to avoid significant dosing variation at the drinkers)

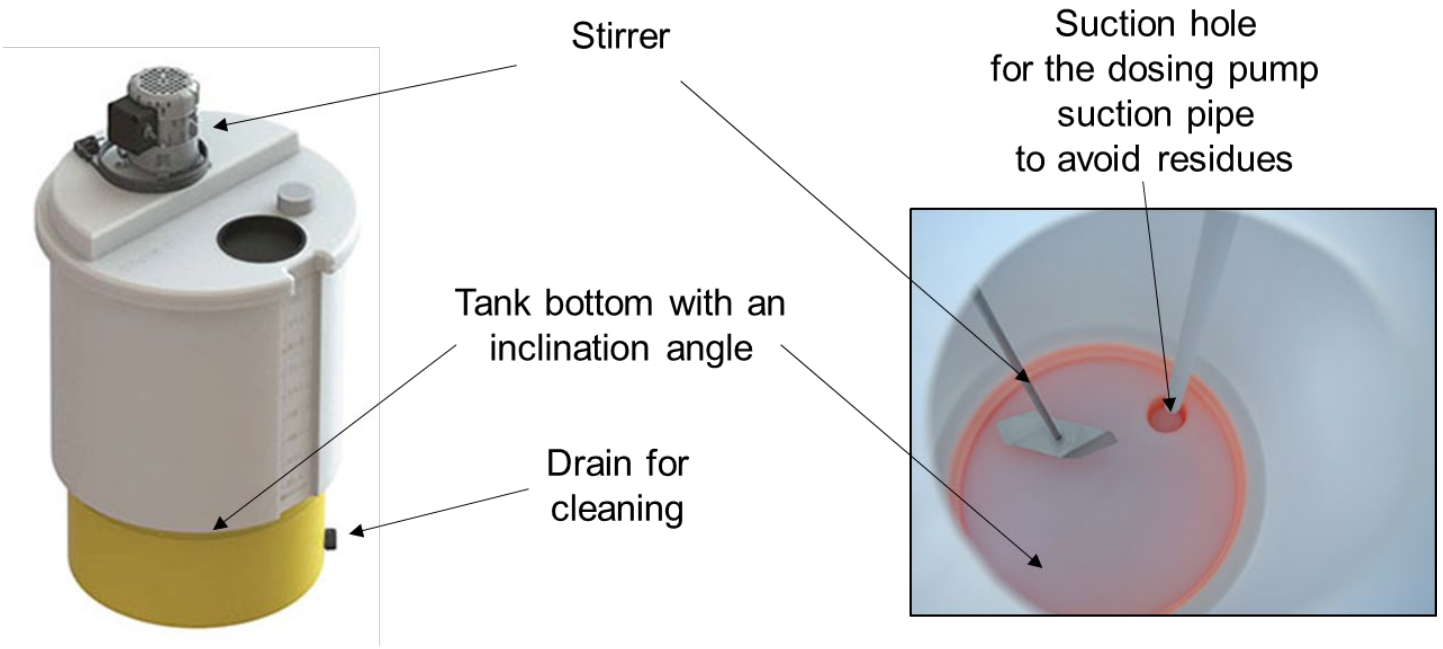


5. **Capability to maintain dosing accuracy during frequent water pressure drops**
   (Potential -80% drop during peak animal consumption & other uses of the water system)

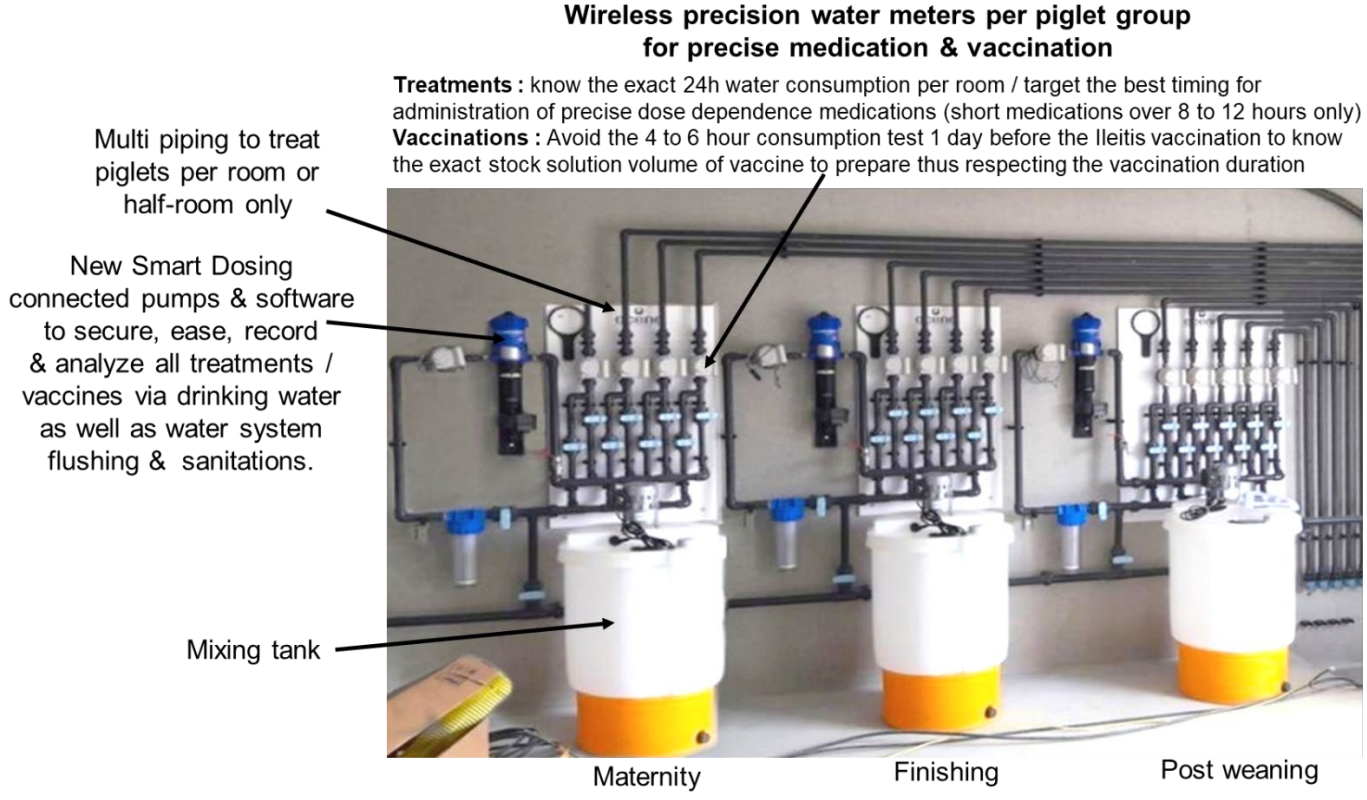


THINK OF OTHER EQUIPMENT THAT IS CRUCIAL TO THE EFFECTIVENESS OF YOUR TREATMENTS & VACCINES VIA DRINKING WATER:

1. **Graduated treatment tank of appropriate size with a stirrer and a design that limits possible residues at the end of the treatment** (Use a different tank without mixer for your Ileitis or E-coli water vaccinations.)



2. **Multi-circuit water system with wireless water meters per room (or half room) to treat only sick animals + Smart Dosing connected pump & software** (Use accurate low flow water meters as any treatment via drinking water depends above all on a precise measurement of the drinking water volumes over a given period of time in the targeted room).

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