

Poultry drinkers and water pressure

It is a good to understand a little about water pressure when considering poultry housing. Drinkers are an important need and factor to consider as a part of your poultry housing. This means water pressure is important, as different poultry drinkers require particular water pressures to operate properly.

Feel the Pressure.

Water pressure is essentially a measure of the weight of water acting at a certain point. If you dive into a pool you will feel the force of all the water above you, the deeper you dive the more pressure you feel, the pressure is acting on your body. If you use a water pump at home, the pump is *adding* pressure to the water in the pipe so it can travel where you want it to, even upwards (against gravity) or through clogged pipes (adding friction to make it harder for the water to move). In cities all this water pressure and pumps and friction is hidden from us, water comes out of a tap at (hopefully) a decent pressure.

The units of measurement for Pressure are the Kilopascal (kPa), Pounds per Square Inch (PSI) and Bar (bar).

The 'Equation' $p = \rho gh$

Pressure (p) = **Fluid Density** (very close to 1 for water) multiplied by **gravity** (9.8 or about 10) and the **height** of water above the object in question).

Alternative measure of water pressure that Bellsouth uses.

You shouldn't have ignored the Equation above! We use the height part of the equation to describe pressure, calling it **Head**. Pressure is directly related to height of water (head), above a drinker. We use this measure because it's used in the industry and because it's much easier to speak about/understand/visualize than a KiloPascal or a bar.

The point of all this

Water pressure affects drinker systems. What pressure can my bell drinker's mechanism handle? Do I really need a pump to use my drinkers? Is my too pressure too high for nipple drinkers?

Manufacturers of drinker systems such as Lubing (for nipples) and Plasson or BEC (decent bell drinkers) will specify the appropriate water pressure for the drinker. Stating the pressure the unit needs to start working, and the best operating pressure, or pressure range. In practice, drinker pressure will be given in head height, either in centimetres (nipples and the like) or metres (bell drinkers, some trigger cups). Head height is given and/or measured from where the water comes out, to the top of a full tank above.

To achieve the correct pressure either choose a container of the correct height or continually *regulate* the water pressure to the correct level. This is done using a Float Valve (i.e. Lubing float tank kit), or an adjustable Pressure regulator (Methven). Most regulators are made for normal town pressures, not your firefighting tap. If your house water pressure is so high that it

damages drinker regulators, you have a bigger problem, you should fix that straight away, and/or have a word to your council.

Big note: After you have taken the pressure off the water making it suitable for your drinkers don't forget *gravity still applies*. If your drinker line *after* your regulator keeps dropping (perhaps to another chook house) then *that* pressure counts. It is not uncommon for people to use a regulator but then their drinker line *after* the regulator drops further still to lower drinkers. The pressure on the bottom drinkers may end up being too high. So *consider your lowest drinker* and the pressure it endures in your design.

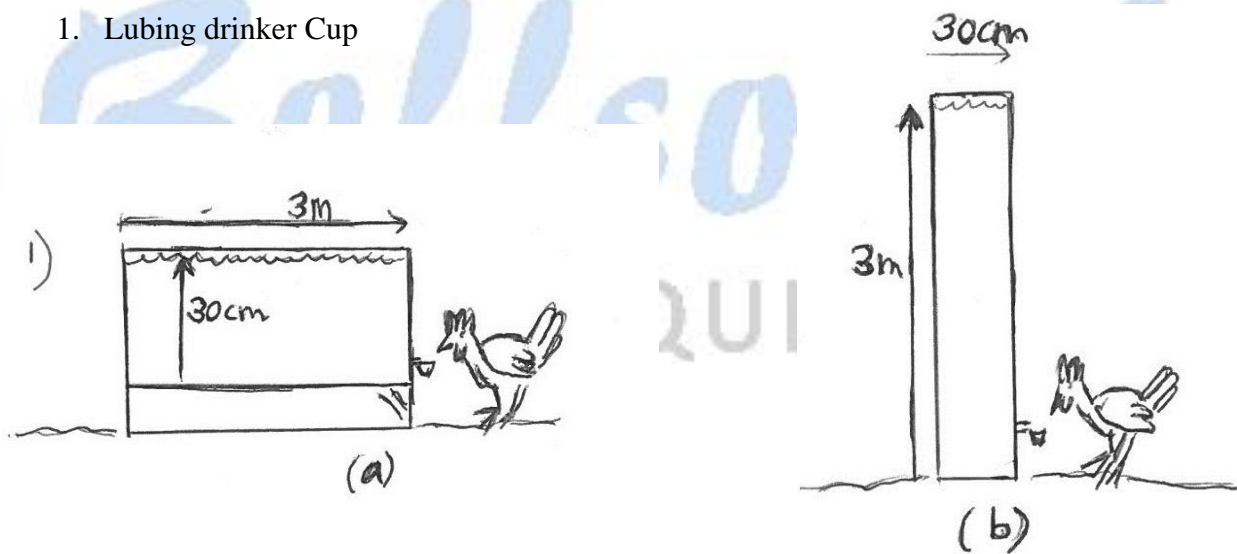
Table 1. Simple list of some Drinker Pressures

Head	Nipples including Lubing cups	'Hart' style trigger cup	BEC 75 and Plasson bell drinker
Min' to operate	About 2cm	40cm	1m
Max' to operate	30cm	2.5m	3m

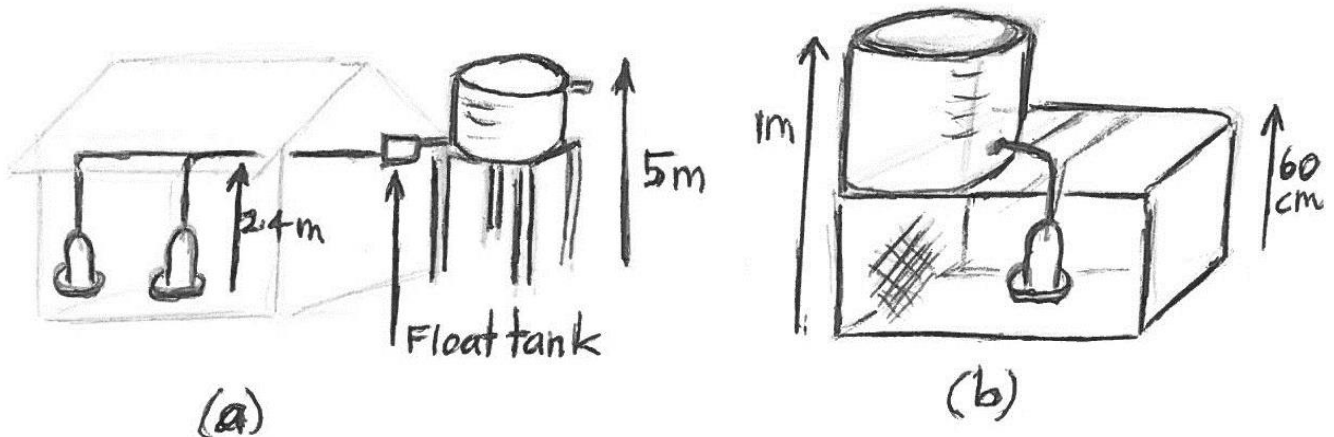
Reader Exercise (answers at bottom)

Pick the correct configuration from the following.

1. Lubing drinker Cup



2. Bell drinkers



Answers. 1) (a) is correct. It does not matter how wide the tank of water is, height (head) is what matters, and the tank in (b) is too high for a Lubing cup or nipple.
2) (a) is correct the float tank is reducing the pressure from the tank and the height of the bell drinkers after that (line is level), is correct. The water in the tank in (b) will never be high enough for the bell drinker to operate properly.

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