

# DRINK TO GOOD HEALTH

## Managing your drinker system to benefit from the latest innovations

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**W**hy have we designed the nipple drinkers for the poultry sector? It is very simple: to provide enough fresh, clean water for birds in a closed system. A closed system is more hygienic than an open one and provides better water quality. It requires less labour to keep the system clean and a closed system should be able to efficiently distribute water-soluble agents via medicators to make birds perform better.

However, this is where management plays an important role. Applying vaccines, medications, vitamins, minerals and acids through the system risks making it dirty. In order to clean and keep it clean and prevent biofilm build up, producers should frequently flush water lines, automatically or manually, and set up a regular cleaning programme to eliminate water line contaminants, including bacteria, sludge, drug residues and scale deposits. What products we clean it with can aggressively affect the nipple drinker materials, shortening the operational life cycle of the system or parts.

The vital requirement of the nipple drinking system is to provide a sufficient supply of fresh and clean water. However, we need to remember that the quality of the incoming water is also important: check it and treat or filter it immediately when necessary. Also, the supplied volume must be enough for the birds, considering peak demand for larger birds, feeding and lighting schedules and warmer weather.

The flow rate is crucial because the birds would like to drink as fast as they can, especially when there is water/feed rationing. For the broilers, one can calculate maximum flow rate by using a formula of: the age in weeks  $\times 7 + 20$  millilitres/minute. This means when you are growing heavy birds or parent stock a rate of 100ml/minute is more than sufficient. Keep in mind that you need to provide an adequate number of nipple drinkers for the number of birds; at VAL-CO it

is standard to calculate 10-15 broilers or eight to 12 breeders per nipple drinker, depending on the farming system, climate, breed and production goal.

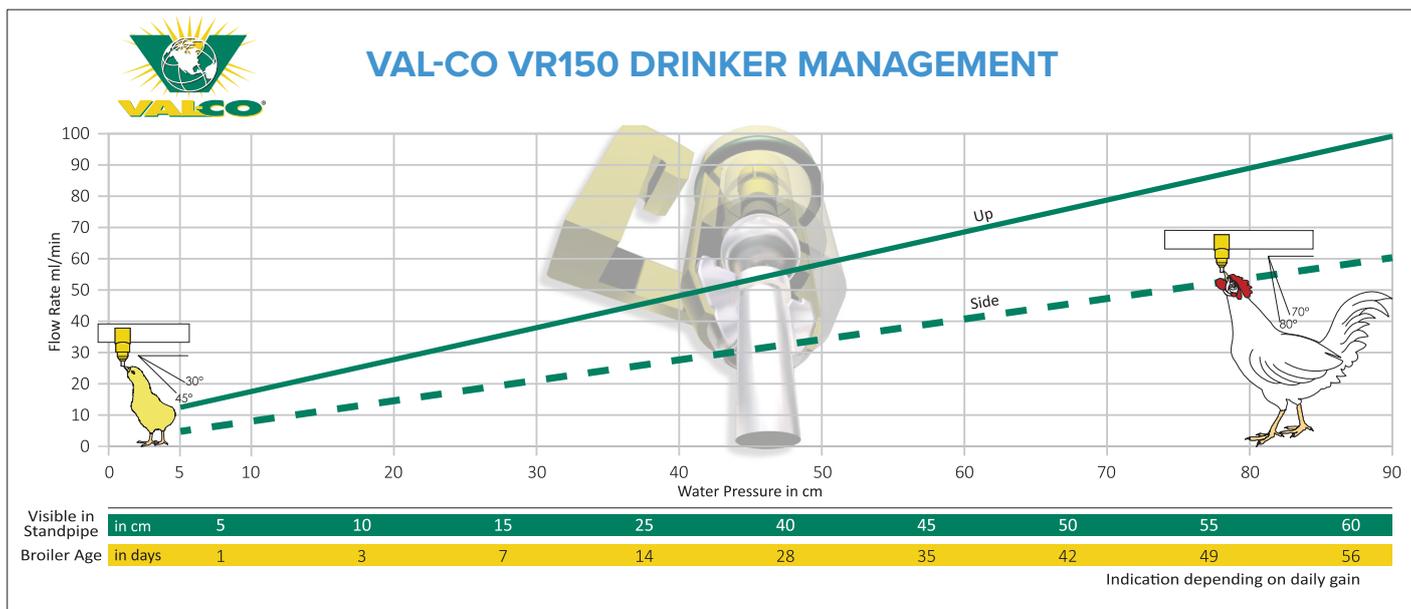
Line height plays a key role in offering comfortable and fast drinking with optimal drinking angle for the birds. Over two weeks young chickens change their optimal

drinking angle from 30-45° to 70-80° (see the graph). Day-old chickens need their drinkers approximately at eye height so they can see the glistening tip of the moist nipple drinker. The chickens are attracted by the shiny tips and by pecking at them they are learning how to use drinkers.

Optionally, mini trough drinkers attached on the water lines offer an open water source with nipples above that attract the young birds to the water lines, and then they can choose to drink either from the trough or from the nipple. Larger birds should be able to easily reach the nipple drinkers standing with both legs stable on the ground and stretching their necks almost in the upright position.

Water line management, especially in the first two weeks, is critical: increase almost daily the height of the lines as well as the pressure in the lines. Keep in mind the rule of thumb, with growing chickens the





of the drinking lines as well as the pressure in the lines should 'grow', and the chickens grow the fastest in the first two weeks. The above graph recommends water pressure in the watering system corresponding to the bird age with related water flow.

The right pressure level in the water lines has been the topic of lots of discussion, especially when the litter gets too damp which may cause foot pad blisters. One possible cause is that the water line management is incorrect. (Bird health, feed composition and ventilation are other possible causes). Mostly when these issues happen the advice is to lower the pressure in the water lines.

Farmers often tend to talk about leaking nipples. However, in most cases water is spilled when the birds are drinking from the nipple drinkers. To test this, provided this is allowed, just try to raise the drinking lines and make sure birds cannot reach the drinkers and often you will see the litter dry.

VAL-CO recommends increasing water pressure and the height of the drinking lines according to the graph daily during the first two weeks. Check the litter as well as chicken neck and breast feathers for being wet. When either or both litter and feathers are damp, keep the water pressure on the same level until the conditions stabilise. The height of the drinking lines, however, do still need to be adjusted with bird growth,

according to the graph. Remember the reasons for spilled water: incorrect height of water lines and either too high or too low water flow. Too high water flow can be caused by high water pressure in drinker lines or worn nipple drinkers that simply give too much water even at a pressure that is correct and according to the shown graph. A drinker is worn when the water flow is twice as much as indicated in the flow charts.

Too low pressure can cause spillage as chickens will compete for those nipples which give more water. This can occur close to the pressure regulator, in a sloped area, due to airlocks in the system, or at the end of the line and at slightly worn or other type of nipple drinkers that provide more water.

VAL-CO advises hanging water lines as straight as possible, using the same type and age of nipple drinkers per line. It is important that all lines in the house have nipple drinkers with the same water flow. Check water flow of different drinkers regularly in random spots in the house.

Nipple wear can be accelerated if watering is rationed or limited, and the chickens play with dry drinkers. In this situation, drinkers are activated more often with birds trying to satiate their thirst, and dry drinkers wear faster because the lubricating water film is absent.

As a result, the lifespan of nipple drinkers

for parent stock is often shorter and the drinkers will have to be replaced faster. For young breeders it is recommended that you use 360° nipples, but for adults up/down action only.

It is vital that the pressure regulator works correctly to adjust proper water pressure in the water line.

The most important part of this is the rubber diaphragm in the regulator that stretches over time and then needs to be replaced. It is recommended that after each cycle or flock, the regulators are adjusted once all the birds have been depopulated. (The regulator increases pressure by a spring pushing on one side of the rubber diaphragm). If there is no water pressure on the other side, it can permanently stretch the rubber and ultimately shorten the lifespan of the diaphragm.

The use of aggressive chemical agents in the nipple drinker system, briefly mentioned at the beginning, has a negative effect on the life of the diaphragm. Some agents, especially when high dosages are used, are so aggressive that it is advisable to replace the diaphragm annually. Using various chemical agents may weaken plastic parts of the pressure regulator which become brittle, breaking faster, and must be replaced occasionally.

Regular replacement of the complete pressure regulators is a good consideration if chemical agents are frequently used in the nipple drinker system. This prevents problems with the regulators not working properly during a production cycle and ensures the birds receive enough but not too much water.

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