The Effects of Pursanova Water Usage

in the Livestock, Poultry and Fish Industries

The following diagram and table show the changes in value that occurred when reduction water was used in the livestock industry.

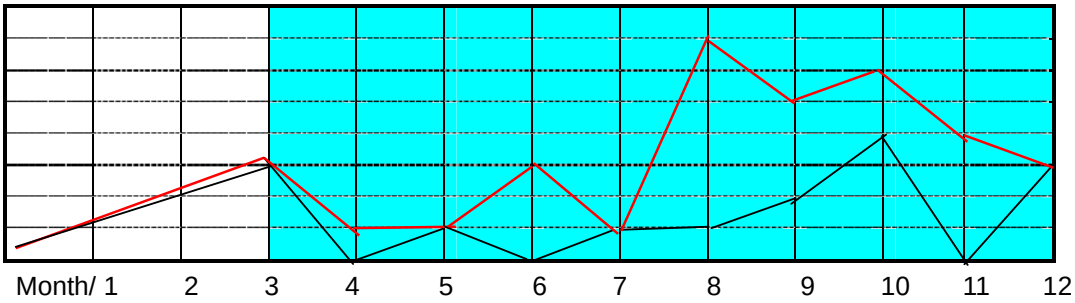
The use of reduction water demonstrates obvious results in reducing cost and improving quality in this case, chickens and pigs. These trends can be applied to all livestock breeding industries: cows, horses, chicken-meat and eggs, dairy products, and the fish industry. When used reduction water improves immune systems, self cleansing ability, and processing balance in all types.

Data

(1) Change in water quality

Item	River water/ cleansing water	Reduction water/ cleansing water	Upturn
pH (Hydrogen ion concentrate)	7.3	7.7	
BOD (Biological oxygen demand)	4,200	1,300	69.04%
COD（chemical oxygen demand）	2,600	950	63.46%
Suspended solids amount	4,500	1,500	66.67%
E-coli bacteria	95,000	74,000	21.05%
Ammonium Nitrogen	310	120	59.37%

(2) Death ratio and Shipment number (pigs)



Installed device type: **PRS-40**

Installation date: February 8th, 1997

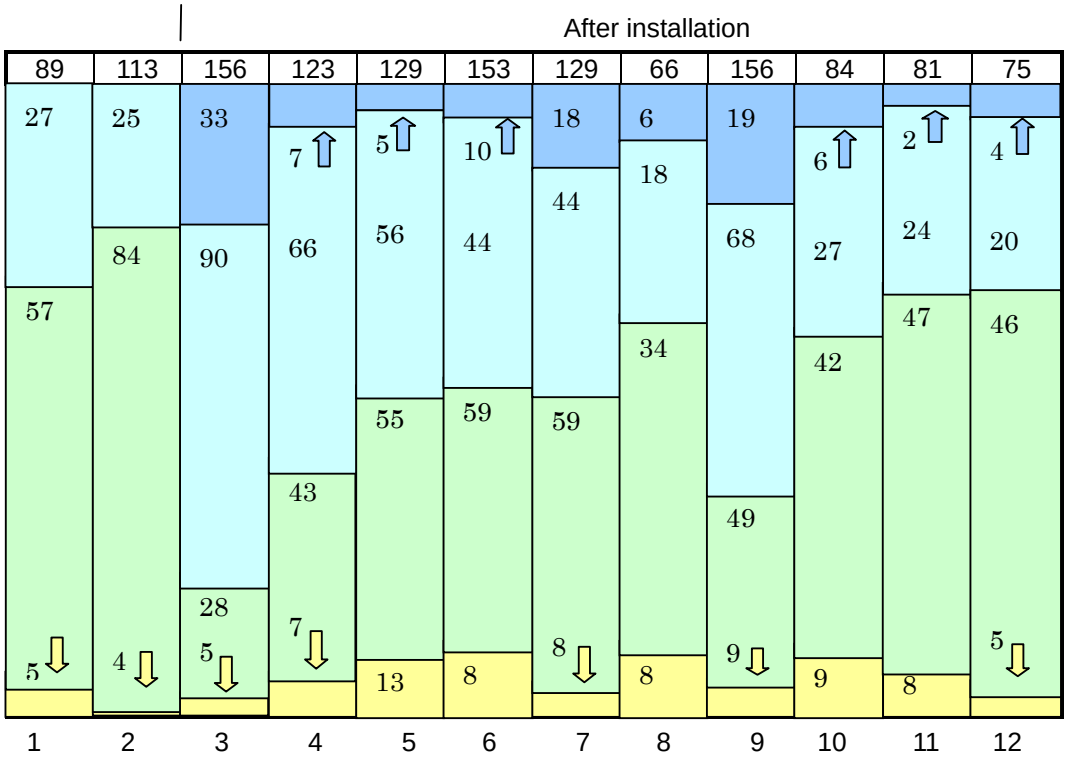
Before installation（1996）

Number in shipment about: 1,100 pigs（death: 37 pigs; death ratio: 3.54%）

After installation（1997）

Number in shipment about: 1,152 pigs (death: 15 pigs; death ratio: 1.30%）

(3) Shipment number and changes in meat quality



(4) Number of pigs shipped and changes in meat quality

Meat Quality	Jan	Feb	Mar	Apr	Mar	June	Jul	Aug	Sept	Oct	Nov	Dec
High			33 22.2	7 5.7	5 3.9	10 6.5	18 14.0	6 9.0	19 19.0	6 7.0	2 2.5	4 5.0
Med	27 30.3	25 22.1	90 57.7	66 53.7	56 43.4	60 39.2	44 44.0	18 27.0	68 44.0	27 32.0	24 29.5	20 27.0
Normal	57 64.0	84 74.3	28 17.9	43 35.0	55 42.6	64 41.8	59 46.0	34 52.0	49 31.0	42 50.0	47 58.0	46 62.0
Below average	5 5.6	4 3.5	5 3.2	7 5.7	13 10.1	19 12.4	8 6.0	8 12.0	9 6.0	9 11.0	8 10.0	5 6.0
Total	89	113	156	123	129	153	129	66	156	84	81	75

After installation

Upper column	# of pigs shipped
Lower column	% of meat quality of shipped pigs（Unit: %）
Total	Total number of pigs shipped

(5) Comparison of numbers and weights in shipment with meat quality

January ~ December 1997

Month	Meat quality	# of pigs	Weight (kg)	Weight per pig	Month	Meat quality	# of pigs	weight (kg)	Weight per pig
						High	18	1,291.6	71.76
	Medium	27	2,025.2	75.01		Medium	44	3,129.6	71.13
	Regular	57	4,227.0	74.16		Regular	59	4,251.6	72.06
Jan	Below average	5	356.4	(71.28)	Jul	Below average	8	581.0	(72.63)
	Total	89	6,608.6	74.43		Total	129	9,253.8	71.68
						High	6	441.4	73.57
	Medium	25	1,787.8	71.51		Medium	18	1,281.4	71.19
	Regular	84	5,978.8	71.18		Regular	34	2,446.4	71.95
Feb	Below average	4	304.6	(76.15)	Aug	Below average	8	562.4	(70.30)
	Total	113	8,071.2	71.25		Total	66	4,737.6	71.88
	High	33	2,398.8	72.69		High	30	2,196.4	73.21
	Medium	90	6,573.6	73.04		Medium	68	4,976.0	73.18
	Regular	28	2,090.8	74.67		Regular	49	3,628.4	74.05
Mar	Below average	5	377.2	(75.44)	Sept	Below average	9	918.4	(102.04)
	Total	156	11,440.4	73.27		Total	156	11,719.2	73.47
	High	7	516.2	73.74		High	6	454.6	75.77
	Medium	66	4,885.2	74.02		Medium	27	2,053.0	76.04
	Regular	43	3,183.4	74.03		Regular	42	3,184.4	75.82
Apr	Below average	7	542.6	(77.51)	Oct	Below average	9	881.8	(97.98)
	Total	123	9,127.4	74.01		Total	84	6,576.8	75.89
	High	5	379.6	75.92		High	2	152.2	76.10
	Medium	56	4,149.0	74.09		Medium	24	1,858.2	77.43
	Regular	55	4,095.8	74.47		Regular	47	3,528.4	75.07
May	Below average	13	907.4	(69.80)	Nov	Below average	8	525.6	(65.70)
	Total	129	9,531.8	73.35		Total	81	6,064.4	75.87
	High	10	740.6	74.06		High	4	296.2	74.05
	Medium	60	4,392.6	73.21		Medium	20	1,477.8	73.89
	Regular	64	4,714.4	73.66		Regular	46	3,379.2	73.46
Jun	Below average	19	1,445.6	(76.08)	Dec	Below average	5	385.8	(73.62)
	Total	153	11,293.2	73.49		Total	75	5,539.0	73.85
						High	121	8,867.6	73.29
						Medium	525	38,598.4	73.52
						Regular	608	44,708.6	73.53
					Total	Below average	100	7,788.8	(77.89)
						Total	1,354	99,963.4	73.51

Below average pig weight in parenthesis is eliminated in this calculation.

We observed obvious changes in meat quality after installation (¼ medium became 1/5 high and 3/4 medium). There were also notable changes in meat freshness. Although there are no number values, when meat is left at room temperature, it shows wrinkling and became larger, and finally became a blackened mass. We noted a significant difference in the time it took for the meat to spoil. We also observed a 20~30% increase in the freshness preservation time.

The most notable changes were observed immediately after installation. Overtime however the effects decrease. Since underground water was used, there were substances adhering to the ceramic ores which inhibited the reduction effect in the water.

Since the dirt coming out of the water well cannot be washed off from the ceramic ore surface, it is necessary to replace the ceramic ores. But as long as you are able to clean the ceramic ores every 3-4 months, you can maintain the reduction effect indefinitely.

Also, we noted odor was eliminated by washing the floor where the pigs are housed with reduction water. The use of Pursanova reduction water improved both external and internal environment for pigs were.