



Anwendungsbericht/User Application Report

Produkt/Product:

2010 penergetic g Cattle liquid manure TS
2210 penergetic g Pig manure TS

Fachberater/Consultant:

Lucerna
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Anwender/User:

Different Farmers in Finland

Datum/Date:

2007 - 2016

Different results & observation from 9 Farmers in Finland

In the introduction is a description of how the Company Lucerna uses the Penergetic products in the different areas and followed are the results from the different customers.

Explanation of the products:

The Penergetic products 2010 and 2210 were formerly known as Penergetic g/k. This product contains the information of the penergetic g and penergetic k product and is used where is a high content of straw in the manure / slurry. As bedding is pushed into the sewer in almost all cases in Finland, these two products are optimal for this market.

All Farmer either have used the 2010 penergetic g Cattle liquid manure TS or 2210 penergetic g Pig manure TS

Cow slurry:

When starting to use the product, estimate slurry cubic meters in canals and coming new slurry during next week and use 2 kg/100m³. Following 2-5 weeks use weekly 1,5 - 2,0 kg/100m³ for coming new slurry. After that use weekly 1 kg/100m³ for coming new slurry. For problem canals, use 2 kg/100m³ slurry weekly until problems are over. After that use 1 kg/100m³.

Pig slurry:

When canals are empty and there are some old slurry on bottom or has come some new slurry, use 1 kg/100m³ at the same time to the whole slurry quantity which will come to the canal before empty next time.

Or use weekly 1 kg/100m³ for coming slurry.

For problem canals use 2 kg/100m³ until problems are over.

Slurry tanks:

For cow and pig slurry tanks use 1 kg/100m³ slurry. Same quantity per 100m³ slurry if there for instance 300m³ or 1500m³ in the slurry tank. If there are old problematic slurry at the bottom use for that 2 kg/100m³.

Information about some prices in Finland:

- Diesel fuel costs about 0,80/liter excluding taxes. When stirring slurry tank the 100 horsepower tractor use about 15-20 liters fuel/hour. When farmer save working hours with slurry stirring it means also savings in money, 1 hour is $15 \times 0,80 = 12,00$ euros minimum.
- For instance NPK 27-3-5 (N=27%, P=3%, K=5% including) fertilizer quality cost about 310,00 euros/1000kg excluding taxes. When farmer can decrease every year some 10 kg/hectar fertilizers that means money savings. For instance 50 kg/hectar less is $0,31 \times 50 = 15,50$ euros. Farmers spread slurry 25-30 m³/hectar. When farmer have 1000m³ slurry tank it needs 40 hectares fields. So, $40 \times 15,50 = 620,00$ euros. This happened and will hapen every year, so yearly savings are much more and less and less fertilizers year after year.

Within these two points of slurry handling and reached effects we can see that farmer will get very, very good advantage when using penergetic g Cattle liquid manure TS and Pig manure TS

1) This farmer has used Penergetic since 2013.

- In the stable there is very good climate during wintertime. Canals and outside tank are fine.
- The grass grows almost too well. Two crops is enough for us, and we got much grass. Now the third crop is crowing which we don't need. We have to shred the grass to the field in autumn.
- Mineral analysis was good. D-value has been 758 and 728. That is very good D-value. Cows are eating well (much) and they give milk well and are healthy.
- Every year we have decreased fertilizers according to the knowledge what the soil analysis has shown, about 10kg/ha/year.

Slurry tank 1000m³ and farmer is using 10kg penergetic g per year

2) This farmer has used Penergetic since 2015

- Some miracle happened. The easiest slurry spread ever. Not the strong smell as earlier. Slurry was like velvet. Normally we have stirred the tank outside 2-3 days but now only 2 hours.

Slurry tank 1200m³ and comes 1000m³ per year. This farmer reduced stirring from 2 days to 2 hours = 14 hours less. Diesel fuel 14 x 15 = 210 liters, means 210 x 0,80 = 168,00 euros savings.

3) This farmer has used Penergetic since 2016

- No need to stir canals. Works incredibly well.
- We spread slurry to one field (pasture) in the spring immediately after snow was away and there was huge hay/grass. The hay is growing and growing although the weather is cold.
- Now we have reduced fertilizers to 50%.

There come about 700 m³ slurry per year. Farmer has reduced 50% use of fertilizers.

Farmers might use fertilizers 300-400 kg/hectare/year. If we take 50% decrease it means 150 kg less and 0,31 x 150 = 46,50 euros/hectare. That means slurry for 28 hectares and 46,50 x 28 = 1302,00 euros.

4) This farmer has used Penergetic since 2013.

- Yes, it works well. Less flies. In the stable there are not almost any.
- There was oxygen bubbles in the outside tank. Slurry was homogenous and darker green. Much, much better than earlier.

Slurry tank is 600m³ and they get 500m³ per year. This farmer is satisfied that flies are now in minimum level in the stable.

5) This farmer has used Penergetic since 2016.

- Slurry has moved well in canals. Not such smell in the stable as earlier.
- The grass has started to grow well (said in June).
- Yes, the grass grew better than normal (said in autumn).

This is organic farming, about 2000m³ slurry/year.

6) This farmer has used Penergetic since 2007.

- The slurry is good. No cover on the slurry tank.
- To the third grass crop I spread only slurry (not any fertilizers) and it seems to grow well.
- They got every year the third grass crop (silage) which has good quality for the cows.

Slurry tank for 1200m³ slurry. Get 1000m³ slurry/year. The third grass crop without fertilizers means much money savings. The good quality silage for cows also from third crop means that no need to buy as much feed (protein feed) as earlier.



7) This farmer has used Penergetic since January 2013.

- The farmer called us in August 2014: "Now I have to believe that it works. There was no cover in outside slurry tank. It was easy to stir. Earlier the cover left to the bottom of the tank, not nowadays. Grass is growing well."
- In August 2016: "This is great. I have seen that there is no need to make extra work with the slurry. Surely we can see more effective fertilize effect. We have grass fields and seems to work very, very well. I appreciate that we can get good crop and plenty of grass silage to our dairy cows from our nearest fields."
- In August 2017: "I have decreased fertilizers to the second grass crop if the first one has been plentiful. It can see remarkably well the effect in the fields. There are much worms in the field. I can see them when I am ploughing. The soil is also fluffier than earlier."

This farmer get 800m³ slurry per year. Easy to stir, means savings in fuel and working time.

This farmer understand very well that worms in the soil are important.

8) This farmer has used Penergetic since 2015.

- In grass silage D-values are good.
- The adviser of the slaughter house calculates how much needs to add more protein. That was little.

This farmer get 300m³ slurry per year.

9) This farmer has used penergetic since 2014.

- We have also rent a piggery from the neighbour. There was outside tank where has been 10 years thick slurry. We put SG/K in February 2016 and after 3-4 weeks we saw oxygen bubbles. Slurry was easy to handle. Our neighbour didn't believe his eyes when he saw the empty tank. He had bought a strong pump (value over 5.000,00 euros) to stir the slurry tank, and the pump was broken.
- This kind of products has been on Finnish markets for over 20 years but this one is the best of them.

This pig farmer gets 1000m³ slurry per year.

