SmartSOIL

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FOCUS ON MANURE APPLICATION, REDUCED TILLAGE AND RESIDUE MANAGEMENT

Name	Jan Rykalski
Region	Szczawin Królewski, Mazovian Voivodeship
Farm type	Arable (maize, wheat, rape, lupin)
Farm size	220ha

How long have you been farming?

The farm has been running since 2001. I used to be the director of an agricultural cooperative, but once it was privatized I bought most of the farmland. Most of the land is owned, but a part is leased. The majority of soils are of average quality, they are light, sandy with low carbon content.

What changes have you made?

I've always used organic fertilisation. This is the same for crop residue management.The soils here are mainly light and they require that kind of fertiliser. I introduced no-tillage three years ago, but I have always used reduced tillage as where I ploughed, most of the soils were sandy and I needed to avoid bringing the sand to the surface.

Why did you decide to implement the practice(s)?

I'm trying to apply modern methods of farm production to maximise my profit. I try to invest in modern machinery and equipment. I also try to be up to date with farming related press to find out about innovations. Thanks to these choices my yields are far better than the ones obtained by other local farmers.

How did you make the change?

I've implemented different practices on different scales. Residue management is done generally across the farm. Manure application is spread across approximately 50 ha/year (in the amount of approx. 15t/ha). Reduced tillage and no-tillage is done on approximately 60 ha/year. It was not difficult to implement the practices as they are "natural" farming methods applied on light soils.

What has been the biggest challenge? And how have you overcome it?

With organic fertilisation the biggest problem is getting the fertilizer. I use chicken manure and pig slurry because that's what is available locally. I get them free of charge from a farm in return for the services I provide to them. Special equipment is required to apply no tillage which I obtained through EU financial support, while the seeder was bought as a part of a planned purchase.

How has the soil benefited from this change?

I haven't conducted soil tests, but observations of the soil suggest that organic fertilisation and residue management improved the structure of the soil and soil organic matter. Reduced tillage boosts the soil's resistance to drought and allows it to retain moisture for a longer time. Without these practices the soil would soon become barren and you would not be able to obtain good yields.

How have the yields been affected by this change?

Both organic fertilisation and crop residue management have a positive impact in both the short and long term. Without them I would not be able to maintain such high yields for such a long time. Fertilising with manure boosts the yields by about 30%, with the greatest benefit seen on the worst quality soils. I can now cultivate more demanding plants thanks to organic fertilisation. Residue management boosts the yield, but it is hard to evaluate the extent of the impact. Reduced tillage increases the yield by about 10%.

How has the farm business benefited from this change? What are the financial implications of making the change?

Using manure I have diminished the amount of fertiliser use by half in two years. Reduced tillage allowed me to cut the use of fuel by about 15 litres per hectare. Introducing the method requires purchasing the right machinery but I had to buy a seeder anyway, so I don't treat it as an additional cost.

Farm-specific economic analysis for reduced tillage and additional manure (PLN/ha)

Cost savings: 732 PLN/ha (-28%)

	With measure	Without measure	Result
Seed costs	317	317	0
Fertiliser/manure costs	968	1665	-697
Crop protection	443	443	0
Fuel costs	170	205	-35
Total	1898	2630	-732

Change in Gross margin:1670 PLN/ha

	With measure	Without measure
Output (Revenue)	5591	4653
Costs (Production)	1898	2630
Gross margin	3693	2024

Where did you get advice and support to make the change?

When buying seeds and chemicals, I get support from the advisors working for the supply companies. I can find information and advice on the applied practices in the numerous farming magazines. I also use portals for farmers and forums that are available.

What advice would you give to others thinking about the change

In my case the methods turned out to be beneficial. But it is due to the quality of my soils, farm size, and the kind of production I have. I would not recommend all farmers to use these methods. But it is worth giving them a try and you should not be afraid of introducing new practices onto your farm.

For further information about these practices see the SmartSOIL toolbox:
http://smartsoil.eu/smartsoil-toolbox/about/