Soy cultivation in the Netherlands

Trials carried out by:
Agrosensi, Waalwijk NL

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A practical report on a new Dutch organic fertiliser for soy cultivation

Agrosensi®

Improving soy cultivation in the Netherlands

Our research focuses on soy cultivation in the Netherlands — in particular, the impact of ***Agrosensi VLDF®*** organic fertiliser system on the yield and quality of soy. Soy is a tropical crop; despite breeding efforts, soy has not yet been optimally adapted to Dutch soil and climate conditions.

Our research goal

Agrifirm, a large supplier of agricultural products in the EU, initiated various trials in the Netherlands in 2013. The object of our research was to discover what prime conditions are for cultivating soy in the Netherlands and how ***Agrosensi VLDF®*** fertiliser system affects the entire cultivation process. Experiments took place with different species. We also researched which specie is the most suitable for Dutch cultivation — Adsoy or Sunrise. Two naturally bred and EU-approved species.

Our findings

During the 'green revolution', agricultural production grew from 1961 to 1985 by 100%. Especially in the grain sector progress was made. During past years, growth can be described as marginal and the applied method has apparently reached its limits. Agrosensi, a safe and sustainable alternative fertiliser, has been designed to organically improve and increase production. As is the case with other new methods, most improvements are made during the initial stages. When comparing treated soy to non-treated soy during soy trials, yields increased by 15.2% in 2014 and 21% in 2013. The fields where the tests took place were larger than those used during typical agricultural trials, 13.5 meters x 130 meters instead of 6 x 6 meters.

Treated fields, larger yields

During the past fifty years in the USA, average soy yields per hectare increased from 1.4 tons in 1961 to 2.8 tons in 2013. An Agrosensi trial field in 2013, during the coldest May month in Dutch history, had a record yield of more than 2.9 tons. In 2014, the warmest year in the past four centuries in the Netherlands, the yield recorded was 3.35 tons per hectare. And when compared to untreated trial fields, the yield was much higher, respectively 15.2 % and 21%.

Innovation key to success

This demonstrates that a small and innovative company operating in a relatively cold European climate, can harvest larger yields per hectare even when using traditional breeding methods and only two selected species. The USA's genetically modified crop yields should be much higher than those treated with Agrosensi, but our field results show another picture. Agrosensi's trial yields involving two species have been over nine percent higher over the past two years than the USA's five-year average, based on 95% GMO cultivation.

Agrosensi: more yields and improved soil quality

According to soil analysis carried out by international agricultural analysis company BLGG AgroXpertus (Wageningen, the Netherlands), increased production (15.2% in 2014 and 21% in 2013) instead of degrading the soil actually had a positive effect on the quality of the soil. Of the 22 measured values, 16 improved, despite 40% less fertilizer use. *(Please see data on the following page)*

Conclusions

1. The USA is a leader in terms of solid expertise and the largest selection of species.
2. We achieved better results then the USA and these results, with 40% less fertiliser, in a more northern geographical location.
3. The quality of soil improved significantly due to the Agrosensi VLDF method used.
4. During the 2014 trials, three recommended chemicals runs were not sprayed.
5. Market prices for non-GMO soy are much higher than GMO prices. In 2013, the market price for GMO was € 0.38 per Kg (Chicago board of trade) while the market price for Adsoy and Sunrise was € 0.55 to € 0.60 per Kg in Europe. A premium of approximately € 500 a hectare.

2014	Surface area M^2	Kg	Kg/Ha	+ / - %
Total surface area Adsoy	4,810	1,612	3,351	**+ 15.2**
Total surface area Sunrise	4,237	1,359	3,207	**+ 8.7**
Total untreated	3,563	1,043	2,927	Control field
Total headland	9,505	2,650	2,788	- 4.8
Total surface area field	22,115			
Total Kg		6,664		
Kg /Ha entire field		3,013		
Adsoy untreated			2,910	
Sunrise untreated			2,950	

Soil research BLGG AgroXpertus (Nr. 732919/003461924 en Nr. 710849/003316107)

Key elements	Before sowing Adsoy	After harvesting Adsoy	Difference	Classification
Sampling	April 2, 2014	Dec. 1, 2014	%	
C/N ratio	1540	1580	2.6	**improved**
Soil Nitrogen (N) capacity	69	72	4.3	**improved**
C/S ratio	77	81	5.2	**improved**
Phosphorus (P) plant available	1.1	0.9	-18.2	poorer
Phosphorous (P) soil resources	52	47	-9.6	**improved**
Potassium (K) plant available	52	53	1.9	**improved**
Calcium plant available	106	264	149.1	**improved**
Calcium soil resources	2795	2570	-8.1	identical
Magnesium plant available	150	179	19.3	poorer
Sodium plant available	8	10	25.0	**improved**
Trace elements				
Silicon	6360	6400	0.6	**improved**
Iron	3030	2020	-33.3	poorer
Zinc	1490	1290	-13.4	**improved**
Manganese	2760	3790	37.3	**improved**
copper	43	41	-4.7	identical
cobalt	7.5	11	46.7	**improved**
boron	238	137	-42.4	**improved**
Molybdenum	4	4	0.0	identical
Selenium	2.7	3.6	33.3	**improved**
Soil life	41	69	68.3	**improved**
Organic matter	4	4.2	5.0	**improved**
Cation-exchange capacity level	91	100	9.9	**improved**
			ADSOY	**16 x improved** 3 x identical 3 x poorer

Note regarding classification: *The column classification consists of value judgments used by BLGG AgroXpertus. The groups include these values: low, relatively low, good, relatively high and high. Under cases of improvement, values can actually decline from really high to good or from low to fairly low, and still fall under the classification 'improved'. Identical means that within a particular class a shift has not occurred. 'Poorer' is used when the value has deteriorated.*

Future

The modular setup of the Agrosensi VLDF system allows soil values, where necessary, to be updated this year. This will help soil conditions improve resulting in fewer weeds, thereby reducing the need for chemical pesticides as well as extra fertilisation. The VDLF system can be used for organic cultivation without any problems.

Adsoy or Sunrise?

It's clear which specie is most suitable for cultivation in these Dutch trial fields:

- Adsoy has a higher yield in tons per hectare.
- Soil conditions are better after harvesting with Adsoy. In 2014, Adsoy showed an improvement in 16 elements as opposed to Sunrise's 11 elements.
- Adsoy has a better yield of protein per hectare when compared to Sunrise (approximately 20%). (2013, measurement carried out by Dutch laboratory and research centre for optimal plant production, Altic Dronten, part of the Eurofins Scientific Group)

From the above it is apparent that the soy specie Adsoy is best equipped for cultivation in the Netherlands. Across the board, Sunrise's results are lower than those of Adsoy.

2015 International Year of Soils

Food and Agriculture Organization of the United Nations

International year of soils

Food and Agriculture Organization of the United Nations (FAO) declared 2015 the international year of soils. FAO wants to raise awareness for agricultural soil degradation due to urbanization, salinization and the rising sea level. By using Agrosensi VLDF® to improve yields and soil conditions while reducing the need for chemical pesticides, we hope to contribute to feeding the world healthier food now and in the future. The environment benefits from less fertilisation and crop protection, and better soil conditions.

What is Agrosensi VLDF® ?

VDLF stands for: Very Low Density Fertilisation, in other words: a very low fertilisation dosage. We use effervescent tablets and fluids for optimal foliar nutrition and biotope fertilisation. In addition to a basic natural fertiliser, VLDF is applied several times during certain moments in the plant's growth process. In general, during the growing season, three or four fertilisations are sufficient. The VDLF method is EU approved for organic farming in Europe and is well suited for many crops and species.

Advantages of Agrosensi VLDF®

Improves germination
Improves growth
Improves yields
Improves soil conditions
Improves the quality of the crop
Reduces costs per hectare

Agrosensi VLDF® = Soil renovation

Unbelievable or implausible?

Think our trial results are 'too good to be true'? The only way to find out, is to test Agrosensi VLDF yourself. We invite you to test and apply our product on your farm in the Netherlands or abroad. We would like to share our knowledge and expertise, and will gladly advise you on how to use this fertiliser optimally.

Thanks to the family Ansems and their cooperation during these trials, trials could take place on two hectares of land at the Ruurhoeve in Hoogeloon, the Netherlands. Our special thanks go to Walter Ansems for the wonderful cooperation we received. In 2015 the trials will continue in order to be able to present a three-year evaluation.

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