

Sobac Annual Journal

"We are returning life to the soil"

EDITORIAL



France homo humus, according to "Le Monde", Marcel Mézy, inventor of Bacteriosol, Bacteriolit technologies. hroughout human history, soil, humus has been the very source of Man. It is therefore not surprising that these two words, Man and humus, have the same Latin root, which only adds to the links that connect them so intimately. In fact, Man without humus is nothing, because without it, we cannot grow anything to feed ourselves. Humus is the source of the Earth's fertility. The higher the humus content of a soil, the more it can produce without resorting to farm inputs. Regardless of crop or latitude, Man and humus are inseparable.

Long forgotten in favour of inputs that can nourish plants directly, the soil had been relegated to a merely medium role, losing its nourishing purpose. For 25 years, SOBAC has been refocusing on humus and its importance in the virtuous circle of agricultural production. Central to our activity, we are proud to affirm that we are creating humus in soils, that we are returning life to the soil, thus allowing it to regain its primary role of nourishing the plants growing from it. Producing humus means giving back to the soil its physical, chemical and biological fertility. It also means giving farmers back their autonomy as, by having soils that can nourish their crops, they are less dependent on inputs, if indeed at all, reducing their production costs and ensuring the future of their farms.

SOBAC helps you actieve a quantitative, qualitative, profitable farming while respecting the environment. To do so, we work in partnership with our farmers and distributors in every corner of the globe. Working the land, alongside farmers, allows us today to be a driving enterprise of sustainable development.

Our goal has remained unchanged for 25 years : "to promote sustainable agriculture, respecting the environment, to feed Man healthily, and support pride in our farmers." Whether in Ireland, Spain, France, the Netherlands, Germany, England, Switzerland, Hungary, Poland, Portugal or Morocco, you, the farmers, produce what we see tomorrow on our plates. Consumers demand quality, transparency, naturalness and of course healthiness. We have the means to meet their expectations



NEW PRODUCT NUMEROUS TESTIMONIES

RESULTS ECONOMIC AGRONOMIC SCIENTIFIC ENVIRONMENTAL



In collaboration with Statistica, Les Echos Weekend has just unveiled the winners of the top 500 French companies that, between 2012 and



2015, achieved the strongest growth.

SOBAC ranks 470th on this list. We can be proud to be part of this great adventure!

Thank you for your trust and confidence which allows us to grow day by day to promote efficient ecological farming

For the latest SOBAC news all year round go to www.sobac.fr



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NEW PRODUCT



QUATERNA® Plant, a new product for you, arborists or market gardeners!

QUATERNA® Plant

Some stories you just love to tell and QUATERNA[®] Plant is one of them. The discussions and exchanges that we've had the opportunity to create with you, our agricultural partners, have taken us further every day.

the soil-plant relationship to improve shoot regrowth, root development and production even more, while ensuring crops are more robust and resistant to soilborne and airborne attack?

After all, any living thing that is well fed and protected can only become more resistant and more robust. So let's give our plants the tools, the allies to become ever better, while protecting themselves from disease.

Scientists have demonstrated the importance of intimate relationships between plants and microorganisms for the overall growth of the plant, its nutrition, persistence, rhizogenesis and resistance to diseases and environmental stress.

For these symbioses to work, it is paramount to use practices that do not disrupt the communication

between plants and microorganisms. Soil disinfection, the use of aggressive phytosanitary chemicals, fertilizers, and climate have all contributed to disrupting these essential balances.

How can we manage to go further in A massive project, and yet the entire developmental thrust of this new product revolves around these claims: to give plants the best means to establish themselves and develop, to continue to support our farmers in improving their systems.

> It was on the strength of earlier observations and awareness of the problems that producers face in the field, that SOBAC launched a 7-year R&D programme to perfect and run trials of its new product.

These 7 years have allowed us to acquire respected experience in creating such a product and its use, and to show probative results.

QUATERNA® Plant takes us back to the basics of agronomy, by considering the plant no longer solely on its own, but within its entire agro system.

QUATERNA® Plant optimises soil/

plant/micro-organism interactions to

- facilitate shoot regrowth, - improve persistence.

 prospect a larger volume of soil, - facilitate access to water and minerals,

- limit the use of inputs while offering plants better resistance to biotic stress (diseases, parasites, toxicity of previous crops residues) and abiotic stress (climate, salinity, polluted soil, etc).

Used with Bactériolit[®] or Bactériosol[®], QUATERNA[®] Plant lets you go further, while improving farm profitability.

It is therefore with great pleasure that SOBAC announces the arrival of its new product : QUATERNA® Plant



HOW IT WORKS :

• Spontaneous micro-organisms : the spontaneous microorganisms selected on composts from Marcel Mézy® technology contained in QUATERNA® Plant develop right next to the roots and improve the physical, chemical and biological properties of the rhizospheric soil.

• Consequently, soil-plant exchanges are improved, roots and mycorrhizae can develop better and a real symbiosis starts to work.

• Plants develop a better structure and achieve their full potential, with highquality yield, thanks to the improvement of the rhizospheric soil, being more autonomous in terms of inputs and water.

► DOSAGE AND USE :

• Puddling : ARBORICULTURE : 2 - 4 g/foot VITICULTURE : 1 - 2 g/foot NURSERY PLANTS : 5 kg/ha



TECHNICAL RESULTS



NEW PRODUCT

THE RANGE



Results

For 20 plants sampled at random in a greenhouse by an employee of the farmer Fertilisation : 2 t of BACTÉRIOSOL® / ha + with and without QUATERNA® Plant at

5 kg/ha	Without QUATERNA® Plant	With QUATERNA® Plant			
Medium seeds	270 g of seeds for 20 plants : 13.5 g/plant	390 g of seeds for 20 plants : 19.5 g/plant			
Large seeds	30 g of seeds for 20 plants : 1.5 g/plant	37 g of seeds for 20 plants : 1.85 g/plant			
Average	15 g/plant	21.35 g/plant			
Therefore, by using QUATERNA® Plant :					

---> + 23.4 % of large seeds ---> + 44.4 % of medium seeds ---> + 42 % of seeds

CONCLUSION

• Without QUATERNA[®] Plant : 0.015 kg * 30,700 = 460.5 kg/ha • With QUATERNA[®] Plant : 0.02135 kg * 30,700 = 655.4 kg/ha

> --> + 195 kg/ha with QUATERNA[®] Plant --> (195 kg * €60/kg) - €280 = +€11,400/ha 195 kg/ha MORE SEEDS and

€11,400 INCREASED REVENUE thanks to QUATERNA® Plant

ECONOMIC STUDY - CEREALS

Detail of the scientific study supervised by Prof. Mazoyer

The studies conducted independently by Marcel Mazoyer, an emeritus professor at AgroParisTech, a world-respected specialist in agricultural economics, have demonstrated the economic significance of Marcel Mézy[®] Technologies in livestock farming. As the use of Bactériosol[®] in field crop regions has increased greatly in recent years, it was interesting to study its effects.

The study, whose main results are presented here, was conducted by Marcel Mazoyer, assisted by Jérémy Cottat, a research fellow and graduate of the University of Paris-Sud. The objective was to compare the profit margins of farms in Alsace that used Bactériosol[®] with the most profitable comparable neighbouring farms that did not use it.







Corn Wheat Sugarbeet





The profit margins by users per 100 hectares in rotation are substantially higher than those of the most efficient neighbouring non-users:

+ €6,310 per 100 hectares for corn 1/4, corn 1/4 ha, wheat 1/4, sugarbeet 1/4 rotation

+ €7,592 per 100 hectares for corn 1/3, corn 1/3, wheat 1/3 rotation

+ €8,928 per 100 hectares for corn 1/3, corn 1/3, soya 1/3 rotation.

Agro-economic and agro-ecological conclusions

Grain growers in Alsace that use Bactériosol® on 100 % of their land are much more autonomous and more profitable than farms that do not use it. They use less fertilizer, phytosanitary treatments and irrigation water, which reduces drainage losses and reduces pollution of land, water and of the farm product. They use 9.5 % less phytosanitary treatments for corn, 17.3 % less for wheat and 16.9 % less for sugarbeet, which lowers expenses.

Bactériosol[®] users do not use phospho-potassium mineral fertilizers and use substantially less nitrogen and phytosanitary treatments than non-users. They thus indirectly save the fossil fuels used to make them, as well as saving fuel generally by reducing the number of passes of machinery required, which in turn reduces greenhouse gas emissions and the associated expenses.

Bactériosol[®] users who use irrigation generally find their crops are more resistant to drought, which means they can often begin irrigating several days later than others and thereby save one or two waterings.

Bactériosol[®] users also find that the decomposition and humification of raw organic material, especially corn leaves and stover, are speeded up, making the next cultivation operations easier and significantly contributing to carbon sequestration.

These farms thus perform an important service to the ecosystem, and merit being better known, taking into account, and remunerated at their fair value.

3,080 hectares surveyed on 3 rotations



The Alsace region was chosen as the study site. To ensure that the measurements would be significant, only farms using 100 % of their land for the past 3 years or more, were selected for the study. In-depth studies were carried out on 35 farms in terms of technical arrangements, costs, products and profit margins on 3,080 ha of cultivation, consisting of 1,832 hectares of corn, 820 hectares of wheat, 332 hectares of sugarbeet, and 96 hectares of soya. This involved 17 farms using Bactériosol® for at least the past three years over their entire land, and 18 comparable farms nearby that did not use it, but on the same type of soil, using the same rotation method, and reputed to be the most profitable farms in the vicinity.









As the graph above shows, in terms of yield, Bactériosol[®] users achieve the same results as the most efficient comparable neighbouring non-users and have yields far higher than the average yields in Alsace, which are themselves among the highest in the world.



As the preceding graphs show, users' input per hectare of mineral and organic N, of fertilizers (N, P, K and Bactériosol®), of phytosanitary treatments and of irrigation water are generally much lower than the most efficient neighbouring non-users.

Bactériosol[®] users do not use PK, have reduced the input of N and use substantially less phytosanitary tratments than nonusers (- 9.5 % of phytosanitary chemicals for corn, - 17.3 % for wheat, - 16.9 % for sugarbeet).

CONCLUSION

The study shows that when used in a grain system, in comparison with the most efficient comparable neighbouring farms, Bactériosol®:

reduces the amount of inputs (fertilizers + phytosanitary treatments)

saves water (reduces the number of waterings and crop water stress)
maintains and even improves yields

•improves carbon footprint

--> INCREASED AUTONOMY and higher margins €63 to + €89/ha compared to the most efficient non-users in the sector

TRIAL FOLLOW UP – CEREALS

Monitoring of the cereals platform with reduced inputs less nitrogen and phytochemicals = improved margins



Didier Bouillon, GAEC du Buisson, 28120 Vieuvicq, FRANCE

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OBJECTIVES :

- Confirm nitrogen and phytochemicals reduction enabled by SOBAC concept

- Assess the influence of Bactériosol® application dates
- Assess the economic impact on a 3-year rotation

PLACE : GAEC du Buisson, Bouillon Didier, 28120 Vieuvicq, FRANCE

PROCEDURE : Reduced doses of fertilizers and phytochemicals by lowering the dose at each pass and not by cutting the number of passes. Herbicides are not included in this experiment.

VARIETY : INV 1010 (hybrid rapeseed) sown at 35 seeds/m²

ROTATION :

2016	2015	2014	2013	2012	2011	2010
Rapeseed	Wheat	Wheat	Corn	Wheat	Wheat	Rapeseed

We are in the second year monitoring the platform.

EXPECTED POTENTIAL: 40 q/ha or 4 t/ha

No green cover in the rotation - No input of organic material

PHYTOSANITARY PROGRAM : for the 100 % phyto regime: 2 applications of fungicide at the following doses :

- 1^{st} fungicide on 12^{th} March: Caryx at 1.2 L/ha + Boronia 3 L

- 2^{nd} fungicide: Filan sc 0.5 L

- 2 Tungicide. Than sc 0.5 L

- Meligethes beetle : mavrik flo 0.2µ

- The 1st, 3rd and 4th bands (see plan) corresponding to the 50 % phyto methods. The 2nd band corresponds to the 100 % phyto methods.

▶ NITROGEN PROGRAM : for the 100 % nitrogen scheme being monitored

FARMSTAR: 159 units. Modulations have been applied per band in accordance with the following protocol :

- $\mathbf{1}^{st}$ input of 70 units of ammonium nitrate

- 2nd input of 89 units as liquid

For the 50 % nitrogen regimes, the nitrogen dose at each pass was halved.

► CROP MONITORING 14TH APRIL 2016 : Overall, the scheme using 600 kg of Bactériosol® came out clearly ahead of the others. The schemes with zero nitrogen had less vivid colouration compared to the others but still had interesting vegetative state for zero nitrogen. The zero nitrogen regime that did well last year seemed to suffer this time (2nd crop without nitrogen !). We noted good nitrogen reorganisation on Bactériosol® side compared to the NPK control on which can be seen a lot of green algae on the soil, a sign of mineral nitrogen leaching.

	PLAN OF THE FIELD					
	100	0 m 20	0 m			
1 st BAND	300 kg Bactériosol® in autumn (early November) + 0 N 37 q	300 kg Bactériosol® in autumn (early November) + 50 % N 39 q	300 kg Bactériosol® in autumn (early November) + 75 % N 40 q			
		50 % РНҮТО				
2 ND BAND	300 kg Bactériosol® in autumn (early November) + 100 % N 40 q	100 % N + 300 kg of PK (21/17) in autumn (early November) 39 q	100 % N + 300 kg of PK (21/17) in autumn (early November) 38 q			
3 rd BAND	300 kg Bactériosol® in spring (1 March) + 0 N 38 q	300 kg Bactériosol® in spring (1 March) + 50 % N 40 q	300 kg Bactériosol® in spring (1 March) + 75 % N 38 q			
	50 % PHYTO					
4 [™] BAND	600 kg Bactériosol® in autumn (early November) + 0 N 39 q	600 kg Bactériosol® in autumn (early November) + 50 % N 40 q	600 kg Bactériosol® in autumn (early November) + 75 % N 39 q			
		50 % PHYTO				

Note : 100 % phyto scheme = 2 fungicide applications ; 100% nitrogen scheme = 159 units. Doses of fertilizers and phytochemicals were reduced by decreasing the dose at each pass and not by cutting the number of passes. The 300 and 600 kg/ha doses of Bactériosol® are the equivalent of 100 and 200 kg of Bactériosol® Concentré, respectively.

	Scheme/ha	Yield (q/ha)	Income at €375/t	Expenses (excl machines)	Margin/ha (excl machines)
	300 kg Bactériosol® in autumn + 0 N	37	1 387	321	1 066
50 % PHYTO	300 kg Bactériosol® in autumn + 50 % N	39	1 462	386	1 076
	300 kg Bactériosol® in autumn + 75 % N	40	1 500	413	1 086
	300 kg Bactériosol® in autumn + 100% N	40	1 500	493	1 007
100 % РНУТО	100 % N + 300 kg of PK (21/17) in autumn	39	1 462	467	995
	100 % N + 300 kg of PK (21/17) in autumn	38	1 425	467	958
	300 kg Bactériosol [®] in spring + 0 N	38	1 425	321	1 104
50 % PHYTO	300 kg Bactériosol® in spring + 50 % N	40	1 500	386	1 114
	300 kg Bactériosol [®] in spring + 75 % N	38	1 425	413	1 011
	600 kg Bactériosol® in spring + 0 N	39	1 462	464	998
50 % PHYTO	600 kg Bactériosol® in spring + 50 % N	40	1 500	531	969
	600 kg Bactériosol® in spring + 75% N	39	1 462	558	904

RESULTS : The crop was harvested on 19th July 2016 in good conditions. A full cut was weighed, 9 m wide and 100 m long. Note that the zero nitrogen scheme looking less good visually but after the harvest the stalks remained greener.

CONCLUSIONS OF THE TRIAL

The results of this second year confirm the results obtained the first year. The target yield of 40 q/ha was achieved on the plot. The use of Bactériosol® along with halving the phytochemicals and nitrogen fully met the target. The conventional scheme did not

in the humus created in the soil really supplies the needs of our for ph rapeseed to maintain our yields.

Moreover, the balanced nutrition meets rapeseed needs, without physiological shock and makes it naturally more resistant to diseases, which reduces the need

for phytochemicals.

Bactériosol[®] allows a significant reduction of nitrogen inputs and use of phytosanitary chemicals while maintaining yields, thereby improving overall profitability

ARBORICULTURE





SOIL PROFILE

Meynie Orchard Sarlande (24), France AOP Pommes du Limousin (Limousin Apples) Target yield on the field : 60 t/ha Field split in two for the past 3 years



Frid Land

History of the 2 parcels

PIT N°1 : CONTROL		PIT N°2 : SOBAC
GOLDEN APPLES		GOLDEN APPLES
150 kg/ha 18.46.00 200 kg/ha KCl 100 kg ammonium nitrate 2 t/ha carbonate	2016	400 kg/ha Bactériosol® 200 kg/ha ammonium nitrate
200 kg/ha KCl 100 kg/ha ammonium nitrate	2015	400 kg/ha Bactériosol® 100 kg/ha ammonium nitrate
150 kg/ha 18.46.00 200 kg/ha KCl 100 kg ammonium nitrate 2 t/ha carbonate	2014	400 kg/ha Bactériosol® 100 kg/ha ammonium nitrate

Soil temperature and pH measurements

PIT N°1 : CONTROL			PIT N°2	: SOBAC
AIR : 25°C at 15:30	рН		рН	AIR : 29.9 °C at 16:05
22.5	5.5	10 cm	6.3	27.1
21.2	5.5	25 cm	6.2	22.4
20.0	4.7	50 cm	6.1	20.7
18.3	4.1	100 cm	6.2	18.0
16.8	4.1	150 cm	6.2	16.1
16.2	5.5	200 cm	6.2	15.0
19.2	4.9	Average	6.2	19.9
	1.4	Variation	0.2	

Compaction

Index

10

20

30

40

50

60

70

80

90

100

110

PIT N°1

Crumbly structure, dusty. Very dry, friable horizon Soil cloddy with large distinct clods, very com

Very stony. Hard schist, not friable.

Little oxidation, crude sheets, no silicate. The soil between the schist is compacted. Little clay creation by roots versus the stones. Very few roots prospecting this horizon, they are very thin, follow the schist. The roots don't go beyond 80 cm.

Very compacted. The schist is crude, intact and very hard. Presence of a plate of schist between 130 and 140 cm (slip) covered with intact fossilised carbon.

120

PIT N°2

Crumbly structure. Stony. Horizon darker (humic). Numerous galleries. Schist very friable, abundant silicates.

Major root prospection. crumbly structure. Much schist but very friable. Numerous anecic galleries, presence of fungi. Large presence of iron. Horizon cool ==> bound water.

Presence of clay and silicate. Root development and prospection +++

5.70	Compaction index - 33 %	3.80		130	
			Large presence of schist. Layer of soft, blue and orangev clay. Stock of trace elements	140	
	Other observations		mainly iron and manganese.	150	
PIT N°1 : CONTROL		PIT N°2 : SOBAC			
330/m²	Nbr of earthworm galleries X 1.7	550/m²		160	Large presence of active secondary roots
Primary roots: 30 cm Secondary roots: 80 cm	Rooting	Primary roots: 40-60 cm Secondary roots: + 2 m		170	friable.
Not a lot of anecic, some anecic surrounded by mucous and wounded around themselves	Fauna	Ants, large diameter anecic, epigeic +++, centipedes	Horizon intact. Compacted. Sand between the schist sheets.	180	Friable
Residues of small-sized undeveloped wood	Debris	Less residue, biologically fragmented wood Presence of fungi		190	Compacted Highly compacted
				200	

ARBORICULTURE

SOIL PROFILE CONCLUSION

The two pits are less than 50 m apart. They have the same pedological conditions and identical agronomic potential. The control trench was dug in 45 mins and the SOBAC trench in 27 mins. SOBAC trench is more friable which is why it was easier to dig, and confirmed by subsequent observations and measurements.

On the whole, SOBAC side has a darker profile and much more root prospection.

In the presence of the orchard manager, we measured pH, temperature, rooting, counted

earthworm galleries, and assessed horizon compaction.

The pH is relatively constant with a variation of 1.4 for the control and 0.2 for SOBAC. This is close to the land pH of the regional pH. We also observed acidity linked to the powerful action of organic acids released by the very active deep roots on SOBAC side, which evened out very rapidly thanks to the buffer effect of the humus, and comes back down on the land pH.

Moreover, we observed soil cohesion (less

dust, less distinct large clods) and much cooler soil, a sign of better water retention and flocculation of soil particles thanks to the humus on SOBAC side.

The ventilation created by the 1.7 times more efficient network of galleries and the improvement in the structure thanks to the creation of humus greatly increases soil aeration. Thus, all the oxygen-hungry biological parameters are unlocked and optimised. The release of elements due to roots action and micro-organisms (fungi and bacteria) is optimal and very prominent on these profiles in the schist development on the SOBAC side.

This approaches AUTONOMOUS soil functioning from the action of livings.

The compaction index is at least 30 % lower, which affects root depth and density, more than doubling the volume of useful earth prospected.

It is evident that Trench 2 (SOBAC) has greater biological fertility, which means better physical and chemical fertility



QUALITATIVE AND QUANTITATIVE RESULTS

Monitoring and calibration readings of apples on 26/07/2016

	LEFT PART O	F THE ROW	RIGHT PART	OF THE ROW
	CONTROL	SOBAC	CONTROL	SOBAC
Average size in mm	51.9	53.6	55.2	53.7
Number of fruit	196	304	139	199

	CONTROL	SOBAC
Weighted average size in mm	53.1	53.6
Weighted number of fruit	335	503

The average size is the same but is more consistent on SOBAC side, with 54.6 mm and 53.7 mm on either side of the measured row, versus 51.9 mm and 55.2 mm for the Control.



NB: The data is expressed in peak area units, linked to the HPLC (high performance liquid chromatography) extraction method. Area differences reflect content differences. Thus, 80% more area would equate to an 80% higher sugar content.

Monitoring and calibration reading of apples on 26/07/2016

	CONTROL	SOBAC
Yield	50 t/ha	55 t/ha

The parcel is below the expected yield (60 t/ha) due to very complicated climatic circumstances (high heat and obligation to stop irrigation for the AOP). The parcel is 6 ha, consisting of 3 ha conventional apple trees and 3 ha SOBAC apple trees. They were picked and weighed separately to obtain this yield in t/ha. In a complicated context, Bactériosol[®] regime comes out better.



Quantity of Water Soluble Vitamins (peak area units)





CONCLUSION

Yield greater by 5 t/ha or 10 % more on SOBAC side, while preserving best equivalent quality. 1 kg of Golden apples sells for €0.40 ---> 5,000 * 0.40 = + €2,000/ha

CONTROL REGIME	BACTÉRIOSOL® REGIME	
Ammonium nitrate : €30/ha 118-46: €340/t : 150 * 0,34 = €51/ha KCI : €280/t : 200 * 0,6 = €120 €/ha Calcium carbonate: €60/t : 2 t/ha * 60 = €120/ha	Cost of Bactériosol [®] : €250/ha Ammonium nitrate : €60/ha	
Fertilisation cost : €321/ha	Fertilisation cost : €310/ha	
> WITH BACTERIOSOL + 2 011 €/HA !		

MIDI-PYRÉNÉES / LANGUEDOC



Christian Bastide, age 55, at Boussac (Aveyron-France) 48 hectares including 12 ha cereals, 10 ha temporary grassland and the rest natural grassland. 45 Montbeliard dairy cows and the renewal.

"We're making real savings"

Departmental President of the Montbeliard breed since 2010, Christian Bastide is very careful about the quality of his milk, and the results he gets certainly bears out his methods.

" I tried out the SOBAC experience five years ago. I had an indoor tank with thick slurry and I started by applying Bacteriolit there.

I immediately noticed that it became

almost odourless and then I spread it and the animals grazed very well.

With a five years' experience, I find that the grassland has become more palatable. White clover has returned, they are no longer the same pastures.

I stopped the six tons of lime, and some 10 tons of slag I used to apply.

I wanted to do things differently and, more than anything, put my pastures and my hay to use. A technician asked me what I had in my hay for the cows to like it so much. **The palatability of the fodder is without question.** The cows have been feeding on hay, silage and corn and are now feeding just as happily on one or the other, before they used to select the best and leave the rest.

Formerly, where we spread slurry, we had to wait for an heavy rain before we

could put the animals back into the field. That's no longer the case. **The milk is now clearly better quality.** It also has to do with the genetics work I do. It's a whole set of things that have improved and the SOBAC concept has clearly played its part.

The animals are in better health, I do fewer vaccinations and lighter treatments. **They're more resistant.**

I no longer need to go outside looking for feed that I can produce, I feel more autonomous. Yes, I feel I've become my own master again. This year, for corn, I've used Bactériosol® Concentré when sowing. I've found that I had deeper rooting. **Even** on cereals, I often use halfdose treatments as the plants are more resistant to attacks.

On a temporary 5-year grassland that I've been working on the edge of the highway, a fisherman came along when I was ploughing, and walking twice 50 metres, he filled up his bait box with worms!

I have a different point of view now about soil and my plants. Cows walking up to the entrance of the field because the grass does not suit them seems to belong to bygone age.

With the EU Common Agricultural Policy, with the constraints on phytochemicals, we're thinking much more about autonomy and establishing legumes rather than buying feed cakes.

Given the same amounts of chemical fertilizer and Bactériosol[®] and Bactériolit[®], there's no contest. SOBAC concept is cheaper, we make real savings.

With the Montbeliard breed, we are strict in terms of milk quality. We've already done a lot with genetics, but since I've been working with SO-BAC I've never been disappointed. I've often got €40 more than the basic price of 1,000 litres of milk. I intend to continue in this direction, I don't see myself going back.

I can really talk to SOBAC. If I have a problem on my land, we discuss it and we go to the patch, we create much more richly human connections.

What I want is to have buildings and silos full of good merchandise. And this year I have them.

SOBAC is a company that advances and cares about general well-being. Its participation to COP21 is proof of that"

"The vines are no longer suffering"

Hervé Pinard is a fourth-generation farmer. From kiwis to vines, Bactériosol[®] has certainly met his expectations.

" With kiwis I switched to organic, so I needed an organic soil activator. The only supplier that offered it was SOBAC. After that, I tried it on the vines. Then I compared the results of the three regimes. My lads said to me: "There's a problem boss, the vines are better in some places." That was the Bactériosol[®] side. I had been doing trials for eight years before without seeing results like that. The vines are no longer suffering. The plants are

autonomous, they find what they need on their own with deeper roots.

For 2015 harvest, I had 5 % rot where had Bactériosol[®] and elsewhere it was 25 %. With SOBAC, there was also much less millerandage which is a maturation defect whereby some berries don't develop fully.

granted. I'm very proud to be using Bactériosol® now and I tell everyone around me about it. I've found the concept that perfectly suits my farm. For kiwis, I had been searching for 10 years but had found only empty promises. My land was limey, clayey, sloppy clay with very asphyxiating silt underneath. Now, the structure has changed and the plant can benefit from it.

With COP21, Bactériosol[®] is recognised for its role for reducing greenhouse gases, which is very positive.

For cereals, the winter barley calibration this year was higher by 10 %, and at our vineyard we hit the quota of 105 hL. Without Bactériosol® I think it would have been around 80 hl. I also had a very good hardening-off this year across all our land, with lots left in the wood for next year. That's where we'll be harvesting next year.

I do everything possible to reduce phytochemicals until we have to.



This year we've had the same result, and the vines grew all throughout August despite the drought. As for esca, a vine trunk disease, I've found no more than 1 % whereas it used to be 3-4 %. With Sauvignon, I used to get 10% esca but, it has now dropped to 5-6 %. At my neighbours', it's a disaster. We did a soil profile on 1st March. With the miniexcavator, I first dug a hole where there had never been Bacteriosol[®]. It took 45 minutes to dig down one metre. For the second hole that had been dosed with Bactériosol[®], it took 30 minutes to dig down 1.60 metres.

As for pH, we had 6.9 on the surface and 7.1 at 1.60 m, so a very consistent pH. In places that hadn't had Bactériosol[®], we had 500 galleries per m^2 , and 1,100 where we had Bactériosol[®]. This means very useful porosity to cope with high precipitation or drought, proof of better air and water management in the soil.

The results are coming one after an other. You have to relearn everything. You can't take the soil for

Our plants are freer to counter all aggressions. They also resist insect attacks better. The same applies to rot. Grape bunches are bigger, more aerated, thrive much better.

I try to respect nature. I know the organic-farming constraints with my kiwis. With cereals, I'm getting closer and closer to organic ; but I don't think it will be possible to grow our 60 hectares of vines organically. Here, in Cognac, mildew is a big problem.

I've always been a small step ahead. I like looking at new options.

Bactériosol[®] is the core, it's the basis for our work. When I see after only three years the leaf resistance and wood resistance, it's encouraging. With kiwis, I'm looking primarily for calibrated fruit. This year, they'll be saying we've photocopied them!"

Hervé Pinard, at Neulles (Charente-Maritime, France), established 1989. 160 hectares including 90 ha cereals, 62 ha vines and 5 ha organic kiwis. Fourth generation farmer

LIMOUSIN / AUVERGNE / CENTRE

"Autonomous everywhere"

At Gaec Delage-Deshayes, they've taken things to their logical conclusion. Freed by SOBAC from chemical inputs, they have just set up their own dairy plant with seven breeders from Charente and Haute-Vienne and five from Loire-Atlantique. The objective : autonomy.

" Christophe Deshayes : We met SOBAC's technical sales rep, Sébastien Chantrel at the 2010 Chabanais Dairy Festival. As the saying goes, you shouldn't die an idiot, so we decided to try new ways. The first thing was to return microbial life to our soil. We could readily see that, the longer things went on as they were, the less it worked. We had increasingly sloppy land, difficult to work. Now, today, after six years, we have much less mucky ground and a richer flora on the grassland. There are more leguminous, it is thicker, denser.

From the first year, the manure was easier to spread and it didn't smell. That was important for us because

we're close to Roumazières. **Pierre Delage: It's pretty clear that the forage is better. We've never had such good analyses as we do today.** As for the meat, the herd benefits from the high-quality grass. With milk too, all the measures are up.

Christophe: We no longer have the pastures we used to have.

Now, even after the dung pats, the cows manage to eat the grass. Three weeks after spreading manure, the cows are grazing. We used to have to wait at least a month and a half. The manure contains more dry material and is richer.

The protein content of the silage has also changed.

We suddenly have 3 or even 4 percentage points more protein.

Last year, we produced silage with 20 % protein. This year it's 17 % even though many colleagues have lower results. We're convinced we made the right choice. Pierre: We've saved €20-30,000 and also have superior quality.

Christophe: The soil is much more permeable than it used to be. We've also improved in terms of cultivation. We now grow a cover crop after the corn. Our soil is never bare.

We're in the process of taking our future in our own hands, setting up our own dairy factory. We produce, market and sell our milk. Everything runs harmoniously. We're autonomous.

We're closer to consumers than we used to be, and consumers are coming to us. Especially city consumers.

We see it in our dairy project. They want to see traceability, they want to know what they're eating and drinking. We show how we work.

We produce a "Bleu-Blanc-Coeur" milk with a higher grass content in the feed. We only work with flaxseed and rapeseed produced in France, free of GMO, and tracked.

In our dairy operation, we produce 11,000 litres of milk



Christophe Deshayes, Pierre Delage at Roumazières-Loubert (Charente, France) Gaec Delage Deshayes (3 partners, 1 employee) 100 dairy cows, 120 Limousin breeding cows 300 hectares including 70/80 ha corn, 30 ha mixed cereals and the rest in grass.

per cow, and in our meat operation we sell carcasses of over 500/550 kilos. That's the high end.

Our milk output per cow has improved by 1,500 litres in three years. This is massive, and without harming the herds. For the past five years, we've been keeping the cows longer, which we didn't use to do. The representatives of Centre Leclerc and Super U with whom we've partnered boast about our good country sense. You always have to be a step ahead. I have a feeling we are"

"Healthier, more robust plants"

(Interviews by an independent journalist in November 2012 and updated 2017)



For 17 years, Franck Dindault, now 40 years old, has been working at Pépinières Marionnet, a family nursery business in Soingsen-Sologne, founded in the late 19th century.

Production Director of this nursery specialising in strawberries, raspberries, blueberries, currants, asparagus and small red fruit, he initiated the collaboration with SOBAC six years ago.

" I first heard about SOBAC and Bactériosol[®], a natural soil fertilizer, in Kenitra, Morocco, where we also have nurseries. It's there that I met its founder, Marcel Mézy. roots and are much bigger."

First of all, I very quickly decided to sow all the strawberry patches with SOBAC's concept. We then set up a partnership with the Aveyron firm and are now committed to working with no one but them. Since 2013, we have been working 100 % with SOBAC at Soings-en-Sologne.

My goal is to increase the quality of the plants, i.e., more and bigger roots, more reserves for better rooting once transplanted. All that along with, of course, a reduction in the chemical inputs ting to see it revive. The goal with Bactériosol® and Bactériolit® is also to have better yields. We monitor specific lots at our test centre and at our customers' operations, to be able to control the entire chain. We also apply Bactériosol® on our 20 hectares of raspberries.

In any case, we know that we're winning in terms of cost per hectare.

I'm convinced that, in any gardening range, buckets of raspberry plants in compost mixed with Bactériosol®, would make a killing!

Franck Dindault, age 40, Production Director at Pépinières Marionnet nurseries in Soings-en-Sologne, France Specialising in strawberry, raspberry, blueberry, currant plants, asparagus and small red fruit. SOBAC had just done some testing on asparagus and the results were amazing. The asparagus yields caught my attention and when I compared the numbers and how early they were achieved, I didn't hesitate one second.

In Soings-en-Sologne, we began six years ago to do half-&-half tests on the plots and suddenly my employees said: "The strawberries on this side have many more roots." And for the asparagus: "Your plants have lots of little that we use. It's an entire chain that we have to rethink and, right from the outset, you have to get there gradually.

We also use Bactériosol® Terreau for strawberries in pots. We mix the potting compost with this product and obtain more roots, it's indisputable.

SOBAC sends Bactériosol[®] Terreau directly to the compost factory so it can be mixed right there and then.

For seven or eight years, we've been improving our soil with valuable organic material and invesMore-robust plants that perform better at the nursery are a real plus. As a communication message, we can confirm that we produce healthier and more robust plants"

FOR THE HEALTH OF THE EARTH - SOBAC NEWSPAPER

NORTH-LOIRE / NORMANDY / CENTRE

YOUR COLLEGUES SHARE THEIR EXPERIENCE



Stéphane Lorin, age 43, Landivy (Mayenne, France) - Four partners at Gaec de la Bos. 117 hectares including 20 ha of sale crops 100 Prim'Holstein dairy cows producing 825,000 litres of milk.

"To be as autonomous as possible"

As Stéphane Lorin explains, "We focus on our animals' well-being but also on people's wellbeing." Careful about their living conditions, he says he has also had to relearn patience: "To do better before doing more."

" We started working with Bactériosol[®] in 2010, and we soon saw moss on the slurry, a sign that it was working. The idea was to eliminate the crust on slurry and reduce labour involved in agitating it before spreading it. We said we'd give it a try for five years, and we got there in the end. We're there!

After five years, the verdict on SOBAC is : it's easy to use, easy grassland management with slurry treated with SOBAC that works well, healthier atmosphere in the stables, and an overall management of the forage system improved.

Our manure is much more homogeneous. We haven't used the agitator since 2012. No more crusts. Inputs are added daily in the stalls at 30 kg/

day for drying and sanitation, knowing that we don't use straw in the stalls.

We spread Bacteriolit in the dry beds of the nurseries once a week. More is added when the stables are emptied.

Smells when spreading are much reduced.

When we started working with SOBAC, we also sowed multi-species grassland. It all works together. We've changed a lot of things.

We have mixed crops, we've planted sugarbeet, sweetcorn, our whole philosophy has changed. The aim is to keep feed costs as low as possible. To be as autonomous as possible. We've mastered growing corn. It's doing well. We don't use any fertilizer and don't seem to need it. We don't add lime at all any more.

We've introduced the entire SOBAC system here and it's all working. You have to adjust your working methods to the requirements of the life you've set yourself, and SOBAC has become a key part of it. We focus on our animals' wellbeing but also on people's well-being. We take every others weekend in two off, and three weeks holidays. We're hoping to manage four or even five weeks.

A neighbour asked what we were doing to get such beautiful corn. This year, we've paid attention to climatic conditions, and were patient when sowing. The key thing is to understand the concept as a whole. We waited for the earth to warm up. We have to be careful sometimes not to let old habits creep back in.

I never used to take my spade with me when I did my rounds of the fields. Now, I do.

In difficult conditions, SOBAC effect is amplified. The corn this year was dry but it was beautiful.

I'm quite a cautious person. I go forward step by step, making sure I've created the basis for it first. That's what we've done with SOBAC in the past five years.

We have a herd of 100 cows and we have to manage the pastures.

For 20 years we've been working with the CETA programme (working group 9 days/ year), exchanging ideas, talking about practical issues. I'm now convinced that you can respect the environment and have economically strong results. The two are compatible.

I'm the one dosing the animals and I pay as much attention as possible. For 20 years, I've never stopped reducing the doses, compared to those my parents were using.

When SOBAC was invited to COP21, I was reassured that the way I was working was right. That's important. It's a concept that drives the researchers.

Having a tractor that you use less than 1,000 hours a year doesn't make sense. A tractor has to run. Everything has to be rethought. Do better before doing more. This year, we've succeeded in maintaining last year's level even though milk prices have dropped considerably. We control our expenses well and have no debts to our suppliers"

"It's essential to stop using chemicals"



When Amélie Von Leithner bought this site in late 2010, only three hectares were being used and fenced. With only two stalls and some 30 hectares lying fallow, she went back to basics and contacted SOBAC, on the advice of another stud farm owner. The Swedish owner is now operating some 20 stalls with eight broodmares and their foals.

" I got to know SOBAC in 2014. From the outset, people had been advising me to apply chemical fertilizers, but I didn't like that at all. I'm in a very organic region here. At Cisai-Saint-Aubin, there are three organic farms and a fourth converting to organic. I can't be completely organic because of some treatments that I need for my horses, but I want to become as organic as possible. to immediately do radical sowing with Bactériosol[®] so it could react fast.

It has already improved very quickly. The flora has substantially diversified and is improving year by year. Parasitic plants such as rushes are clearly reducing. The substrate is still damp but its soil bearing capacity is better.

I can see that I have more and more land that I can use in winter, where there is grass all the time and where the horses aren't grazing in mud. We still have a long way to go, but we're going in the right direction. Also, some meadows withstood the counts in the way I see things. The big question is, however, whether the COP21 accords will actually be respected.

We're always focusing on improving the flora of the grassland so that the horses benefit from the richest and most balanced grass possible.

We want to continue optimising this land, knowing that we're on soil that has an interesting potential, even if it's not the best in the region.

At the moment, I'm not looking to expand my farm, but simply to improve the quality of my products,

Amélie Von Leithner, Cisai-Saint-Aubin (Orne, France) Cisai Studfarm - 30 hectares of pastures Established in 2011 What struck me was the fact that I could put my horses out to pasture after applying Bactériosol®. Moreover, this concept develops the flora of the grassland and improves soil structure.

Given the state of the land, we started with high doses. I wanted varied grass of the highest quality but I also wanted my clayey soil to decompact and absorb water better in heavy rainfalls.

The soil was hydromorphic so we had

drought better last year.

I'm in the process of finding some harmony working this stud farm, which proves that I have taken the right path.

For me, it's critical to stop using chemicals and sow the soil with Bactériosol[®] UAB. I'm not obliged to do it, but it's a matter of gaining respect from my two neighbours who are organic milk producers. I don't imagine for one second that they could get runoff from my land that would'nt conform to their practices.

I can't see myself returning to a conventional system tomorrow.

It certainly makes sense to me that SOBAC was invited to COP21. It all

and SOBAC is one of the links in the chain and I've chosen to support this initiative.

I want to raise healthy horses sound in mind and body. It will take a lot of time but that's my goal.

We all need to turn to alternative solutions to help the planet, it's urging. You can't get older and not think about that"

SOUTHERN FRANCE - PACA REGION

"The plants are adapting better to climatic variations"



Thierry Julien, age 45, Thoard (Alpes-de-Haute-Provence, France), Mountain farm - 100 hectares mostly aromatic plants (40 ha lavender, lavandin, 15 ha sage) 10 ha cereals (sunflower, barley, wheat) and 35 ha natural and artificial grassland. Thierry Julien has three different farms, two of which are within the perimeter of protected springs. He has therefore switched to organic farming and has opted for the solutions offered by SOBAC.

" I knew that Patrick Boyer, a SOBAC rep I had known for a long time, wouldn't steer me wrong. My first trials were three years ago. We have periods of drought as well as increasingly heavy rain. What made me decide to try it out was that our land is very clayey, and aromatic plants are stressed by ferric chlorosis, especially lavandin. Soil asphyxia on clay is very serious and plants can't manage to absorb the iron that's in the ground. Deficiency can lead to them dying off.

This year, I carried out a test on a patch where I was having serious symptoms and I saw a radical change. On relatively heavy clay, the land is now becoming easier to work.

I can already see that the plants are greener, less puny at the start of the season, and don't scald as easily. The plants are adapting better to climatic differences in spring.

After very dry autumns, if you apply nitrogen late, its action has the reverse effect and kills the plants. But with Bactériosol®, it's what is inside the soil that works depending on the climate.

In a rainy period, on all the plots where I had chlorosis problems, I clearly saw the effect. The plants are more robust.

If you scrape down between two rows of lavender, you can now see the roots overlapping.

Before, when you ploughed between rows, you got big clods. That doesn't happen any more.

We're striving to outpace what's going to happen in farming, we're striving to get one step ahead.

My son is studying agriculture and has a technical understanding that is leading him towards techniques identical to my practices.

Our backing off from chemicals doesn't mean we're backward. We actually have computers in our tractors. We've simply regained a forgotten common sense.

I put flocks of sheep among my lavender, which 15 years ago would have been unthinkable.

My cousin comes by with his flock and then I just have to plough it.

I like to tackle challenges and I'm proud of that. I do various work for conventional farmers in the valley and I've seen that my results are just as good as theirs. There's always something to learn from others. You have to be humble in life, that's what gets you ahead. Some 90 % of my revenue comes from aromatic plants. Cereals are a rotation on my plot.

This year, midge attacks were very, very mild. I focus primarily on plant health, and the yields should follow. I'm looking to regain the crop longevities that you used to have in the past. Thyme costs €4,500 per hectare to plant, lavender €1,500. If you can avoid planting every three years...

With the sainfoin that I planted last year, on 4.5 ha that were harvested in the first year on very dry land, I've already had good results.

Over the course of 20 years, the climate has been changing and working methods have changed. You have to question what you're doing. I'm doing it for myself, for my children, for society, and for the planet"

"Proud to sustainably maintain my soil"



At the farmers' market in Tourettes, in the Var region, what's most important is the quality of the produce. And it's here that Patrick Salussolia sells his entire production.

"I got to know SOBAC through a producer who was using this concept and organised a meeting. I have stony, clay-limestone soil and my problem was deficiency at the start of the growth. I needed a growth promoter to boost vegetation.

I tried Bactériosol[®] 4 or 5 years

There are many more capillary roots. Small roots go looking for nutrients much deeper.

Leafy plants such as lettuce, spinach and young salad leaves are much more robust. I have much less powdery mildew and botrytis, virtually none.

Plants talk to you. Previously, I had never been able to relieve their stress so they could startup. The solution was Bactériosol[®]. Now, I start planting the first lettuce and spinach, and in two weeks everything's up. I spread Bactériosol[®] two weeks before sowing. These days, we take more notice of health issues – our own, the health of those around us, and consumers' health.

I don't see myself producing something that I wouldn't want to buy. You always have to reassure people, reassure yourself. I'm not into organics but into rationality. I just help my plants to defend themselves.

At the Farmers' Market, I sense this increasingly prevalent preoccupation and I'm proud to explain my production methods.

...and to work like I do, reassure

Patrick Salussolia, age 56, SCEA les Palanques Farmers market in Tourettes (Var-France) 8 ha of which, 7 ha of aromatic herbs, red fruits and vegetables

ago, with a very simple experiment. I put a potato in water with three or four granules and left it alone. I saw that root development was much better than with the other products I had tried.

After that, I switched everything to Bactériosol[®] which I use mainly as a growth accelerator. I always use organic material with Bactériosol[®].

My first findings were that my plants developed faster regardless of the plant, with more life in the soil. Earthworms come up to the surface because the earth is crumblier.

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When I lift up the spinach leaves, underneath is a carpet of moss and capillary roots. It's impressive how the roots develop.

Everyone wants organic these days. I don't know if I'll be able to take the leap, but I'm going by that assumption.

I work my soil more than is thought rational, but when I work it I give it life back. When I break it up and water it, it's full of earthworms.

People have become aware a little bit late of the harm they've been doing to the earth. But it's never too late to make it right.

customers. They need it. I tell them to come and see how I work.

The Chamber of Agriculture is also going in the right direction with its phytochemical training sessions, among others.

My daughter wants to take over, and I'm proud to keep my soil sustainable, to be able to pass on a system that's working well"

FRENCH OVERSEAS DEPARTMENTS & TERRITORIES

"The revitalisation is impressive"

Françoise Elisabeth is cautious by nature but this time she's convinced she has found the solution to her problems – Bactériosol[®]. The soil structure changes very fast and, when tillering, there are more sugarcane stalks. Decisive quantitative and qualitative assessments.

Françoise Elisabeth : "Our farm is one of the three largest sugarcane plantations in Martinique. This southern plain is a polder with rich but clayey soil that is difficult to work. When it rains, it's very sticky mud.

When we first received a visit from Marcel Mézy, we talked a lot about how to work with Bactériosol[®]. I had very good contact with him. He has invented an amazing process, and he arrived here with his pilgrim's staff with much humility and simplicity. I immediately felt him close to us.

We did a test on one hectare, half Bactériosol[®], half fertilizer."

Jean-Christophe Lenerand: "The patch sown with Bactériosol® started-up slowly, but in two and a half months it caught up to the half-hectare with chemical fertilizers, and then overtook it.

After six months of Bactériosol®, Christophe

Frebourg did a soil profile that immediately speaks for itself".



Soil profile by Christophe Frebourg at Françoise Elisabeth's farm

Françoise Elisabeth : "The digger operator immediately saw the difference. Here, the clayey soil is particularly sticky and, with the mechanical digger he had to get out of the tractor with almost every scoop to clear the bucket. That has now completely changed and the Bactériosol[®] patch looks a lot more like the land at the north end of the island, more friable. The structure has changed."

Jean-Christophe Lenerand : "On the patch with fertilizer, there was a layer of straw that had not decomposed. There was water in the trench along with rotting plant residues. In the other trench, they had disappeared and Christophe Frebourg's feet were dry. The soil had gained porosity. The earth was decompacted, and water as well as roots were able to get through. The revitalisation is impressive."

Françoise Elisabeth : "During tillering, when new shoots appear as a tuft, development is better on Bactériosol® side, which means more shoots and thus higher yield. We're going to calculate all that, in terms of tonnage and quality of cane produced, and there's no reason why we will be disappointed. I think we're going to sow 50 hectares with SOBAC concept this year and that will only be the first step.

The sugarcane crop is already a "clean" crop compared to many others. If we can, additionally, stop any chemical fertilizers, it will only be beneficial for us. But the most important thing, nonetheless, is to know that we're revitalising our soil while being more productive. I sense that our approach is beginning to interest our competition who would love to know more to be able to compare our results with theirs. But I wasn't born yesterday...!"



lean-Christophe Lenerand, Head of Production SAS Canasuc, Rivière Salée (Martinique) 600 hectares including 300 ha sugarcane.

GUADELOUPE

Fewer nematodes: a secondary effect of Bactériosol®?

IT2 (Institut Technique Tropical 2) carried out an experiment to assess the impact of Bactériosol[®] on the productivity of banana plantations in Guadeloupe, which included measuring the impact of the concept on nematodes.

The trial plot belongs to M.J. Narayaninsamy and is based in Capesterre BE, Belair. The soil has a water pH of 5.5 and is naturally poor in organic matter, nitrogen, phosphorus, calcium and magnesium.

Nematodes are parasites that kill roots and rhizomes of banana plantations, causing banana trees to fall over as well as water and nutrient problems. Three regimes were compared by IT2 (see table opposite):

Bactériosol[®] saves more than 220 units of N

The monitoring showed equivalent yields for the three regimes, and equivalent nutrient analysis for the bananas. This demonstrates that, in tropical conditions, adding Bactériosol® has by itself changed soil quality to allow banana trees to feed at least as well as when receiving mineral inputs.

The exponential action of the micro-organisms flora of Marcel Mézy[®] Technologies in hot, humid conditions captures atmospheric nitrogen, reorganises the elements, and makes far greater use of soil potential to feed plants.



	N (kg/ha)	P ₂ O ₅ (kg/ha)	K ₂ O (kg/ha)	MgO (kg/ha)	CaO (kg/ha)
Conventional fertilisation (CF)	228	172	292	95	158
50 % CF + Bactériosol®	116	94	144	47	78
0 % CF + Bactériosol®	0	0	0	0	0

The harvest was monitored for quality, yield, and numbers of nematodes.

With Bactériosol[®], nematodes had better watch out!

In parallel, nematode populations were measured in the roots of banana plantations in the 3 regimes and shows a positive trend in the Bactériosol®-only regime for nematode numbers to decline.

The Bactériosol®+ 50% conventional fertilisation regime showed no such improvement, which

confirms that an input of mainly phosphopotassic manure combined with Bactériosol® disrupts the balance of our ecosystem and alters the fraction of micro-organisms that act to regulate nematodes.

The experiment is continuing on the following crop



REUNION ISLAND

"A real agricultural revolution is on the way"



Charles Emile Bigot, Technical Director of the beef cattle division for Sica Revia Coop

Charles Emile Bigot, Technical Director of the beef cattle division for Sica Revia Coop.

" Jean-Max and Eric Rivière were pioneers in the use of SOBAC concept on the Reunion Island, as they have been working with it since 2008. I was convinced of the efficiency of Bactériosol® and Bactériolit® from the very outset and I've tried my best to get the concept known.

Although it was difficult to get the message across initially, it's a real revolution in motion. Users who are often sceptical when they first test it are soon pleasantly surprised. There are serious environmental stakes involved in changing farming practices for restructuring soil, creating humus faster. For the environment and also for human health, SOBAC concept is an undisputed advantage. I have no doubts about these technologies. When Marcel Mézy, the inventor of the process, and Patrick Fabre, one of the managers, came here to our site, it reassured me that I was taking the right approach.

Farming around the world in general and on Reunion Island in particular, is at a decisive turning point. We need, at all costs, to change course, and with SOBAC we have the solution to our problems. The development of SOBAC's concept on the Island will open the doors for organic farming, I have no doubt.

The message has got through to the cooperative and things should progress pretty fast in the next few months.

When you see how biodiversity is returning to the grasslands, how life of the soil is gaining the upper hand, it's simply fabulous"

DOM-TOM

REUNION ISLAND

"I get an extra harvest every 3 years"



Jean-Pierre Gigan, Tampon (Reunion Island) Established as a market gardener for almost 40 years Six hectares of pineapples

Jean-Pierre Gigan is convinced: SOBAC process is a real revolution on Reunion Island. For him, Bactériosol[®] is finding the ideal conditions here and its impact is amazing.

" I started sowing two hectares with Bactériosol[®] but it's now six hectares that will get this ecosystem. I was feeling discouraged by farming and recurring problems of disease and deficiencies in my production.

When I tested Bactériosol[®], the first thing I noticed was how well the pineapples rooted. **From the outset, on the Bactériosol[®] side**

the root system looked like a tuft of hair whereas on the conventional side there were just three or four roots.

Plants are much more robust and, with the first rains, they start to shoot almost in front of your eyes. It's impressive.

We were on the way to killing the earth. With fertilizers, phytochemicals and lime, it was a disaster. I've stopped using lime and fertilizers for several years now. When I think how I used to use a ton of fertilizer per hectare... Everything was blocked in the soil whereas now life is back. The earth is black again instead of yellow. The earthworms have returned.

The soil is breathing. Not long ago, while I was scarifying a patch, another producer came to see me and asked me what I was doing to end up with such beautiful soil.

We're winning all along the line. It's the ideal climate for Bactériosol[®]. With conventional methods you need 16 months from planting to harvest. With Bactériosol[®], this shortens to 12 months. This means we get an extra harvest every three years... We plant between 70 and 80,000 pineapples per hectare. They sell for between €0.80 and €1.20 each.

With 400,000 extra pineapples every three years, the numbers add up fast... It's enormous. It's a revolution here. At the beginning I was scared, but now I'm really happy.

With Bactériosol[®] I won on the size of the fruit, on the calibration, and on colour. There are no more black spots caused by too much nitrogen and potassium. In terms of taste, the improvement is very obvious. Pineapples are much less acidic, honeylike now. Customers are prepared to drive 30 or 40 kilometres to buy from me. Word-of-mouth has been producing wonderful business.

At the pineapple festival last November, I sold 6,000, which is enormous. And I could

have sold more, they were the only ripe ones I had...

I'm now proud to open the gates of my farm and explain to visitors how I work. I sense that pineapple producers are amazed by the results obtained thanks to SOBAC's concept.

When you walk between the rows, you feel like you're walking on sand whereas you used to feel you were walking on concrete. If you do a small soil profile, 50 centimetres deep, you really see the difference. On the Bactériosol[®] side, you see mycorrhizae, small white filaments on the roots. You can see where the life is.

Here, 60 % of market gardeners have big problems with diseases, nematodes. They don't practice rotation, and the fungicides, weedkillers and fertilizers contribute to having a lot of disease.

Whether it's the Avirons cooperative on the south of the Island or the cooperative on the north-east, the mindset has changed a lot in the past six months and it's very encouraging to people who, like me, have decided to stop using chemicals.

I sense that here, 2017 will really be the year of SOBAC on Reunion"



"Better results than we hoped"

The Rivière brothers' GAEC is a trend setter on the Réunion Island and they were pioneers in the use of SOBAC's concept. Better quality grass, better animal health, Eric Rivière doesn't hide his satisfaction to have stepped away from chemicals.

"We were looking for a concept that would primarily reduce smells as we produce a lot of manure and slurry. The atmosphere and comfort around the animals improved very guickly. vious that the forage is more he palatable.

Environmentally, we have fields near houses and we no longer worry when we're spreading our manure **because the smell problem has been solved.** I have a neighbour who's a pig farmer who also uses SOBAC and he's very happy with the results.

Word-of-mouth operates here, and I think SOBAC's use will grow very fast here. We were among the first to start, but you sense a real curiosity about this concept. We are financially better, and as a plus we're very close to being organic. It's good to be able to say that we're not polluting nature and that we're improving the quality of our soil.

herds are thriving.

Of course, we were proud to read that SOBAC had been invited to COP21 in Paris and to COP22 in Marrakesh. It's a real recognition that makes us want to continue on this path.

Marcel Mézy came to the farm, and it was important for us that he travelled to talk to us about his concept. In addition to reducing smells, we wanted to improve the quality of our land and the results were better than we hoped. It's impressive to see how fast life has returned to our soil.

Eric Rivière, in a Gaec with his brother Jean-Max, GAEC de Grande Terre, Saint-Leu, Reunion Island Breeders, pigs (45 sows), cattle (130 bulls fattening on straw beddings), sheep (100 ewes) and 80 goats - 10 hectares of grassland Using Bactériolit® for the past six years in both slurry pits and straw beddings. Now, after six years of using Bactériolit[®], we have almost no veterinary expenses for our cattle whereas before we always had something to fix, limping, diarrhoea... And effluents are breaking down much faster and more effectively.

As for the quality of grass, the improvement is astounding. We don't use chemical inputs at all. The soil has revived, it's palpable. And it keeps improving.

Economically, we are winners as we've increased our hay yields. What's more, the quality is there – based on the animals' behaviour it's immediately obWe're the second largest cattle producers on Reunion Island which means people are always looking at us. People are interested in what we do, and no one is unaware of the effects of Bactériosol® on our farming. Our grasslands for hay are magnificent using manure with Bactériosol®, you can see the difference with the naked eye.

The same goes for the herds, whether cattle, pigs or goats, the

I think that on our Island, with our hot humid climate, Bactériosol[®] and Bactériolit[®] are finding ideal land to show what it can do. All the better for us!"

EUROPE



SOBAC heads for new lands!

For over 10 years, SOBAC has been exporting Marcel Mézy® Technologies to numerous countries. After an initial site in Germany, it is expanding its presence geographically through its distributors in Spain, Hungary, Ireland, the Netherlands, Poland and Morocco.

In 2017–2018, SOBAC is continuing its conquest by looking into the Swiss, Portuguese and Slovakian markets



Limousin breeder and veterinarian in County Kerry

"Better quality pastures"

"I am a pedigree Limousine Breeder. The reason we have picked Limousine is because they are easy calving, easy care and I farm part time. Everything on the farm is done by a contractor mechanically, so I just keep an eye on the calving. I try and get them back on calf again, that's my job on the farm.

I was looking around for something else really, I was using more and more chemicals and I wanted to get off that path. I wanted to increase our profits and reduce our costs. I wanted less labour on the farm, and I wanted to hold on to the cattle as well. We have reduced our nitrogen, I would not say half but close to half, the grass is lasting longer. I think our silage quality last year has improved and we had less waste.

The biggest problems when you deal with stock are probably scouring and pneumonia, and I think SOBAC helps.

We treat the bedding in the shed in the

IRELAND

Testimony by Tom Stapleton, SOBAC distributor in Ireland

In 2012, SOBAC began its adventure on the Emerald Isle. We look back over these four years with Tom Stapleton, Director of the company P&T Stapleton and distributor of the Bactériosol[®]/Bactériolit[®] range in Ireland.

Tom Stapleton: "Where to begin? It's impossible to summarise 4 years as a Sobac advocate and Distributor in Ireland. Sobac has had a strong affect on my journey of life. I believe everything happens for a reason and Sobac was meant for me.

I was at a farm show in Dublin and a woman from the French Embassy approached me. We had a long conversation about farming and she took my details and passed them on to Sobac. Claire Marlet then contacted me and the rest is history. My father and I had the opportunity to meet Claire Marlet European Export manager and Christophe Mezy, Co-director of the company in a small but beautiful town in County Kildare, Ireland.

We immediately were energised by the concept and understood the positive impact this could have on farming. At the time we had a very small agricultural distribution business P & T Stapleton Ltd and Sobac was a fantastic opportunity for us.

In Ireland the conventional farming practices and advisory services are all focused on farmers using more chemicals. There is a knowledge deficit in the advisers telling farmers what to do. It's very important **that farmers keep their independent thinking and not to be influenced or pressured**.

Ireland was a hard market for the first two years however once the farmer is fully convinced, he tells his neighbours.

Now, in Ireland, most farmers have heard of the name SOBAC. We first started communicating with Irish farmers who had traveled to France or bought livestock in France.

Our very first customer was Kim McCall in County Kildare. His wife is French and they made some phone calls and visited some SOBAC farms in France, while on holidays.



His root systems are growing down 130 cm. He is achieving autonomy.

Yesterday I was with a careful farmer who told me that using Bacteriosol was the best thing he ever did on the farm. It is great to hear feedback like this : it energised me.

I have a customer a vet who has seen the health benefits, increase in fertility and reduction in diseases. He is getting many of his clients using SO-BAC's products.



Tom Stapleton and Sean O'Sullivan Limousin breeder and veterinarian in County Kerry, has been using Bactériosol®/ Bactériolit® Technologies since 2013

We hope to expand and employ sales representatives and nominate agents in different locations. We work hard in partnership with our customers.

In Ireland we have town hall meetings presentations and display the process on a computer screen. You might find it odd but most of our presentations are in a hall at the back of a pub. At first in 2013, we had 5 people rand at the last presentation in 2016, we had 75 people attending.

We are true rugby supporters and our local rugby club was the second place to use Bacteriosol. Everyone has commented on how good the pitch looks. No water on top and the density of the grass and no mud and the pitch is always playable. Teams who travel to our rugby club ask "how is your pitch so good ?", the answer is : "SOBAC !".

It's great to be part of this adventure!"

So, I came across a brochure about SOBAC two years ago, and then I made some contact, and I said I'll try it out.

It is my third year into the program, I am happy with the results. I think, as well as that, we are seeing better sward quality, more clover coming into the sward and also I know that after three inches of rain (80 mm) in the last couple of days, we are not pouching the fields as much as we were in the past, we have a better sod under our cattle. winter time, it is applied once every two weeks, so it decays and there is probably less ammonia less fumes coming out of the manure. But generally speaking, we don't have any health problem on the farm, we are very lucky. Talking about manure, when we are spreading the slurry on the land we are doing less worm damage.

At the moment we are happy with SOBAC and we will stay with it. What is driving me to keep using the process is that it cuts my costs and reduces my labour. At the end of the day, I think, once we are driving down our costs, once we reduce our labour, and once we have improved our diversity around the place, once you have a better environment to work you are happier, the cattle are happier.

Tom Stapleton and Kim McCall (left), sheep breeder and Aubrac dairy cow breeder

He is a fantastic farmer, he is in one of the only carbon neutral farmers in Ireland. He uses both Bacteriolit and Bacteriosol concentrate on his farm. He has 102 % calfing rate and 1.9 lambing rate. He feeds no meal and in 2016 his bulls put 1.8 kg per day out at grass. The crude protein and dry matter in the grass is very high. The worm activity and density of the grass is remarkable.



EUROPE

The 2015 CERES Awards winner in the Best German Cereal Producer category uses Bactériosol®



Stefan Krainbring, Ostholstein (North Germany). Works with his wife Bettina and children Phillip, Johannes and Merle. 230 hectare farm, growing wheat, rapeseed and barley

Stefan Krainbring works on his 230 hectares of crops in Ostholstein (North Germany) with his wife Bettina and children Phillip, Johannes and Merle. Many fields are at the foot of Bungsberg (at an altitude of 120 m the highest point in Schleswig-Holstein!). This hilly region has lots of valleys with heavy clayey soil that warms up very slowly in the spring. The fine clay particles trap lots of water and elements making them unavailable for plants. Average yields are 8.5 t/ha for wheat, 3.7 t/ha for rapeseed and 8 t/ha for barley.

" In 2011, my son came home with SOBAC's brochure in his hand. He told me that by using Bactériosol®, it was possible to stop conventional fertilizer, reduce nitrogen, fungicide and insecticide inputs as well as growth regulators without losing yield. In the past few years we had received many product offers that promised a lot but never kept their promises, which had made me very sceptical. However, I invited SOBAC's representative to come and explain more about it. After some discussions, which included the family, in 2012 we decided to try it.

We chose fields that we split into two, to be able to easily compare plots that were sown with Bactériosol®, with those that were not. On the sown plots we followed SOBAC's instructions scrupulously, and the others we treated as we would normally. The first year, we had the same yields, even with a reduction of 40 kg N/ha and no conventional fertilizer. The second year we reduced the quantity of nitrogen by 70 kg/ha and also the intensity of phytosanitary chemicals. The wheat in the traditional area looked greener and stronger all through spring, which made me a bit uneasy. But I was very impressed by the results of the harvest. The wheat in the area sown with Bactériosol® yielded 1.9 t/ha more than the conventional wheat.

With rapeseed, we harvested 0.6 t/ha more, and 1 percentage point more oil. We also produce silage corn for our neighbour who has dairy cows, and we sowed that field with Bactériosol® too. Without a phosphorous starter applied along with the seed, we harvested 5.2 t more fresh material. The farmer who came to pick up the corn told us that it was better quality and had more nutrients than his own corn. This product really does keep its promises.

Since we've been using Bactériosol[®], we've been watching our soil more carefully, the crops develop more fine roots. The crop residues also evolve rapidly. On the control fields, we're finding crop residues from the last three years. On the Bactériosol[®] fields, we're finding only the residues from last year's crop.

Additionally, we observed that the crops in the Bactériosol® fields mature more homogeneously, which makes harvesting easier. We also see a clear difference when working the soil. When the cultivator passes, the clods break up more easily and, when ploughing, the fuel gauge shows a saving of 3 to 4 litres per hour.

"Better prepared for the future"

Using Bactériosol® has allowed us to improve the efficiency of our nitrogen, which is preparing us well for the political restrictions to come and the fertilization reports that will become increasingly strict. But we don't need to worry about exceeding nitrogen and phosphorous limits. These results have convinced us and we have logically decided to use Bactériosol® across the entire farm"

2013 TECHNICAL RESULTS

Rapeseed						
	SOBAC	Control	Difference			
Yield	4.8 t/ha	4.2 t/ha	+14 %			
Oil content	43 %	42%	+ 1 point			
Proceeds	€1,824/ha	€1,596/ha	+14 %			

€/ha	SOBAC	Control
Fertilizer	114	274
Bactériosol®	150	0
Margin/ha excluding other inputs	€1,560/ha	€1,322/ha

	SOBAC	Control	Difference		
Yield	10.1 t/ha	8.2 t/ha	+23 %		
Protein	13.7 %	12.5 %	+ 1.2 point		
Proceeds in €/ha	1,515	1,230	+23 %		



*The CERES Prize recognises exceptional results by German farmers in 11 different categories. The prize offers a publicity platform to highlight the skills and achievements of farmers in Germany in the agricultural field and others.

HUNGARY

"A better manure quality and lower costs"

Gergely : "We have a 1.150 ha farm part of which is "integrated", which means that we partner with producers and help them to buy raw materials as well as sell their produce. We have about 600 Holstein cows plus the renewals, making about 900 cattle. We have realspread only 10 t/ha of manure and it's enough!

This manure with Bacteriolit is not like traditional manure but more like humus.

It's not completely odourless, it smells of soil. It's an enormous advantage for people who live

water lying on the surface in the tractor tracks, even the next day in some places.

With Bactériolit[®], the instructions said you could stop conventional fertilizer, so that's



Gergely Sztupa, Pusztaszabolcs agrár Zrt, Fejér Megyer - 1150 ha of which 700 farmed -Hungarian farmer - 600 dairy cows

Gergely Sztupa, Plant Production Director at Pusztaszabolcs agrár Zrt farm, is now SOBAC's ambassador in Hungary. This farm is situated in a small village 15 km from Velence south of Budapest. ly good mezőségi (Csernozjom) land with 80 % clay and 20 % rather limey soil.

We began using SOBAC products in 2010 with the help of Sersia Farm Kft, which allowed us to discover and get to know the company. We first used Bactériolit[®] in our manure as we produce some 8,000 t/year. We now use SOBAC products on 700 ha.

Before we started using Bactériolit[®], the manure that we spread wasn't very good quality, it had too much straw, and seemed unevolved. SOBAC's Bactériolit[®] allowed us to have better manure that we could use on our soil. They also advised us to reduce the quantities of manure spread per hectare. We normally spread 30 to 40 t manure per ha, and they promised we could obtain the same result with only 20 t/ha. And they were right! Sometimes we can even beside fields and don't complain about smells when we spread the manure !

Our soil seems more balanced, its structure has become lighter.

The first few times, I didn't want to admit that the work was easier, but lots of my employees convinced me. When they walked, the soil seemed to be more crumbly, as if they were walking on a sponge.

To be honest, our seeding ends up more homogeneous and more balanced. Water retention and water management on the fields are better.

Nowadays in Hungary, unfortunately, when it rains it's raining heavily. On the fields with SO-BAC Technologies, the soil drains faster whereas on the untreated soil you can still see the what we did. We no longer use phosphorus, potash or lime where we have manure with Bactériolit[®]. We've noticed that with Bactériolit[®] we have better quality manure and that our costs have reduced by buying less conventional fertilizer. We use this concept on our entire farm. As I said, we have about 8,000 t of manure per year, which isn't sufficient to cover all our land. This is why we also use Bactériosol[®]

SOBAC IN BRIEF

SOBAC GIVES THE FLOOR TO A VALUABLE ASSOCIATION SHE SUPPORTS...



THE ASSOCIATION FOR THE HEALTH OF THE EARTH AND THE LIVING (APSTV) **IS WAITING FOR YOU TO JOIN ITS NETWORK !**

After nearly a year of activity, there are more and more of us in our network. Thank you for believing in this association and advocating its values to farmers and consumers you meet on a daily basis.

Following our general meeting to establish the association "for the health of the earth and the living" in March 2015, we have not stopped expanding our network to promote a new mode of agriculture and food for all. Many ideas had emerged and were set up in 2016. A number of projects are underway and the association needs your help more than ever to achieve them.

The association's website is in place since the first quarter of 2017, giving you the possibility of talking about your experience, your products and your services with other members and thereby guaranteeing the reliability of those offers and their provenance. The website will be a true platform providing technical support as well as visibility to your production methods and terms of sale.

A directory of members, selling their products directly will be viewable on the website, identifying farmers produce and their approach.

The association has taken into account the request made at our first general meeting, to promote farmers using Marcel Mézy® Technologies, highlighting their action to fight against climate change and to act for healthier food for the end consumers. Accordingly, the association is now also part of discussion groups to promote carbon sequestration in soil and works towards collaboration with scientists on quantifying such sequestration. The process is still long away from assigning credits but the association seems more than ever on the right track.

Also, the association's membership in the agriculture climate club of I4CE (Institut de recherche en économie du climat / Climate economics research institute), the signing of the 4 for 1,000 charter (in first quarter 2017) and the formation of a science committee are all signs that the association is following the requests of its members in terms of the environmental valuation of their practices.

Similarly, our association has not ceased wanting to meet you in the field, to swap ideas and discuss, and will be organising presentation meetings this year directly at farmer member locations, as it is by exchanging ideas and sharing that the association lives. You will find information about these meetings on our website and on the various social networks to which we belong.

Eventually, we want to say that the general context of French agriculture is in perpetual change, and our values and goals are regularly highlighted in the media.

A growing desire by consumers and farmers to get to know each other, to structure and work together, is emerging and we have to be one of the spearheads of this change.

Belonging to the association also means saying NO to modes of supply and consumption that are imposed on us by the agrifood and chemical industries.

For it is also this vision that hopes to share with you, the association, sustainable agriculture that is economically viable and productive in the service of all, farmers and consumers alike.

The association now has over 400 members and hopes to attract other farmers, citizens and consumers to its approach.

If these values mean something to you, and because in union lies strength, don't hesitate to join us!

Website: www.sante-terre-vivant.fr Facebook: https://www.facebook.com/ associationsanteterrevivant/ Twitter: https://twitter.com/AssoPSTV



Association «Pour la Santé de la Terre et du Vivant» At Mathieu CAUSSE – Merlet - 12340 BOZOULS - FRANCE Tel.: +33 (0)6.80.21.88.61

Orne.

Marcel Mézy at COP22 as part of the "4 FOR 1,000" program

On the occasion of COP22 in Marrakesh, Marcel Mézy and his team participated in the program "4 for 1,000, the soil, for food security and climate" initiated by the French Minister of Agriculture, Stéphane Le Foll. The purpose of this program, in conjunction with the international community, is to reduce atmospheric carbon dioxide by storing it in soil.

It is on this occasion that Marcel Mézy and his team had the pleasure of meeting and talking with Stéphane Le Foll who showed lively interest in Bactériosol® Bactériolit[®] Technologies

15 new recruits in January 2017 for stronger presence in the field

In 2016, 13 technical/sales rep came to swell the ranks of SOBAC. For 2017, 12 more technical/sales rep joined us in early January. They are Henri Clément de Givry, Justine Déloge, Margaux Galera, Laura Gehant, Marion Gonny, Stéphanie Gonzalez, Olivier Henrion, Yohann Le

Henaff, Jean-Michel Princen, Louise Rubio, Corinne Vialle and Alice Vélu. They are completing our teams and work with farmers in Brittany, Gironde, Vienne, Ain, Drôme, Gard, Alpes-de-Haute-Provence, Hautes-Alpes, Vaucluse, Aube, Vosges, Haut-Rhin, Ardennes, Loir-et-Cher, and

25 new hires in 12 months, is the best way of continuing to be recognised. It's also true that it's nice to be able to employ more people in these somewhat difficult times, an occasion too for thanking you for your trust and loyalty



Find SOBAC and Marcel Mézy[®] Technologies at http://4p1000.org/



Marcel Mézy (left), Stéphane le Foll and Pauline Blanquet (engineer at Mézagri) (right), at COP22 in Marrakesh

SPREADER SETTINGS



You can download your matrix of spreader settings from our website www.sobac.fr for the models AMAZONE, KUHN, BOGBALLE ...

If you'd like more information, or if you don't have an internet connection, don't hesitate to contact us