from the plant for the plant

30 years research and development

7 mio. ha worldwide

Most development processes in plants are triggered and regulated by "**messengers**" – these are substances that are effective in very small amounts. These messengers have as well an outstanding importance in the reaction chain of plants, signalizing environmental change and climatic influences. They occur in large numbers and have specific functions. In their entirety, these messenger substances form a kind of chemical language for plants.

rootac® was developed to strengthen the growth of agricultural crops and to protect yields against stress factors. Such stress factors are, for example, drought, heat or cold, but above all the necessary plant protection measures. It is a matter of activating the plant's own defence mechanisms, like a vaccination.

At the same time, **rootac®** promotes the soil organisms and ensures more activity. Worldwide, **rootac®** is used annually on more than 7 million hectares in the cultivation of cereals, corn, legumes, vegetables and fruit as well as in special crops.

rootac®

promotes high performance and quality through:

- activation of plant health (higher stress tolerance e. g. when using herbicides)
- stimulation of root and plant growth (increases the absorption capacity of water and nutrients)
- intensified flower formation
- stimulation of metabolic processes
- higher sugar and starch content
- regular gradation, uniformity of the fruits
- longer shelf life of perishable products such as vegetables and fruits

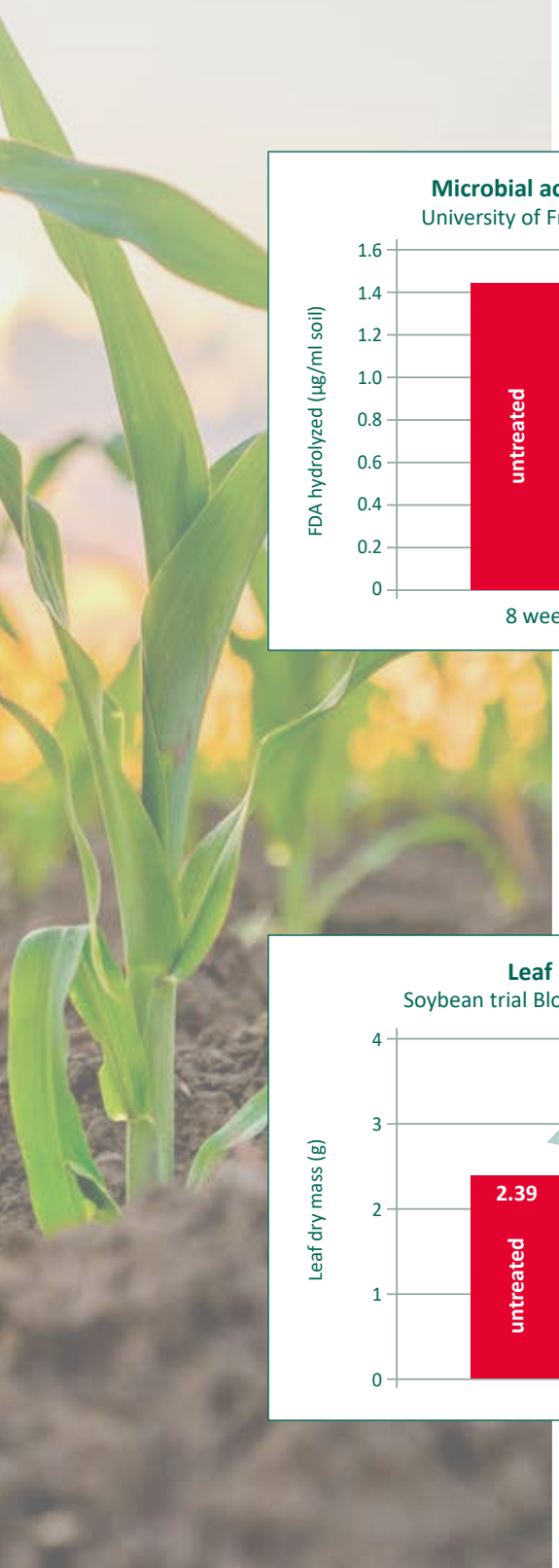
Natural and sustainable

rootac® is a pure, standardised and patented plant strengthener made from natural, plant-based active ingredients whose mechanism of action has been scientifically proven. The plant absorbs the active ingredients through the leaves and soil. The application rates are very low, e. g. 100 g per ha are applied by sprayer.

It has the great advantage, that it is **not under the Fertiliser Regulation**.

Included in the list of plant strengtheners at the Federal Office of Consumer Protection and and Food Safety (BVL Germany 00A473-00/00).

FiBL-listed, listed as suitable for organic farming in Germany on the list of operating resources published by FiBL (= Research Institute of Organic Agriculture in Germany)



Simple application – less effort

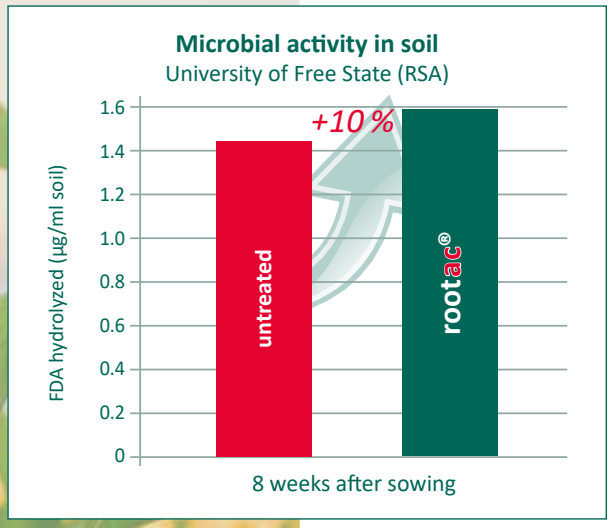
The application can be can be carried out together with sprinkling, liquid fertilisers or phytosanitary measures and therefore requires no additional work.

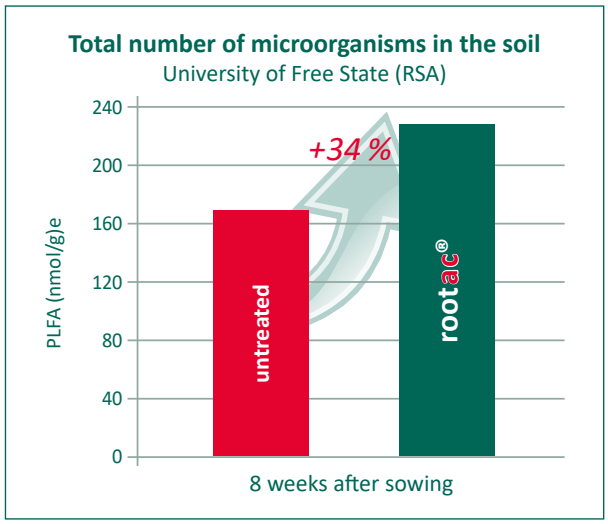
Test results – practical examples

rootac® is a tested product. Various trials in different crops prove that **rootac®** has a positive effect on root development, leaf growth and soil life.

rootac® in wheat (University of Free State, RSA)

In this trial **rootac®** was added to the irrigation. After 8 weeks, the number of soil bacteria and their microbial activity were examined. The greater the activity of the soil bacteria, the better / more intensively the plant can be supplied with nutrients.

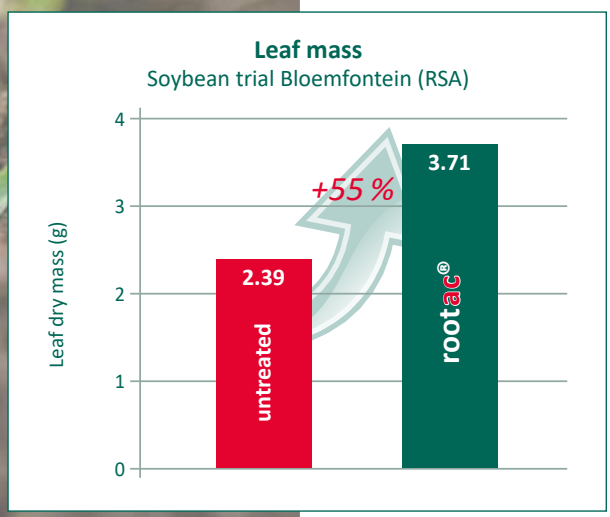


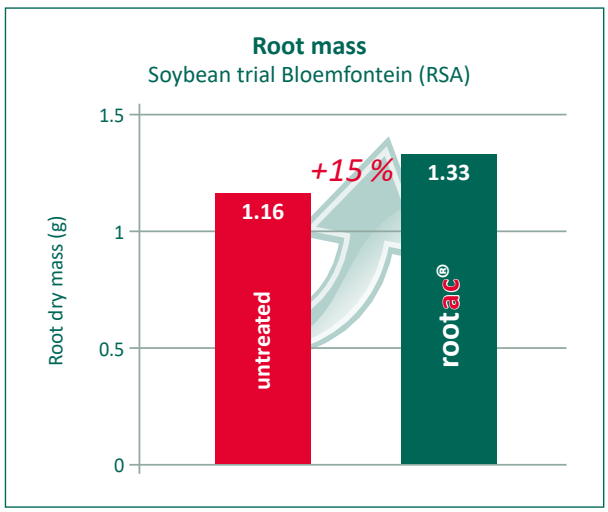


Good soil health has a positive effect not only in the current crop, but also in the following crop!

rootac® in soybeans (Bloemfontein, RSA)

The use of **rootac®** in soybeans led to a significant increase in leaf and root mass.





Increase plant and root mass

without rootac®

with rootac®

without rootac® with rootac®

Packaging

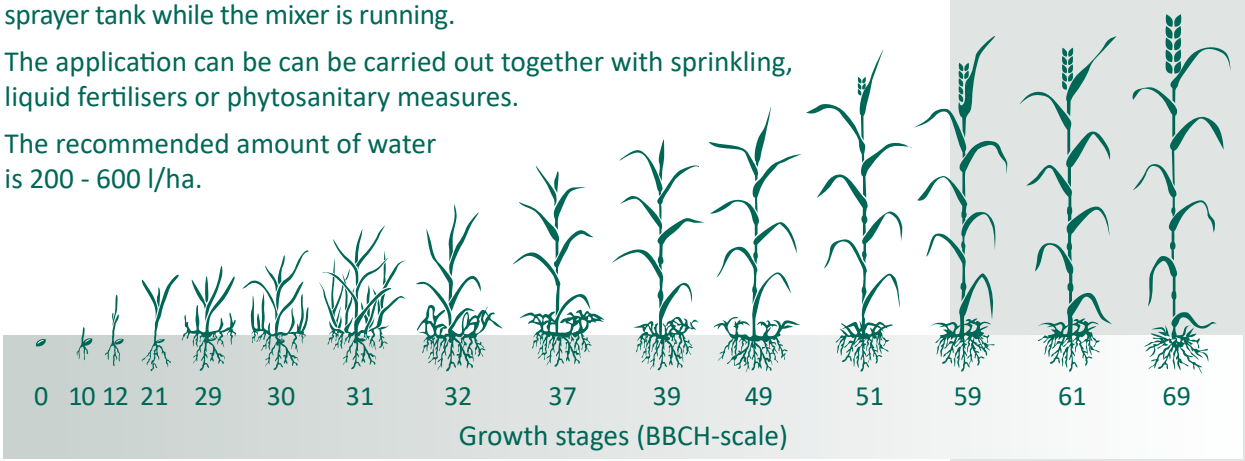
Aluminium bag 1 kg

Application and dosage

Add the recommended amount of **rootac®** in approx. 5 l water in a suitable bucket. After the field sprayer is half filled, the premix can be given into the sprayer tank while the mixer is running.

The application can be can be carried out together with sprinkling, liquid fertilisers or phytosanitary measures.

The recommended amount of water is 200 - 600 l/ha.



Cereals, legumes, beet and potatoes

Crop	Appli-cation	BBCH	Growth stage	Application rate	
Corn	1	13 - 18	3 - 8 leaf stage	50	g/ha
Cereals	1	13 - 18	3 - 8 leaf stage	100	g/ha
	2*	30	start to run to seed	100	g/ha
Oilseed rape	1	13 - 18	3 - 8 leaf stage	100	g/ha
	2	50	main inflorescence already present, still tightly enclosed by the upper leaves	100	g/ha
Sunflower	1	13 - 18	3 - 8 foliage leaf unfolded	100	g/ha
	2	51	inflorescence bud just visible between young leaves (star stage)	100	g/ha
Legumes	1	13 - 18	3 - 8 foliage leaf unfolded	100	g/ha
	2		flower buds present but enclosed by leaves	100	g/ha
Sugar beet	1	13 - 15	3 - 5 leaf stage	100	g/ha
	2	33	beginning of stand closure: 10 % of the plant nearby rows touching each other	100	g/ha
Potatoes	1	13 - 15	3 - 5 foliage leaf unfolded	100	g/ha
	2	51	buds of 1st flowering plant (main sprout) visible (1 - 2 mm)	100	g/ha
	3*		3 - 4 weeks later	100	g/ha
Grass	1		at the beginning of vegetation	100	g/ha
	2 - 5*		each time after the cutting	100	g/ha

*optional applications

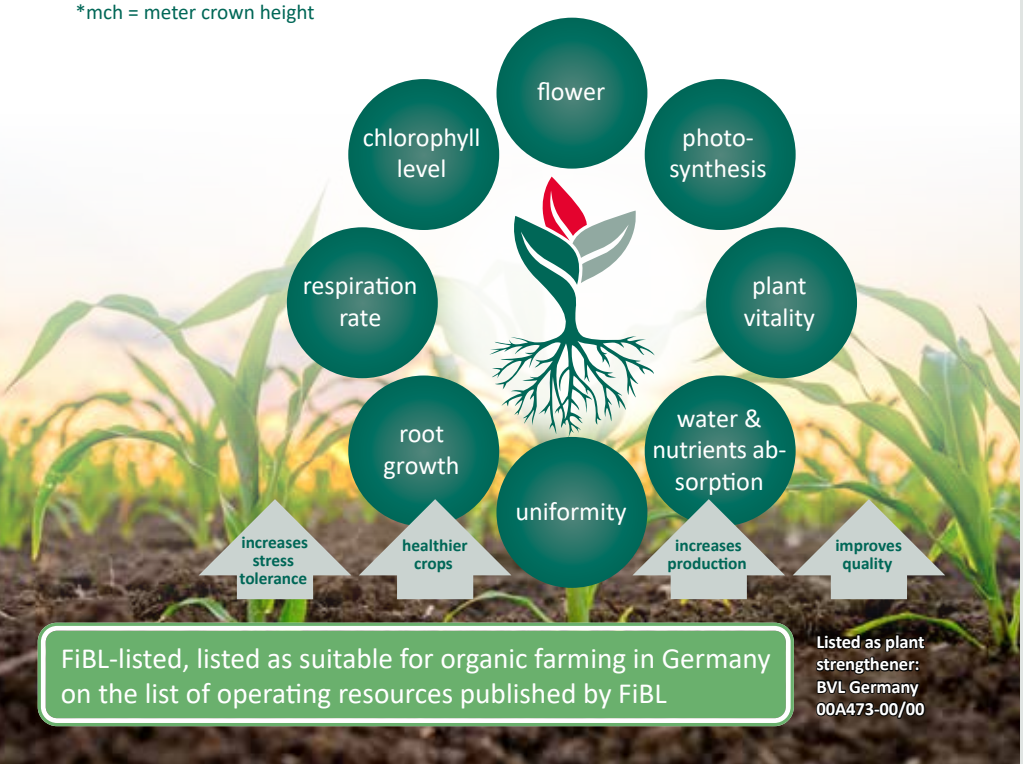
Vegetable farming

Crop	Appli-cation	BBCH	Growth stage	Application rate	
Onion	1	13 - 18	3 - 5 foliage leaf (> 3 cm) clearly visible	200	g/ha
	2	40 - 41	30 % of expected onion or stem diameter reached	200	g/ha
Bean, pea	1	13 - 15	3 - 5 leaf stage	100	g/ha
	2	51	first flower buds are visible	100	g/ha
Carrot, kohlrabi	1	13 - 15	3rd foliage leaf unfolded / after planting	200	g/ha
	2	33	30 % of the expected beet, root or tuber diameter reached	200	g/ha
Cabbage	1	13 - 15	3rd foliage leaf unfolded / after planting	100	g/ha
	2	33	30 % of the expected head diameter reached	100	g/ha
Leaf vegetable *spinach, lamb´s lettuce*	1	13 - 15	flower buds present but covered by leaves	100	g/ha
	2	33	3 - 5 leaf stage	100	g/ha
Leaf vegetable (head forming) *salat, cabbage*	1	13 - 15	3rd foliage leaf unfolded / after planting	100	g/ha
	2	43	30 % of the expected head diameter reached	100	g/ha
Tomato, cucumber	1		after planting	200	g/ha
	2	51	start of flowering plant development	100	g/ha
	3		every 4 - 6 weeks	100	g/ha
	4		every 4 - 6 weeks	100	g/ha

Fruit growing

Crop	Appli-cation	BBCH	Growth stage	Application rate	
Pome fruit *apple, pear*	1	11 - 15	first leaves	100	g/ha/mch*
	2	70 - 73	fruits start to grow	100	g/ha/mch
	3		around 4 weeks after second application	100	g/ha/mch
Stone fruit *cherry, plum, peach, apricot*	1		outgoing flower: majority of petals fallen off	100	g/ha/mch
	2		ovary enlarged	100	g/ha/mch
Grapes	1	11 - 13	1 - 3 leaf stage	100	g/ha/mch
	2	73 - 75	berries are shot to pea size	100	g/ha/mch
	3		around 4 weeks after second application	100	g/ha/mch
Strawberry	1	13 - 15	3 - 5 foliage leaf unfolded	100	g/ha
			altenative: after planting		
	2	55	first flowering plants become visible at the base of the rosette	100	g/ha
Berry (currant, rasp-berry, blueberry)	1	13 - 19	foliage leaves have unfolded, but have not yet reached their final size, first leaves have reached the typical size for the variety – until bud clusters	100	g/ha/mch
	2	71	fruit growth starts	100	g/ha/mch

*mch = meter crown height



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Listed as plant strengthener: BVL Germany 00A473-00/00

rootac®

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