



# DSV TerraLife® 2022

Species-rich greening systems

Focus on  
N mobilisation



Innovation for  
your growth

[www.dsv-seeds.com](http://www.dsv-seeds.com)





# How TerraLife® works - focus on N mobilisation

TerraLife® with its species-rich catch crop mixtures offers solutions for the greening of arable land for the whole year. Cover crops and companion crops provide real practice cultivation concepts to ensure the yield capacity of your soils even under difficult climatic conditions.

## MORE SOIL LIFE

Species-rich TerraLife® greening systems result in a significant higher microbial activity in the soil.



## INCREASED HUMIFICATION

Species-rich TerraLife® greening systems with their large root mass have a significantly greater influence on the humification than straw or mustard for example.



## IMPROVED NUTRIENT AVAILABILITY

Species-rich TerraLife® greening systems mobilise nutrients in the soil and make them available to plants.



## HIGH-QUALITY YIELDS

Species-rich TerraLife® greening systems create a green connection between two main crops and can improve the usable ingredients of the harvest.



Mixture	Crop rotation suitability					Sowing time		
	Oilseed rape	Legumes	Potatoes	Sugar beets	Cereals Maize	Early sowing*	Medium sowing*	Late sowing*
WarmSeason		•		•	...			
SolaRigol	...		...	..	...			
SolaRigol DT	•		..		...			
BetaSola			...	...	...			
MaizePro DT	•				...			
AquaPro	...	...		...	...			
N-Fixx	..			..	...			
BetaMaxx	...			...	...			
BetaMaxx DT	•			..	...			
Rigol DT	•				...			
VitaMaxx DT		...			...			
ForageRooter	...		..	..	...			

DT = Radish Deeptill W=Winter hardy • Suitable, but respect crop rotation diseases .. Suitable ... Ideally suitable  
This is just an excerpt of most important TerraLife® mixtures; please find the full TerraLife® portfolio on our website [www.dsv-seeds.com](http://www.dsv-seeds.com)  
\*in warm temperate climate zones like in Central Europe

## The interactive combination with the main crop: Companion cropping

Benefits:

- Stabilisation of the soil structure
- Increase of the photosynthetic active leaf area
- Improvement of the nutrient dynamics
- Optimum nutrition of the microbiom



### TerraLife®-BrassicaPro

The companion cropping mixture for oilseed rape experts

The varied plant community ensures that the soil life is fed in a more varied way, without competing with the main crop. The high proportion of legumes has a positive effect on the C/N ratio. BrassicaPro can be also used as a legume-heavy cover crop mixture in oilseed rape crop rotations, for example.

Composition	serradella, linseed, blue lupin, egyptian clover, persian clover, niger
Sowing rate	15–20 kg/ha

TerraLife® organic mixtures can be found at: [www.dsv-seeds.com](http://www.dsv-seeds.com)



TerraLife®-WarmSeason

It's time for growth

WarmSeason is ideal for early sowings in warm temperate climate zones. E. g. after an early harvest of cereals or whole crop silage. The especially matched components tolerate very warm conditions well and have a long vegetative period, which reduces the risk of volunteer seeds. The early sowing additionally triggers a strong root establishment and a maximum of photo-synthesis activity. This positively effects the excretion of exsudates.

Composition	niger, egyptian clover, linseed, abyssinian cabbage, sorghum, common vetch, safflower
Sowing rate	25–30 kg/ha

TerraLife®-SolaRigol Available as DT mixture

The cover crop mix for potato crop rotations

SolaRigol is a balanced mix specially adjusted for potato cultivation, which shades the ground well, ensures intensive root penetration and increases biodiversity. The soil structure is perfectly prepared for ridge culture and erosion within the ridges can be reduced. Additionally, blue lupins reduce infestations of tobacco rattle virus in potato better than any other species.

Composition	niger, egyptian clover, linseed, bristle oat, bitter lupin,common vetch, serradella, persian clover, field pea
Sowing rate	55–60 kg/ha; SolaRigol DT: 30–35 kg/ha

TerraLife®-BetaSola

The nematode-reducing mix for sugar beets and potato cultivation

The species richness of BetaSola ensures good soil structure and thereby differs considerably from the cultivation of a single nematode-resistant monocrop. The combination of species has a wide spectrum of activity. In this way, the various nematode-resistant oil radish varieties help to reduce beet nematodes (*Heterodera schachtii*) and Trichodorus. Furthermore, multi-resistant oil radish is resistant to root-knot nematodes. The mix partner bristle oat also reduces soil nematodes (*Pratylenchus*).

Composition	oil radish cat. 1 and 2, bristle oat, egyptian clover, niger, common vetch
Sowing rate	35–40 kg/ha

TerraLife®-MaizePro DT

Balanced, partly hardy cover crop for maize crop rotations

MaizePro DT selectively supports the formation of mycorrhiza and improves the soil structure. The intensive root penetration creates new root channels, which help the maize particularly during periods of drought. The hardy components guarantee erosion protection right into spring. After a successful cover crop, the soil only requires working to a depth of the soil horizon receiving the maize seed. In this way, the capillarity is maintained, ensuring water availability for germination.

Composition	linseed, phacelia, niger, rye, abyssinian cabbage, deep-rooted radish, persian clover, common vetch, sorghum, crimson clover, winter vetch, field pea, safflower, sunflower, white clover
Sowing rate	40–45 kg/ha

TerraLife®-AquaPro

For water protection areas and oilseed rape rotations

The legume- and crucifer-free mix AquaPro was developed specifically for water protection areas. It protects mineralised nitrogen from leaching. Species like niger or phacelia produce lots of biomass, shade the soil well and thus have a very good weed suppression. Additionally, AquaPro offers very good erosion protection and improves the soil biology.

Composition	phacelia, niger, linseed, bristle oat, sorghum, sunflower, safflower
Sowing rate	25–30 kg/ha



TerraLife®-N-Fixx

Rapid soil coverage and nitrogen fixation

N-Fixx is a perfectly balanced all-round mix. It contains more than 80 % legumes and is therefore an ideal mixture to raise the soil nitrogen content. It is excellent for winter grain crop rotations and freezes off reliably. Furthermore, it leaves very good soil tilth, creates humus and contributes to the health and vitalisation of heavily used soils. The subsequently released nitrogen must be considered during N-fertilisation of the follow-on crop.

Composition	egyptian clover, serradella, phacelia, linseed, persian clover, common vetch, field pea, niger, sunflower, sorghum, safflower
Sowing rate	40–45 kg/ha

TerraLife®-BetaMaxx Available as DT mixture

The cover crop mix for sugar beet cultivation

BetaMaxx creates the ideal preconditions for successful sugar beet cultivation. The mix includes deep-rooting species, that create deep channels allowing an easy root penetration for the following beets. This helps the beets to overcome dry periods. BetaMaxx allows beet cultivation per reduced tillage or no-till management. BetaMaxx is unsuitable for the biological control of *Heterodera schachtii*.

Composition	egyptian clover, niger, phacelia, linseed, bristle oat, serradella, common vetch, bitter lupin, field pea
Sowing rate	40–45 kg/ha; BetaMaxx DT: 30–35 kg/ha

TerraLife®-Rigol DT

Strong root formation stabilises the soil structure

The cover crop mix Rigol DT is extremely effective in penetrating compacted soils. Numerous root channels are formed, which can be used by the follow-on crop to rapidly reach rooting depth. At the same time, Rigol DT ensures good soil shade and above-ground biomass production.

Composition	linseed, phacelia, false flax, niger, abyssinian cabbage, bristle oat, egyptian clover, buckwheat, deep-rooted radish, common vetch, sunflower
Sowing rate	20–22 kg/ha

TerraLife®-VitaMaxx DT

Fast growing mix for intensive livestock farms

VitaMaxx DT is a fast-growing, legume-free cover crop mix and is therefore very suitable for use in water protection areas. The mix produces plenty of biomass, which serves as a long-term food source for earthworms and other soil inhabitants and preserves the nutrients over winter. Due to fast growing species the mixture is suitable for late sowing dates. This mixture can also be broadcasted.

Composition	phacelia, false flax, bristle oat, buckwheat, white mustard, linseed, niger, deep-rooted radish, abyssinian cabbage
Sowing rate	20–25 kg/ha

TerraLife®-ForageRooter

A high-yielding classic

ForageRooter (Landsberger Mix) provides large quantities of fresh and dry matter with excellent feed value and good root structure. It has an aboveaverage capacity for humus reproduction and leaves the soil in excellent condition. The biomass can be mown, used as fresh feed, ensiled or left as a mulching cover crop.

Composition	italian ryegrass, crimson clover, winter vetch
Sowing rate	50 kg/ha

Composition can differ, depending on the legal framework within different countries or availabilities of single components. DT = Radish Deeptill

\* see page 6



## TerraLife® mixes – optimised blends for boosted nutrient supplies

DSV Professional article

The mobilisation of more nitrogen and other nutrients from natural sources is more important today than it has been in the past. After all, fertiliser costs are high and the use of mineral fertilisers is being restricted by national governments. This situation has led to a renaissance of break crops which are natural sources of nutrients – provided they are blended well and grown properly. This said, species-rich blends of break crops are more beneficial than single-species crops, because mixes combine the benefits of the individual species for achieving optimum results.

### The potential of mobilising more nitrogen

Species-rich TerraLife® mixes are mostly made up of various legumes such as peas, vetches and clovers the nodule bacteria of which are able to fix nitrogen from the ambient air. Other species in the mixes, such as Phacelia or Guizotia abyssinica, can extract excessive nitrogen from the soil and capture it for the benefit of the following crop. In ideal conditions, i.e. in well-established and well-developed stands, growers can budget the following nitrogen rates in their nitrogen management for the following crop:

#### TerraLife® mixes and their potential of mobilising N

N supply to the following crop	Example mix
20–30 kg N/ha	Rigol TR
40–60 kg N/ha	MaisPro TR Greening 30
60–80 kg N/ha	MaisPro TR Greening 50
60–100 kg N/ha	N-Fixx

As a guideline, a TerraLife® mix can provide an estimated 10kg N/ha per 10cm of covered ground. Yet it takes an ideal stand to mobilise high levels of N. This in turn is down to proper sowing and proper volunteer management.

### A low C:N ratio means more nitrogen is available at the right time

The mineralisation of nutrients depends on a number of factors including the type of break crops used – winter hardy or not, for example – and also on the tillage system and the soil type. Another factor is the C:N ratio, i.e. the balance of carbon and nitrogen in the biomass. The smaller this ratio (i.e. the smaller the figure), the sooner is nitrogen made available to the following crop.

Well-developed break crops such as mustard, Phacelia or oil radish can be rich in lignin; and high levels of lignin mean high C levels (approx. > 30:1). Under certain conditions, soil-based nitrogen can even be immobilised. This is the case when decomposers – soil organisms that break down organic matter – require extra nitrogen for their decomposing activity which is then no longer available to the main crop.

TerraLife® mixes are blended to provide C:N ratios of about 12:1, i.e. relatively low C ratios which are similar to those of the microorganisms (approx. 7:1) and the soil (approx. 10:1) (Magdoff, Harold, 2009). The mineralisation and the release of nitrogen from TerraLife® mixes into the soil therefore don't take place immediately but slowly and consistently to the benefit of the following crop. It is this aspect that makes this way of supplying N extremely efficient.

### N potential

### A good root system ensures ready access to nutrients

TerraLife® mixes develop rich root systems which have been proven to lead to increased microbial activity (Gentsch et al., 2018). This in turn makes the nutrients more readily accessible to the plants and increases the soil's capacity to store nutrients. As the soil structure improves, the main crop can tap more easily into the root space and access the nutrients more easily.

Nutrients that are supplied by a previous crop such as a TerraLife® mix are readily available at the roots, so exactly where the plant needs them.



The CATCHY break crop project was initiated by BMBF 2010. Over nine years, the project explored two different crop rotations, researching into the effects of break crops on the soil and on soil biology and consequently on the yield levels of the main crops.



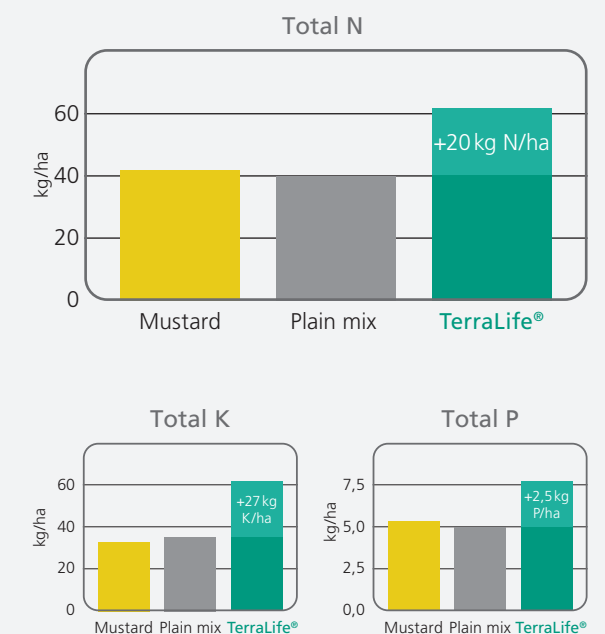
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### Species-rich mixes mobilise more nutrients

Results from the CATCHY research project show that the availability of nutrients for the main crop increases by growing species-rich break crops. The species-rich TerraLife®-MaisPro DT Greening mix is able to supply 60kg N/ha. Growers, especially those who farm sites in water protection areas, can harness this effect and thus close gaps in the supply of nutrients.

Unlike straight mustard or less complex mixes that consist of only four species, the TerraLife® mix provides 20g N/ha extra (60kg N/ha in total). The same applies to the essential nutrients potassium (+ 27kg/ha) and phosphorus (+ 2.5kg/ha) in comparison with monocrops or plain mixes.

The nutrient potential of our soils is becoming more and more important: Growers must make more efficient use of soil-based nutrients and mobilise them for the main crops. Especially soils that are rated D or E in terms of nutrient levels require a nutrient management that is based on such natural sources.



Source: Gentsch et al., 2018





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