

viterrra® programme 2016



Cover crop blends.

**viterrra®.** The best mixtures for  
healthy soils and high yields.

[www.saaten-union.de](http://www.saaten-union.de)  
[www.viterrra-mischung.de](http://www.viterrra-mischung.de)

**SAATEN  
UNION**  
Züchtung ist Zukunft



## Catch crops from a top breeder.

**P. H. PETERSEN is the market leader for cover crops and the specialist for biological nematode control in Europe. Varieties proven in the field and exceptional seed quality are the highest priority.**

P. H. PETERSEN is constantly breeding new varieties, meeting the current requirements of modern agriculture which are aligned with practice-orientated demands.

Many years of breeding experience and proven varieties are combined with modern methods and up-to-date research results.

Our broad breeding programme covers both classical cover crops such as White mustard, Oil radish and Phacelia as well as Green fodder rye and cereals, grasses, legumes and clover species plus fodder rape, fodder kale, swede turnip and special cultures such as Saia oat or sticky nightshade.

Particular emphasis is placed on breeding nematode- and multi-resistant varieties. These contribute considerably to the yield and quality assurance of the main crop and can offer environmentally-friendly solutions.



Seed production takes place under constant quality control. State-of-the-art cleaning and treatment plants, as well as high-performance packaging systems guarantee that only seeds exceeding the legal standard in extra-quality reach dispatch.

More information at:  
[www.phpetersen.com](http://www.phpetersen.com)  
[www.viterra-mischung.de](http://www.viterra-mischung.de)



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## Powerful mixtures.

**Soil fertility is the basis for good and profitable arable farming!**

To achieve long-term high and stable yields, it is important to maintain the soil appropriately for the crop rotation and to promote soil fertility. In the viterra® programme, tried and tested catch crop varieties are combined appropriately in intelligent mixtures for the respective crop rotation. This results in a multitude of benefits for farmers in the widest range of application areas.

- ▶ **The viterra® cover crop mixtures are made up of professionally and practically-oriented components selected for different areas of use.**
- ▶ **In Germany recommended mixtures for arable farming are of high technical purity and consist entirely of certified seed.**

The viterra cover crop programme is constantly expanding and being updated. The individual mixtures are further developed and optimised taking into consideration the numerous practical results.



## The viterra® cover crop programme

**Our mixtures are grouped according to the following uses:**

The **viterra® soil fertility mixtures** contribute to humus formation and improve soil fertility. They promote root penetration and offer protection against erosion. Nitrogen and other nutrients are bound over winter and remain available in the top layers near the roots.

The **viterra® biomass mixtures** are suitable for biomass production for, biogas plants or cattle feed. Spring cereal mixtures are cultivated as a second crop after early ripening cereal species. Winter-hard mixtures can provide biomass as a catch crop or main crop.

The **viterra® special mixtures** are suitable for special applications like, greening of field verges or biofumigation.

Further mixtures for biological cultivation and for use as hunting and wildlife mixtures are being prepared. You can find additional information in the internet at [www.viterra-mischung.de](http://www.viterra-mischung.de)

### Common Agriculture Policy (CAP)

Since 2015 the direct payments for farmers within Europe are linked with compulsory "greening practices". The greening payment includes 30 % of the national ceiling and can be complied with the following three basic practices.

1. Crop diversification
2. Maintenance of permanent grassland
3. Ecological Focus Area (EFA)

The EFA has to be established on 5 % of the arable land. The member states decide what action of the basic act can be considered as EFA in the respective country. Many countries (e.g. Czech Republic, Denmark, England, France, Germany, Netherlands, Poland ...) enable the compliance of the EFA with growing cover crops. The regulations have to be considered when growing cover crops differ also between the countries.



# Sowing and use at a glance.



Mixture		Speciality	Components abbreviated	Suitable for crop rotations with						Sowing density	Sowing period								Greening**	Page
				Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures		Mar	Apr	May	Jun	Jul	Aug	Sept	Oct		
Soil fertility mixtures	INTENSIV	Health mixture	HS, OR	+	+	+	+	++	++	40 - 50 kg/ha									G	10
	RÜBE	Professional against nematodes	OR, SF	+	+		++			25 kg/ha									G	11
	TRIO	Frost-sensitive mixture with clover	OR, AKL, PHA	+	+	+	++			20 - 25 kg/ha									G	12
	MULCH	Frost-sensitive mixture without clover	OR, HS	++	+	+	+	+	+	40 - 50 kg/ha									G	13
	MAIS <div>NEW</div>	Fast-growing mixture without legumes	OR, HS, PHA, SOL	++	+	+				25 kg/ha									G	14
	SCHNELLGRÜN	Late sowing compatible	SF, SFB, AKL	++	+					15 kg/ha									G	15
	UNIVERSAL WINTER	Crucifer-free, winter-green	HS, WV, PHA	++	+	+				25 - 45 kg/ha									G	16
	UNIVERSAL	Crucifer-free, early-growing	HS, AKL, PHA	+	+	++	+			25 kg/ha									G	17
	BODENGARE	Legume-rich, crucifer-free	LUB, WIS, HS, AKL, PKL, PHA, SOL	++	+	++	+			50 kg/ha									G	18
	RAPS <div>NEW</div>	Frost-sensitive mixture without crucifers	PHA, LN, PKL, AKL	+	+	++	+			15 kg/ha									G	19
Biomass mixtures	GRANOPUR	Summer sowing, Whole-crop harvesting before winter	TIS, RS, HS, HA	++	++	+	+	+		135 - 150 kg/ha										20
	GRANOLEG		TIS, RS, HA, WIS, HS	++	++	+	+			135 - 150 kg/ha										21
	PROTOVID	Winter-hardy mixture for whole-crop silage use before and after winter	RS, RW (P)	+	+	+	+			135 - 150 kg/ha										22
	WICKROGGEN	Winter-hardy mixture for whole-crop silage, use in spring	RW (P), WIW	++	+	+	+			100 kg/ha										23
	WICKROGGEN TURBO	Further raise the dry matter yield with Hybrid rye	RW (H), RW (P), WIW	++	+	+	+			100 kg/ha										24
	PROTECT	Late sowing compatible and over-winters, possible use in spring	RW (P), WV	++	+	++	+	+		50 kg/ha *(100-130 kg/ha)										25
	PROTECT plus Rübsen	Late sowing compatible and winter-hardy with crucifers	RW (P), WV, RUW	++	++		+	+		50 kg/ha										26
	LUNDSGAARDER GEMENGE	Winter-hardy, suitable for greening with possible use as feed	WV, IKL, WIW, EF	++	++	++	+			50 kg/ha									G	27
Special mixtures	UNTERSAAT <div>NEW</div>	For sustainable maize cultivation	WV, WD	+						10–15 kg/ha									G	28
	MULTIKULTI	Flowing mixture	LUB, WIS, SOL, PHA, PKL, AKL, LN, OR, SF, SD	+	+		+			25 kg/ha									G	29
	BIOFUMIGATION	For biofumigation	OR, SFB					+	++	15 kg/ha										30
	HORRIDO	Biennial wild arable mixture	BW, HA, AKL, PKL, SOL, LN, WV, PHA, u. w.	+	+					30 kg/ha									G	31
	RANDSTREIFEN	The field verge mixture	BW, IKL, PHA, WD, RKL, ROT, LUZ	for green-covering						25 kg/ha									32	
	BLÜHZAUBER	The flower meadow	over 40 flowering species	Not recommended for arable farming						5-7 g/m²										33

AKL Berseem clover, BW Buckwheat, EF Field pea /Winter field pea, HA Oat, HS Saia oat/Bristle oat, IKL Crimson clover, LN Flax, LUB Blue lupine, LUZ Lucerne OR Oil radish, PHA Phacelia, PKL Persian clover, RKL Red clover, ROT Red fescue, RS Spring rye, RUW Winter fodder beet, RW (H) Hybrid winter rye, RW (P) Populationwinter rye, SD Serradella, SFB Indian mustard, SF White mustard, SOL Sunflower, TIS Spring triticale, WD Perennial ryegrass, WIS Common vetch, WIW Winter vetch, WV Italian ryegrass

- + suitable for appropriate crop rotations,
- ++ particularly suitable and recommended for specific crop rotations,
- G greening compatible in Germany (as of March 2016)
- \* With biomass usage
- \*\* Greening compatible in Germany

## Our recommendation for your crop rotation

### In a sugar-beet crop rotation:

#### **viterra® RÜBE ... professional against nematodes**

Over 160 nematode-resistant Oil radish and White mustard plants / m<sup>2</sup> allow effective control of beet cyst nematodes in intensive sugar-beet cultivation. *Details on page 11.*

#### **viterra® TRIO ... frost-sensitive mixture with clover**

viterra® TRIO is characterised predominantly by rapid initial development and intensive root penetration of the soil. The mixture, which does not allow proliferation of beet cyst nematodes or clubroot in the catch crop, is also very suitable for mulch sowing beets due to its easily freezing-off components. *Details on page 12.*

### In a potato crop rotation:

#### **viterra® INTENSIV ... the health mixture**

viterra® INTENSIV, a mixture of the multi-resistant Oil radish DEFENDER and Saia oat PRATEX, is the specialist in terms of fighting free-living and migratory nematodes and for the reduction of viral corky ring spot. *Details on page 10.*

### In an oilseed rape and cereal crop rotation:

#### **viterra® UNIVERSAL ... crucifera-free**

Without crucifers and with drought stress-tolerant individual species, viterra® UNIVERSAL is ideally suited for oilseed rape crop rotations and for poor sites. *Details on page 17.*

#### **viterra® BODENGARE**

##### **... legume-rich for greater soil fertility**

With the aim of improving soil regeneration, viterra® BODENGARE improves soil fertility and the numerous legumes collect nitrogen. *Details on page 18.*

#### **viterra® RAPS**

##### **... frost-sensitive mixture without crucifers**

The undemanding mixture of Phacelia, Oil flax, Persian and Berseem clover is ideal for cereals and oilseed rape crop rotations. *Details on page 19.*

### In a maize crop rotation:

#### **viterra® MAIS ... fast growing mixture without legumes**

The combination of deep and shallow roots ensures intensive root penetration and excellent soil preparation for the maize. *Details on page 14.*

#### **viterra® MULCH ... frost-sensitive mixture without clover**

Very well suited for direct and mulch sowing techniques before maize, viterra® MULCH prepares the deep root formation of the maize. *Details on page 13.*

#### **viterra® SCHNELLGRÜN ... late sowing compatible**

Thanks to the particularly fast-growing and not winter-hardy components, viterra® SCHNELLGRÜN is suitable both as a cover crop before maize and after an early maize harvest. *Details on page 15.*

#### **viterra® UNIVERSAL WINTER ... crucifer-free and evergreen**

The Italian ryegrass in the viterra® UNIVERSAL WINTER makes this mixture an evergreen cover crop with the highest level of erosion protection and nutrient content. *Details on page 16.*



viterr<sup>®</sup> INTENSIV

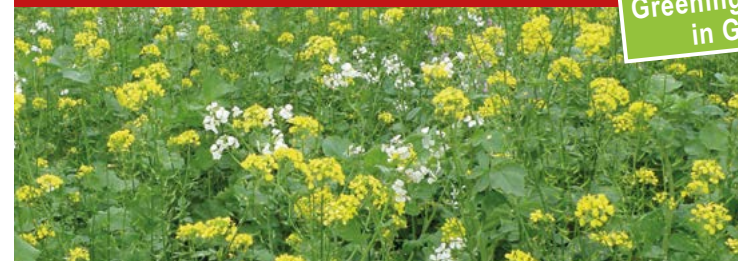
Greening compatible  
in Germany


## ... the health mixture

- Control of migratory root nematodes (*Pratylenchus* spp.) and prevention of viral corky ring spot in potatoes with the multi-resistant Oil radish DEFENDER and the Saia oat PRATEX
- Fast-growing with intensive weed suppression and very good root penetration of the soil
- Abundant organic matter boosts the beneficial organisms in the soil
- **viterr<sup>®</sup> INTENSIV** utilises excess nitrogen and converts it into valuable organic biomass

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>INTENSIV</b>	+	+	+	+	++	++
Seed proportions	56 % Saia oat PRATEX, 44 % multi-resistant Oil radish DEFENDER					
Sowing	mid July to start September					
Sowing density	40 - 50 kg/ha					

viterr<sup>®</sup> RÜBE

Greening compatible  
in Germany


## ... professional against nematodes

- Mixture made up of two nematode-resistant Oil radish (COLONEL and COMPASS) and White mustard varieties (ACCENT and LUCIDA)
- Ample plant density of over 160 plants/m<sup>2</sup> allows the highest degree of active nematode control
- High crop reliability due to the complementary varieties and adequate plant number
- **viterr<sup>®</sup> RÜBE** is suitable for mid early to late sowing times and all site conditions
- Oil radish penetrates even deep soil with its roots and reduces the nematode infestation

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>RÜBE</b>	+	+		++		
Seed proportions	26 % nematode-resistant Oil radish COLONEL, 30 % nematode-resistant Oil radish COMPASS, 24 % nematode-resistant White mustard ACCENT, 20 % nematode-resistant White mustard LUCIDA					
Sowing	mid July to start September					
Sowing density	25 kg/ha					

viterr<sup>®</sup> TRIO

Greening compatible  
in Germany


## ... frost-sensitive mixture with clover

- viterr<sup>®</sup>TRIO made up of the easily freezing-off Oil radish COMPASS, Berseem clover and Phacelia ANGELIA
- Bees and insects use the late Phacelia flowers
- Rapid initial development and intensive primary and secondary root
- Beet cyst nematodes and clubroot do not propagate
- Fine-stemmed mulch layer offers good erosion protection until spring sowing

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
TRIO	+	+	+	++		
Seed proportions	11% nematode-resistant Oil radish COMPASS 36% Berseem clover 53% Phacelia ANGELIA					
Sowing	mid June to end August					
Sowing density	20-25 kg/ha					

viterr<sup>®</sup> MULCH

Greening compatible  
in Germany


## ... frost-sensitive mixture without clover

- Mixture with the easily freezing-off Oil radish COMPASS and frost-sensitive Saia oat PRATEX
- Particularly recommended for direct and mulch sowing techniques, especially before maize and sugar-beets
- Facilitates deep root formation by maize and sugar beet
- Activation of the beneficial soil organisms, breaking up and aerating of the soil for excellent maize crops
- viterr<sup>®</sup> MULCH binds nitrogen over winter and protects it from leaching

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
MULCH	++	+	+	+	+	+
Seed proportions	55 % Saia oat PRATEX, 45 % nematode-resistant Oil radish COMPASS					
Sowing	mid July to start September					
Sowing density	40 - 50 kg/ha					



## viterr® MAIS

NEW

Greening compatible  
in Germany


## ... Fast-growing mixture without legumes

- Fast-growing mixture of Oil radish SILETINA, Saia oat PRATEX, Phacelia ANGELIA and Sunflower
- The combination of deep and shallow rooters ensures intensive root penetration and stabilisation of the soil structure
- The root channels created by **viterr® MAIS** facilitate deep root penetration by the maize
- Nutrients are bound and made available to the maize during its main growing phase
- Image raised by Sunflowers and Phacelia

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>MAIS</b>	++	+	+			
Seed proportions	30 % Oil radish SILETINA, 19 % Saia oat PRATEX 50 % Phacelia ANGELIA, 1 % Sunflower					
Sowing	mid July to end August					
Sowing density	25 kg/ha					

## viterr® SCHNELLGRÜN

Greening compatible  
in Germany


## ... suitable for late sowing dates

- Rapid greening thanks to the particularly fast-growing components
- Extremely compatible with late sowing (to end September)
- Not winter-hardy species make mulch sowing of follow-on cultures easier
- Ideal before maize and also suitable as a catch crop after an early maize harvest
- Low seed bed requirements enable easy and cost-effective sowing

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>SCHNELLGRÜN</b>	++	+				
Seed proportions	56 % White mustard ALBATROS, 26 % Berseem clover, 18 % Indian mustard ENERGY					
Sowing	start August to end September					
Sowing density	15 kg/ha					



## viterr® UNIVERSAL WINTER

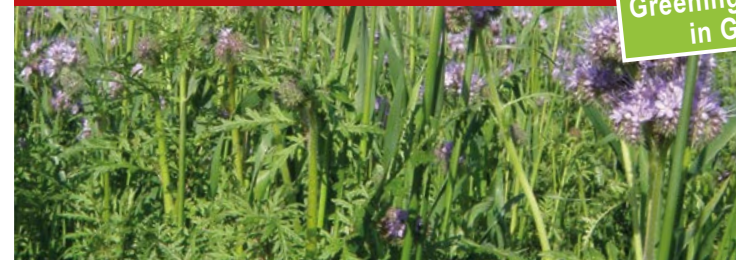
Greening compatible  
in Germany


## ... crucifer-free and winter-hardy

- As hardy catch crop with the possibility of early organic manure application (first spring application)
- Free of crucifers and can also be used without hesitation in oilseed rape crop rotations
- Different mixture partners allow a broad spectrum of use
- Hardy ryegrass increases the erosion protection
- Binds the nitrogen remaining in the soil and protects the groundwater

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>UNIVERSAL WINTER</b>	++	+	+			
Seed proportions	10 % Saia oat PRATEX, 46 % Italian ryegrass, 44 % Phacelia ANGELIA					
Sowing	start July to mid September					
Sowing density	25-45 kg/ha					

## viterr® UNIVERSAL

Greening compatible  
in Germany


## ... crucifer-free and fast-growing

- Free of crucifers and can be used without hesitation in oilseed rape crop rotations
- Due to the drought stress tolerance of the individual components universally usable
- Fast shading maintains the tilth
- Binds the nitrogen and other nutrients remaining in the soil in layers near to the roots
- **viterr® UNIVERSAL** increases the biodiversity and interrupts disease cycles

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>UNIVERSAL</b>	+	+	++	+		
Seed proportions	16 % Saia oat PRATEX, 37 % Berseem clover, 47 % Phacelia ANGELIA					
Sowing	start July to start September					
Sowing density	25 kg/ha					

## viterr® BODENGARE

Greening compatible  
in Germany


## ... legume-rich for greater soil fertility

- Promotion of tilth, soil stabilisation and crumb formation for improved soil fertility
- Stable tilth promotes air and water management and prevents silting
- Enrichment of the plant community and living space for many insects and beneficial organisms
- The high proportion of legumes collects additional nitrogen
- As a summer catch crop for soil regeneration after an early preceding crop
- Crucifer-free, therefore particularly suitable for oilseed rape crop rotations

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>BODENGARE</b>	++	+	++	+		
Seed proportions	3 % Blue bitter lupine, 7 % Common vetch, 14 % Saia oat PRATEX, 25 % Berseem clover, 25 % Phacelia, 25 % Persian clover, 1 % Sunflower					
Sowing	Mid June to end August					
Sowing density	50 kg/ha					

## viterr® RAPS

NEW

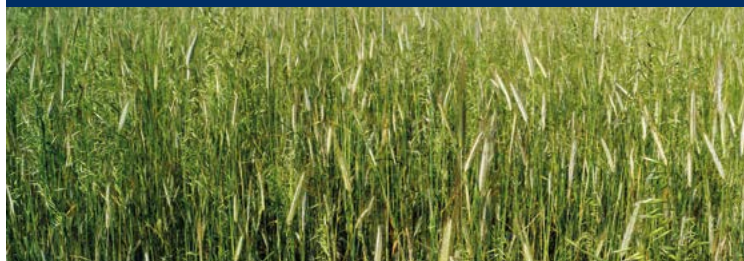
Greening compatible  
in Germany


## ... frost-sensitive mixture without crucifers

- Crucifer-free mixture of Phacelia ANGELIA, Oil flax JULIET, Persian and Berseem clovers
- Undemanding mixture, no relation to the main crops: ideal for crop rotations with cereals and oilseed rape
- Deep and intensive root penetration improves the structure and promotes air exchange in the soil
- Phacelia and Flax flowers offer feed for foraging bees and other insects
- Reliable freezing-off components allow trouble-free sowing of the follow-on crop

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>RAPS</b>	+	++	++	+		
Seed proportions	47 % Phacelia ANGELIA, 24 % Oil flax JULIET, 19 % Persian clover, 10 % Berseem clover					
Sowing	start July to end August					
Sowing density	15 kg/ha					

## viterra® GRANOPUR



## ... WCS (whole crop silage) usage before winter

- For increase in biomass after WCS or an early cereal harvest with the cut used before winter
- Increased crop reliability through a balanced composition of different cereal components
- Easy herbicide management
- Maintenance of the soil tilth throughout summer
- **viterra® GRANOPUR** as a pure cereal mixture is also very good for potato crop rotations

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>GRANOPUR</b>	++	++	+	+	+	
Percentage by weight	40 % Spring triticale, 20 % Spring rye OVID, 20 % Saia oat PRATEX, 20 % Oat SYMPHONY					
Sowing	end March to end May or start July to mid August					
Sowing density	135-150 kg/ha					

## viterra® GRANOLEG



## ... WCS (whole crop silage) usage before winter

- For increase in biomass after WCS or an early cereal harvest with the cut used before winter
- **viterra® GRANOLEG** supplies additional nitrogen for stresses sites thanks to its Common vetch, and keeps the crop green for longer (optimised harvesting window)
- Increased crop reliability through a balanced composition of different cereal components
- Good shading promotes the soil tilth and maintains the soil life

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>GRANOLEG</b>	++	++	+	+		
Percentage by weight	35 % Spring triticale, 20 % Spring rye OVID, 20 % Oat SYMPHONY, 15 % Common vetch, 10 % Saia oat PRATEX					
Sowing	end March to end May or start July to mid August					
Sowing density	135-150 kg/ha					



## viterra® PROTOVID



## ... Winter-hardy WCS mixture

- Fast-growing and winter-hardy biomass mixture for special culture conditions
- Double cutting usage possible, before and after winter
  - The fast-growing Spring rye OVID provides a cut in autumn
  - The high-yielding Green forage rye PROTECTOR regenerates over winter for use of the cuttings or early fertilisation measures in spring
- Excellent protection against erosion

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>PROTOVID</b>	+	+	+	+		
Percentage by weight	63 % Spring rye OVID, 37 % Green forage rye PROTECTOR					
Sowing	end June to mid August					
Sowing density	135-150 kg/ha					

## viterra® WICKROGGEN



## ... winter-hardy WCS mixture

- Winter-hardy biomasslegume mixture
- For a high-yield WCS use with high protein and energy content
- 25 - 40 t/ha WCS wet weight yields are possible depending on the site
- The winter-hardy Vetch provides additional nitrogen
- Optimal erosion protection
- Prevents nitrogen loss over winter

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>WICKROGGEN</b>	++	+	+	+		
Percentage by weight	90 % Winter rye MATADOR, 10 % Winter vetch					
Sowing	mid September to mid October					
Sowing density	100 kg/ha					

## viterra® WICKROGGEN TURBO



## ... raising the WCS yield with Hybrid rye

- The particularly early WCS Hybrid rye PHÖNIX is stress tolerant, healthy and has a flexible harvest time
- The yield-rich population rye INSPECTOR contributes to the pollination reliability
- Savings in mineral N-fertiliser thanks to the winter-hardy vetch improves the carbon footprint
- Protection against soil erosion and nutrient leaching over winter
- Good weed suppression
- Winter vetch provides nectar and pollen for insects and increases the biodiversity

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>WICKROGGEN TURBO</b>	++	+	+	+		
Percentage by weight	72 % Hybrid rye PHÖNIX, 18 % Winter rye INSPECTOR, 10 % Winter vetch					
Sowing	mid September to mid October					
Sowing density	100 kg/ha					

## viterra® PROTECT



## ... suitable for late sowing dates and fodder usage in spring

- The Green forage rye PROTECTOR and the Italian ryegrass allow late sowing dates
- Fast initial development and growth, even at low temperatures offer good protection against erosion
- High levels of organic matter in leaves, stems and roots promote humus formation
- Particularly suitable as a catch crop before and after maize

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>PROTECT</b>	++	+	++	+	+	
Percentage by weight	80 % Green fodder rye PROTECTOR, 20 % Italian ryegrass					
Sowing	mid September to mid October					
Sowing density	as green manure 50 kg/ha, for fodder usage 100 kg/ha					

## viterra® PROTECT plus Rübsen



### ... late sowing compatible and winter-hardy, with crucifers

- With the Winter turnip rape JUPITER, an additional late-sowing compatible species is included in the mixture
- Winter turnip rape supports fast soil coverage and root penetration of the deeper soil layers
- Nutrients are taken up particularly well and preserved over winter
- Effective water protection measure

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>PROTECT plus Rübsen</b>	++	++		+	+	
Percentage by weight	80 % Green forage rye PROTECTOR, 14 % Italian ryegrass, 6 % Winter turnip rape JUPITER					
Sowing	mid September to mid October					
Sowing density	50 kg/ha					

## viterra® LUNDSGAARDER GEMENGE



Greening compatible  
in Germany

### ... winter-hardy, greening compatible with possible use as feed

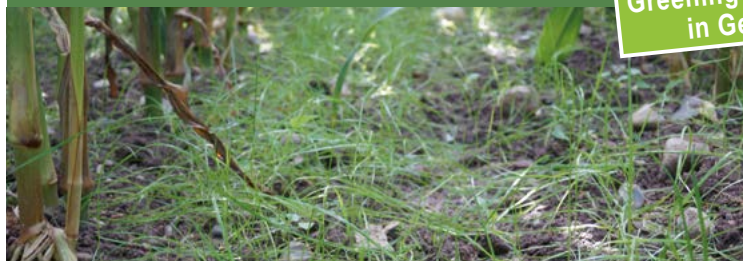
- Suitable as winter cover crop for green manure or feed production
- Balanced combination of nitrogen-producers and nitrogen-users has a positive effect on plant growth and soil life
- Italian ryegrass uses growth phases over winter
- Winter vetch and Winter field pea are valuable protein components in feed
- Increase in the agri-ecological value due to the large flowering component

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>LUNDSGAARDER GEMENGE</b>	++	++	++	+		
Percentage by weight	31% Italian ryegrass, 29% Crimson clover, 20% Winter vetch, 20% Winter field pea					
Sowing	end August to mid September or as undersown crop for maize in spring					
Sowing density	50 kg/ha					



## viterra® UNTERSAAT

NEW

Greening compatible  
in Germany

## ... for sustainable maize culture

- Grass mixture made up of Italian and Perennial ryegrass as under-sown crop in maize
- As the grass crop continues to develop after the maize harvest it binds free-available nitrogen and protects it from translocation
- The humus balance is also stabilised in tight maize crop rotations
- Effective protection against wind and water erosion over winter
- The fast-growing Italian ryegrass combined with the late Perennial ryegrass ensures high crop reliability
- The bearing capacity of the soil is increased and road pollution during harvesting is reduced

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>UNTERSAAT</b>	++					
Percentage by weight	50 % Italian ryegrass (tetraploid), 50 % Perennial ryegrass (diploid, late, fodder type)					
Sowing	6 – 8 weeks after sowing maize, to the 6 – 8 leaf stage of the maize					
Sowing density	10 - 15 kg/ha					

## viterra® MULTIKULTI

Greening compatible  
in Germany

## ... bee and flower pasture

- Flowering mixture for high biodiversity and a wide range of benefits
- The roots penetrate differing soil layers and have a stabilising effect on the soil structure
- Grass-free for unproblematic emergence control in the follow-on crop
- Effective protection against erosion and desiccation
- Not winter-hardy
- As catch crop after a WCS or cereal harvest or as field border strip

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>MULTIKULTI</b>	+	+		+		
Seed proportions	1 % Blue bitter lupine, 1 % Common vetch, 1 % Sunflower, 28 % Phacelia ANGELIA, 32 % Persian clover, 16 % Berseem clover, 7 % Flax, 2 % Oil radish ADAGIO, 5 % White mustard FORUM, 7 % Serradella					
Sowing	start May to end August					
Sowing density	25 kg/ha					

## viterra® BIOFUMIGATION



## ... against soil-borne pests

- For fighting soil-borne diseases such as Fusarium and Rhizoctonia through the use of biologically active plant substances (principle of biofumigation)
- Fast-growing mixture for crop rotations which only allow a very limited time for catch crop cultivation
- Formation of leafy biomass
- Chop the growth as finely as possible at the height of the flowering period (7 - 8 weeks after sowing) and work it into the soil

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>BIOFUMIGATION</b>					+	++
Seed proportions	21 % multi-resistant Oil radish DEFENDER, 79 % Indian mustard ENERGY					
Sowing	start May to mid September					
Sowing density	15 kg/ha					

## viterra® HORRIDO



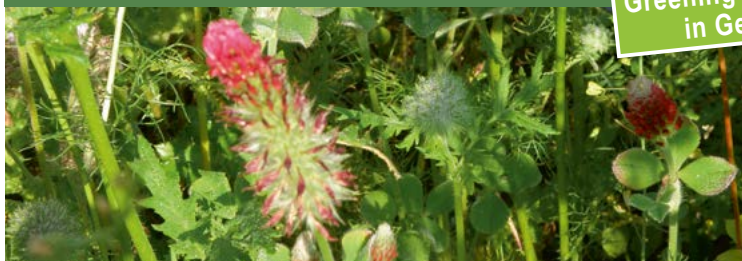
Greening compatible  
in Germany

## ... biennial wild arable mixture

- Suitable for all native small game species
- Flowers attract numerous insects
- Tasty seeds for browsing game birds
- Winter-hardy components also offer browsing and coverage in autumn and winter for hares, deer and other small game species
- **Cultivation tip:** Seed parts of the area with double row spacing to achieve attractive free space for pheasants and partridges

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>HORRIDO</b>	+	+				
Seed proportions	5 % Buckwheat, 3 % Bristle oat, 19 % Serradella, 11 % Berseem clover, 23 % Persian clover, 1 % Sunflower, 3 % Flax, 6 % Phacelia, 1 % Oil radish, 2 % Winter vetch, 18 % Italian ryegrass, 3 % Marrow stem kale, 2 % Winter forage rape, 3 % Turnip rape					
Sowing	Drill seeding, March to June					
Sowing density	30 kg/ha					

## viterra® RANDSTREIFEN

Greening compatible  
in Germany

## ... the field verge mixture

- Perennial blend with high portion of grass
- Well suited for greening buffer strips and forest margin strips, and field border strips to be used as an ecological focus area
- Many blossoms of crimson and Red clover, Phacelia and Lucerne provide additional food sources for insects
- The structure-providing Phacelia, Lucerne and Buckwheat plants break up the mixture and also offer browsing for game
- The legumes Crimson clover and Lucerne encourage development of the other species by providing nitrogen
- Weeds and unwanted grasses are suppressed

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>RANDSTREIFEN</b>	<b>for green-covering</b>					
Seed proportions	6 % Buckwheat, 8 % Crimson clover, 8 % Phacelia, 32 % Red fescue, 7 % Lucerne, 26 % Perennial ryegrass, 13 % Red clover					
Sowing	March to June, for border strips in greening to 1st April					
Sowing density	25 kg/ha					

The weight of the individual components may vary slightly due to different thousand-seed weights

## viterra® BLÜHZAUBER



## ... the flowering meadow

- Impress the viewer with the variety of flower colours and shapes of over 40 flowering species
- Pollinators and melliferous plants for bees, bumblebees, butterflies and numerous other insects
- Continuous flowering period from the end of May until into autumn
- Promotes a positive image of the agricultural landscape
- **Cultivation tip:** The addition of saw dust or sand can increase the volume and improve the distribution of the seeds.

Recommendation	Suitable for crop rotations with					
	Maize	Cereals	Oilseed rape	Sugar-beets	Potatoes	Intensive cultures
<b>BLÜHZAUBER</b>	<b>Not recommended for arable farming</b>					
Seed proportions	Marigolds, Cornflowers, Cosmea, California poppy, godetia, Toadflax, Baby-blue-eyes, Max chrysanthemum, Corn poppy, Forget-me-not, Sunflowers ... and many others					
Sowing	April to mid June					
Sowing density	5 – 7 g/m²					

The weight of the individual components may vary slightly due to different thousand-seed weights



# Successful crop rotations with the vitterra® cover crop mixtures.



May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
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## Examples for potato and intensive crop rotations

Cereals													Potatoes and intensive crop rotations
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## Examples for your sugar-beet crop rotations

Cereals													Sugar-beets
Cereals													Sugar-beets
Cereals													Sugar-beets

## Examples for oilseed rape / cereals and maize crop rotations

Cereals													Maize, summer crop
Cereals													Maize, summer crop
Cereals													Maize
Cereals													Maize, summer crop
Rape / Cereals													Cereal Maize, summer crop

## Examples for energy crop rotations with use of the cutting

Cereal WCS													Cereal
Cereal WCS													Maize
Cereal WCS													Maize
Rape / Cereals													Maize
Maize													
Maize													Maize with vitterra® UNTERSAAAT

Soil fertility mixture

Biomass mixture

Special mixture

Field crop

(G) Greening compatible in Germany

## All the best for your soil.

The **viterra® cover crop mixtures** offer a multitude of benefits for your soil and promote soil fertility.

### Improvement in soil fertility

- Biological control of soil diseases and nematodes
- Promotion of beneficial soil organisms such as earthworms and many others
- Improvement in the soil composition and soil structure
- Formation and maintenance of the soil tilth

### Soil protection

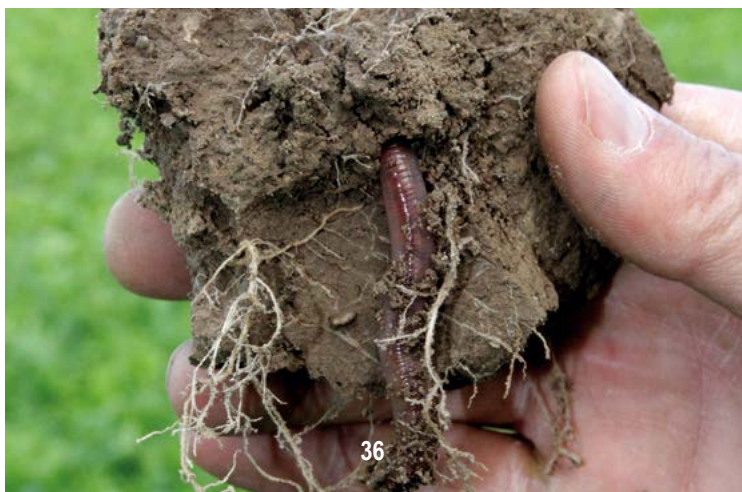
- Effective protection against wind and water erosion
- Weed regulation through inhibition of light and nutrients
- Enables mulch and direct seeding techniques
- Improved soil navigability and bearing capacity

### Biomass production

- Additional possibilities for feed and biomass production
- Offers biodiverse alternatives to maize
- Versatile crop rotations

### Nutrient regulation

- Exploitation of free nutrients
- Binding and protection from leaching
- Higher yield of organic material as an additional contribution to humus formation
- Allows additional organic fertiliser application in autumn



## Planting notes.

**There are a wide variety of possible adjustments available to help the farmer establish a successful cover crop. Here are the most important:**

### Preceding crop

The previous main crop has already influenced the development of the catch crop. The critical point on the one hand is how well the preceding crop developed, and how many nutrients it removed from the soil. On the other hand, harvesting has a huge impact. The straw which remains on the field needs additional nitrogen for decomposition. Already during threshing it must be ensured that the straw is chopped very well and is uniformly distributed.

### Selecting the right mixture

Selection of the correct cover crop mixture is a basis for successful cover crop cultivation. Taking into consideration the crop rotation, the desired target use, the anticipated sowing date, the site conditions and the working condition, the focus is quickly narrowed to only a few cover crop mixtures.

### Example operation with arable and livestock

Crop rotation: Oilseed rape, wheat, maize, barley

Result:

- Cover crop is planted after wheat, before maize
- Clubroot propagators such as White mustard, cress, False flax or others are taboo in an oilseed rape crop rotation

Commitment of machines and personnel during the cereal harvest and rape sowing in August

Result:

- Sowing of the cover crop takes place at the start of September
- Particularly suitable are species compatible with late sowing: e.g. Saia oat PRATEX, Oil radish, grasses

### Recommendation for suitable catch crop mixtures:

- viterra® INTENSIV, viterra® MULCH, viterra® UNIVERSAL, viterra® UNIVERSAL WINTER

## Tillage

Professional, accurate tillage is a prerequisite for a reliable and successful performance, even in years with unfavourable weather conditions. Ploughing or intensive tilling not only allows good control of the emerging cereal, but also facilitates uniform and fast development of the cover crops. In arid areas, the selection of water-conserving working methods (e.g. no-till possibly with deep loosening) has proved advantageous. Despite the work intensive phase, sufficient attention should be given to seed bed preparation, because otherwise the entire cultivation process (incl. the involved costs) can be jeopardised.

### The cover crop sowing

In practice, different sowing techniques are used. These range from time-consuming drilling after ploughing, to classical mulch sowing, to cost-effective variations such as direct sowing or application using spreader machines. However, the risk of poor field emergence increases significantly with the more low-cost techniques.

The most reliable variant is drill seeding after careful seed bed preparation. The sowing depth should be 1-4 cm depending on the mixture. Above all, for mixtures and fine seeds we recommend sowing as we do for a main crop.

Poor sowing conditions can be partly compensated by high seed volumes. The basis for the positive effects that can be achieved with cover crops (page 36), are uniform and dense crops. Therefore,



changing the recommended sowing amounts is also not recommended even under good sowing conditions.

## Fertilisation

Cover crops are generally able to cope well with a low nutrient supply. The situation becomes critical if the straw of the previous crop remains on the surface and then requires the available nitrogen for decomposition. A mineral or organic fertiliser is very helpful for encouraging the initial development (observe the fertilisation ordinance). CAUTION! In the most countries mineral fertilizer are not allowed if the cover crop is grown as EFA.

### Subsequent working

Depending on the cover crop the remaining mulch layer can be vary considerably in spring. With brittle, rough material and previous deep soil working in summer/autumn, direct mulch sowing is immediately possible or after minimal soil working. Chemical or intensive mechanical measures (e.g. plough) can be used for cover crops that do not freeze off.

Where there is the risk that the cultivated cover crop reseeds, this should be prevented by mechanical measures such as mulching or rolling.

Further information can be found in the internet:  
[www.viterra-mischung.de](http://www.viterra-mischung.de) / [www.saaten-union.de](http://www.saaten-union.de)





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