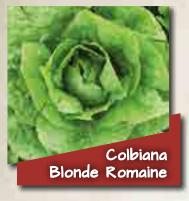


VITALIS SEED CATALOGUE — US & CANADA 2018



Introducing 2018 New Varieties!











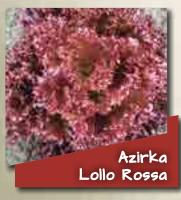








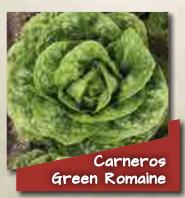














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Organic Certification

All of our seed, seed processing and seed treatments are 100% certified organic complying to national and international standards. Vitalis Organic Seeds organic certification certificates and non-GMO statement can be found on the About Vitalis page of our website www.vitalisorganic.com.





USDA NOP

We are certified as a handler for the National Organic Program (NOP) of the United States Department of Agriculture (USDA) with certifier CCOF under Client Code pr1831. We are enrolled in the CCOF Global Market Access Program in compliance with the NOP/COR (Canada Organic Regime) Equivalence Arrangement and the US/EU Equivalence Arrangement.





EKC

For the European and other select international markets our vegetable seeds are certified in compliance with EC No 834/2007 Regulation by Skal under number 017981.



Lacon

For the European and other select international markets our herb seeds are certified in compliance with the EC No 834/2007 Regulation by Lacon under certificate number DE-RP-003-00029-BCD#2016#55761-FN



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Iceberg

Dillon

An iceberg with excellent uniformity and small head size, Dillon has strong internal structure and fill. The exterior frame and wrap leaves have small ribs, and stand out for their dark green color. Head size and weight will increase in hot weather, with this variety performing best in late summer and early fall. Excellent resistance to downy mildew.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/Pb.

Green Butterhead

Barilla

Barilla is a medium green, thick-leaved variety with a strong base, upright shape and good volume. It is strong against internal tipburn. Barilla is appropriate for late spring and early fall crops, and can be grown in summer in coastal regions.

Resistances: HR: BI:16-27,29,32EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Mirlo

A voluminous bright green butterhead with glossy leaves, a well-filled heart and a flat base. Mirlo has medium weight, is easy to peel and very strong on internal tipburn. Broad adaptability with excellent performance throughout the season.

Resistances: HR: BI:16-28,30-32EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Red Butterhead

Alkindus

Alkindus has slightly savoyed leaves and excellent mildew and red aphid resistance. With a medium head size, Alkindus has a beautiful dark red color and is suitable for full season production. Excellent fill and good field holding capacity.

Resistances: HR: BI:1-26,28,32EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Roxy

An outstanding red butterhead variety due to its brilliant leaf color and field performance. Roxy has an open, loose head with delicate leaves that are slightly blistered. Nice base, slow bolting and strong against tipburn.

Resistances: HR: BI:16,21,23,32EU/1-6US.











Greenleaf

Bergam's Green

A large framed traditional greenleaf with dark green color. Bergam's Green is a widely adapted variety. It is slow to bolt, strong against tipburn, resistant to heading and suitable for year-round production.

Resistances: HR: TBSV. | IR: Ss.

Muir

Muir is a medium-sized, light green and slow-growing Batavia type. The heads grow very upright and the hearts are well filled. Muir has a sweet flavor and is strong against bolting and internal tipburn. With excellent downy mildew and red aphid resistance, this multi-use variety is appropriate for open field and hydroponic production.

Resistances: HR: BI:16-26,28,32EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Stacker

Stacker stands out for its unique upright habit and narrow leaf blade attachment. Dark green leaves with a slightly undulating margin are uniform in shape and size. Stacker has a high leaf count and can be grown for the whole leaf market. For whole head production, Stacker's upright base facilitates packing into boxes or sleeves with minimal breakage. This variety has strong mildew resistance and performs best in the spring and fall slots.

Resistances: HR: BI:16-22,25,31,32EU/1,2,4-8US/TBSV. | IR: Ss.

Tropicana

Proven to be the best heat and bolt tolerant greenleaf variety in its class in trials across the country. Tropicana is tolerant to tipburn and leaf scorching, and is Corky Root resistant. With excellent uniformity and leaf texture, Tropicana can be used in fresh packs or for whole leaf production.

Resistances: IR: Ss.

Redleaf

Red Mist

Red Mist is a redleaf lettuce with a long planting window. Its V-shaped base helps prevent basal rot and packs well. Excellent weight for a redleaf with cores that stay low, Red Mist is slower to bolt than other redleaf varieties in its class and provides a long planting window.

Resistances: HR: Bl:16-26,28,32EU/1-8US. | IR: Ss.



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Green Romaine

Arroyo 📳

Arroyo is an excellent variety that is well suited for both hearts and whole head production. Fresh market and wholesale growers will appreciate the tall, upright habit and attractive color. Tight internodes and a V-shaped base produce high quality hearts. Arroyo is best planted in spring and fall slots.

Resistances: HR: BI:16-27,29,32EU/1-8US. | IR: Ss.

Carneros new!

Carneros is a medium green, semi-savoy romaine for heart production. The frame is tall and upright, with a V-shaped base. Early to cup in, fast-filling and with good internal blanching, Carneros is the ideal product model for romaine heart production. Organic growers will appreciate the earliness of this variety.

Resistances: HR: BI:16-26,28,32EU/1-8US/Nr:0/TBSV. | IR: Ss.

Clouny new!

Clouny is a dark green romaine with smooth ribs and a glossy leaf texture that is thick, but pliable. The frame is medium-sized with a narrow, V-shaped base that produces beautiful 9 in. (23 cm) hearts. Slot in spring or fall for best performance.

Resistances: HR: BI:16-32EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Coastal Star

Coastal Star is a well-loved romaine with dark green color and tall stature. The variety is early maturing and produces large, heavy heads that can be used for hearts or fresh pack. Widely adapted and can be grown spring through fall in most regions.

Resistances: IR: Ss.

Mezquite

A semi-savoy romaine with thick texture, a tapered base and straight ribs. Works well for the heart market, and the nice internal blanching provides an attractive product for the value-added segment as well. Performs best planted October through November in the desert Southwest region, and spring and fall slots in Northern regions.

Resistances: HR: BI:16-32EU/1-8US. | IR: Fol:1.

ROM	AINE
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	Variety	Full Size Heads	Hearts	Processing	Spring	Summer	Autumn	Winter
	Arroyo	✓	~		N/S		N/S	
	Carneros		✓		С		С	
	Clouny		/		N/C		N/C	S
	Coastal Star	✓		✓	N	N	N	
	Colbiana	✓	/	✓	S		S	
	Mezquite		•	✓	N	N	N	S
	Rainier	✓		✓	N/C/S		N/C/S	
	Tuolumne	✓		✓	N/C/S		N/C/S	
l	Weaverville	V		/	С		С	

REGION:

N=Northern (winter freeze)

S=Southern (mild winters)

C=Coastal (moderate year-round)

For more specific growing recommendations, contact your regional Vitalis representative.

HR: High resistance | IR: Intermediate resistance | For explanation of codes of resistances, see page 43-45.

















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Rainier

Rainier is a large green romaine for full size heads and fresh cut processing. The variety has an impressive disease package, including improved resistance to downy mildew, Tomato Bushy Stunt Virus (TBSV) and red aphid. Recommended for spring and fall production.

Resistances: HR: BI:16-27,29,30,32,33EU/1-8US/Nr:0/TBSV. | IR: Ss.

Tuolumne

This extra-large romaine has a substantial frame with an open habit that produces optimum weight and high yields. Tuolomne has smooth green leaves, a wide V-shaped base and narrow ribs. A broadly adaptable, consistent variety for both whole head and processing markets.

Resistances: HR: BI:16-27,29,30,32,33EU/1-8US/Nr:0/TBSV. | IR: Ss.

Blonde Romaine

Colbiana new!

In the desert Southwest, Colbiana works best for spring and fall. Given its robust, light-colored frame and blanched internal contrast, it is well suited for the value-added and heart markets. Colbiana has improved bolting tolerance compared to most blonde romaine varieties.

Resistances: HR: Bl:16-32/EU/1-8US/Nr:0/TBSV.

Weaverville new!

A blonde romaine targeting the value-added, processing market with great tolerance to fringe burn, while holding a short core. With red aphid resistance and excellent performance in coastal California, Weaverville has proven to be a great addition to any market that is looking for a blonde romaine.

Resistances: HR: BI:16-32EU/1-8US/Nr:0/TBSV.







Romaine Size Classifications						
Lettuce Type	Heart Length					
Full	12 in. / 30 cm					
Midi	10 in. / 24 cm					
Mini	7 in. / 16 cm					
Little Gem	4.5 in. / 11 cm					

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Green Mini Romaine

Xalbadora new!

A mini romaine with great fill, dark green color and high gloss. Xalbadora does well against tip burn and downy mildew, and is widely adaptable for full season production. More upright habit and slightly faster filling than Starhawk, which it replaces.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV.

Red Mini Romaine

Breer

Breen is a unique red mini romaine, which closes nicely in the top, resulting in a perfectly formed heart. This great-tasting variety, which resembles a Treviso radicchio in appearance, has light colored veins that provide an attractive contrast with the reddish-brown leaves, and has excellent shelf life.

Resistances: HR: BI:16-21,23-26,28-33EU/1-8US.

Pomegranate Crunch

This variety is a red mini romaine with an open habit and smooth texture. Faster growing than other red romaine varieties, with a brilliant poppy red color on the outside and a speckled red-green interior. Pomegranate Crunch pairs well with a solid green mini romaine variety for an attractive presentation.

Resistances: HR: BI:16-27,29,32EU/1-8US/TBSV.

Green Little Gem

Dragoon

Dragoon is a well-filled, compact little gem. This variety has dark green, semi-savoy outer leaves, matures slowly and keeps a short core. It is strong against bolting and internal tipburn, and is appropriate for open field or unheated greenhouse production.

Resistances: HR: BI:16-27,29,32EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Newham

Newham is a smooth-leaved green little gem with red aphid resistance in the Spretnak class. Excellent fill, strong tipburn resistance and a very sweet flavor make this variety a standout. Suitable for year-round production in coastal regions, and spring, fall, and winter production in hotter areas.

Resistances: HR: BI:16-21,23-26,28-33EU/1-8US/Nr:0/Pb. | IR: LMV:1/Ss.

Spretnak

A beautiful and tasty little gem with compact, well-closing heads, smooth outer leaves and tightly packed, blanched hearts. Best for spring and fall cultivation, with strong field tolerance to downy mildew.

Resistances: HR: Bl:16-21,23-26,28-33EU/1-8US/Pb. | IR: Fol:1.









Spretnak

HR: High resistance IR: Intermediate resistance
For explanation of codes of resistances, see page 43-45.



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Red Little Gem

Truchas

A little gem / mini-romaine type that provides a stunning contrast between green hearts and dark cherry red leaves. The upright cylindrical shape, good uniformity and ease of cleaning make this an excellent complement to the Vitalis green little gem assortment.

Resistances: HR: BI:16-33EU/1-8US/TBSV. | IR: LMV:1.

Red Oakleaf

Bellevue new

A red oakleaf ideal for full size or mini head harvest. Bellevue has a soft butter-like texture and very sweet flavor. Slightly bronzed cherry-red leaves contrast with a fresh green blanched heart. Excellent field holding for full season production. Compared to Cantarix, Bellevue is slightly more filled and compact, and has improved downy mildew resistance.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Cantarix 🖹

Cantarix is a large-sized, dark red oakleaf lettuce with an attractive base. This variety produces dense heads with wide leaves, attractive color contrast and upright growth. Cantarix is best produced in the spring and early fall, with strong downy mildew and aphid resistance, and excellent flavor.

Resistances: HR: BI:16-26,28,32EU/1-8US/Nr:0/TBSV.

Lollo Bionda

Ilema

Ilema is an impressively voluminous green lollo, with a strong plant and nice leaf curliness. Ilema has a unique combination of fast growth, good weight, field holding capacity and very sweet flavor. Adaptable to open field and hydroponic growing conditions.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/Pb/TBSV. | IR: LMV:1/FoI:1.

Lollo Rossa

Fossev

Good volume, dark red color and frilly leaves describe the outstanding characteristics of Fossey, a variety that can be grown throughout the year. It is strong against bolting and has an excellent resistance package. Fossey has an upright habit with thin leaves at the base, reducing susceptibility to bottom rot.

Resistances: HR: Bl:16-26,28,32EU/1-8US/Nr:0.











HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see page 43-45.



Lettuce Eazy leaf®

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Green Incised



Green Reef

This unique one-cut lettuce is in a category of its own! Green Reef adds loft and diversity to any salad mix. Highly serrated green leaves have a thick texture and a narrow attachment. Good for whole head or one-cut harvest and recommended for spring and fall production.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV.

Green Tango



Ezrilla 🖺

Ezrilla is a fast-growing green tango with attractively serrated, medium green leaves and a narrow cutting surface. This variety is recommended for adding texture, loft and crunch to the salad mix. Strong disease resistance and slow bolting make Ezrilla an adaptable variety throughout the year in most regions.

Resistances: HR: Bl:16-33EU/1-8US/Nr:0/TBSV. | IR: LMV:1.



Eztron

A vivid green tango variety with superior texture and a flavorful crunch. Leaves are deeply incised with a fine super-frilled outer edge, creating a unique product with amazing volume and loft. Eztron has intermediate speed, with improved bolting tolerance.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV. | IR: LMV:1



Greenwood new!

The largest of the green tangos in the Vitalis assortment, Greenwood offers the fastest speed with slow bolting capacity. Greenwood has light to medium green leaves that are softer in texture than the other green tangos, and sweet flavor. Downy mildew and red aphid resistance makes this an ideal choice for organic production.

Resistances: HR: BI:16-33EU/1-8US/Nr:0.

Redleaf



Brentwood

A lobed, deep red lettuce with a glossy, soft texture and a lot of dimension. The color contrast between the dark cherry and light green gradation on the leaf is striking. This variety has excellent bolt tolerance and produces leaves with a fine ripple. Good for whole head or one-cut harvest.

Resistances: HR: Bl:16-33EU/1-8US/Nr:0. | IR: Fol:1.

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Green Reef

Ezrilla

Eztron

Greenwood

Brentwood

HR: High resistance | IR: Intermediate resistance | For explanation of codes of resistances, see page 43-45.



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Green Oakleaf



Hampton 🖹

Hampton is a voluminous, high leaf count, one-cut oakleaf. With dark, shiny green leaves that have a narrow attachment, this variety is ideal for mechanical or hand harvest. Very slow to bolt, Hampton is a flexible variety for year-round production.

Resistances: HR: Bl:16-33EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Red Oakleaf



Buckley 🖺

Buckley is a beautiful one-cut red oakleaf. Lobed, deep red leaves grow in an upright rosette, forming a highly presentable variety that can be harvested for whole heads or for a salad mix. Buckley is faster growing than most red varieties, and is suitable for full season production. Pair with Hampton green Eazyleaf for a vibrant display.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV.

Red Romaine



Ezbruke

Ezbruke is a stunning red mini romaine with an open habit for either one-cut or whole head harvest. Heads form uniform leaves that are spring green at the base and deep cherry red on top. For whole head harvest, space plants 6 in. (15 cm) apart. For one-cut harvest, 4 in. (10 cm) spacing is recommended.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV. | IR: LMV:1.

Red Butter Romaine



Stanford new!

This stunning variety forms a beautiful rosette of uniform, pliable leaves that are dark red on top and green at the base. Stanford combines the leaf shape and texture of a butterhead, with the upright growth of a mini romaine. To harvest and display as a mini head, plant at 6 in. (15 cm) spacing. When planted at high density (3-4 in. / 8-10 cm spacing), this one-cut lettuce adds a unique leaf shape and color to any salad mix.

Resistances: HR: Bl:16-33EU/1-8US/Nr:0/TBSV.









HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see <u>page 43-45</u>.



The Vitalis **Eazy** leaf one-cut lettuce assortment offers growers the convenience of whole head production, and the marketing flexibility of loose leaf and whole head sales. Compared to traditional babyleaf spring mix, Eazyleaf brings more texture, flavor, volume and shelf-life, and allows for a wider harvest window.



Eazyleaf varieties feature a narrow

leaf attachment and high leaf count.

With one cut from the base in the

field or the packing shed, uniform

leaves separate into individual

pieces ready for a salad mix.

 Heads are appropriate for mechanical or hand harvest

No removal of cores necessary

Strong resistance package against
 Downy Mildew, Red Aphid, and Tomato Bushy Stunt Virus

Planting Recommendation:

Mechanical Harvest: 3-4 inch in-row spacing
Hand Harvest or Larger Heads: 6-8 inch in-row spacing



Heated Greenhouse Lettuce

Green Crisp

Cristabel new!

Frilled ice lettuce leaf type with dark green color and very strong, thick leaf texture. Short core with more upright growth, this variety is high yielding. Reliable in various conditions.

Resistances: HR: Nr:O/TBSV. | IR: LMV:1.

Green Butterhead

Brighton

Brighton is a medium sized butterhead with a strong bottom and well-filled, good closing heads. The variety has excellent downy mildew resistance and is strong against tipburn. Appropriate for winter and spring production.

Resistances: HR: BI:16-33EU/1-8US.

Heated Greenhouse

Espirando

Espirando is a medium-to-large butterhead with fresh green color and reliable performance in spring, summer and fall. The variety is strong against tipburn, yellow leaf edge, downy mildew and aphid damage. Growers will appreciate the closed base, which is easy to clean and allows for a beautiful presentation.

Resistances: HR: BI:16-26,28-33EU/1-8US/Nr:0.

Fairly

Fairly is a butterhead variety for the long-day season. It is fast growing and heads have excellent weight. Fairly has a closed, flat base, allowing for easy cleaning at harvest. This variety has a large frame, fine ribs and a bright medium green color.

Resistances: HR: BI:16-33EU/1-8US/Nr:0.

Greenleaf

Caipira

Caipira performs very well year-round, offering an attractive head with spring green color and sweet flavor. The variety maintains its compact size even during the heat, and has good leaf size. High tolerance to internal tipburn.

Resistances: HR: BI:16-26,28,32EU/1-8US/Nr:0/TBSV. | IR: LMV:1.











Heated Greenhouse Lettuce

Green Oakleaf

Advisor new!

New oak leaf variety with a strong base and a beautiful shiny color. Advisor is strong against tipburn and bolting.

Resistances: HR: BI:16-33EU/1-8US/Nr:0/Pb/TBSV. | IR: LMV:1.

Lollo Bionda

Jokary new!

Jokary is a quick growing variety with flexible leaves. The plant is compact and easy to pack, with an excellent presentation. Jokary fits well in trios.

Resistances: HR: Bl:16-32EU/1-8US/Nr:0.

Lollo Rossa

Azirka new!

Triple red crunchy Lollo type. It has a very thick, crunchy leaf with nice flavor. The leaf is rounded with a very good three-dimensional structure. This variety works well in trios.

Resistances: HR: BI:16-32EU/1-8US/Nr:0.

Mini Romaine

Xamena

Xamena is fast growing, with good top closure and excellent holding capacity for flexible harvests. Slow to bolt in the heat, it produces very nice cylindrical hearts that are well blanched and filled. Xamena will do well planted under high density and can be used for mini heads or hearts.

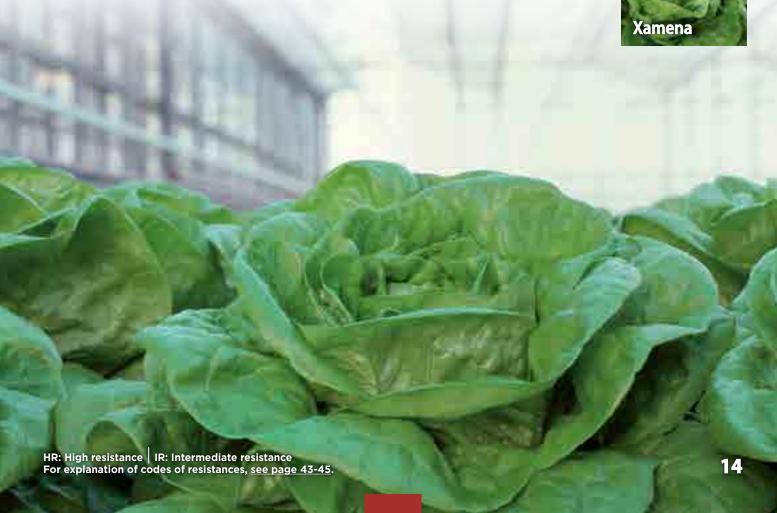
Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV. | IR: LMV:1/Ss.











Green Ro	maine	
•	Aerostar	A medium green romaine with good holding ability, a narrow basal leaf, and a smooth rounded top that resists folding in the field. Resistances: HR: BI:16-27,29,32EU/1-8US. IR: LMV:1.
	Pensacola	A fast-growing green romaine with a smooth green color. The texture is thick, but pliable, with a slightly serrated margin. The leaf shape is ideal and has a narrow attachment. *Resistances: HR: Bl:16-29,32EU/1-8US/Nr:0/TBSV. IR: LMV:1.
Green Oa	kleaf	
	Clearwater	A medium-dark green oakleaf with thick, pliable texture and good flavor. Deeply lobed leaves maintain a narrow attachment and three dimensional quality to increase volume. *Resistances: HR: Bl:16-33EU/1-8US/Nr:0/TBSV. IR: LMV:1.
本	Surfside new!	A dark green oakleaf with excellent weight and crunchy texture. Upright growth and a narrow cutting surface allow for easy harvest. *Resistances: HR: BI:16-33EU/1-8US/Nr:0. IR: LMV:1.
Red Oakl	eaf	
*	Blade	A beautiful, extremely upright, uniform, cherry-colored oakleaf with good field holding capacity and shelf life. *Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV.
Greenleaf		
*	Celinet	A greenleaf with a narrow cutting surface, good leaf flexibility and attractive frilled leaf margin. Celinet grows slowly, which allows for a longer harvest window. *Resistances: HR: BI:16-33EU/1-8US/Nr:0/TBSV. IR: LMV:1.
Redleaf		
-	Tamarindo	A redleaf variety with improved texture and yield. Tamarindo has a dark red leaf color and an erect habit for ease of harvest. *Resistances: HR: BI:16-33EU/1-8US.
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Arugula

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Wild Rocket (Diplotaxis tenuifolia)

Bellezia RMTD

Bellezia has an elegant look, with a striking dark color and uniform, highly serrated leaves. Strong field tolerance to downy mildew and excellent shelf life.

Resistances: IR: Hp.

Grazia

A compact, uniform, dark green arugula variety with finely serrated leaves. Grazia is strong against bolting.

Jolizia rew!

The newest variety in our assortment, this thick-textured wild arugula has a very dark color, good uniformity and strong resistance to downy mildew.

Resistances: IR: Hp.

Letizia RMTD

Letizia has good field tolerance to downy mildew and exceptionally thick-textured, smooth, medium-green, lobed leaves.

Resistances: IR: Hp.

Standard Selvatica

Standard Selvatica is a very tasty wild arugula variety with appealing, finely serrated spicy leaves.

ARUGULA									
Variety	Speed	Leaf Shape	Leaf Color	Bolting Tolerance	Mildew Resistance (IR: Hp)				
Bellezia	Slow	Highly Serrated	Dark Green	Average	Best				
Grazia	Fast	Serrated	Medium Green	High	None				
Jolizia	Average	Serrated	Dark Green	Average	Best				
Letizia	Slow	Lobed	Medium Green	Average	Moderate				
Standard	Average	Serrated	Medium Green	Average	None				













Resistance Makes the Difference



Resistance Makes the Difference logo represents herb and arugula varieties bred for quality traits such as disease resistance and cold tolerance.

Endive

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Curly

Maratoneta

An improved curly endive variety with dark green outer leaves and a well filled, bright yellow heart. Plant habit is upright for ease of harvest and reduction of basal rot. Maratoneta has a large frame and grows best in cooler conditions. Very tolerant to bolting and suitable for both fresh and processing markets.

Primaleta new!

Primaleta has strong growing ability for cold season production. Best when grown for early spring harvest, it has fine ribs and strong bolt tolerance. Primaleta is slower growing than Maratoneta to allow for successional harvest. Uniform, large heads have the potential for high yields with densely filled, well-blanched interiors.

Escarole

Leonida

Smooth leaf, medium-green endive with a very upright habit, large frame and good volume of external and internal leaves. This variety has a strong tolerance to bolting and tipburn, with good field holding capacity.

Séance

A finely ribbed variety, Séance is voluminous with an erect habit, good heart filling and a clean base. Easy to harvest and very slow to bolt under hot conditions.

Tres Fin

Benefine

An impressive tres fin type with a shiny, dark green exterior color and well-blanched interior. Benefine has compact, upright, tightly filled heads that are strong against bolting. Suitable for growing in warm conditions, Benefine has impressive resistance to tipburn and produces high yields of nicely frilled leaves.

END	DIVE				
Туре	Variety	Spring	Summer	Autumn	Winter
Curly	Maratoneta	N/S/C			S/C
Curly	Primaleta	N/S/C		С	S
Connacto	Leonida	N/S/C		N/S/C	S/C
Smooth	Séance		N/C	N/S/C	
Tres fin	Benefine	N/S/C	N/C	N/S/C	

REGION:

N=Northern (winter freeze)
S=Southern (mild winters)
C=Coastal (moderate year-round











Spinach

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Acadia F1

Acadia is a dark green, semi-savoyed spinach with good texture for babyleaf harvest. This slow growing variety has medium-sized, oval leaves and is recommended for main season production.

Resistances: HR: Pfs:1-13,15,16.

Corvair F1

Corvair produces nice oval-shaped, thick leaves that are upright in stature. It has wide adaptability, excellent yield and dark green color. Good in spring, fall and winter productions.

Resistances: HR: Pfs:1-11,13,15,16.

Escalade F1

This flexible variety is excellent for both babyleaf and bunch harvest. Escalade performs well in spring, summer and fall production. It has thick, medium dark leaves and is very strong against bolting. Escalade's field holding ability will make it a favorite when planted in the heat period.

Resistances: HR: Pfs:1-14,16.

Shelby F1

This is an excellent transition variety for spring and fall, with high quality leaf shape and size. Shelby has large, oval-shaped leaves that are medium green in color. This babyleaf spinach offers consistency and uniformity during seasons with variable temperatures.

Resistances: HR: Pfs:1-13,15,16.









	SPINACH					fs F	RESI	STA	NC	E
Variety Speed Bolting BBL Bunching 1						12	13	14	15	16
Acadia F1	Slow	Strong	•		•	~	~		~	•
Corvair F1	Average	Average	•	V	•		~		~	•
Escalade F1	Average	Strong	•	V	~	~	•	~		•
Shelby F1	Fast	Average	•		~	~	•		~	•

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Leek

Chinook F1

Chinook is a fast growing summer hybrid with exceptionally long, straight shanks that clean easily in the field. This variety has excellent uniformity and grows quickly even under cold conditions. Plants are medium green and upright. An excellent choice for reliable, high-quality, early season leeks.

Blauwgroene Herfst* Tadorna

Tadorna is a well-loved open pollinated standard for organic growers. This autumnwinter leek is uniform and can fit into most leek programs, given its adaptability to multiple growing regions. Tadorna has long white shanks and is easy to harvest and clean.

Takrima F1

Takrima is an early-intermediate maturity leek. Long, straight, white shanks are of excellent quality, never bulbing and highly self-blanching. Vigorous, healthy plants with tremendous root systems make this variety especially well-suited for organic conditions.







LEEK					
Variety	Leaf Color	Early	Main	Autumn	Winter
Chinook F1	Medium Green	V	V		
Tadorna	Blue-Green			V	V
Takrima F1	Green		V	V	

Onion

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Short Day

Francesca F1

Francesca is a mid-to-late short day yellow onion with tolerance to Pink Root Rot and strong tops. The exceptional bulb firmness makes this variety well-suited for mechanical harvest. Bulbs are approximately 3.0 in. (7.6 cm), globe-shaped and uniform.

Gabriella F1

Gabriella is a high yielding short day variety that is strong against bolting. Uniform bulbs have a mild to sweet flavor and an attractive globe shape. Yellow to brown in color, onions are large in size and will store for 2-4 months. Maturing mid-to-late season, this beauty will yield an excellent crop for fresh market and short term storage.

Madalyn F1

Madalyn is an early-to-mid short day yellow onion with excellent bolting tolerance for fresh market production. It produces globe shaped, bronze colored onions that are medium to large in size. Bulbs are single centered and tops are upright and vigorous. Madalyn is quick to mature and high yielding.

Intermediate Day

Cabernet F1

Cabernet is a medium-sized, intermediate red onion for storage, fresh market or export. With a vigorous plant habit, Cabernet produces uniform globe shaped bulbs of outstanding holding ability and high quality. Excellent internal ring color development combined with single centers and partial resistance to foliar diseases make this variety a standard for organic onion production. Typical harvest is July through August, offering earliness, firmness and 4-6 month storability.

Monastrell F1

Monastrell is an intermediate day onion that boasts high quality bulbs. Plants are upright and strong against disease. With round to slightly flat shapes, this dark red onion is strong against sunscald. Monastrell matures slightly later than Cabernet and is larger in size. This variety has excellent internal ring color development and impressive storage capability for its class.

Zoey F1

Zoey is an adaptable intermediate yellow onion. High quality, uniform bulbs have a nice round shape, strong centers and good firmness. Plants are vigorous and have some tolerance to Pink Root. This high-yielding onion has a nice mix of pungency and sweetness for the fresh market. Transplant or direct seed early in the season to maximize Zoey's size potential.













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Cauliflower

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Janvel F1

Dense, well-filled curds make this an attractive variety for both fresh market and processing. Tall leaves of this vigorous plant provide excellent sunburn protection for curds. Recommended for late summer and fall harvest.

Mardi F1 new

Mardi is an early maturing cauliflower that develops uniform, white heads averaging 1.3-1.8 lb. (600-800 g). Plant habit is vigorous and upright, with partially self-wrapping leaves to protect the curds. Mardi is appreciated for its sweet, nutty flavor, and can be grown in the spring, summer and fall in Northern climates.

Janvel

Fennel

Genesi F1

Genesi is an ideal fennel for late season plantings with very good cold tolerance. The dark foliage creates an umbrella shape around the bulb to help protect it. The bulb is compact, round and white, with minimal green veins and a small cutting surface. Genesi should not be planted in the heat, and is particularly well-suited for fall and winter production in coastal climates and the Pacific Northwest.



Mardi

Idillio F1

Idillio is a vigorous late season fennel with good frost tolerance. The foliage is light green and bulbs are uniform, round, smooth and shiny. Idillio stands out for its post-harvest quality, especially its minimal oxidation at cut points. Idillio should not be planted in the heat, and is particularly well-suited for fall and winter production in coastal climates and the Pacific Northwest.



Preludio F1

Preludio is an early variety with good bolting tolerance. It produces uniform, round bulbs of standout quality and yield. Compact plants are very upright and bulbs have a narrow cutting surface for ease of harvest. With succession plantings, Preludio can be successfully harvested in spring, summer and early fall.



Cucumber

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American Slicer

Alcazar F1

An American slicer type with a vigorous and productive plant habit. The fruit is dark green, 8-9 in. (20-22 cm) in length and has excellent shelf life. Alcazar is suited to cooler temperatures and has intermediate maturity.

Resistances: HR: Ccu. | IR: Px/CVYV.

Corinto F1

A slicer variety for fall and spring production that sets well under cool conditions. This variety is very productive and produces cylindrical, dark green, shiny, smooth fruit of 8-10 in. (20-25 cm) in length. The excellent disease resistance package makes this variety a great choice for both open field and unheated greenhouse organic production.

Resistances: IR: Px/CMV/CVYV.

Paraiso F1

Paraiso is a very flexible variety that adapts well to varying growing conditions. The plant is vigorous and produces well in cold conditions. Fruits average 8-9 in. (20-22 cm) long, and are cylindrical, shiny and dark green. They have good shelf life and retain an attractive shine in storage.

Resistances: IR: Px/CMV/CVYV/CYSDV.

Primavera F1

Primavera is recommended for greenhouse cultivation in mild temperature growing regions for fall, winter and early spring crops. Plants will quickly find the right balance of fruit and vegetative growth under these conditions. Primavera is labor-friendly with an open plant habit for ease of harvest. Fruits average 8 in. (20-22 cm), have very good shelf life and present beautifully on store shelves.

Resistances: HR: Ccu. | IR: CMV/CVYV/Px.

Saber EZ F1

Saber EZ is a strong, vigorous variety with good side shoot development and excellent recuperation after cold periods. The dark green, cylindrical fruits of this high yielding variety are spined and have an average length of 7 in. (17-20 cm). Our best variety for flexible production in both tunnels and open field.

Resistances: HR: Cca/Ccu. IR: CMV/CVYV.











Cucumber

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Kalunga

Poniente

Roxynante

Long European Type (LET)

Kalunga F1

Kalunga is a strong, compact, productive plant, that grows well in many different climates and planting slots. This early maturing variety produces one fruit per node. Dark green fruit are slightly ribbed and 12-13 in. (31-34 cm) in length. Fruits have good extended shelf life and are recommended for unheated greenhouse production.

Resistances: HR: Cca/Ccu. | IR: Px.

Poniente F1

Poniente offers a strong resistance package and produces uniform dark green fruit that are 12-13 in. (31-34 cm) long and nicely ribbed. The plant habit is vigorous with a dependable fruit set, 1-2 fruit per node, and early maturity. Recommended for unheated and heated greenhouse production, Poniente performs best in the spring and fall in hot climates, and does well in spring, summer and fall in cooler climates.

Resistances: HR: Ccu. | IR: CMV/CVYV/CYSDV/Px.

Roxynante F1

Roxynante produces fruits that are dark green, cylindrical and slightly ribbed. It has excellent cold tolerance and high productivity. Fruits grow very straight, measuring 12-13 in. (31-34 cm) in length. Best grown in unheated greenhouse production for fall and winter production.

Resistances: HR: Cca/Ccu. | IR: CVYV.

Tyria F1

Tyria is a very vigorous variety, developing dark green, slightly ribbed, well-filled fruits of 13 in. (33-36 cm) in length with a gradual production change from the main stem to the laterals. It can be grown in the open field and unheated greenhouse over a broad range of seasons.

the laterals. It can be grown in the open field and unneated greenhouse over a broad range of seasons.

Resistances: HR: Cca/Ccu. | IR: Px.

Cucumber

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Mini

Katrina F1

Katrina is a robust and productive mini cucumber with an open plant habit and only a few laterals. The fruits, 3-4 per node, are of top quality. They are glossy, nicely ribbed, very uniform and 6 in. (16 cm) in length. Good resistance package for unheated greenhouse production.

Resistances: HR: Ccu. | IR: CMV/CVYV/Px.

Picolino F1

Picolino is a widely adaptable mini cucumber variety that is the smallest of the Vitalis assortment. Produces high quality, dark green, shiny fruits of 4-5 in. (10-13 cm) that are nicely ribbed and extremely uniform. With 3-4 fruits per node, the compact, vigorous plants are early to produce.

Resistances: HR: Cca/Ccu. | IR: Px/CMV/CVYV.

Socrates F

Socrates is a dependable variety that produces dark green fruits of 7 in. (17-18 cm), which are both tender and sweet. Adapted to open field and unheated greenhouse conditions, Socrates performs best in spring and fall.

Resistances: HR: Ccu. | IR: Px.

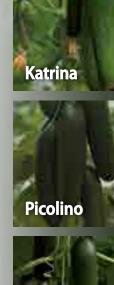
Pickling

Excelsior F1

Excelsior is a high quality pickling cucumber for both open field and unheated greenhouse production in spring and fall. It has an open and vigorous plant habit, with fruits that are medium to dark green and 4-5 in. (10-13 cm) in length.

Resistances: HR: Cca/Ccu. | IR: Px/CMV/CVYV.

All Vitalis cucumbers have all female flowers and are parthenocarpic (fruits can set without pollination).







Rootstock

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Tomato Rootstock

Estamino F1

A vigorous rootstock with a positive generative effect on the growth of the scion grafted onto it. An Estamino graft results in a well-balanced plant with steady production throughout the cultivation cycle. Estamino can be used to control excessive vegetative growth and increase total yield.

Resistances: HR: ToMV:0-2/Ff:A-E/Va:0/Vd:0/Fol:0-2/For. | IR: TSWV/PI/Ma/Mi/Mj.

Fortamino F1

Fortamino is especially recommended for use when transplanting into hot or stressed growing conditions. The strong root system provides extra vegetative power to the scion in the early stage of growth, developing very good leaf cover and ensuring excellent recovery after experiencing unfavorable conditions. Grafting onto Fortamino rootstock will also increase the number of flowers per truss, and increase the average fruit weight.

Resistances: HR: ToMV:0-2/Ff:A-E/Va:0/Vd:0/Fol:0-2/For. | IR: TSWV/PI/Ma/Mi/Mj.



Flexifort F1

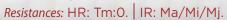
Use of Flexifort rootstock is recommended for cucumber, melon and watermelon growers seeking a longer, healthier crop. This rootstock brings increased vigor and a high return of quality fruits. Flexifort is an interspecific *Cucurbita maxima* x *Cucurbita moschata* cross that combines nicely with a wide number of varieties. It provides resistance to several soil borne diseases, as well as abiotic stresses such as drought, temperature extremes and high salinity.

Resistances: HR: Fom:0-2/Fom:1.2/Fon:0-1/Foc. | IR: Forc.

Pepper Rootstock

Scarface F1

For growers struggling with nematode pressure in their tunnel or greenhouse, Scarface pepper rootstock is the solution! Scarface performs best when grafted to generative scions, and will increase yields by extending the production season longer than is possible with ungrafted plants. Scarface can be used in both heated and unheated greenhouse conditions.













Tomato

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Beef

Arbason F1

Arbason is a large-sized beef tomato with an average weight of 7.0-9.0 oz. (200-255 g). Suitable for protected culture and open field production systems, Arbason is early maturing. The fruit is round in shape and has good quality with high production. The indeterminate plant grows very vigorously and is highly reliable under a wide variety of growing conditions.

Resistances: HR: ToMV:0-2/Va:0/Vd:0/Fol:0-1.

Caiman F1

This early maturing and high yielding indeterminate hybrid has a vigorous, open, compact plant with short internodes and good fruit set. The round fruit are large in size, 7.5-8.5 oz. (220-240 g), very tasty, and have an attractive deep red color. Caiman is easy to cultivate, and particularly recommended for unheated protected culture in the spring and summer.

Resistances: HR: ToMV:0-2/Ff:A-E/Va:0/Vd:0/Fol:0-1. | IR: TSWV/Ma/Mi/Mj.

Skyway 687 F1 🖹

Skyway 687 produces large, high quality 12 oz. (355g) tomatoes for open field production. This variety is especially well-suited for organic production in the Southeast because of its strong disease package, including virus and nematode resistance. Skyway has a vigorous, semi-determinate habit, and benefits significantly from pruning of ground shoots at the start of the crop. Wide adaptability to diverse growing conditions and regions.

Resistances: HR: ToANV/Va:0/Vd:0/Fol:0-2. | IR: TSWV/TYLCV/Ma/Mi/Mj.









Tomato

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Cherry

Sakura F1

Sakura is a standout cherry tomato, producing beautiful mid-sized round fruit of 0.5-0.8 oz. (15-20 g) with a sweet and tangy flavor. The fruits are tolerant to cracking, with well-attached sepals and magnificent trusses of 20 fruits or more. Well adapted to open field and unheated greenhouse production.

Resistances: HR: ToMV:0-2/Ff:A-E/Fol:0-1. | IR: Ma/Mi/Mj. | T: Si.

Toronjina F1

Toronjina is a highly attractive orange cherry tomato with vibrant color and good tolerance to cracking. Adaptable to open field and unheated greenhouse production, this orange cherry is an excellent addition to mixed pints of colored cherry tomatoes. Produces high yields of 0.6-0.8 oz. (18-22 g) tomatoes.

Resistances: HR: ToMV:0-2/Ff:A-E/Fol:0-1.

Grape

Montesino F1

A 'Santa' type grape tomato for production in open field and unheated greenhouses. Sweet, tasty fruits have an early to medium maturity window. The strong plant habit sets fruit easily and produces high yields of mini-plum shaped fruit that weigh approximately 0.3-0.5 oz. (10-14 g).

Resistances: HR: ToMV:0-2/Fol:0.

Matthew F1

Matthew is a unique variety that combines a robust plant habit and attractive orange grape tomatoes with great flavor. Plants are vigorous, early maturing and well-balanced. On average, fruits are 1.2 oz. (35 g) and can be grown in open field and unheated greenhouse systems year round.

Resistances: HR: ToMV:0-2/Ff:A-E/Va:0/Vd:0/Fol:0-1/For. T: Si.









HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see page 43-45.



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Tomato

Plum

PaiPai F1

PaiPai is an indeterminate plum tomato that produces extra-large fruit averaging 6.4 oz. (180 g). Tomatoes of 6-8 per cluster ripen evenly and are not susceptible to grey wall. The plant is notably strong and compact, and pruning is recommended to ensure proper aeration of the vigorous vines. With short internodes that allow for high per plant yields, firm fruits and extended shelf life, PaiPai is a profitable variety for both growers and shippers.

Resistances: HR: ToMV:0-2/Va:0/Vd:0/Fol:0-1. | IR: TSWV/Ma/Mi/Mj.



An indeterminate plum tomato variety with a compact vigorous plant for the open field or unheated greenhouse production. Granadero delivers high yields of large fruit, with an average weight of 5.0 oz. (150 g), and demonstrates tolerance to cooler conditions.

Resistances: HR: ToMV:0-2/Lt/Va:0/Vd:0/Fol:0-1. | IR: TSWV/Ma/Mi/Mj.



Pozzano F1

A traditional looking 'San Marzano' tomato that produces a bountiful yield of smooth shaped, uniform fruit of 5.0 oz. (150 g). Fruits are robust, without green shoulders, and have good tolerance to blossom end rot. The firm fruits have excellent shelf life.

Resistances: HR: ToMV:0-2/Va:0/Vd:0/Fol:0-1.

Pink

Dimerosa F1

Dimerosa is an indeterminate pink beef tomato suitable for high tunnel production. Fruits are large and flat-round, with a dark pink color and subtle ribbing. Dimerosa is strong against cracking and weighs an average of 6.4-7.8 oz. (180-220 g). Plants are relatively short with early maturity, high yields and boasting a strong disease package. Adaptable across a broad range of production areas.

Resistances: HR: ToMV:0-2/ToANV/Ff:A-E/Aal/Va:0/Vd:0/Fol:0-1. | IR: TSWV/TYLCV/Ss.









HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see <u>page 43-45</u>.

Heated Greenhouse Tomato

Large Beef

Frederik F1

Frederik is an adaptable variety that performs well in all conditions, including under periods of low light. With resistance to Leaf Mold and Powdery Mildew, this indeterminate tomato has excellent endurance and strong vigor for long cycles. Pruned trusses of four will produce large, firm, flat-round tomatoes averaging 7.4-8.7 oz. (210-247 g). Frederik's high quality fruits have excellent shelf life.

Resistances: HR: ToMV:0-2/Ff:A-E/Fol:0-1/For. | IR: On.



Stenza is a beefsteak variety that consistently yields uniform fruits averaging 9.9-10.6 oz. (280-300 g). Indeterminate plants have good leaf coverage and strong productivity throughout the growing season, especially during the hottest periods, with minimal flower abortion. Fruits have a long shelf life and a well-balanced flavor.

Resistances: HR: ToMV:0-2/ToANV/Ff:A-E/Fol:0-1/For.



Maxeza F1

Maxeza is a unique truss tomato that combines high yield potential with good fruit color and firmness. The plant is very vigorous and will maintain uniform fruit sizes of 4.9-5.3 oz. (140-150 g), even during the heat of the summer. Maxeza is the perfect variety for growers who are aiming for early and sustained production.

Resistances: HR: ToMV:0-2/Ff:A-E/Fol:0-1/For. | IR: On. | T: Si.



Annamay F1

Annamay is a slightly smaller cocktail tomato with an average weight of 1.2-1.4 oz. (35-40 g). Balanced plants have good vigor and a strong resistance package. The trusses are well-shaped, compact and very uniform. Attractive fruits are glossy and crack-resistant, with a sweet, aromatic flavor.

Resistances: HR: ToMV:0-2/Ff:A-E/Va:0/Vd:0/Fol:0-1. | IR: On. | T: Si.



Tomagino F1

Tomagino stands out for its sweet flavor and its strong resistance to splitting. Well-balanced plants have excellent setting and are fast to mature, making it suitable for year round production. Expect 0.6-0.7 oz. (17-20 g) fruits, with superior color and shine, on highly uniform vines. This variety also works well for TOV (tomatoes on the vine) production.

Resistances: HR: ToMV:0-2/Va:0/Vd:0/Fol:0/For. | IR: On.

Grape

Garincha F1

Garincha is a beautiful, oval shaped grape tomato for heated greenhouse production. It has a vigorous, easily-balanced plant type. Uniform fruits are 0.4 oz. (12 g) in size with an attractive, shiny red color. The production capacity of Garincha is extraordinary. Trusses set well as the plant grows, staying in balance through a long cropping cycle. Garincha is very suitable for loose harvest, but also can be harvested on the truss.

Resistances: HR: ToMV:0-2/Fol:0-1. | IR: TSWV/Ma/Mi/Mj.













HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see page 43-45.



Melon

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Specialty Cantaloupe Divergent ■

Divergent defies classification—part Cantaloupe, part Galia, all flavor! This variety is sweet (Brix 15-18°), juicy and ripens earliest in its class. Orange fleshed, round fruits are medium-size, 2.6-3.0 lb. (1.2-1.4 kg) and set close to the crown for a concentrated harvest. Succession plantings are recommended for a continuous supply throughout the season, as the early maturity allows for the crop to be harvested in two to three passes. Noted for its uniformity in maturity, melons are ready to harvest when the netting begins to turn from green to tan. Divergent is an adaptable, high yielding variety that performs well in many regions, including northern areas with shorter seasons. Recommended for fresh market production only.

Resistances: HR: Fom:0-2. | IR: Gc:1/Px:1-2,5/Ag.

Italian Netted

Magnificenza F1

Magnificenza is an Italian netted melon producing 3.0-4.0 lb. (1.4-1.8 kg) fruits that are slightly high round in shape with excellent sutures and netting. The strong plant has an easy fruit set under variable conditions and produces attractive melons with orange flesh, good flavor and consistent Brix levels of 13-15°. Aphid resistance is another advantage of this variety.

Resistances: HR: Fom:0-2. | IR: Gc:1/Px:1-2,5/Ag.

Tirreno F1

Tirreno is a favorite among northern growers. It was selected for its flavor, uniformity and solid production under organic conditions. Tirreno produces round to slightly high round fruits with uniform sutures and thick netting. It has excellent fruit quality with good flesh structure and a slightly thick, green rind. Brix levels average 13-15°. Exterior skin color is grey to cream with an interior orange flesh color. It produces 2.6-3.0 lb. (1.2-1.4 kg) fruits.

Resistances: HR: Fom:0-2/MNSV. | IR: Px:1-2,5.











Organic Field Days

Field days provide a wonderful opportunity to showcase the newest varieties from the Vitalis assortment. In addition, we love to interact with organic growers, other seed companies and public researchers to share successes and challenges of the season, and to work collaboratively in improving the availability of high quality organic seed. This year, Vitalis hosted field days at our San Juan Bautista Research Station in California, our Myakka Research Station in Florida, our Culiacan Research Station in Sinaloa, Mexico and at the Seneca Vegetable Research Station in New York.

Vitalis is proud to manage certified organic land at all three of our research stations in North America. Each of our certified organic Research Station plots is used for variety trialing, breeding, selection and demonstration for our internal and external customers to learn about organic production techniques, and to see the performance of our varieties when grown under organic management conditions. We also sponsored and participated in the third annual field day at Oregon State University's North Willamette Research and Extension Center (NWREC) and the University of Wisconsin-Madison organic field day.

Educational Outreach & Advocacy

Vitalis recognizes the critical organic research and training that occurs at universities and extension centers throughout the United States. We support this work in multi-faceted ways, such as joining a new partnership with the Oregon State University (OSU) Extension Service and Oregon Tilth to establish an Organic Extension program in Oregon. The program is part of the OSU Center for Small Farms and Community Food Systems and will coordinate education and applied research in organic agriculture.

For the 6th year in a row, Vitalis has been a proud sponsor of the Student Organic Seed Symposium (SOSS). SOSS is an event developed by and for graduate students involved in organic seed system research. This year, SOSS participants toured our research station in San Juan Bautista as well as our headquarters and seed warehouse in Salinas. The day included presentations on organic breeding, seed production, and post-harvest research. The students were smart, inquisitive and engaged, and we look forward to welcoming them as colleagues in the future. To learn more about SOSS go to www.soseeds.org.











Connecting with Consumers

At Vitalis, we spend a lot of time in the field working with growers. Our end goal is to provide the best varieties for organic production systems, but also vegetables and herbs that taste good and are visually appealing to consumers. To that end, we work extensively with wholesale distributors, retail food chains and even chefs to understand what traits they are looking for in the products they choose. This year we hosted a field tour for the 2017 Organic Produce Summit at our San Juan Bautista, California Research Station for over 200 produce buyers representing grocery stores and distributors from across the country. These retail customers had the opportunity to learn about our seed selection and breeding process for value added traits and adaptation to organic production systems as well as taste some of our new varieties. We also participated in the first Foro Nacional Orgánico in San Miguel de Allende, Mexico, which addressed the specific challenges of Central Mexican organic growers, namely certification requirements, production techniques and export market needs. At the Culinary Breeding Network Variety Showcase in Portland, Oregon, we teamed up with a local chef, who created basil shaved ice from our Downy Mildew Resistant Eleanora.



Sweet Pepper

Blocky Green to Red

Sprinter F1

Sprinter produces high yields of beautiful 3.5 in. (8-9 cm) peppers for a long production period. This variety is not sensitive to blossom end rot or russeting. Sprinter will turn a brilliant red at maturity, with thick walls and sweet flavor. Recommended for open field and unheated greenhouse production.

Resistances: HR: Tm:0-3.

Blocky Yellow

Abay F1

Abay produces large fruits of 4 in. (10 cm) with thick walls that mature from dark green to yellow. Suitable for spring and fall plantings in the open field in the Southeast, and as a late season main crop in the Northeast and Midwest. Excellent Bacterial Leaf Spot resistance.

Resistances: HR: Xcv:1-5/Tm:0.

Blocky Orange

Milena F1

Milena is an early maturing orange bell. High quality fruits have a dark orange color and medium size, averaging 3.5 in. (8-9 cm). The plant has a vigorous, open habit with good yield and strong resistance to viruses. Best suited for open field and unheated tunnel production. Milena is a standout variety that delivers uniform fruits and high productivity.

Resistances: HR: PVY:0-1/Tm:0-3. | IR: TSWV:0/TEV.

Mozart F1 new!

Mozart is a brilliant orange blocky pepper for high tunnel and unheated greenhouse production. Uniform, high quality, blocky fruits are resistant to cracking. Fruits maintain good sizes over a long harvest cycle. The plant has an open habit that is easy to prune. Mozart is widely adapted.

Resistances: HR: Tm:0-3. | IR: TSWV:0.











HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see page 43-45



Diverse Pepper

Long Sweet Conicals

Oranos F1

This outstanding orange conical pepper is a very early variety that produces vigorous plants with fruits 7 \times 1.5 in. (18 \times 4 cm) in size. Oranos is especially appreciated for its high yields and easy growth habit. Staking this variety is recommended to ensure a long harvest window.

Resistances: HR: Tm:O.

Hot Pepper

Ancho

Bastan F1

This flavorful pepper has good heat and matures to a beautiful chocolate color. Medium sized fruits average 5.5×2.5 in. (14 x 6 cm), are thick walled and have a dark green color prior to ripening. The plant produces a concentrated set of consistently high quality fruits for fresh market. Thanks to robust leaf cover and medium-early maturity, Bastan delivers excellent yields.



Heated Greenhouse Pepper

Blocky Red

Healey F1

Healey produces large quantities of extra-large and jumbo red peppers of 3.5 in. (8-9 cm). Plants are sturdy with good vigor and adaptability to variable conditions. Fruits are uniform, firm and tasty. This variety is strong against russeting and blossom end rot. Healey has early to medium maturity and is high yielding. The open, strong plant habit requires generative steering. In addition to its superior fruit quality, Healey maintains its large sizes in the second half of the cultivation cycle.

Resistances: HR: Tm:0-2.

Triple 5 F1

Triple 5 has a semi-open plant architecture and a generative habit that sets fruit easily. This high yielding variety works best when managed as a fast growing crop. High quality fruits are uniform and blocky under all circumstances during the entire life of the crop. Fruits average 3.5 in. (8-9 cm).

Resistances: HR: Tm:0-3. | IR: Ma/Mi/Mj.

Viper F1

Viper is a high quality variety with good yields that is also fairly early. Fruits average 3.5 in. (8-9 cm) and have a high weight per fruit. Fruit set is regular and evenly distributed throughout the plant, adaptable to almost all conditions. Viper has an open plant habit with a lot of vigor, and is best grown at high speed.

Resistances: HR: Tm:0-2.









HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see page 43-45.

Heated Greenhouse Pepper

Blocky Yellow

Bentley F1

Bentley is a heated greenhouse yellow blocky pepper variety with a compact and generative plant that produces a high percentage of extra-large fruits of 3.5-4.0 in. (9-10 cm) with four lobes. This high yielding, labor-friendly variety has an open plant habit, short internodes and a generative character. Bentley easily sets fruits and has high fruit loads. For the best results, utilize a cultivation strategy focused on promoting growth and speed of plant development.

Resistances: HR: Tm:0-3.

Eurix F1

Our newest yellow blocky bell pepper was a standout in trials for its early maturity, consistently high yields and ease of fruit set. Eurix has a strong root system which contributes to a uniform fruit size of 3.7 in. (9.4 cm), as well as adaptability to a range of growing conditions while maintaining a generative balance. Fruit is light green when immature, and colors to a medium yellow, with exceptional shelf-life.

Resistances: HR: Tm:0-2.

Blocky Orange

Orbit F1

Orbit is an orange blocky bell pepper with a vigorous plant habit and high yield. Recent trials in Canada, the USA and Mexico have shown Orbit to be adaptable in early and late sowings and productive throughout the season. Fruits average 3.3-3.5 in. (8-9 cm). This exciting addition offers growers a versatile and high-quality orange pepper with impressive shelf life that will nicely round out their assortment.











Summer Squash

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Zucchini, Green

Alessandra F1

Alessandra is a green zucchini with impressive disease resistance and intermediate maturity. Dark green, cylindrical fruits are formed on a balanced, upright plant. Fruits set well under hot conditions. Alessandra is recommended for summer through fall production, especially in areas with high virus pressure.

Resistances: IR: Px/CMV/ZYMV/WMV/PRSV.

Desert F1

Desert produces very dark green uniform fruits that set well under a variety of conditions. Fruits are straight, uniform and slightly speckled. Open, compact plants allow for easy harvest. Desert works well under high tunnel production conditions due to early and productive flowering. It has a strong disease resistance package.

Resistances: IR: Px/CMV/ZYMV/WMV/PRSV.

Dunja F1

Dunja has emerged as a standout variety for organic production. The plant has a vigorous, open growth habit, sets fruits easily and is high yielding. Fruits are shiny, finely speckled, dark green, medium long, and of excellent quality. Dunja also has a strong disease resistance package, and is appropriate for open field or tunnel production.

Resistances: IR: Px/ZYMV/WMV/PRSV.

Green Machine F1

Consistently a top performer in Midwest and East Coast field trials, Green Machine is a steady producer of uniform, medium green fruits of exceptional quality. With high yield potential and an open, labor-friendly plant habit, Green Machine also offers strong protection against virus and powdery mildew.

Resistances: IR: Px/CMV/ZYMV/WMV.

Kopana F1

Kopana is a dark green zucchini selected for high tunnel production in the spring. Plants are vigorous, while maintaining a compact, open, well-balanced habit. Fruits are shiny, lightly speckled, with a slight taper. Selected to set fruit under cool conditions, Kopana works best in the presence of some natural pollinators. With strong yields and an upright habit, this variety will produce uniform, high quality fruits for the early market.

Resistances: IR: Px/ZYMV/WMV/PRSV.

Zucchini, Yellow

Yellowfin F1

Yellowfin has a brilliant yellow color and produces high yields of straight, cylindrical fruits. Compact plants are vigorous and have an open habit for ease of harvest. This variety has the vigor and disease resistance required to withstand tough field conditions and still produce an abundant harvest. Strong resistance to powdery mildew.

Resistances: IR: Px/CMV.

Romanesco

Cassia F1

This hybrid romanesco zucchini boasts a vigorous, open, upright plant that is highly uniform and productive, even in low fertility environments. Cassia does well in cooler conditions, and is especially well-suited for spring production in tunnels or open field. Fruits are straight with grey-green ribbing. Attractive yellow blossoms adhere strongly to the fruit, creating a vibrant and unique market display.

HR: High resistance | IR: Intermediate resistance | For explanation of codes of resistances, see page 43-45.

















Winter Squash

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Butternut

Havana F1

Havana is the largest of our butternuts, with tan fruits that average 3-4 lb. (1.3-1.8 kg). This variety is uniform and extremely productive. Blocky fruits have a thick neck and a small seed cavity. Flesh is intense orange and tasty. The plant is vigorous and semi-vining, with some tolerance to powdery mildew. Havana has good post-harvest shelf life, and ripens fairly early for its size.

Resistances: IR: Px/ZYMV.

Tiana F1

Tiana is a blocky, slightly cylindrical variety with an average fruit size of 2.2-2.5 lb. (1.0-1.2 kg) and fruit dimensions of 7×3 in. (18 $\times 8$ cm). The yield potential of Tiana is up to 50% higher than any open pollinated butternut. The fruit quality is very consistent and the exterior skin color is an intense dark tan color.

Resistances: IR: ZYMV.



Havana

Eggplant

Traviata F1

Traviata is a strong growing, well-balanced plant that produces half-long, uniform, black, shiny fruits. A high yielding and early variety recommended for spring and summer open field and unheated greenhouse production.



Radish

Celesta F1

Celesta produces red, round, uniform bulbs of excellent quality. It has compact, strong, upright foliage that allows for easy harvest. Celesta is broadly adaptable and recommended for open field and high tunnel production.



Celesta

Pearl 🗎

A white, smooth, round radish with a small green neck for open field production. Pearl has very vigorous growth and good resistance to cracking. It is adaptable as a processing radish in cello bags or in fresh bunches, due to its strong tops. This variety shines when mixed with red round radishes.

HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see <u>page 43-45</u>.





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Eleonora

Elidia

Emily

Basil Ocimum basilicum

Dolly

Our largest-leaf Genovese type basil that is very uniform and fast growing. Dolly demonstrates better tolerance against low temperatures compared to other basil varieties.

Eleonora



Eleonora is a fast growing variety that has intermediate resistance to downy mildew - it is consistently slower to get downy mildew than other varieties on the market. Medium green leaves are slightly narrower and less cupped than a traditional Genovese type.

Resistances: IR: Pb.

Elidia





Elidia is a Genovese type with intermediate resistance to Fusarium. Large, dark green, glossy leaves are borne on thick, sturdy stems with medium internodes. This variety is high yielding and very slow to bolt.

Resistances: IR: Fob.

Emily



A compact Genovese type basil with medium to large leaves. Emily is highly recommended for its improved shelf-life. Adapted to both field and greenhouse production, with excellent leaf and plant size for whole plant sales or fresh cut.

Genoveser



Traditional cup-shaped, dark green, shiny leaved variety for field production. High yielding with strong, sweet basil aroma.





Keira has been bred for improved shelf-life and postharvest tolerance to cold temperatures. Medium size, shiny leaves and short internodes are ideal for pot production, but also works in the open field. Keira delivers an attractive end product after transport.

Rosie



Improved 'Red Rubin' basil with a consistent, intense dark red color and compact and upright growth on robust stems.

Keira





Resistance Makes the Difference

Resistance Makes the Difference logo represents herb and arugula varieties bred for quality traits such as disease resistance and cold tolerance.

HR: High resistance | IR: Intermediate resistance For explanation of codes of resistances, see page 43-



'RMTD

Herbs



Chives Allium schoenoprassum

Nelly

A fine-to-medium thick chive, Nelly is dark blue-green in color, vigorous and upright. It is strongly resistant to diseases and thrip damage, and is used for fresh and industrial markets.

Staro 💥

An extra thick, dark green variety for a broad range of growing purposes, including forcing and pot production. Appropriate for fresh cut and industrial markets.

Cilantro Coriandrum sativum



Thickly feathered leaf cilantro with excellent plant emergence, late bolting and high yielding for open field or greenhouse production.

Dill Anethum graveolens

Ella

Ella is an attractive dark green dill variety bred for pot and babyleaf production. Its short hypotocyl gives it a sturdy upright and compact plant habit.

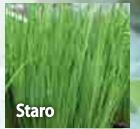
Green Sleeves

A uniform dark green dill for production of fresh bunches. Green Sleeves is resistant to bolting and is suited for year-round growing in open field and greenhouse production.

Tetradill, Sel. Goldkrone Especially high yielding and late flowering, this tetraploid-type dill is appropriate for fresh cut or processing production in the open field.

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Goldkrone



Herbs recommended for pot production.

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Parsley, Flat Leaf Petroselinum crispum

Gigante d'Italia

A large, flat leaved variety that is a dependable standard—very aromatic and high yielding.

Peione

RMTD 🐇

Peione is a standout Italian large leaf variety with large, glossy, dark green leaves and uniform habit. Vigorous plants are highly productive, with strong regrowth and intermediate resistance to downy mildew. Thick, sturdy stems and upright growth make for easy bunching.

Resistances: IR: Pp.

Parsley, Curly Leaf Petroselinum crispum

Moss Curled II

An improved Moss Curled type with very dependable, uniform, dark green, double curled leaves.

Wega



Wega is a double curl parsley that delivers high uniformity, dark color and upright, strong stems. Adaptable for both fresh cut or mechanical harvest, as well as open field and potted herb programs. The architecture of the plant makes for easy, clean bunches. Wega also offers excellent shelf life.

Sage Salvia officinalis

Fanni

A quality sage selection with large leaves, excellent yield and dependable germination. Fanni produces well in open field and greenhouse conditions.

Thyme Thymus vulgaris

German Winter

A bushy plant with broad leaves that can be used for open field or greenhouse production of fresh or dried product.







German Winter



Resistance Makes the Difference

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Our 2018 Conference & Trade Show Calendar

North Willamette Horticulture Society Conference

January 9-11 / Canby, OR

Organic Farming Conference

January 20 / Boise, ID

Vermont Vegetable & Berry Growers Conference

January 22 / Fairlee, VT

Eco-Farm Conference

January 24-27 / Pacific Grove, CA

Global Organic Produce Expo

January 25-27 / Hollywood, FL

Pacific Ag Show

January 25-27 / Abbotsford, CAN

ASTA Vegetable & Flower Seed Conference

January 27-30 / San Diego, CA

PASA Farming for the Future Conference

February 7-10 / State College, PA

Organic Seed Growers Conference

February 14-17 / Corvallis, OR

MOSES Conference

February 22-24 / LaCrosse, WI

Certified Organic Associations of BC

February 24-26 / Abbotsford, BC CAN

Simposio Produccion Organica - Capaciagro

April 26-27 / Culiacan, Sinaloa MX

Organic Produce Summit

July 11-12 / Monterey, CA

Foro Organica - Centro MX

August 16-17 / San Miguel, Qto MX





Resistances



Descriptions, recommendations and illustrations in this catalogue correspond as closely as possible to tests and practical experience. This information is provided to assist professional growers and users; however, variable local conditions must be taken into account. Under no circumstances shall Vitalis Organic Seeds, North America, accept liability based on such information for deviating results in the cultivated product. The Purchaser is responsible for determining whether the items are suitable for the intended cultivation type and location.

Important Resistance Information:

Resistances in varieties of our crops are coded, unless indicated otherwise. See explanation of our coding list at www.vitalisorganic. com. If a variety is resistant to more than one pathogen, the individual resistance codes will be separated by the symbol "/".

- If in a resistance code of a certain variety reference is made to certain strains for which the resistance is claimed, this means that no resistance is claimed to other strains of the same pathogen.
- If in a resistance code no reference is made to specific strains of the pathogen for which the resistance is claimed, this means that resistance is claimed only generally to the pathogen, and not to specific strains of the pathogen.

Crop	Type	Scientific name pathogen ISF	English name	Code	Races/ Strains	Level of resistance	Remark
			2 11				
Arugula	Viruses	Hyaloperonospora parasitica	Downy mildew	Нр		IR	
Basil	Fungi	Peronospora belbahrii	Downy mildew	Pb		IR	
		Fusarium oxysporum f. sp. basilicum	Fusarium Wilt	Fob		IR	
Cucumber	Viruses	Beet pseudo yellowing virus	Beet pseudo yellowing virus	BPYV		IR	
		Cucumber mosaic virus	Cucumber mosaic	CMV		IR	
		Cucumber vein yellowing virus	Cucumber vein yello- wing	CVYV		IR	
		Cucurbit yellow stunting disorder virus	Cucumber yellowing stunting disorder	CYSDV		IR	
		Papaya ringspot virus	Papaya ringspot	PRSV		IR	
		Watermelon mosaic virus	Watermelon mosaic	WMV		IR	
		Zucchini yellow mosaic virus	Zucchini yellows	ZYMV		IR	
		Cucumber green mottle mosaic virus	Cucumber green mottle	CGMMV		IR	
	Bacteria	Pseudomonas syringae pv. lachrymans	Angular leaf spot	Psl		IR	
	Fungi	Cladosporium cucumerinum	Scab and gummosis	Ccu		HR	
		Colletotrichum orbiculare	Anthracnose	Co	1	IR	
		Colletotrichum orbiculare	Anthracnose	Со	2	IR	
		Colletotrichum orbiculare	Anthracnose	Со	3	IR	
_		Corynespora cassiicola	Corynespora blight and target spot	Cca		HR	
		Fusarium oxysporum f.sp. cucumerinum	Fusarium wilt	Foc	1	IR	
		Fusarium oxysporum f.sp. cucumerinum	Fusarium wilt	Foc	2	IR	
		Fusarium oxysporum f.sp. cucumerinum	Fusarium wilt	Foc	3	IR	
		Podosphaera xanthii (ex. Sphaerotheca fuliginea)	Powdery mildew	Px		IR	
		Pseudoperonospora cubensis	Downy mildew	Pcu		IR	
Lettuce	Viruses	Lettuce mosaic virus	Lettuce mosaic	LMV	1	IR	LMV:1
		Tomato bushy stunt virus	Lettuce die-back	TBSV		HR	
	Bacteria	Sphingomonas suberifaciens (ex Rhizomonas suberifaciens)	Corky root	Ss		IR	
	Fungi	Bremia lactucae	Downy mildew	BI	16-33EU	HR	In USA called BI:1
		Fusarium oxysporum f.sp. lactucae	Fusarium wilt	Fol	1	IR/HR	
		Fusarium oxysporum f.sp. lactucae	Fusarium wilt	Fol	2	IR/HR	
	Insects	Macrosiphum euphorbiae	Potato aphid	Me		IR	
		Nasonovia ribisnigri	Lettuce leaf aphid	Nr	0	HR	
		Pemphigus bursarius	Lettuce root aphid	Pb		HR	
Melon	Viruses	Cucumber mosaic virus	Cucumber mosaic	CMV		IR	
		Melon Necrotic Spot Virus	Melon necrotic spot	MNSV		HR	
		Papaya ringspot virus	Papaya ringspot	PRSV		IR	
		Watermelon mosaic virus	Watermelon mosaic	WMV		IR	
		Zucchini yellow mosaic virus	Zucchini yellows	ZYMV		IR	
	Fungi	Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	0	HR	
		Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	1	HR	
		Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	2	HR	
		Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	1.2	IR	
		Golovinomyces cichoracearum (ex. Erysiphe cichoracearum)	Powdery mildew	Gc	1	IR	
		Podosphaeria xanthii (ex Sphaerotheca fuliginea)	Powdery mildew	Px	1	IR	
		Podosphaeria xanthii (ex Sphaerotheca fuliginea)	Powdery mildew	Px	2	IR	
		Podosphaeria xanthii (ex Sphaerotheca fuliginea)	Powdery mildew	Px	3	IR	
		Podosphaeria xanthii (ex Sphaerotheca fuliginea)	Powdery mildew	Px	5	IR	
		Podosphaeria xanthii (ex Sphaerotheca fuliginea)	Powdery mildew	Px	3.5	IR	
	Insects	Aphis gossypii	Cotton aphid	Ag		IR	

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Cro	р Туре	Scientific name pathogen ISF English name Code		Races/ Strains	Level of resistance	Remark		
Parsle	y Viruses	Septoria petroselini	Septoria blight	Sp		IR		
	Fungi	Plasmopara petroselini	Downy mildew	Рр				
Pepper	er Viruses	Cucumber mosaic virus	Cucumber mosaic	CMV		IR		
		Pepper mottle virus	Pepper mottle	PepMoV		HR		
		Pepper yellow mosaic virus	Pepper yellow mosaic	PepYMV		HR		
		Potato Y virus	Potato Y	PVY	0	HR	PVY:0	
		Potato Y virus	Potato Y	PVY	1	HR	PVY:1	
		Potato Y virus	Potato Y	PVY	1.2	HR	PVY:2	
		Tobacco etch virus	Tobacco etch	TEV		IR		
	Tobamovirus	Tobamovirus (ToMV, TMV, PMMoV)		Tm	0	HR	Tm:0	
	group	Tobamovirus (ToMV, TMV, TMGMV, PMMoV)		Tm	0, 1	HR	Tm:0,1	
		Tobamovirus (ToMV, TMV, TMGMV, PMMoV)		Tm	0, 1, 1.2	HR	Tm:0-2	
		Tobamovirus (ToMV, TMV, TMGMV, PMMoV)		Tm	0, 1, 1.2, 1.2.3	HR	Tm:0-3	
		Tomato spotted wilt virus	Tomato spotted wilt	TSWV	0	IR		
	Bacteria	Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	1	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	2	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	3	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	4	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	5	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	6	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	7	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	8	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	9	HR		
		Xanthomonas campestris pv. vesicatoria	Bacterial spot	Xcv	10	HR		
	Fungi	Phytophthora capsici	Buckeye fruit and root rot	Pc		IR		
		Leveillula taurica (anamorph: Oidiopsis sicula)	Leveilula taurica	Lt		IR		
	Nematode	Meloidogyne arenaria	Root-knot	Ma		IR	Resistance can be	
		Meloidogyne incognita	Root-knot	Mi		IR	adversely affected at elevated soil	
		Meloidogyne javanica	Root-knot	Mj		IR	temperatures	
			ROOL-KHOL				(>28°C)	
	Abiotic	Cracking		Cr		Т		
		Stip		St		T		
Rootstoo Cucurk			Fusarium wilt	Foc	1	HR		
Cucurk		Fusarium oxysporum f.sp. cucumerinum	Fusarium wilt	Foc	2	HR		
		Fusarium oxysporum f.sp. cucumerinum	Fusarium wilt	Foc	3	HR		
		Fusarium oxysporum f.sp. radicis-cucumerinum	Fusarium crown and root rot	Forc		IR		
		Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	0	HR		
		Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	1	HR		
		Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	2	HR		
		Fusarium oxysporum f.sp. melonis	Fusarium wilt	Fom	1.2	HR		
		Fusarium oxysporum f.sp. niveum	Fusarium wilt	Fon	0	HR		
		Fusarium oxysporum f.sp. niveum	Fusarium wilt	Fon	1	HR		
		Fusarium oxysporum f.sp. niveum	Fusarium wilt	Fon	2	HR		
		Colletotrichum orbiculare	Anthracnose	Со	1	IR		
		(ex Colletotrichum lagenarium) Colletotrichum orbiculare (ex Colletotrichum lagenarium)	Anthracnose	Со	2	IR		
		Colletotrichum orbiculare (ex Colletotrichum lagenarium)"	Anthracnose	Со	3	IR		
		Verticillium dahliae	Verticillium wilt	Vd		IR		
		Verticillium albo-atrum	Verticillium wilt	Va		IR		
		Phomopsis sclerotioides	Black root rot	Ps		HR		
		Rhizoctonia solani	Rhizoctonia root and crown rot	Rs		IR		
	Nematode	Meloidogyne incognita	Root-knot	Mi		IR		
		Meloidogyne javanica	Root-knot	Mj		IR		
Rootstoo				Tm	0	HR	Tm:0	
Pepp	er group	700011101111011111111111111111111111111		Tm	0, 1	HR	Tm:0,1	
		Tobamovirus (ToMV, TMV, TMGMV, PMMoV)		Tm	0, 1, 1.2	HR	Tm:0-2	
		Tobamovirus (ToMV, TMV, TMGMV, PMMoV)		Tm	0, 1, 1.2, 1.2.3	HR	Tm:0-3	
	Fungi	Phytophthora capsici	Buckeye fruit and root rot	Pc		IR		
	Nematode	Meloidogyne arenaria	Root-knot	Ma		IR	Resistance can be	
		Meloidogyne incognita	Root-knot	Mi		IR	adversely affected elevated soil	
		Trefordogytte incognita						
		Meloidogyne javanica	Root-knot	Mj		IR	temperatures (>28°C)	

High Resistance (HR): Plant varieties that highly restrict the growth and development of the specified pest or pathogen under normal pest or pathogen pressure when compared to susceptible varieties. These plant varieties may, however, exhibit some symptoms or damage under heavy pest or pathogen pressure.

Intermediate Resistance (IR): Plant varieties that restrict the growth and development of the specified pest or pathogen, but may exhibit a greater range of symptoms or damage compared to highly resistant varieties. Intermediate resistant plant varieties will still show less severe symptoms or damage than susceptible plant varieties when grown under similar conditions.

Tolerance (T): The ability of a plant variety to endure abiotic stress without serious consequences for growth, appearance and yield.



Crop	Type	Scientific name pathogen ISF	English name	Code	Races/	Level of	Remark
2		_	_		Strains	resistance	
Rootstock, Tomato	Viruses	Tomato mosaic virus	Tomato mosaic	ToMV	0	HR	
Tomato		Tomato mosaic virus	Tomato mosaic	ToMV ToMV	1 2	HR HR	
		Tomato mosaic virus Tomato spotted wilt virus	Tomato mosaic Tomato spotted wilt	TSWV	2	IR	
	Bacteria	Ralstonia solanacearum	Bacterial wilt	Rs		IR	
	Fungi	Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff	A	HR	
	, and a second	Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff	В	HR	
		Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff	С	HR	
		Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff	D	HR	
		Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff	E	HR	
		Fusarium oxysporum f.sp. lycopersici	Fusarium wilt	Fol	0	HR	In USA called Fol:1
		Fusarium oxysporum f.sp. lycopersici	Fusarium wilt	Fol	1	HR	In USA called Fol:2
		Fusarium oxysporum f.sp. lycopersici	Fusarium wilt	Fol	2	HR	In USA called Fol:3
		Fusarium oxysporum f.sp. radicis-lycopersici	Fusarium crown and root rot	For		HR	
		Phytophthora infestans Verticillium dahliae	Late blight Verticillium wilt	Pi Vd	0	IR HR	In USA called Vd:1
		Verticillium albo-atrum	Verticillium wilt	Vu Va	0	HR	In USA called Va:1
		Pyrenochaeta lycopersici	Corky root rot	Va Pl	0	IR	III USA Called Va.I
	Nematode	Meloidogyne arenaria	Root-knot	Ma		IR	Resistance can be
	rromatodo						adversely affected at
		Meloidogyne incognita	Root-knot	Mi		IR	elevated soil temperatures
		Meloidogyne javanica	Root-knot	Mj		IR	(>28°C)
Spinach	Viruses	Cucumber mosaic virus	Cucumber mosaic	CMV		HR	
	Fungi	Albugo occidentalis	White rust	Ao		IR	
		Cladosporium variabile	Leaf Spot	Cv		IR	
		Colletotrichum dematium	Anthracnose	Cd		IR	
		Peronospora farinosa f.sp. spinaciae (ex. Peronospora effusa)	Downy mildew	Pfs	1-16	HR	
Squash,	Viruses	Cucumber mosaic virus	Cucumber mosaic	CMV		IR	
Summer	viiuses	Papaya ringspot virus	Papaya ringspot	PRSV		IR	
		Watermelon mosaic virus	Watermelon mosaic	WMV		IR	
		Zucchini yellow mosaic virus	Zucchini yellows	ZYMV		IR	
		Squash leaf curl virus	Squash leaf curl	SLCV		IR	
	Fungi	Podosphaeria xanthii (ex Sphaerotheca fuliginea)	Powdery mildew	Px		IR	
Squash,	Viruses	Cucumber mosaic virus	Cucumber mosaic	CMV		IR	
Winter		Papaya ringspot virus	Papaya ringspot	PRSV		IR	
		Watermelon mosaic virus	Watermelon mosaic	WMV		IR	
		Zucchini yellow mosaic virus	Zucchini yellows	ZYMV		IR	
		Squash leaf curl virus	Squash leaf curl	SLCV		IR	
	Fungi	Podosphaeria xanthii (ex Sphaerotheca fuliginea)	Powdery mildew	Px		IR	
		Golovinomyces cichoracearum (ex. Erysiphe cichoracearum)	Powdery mildew	Gc	1	IR	
Tomato	Viruses	Beet mild curly top virus		BSTCV		HR	
Torrido		Beet Severe Curly Top Virus		BSTCV		HR	
		Tomato apex necrotic virus	Tomato apex necrotic virus	ToANV		HR	
		Tomato mosaic virus	Tomato mosaic	ToMV	0	HR	
		Tomato mosaic virus	Tomato mosaic	ToMV	1	HR	
		Tomato mosaic virus	Tomato mosaic	ToMV	2	HR	
		Tomato spotted wilt virus	Tomato spotted wilt	TSWV		IR	
		Tomato torrado virus	Tomato torrado virus	ToTV		HR	
		Tomato yellow leaf curl virus	Tomato yellow leaf curl	TYLCV		IR	
	Bacteria	Pseudomonas syringae pv. tomato	Bacteria speck	Pst		HR	
		Ralstonia solanacearum	Bacteria wilt	Rs		IR	
		Xanthomonas campestris pv. vesicatoria	Bacteria spot	Xcv		HR	
	Fungi		Alternaria stem canker	Aal		HR	
		Alternaria solani	Early blight	As		HR	
		Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff Ff	A B	HR HR	
		Fulvia fulva (ex Cladosporium fulvum) Fulvia fulva (ex Cladosporium fulvum)	Leaf mold Leaf mold	Ff	С	HR HR	
		Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff	D	HR	
		Fulvia fulva (ex Cladosporium fulvum)	Leaf mold	Ff	E	HR	
		Fusarium oxysporum f.sp. lycopersici	Fusarium wilt	Fol	0	HR	In USA called Fol:1
		Fusarium oxysporum f.sp. lycopersici	Fusarium wilt	Fol	1	HR	In USA called Fol:2
		Fusarium oxysporum f.sp. lycopersici	Fusarium wilt	Fol	2	HR	In USA called Fol:3
		Leveillula taurica (anamorph: Oidiopsis sicula)	Powdery mildew	Lt		HR	
		Oidium neolycopersici (ex Oidium lycopersicum)	Powdery mildew	On		IR	
		Phytophthora infestans	Late blight	Pi		IR	
		Pyrenochaeta lycopersici	Corky root rot	Pl		IR	
		Stemphylium solani	Gray leaf spot	Ss		IR	
		Verticillium dahliae	Verticillium wilt	Vd	0	HR	In USA called Vd:1
		Verticillium albo-atrum	Verticillium wilt	Va M-	0	HR	In USA called Va:1
	Nematode	Meloidogyne arenaria	Root-knot	Ma		IR	Resistance can be adversely affected
		Meloidogyne incognita	Root-knot	Mi		IR	at elevated soil
		Meloidogyne javanica	Root-knot	Mj		IR	temperatures (>28°C)
	Abiotic Stress	Silvering		Si		Т	,
		Blossom End Rot		BER		T	
		Blotching		Bl		Т	
		Cracking		Cr		T	
				нр. ні	ah Pesistance I	ID: Intermediate De	esistance T: Tolerance

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Quality Standards

Crop	Germination Standards Minimum (%)	Seed Count (seeds per pound)			Seed Count eds per kilogram)		
Arugula	85	1,134,000	to	2,268,000	2,500,000	to	4,989,500
Basil	85	266,819	to	647,989	587,002	to	1,425,576
Cauliflower	90	103,000	to	123,000	230,720	to	275,520
Chives	85	303,000	to	455,000	666,700	to	1,000,000
Cilantro	85	45,500	to	114,000	100,000	to	250,000
Cucumber	92	11,400	to	21,600	25,000	to	47,500
Dill	80	75,800	to	113,600	166,700	to	250,000
Eggplant	90	82,500	to	126,000	181,500	to	277,200
Endive	90	252,000	to	412,400	554,400	to	907,200
Fennel	90	31,947	to	36,590	70,431	to	80 668
Leek (OP)	90	114,000	to	206,200	249,500	to	453,600
Leek (F1)	85	114,000	to	206,200	249,500	to	453,600
Lettuce, Babyleaf	93	239,000	to	648,000	525,200	to	1,425,600
Melon	90	11,500	to	20,000	25,760	to	44,800
Onion	85	90,000	to	125,000	198,414	to	275,575
Parsley	85	350,000	to	412,400	769,200	to	907,200
Radish	85	62,400	to	68,500	137,600	to	151,000
Spinach	85	29,000	to	81,000	63,200	to	178,200
Summer Squash	92	2,500	to	4,700	5,500	to	10,400
Sweet Pepper	90	44,500	to	81,000	97,800	to	178,200
Tomato	92	108,000	to	267,000	237,600	to	587,000
Winter Squash	90	1,400	to	2,700	3,000	to	5,900
	1 - 1	457		400			100

Enza Zaden USA, Inc.



Ton van der Velden

President/CEO
T +1 831-682-4410
E t.vandervelden@enzazaden.com



Jean-Francois Thomin
Marketing Manager
T +1 831-998-2248
E j.thomin@enzazaden.com

Customer Service



Maria Hernandez
Customer Service & Logistics Manager
T +1 831-262-5654
E m.hernandez@enzazaden.com



Raegan Horne
Customer Service Representative,
Southeast US
T +1 941-812-6396
E r.horne@enzazaden.com



Sara Garcia
Customer Service Supervisor
T +1 831-754-2304
E s.garcia@enzazaden.com



Blanca Alvarado Customer Service Representative T +1 831-754-2300 E b.alvarado@enzazaden.com



Maria Bland
Customer Service Representative
T +1 831-235-1499
E m.bland@enzazaden.com



Kazue Leon
Customer Service Greenhouse Business
T +1 831-320-7691
E k.leon@enzazaden.com



Angela Hernandez
Customer Service Representative
T +1 831-796-4245
E a.hernandez@enzazaden.com



Karla Flores
Sample Coordinator
T +1 831-796-4228
E k.flores@enzazaden.com

Terms & Conditions of Sale:

The general Terms & Conditions of Enza Zaden USA, Inc. apply to all contracts entered into by Vitalis Organic Seeds. The general Terms & Conditions are available from each authorized Enza Zaden USA and Vitalis Organic Seeds distributor upon request and can be seen at www.vitalisorganic.com.

Vitalis Organic Seeds, North America

Locate the Sales Representative in your region using the colored 🛠





Erica Renaud Regional Business Manager, Vitalis & Herbs North America T +1 831-262-7635 E e.renaud@enzazaden.com



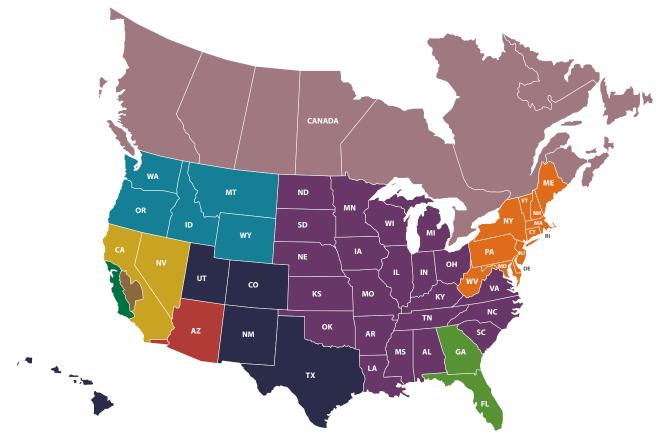
Amy Kaplan 🧩 🧩 🦮 Sr. Organic Product Specialist, Californina/Southwest US T +1 831-998-1413 E a.kaplan@enzazaden.com



Shaina Bronstein 🧩 🦮 Organic Sales Representative, Northwest US/Canada T +1 831-737-0525 E s.bronstein@enzazaden.com



Adrienne Shelton 🧩 💥 🤺 Organic Product Specialist, Northeast/Midwest US T +1 703-231-5377 E a.shelton@enzazaden.com



Our organic seeds are distributed through select distributors throughout North America. A list of our distributors can be found at www.vitalisorganic.com or by contacting our Customer Service Department toll-free at 1-855-800-ENZA (3692).



Regional Sales Representatives

Western US



Pine Higgins * * *

Area Sales Manager, Dealer West
T +1 831-206-6192
E p.higgins@enzazaden.com



Nick Barnes Area Sales Manager, Direct West T +1 831-455-6273
E n.barnes@enzazaden.com



Jeff Ramirez * *

Product Specialist, Southwest US
T +1 831-682-5622
E j.ramirez@enzazaden.com



Tim Fellom ❖
Sales Representative
T +1 831-595-0824
E t.fellom@enzazaden.com



Nick Harlow * * *

Sales Representative, California
T +1 805-264-5551
E n.harlow@enzazaden.com



Michael Gall Sales Representative T +1 831-206-1108 E m.gall@enzazaden.com



Liz McTish * * *

Product Specialist, California
T +1 831-214-7449
E e.meredith@enzazaden.com



Erik Scarr Product Specialist, Brassicas T +1 831-682-6809
E e.scarr@enzazaden.com



Rene Emch * * * * * * * Sr. Product Specialist, Onions T +1 657-276-1021 E r.emch@enzazaden.com



Natalie Vargo **
Product Specialist, Lettuce
T +1 831-320-7885
E n.vargo@enzazaden.com



Javier Russek * * * * * Product Specialist, Onions T +1 831-240-5736 E j.russek@enzazaden.com



Antonio Valdez
Trial Specialist
T +1 928-323-2679
E a.valdez@enzazaden.com

Eastern US & Canada



Rod Jorgensen * * * * *

Area Sales Manager,
Eastern US/Canada
T +1 407-389-9411
E r.jorgensen@enzazaden.com



Dominic Bouchard * Sr. Sales Representative,
Northeast US/Canada
T +1 518-390-2837
E d.bouchard@enzazaden.com



Butch Brady Sales Representative, Southeast US T +1 941-769-7374
E g.brady@enzazaden.com



Justin Lanier * *
Sales Representative, Southeast US
T +1 941-702-0928
E j.lanier@enzazaden.com



Sr. Product Specialist, Tomatoes T +1 239-940-0117 E e.severeyn@enzazaden.com

Enrique Severeyn 💥 💥



Andrew Ditsworth * Product Specialist, Peppers T +1 941-720-0904
E a.ditsworth@enzazaden.com

Greenhouse Business, US & Canada



Freek Knol
Regional Manager
Greenhouse Business,
North America
T +1 303-319-0057
E f.knol@enzazaden.com



Andre Leendertse
Sr. Sales Representative,
Greenhouse Canada West
T +1 604-308-9320
E a.leendertse@enzazaden.com



Kees Rodenburg
Sr. Sales Representative,
Greenhouse USA
T +1 520-686-1432
E k.rodenburg@enzazaden.com



Dan Skinner
Sales Representative Cucumber,
Greenhouse Canada East
T +1 519-329-6657
E d.skinner@enzazaden.com

