



**VITRO PLUS**  
THE FERN FIRM  
SINCE 1990





## A COMPANY YOU CAN RELY ON

On behalf of our whole team, we are pleased to offer you a picture of our company and what we can do for you. When John Bijl, a grower's son, founded Vitro Plus in 1990, he based his business on market demand: the kind of demand you deal with every day in your own business. This is at the heart of how we think and what we do. The products we develop respond to our customers and their market - a concept that has guided all of our operations. This applies not only to our products that include an extensive assortment of ferns, but also to the information and advice we provide about the growing process and marketing strategy. These are the pluses provided by Vitro Plus that are based on our principles which are reliability, personal service, innovation and customised solutions. This is our team's way of ensuring high quality products and services that you can rely on. Since feedback from the field inspires us to do even better, receiving questions and reactions from fern growers is very important for us. And so are suggestions from customers! After all, your success justifies ours. On behalf of the team, we wish you a successful business.

**John Bijl**  
*Owner & Sales Director*

**Ard Stoutjesdijk**  
*Co-owner & Director of Production*

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**JOHN BIJL (RIGHT)**  
Owner & Sales Director  
John Bijl founded Vitro Plus in 1990  
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**ARD STOUTJESDIJK (LEFT)**  
Co-owner & Director of Production  
Ard has been working at Vitro Plus since 2001  
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# THE GOAL WAS NOT TO BECOME THE BIGGEST, BUT THE BEST

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## FOR THE FUTURE, WE FOCUS ON MORE VARIETIES AND IMPROVING OUR QUALITY

*John Bijl*

*"I supervise the team and assist them when necessary. Like everyone else at Vitro Plus, they know that they can always rely on me and that I am always available. It is typical for our open informal approach to welcome questions and ideas as long as they are in the interests of our customers. In general, the plans I'm establishing for the next few years still involve focusing on ferns and developing not only our tropical indoor ferns but also our hardy outdoor ferns. These will be hardy ferns propagated from spores. After all, we are constantly noticing the demand for them. This validates our expectation that 'the fern' is experiencing a revival. For growers, this means new opportunities to earn money with our products. And we can help them by providing information and advice regarding cultivation and how to approach their market. We want to be thought of as the specialist in our field; when growers think of ferns, they should think of us, and when they think of Vitro Plus, they should think of ferns."*

*Ard Stoutjesdijk*

*"My role in the organisation is to work with others in developing our protocols, keeping them up to date, and ensuring that our tissue culture production is conducted according to the existing procedures. This way, we can guarantee a process that brings out the desired quantities at a constant level of quality. Despite the fact that tissue culture is a very difficult propagation method, we can reliably produce a wide range of ferns. Due to extensive automation in our laboratory, we now require only a small staff to produce large quantities. These plants are grown in Vitro-Trays® under completely controlled conditions so that our final product moves seamlessly into the automation system in your greenhouse. We are always involved in development. A number of new fern varieties enter our lab every year, and automation technology continues to open up new possibilities (and challenges) for raising our company to an even higher level."*



MEETING REGULARLY KEEPS THE  
WHOLE TEAM ON ITS TOES AND THE  
QUALITY STANDARDS HIGH

**OUR MISSION**

As we see it, our mission is to help fern growers all over the world to make advancements in what they do and how they serve their market. We concentrate on producing the very best starting material and providing our buyers with the best possible assistance. Two of our staff members are constantly engaged in the development of strong new varieties. We would be more than happy to help you choose the varieties that would suit your situation best. We will also be pleased to help growers who are considering the production of ferns in addition to their existing crops.

**OUR AMBITION**

We want to be number one in products and customer assistance. You can expect a plus from our team in every regard: in personal contacts, information and advice relevant to your company, delivery method, growing instructions, and the optimum accessibility of our staff whenever you have a question. In addition to these benefits, you will be doing business with a company engaged in continuous innovation and that keeps you always up to date. This means you will regularly hear about new ferns that will inspire the next link in your distribution chain. Our goal is to introduce ten new varieties every year.

SELECTION PRODUCES FERNS  
THAT ARE DEEPER GREEN,  
STRONGER, MORE COMPACT AND  
FASTER GROWING

**INNOVATION: A PERMANENT PRIORITY**

An innovative approach has been part of our business ever since it was founded. When developing our products, we always consider both ends of the distribution chain. We keep an eye on the market and identify both the current and potential demand. We follow developments in technology and determine the innovations that would offer us and our customers opportunities. As a result of examining the available technology, we have developed the Vitro-Plug®: a practical and efficient method of growing on young plant

material. At Vitro Plus, the Vitro-Plug® is used for producing ferns from spores within a sterile environment. Since then, it has become one of our unique selling points, and it has also rewarded us with various business awards and patents. At Vitro Plus, innovation never stops. The existing range of Vitro-Plug® products is being expanded with about five new varieties produced from spores for 2017.



VITRO PLUS WORKS HARD TO BECOME,  
AND TO RETAIN ITS POSITION AS THE  
BEST FERN COMPANY EVER

**THE BEST FROM TWO PARTNERS**

At the beginning of this century, we initiated extensive tests using LED lighting. The emergence of LED lighting combined with multilayer cultivation was a revolutionary breakthrough that made it possible to harden off ferns which are propagated by tissue culture and spores in our laboratory. The higher light level of the LED in combination with the CO2 enhancement inside the growth container results in a stronger, more developed and better rooted fern. The patented semi-permeable foil system makes this hardening process possible.

The result is simply a better product that can develop under ideal conditions. This growing process ensures that plants start their phase of greenhouse cultivation free of diseases. Philips supported us in the development of this LED technology.

**A RECOGNISED SPECIALIST IN OUR FIELD**

Since our founding, we have devoted ourselves to the selection and propagation of tropical and hardy ferns. We began with just a few varieties, but now we supply almost 90 varieties. Since changes are frequently made in this assortment, it's always interesting to have a look at our website every now and then or to send us an e-mail. After all, new varieties mean new opportunities!

Right from the start, Vitro Plus committed itself to being the best in its field. Our priority is you, as our customer, and how we can serve you the best - by giving you the right information, personalized advice and delivering the services as well as the products just as we promised. In our opinion, this is also part of being a 'specialist in our field'.



WE KEEP OUR ASSORTMENT  
EXCITING BY ANALYSING TRENDS  
AND CONTINUALLY DEVELOPING  
OUR PRODUCTS

**THE VITRO PLUS FERN ASSORTMENT**

Every year, we add new fern varieties and improved versions of existing varieties to our assortment. Sometimes, a certain variety is eliminated because interest among consumers is insufficient. With these comings and goings, our selection of products remains up to date and attractive. Our goals are to offer you, our customers, an interesting range of excellent products and also to promote ferns throughout the entire distribution chain as a natural, lush, contemporary item that belongs in every indoor or outdoor space. We would be pleased to assist you in selecting the fern varieties that would suit your specific growing conditions, market and marketing strategy.

**INSPIRING EACH OTHER**

What can you do with ferns? If you talk with an interior designer, a landscaping specialist or an imaginative consumer, you'll discover endless possibilities. The main reason is that ferns derive their beauty from the pure simplicity of their frond (the leaves of ferns) shapes and colors which makes them perfect for a wide range of interior styles in various living and working environments such as houses, restaurants, hotels, offices, showrooms, reception areas, conference rooms and waiting rooms. Ferns also purify indoor air, introduce a sense of tranquillity, and provide inspiration. Using a series of ferns produces an even stronger natural and decorative effect.



## WE SEE CUSTOMER PREFERENCES AND MARKET TRENDS AS THE GOVERNING FACTORS IN OUR OPERATIONS

### **THE RICHNESS OF SIMPLICITY**

Fossils show us that ferns were already populating our planet around 375 million years ago. This era, known as the Devonian, was when the first land vertebrates - the amphibians - were evolving from fish, so ferns are at least as old as them. Over time, the primeval fern developed into a family comprising thousands of species. Unlike most other plants, ferns produce no flowers. They derive their pure beauty from their innumerable intriguing frond shapes and

their many gradations of green, from tender light green to intensely deep shades. A good example of a deep green variety is our new Boston fern 'Nevada'. This mysterious, restrained character of ferns makes them even more appealing. Moreover, ferns have been found to remove impurities from the air, which, in turn, creates a pleasant environment and increases labour productivity. Make sure that your product selection is responding to what your market demands.



## A GOOD EXAMPLE OF A DEEP GREEN VARIETY WITH EXCELLENT GENETICS IS OUR BEST-SELLING FERN CALLED 'NEVADA'

### **SPECIFIC CHARACTERISTICS**

Decades of careful selection have resulted in a rich collection of cultivars, each with its own specific characteristics in terms of plant size, frond shape, color, compactness and keeping quality. Vitro Plus has developed and selected specific cultivars which can tolerate the typical extremely dry conditions of a European living room. These new resistant varieties from Vitro Plus can easily withstand extreme climate conditions.

### **TROPICAL AND HARDY FERNS**

Roughly speaking, ferns can be grouped into tropical and hardy ferns depending on the climate zone in which they grow best. Tropical ferns have very little frost tolerance, while hardy ferns can survive through cold periods, even though the fronds of most of these varieties will die back during the winter.

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# RUNNING GROWING TESTS GIVES ME THE CHANCE TO IMAGINE MYSELF IN THE CUSTOMER'S GREENHOUSE

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## QUALITY IN THE GROWING CHAMBERS

*Rachel Bakker*

*"It's my responsibility to monitor quality and to improve the plants during their time in the growing chambers. It's a very precise work that demands my full and constant attention. We work according to certain protocols that also guarantee that you get what you ordered. I'm the last person to see the products. Everything has to meet all the criteria before I release your order for shipment. I go over the findings of my inspections with the relevant colleague. The weekly quality meeting keeps all of us on our toes. Everything we learn helps us improve what we do. I frequently conduct simulation tests that teach me more about what it's like to be in the customer's shoes."*



**RACHEL BAKKER**

*Head of Quality Control*

*Rachel has been working at Vitro Plus since 2001*

*rachel@vitroplus.nl*



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# INFORMING EACH OTHER OFTEN TO IMPROVE OUR QUALITY

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## HIGHLY FOCUSED WORK

*"It's my job to work with my team in preparing the medium on which the propagation or outgrowth takes place. The composition of this medium has to be exactly right: the right proportions of ingredients such as hormones, vitamins, salts and sugars. As a result of my work and examining its results, I've become a kind of walking encyclopaedia. Armed with this knowledge, I very much enjoy contributing to the final product in which all of our company's pluses come together. Vitro Plus has an open informal culture. The management keeps us informed and we do the same for them. This transparency contributes to the quality of our work and to how well we interact at work. Customers notice this, too."*

**RAMONA VAN EIJK**

*Head of Medium Preparation*

*Ramona has been working at Vitro Plus since 2001*

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## TROPICAL FERNS

Tropical ferns are ideal for indoor use and can also be used outdoors as the climate permits. Nephrolepis is by far the best-known genus and is available in dozens of varieties. Careful selection has resulted in a rich collection of cultivars, each being different to the other in terms of frond size, shape, and color; compactness and sturdiness. We would be pleased to provide you with more details. In Europe, tropical ferns are usually used as table ferns. In the U.S., more of them are used in hanging baskets.

### FAVOURITE FERNS FROM VITRO PLUS

Our patented 'Nevada' is a real winner in the U.S.; the following characteristics of this fern have practically eliminated the use of the traditionally popular Boston Fern:

1. Scarcely any leaf loss.
2. Excellent transport.
3. Shelf life qualities.
4. More plants can be produced within a certain surface area.
5. Deeper green color.
6. No cleaning required during harvest.

Another rising star is our patented 'Ariane'. This fern displays the same characteristics as 'Nevada', but has slightly

curled pinnate leaflets and an upright habit very similar to 'Emerald Queen', which is still the most commonly purchased fern for tropical landscaping. This makes 'Ariane' a good addition. This fern can also be used for landscaping since it can easily tolerate bright sunlight. At lower light levels, it becomes less upright which even makes the plant suitable for hanging baskets.

For smaller pot sizes (up to 14 cm / 5.5 inches), 'Montana' is the best choice, particularly due to its easy care. This fern also has an upright habit. 'Fluffy Ruffles' is also a strong fern perfect for 10 to 12 cm / 3.9 to 4.7 inches pots, with a good shelf life. 'Green Moment' is a completely new variety; we advise to test different pot sizes in the range of 11 to 15 cm / 4.3 to 5.9 inches. The habit and color of these ferns are a mixture of our old friends 'Blue Bell' and 'Nevada'. In addition to the Nephrolepis cultivars, other groups are gaining popularity since they are so unlike the sword ferns. Consumers are really attracted to their interesting details. Asplenium varieties, especially 'Crispy Wave' and 'Crissie' with their unusual forked and undulating fronds, are extremely popular. Ferns with unusual colors such as 'Blue Star' also attract buyers.



**ROSY MAIDENHAIR FERN**

*Adiantum hispidulum*



**RUBY MAIDENHAIR FERN**

*Adiantum hispidulum 'Ruby'*



**FRAGRANS MAIDENHAIR**

*Adiantum raddianum 'Fragrans'*



**FRITZ LUTHII MAIDENHAIR**

*Adiantum raddianum 'Fritz Luthii'*



**BIRD'S-NEST FERN**

*Asplenium antiquum*



**CRESTED JAPANESE BIRD'S-NEST FERN**

*Asplenium antiquum 'Crissie'*



DELIVERY METHOD TUB VITRO-PLUG® CUT  
USAGE HANGING BASKET TABLE FERN LANDSCAPE





**CRESTED JAPANESE BIRD'S-NEST FERN**

*Asplenium antiquum* 'Leslie'



**JAPANESE BIRD'S-NEST FERN**

*Asplenium antiquum* 'Victoria'



**'SILVER LADY'**

*Blechnum gibbum*



**DWARF JAPANESE HOLLY FERN**

*Cyrtomium falcatum* 'Maritimum'



**MOTHER FERN**

*Asplenium difforme* x *dimorphum* 'Parvati'



**BIRD'S-NEST FERN**

*Asplenium nidus* 'Avis'



**HARDY HOLLY FERN**

*Cyrtomium fortunei* 'Clivicola'



**RABBIT FOOT FERN**

*Davallia fejeensis*



**PLEATED JAPANESE BIRD'S-NEST FERN**

*Asplenium nidus* 'Crispy Wave'



**DWARF BRAZILIAN TREE FERN**

*Blechnum brasiliense* 'Volcano'



**RUBY RASP FERN**

*Doodia aspera* 'Rough Ruby'



**HEART FERN**

*Hemionitis arifolia*



DELIVERY METHOD VITRO-TRAY® TUB VITRO-PLUG® CUT  
USAGE HANGING BASKET TABLE FERN LANDSCAPE

EXCLUSIVE AVAILABILITY



**WHITE RABBIT FOOT FERN**  
*Humata tyermannii*



DELIVERY METHOD  
 USUAGE  
 HANGING BASKET  
 VITRO-TRAY®  
 TUB  
 VITRO-PLUG®  
 CUT  
 TABLE FERN  
 LANDSCAPE



**KANGAROO FERN**  
*Microsorium diversifolium*



**'CROCODYLLUS'® PP13653**  
*Microsorium musifolium*



**'GREEN FLAME'® PP17420**  
*Microsorium punctatum*



**'LAUA'E IKI' PP11230**  
*Microsorium scolopendrium*



**'MACHO'**  
*Nephrolepis biserrata*



**'DUFFII'**  
*Nephrolepis cordifolia*



**'KUPUKUPU'**  
*Nephrolepis cordifolia*



**'SWORD FERN'**  
*Nephrolepis cordifolia*





'ARIANE' PP21218 / EU 28748

Nephrolepis exaltata



'BLONDE'

Nephrolepis exaltata



'BOSTON BLUE BELL'

Nephrolepis exaltata



'BOSTON COMPACTA'

Nephrolepis exaltata



'BOSTON FERN'

Nephrolepis exaltata



'CORDITAS'

Nephrolepis exaltata



DELIVERY METHOD VITRO-TRAY® TUB VITRO-PLUG® CUT  
USAGE HANGING BASKET TABLE FERN LANDSCAPE







**'EMINA'**  
Nephrolepis exaltata  
🪴 🌿



**'FLUFFY RUFFLES'**  
Nephrolepis exaltata  
🪴 🌿 🌱



**'GREEN MOMENT' PPAF**  
Nephrolepis exaltata  
🪴 🌿 🌱



**'MARISA'**  
Nephrolepis exaltata  
🪴 🌿



**'MONTANA'**  
Nephrolepis exaltata  
🪴 🌿 🌱



**'MURANO'**  
Nephrolepis exaltata  
🪴 🌿 🌱

DELIVERY METHOD 🪴 VITRO-TRAY® 🌱 TUB 🪴 VITRO-PLUG® CUT  
USAGE 🌿 HANGING BASKET 🌱 TABLE FERN 🌱 LANDSCAPE



**'NEVADA' PP14190 / EU14208**

Nephrolepis exaltata



**'TEDDY JUNIOR'**

Nephrolepis exaltata



**'TIGER' PP15315**

Nephrolepis exaltata



**'FISHTAIL'**

Nephrolepis falcata 'Furcans'



**'EMERALD QUEEN'**

Nephrolepis oblitterata



**'SHIVA'**

Nephrolepis oblitterata



**'SUNJEST JESTERS CROWN' PP16531**

Nephrolepis oblitterata



**'POM POM'**

Nephrolepis exaltata



**'STINGRAY'**

Nephrolepis exaltata



DELIVERY METHOD VITRO-TRAY® TUB VITRO-PLUG® CUT  
USAGE HANGING BASKET TABLE FERN LANDSCAPE



**AUSTRALIAN CLIFF BRAKE FERN**

*Pellaea falcata*



**BUTTON FERN**

*Pellaea rotundifolia*



**CRETAN BRAKE FERN**

*Pteris cretica 'Rowerii'*



**SILVER LACE**

*Pteris ensiformis 'Evergemiensis'*



**BLUE STAR**

*Phlebodium aureum 'Mandaianum'*



**STAGHORN FERN**

*Platycerium bifurcatum 'Netherlands'*



**SILVER RIBBON FERN**

*Pteris nipponica / Pteris albolineata*



**AUSTRALIA JUNGLE BRAKE FERN**

*Pteris umbrosa*



**KOREAN ROCK FERN**

*Polystichum tsus-simense*



**MOONLIGHT FERN / CRETAN BRAKE FERN**

*Pteris cretica 'Mayii'*



**LEATHERLEAF FERN**

*Rumohra adiantiformis*



DELIVERY METHOD VITRO-TRAY® TUB VITRO-PLUG® CUT  
USAGE HANGING BASKET TABLE FERN LANDSCAPE



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# OUR EFFORTS ARE DEVOTED TO CUSTOMER SATISFACTION

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## A UNIQUE NUMBER FOR EVERY YOUNG PLANT

*"It's my job to work with my team on cutting the starting material inside sterile cross-flow chambers. This has to be done in the right quantities and always the highest quality. The customer has to be sure of receiving exactly what was ordered. That's our goal in the lab. Crop protection agents are never used anywhere in our company. Caring for the natural environment is just as important as providing a completely sterile environment for our processes. Team spirit is important. This is something you notice every day, with every order. In addition to my regular job responsibilities, I also work on teambuilding. Every day is an interesting challenge. We're now working with software that gives each young plant a unique number so that we can always follow them from A to Z. It's a big project. After all, we produce around 23 million individual products every year."*



**BEDETTE VAN DE ZANDE**

Laboratory Manager

Bedette has been working at Vitro Plus since 2007

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**MENNO SCHUTTE (LEFT)**

*Sales*

Menno has been working at Vitro Plus since 2016

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**LAURA DE GLOPPER (MIDDLE)**

*Head of Sales*

Laura has been working at Vitro Plus since 2010

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**ELLEN KRAAIJENBRINK (RIGHT)**

*Sales and Marketing*

Ellen has been working at Vitro Plus since 2001

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# GIVING THE CUSTOMER GOOD INFORMATION ABOUT HIS SHIPMENT

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## REACHING OUT TO THE CUSTOMER

**Menno Schutte**

*"I am the sales representative of Vitro Plus to North America. I am currently living in Nova Scotia on the East Coast of Canada, from where I serve our North American customers. I am responsible for attending trade shows, supporting our customers and expanding our market share in North America. I believe personal contact is the only way to ensure excellent customer service. That is why I visit our current and potential customers on this side of the Atlantic. By having personal contact with the customers, I can support the growers with growing advice and to receive feedback on how we are doing. Being continuously present in North America, allows me to ensure excellent customer service to help our customers grow their business to its fullest potential."*

**Laura de Gloppe**

*"I manage the Vitro Plus sales team. I'm also responsible for the sale of plants transplanted in our greenhouse. From our greenhouse, we serve many of our Dutch customers as well as customers from countries such as Poland and China. It's good to talk with them and visit them on a regular basis. This way, we can learn what issues they are dealing with at their company and in their markets. Consequently, we try to respond to these factors as well as we can. This applies not only to the daily orders, but also to the long-term sales plans of all of our customers. This is what I work on together with John Bijl. For me, sales involves both our office here and our field service. The customer is always our top priority."*

**Ellen Kraaijenbrink**

*"Together with our new colleague Menno Schutte, I'm responsible for sales to customers in the United States and Canada. During my visits to companies and at trade fairs in America and Germany, I enjoy talking about the rising interest in ferns. What we learn from these activities is that we can expect a major revival in ferns! In addition to the trade fairs, I am also in charge of other marketing tasks."*

# HARDY FERNS

In nature, ferns are denizens of woods and forests. They thrive on moist soil that is rich in humus and prefer a spot in shade or dappled shade. Nevertheless, as long as they are not allowed to dry out, most varieties will tolerate direct sun. Communicating clearly with buyers at the points of sale and via labels is essential for the success of this product.

### GOOD COLD STRESS TOLERANCE

Fully hardy ferns (sometimes also called perennial ferns) are generally resistant to cold and can enliven a garden, patio, or living room for many years. 'Fully hardy', however, should not be mistaken as being synonymous with evergreen! Although this is the case with some varieties, the fronds of many fully hardy outdoor ferns will die back in autumn and winter. This is also the beauty of ferns; next spring, they will release vigorous new shoots again which slowly unfurl from the heart of the plant to become magnificent long fronds. Communicating these important details with the customer is an important element in the success of this product.

### MARKETING STRATEGY

Most hardy ferns are sold in the spring, and, to a lesser degree, in the autumn. Because hardy ferns are used in gardens and landscaping projects, this makes them - unlike tropical ferns - a real seasonal product. The planting location and the phenomenon of autumn and winter dormancy must be clearly communicated to consumers by such means as labels on pots and plants. To encourage consumer purchases, the assortment has to consist of at least ten highly contrasting varieties that make a striking visual group display which invites selection and eventually purchase.

### FAVOURITE HARDY FERNS

Most garden ferns are members of the Dryopteris (wood ferns) and Polystichum (holly ferns) families. Not everyone can easily tell the difference between these genera, but the fronds of holly ferns generally look somewhat more substantial.

### DRYOPTERIS

One valuable member of the genus Dryopteris is Dryopteris erythrosora (Autumn Fern). This species has fronds of a striking orange-red color, especially in spring when the male ferns unfurl what look like the tentacles of a science-fiction monster. Dryopteris atrata has large deep green fronds that resemble the trunk of an elephant as they unfurl. Although its common English name is the Black Wood Fern or Shaggy Wood Fern, its Dutch name could be translated as 'Elephant Fern'. Dryopteris remota is a valuable plant and easy to grow. It emerges again every spring and is often more drought-tolerant than many other garden plants.

### POLYSTICHUMS

The common name for Polystichum acrostichoides is the Christmas Fern because it looks so attractive at that time of year. Polystichum tsus-simense has many uses. Although this little plant was intended for indoors, it proved to be so hardy that it makes an excellent garden plant. Its fronds also make good foliage to use in bouquets and other floral arrangements. The smaller dimensions of Polystichum rigens make it a good choice for small urban gardens.

### CYRTOMIUMS

Cyrtomium varieties are still less familiar garden ferns. They are characterised (as their common name, Holly Fern, suggests) by simple leathery leaflets with serrated edges. When planted in a somewhat sheltered location, Cyrtomium falcatum 'Rochfordianum' is practically hardy. With its attractive dark green fronds, it provides your garden with a beautiful diversity. These fronds also make it suitable for use in floristry. Cyrtomium fortunei 'Clivicola' is extremely hardy and has lighter, less glossy fronds.

### CHEILANTHES

Cheilanthes lanosa is a unique species: a nice small fern with a grey woolly surface on the undersides of its fronds. A perfect plant for a rocky location in the sun. Once its roots have found a cool spot deep in the soil, it will survive dry hot summers.



**ROSY MAIDENHAIR FERN**

Adiantum hispidulum



**RUBY MAIDENHAIR FERN**

Adiantum hispidulum 'Ruby'



**AMERICAN MAIDENHAIR FERN**

Adiantum pedatum



**HART'S TONGUE FERN**

Asplenium scolopendrium



**NARROW HART'S TONGUE**

Asplenium scolopendrium 'Angustifolium'



**CRESTED LADY FERN**

Athyrium filix-femina 'Vernoniaea Cristatum'



LEGENDA VITRO-PLUG® HARDINESS ZONE EVERGREEN DECIDUOUS NORTH AMERICAN NATIVE FERN





**JAPANESE PAINTED FERN**  
*Athyrium niponicum* 'Pictum'  
 🌿 3/4 🌿



**DWARF JAPANESE HOLLY FERN**  
*Cyrtomium falcatum* 'Maritimum'  
 🌿 6/7 🌿



**JAPANESE HOLLY FERN**  
*Cyrtomium falcatum* 'Rochfordianum'  
 🌿 7/8 🌿 COLD DEPENDANT



**HARDY HOLLY FERN**  
*Cyrtomium fortunei* 'Clivicola'  
 🌿 5/6 🌿



**RUBY RASP FERN**  
*Doodia aspera* 'Rough Ruby'  
 🌿 9/10 🌿



**SHAGGY SHIELD FERN**  
*Dryopteris atrata*  
 🌿 6 🌿 COLD DEPENDANT



**BARNE'S MALE FERN**  
*Dryopteris filix-mas* 'Barnesii'  
 🌿 4/5 🌿



**HAIRY LIP FERN**  
*Cheilanthes lanosa*  
 🌿 5 🌿



**SICKIE LEAVED HOLLY FERN**  
*Cyrtomium devexiscopulae*  
 🌿 7/8 🌿

LEGENDA 🌿 VITRO-PLUG® 🌿 HARDINESS ZONE 🌿 EVERGREEN 🌿 DECIDUOUS 🌿 NORTH AMERICAN NATIVE FERN



**CHAMPION'S WOOD FERN**

*Dryopteris championii*



**AUTUMN FERN**

*Dryopteris erythrosora*



**REMOTE WOOD FERN**

*Dryopteris remota*



**STEWART'S HIMALAYAN WOOD FERN**

*Dryopteris stewartii*



**COMPACT AUTUMN FERN**

*Dryopteris erythrosora 'Compact'*



**KURATA'S FERN**

*Dryopteris kuratae*



**AUSTRALIAN CLIFF BRAKE FERN**

*Pellaea falcata*



**BUTTON FERN**

*Pellaea rotundifolia*



**SUNSET FERN**

*Dryopteris lepidopoda*



**MEXICAN MALE FERN**

*Dryopteris pseudo-filix-mas*



**COMMON POLYPODIUM**

*Polypodium vulgare*



**CHRISTMAS FERN**

*Polystichum acrostichoides*



LEGENDA VITRO-PLUG® HARDINESS ZONE EVERGREEN DECIDUOUS NORTH AMERICAN NATIVE FERN



**TASSEL OR BRISTLE FERN**  
*Polystichum polyblepharum*  
 🌿 5/6 🌿



**SOFT SHIELD FERN**  
*Polystichum setiferum 'Dahlem'*  
 🌿 6 🌿



**KOREAN ROCK FERN**  
*Polystichum tsus-simense*  
 🌿 5/6 🌿



**YUNNAN HOLLY FERN**  
*Polystichum yunnanense*  
 🌿 5/8 🌿



**MOONLIGHT FERN / CRETAN BRAKE FERN**  
*Pteris cretica 'Mayii'*  
 🌿 7 🌿



**ASIAN SABER FERN / LONG EARED HOLLY FERN**  
*Polystichum neolobatum*  
 🌿 5 🌿



**RIGID OR PRICKLY HOLLY FERN**  
*Polystichum rigens*  
 🌿 5/6 🌿



**CRETAN BRAKE FERN**  
*Pteris cretica 'Rowerii'*  
 🌿 8 🌿



**SILVER RIBBON FERN**  
*Pteris nipponica / Pteris albolineata*  
 🌿 8 🌿

LEGENDA 🌿 VITRO-PLUG® 🌿 HARDINESS ZONE 🌿 EVERGREEN 🌿 DECIDUOUS 🌿 NORTH AMERICAN NATIVE FERN



**AUSTRALIA JUNGLE BRAKE FERN**

*Pteris umbrosa*



**WIDESPREAD MAIDEN FERN**

*Thelypteris kunthii*





## DELIVERY AND TRANSPLANTING

### **IN OPTIMAL CONDITION**

Besides continually expanding our fern assortment we are constantly improving growth conditions in order to deliver plants that are healthy and free of disease. In our laboratory and greenhouse, we are dedicated to managing the clump and the young plants in terms of their size. Also important are managing their growing medium and the cell size of the tray in which they are delivered.

### **JUST RIGHT FOR YOUR GROWING PROCESS**

Our patented methods and Vitro-Trays® are available in several versions and are constantly being improved - and your experiences and inputs are invaluable in this process.

We supply our ferns in a tray suitable for your growing process. These trays have standard outer dimensions but vary in their number of holes depending on the size of the plants. Trays with 48, 96 and 126 holes are available for pre-transplanted plants, and trays with 104, 66, 50 and 35 holes are available for transplanted plants. The trays are suitable for manual or automated transplanting, depending on your company's situation.

Our Vitro-Trays® with micro-perforated film enable the young ferns to easily withstand a long journey and even to remain in optimal condition when not processed immediately upon arrival.



**VITRO-PLUG® 126**  
 29,5 x 19 x 6,5 centimeter  
 11.61 x 7.48 x 2.56 inches  
 1,7 x 1,7 x 2 centimeter  
 0.67 x 0.67 x 0.79 inches

## WHICH TRAYS ARE RIGHT FOR YOU?

### VITRO-TRAY® 48

This tray size simplifies pricking out the larger clump into a 35 or 50-hole tray or to smaller spot sizes (7 and 9 cm / 2.8 and 3.5 inches).

### VITRO-TRAY® 96

This is the intermediate size in our series of 48 - 96 - 126 Vitro-Trays®. Perfect for larger plug sizes and smaller pot sizes (7 and 9 cm / 2.8 and 3.5 inches).

### VITRO-TRAY® 126

The smallest in our series, the Vitro-Tray® 126 is particularly suitable for pricking out into smaller tray sizes. Cost-effective due to its low transport costs.

### TRANSPLANTED 35-HOLE TRAY

Our 35-hole tray reduces the cultivation period of your ferns by up to 30%! We use this tray size particularly for our hardy ferns.

### TRANSPLANTED 50-HOLE TRAY

The plugs in this tray size have a diameter of 4 cm / 1.6 inches. and are therefore very suitable for transplanting to larger pot sizes (12 cm and up / 4.7 inches and up).

### TRANSPLANTED 66-HOLE TRAY

Our 66-hole tray is particularly suitable for transplanting ferns to larger pot sizes.

### TRANSPLANTED 104-HOLE TRAY

Our 104-hole tray is noted for encouraging good root formation since it can be filled with paper-pot plugs.

### VITRO-PLUG® 126

Perfect for transplanting to larger tray sizes (35 and 66 hole trays) or small pot sizes (6 - 9 cm / 2.4 - 3.5 inches). We produce ferns out of spores on this tray size - we sow on demand.

### VITRO-PLUG® 192

Perfect for transplanting to smaller pot sizes (6-9 cm. pots / 2.4-3.5 inches) We produce ferns out of spores on this tray size – only on demand. Also used for ready to use Asplenium ferns – only on demand.

### SELECTION ADVICE

For more information and advice about the tray that is best for your growing process, you can visit [www.vitroplus.nl](http://www.vitroplus.nl), send an e-mail to [info@vitroplus.nl](mailto:info@vitroplus.nl) or call your dedicated contact at [+31 \(0\) 111 468 088](tel:+3120111468088).



**VITRO-TRAY® 96**  
 29,5 x 18,5 x 6,6 centimeter  
 11.61 x 7.28 x 2.6 inches  
 1,8 x 1,8 x 1,8 centimeter  
 0.71 x 0.71 x 0.71 inches

**VITRO-PLUG® 192**  
 29 x 38,5 x 6,7 centimeter  
 0.95 x 15.16 x 2.64 inches  
 1,9 x 1,9 x 2,5 centimeter  
 0.75 x 0.75 x 0.98 inches

## READY TO USE

You can get started as soon as you receive your Vitro-Trays®. Follow these instructions:

### HOW TO GROW IN FERN LINERS

1. Use new or cleaned trays.
2. Use a light peat mix (one containing Canadian peat, for example).
3. Water the medium in the trays thoroughly before use; peat needs a certain number of hours to drench.
4. Don't plant the clumps too deeply.
5. Don't leave the trays uncovered for more than 10 minutes.
6. Cover the trays with cheesecloth for the first two weeks, preferably leaving 1 or 2 feet of space between the trays. Alternatives to cheesecloth are plastic domes of clear plastic material. Another alternative would be to use a fog system, but do not use a heavy mist during the first 2 weeks.
7. Maintain high humidity (an RH of around 95%).
8. No additional feeding during the first 2 weeks.
9. After 2 weeks, move trays to an area with more light (partial shade), reduce humidity to 80% if possible, and start watering every day or every other day, preferably from below.
10. When fertilising from above, always rinse the plants with clear water.
11. Water early in the morning.
12. Depending on the variety, the cultivation period for ferns in a 72 hole liner is 8 to 10 weeks.

**VITRO-TRAY® 126**  
 29,5 x 19 x 4 centimeter  
 11.61 x 7.48 x 1.57 inches  
 1,4 x 1,4 x 1,2 centimeter  
 0.55 x 0.55 x 0.62 inches

## HARDINESS ZONE MAP



### ZONE 3

American Maidenhair Fern      Japanese Painted Fern

### ZONE 4

Barne's Male Fern      Crested Lady Fern      Remote Wood Fern  
 Christmas Fern      Hart's Tongue Fern  
 Common Polypodium      Narrow Hart's Fern

### ZONE 5

Asian Saber Fern / Long Eared Holly Fern      Hairy Lip Fern      Sunset Fern  
 Autumn Fern      Hardy Holly Fern      Tassel / Bristle Fern  
 Champion's Wood Fern      Korean Rock Fern      Rigid / Prickly Holly Fern  
 Compact Autumn Fern      Mexican Male Fern      Yunnan Holly Fern

### ZONE 6

Dwarf Japanese Holly Fern      Shaggy Shield Fern      Soft Shield Fern  
 Kurata's Fern      Stewart's Himalayan Wood Fern

### ZONE 7

Japanese Holly Fern      Sickle leaved Holly Fern  
 Moonlight Fern / Cretan Brake Fern      Widespread Maiden Fern

### ZONE 8

Australian Cliff Brake Fern      Cretan Brake Fern      Rosy Maidenhair Fern  
 Australian Jungle Brake fern      Ruby Maidenhair Fern  
 Button Fern      Silver Ribbon Fern

### ZONE 9

Ruby Rasp Fern





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# I SUPPORT CHANGES THAT ARE IMPROVEMENTS

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## GOOD SALEABLE PRODUCTS

*"My work consists of managing our own parent material. I'm also responsible for the parent material that is given to my colleagues by customers or offered to us by plant hunters. These plants are introduced to our lab to see if they would be suitable for propagation. Here, it's a question of close observation and testing for stability and the quality of the progeny. My work involves the transition of the plant as we receive it to how it responds to the situation in the lab. We test them for stability, whether they will be suitable for the customer's growing system, and whether they will make a useful addition to the customer's assortment. This means that their preferences and opinions are important to us. Like the other departments, our people in Research & Development have a real team spirit. We help each other, talk things over, and do things together. It gives us a sense of satisfaction when a plant can be successfully propagated and then sells well. That's good for the grower and the market as well."*



**HELEEN POMPE**

*Crop Specialist*

Heleen Pompe has been working at Vitro Plus since 1991

[heleen@vitroplus.nl](mailto:heleen@vitroplus.nl)

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## COLOPHON

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Development	Sense marketing & more
Design	Bureau Visueel
Photography	Roos Koole & Vitro Plus
Text	Henk Mostert
Print	Bestenzet
Circulation	750 copies

Fifth edition, 2017

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**YOU CAN GROW  
BECAUSE WE  
INNOVATE**

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