# Hort Innovation Churchill Fellowship to research the propagation and growing of cutting-grown roses versus traditional budded types

Report by Kim Syrus, 2023 Churchill Fellow

Awarded by The Winston Churchill Memorial Trust

# INDEMNITY CLAUSE

**THE WINSTON CHURCHILL MEMORIAL TRUST**

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**Report by Kim Syrus, Churchill Fellow 2023 Churchill Fellowship**

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Signed

Kim Syrus

Date

18 March 2025

# ACKNOWLEDGEMENTS

I wish to first thank the Winston Churchill Memorial Trust for giving me this opportunity to be awarded a Churchill Fellowship.

I wish to acknowledge and thank Hort Innovation who have sponsored my Fellowship through seeing the need for innovation in the rose growing sector to ensure a prosperous and sustainable industry.

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A special thank you goes to my incredible wife Judy and my family, whose support allowed me the chance to follow my Fellowship.

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**In Europe**: Alex Kordes, Thomas Proll, Jens Krüger, Jeddeloh B.V, Roy Schoorlemmer, Patrick Wijnhoven, Bernd Rötjes, Peter Cox, Frank Coenders, Adrian Soulle, Guillaume Beaugey, Jean-Marc Pilté, Marco Satore, Jacques Mouchotte, Jacques Ferare. Alain Meilland, Matthias Meilland, Paco Ferrer, Carlos Ferrer.

I would also like to acknowledge my Australian rose growing and rose introducing colleagues who have been supportive and generous in their sharing of their rose propagation and growing experience.

# INTRODUCTION

Being part of the Australian rose industry for over 30 years, I have seen many changes, from plant styles and colours to vastly improved flower and health performance. It has been an exciting and horticulturally rewarding time.

Traditionally, roses are produced through a method known as 'budding' where the bud of a variety is grafted onto a rootstock. Propagating roses by budding is a complex, multi-step process requiring a high degree of knowledge and expertise from the rose grower and expert skills of a 'budder'. The job of deftly slicing away the bud from a stem then carefully cutting and sliding it under the bark of a rootstock, is carried out by a rose budder.

The number of buds that, once budded, grow to become saleable plants depends on many factors, including the rose grower and budder's skill, quality of budwood, climatic conditions, health of the understock, post budding care and plant maintenance.

Throughout summer, bent over in South Australian fields and across the country, these skilled people bud millions of rootstocks, leaving the emerging bud to develop into the garden ready roses we buy.

An increasingly challenging factor for inground rose producers is finding essential skilled budders. The difficulty in reliably sourcing these skilled workers has caused many commercial in-ground rose growers much angst. Put simply, no budder – no crop.

*Traditional budding methods are still used to produce roses inground roses in Australia*

Ever resourceful, many growers have investigated alternative ways to produce field roses without the need for an understock and rose budder, by producing plants on their own-roots.

Unfortunately, the results of these own-root ventures have, in the main, been less than successful. Growing roses from cuttings is something many home gardeners have done for eons but while it is fine to take ten cuttings and end up with two or three plants at home, such a low 'take' percentage is not commercially viable.

Aware that rose growers in both the United States and Europe have successfully transitioned portions of their crop to cutting-grown plants, I applied and was successfully awarded a Hort Innovation supported Churchill Fellowship.

This prestigious award presented me the opportunity to create a unique itinerary of visiting inground rose growers, wholesalers, retailers, propagators, rose breeders, representatives of the rose buying/growing public and home gardeners across the world, to gain a greater understanding of the possibilities and challenges of growing own-root roses.

The production of inground roses remains essential for the Australian rose market. Producing 3-4 million bareroot roses, these plants form the backbone of rose sales – bagged and sold in garden centres, bulk lots transported across the country (at a fraction of the freight cost of equivalent potted plants) to be potted and sold to local wholesalers, retailers, landscapers, and home gardeners.

Not all roses can be grown as own-root - ‘Standard’ or ‘Tree’ roses must be budded, so this Fellowship was solely focused on alternative propagation of typically budded bush, shrub, climbing and ground cover rose forms.

This report describes the current situation for own-root rose production in USA and Europe and how this applies to Australia’s inground rose growers - to assist in developing strategies towards creating alternative options for propagation of own-root roses.

## CONTACT DETAILS

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https://www.churchilltrust.com.au/fellow/kim-syrus-sa-2023/

## KEYWORDS

Rose propagation, rose growing, cutting-grown roses, Hort Innovation, own-root roses, budded roses

# Contents

# EXECUTIVE SUMMARY

## Project introduction, description and purpose

The primary aim of my Churchill Fellowship was to explore ways Australian inground rose growers - who currently bud their crop either using contract budders or inhouse staff – can transition all, or a portion of their roses grown, to own-root cuttings.

Australian rose growers have increasingly expressed their interest in knowing more about growing rose crops using alternative own-root methods.

The purpose of this study was to visit and learn from USA and European inground roses growers, container rose growers, plant propagators, rose breeders, and home gardeners, to gain a greater understanding of the processes and programs needed to support and pivot successful movement in the Australian inground rose market away from budded bush roses to own-root plants.

This report is intended for industry professionals, expert groups in horticulture, community gardening enthusiasts, and others interested in advanced rose cultivation techniques and their commercial application.

## European and USA experience with own-root roses

USA rose experts estimate that the number of rose plants budded and potted sold annually in the USA is approximately 35-40 million: approximately 70% own-root, 30% budded.

The number of rose plants produced in Europe (excluding eastern Europe) is estimated to be 20 million. The majority of these plants are grown as budded plants.

In the USA bare root own-root roses sell at a lower wholesale price compared to the equivalent budded variety. This is a major factor in them becoming more popular than budded roses.

*Bare root budded and own-root plants have grading standards in both the USA & Europe*

The USA began its production toward own-root in ground plants from mid-2000 as a result of the introduction of the Knock Out® rose: which had the ability to thrive in diverse climates and had an almost 100% strike rate as a hardwood or softwood cutting. This created a gateway demand for more own-root roses and most growers developed a preference toward this type of propagation.

In Europe, due to lower cost eastern European budded roses and shorter in-ground growing seasons, own-root roses are seen as more expensive and unable to produce a comparable size plant. Despite this some European growers are growing small portions of their crop as own-root, while others are still evaluating this. It was identified by most growers that inground own-root plants will become more accepted in the years ahead.

The USA and Europe have bare root rose grading systems for budded and own root plants – where standards include number of branches, stem calliper size, and root system. Because own-root roses have greater variability in branching and root development the number of own-root varieties which reach these standards is limited.

The USA and European inground growers all acknowledge difficulties in accessing reliable rose budders and because fewer people are taking up rose budding as an occupation, a move to own-root growing would assist in futureproofing inground rose growing businesses.

## Own-root propagation in Europe and USA

Trialling varieties on their own-roots both as plugs and hardwood cuttings is undertaken to ascertain propagation percentages and commercial suitability.

Small, rooted plugs are universally accepted to be the most reliable way to grow own-root inground plants.

Own-root roses propagated by hardwood cutting, while possible, has not been the preferred method of cutting propagation in the USA and Europe.

Though own-root propagation methods vary, all growers and propagators highlighted the importance of hygiene, whether taking cuttings from the field or greenhouse. By reducing the potential incidence of disease, rooting percentages of cuttings increases.

Companies breeding new rose varieties have differing selection criteria for testing new cultivars as own-root plants. Some include own-root trails early in the selection program, while others wait until a rose has been earmarked for commercial release before testing own-root suitability. All rose breeders however acknowledged the importance of new roses being capable of propagation on their own roots.

## Public Acceptance

Home gardeners, predominantly on the east coast of the USA, have a distinct preference for own-root roses over budded roses, due to their superior cold hardiness and ability to regenerate quicker in the spring. Budded roses were prone to high levels of mortality during winter due to cold damage at the bud union. This is a large factor as to why own-root roses have increased in popularity in the USA.

Members of rose societies report that some of the benefits of planting own-root roses are the absence of potential rootstock suckering growth, more blooms and longer periods of foliage than their budded counterpart.

*Own-root roses are preferred on the USA east coast*

# Conclusions and Recommendations

It became increasing clear during my Fellowship that the path for rose growers towards inground own root growing is complex and requires time, commitment, and vision to achieve.

It will however reduce the challenges of propagating roses via budding – including accessing reliable and skilled rose budders - and offer an alternative or adjunct production model for a future rose industry.

By testing and trialling rose varieties on their own roots in Australia for their commercial suitability, opens options for inground rose growers to transition differing proportions of their crop from budded to own-root.

Unlike the USA and Europe, Australia does not have a bare root grading system for either budded or own root roses. Instead, Australia has an arbitrary system of quality grading decided by each grower. Rose varieties therefore that may not reach USA and European standards for bare root roses may be accepted saleable bare root plants in Australia. This is likely to result in a larger number of varieties which can be grown and sold.

Some growers may choose not to include own-root plants, while others may embrace the change. Ultimately, the ability to grow inground roses on their own-roots is about giving growers a choice, one that is currently not available.

Recommendations from my Fellowship will initially be addressed to the Australian inground rose growing industry, propagators, and retailers due their relevance and greater potential for early adoption. Other industries may also find interest in my Fellowship through challenging traditional growing methods for other crops.

| Recommendations for Australian rose growers | |
|---|---|
| **Learning own-root production methods** | Australian in-ground rose growers currently have limited knowledge on own-root rose growing and how to develop an own-root rose growing program.<br><br>It is recommended that individuals with own-root production and associated knowledge be identified and discussions initiated to progress the development of an in ground own-root rose production strategy. |
| **Trialling of own-root roses to assess suitability in Australian conditions** | It is recommended that Australian rose growers trial a wide range of rose varieties grown on their own roots. These trials can include both plugs and hardwood cuttings.<br><br>This will be essential for assessing the viability of propagation success and ability to develop into a commercially saleable bare root plant. While increasing grower knowledge and confidence to producing own root plants.<br><br>Setting up testing plots within inground rose growing fields is highly recommended. |
| **Communication of knowledge** | Sharing information between inground rose growers about their own root growing successes and failures will greatly assist in developing a greater knowledge of the own root growing process. |
| **Consumer acceptance** | It is recommended that growers seek feedback from their customers about own-root roses to understand customer views and potential level of acceptance.<br><br>It will be important for growers to gather this information to determine their production decisions. |
| **Costs of budded versus own-root rose production** | Will own root or budded plants be more cost effective for a grower?<br><br>To answer this, each grower will need to accurately identify the costings of their current growing: separating out and apportioning costs against all the process involved in producing a budded rose, including cost of maintaining understock beds, cutting, de-eying, planting, budding, and understock top removal. Once a dollar figure is reached, it allows an accurate benchmarking against purchased plugs or inhouse hardwood cuttings. |
| **Rose Society involvement** | Involvement of the national and state rose societies in the own root conversation is important to gather feedback. It is recommended that growers maintain connections with these peak bodies who will be able too greatly assist in sharing information about growing own root roses from a home garden level. |
| **Next generation of rose growers** | Who will our inground rose growers be in 10 years? |

| | |
|---|---|
| | Simplified growing techniques, such as own root roses, may encourage a new generation to get some dirt under their fingernails and continue the Australian rose growing legacy.<br><br>One French rose grower stated that the new generation of rose growers are less inclined towards traditional grafting methods and more interested in purchasing ready-to-plant plugs. This suggests a need for the industry to adapt and consider alternative propagation methods, such as using cuttings, to sustain its growth and stability.<br><br>It is recommended that Australian rose growers have awareness of the French experience, so the next generation of Australian rose growers have these growing options. |
| **Propagators and rose grower proximity** | Proximity between grower and propagator is advantageous when perishable cutting material is required to be supplied by the grower. A 24-hour window for supply will be a critical factor in maintaining high rooting percentages.<br><br>It is recommended that this is considered when selecting a propagator. |
| **Improved number of varieties by improved propagators and rose grower relationships** | Currently in Australia, most own-root roses produced are limited to landscape and miniature varieties. These are mostly produced by production nurseries and a limited number of independent propagators.<br><br>To increase the range of own-root rose varieties it is recommended that relationships be developed between inground growers and plant propagators. |

*Own-root rose fields. NeuHouse Farms, Wasco, CA*

# ITINERARY

| Dates | Place, Country | Organisations, People |
|---|---|---|
| 13 Sep 2024 | Portland City, Oregon, USA | Meeting with Rich Baer, Member, Portland Rose Society<br>To gain insight into home planting of own-root roses. |
| 16 Sep 2024 | St Paul, Oregon (OR) | Meeting with Ben Hanna, Tyler Spurgeon, Heirloom Roses<br>To visit an inhouse plug and pot producer. To gain an understanding of processes. |
| 16 Sep 2024 | Mt Angel, OR | Meeting with Christine Ames, Kraemer's Nursery<br>To observe a large container nursery that purchases own-root bare root plants and how these are processed and dispatched in a short growing window. |
| 17 Sep 2024 | Portland, OR | Meeting with Rachel Burlington, International Rose Test Garden.<br>To visit a public garden where both own-root and budded roses are planted and to observe difference in growth and performance. |
| 19 Sep 2024 | Regan Nursery, Fremont, California (CA) | Meeting with Mark & Maria Potts<br>To assess a retail garden centre that specialises in potted roses and to gain an understanding of the rose potting and selling program. |
| 19 Sep 2024 | Watsonville, CA | Meeting with Phil Nienaber, Pacific Plug & Liner<br>To understand the processes of producing roses as cuttings. |
| 20 Sep 2024 | Fresno, CA | Meeting with Chris Wichman, Belmont Growers<br>To observe a rose container grower who purchases bare root stock. |
| 21 Sep 2024 | Visalia, CA | Meeting with Bill Mann, Retired former executive Star Roses & Plants<br>To gain an understanding of the current and past USA own-root rose market. |
| 23 Sep 2024 | Wasco, CA | Meeting with Bill Mann, at Star Roses & Plants<br>To visit and observe in ground own-root rose growing fields. |
| 24 Sep 2024 | Wasco, CA | Meeting with Dan Waterhouse & Nancy Neufeld, Neuhouse Farms<br>To discuss the growing requirements for producing roses in ground, on their own-roots. |
| 25 Sep 2024 | Wasco, CA | Meeting with Christian Bédard, Weeks Roses<br>To gain an understanding of how a rose breeder includes own-root selection in their breeding program. |
| 26 Sep 2024 | Arroyo Grande, CA | Meeting with Bill DeVor, Greenheart Farms<br>To gain an understanding of the processes in propagating rose cuttings. |
| 27 Sep 2024 | Fillmore, CA | Meeting with Andy Kittich, Otto & Sons<br>To observe a production nursery that purchases and pots bare-root roses. |
| 27 - 28 Sep 2024 | San Marino, CA | Meeting with Tom Carruth, Huntington Gardens, former rose breeder<br>To gain an understanding of a breeder's view on own-root roses. |
| 30 Sep 2024 | Broomfield, Colorado | Meeting with Matt Douglas, High Country Roses<br>To visit a medium scale propagation and potting nursery. |
| 2 Oct 2024 | Greenfield, Wisconsin | Meeting with Carlos, Meka, Bryce, Rose Innovations<br>To visit the breeding home of the Knock Out ® rose and to gain greater understanding of their own-root breeding program. |
| 3 Oct 2024 | Levittown, Philadelphia (PA) | Meeting with Bill Kozemchak + West Jersey Rose Society members<br>To gain an understanding of a home garden perspective to planting own-root roses. |

| | | |
|---|---|---|
| 3 Oct 2024 | West Grove, PA | Meeting with Kristen Smith, Star Roses and Plants<br>To understand the views of a large rose introducer, propagator and distributor. |
| 4 Oct 2024 | West Grove, West Chester, PA | Meeting with Steve Hutton, former owner Conard Pyle<br>To gain knowledge of changes seen in USA rose propagation and growing. |
| 5 Oct 2024 | Hillsborough New Jersey, USA | Meeting with Dr. Suni Bolar & Rafiq Bolar, Bolar Roses<br>To gain insights into the views of contemporary rose breeders regarding rose propagation. |
| 7 Oct 2024 | Klein Offenseth-Sparrieshoop, Germany | Meeting with Alex Kordes and Thomas Proll, Kordes Roses<br>To gain insights into rose breeding and their own-root program. |
| 7 Oct 2024 | Klein Offenseth-Sparrieshoop, Germany | Meeting with Jens Krüger, Rosen Tantau<br>To gain insights into rose breeding and their own-root program. |
| 8 Oct 2024 | Jeddoloh, Germany | Meeting with Jeddeloh Plants & Dedemsvaart B.V.<br>To understand the workings of a container growing rose nursery, purchasing in own-root tube stock. |
| 10 Oct 2024 | Wanssum, Netherlands | Meeting with Patrick Wijnhoven, Roparu Roses<br>To gain an insight into the in-ground growing of own-root roses versus budded plants. |
| 10 Oct 2024 | Lottum, Netherlands | Meeting with Bernt Rötjes, Rötjes Young Plants<br>To discuss the workings of a large propagation facility and how they produce own-root roses. |
| 11 Oct 2024 | Grubbenvorst, Netherlands | Meeting with Peter Cox, Pheno Geno Roses<br>To gain insights into rose breeding and their own-root program.<br>Meeting with Frank Coenders.<br>To gain insights into the workings of a inground budded rose nursery. |
| 14 Oct 2024 | Quiers-Sur-Bezonde, France | Meeting with Jean-Marc Pilté, France Pilté<br>To observe the propagation facility producing own-root roses for an in-ground rose grower. |
| 16 Oct 2024 | Sanremo, Italy | Meeting with Marco Satore, Nino Sanremo<br>To gain an insight into a propagation and container growing nursery with a large catalogue of own-root roses. |
| 18 Oct 2024 | Antibes, France | Meeting with Alain Meilland, Meilland International<br>To understand the history and current breeding for own-root roses. |
| 21 Oct 2024 | Antibes, France | Meeting with Jacques Mouchotte, former head breeder Meilland International<br>To gain an understanding of the history of own-root breeding and philosophy in the Meilland company. |
| 22 Oct 2024 | Antibes, France | Meeting with Jacques Ferare, former Vice-President Roses and New Introductions, Star Roses & Plants<br>To learn about the history of own-root rose production USA. |
| 24-25 Oct 2024 | Le Cannet-des-Maures, France | Attendance at Meilland International agents Autumn meeting.<br>Discussions with rose introducer agents to gain insights into own-root propagation, growing and sales in a range of countries. |
| 26-28 Oct 2024 | Seville, Spain | Meeting with Paco Ferrer, Carlos Ferrer, Universal Plantas S.A.<br>To observe the growing of own-root roses by an inground rose grower. |

*Standard roses*


*Wasco, CA, is one USA's major rose growing regions*

*Kim Syrus & Patrick Wijnhoven (L-R) Ropura Roses, Netherlands*

# Glossary of Horticultural Terms

**Bareroot roses**: Roses that are sold with their roots exposed, not in pots, typically while they are dormant.

**Budding**: A method of grafting where a single bud from one plant is inserted into the bark of another plant's rootstock.

**Cutting**: A piece of a plant, typically a stem or leaf, that is used to grow a new plant through rooting.

**De-eyeing**: The process of removing dormant buds from rootstock to prevent them from growing and competing with the grafted bud.

**Grafting**: A horticultural technique where tissues from one plant are inserted into those of another so that the two sets of vascular tissues may join together.

**Hardwood**: Mature, firm wood from a deciduous tree, used for propagation by cuttings.

**In-ground rose growers**: Farmers or horticulturists who grow roses planted directly in the ground rather than in pots or containers.

**Liner grower**: A producer who buys in propagated plugs or tubes rather than growing them

**Own-root roses**: Roses grown from cuttings rather than being grafted onto a separate rootstock. These plants develop on their own-roots.

*De-eyeing Dr Huey understocks. Universal Plantas SA, Spain*

**Plugs**: Small plants that are grown in trays and used for transplanting into the ground or larger containers.

**Softwood**: The newer less mature growth on a stem

**Standard rose:** A type of rose plant that has been grafted onto a tall stem to create a 'ball on a stick' shape.

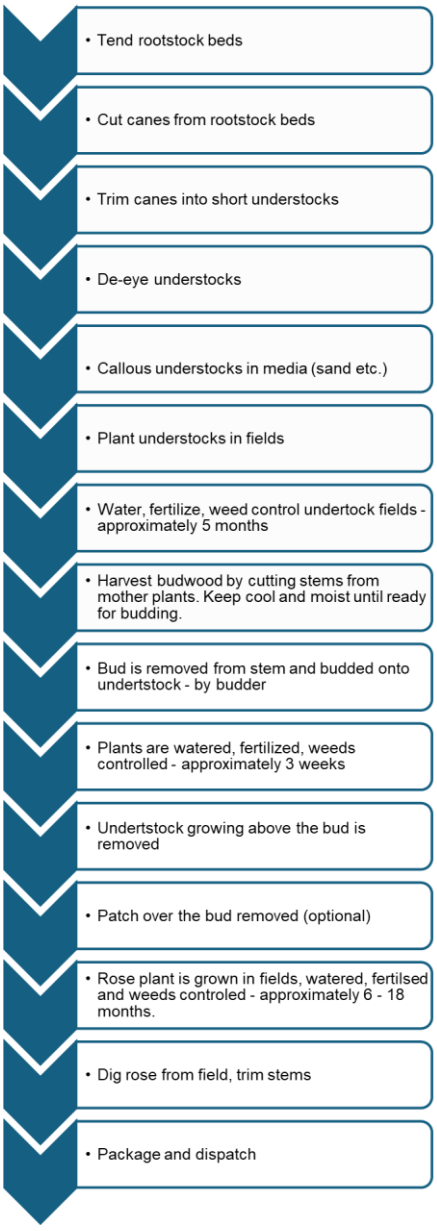
**Strike rate**: Percentage of cuttings that successfully develop roots and grow into viable plants.

**Understock**: The rootstock onto which a bud or scion from another plant is budded.

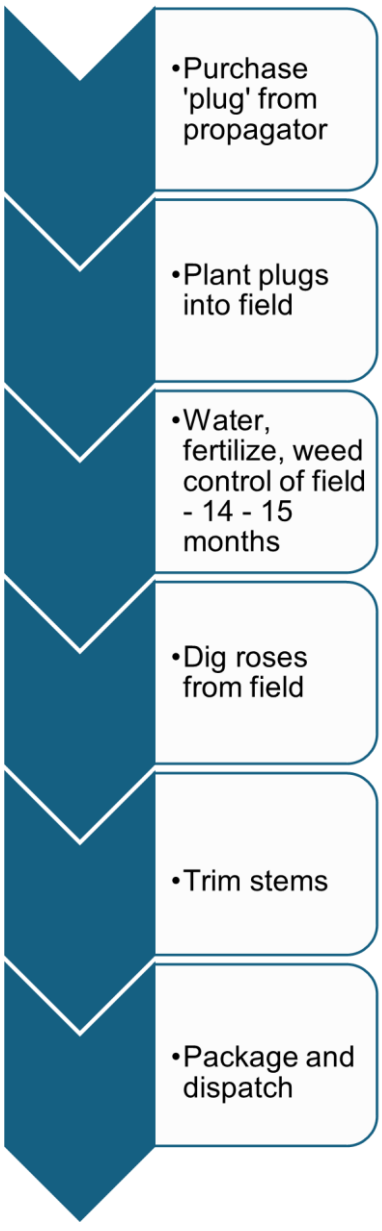
**Whip**: A young, unbranched shoot or sapling that is typically used in grafting or as a rootstock in the propagation of roses and other plants.

## Tables comparing the steps required to produce budded roses (left), own root plug roses (middle) and own-root hardwood cutting roses (right)

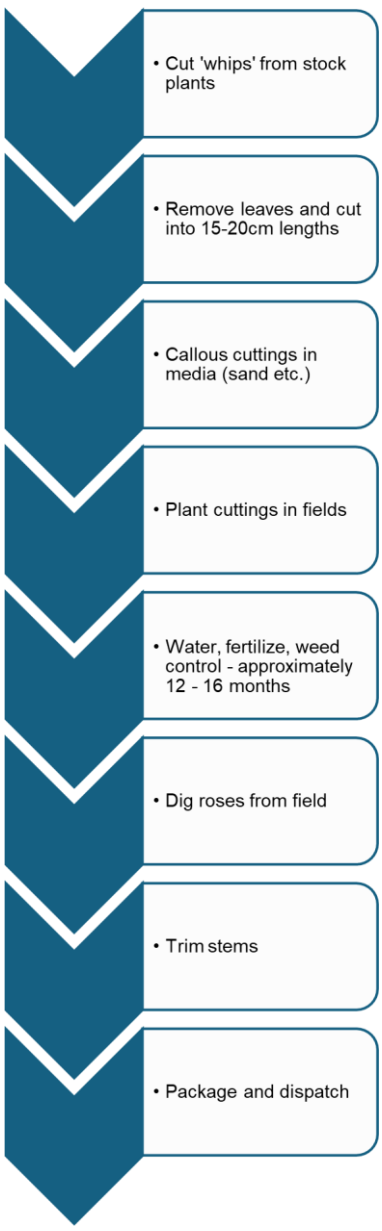
### Growing process for budded in-ground roses




### Growing process for own-root plug propagation




### Growing process for own-root hardwood cuttings



# INGROUND GROWERS

Across the USA and Europe, I visited several select growers who produce their rose crop ‘inground’ or ‘in field’, akin to the Australian rose industry. Spending time with these growers was a vital part of my Fellowship in helping to ascertain their orientation towards own-root plants.

Roses, as with all plant sales, are price sensitive. In the USA, at the wholesale level, bare root own-root roses are listed at a lower price that an equivalent budded rose. This is not the case in Europe.

I have briefly introduced each grower by providing background on their history, their relevance to their respect country’s rose industry and elements of interest that help define their growing philosophies and practices. Where relevant, I have identified the equivalent southern hemisphere to match the northern hemisphere months.

As requested by growers, I have not identified their commercially confidential information in this report.

## NeuHouse Farms - USA

NeuHouse Farms is located in Wasco, California, nestled in the fertile San Joaquín Valley, and has a horticultural history dating back over four generations. Dan Waterhouse and Nancy Neufeld are founding partners of NeuHouse Farms. Dan focuses on growing and selling bare root roses, and manages all operations, while Nancy oversees the Rose Program and Planting Director, leading R&D in roses, woody perennials, and shrubs.

Nancy’s father, Jim Neufeld, has been instrumental since 1965, working and developing this farm over the past 60 years and continues to be an active partner. Will and Zeb, sons of Dan and Nancy are the next generation, playing pivotal roles in maintaining the farm’s legacy.

*NeuHouse Farms grows 11 million roses, the majority on own-roots*

Renowned globally for its rose production, the farm also cultivates vast pistachio and almond orchards, alongside various row crops including carrots, beans, wheat, and Pima cotton. The farm spans 3,000 acres of which, approximately 500 acres are dedicated to roses.

NeuHouse Farms grows a staggering 11 million roses per year, the vast majority on their own-roots. This crop equates to approximately 25-30% of the USA rose market.

As a contract grower, they supply a wide range of businesses, including Star Roses & Plants. The quality of plant and scale of this operation has set a benchmark within the rose industry.

*Racks of own-root rose plugs ready for planting. NeuHouse Farms, CA*

A notable aspect of NeuHouse Farms' rose production is their distinct preference for own-root roses over budded ones. This preference is driven by their belief that own-root roses tend to be harder and more resilient, providing better long-term garden results.

Own-root rose plugs are purchased in from external propagators - including Greenheart Farms, Arroya Grande and Pacific Plugs & Liners, Watsonville - and planted through the months of spring and again early autumn.

Hardwood cuttings are produced inhouse and planted in December.

The Knock Out® rose's commercial success throughout the USA in the early 2000's and this rose variety's ability to successfully grow and perform on its own-roots played a significant role in NeuHouse Farms decision to develop their rose growing program. Success with Knock Out® roses demonstrated the viability of their propagation and growing methods, enabling them to expand and refine their operations further.

NeuHouse Farms continually trail and assess garden roses for their suitability in their own-root production, including as hardwood cuttings.

## Star Roses & Plants - USA

Star Roses & Plants have a long and distinguished history in the American Rose Industry dating back to 1897 when The Conard and Jones Co. started, and roses were just beginning to appear in people's gardens. Over the decades, Star Roses & Plants, have consistently been at the cutting edge of new rose innovations. From the introduction of the 'Peace' rose in the USA in 1945, Knock Out® in 2000, to the current stable of rose varieties, little wonder they have helped shape the growing and sale of own-root roses in the USA.

After 30 years at the helm, Steve Hutton sold Star® Roses and Plants to Ball® Horticultural in 2015.

Kristen Smith, Rose Evaluation Manager at Star® Roses and Plants overseas the trialling testing of new rose introductions for local and overseas rose breeders. Roses are tested on both coasts, at the West Grove, PA headquarters and in the growing fields at Wasco, CA.

Every rose variety they list is trialled and tested for performance on its own-roots. Those varieties that do not reach this requirement are culled.

Trialling of hardwood cuttings is undertaken at both sites. Generally landscaping style roses perform best however more is being done to include garden varieties in the hardwood testing program. This is due to the resurgence in demand for traditional hybrid tea roses with a high-centred bloom and strong fragrance.

*Star Roses & Plants own-root rose crop at NeuHouse Farms, CA*

Star Roses & Plants inground rose crop is contract grown by NeuHouse Farms therefore the majority of bareroot bush roses supplied to and distributed by Star Rose & Plants are own-root. Star® Roses and Plants follows the American National Standards Institute (ANSI) standard for grading both budded and own-root roses.

## France Pilté - France

The company France Pilté is run by Patrice and Jean-Marc PILTÉ, who exclusively produce rose bushes. It is a fourth generation rose growing business located in Quiers-sur-Bezonde near Bellegarde, France.

Each year, at France Pilté,, 300,000 rose bushes are budded, and an increasing number of own-root cuttings are being planted. A large part of the bare-root production is packaged or grown in pots for marketing in garden centres and specialized distribution. France Pilté is licensed by the largest European breeders and develops its own collections such as "Les Roses aux Parfums de Fruits".

*Hot water is pumped as a byproduct from the nearby nuclear power plant to heat greenhouses, France Pilté, France*

France Pilté have set up plug propagation production greenhouses in Dampierre-en-Burly dedicated to producing own-root rose cuttings for both their own use and a view to supplying other growers.

An increasing number of plants in the France Pilté fields are own-root plants

sourced from their in-house plug propagation. Jean-Marc Pilté, sees the percentage of budded roses reducing and own-root plants increasing in both his business and across the French rose industry. His investment in the production greenhouses at Dampierre-en-Burly demonstrate this belief.

The growing facility at Dampierre-en-Burly, is adjacent to the Dampierre Nuclear Power Plant. While the power plant serves as a unique backdrop, the ‘by-product’ hot water produced through the power generation process is piped throughout the local area, freely available and accessed by Jean-Marc, allowing him to provide base level heating throughout the greenhouses, and reduce his energy costs.

*Own-root plants in field. Ropura Roses, Netherlands*

## Frank Coenders Kwekerijen B.V. - Netherlands

Frank Coenders Kwekerijen B.V., established in 1990 by Frank Coenders, has grown into a successful horticultural enterprise located in Grubbenvorst in the Netherlands.

This family business specializes in the cultivation of a vast assortment of garden roses, which are produced entirely in-house, encompassing rose rootstocks, one- and two-year-old roses, standard roses, and potted roses. The potted roses are grown on modern ebb and flow floors and within greenhouses.

The company operates on approximately 35 hectares of land, where it also engages in arable farming for crop rotation, an essential practice for sustainable cultivation.

All roses grown in field are budded on to understocks, no own-root cuttings are produced.

## Roparu Roses - Netherlands

Roparu Roses, NS Grubbenvorst, Netherlands, is a respected name in this country’s rose-growing industry.

The name 'Roparu' is derived from the first two initials of the names of the three brothers who manage the company: Patrick, Rob, and Ruud Wijnhoven – each play a critical role in the company's operations.

Ropura Roses grows about 750,000 plants in the field with a mix of both budded and own-root types. Additionally, they grow about 5,000 standard roses.

Most roses grown are budded. The seedling rootstocks used for budded plants is Rosa laxa which is purchased from a specialized rootstock grower who prepares them about a year in advance. Laxa seeds are sown and nurtured, grown on and lifted as seedlings, then delivered to Ropura Roses in the spring. Luxa, is preferred for its suitability and quality, ensuring a strong foundation for the plants.

Ropura Roses is planting fewer own-root cuttings is due to market pressure. They have found that customers are increasingly opting for larger plants that give perceived value. In a comparatively shorter northern European spring and summer growing season, budded plants develop a more robust framework quicker than the same cultivar grown from an own-root cutting. This trend has resulted in Ropura Roses, adapting its planting strategies accordingly.

Parick Wijnhoven believes that own-root roses are less drought tolerant than an equivalent budded cultivar due to the own-root plants shallower and more fibrous root system. His belief is that this pattern or root system can affect their ability to access deeper water sources, especially during dry conditions.

## Universal Plantas, S.A. - Spain

Universal Plantas S.A., located in San José de la Rinconada near Seville, Spain, is a prominent rose cultivation enterprise. Owner, Paco Ferrer and son, Carlos Ferrer oversee the production operations.

*Hardwood cutting plants, Universal Plantas SA, Spain*

The company specializes in producing a diverse range of rose varieties, catering to both domestic and international markets.

Universal Plantas produces one million field grown roses per annum. They grow both two-year-old and one year old budded roses and a smaller percentage of cutting grown own-root hardwood and plug roses.

Universal Plantas currently prefers to grow the majority of their roses using budding rather than own-root cuttings. The primary metrics used to determine this preference include their extensive statistics and data on the success rates of grafted plants. They know which varieties perform better when grafted onto specific rootstocks. Grafted plants have shown more consistent quality and higher success rates.

Over the years, Universal Plantas, S.A. has managed to solve many problems associated with grafting, making the process more reliable and successful.

Although Universal Plantas S.A  has a large rose budding program, they continue to invest time and resources in testing and trialling garden varieties by hardwood cuttings.

Hardwood cuttings are assessed in trial and given ratings of Perfect, Good, Regular & Bad, according to the percentage of plants that survive, number of canes, calliper of cane, and type of root system from spreading fibrous to single tap roots.

Hardwood own-root cuttings are taken and planted in the field between October and November (Aust: March – April). They have a whole year in the ground before lifting.

## Inground grower experiences – summary

The vast majority of USA and European inground rose growers favour planting plugs sourced from a propagator, or in a few cases, their own inhouse plug production.

While hardwood cuttings are an easy option for an inground rose grower the resultant poor success rate (across some hybrid teas and floribundas) has led to minimal use of hardwood cuttings.

Growing roses from hardwood cuttings presents several challenges. One major issue is the variability in the success rate of rooting. For instance, a cutting that achieves a 70-75% success rate is considered good.

The quality of the root system that develops from these cuttings is variable. Ideally, a complex root system is preferred; however, hardwood cuttings often produce large, carrot-like roots, which are less desirable as they can make it difficult for the plant to develop the finer, white roots necessary for healthy growth.

Issues with growing own-root roses in Northern Europe focused on a combination of factors: declining green-life sales (including roses), pressure of cheap Eastern European budded roses in the market; and the relatively short growing season.

One Northern European grower identified that the six-year decline in the number of inground own-root plants grown in his nursery was due to market preference for larger plants: Three to four years ago: 350,000 to 400,000 cuttings; 2025: 40,000 to 50,000 cuttings.

Across the Netherlands, the market is looking towards larger growing budded plants which offer better perceived value due their size as opposed to cutting grown own-root roses, which require additional time inground to produce an equivalent sized plant. There is a concern that roses grown on their own-roots are a ‘little more weak’ compared to budded plants. An additional 2-3 months of growing weather, as we have in southern Australia, would be of great benefit to own-root plant development.

The process of growing cutting grown own-root plants is described by a number of European growers as ‘very expensive’. Lower cost budded plants sourced from Eastern Europe skew the benchmarking of a local budded plant and against a local own-root alternative.

In France, the method of growing inground roses by cutting is not currently widely adopted, however Jean-Marc Pilté from France Pilté sees the future of rose production moving to cutting grown and is setting up his propagation program to supply tubestock for his own field production plus other growers, an option for Australian growers to assess.

Wholesale pricing of bare root own-root roses is cheaper than its budded equivalent in the USA. This has been a major contributing factor in the take up of own-root roses across the wholesale and retail sectors. Conversely, cutting-grown roses in Europe are not cheaper than budded roses primarily due to the costs associated with buying in plugs.

In Angers, France, there has been competition among rose budders, who often seek to maximize their earnings by moving between different rose-growing fields. This competitive environment has led to inconsistencies, excessive budding charges, and unreliability.

One French rose grower stated that the new generation of rose growers are less inclined towards traditional grafting methods and more interested in purchasing ready-to-plant plugs. This shift suggests a need for the industry to adapt and consider alternative propagation methods, such as using cuttings, to sustain its growth and stability.

*Rose cuttings, France Pilté, France*

## Inground growers hardwood cutting propagation

Hardwood cuttings, taken from established roses in late autumn or early winter, cut into 20cm lengths and planted infield has been trialled with differing success. Growers' experiences are summarised below.

- For greatest success, choose varieties that are known to reliably produce roots and grow from hardwood cuttings. Get input from breeders, introducers or other growers.
- Use trial and error to assess. Assess whether the variety propagates well and is conducive to hardwood propagation. This includes evaluating the root structure and the plant's performance in the field.
- The decision to proceed with commercialisation will be determined by a variety's ability to produce a saleable plant from a hardwood cutting.
- Ensuring the correct timing – from taking a 'whip' to making a planting, the hardwood cutting needs to be done within with a very short window. California growers suggest this window is generally from December 1st to December 21st. (Aust:1st June – 21st June). Noting that the cutting and planting time will need to be adjusting based on chilling hours and weather conditions.
- Hardwood cuttings are generally 15-20cm.
- Cuttings can be placed directly into the ground without callousing.
- The rating system for assessing hardwood cuttings is based on several criteria, including the percentage of plants that survive, the quality of plant produced, number and size of cane, and the type of root system. The ratings are categorized as follows:
    - Perfect: Spreading fibrous root system.
    - Good: High percentage of plant survival and satisfactory number of canes and cane caliper.
    - Regular: Moderate plant survival, fewer canes, and acceptable cane caliper.
    - Bad: Single tap roots with low survival rate.

## Inground growers' plugs propagation

- Plants are propagated by rooting cuttings in greenhouses, producing a 'plug'.
- Success rate impacts pricing. The price per cutting may vary based on the plug success rates, with a higher success rate leading to a lower price, and vice versa.
- Quality testing is essential. Plant out inground to see the growth and form of the plant.
- Preferred root system: Complex root systems are preferred over simple systems with only two big roots, as they facilitate better white root formation.
- Planting schedule: Cuttings are planted in the field around October or November (Aust: March or April), allow for a full year for growth and evaluation.

# CONTAINER GROWERS

Another sector in the rose industry in the USA and Europe are growers who produce roses grown from cuttings in pots. This practice is common in Australia, although it tends to be limited to miniature, and landscape type rose varieties.

Across the USA and Europe, roses purchased through retailers are solely available as potted plants. This is because few or no roses are sold as winter bare-root bagged plants through garden centres, and their bare root market is restricted to online sales.

*Potted roses are almost exclusively sold in the USA and Europe*

Given the need to supply roses in containers, a broad range of garden rose varieties are being propagated by cutting, potted then sold either wholesale, retail, or by mail order to match the budded forms of these cultivars.

The growers included in this category are varied: some buy in bareroot roses grown inground and pot on, others purchase own-root plugs from propagators to pot, while a few produce their own-root cuttings inhouse, pot and sell.

I have briefly introduced each grower by providing background on their history, their relevance to their respect country's rose industry and elements of interest that help define their growing philosophies and practices.

As requested by growers, I have not identified their commercially confidential information in this report.

## Belmont Nursery - California

Belmont Nursery, located in Fresno, has a rich history spanning 81 years. Founded in 1943, the nursery operated under the Palmer family for the first 60 years. In early 2001, it was purchased by John Realhorn.

The nursery is renowned for its extensive rose production, being one of only two authorized English rose breeder, David Austin Roses, growers in California. With a focus on producing high-quality roses, Belmont Nursery manages 90 different rose varieties. Roses are among the nursery's top-selling items.

Belmont Nursery spans approximately 30 acres, divided into three 10-acre facilities. These facilities support a wide range of plant production, including perennials, shrubs, and trees.

Belmont Nursery processes approximately 12,000 bare root roses per year purchased in from field growers. Roses are received in December and January (Aust: June and July), potted, and prepared for sale by March or April (Aust: September or October).

Own-root bare root plants are preferred where possible due to the lower price differential between own-root and budded.

It was acknowledged that where a cultivar performed equally well on its own-roots or budded, the end consumer would not know the difference and purchase not compromised.

The nursery also propagates its own plants from cuttings, particularly popular varieties like Iceberg, which are grown in one-gallon pots before being transferred to larger five-gallon pots.

*Potted own-root Iceberg roses. Belmont Nursery, Fresno CA*

## Heirloom Roses – Oregon

Heirloom Roses, based in St. Paul, Oregon, is a family-owned business specializing in high-quality, own-root roses. Owners Ben and Kara Hanna, who have backgrounds in IT, took over the company in 2015 with a vision to merge their technical expertise with their passion for gardening. Their IT proficiency has enabled them to optimize Heirloom Roses' online presence, creating a seamless shopping experience for rose enthusiasts across the United States.

*Well branched own-root rose. Heirloom Roses*

John and Louise Clements, the original owners of Heirloom Roses, founded the business in 1972 with a strong focus on growing high-quality roses and a passion for preserving and promoting old garden roses and other unique varieties. John, a breeder of miniature roses, was adept in own-root propagation. Aware of the virus problems associated with budding, they chose never to graft their plants, relying instead on growing roses from own-root cuttings.

The company grows roses exclusively on their own-roots.

Heirloom Roses offers an extensive selection of more than 900 rose varieties, including Hybrid Teas, Floribundas, Climbers, Shrubs, Old Garden Roses, and Groundcovers. They also feature a notable collection of fragrant and disease-resistant roses.

Heirloom Roses propagate their plants at the nursery using a combination of stock plants and current crop to source new cuttings material. Cuttings are taken during the growing season. The process begins in April and continues through to September (Aust: October – March). Cuttings taken during this period are rooted then and potted into liners and held over winter. The liners are potted the following spring, around March and April (Aust: September – October).

The entire process from cutting to sale usually spans 12 to 18 months, potentially shortened to around 10 months under optimal conditions.

The type of finishing pot used is a trade gallon equivalent to a 2.8 L metric pot. The criteria for plants being sold is that they should have at least three branches that are overhanging the edge of the pot when shipped.

Hygiene is critical throughout the nursery. Whether trimming rose cuttings for placing in trays, cutting back plants, or pruning stock beds, a rotation of sterilised secateurs and

clippers prevent the risk of disease and virus transfer, especially Rose Mosiac, amongst the plants.

## High Country Roses - Colorado

High Country Roses, based in Broomfield, Colorado, is a mail order grower specializing in own-root rose pot production owned by Matt Douglas. The nursery, founded in 1970 by Dr. William Campbell, now cultivates 30,000 to 40,000 plants annually, offering an impressive selection of over 750 varieties.

High Country Roses collection includes old garden roses, modern hybrids, climbers, groundcovers, miniatures, and rare or heritage varieties. Known for their expertise in cold-hardy roses, High Country Roses caters to gardeners in diverse climates, including those with challenging weather conditions. Plants are despatched direct to retail customers across the USA.

Striving to offer a broad range of modern and old-world varieties comes with varying cutting survival rates, from the high 90% to low 5%.

*Matt Douglas, High Country Roses, Broomfield CO*

Matt is comfortable with a 5% strike rate for some rose varieties because these specific types, particularly old garden roses, are difficult to propagate but are important to preserve and keep in commerce. Despite the low propagation success rate, maintaining these unique and rare varieties is crucial to the business, as they attract customers who are looking for specialized and hard-to-find plants. This legacy of offering rare and unique roses differentiates the business from others and justifies the effort to propagate them even at such low success rates.

Cuttings are primarily made during May, June, and July (Aust: November, December and January). This timing allows High Country Roses to manage the volume of plants going out in spring and to get better quality cuttings. Although there is a dip in plant quality when it gets very hot, they continue to take cuttings because it is necessary to maintain production.

Cutting strike rates have improved dramatically since Matt instigated a hygiene program recommended by Bill DeVor at Greenheart Farms. All plant material prior to being made into cuttings is placed in a solution of ZeroTol®, a broad-spectrum algaecide, bactericide and fungicide. All cutting tools and benches are also treated.

Matt has also moved to placing two cuttings in a tray cell, known as double sticking. Allowing for expected losses, he has improved survival rates by an impressive 28%.

## Kraemers Nursery - Oregon

Kraemers Nursery, located in Mount Angel, Oregon, boasts a rich history dating back to the late 1960s when it was founded by Alan Kraemer. Initially starting as a liner business, the nursery has grown and evolved over the decades.

The nursery specializes in both container-grown and field-grown plant material, including a wide array of deciduous plants, shrubs, conifers, and perennials including roses.

Kraemers Nursery distributes its products across the United States and Canada, with primary markets in the Pacific Northwest, Utah, and Colorado. They also ship to regions as far as New England and Alaska. The nursery adheres to various state biosecurity regulations to ensure their plants meet all necessary quarantine standards.

Kraemers Nursery purchases in approximately 450,000 bareroot rose plants, arriving in winter, which are then mostly planted into 10-gallon pots. They carry limited range; 30 to 40 different varieties of roses, preferring smaller growing cultivars.

Potted roses are grown on for approximately 3-4 months prior to sale commencing early May. About 85% of the roses are sold to box stores, while the rest go to independent stores.

Kraemers Nursery prefer own-root roses as they tend to break dormancy in the spring better than budded rose, allowing the potted roses to be sold earlier. Also, there is a preference for own-root roses in colder climates like Colorado, as these tend to perform better in colder and harsher areas.

Kraemers Nursery noted there did not seem to be any significant pushback from customers when own-root roses started to appear on the market.

## Nino Sanremo - Italy

Established in 1906, Nino Sanremo Nursery in Sanremo, Italy, has been a family-run enterprise for four generations, currently run by owner, Marco Satore, specializing in rose cultivation

In 1981, the nursery innovated by shifting from traditional budding methods to propagating roses from cuttings. This change was driven by the desire to increase the vigour and quality of their plants. By taking softwood cuttings from the mother plants, they found that the new growth was more robust, leading to a higher yield of superior roses. This method, initiated in the early stages of the business, has since become a cornerstone of their operations.

Through trials over the years to ascertain how to grow and what roses perform well, Nino Sanremo carry a catalogue of 400 varieties, all produced on their own-roots

*Kim Syrus & Marco Satore (L-R), Nino Sanremo, Italy*

Marco Satore identifies the quality of the mother stock plants as the marker for a good propagation take of cuttings. If the mother plants are grown well, fertilised and disease free, the subsequent growth will perform well and root better when cut.

Working on a 90% take for cuttings as the benchmark of a successful strike percentage, they have achieved close to 100% for some varieties. Although some varieties such as Banksia lutea are notoriously difficult to propagate. However, they persist as this is an important variety in the catalogue.

While the bulk of own-root cuttings produced are sent to growers across Europe to be potted on and sold as finished plants, Nino Sanremo have incorporated an increasingly important e-commerce site for their business, where home gardeners can access their full range of own-root potted roses.

## Otto & Sons - California

Otto & Sons Nursery was established in 1975 by Otto and Jeanne Klittich and their four sons Bob, Bill, Scott, and Karl. Located in Fillmore, CA and set on 38 acres, it is a wholesale nursery with a retail garden centre carrying a broad range of ornamental and edibles, specialising in roses and fruit trees.

Roses are purchased as bareroot field grown plants from a range of companies: including Weeks Roses, Star Roses & Plants, Certified Roses, and David Austin Roses. Bareroot roses are a mix of budded and own-root. They have no preference around budded or own-root plant.

They have invested in developing an own-root propagation program. They also purchase own-root plugs from Greenheart Farms which are potted in January into one-gallon pots. Once established, they are re-potted into five-gallon containers and held for just over a year before being mature enough for spring sales.

*Potted roses both own-root and budded. Otto & Sons, Fillmore, CA*

Overall, Otto & Sons have seen a decline in rose sales over the past few years.

## Jeddeloh B.V - Netherlands

Jeddeloh Pflanzenhandels GmbH, established in 1932 by Wilhelm von Ehren in Edewecht, Germany, is a family-owned nursery now managed by the third generation. Specializing in the cultivation and sale of a diverse range of plants, their rose production is distributed across Europe, serving both retail and wholesale markets.

Roses are purchased in as tubestock from external propagators located locally and in Germany. This allows Jeddeloh to solely dedicate resources to the growing and selling aspects of their rose production.

Rose cuttings required for creating the own-root rose plugs are sourced from Jeddeloh's stock.

*Plugs supplied are potted and grown for sale into the wholesale and retail markets. Jeddeloh, Netherlands*

The selected rose varieties are cut back, cut growth packed in boxes, and sent to the propagators. The propagators then sift through the stems, cutting them into single nodes and planting these into cell trays.

Production space is always a premium. Rose tubestock is initially potted into small 13 cm pots, held and allowed grow in a reduced footprint. Plants in these pots are them potted into larger pots – 2 litre, 3 litre, 3.5 litre, 6 litre – depending on the order.

Sales season for potted roses is March – July (Aust: September – January). April (Aust: October) is the biggest sales month for roses.

## Container grower experiences – summary

In USA and Europe container growers are finding success propagating and purchasing in own-root roses.

Unlike bare root rose plants, there is no grading or standard set for potted roses in USA and Europe. The difference between a potted budded rose and its equivalent own-root form lies solely on the presentation in the pot.

While a two-year-old budded bare root rose will look more substantial in the container than a one-year-old bare root own-root plant, once the plant has foliage and flowers, (3-4 months post planting), consumers could not tell the difference.

Rose Mosaic was noted as a major reason for growing own-root roses. Throughout the USA and Europe both inground rose growers and container rose growers highlighted the importance of keeping both rootstock beds and stock plants free of Rose Mosaic. Plants infected with Rose Mosaic were noted to have reduced overall health and vigour, along with visually unappealing markings on the leaves.

Maintaining Rose Mosiac free stock plants means that cuttings taken from these plants will be free of this virus.

Heightened levels of hygiene were employed by all growers producing their own cuttings. Secateurs were disinfected between cutting of one variety to another. All cutting tools were regularly disinfected during trimming tasks around the nursery, including at pruning time, to prevent virus transfer.

# PROPAGATORS

Throughout USA and Europe dedicated plant propagators produce own-root rose cuttings in the form of plugs in trays and tubes. These are sold to growers of both inground and container roses.

This segment of the rose industry has expanded over the past 10 years, primarily in the USA, as growers transition away from budded plants to own-root.

USA and European rose growers have identified planting plugs inground or in containers as the most reliable method to produce own-root plants.

*Trays of plugs on benches. Pacific Plug & Liner, CA*

As a result, propagators have become an integral part of the own-root rose production.

I have briefly introduced each grower by providing background on their history, their relevance to their respect country's rose industry and elements of interest that help define their growing philosophies and practices.

As requested by growers, I have not identified their commercially confidential information in this report.

## Greenheart Farms - California

Greenheart Farms has its roots deeply embedded in the nursery industry, tracing back to DeVor Nurseries, a family business known for its significant contributions to the rose industry in the United States. During the 1940s and 1950s, members of the DeVor family ran every major rose company in the country.

Greenheart Farms' owner, Bill DeVor, love of roses began when his grandfather built a greenhouse for him at the age of nine, encouraging him to explore the cultivation of roses on their own-roots. By his early twenties, he was producing about 100,000 roses annually, experimenting with different techniques and varieties.

By the year 2000, the nursery saw significant growth with the success of the Knock Out® rose, increasing their production to over a million roses a year.

*Trays of rose plugs ready for despatch. Greenheart Farms, CA*

Today, Greenheart Farms produces 11 million rose plugs annually, supplying rose plugs to nurseries focusing on both field and container production across the USA. They are also supported by collaborations with breeders like Weeks, Kordes, Meilland, and Star Roses.

Currently, Greenheart Farms have over 170 rose varieties for sale as own-root plugs, covering a range of rose types including, classic garden, climbing, shrub and landscape. Much work has been invested in trial and assessment to ensure these varieties are successful on their own-roots in the nursery, for the grower, and in the garden.

Rose plugs are produced in either 32 or 72 cell trays. The 72 cell trays of own-root plants predominantly go to field growers, while the 32 cell trays are preferred by container producers.

## Pacific Plug & Liner - California

Pacific Plug & Liner (PP&L), based in Watsonville CA, began its operations several years ago, initially focusing on perennial production.

Their rose propagation initiative started a couple of years ago when they partnered with NeuHouse Farms to grow own-root plugs for their field production. Initially, they cultivated 100,000 rose liners in 72-cell trays. By the following year, they shipped about 700,000 roses, and in 2024/25, are nearing 1.6 million roses plugs.

Despite not traditionally being rose growers, PP&L has successfully integrated rose propagation into their program by adapting techniques learned from Greenheart Farms, Arroya Grande CA, a large plant propagation facility specialising in roses.


*Whip cuttings from the field ready to be turned into cuttings. Pacific Plug & Liner, Watsonville. CA*

PP&L's rose cutting production is a combination of whips (long canes harvested from field grown roses at NeuHouse Farms), cutting them into single node segments, along with tip cuttings harvested from plants growing in trays in the production cycle at Pacific Plug & Liner nursery. Once placed into trays, the new cuttings are rooted in a controlled environment.

Whips are cut from the NeuHouse Farms field from May (Aust: November) onwards. Newly cut whips are packed and delivered to Pacific Plug & Liners within 24 hours ensuring cuttings are fresh and rooting percentages optimised.

The bulk of rose cuttings are made May – June (Aust: November – December). Pacific Plug & Liner work on a 12-week program of cutting to despatch to NeuHouse Farms. Plugs are well rooted and ready for field planting in that time. Cut off for delivery to NeuHouse Farms is October (Aust: April).

Currently, the range of roses being produced at Pacific Plug & Liner are limited to Knock Out®, Drift® and a select few others.

The key elements of their growing practices include proper cutting size, sanitation, and adapting protocols to fit their greenhouse conditions, ensuring high-quality rose liners for their customers.

## Rötjes Young Plants - Netherlands

*New cuttings are placed into tents to advance their rooting. Rotjes Young Plants, Netherlands*

Rötjes Young Plants is a dedicated plant propagator located in Lottum, Netherlands. Commencing in 1993, owner Bernd Rötjes, began his horticultural journey studying, working a local tree nursery, and growing cuttings in his backyard. Captivated by giving life to new plants, he began Rötjes Young Plants as a dedicated propagator looking to supply other nurseries with rooted cuttings.

Coinciding with a move in the Netherlands away from inhouse propagation, Rötjes Young Plants received contracts to grow cuttings across a broad range of plants, including roses, producing 30 million plugs annually, including two million rose cuttings.

Rose cuttings are taken in June and July (Aust: December and January), rooting is initiated, and the plug develops a viable root system in six weeks.  Roses are typically grown in 73 cell trays, allowing more space for plants to grow larger and develop a better root system. Additionally, when roses are to be planted in the field, they require a slightly bigger plug to provide a buffer on the roots, enabling better growth and stability.

The trays are held at Rötjes Young Plants for approximately 10 months. Carrying plugs over winter allows vernalisation of the roses which encourages a better branching plant.

This also aligns with the planting season in northern Europe. Summer cuttings have not developed a mature enough root system to safely be planted in autumn and reliably survive a harsh winter. Holding the plugs at Rötjes Young Plants until the following spring or summer ensures an almost 100% survival rate in both pots and field.

## Propagator experiences – summary

*There is a lack of specialised rose propagators in Australia*

Ensuring the health and quality of cuttings during production involves meticulous hygiene protocols. The process begins with immediate washing of all equipment to prevent contamination.

Additionally, the protocols may include the use of 1% solution of quaternary ammonium solutions to sterilize tools and surfaces, ensuring that no pathogens are transferred during the cutting and planting processes. Inoculations are carried out to bolster the plants' defences against diseases, promoting overall plant health.

These comprehensive hygiene measures are integral to maintaining the high standards required for successful propagation and production of cuttings.

## Cuttings from Field

Many growers supply cutting material of the varieties they want grown from their field crop and stock plants to the propagator. This material either provides all or supplements what the propagator needs to fulfill the order.

Any plant material needs to be supplied in a timely manner.

- Cutting and delivery within 24 hours is preferred.
- If you wait more than 48 hours, take rates reduce dramatically.
- Cuttings placed in a 1% solution of quaternary ammonium to kill any fungus and bacteria.
- It is preferable to cool down the cuttings prior to despatch (in cold storage).
- Keep cool while transporting.
- Chilling slows down the metabolic processes, reducing the risk of spoilage and disease proliferation..

## Own-root Plug Growing Process

1. **Taking Rose Cuttings**
   The process begins with taking rose cuttings from healthy, mature plants. The cuttings are carefully selected to ensure they have the best chance of rooting successfully.

2. **Placing in Plugs**
   Once the cuttings are taken, they are placed in trays. Different trays have standardised cell numbers, which dictate how many cuttings can be grown in each tray. Plants grown in a cell are called plugs. The specific type of plug used is chosen based on its ability to maintain the right balance of moisture and air. Trays with 73 cells for rose cuttings is preferred if planting inground.

3. **Keeping in Tents**
   The plugs with the cuttings are then placed in clear plastic sheet tents. These tents help create a microclimate that is ideal for rooting. The tents maintain a consistent level of humidity and temperature, which are critical for the successful rooting of the cuttings. The light conditions within the tents are carefully controlled to ensure optimal growth and development.

4. **Level of Humidity**
   Inside the tents, the level of humidity is carefully controlled. High humidity is maintained to prevent the cuttings from drying out and to promote root development. This is typically kept at around 90-95%.

5. **Temperature**
   The temperature within the tents is also regulated to provide the best conditions for rooting. The ideal temperature range is usually between 70-75° F (21-23°C).

6. **Length of Time Grown**
   The time cuttings are kept in the tents varies from grower to grower. One grower leaves his cuttings for 18 days untouched before transferring to another growing area. Others commence lifting the sides of the tent over period of 4-7 weeks to assist cuttings to acclimatise before removing the tent completely.

7. **Growing Media**
   The growing media used in the plugs is carefully chosen to provide the right balance of nutrients, moisture retention, and aeration. The media often includes a mix of peat, perlite, and other organic materials. A light mix of 60% peat moss, 35% coco fibre, 5% perlite is preferred.

8. **Potting Mix**
   Once the cuttings have developed sufficient roots, they are transplanted into pots with a potting mix. This mix is formulated to support further growth and development of the young plants. It includes components such as composted bark, peat, and other organic materials.

9. **Mother Stock**
   Maintaining mother stock numbers is crucial for the success of any nursery, Mother stock refers to the original plants that are used to propagate new plants. They must be healthy and disease-free to ensure the quality of the offspring. Turnover of mother stock is also a significant aspect of nursery management. Typically, mother plants are replaced every few years to ensure they remain vigorous and productive. The exact turnover rate can vary depending on the species and the specific needs of the nursery, but generally, every three to five years.

# ROSE BREEDERS

The rose industry across the world relies on rose breeders to hybridise roses to create new varieties to meet the needs of retailers and consumers. New rose varieties aim to provide roses with improved disease resistance, vigour, interesting hues, different forms, better fragrance, or ability to grow own-root.

Across the centuries, roses have been hybridised to follow market trends or start their own.


*Rose hips ready for harvest and seed removal*

In an era of reducing rose sales worldwide, rose breeders more than ever, are looking to local and global markets for direction on the rose type best suited for sale.

Rose hybridising is a long process. The time between dusting pollen onto a flower, harvesting the hip, planting the seed, growing the seedling, and assessing for potential commercial release is often an 8-to-10-year window. Rose breeding requires a considerable amount of market forecasting to be successful.

While the basics of rose breeding are the same, each breeder has their own unique way of creating new rose varieties.

I have briefly introduced each breeder by providing background on their history, their relevance to their respect country's rose industry and elements of interest that help define their breeding philosophies and practices.

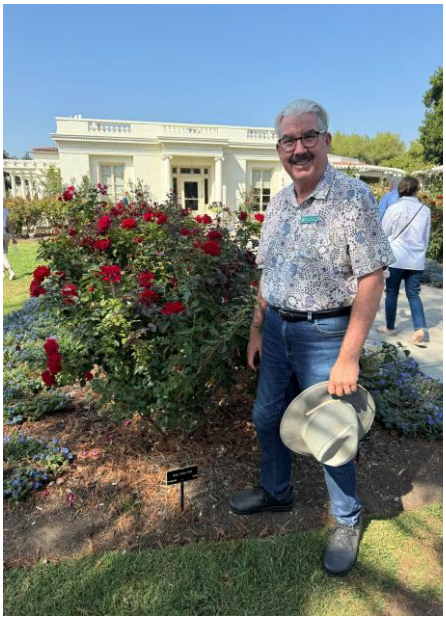
As requested by breeders, I have not identified their commercially confidential information in this report.

## Tom Carruth - California

Tom Carruth, currently the Curator of the Rose Collection at the Huntington Library, Art Museum & Botanical Gardens, is a renowned figure in the world of horticulture, particularly known for his significant contributions as head breeder at Weeks Roses.

As a rose breeder, Tom has dedicated his career to the propagation and innovation of rose varieties. His tenure at Weeks Roses was marked by his passion for developing new and unique rose breeds, showcasing his expertise and deep understanding of the field.

Tom's breeding program at Weeks Roses emphasized the importance of quality and resilience in rose varieties. He bred numerous award-winning roses, including outstanding purple hues, best displayed in varieties like Julia Child and Ebb Tide. Tom excitedly said he did backflips when the first blooms for those purple crossings appeared.



*Tom Caruth, Huntington Gardens*

Tom’s selection criteria when breeding focused on the following attributes - uniform root system, resistance to crown gall, early blooming, continuous blooming, good habit, floriferousness, rapid repeat blooming, resistance to disease, and adaptability to local climate conditions.

Tom has expressed a clear preference against own-root cutting grown roses. He believes that these roses often face challenges in growth and resilience compared to grafted varieties. His experience in the industry has led him to conclude that while own-root roses have their place, they do not always meet the rigorous demands of commercial nurseries and growers, particularly in terms of consistency and performance.

## Jacques Mouchotte - France

Jacques Mouchotte is the recently retired, Head of Research at Meilland International. Commencing his career at Meilland as a computer programmer, he eventually transitioned into a pivotal role in rose breeding. His passion for roses was ignited as a teenager, and he realized his dream of working at Meilland.

*Pierre de Ronsard® (Meiviolin)*

His dedication and talent led to his involvement in the selection of renowned roses such as Bonica and Pierre de Ronsard®. The latter, initially overlooked due to its quartered bloom, was eventually recognized for its unique beauty and has become a celebrated variety worldwide.

Jacques noted roses, as tetraploid plants, present significant breeding challenges due to the complexity of working at the tetraploid level.

The advice he received and heeded was to be courageous and innovative to navigate these complexities. He succeeded in creating new rose varieties with improved disease resistance, flowering capacity, differing forms and commercially appeal.

Recognising the potential for own-root varieties in the mid 1980's, Jacques included hardwood cutting trials in his early Meidiland® landscape selections.

Propagation of single node softwood cuttings of Orange Meillandina ® (MEIjikatar) in Denmark during the late 1980's was a milestone in own-root plant breeding, with the next generation of Meillandina® Sunblaze® being fully developed from own-root cuttings.

Jacques Mouchotte also noted the issue of cutting grown roses and soil pH and how careful plant and trials selection are critical in overcoming this complexity.

*Thomas Proll by seedling bed. Kordes Roses, Germany*

## Kordes Roses - Germany

Kordes Roses, established in 1887 by Wilhelm Kordes I in Elmshorn, Germany, has significantly influenced global rose breeding. Relocating to Klein Offenseth-Sparrieshoop in 1918, the company became renowned for developing hardy, disease-resistant varieties suited to diverse climates.

Hybridist for Kordes Roses, Thomas Proll, heads one of the world's largest rose breeding programs. After making the thousands and thousands of crossings (applying carefully harvested rose pollen to selected flowers) in spring, the mature seed filled rose hips are harvested, seeds removed, and each seed sorted by parent plants (mother and father).

Approximately one million harvested seeds are planted each season, 50% cut flower program, 50% garden program.

These seeds are planted in seed benches that have been steamed to sterilize the substrate, ensuring a clean and disease-free environment. Some new peat is also added to the benches to maintain organic matter levels. After the seeds are planted, a layer of sand is added on top to prevent the soil from drying out.

The seeds begin to grow and eventually start flowering around April.

The selection process at Kordes is rigorous. In the first year, Kordes discards about 90% of the seedlings, retaining less than 10% for further evaluation. This stringent selection is essential to identify the most promising varieties.

## Meilland International - France

For six generations, Meilland International, based in Le Cannet des Maures, have bred and released countless roses varieties that fill gardens across the world. Their landmark variety ‘Peace’ bred by Francis Meilland is still regarded as the world’s favourite rose.

Alain Meilland, Francis’s son, is a prominent French rose breeder, and has been a pivotal figure in the global horticulture industry. He has been a driving force in breeding and trialling roses on their own-roots for decades. The collaboration between Meilland International and Connard Pyle in the USA is testament to the success of the own-root breeding program.

Each year, between April and late July, 20,000-30,000 flowers are pollinated manually.

*Alain Meilland and Jacques Mouchotte (L-R). Meilland International*

*New rose seedling is continuously assessed over many years. Meilland International, France*

The resultant hips are harvested once ripe in the late summer early autumn and seeds extracted and planted in trays in a greenhouse. Around 150 – 200,000 seeds germinate, and each seedling is planted in a pot under the cover of a very large travelling glasshouse.

In the seedlings second year, the glasshouse is moved on and the plants are exposed to the weather. Plants are fed and watered only, no fungicides are used, allowing those cultivars with high disease resistance to stand out.

Final selection in the third year sees under 1,000 new varieties make it to the rose selection fields. Testing is carried out for each variety as both a budded and own-root plant for the entirety of a variety’s time in the selection field.

## Pheno Geno Roses – Netherlands

Pheno Geno Roses, established over a decade ago, has carved a significant niche in the rose breeding industry. Founded in Serbia, the company began as a trading entity focused on buying and selling roses. Over time, it transitioned into a specialized breeding program, utilising science-based techniques.

Under the directorship of Peter Cook, Pheno Geno Roses has made notable strides in the field of rose breeding. One of their key innovations involves the use of gene mapping and DNA sequencing. These scientific methods allow for precise marker-based selection.

Peter Cook has cultured much collaboration with local and international universities to assist in mapping the rose genome and identify key genes for breeding.

*Peter Cook, Frank Coenders, Kim Syrus (L-R), Pheno Geno Roses, Netherlands*

By identifying specific genetic markers, attributes such as mildew resistance or high fragrance can be identified within their breeding pool roses, and specialised matching of parents be identified. This also allows Pheno Geno Roses to reduce the number of potential roses needed to hybridise, along with the number of crosses made, and subsequent hips harvested.

About 55,000 crosses are made annually resulting in 50,000 to 60,000 seedlings. Selection starts once the seedling begins to grow and produce a flower. Initial selection criteria includes flower production, appearance, and scent. Roughly 2,000-3,000 varieties are initially selected for field trials. These varieties remain in the field for about four years.

Pheno Geno Roses also conducts rigorous cutting-grown own-root trials with up to 95% of their roses able to be effectively grown by cutting.

## Rosen Tantau - Germany

In Uetersen, Germany, Rosen Tantau's impact on the world of rose breeding since 1906 has been profound. The institution's roses are renowned for their beauty, fragrance, and reliability, making them a staple in gardens and public spaces worldwide.

Breeding manager, Mr. Jens Krüger, overseas the rose breeding program at Rosen Tantau.

A key aspect of Rosen Tantau's success lies in its relentless pursuit of research and development. The nursery's efforts to continually innovate and improve rose varieties have

led to significant advancements in horticulture. The introduction of own-rooted plants, particularly for varieties like ramblers and small shrubs, highlights the nursery's dedication to enhancing the resilience and versatility of roses.

*New roses are assessed for their container suitability. Rosen Tantau, Germany*

Approximately 300,000 seeds are planted each year: two-thirds garden roses and one-third cut roses. During the first summer, around 80% of the seeds are discarded through a process called negative selection. In the first year, seedlings are kept in the greenhouse where disease resistance cannot be fully judged. After the first year, three parts of each seedling are grouped and planted outdoors for further observation.

The test field observations continue for two years to monitor disease resistance. Positive selection is done during the second and third summers to identify the best and healthiest varieties.

Approximately 300 to 400 varieties are selected in the second year for further testing.

Selections are made keeping in mind the need for hybrid teas, floribundas, and shrubs, ensuring a diverse range of rose types. Own-root selections are not part of this trialling period.

Pre-commercial trials in pots are undertaken for climbers, shrubs, and ground cover roses.

## Weeks Roses - California

Weeks Roses in Wasco, CA have both bred and introduced some of the world's favourite roses including Mister Lincoln, Angel Face, Oklahoma and Twilight Zone.


*After years of rigorous trialling and assessment, very few roses achieve a commercial release*

As a field growing rose nursery, Weeks Roses have worked with many renowned breeders over the years including Herb Swim, Tom Carruth from 1988 until 2012, and currently under the direction of Christian Bédard.

The Weeks Roses breeding and selection program involves a detailed and iterative process in field trials. Currently, Christian is working with 15,000 selected seedlings from his breeding program

During the pre-selection phase, small numbers of potential rose varieties are planted as budded plants initially identified and assessed.

Once the varieties with commercial promise have been selected, they are elevated to an advanced selection field, where larger numbers of those varieties are budded to allow budwood to be cut in quantity should a variety be selected for release.

Weeks Roses have growing sites across the USA including Oregon, Michigan and North Carolina plus California, allowing assessment of trial varieties under differing climatic conditions.

There is an increased emphasis on the own-root program within the trials. Miniatures and shrubs varieties are included on their own-roots in the Weeks Roses Advanced Selection trials. Hybrid tea and floribunda varieties are still included in Weeks Roses inhouse trials as budded plants.

## Rose Innovations – Wisconsin

*New varieties are tightly planted and continue their selection process. Rose Innovations, Greenfields WI*

Founded by the esteemed rosarian Will Radler, Rose Innovations has made significant strides in rose breeding, with Radler's development of the Knock Out® rose being a landmark achievement.

Will's breeding program continues to challenge the boundaries of rose breeding in terms of disease resistance, flower capacity and garden performance.

Set on a two-acre property in suburban Greenfield, WI, 3,000 roses are tightly planted in beds which serve as the mother plants for the breeding program. There is also, 150 to 170 potted roses which go on the roof that are also in the program.

Hybridising runs between May to mid-August (Aust: November to mid-February). Once flowers appear the breeding team are ready to collect pollen and commence the crossings.

Around 5,000 seedlings result from the crosses made. After rigorous testing and assessment only 500 seedings are selected for inground trials each year. Given the severe winters in Milwaukee, these seedlings are overwintered in the basement.

Due to up to -20°F temperatures, the ground is frozen, so seedlings can only be planted after March. Once planted, seedlings are assessed over several years, and winters, for hardiness, amongst other criteria.

Own-root trials are also conducted through the Star Roses & Plants assessment fields in Pennsylvania, California and numerous others across the USA.

## Knock Out ®

The Knock Out ® rose set a benchmark in the USA rose industry. Introduced in 2000, grown across varied climatic regions, from Florida to California, high disease resistance, long blooming and informal pruning, made it a popular choice for home gardens and landscapers alike.

In addition, Knock Out ®'s ability to be produced as an own-root plug or hardwood cutting significantly elevated its sales, particularly across the east coast of USA, and in regions such as Wisconsin, Michigan and other states where severe winter temperatures resulted in high mortality rates of budded roses, due to the understock being unable to cope.

The addition of a double form and subsequent other varieties in the breeding line, soon saw the Knock Out ® family of roses reach an unprecedented 20-25% of the entire USA rose market.

Buoyed by the success of Knock Out ® roses on their own-roots, inground rose growers' confidence in growing, harvesting and selling own-root roses soared. An appetite for more roses able to be grown from plugs or hardwood cuttings was generated

## Breeder experiences – summary

There are significant differences between breeder selection criteria regarding own-root capacity. Some breeders include concurrent own-root and budded field trials as soon as a cultivar has achieved early selection stage. Other breeders, introduce own-root trialling once a cultivar has reached an advanced selection level. Then, there are breeders who do not test and trial new varieties until they have been selected for commercial release.

Given the move in the USA towards own-root production, those breeders who have programs which engage own-root testing early in their selection process, appear to be the ones that have a larger market share of own-root plants sold.

The European rose market is not anywhere near as advanced in transitioning from budded to own-root. Consequently, those breeders who are heavily invested in the European rose market, appear to place more emphasis on promoting budded over own-root roses in their selection process.

Given the current influx of eastern European grown budded roses, the impetus to change to own-root growing is not pressing. However, it has been noted by several European rose growers that the future for rose growing in Europe - considering issues with planting understocks in unseasonally wet ground, difficulties in reliable accessing and employing contract budders, and a new generation of rose growers who are looking to simplify the growing process - is own-root plants.

Tom Carruth commented about the uncertainty of a cutting grown-root system compared to a budded rose's uniform root system. He cited potential issues with nematodes or susceptibility to Crown Gall facing an own-root plant. He also identified that 'a rootstock is a known entity - it may not be perfect, but you know what it will do'.

# RETAILERS

Once you have grown an own-root bare root rose, can you sell it?

While my visits to retail garden centres on my Fellowship were limited to the USA - Regan Nursery and Otto & Sons, I gained valuable insight into the own-root rose sales.

As no bare root bagged winter roses are sold in retail garden centres through the USA and Europe, all roses are presented in pots.

*Once potted and growing, customers are not aware of the difference between a budded and own-root rose. Regan Nursery, Fremont CA*

## Regan Nursery

Regan Nursery, located in Fremont CA, began its retail operations in 1958. Over the years, it has seen only two owners. Initially founded by the Regan family, it was later purchased by Marsha and Larry. After their passing, the nursery came under a trust managed by their niece. The current staff, including long-time members like Mark and Maria Potts, ensure the nursery continues to thrive.

Renowned for their vast selection of retail roses, Regan Nursery offers over 500 varieties.

In their diverse collection, the nursery includes miniatures, carpet roses, old garden roses, shrub roses, and the knockout series. Many of these do not require budding. The nursery also purchases container roses when bare root options aren't available.

Regan Nursery receives their roses as bare root plants in January, both budded and own-root types. Potted on, customer preference is shifting towards own-root roses. Many miniature and carpet roses, as well as old garden, shrub, and Knock Out ® series roses, are no longer available as budded.

The move towards own-root roses across the full range of roses ramped up in 2018.

Mark noted that some of the old-time favourite hybrid teas, such as Mister Lincoln do not perform well on their own-root, so are purchased in as budded. He also identified that as bareroot plants, own-root roses such as David Austin roses, tended to be more ‘spindly’ than their budded counterparts.

Some of Regan Nursery’s experienced rose growing customers prompted the move to own-root plants, as they did not want understock suckers and believed own-root to be better flowering and hardier than budded roses. Regan Nursery complied.

## Retailer experiences – summary

Both Regan Nursery and Otto & Sons identified that own-root roses, planted in January (Aust: June) are hard to distinguish from their equivalent variety in a budded form by June (Aust: December) – six months.

*Potted roses ready for despatch to garden centres. Otto & Sons, Fillmore, CA*

Regan Nursery spoke of their initial doubt about how potted own-root roses would be accepted by their customers. Both Regan Nursery and Otto and Sons, said that there was no barrier to retail customers purchasing own-root plants over budded and noted that the customers both could not tell the difference and, did not generally seek out one type over the other.

Given at least six months growth in a pot, it appears the lack of difference in appearance between budded and own-root is not a barrier to retail sales.

Regan Nursery and Otto & Sons acknowledged that the difference in production methods, whether budding or cutting, is a technical issue managed by producers as long as the final product meets their quality standards, they are happy.

# CONSUMERS

Understanding that the end user's opinions about own-root roses is very important. I contacted both the Portland Rose Society and West Jersey Rose Society, plus the Portland International Rose Test Garden, to discuss consumers' views on growing own-root roses.

## Rich Baer, Portland Rose Society

Rich Baer, a dedicated member of the Portland Rose Society, has been cultivating roses for nearly 45 years. His passion for roses began at the age of five and has continued throughout his life, even while pursuing his career in photography. Rich currently nurtures nearly 1,000 roses on his one-acre property, a testament to his lifelong dedication to these beautiful flowers.

*Rich Baer's garden, Portland, OR*

The Baers welcome visitors to their rose garden, offering insights into rose care and sharing their passion for these blooms. Their commitment to fostering a love for roses continues to inspire both novice and experienced gardeners

Rich does not notice any discernible difference between bare root and grafted roses in his garden. One reason he cites for this is that he plants the graft union of budded roses one to two inches below the ground, which helps the roses develop roots from the canes that grow from the bud union. This practice effectively turns grafted roses into own-root plants over time.

## Bill Kozemchak, West Jersey Rose Society

Bill Kozemchak and other members of the West Jersey Rose Society identified that roses grown on their own-roots are preferred for gardens in New Jersey and the East Coast of the USA for several reasons. One of the main advantages is their resilience to the harsh weather conditions that are common in these regions. Unlike grafted roses, own-root roses do not suffer from suckering, which ensures that the plant remains true to its variety. This is particularly beneficial in areas like New Jersey where late spring freezes can damage grafted roses by killing off the new growth, leading to a loss of the desired variety. As illustrated by the challenges faced during the recent polar vortex, where roses were cut down almost to the ground, the own-root roses rejuvenated more robustly.

*Bill Kozemchak (4th from L) and members of the West Jersey Rose Society*

## Portland International Rose Test Garden

*Portland International Rose Test Garden, Portland OR*

The Portland International Rose Test Garden, located in Portland, Oregon, is a renowned horticultural destination dedicated to the cultivation and display of various rose species. Established in 1917, it is one of the oldest rose test gardens in the United States and serves as a key location for testing new rose varieties. The garden's primary mission is to showcase commercially available roses, continuously refreshing its stock to include the latest varieties donated by hybridisers and businesses.

The Portland International Rose Test Garden attracts 700,000 visitors annually.

Curator Rachel Burlington plays a pivotal role in managing the garden's operations. She maintains relationships with hybridisers and companies, ensuring a steady influx of new roses for testing and display. The garden is divided into formal and informal test areas, with formal plots designated for roses not yet in commerce and informal areas enhancing the aesthetic value for visitors.

Rachel and her team evaluate all roses, incorporating successful varieties into the garden's landscape and preserving them in the prestigious Gold Medal Garden.

Rachel receives both budded and own-root roses from growers across the country.

She has pondered the question of whether there is any discernible difference between the budded and own-root roses planted in the gardens. She cited examples of an own-root variety that was not a vigorous grower, however, was unsure at the time if that was its natural growth habit. She regularly receives own-root plants from Star Roses & Plants and is impressed with their growth habit.

## Consumer experiences – summary

While the sample of consumers was small, I felt the information regarding budded against own-root roses was reflective of conversations with growers, propagators and breeders.

Bill Kozemchak, and members of the West Jersey Rose Society, mentioned several times that some potted own-root roses received were ‘small’. This did not reflect the plant’s ability to grow and thrive, which they acknowledge it did. I am left thinking how a novice rose consumer would view the same plant.

Also, given Rachel Burlington’s comment saying she couldn't exactly tell if there was any major difference between a budded and an own-root plant within the gardens without looking at them one side by side leads me to conclude there appears to be is no discernible differences between budded and own-root roses planted in the Portland International Rose Test Garden.

# CONCLUSION

This Fellowship provided me a ‘once in a lifetime’ opportunity to meet rose industry peers from across the globe and forge strong bonds connected through a common passion for roses and rose growing. This Fellowship was an invaluable opportunity to delve deeply into the past, present and future rose propagation and growing, garnering insights and experiences that would have otherwise been inaccessible.

It has become increasingly clear post my Fellowship, with opportunity to reflect and assimilate the knowledge I gained, that the path towards inground own-root growing for Australian growers is a complex but ultimately achievable one that requires time, commitment, and vision.

I have a vastly improved understanding of the processes involved in growing own-root roses, how these can apply to an Australian rose growing, and what is required to achieve the desired results. I believe that I achieved everything I set out to learn, and so much more.

I was buoyed by the contact from Australian rose growers during my Fellowship, looking for updates on who I had met and what I had learned, along with questions they wanted me to ask. This engagement underpinned my project’s aim to generate industry wide interest in exploring and supporting the potential for a shift towards own-root inground rose growing.

The answer to my core Fellowship questions of “Can inground own-root roses be commercially produced” and “Can Australian growers’ effective transition away from budded roses to own-root plants” is a resounding YES.

For the transition to be successful, it needs to be embraced by the rose industry.

Inground rose growers transitioning away from budded bush roses to own-root will require knowledge, take time, require local trials, and need engagement from propagators.

For the change to be successful it also must be economically viable and positively received from end users – rose plant retailers and rose consumers.

# DISSEMINATION

I have already undertaken and booked many media engagements post my Fellowship.

### Radio

- Adelaide Local Radio 891. Jon Lamb Garden Show – 9th November 2024. 20 x minute interview highlighting the purpose of my Churchill Fellowship, places visited and information on own-root roses gained.
- I have been contacted by radio station 5AA, to arrange a time to share my Fellowship on the Saturday morning garden show with Michael Keelan. Date and time to be confirmed.

### Articles

SALIFE Magazine – January 2025

- Feature article in the Garden Section – 1,200 words.
- Covered the reason for my Fellowship, project, insight gained, and places visited.

National Rose Society of Australia – 2025 Rose Annual

- Covered the reason for my Fellowship, project, insight gained, and places visited.

### Talks

Rose Society of South Australia

- Guest Speaker, April 2025 meeting.

### Hort Innovation

Post my Fellowship Report being published, I have made myself available for any marketing and communications opportunities offered by Hort Innovation.

### Fellowship Report

Given the broad geographic locations of rose growers across Australia, initial introduction of the concept of growing inground rose by cutting will be via my Fellowship Report.

### Direct communication with the industry

Being in regular contact with all commercial rose growers across Australia I foresee no barriers to being able to make contact and disseminate the information from my report to the Australian inground rose growing industry.

# IMPLEMENTATION

I believe lasting change comes from within, so intend to initially promote my findings of the concept of own-root plants throughout the inground rose growing industry. There is already a high degree of interest amongst growers in finding out more in my report. It is highly anticipated take up of the concept to be positive.

Testing and trialling a wide range of rose varieties both inground and in propagation will be essential to the success of transitioning away from budded plants. Communication within the industry between growers and propagators to set up testing will be the starting point on a long, but important journey.

I plan to run an Adelaide-based Rose Seminar in the second half of 2025. Invitation to attend will be forwarded to rose growers Australia wide. Agenda to include findings from my Fellowship and an opportunity to set up a network of growers, propagators and other interested parties in progressing the recommendations in the table in the Executive Summary of this report. Venue and date to be confirmed.

I will reach out to various industry and allied groups to assist, where they can, in helping fund this rose Seminar.

I flagged this event with several interstate colleagues who have express great interest in attending. The Seminar would be promoted through each states Nursery Association, via Hort Innovation and Greenlife Industry Australia. Other horticultural groups are likely to show interest in adapting my Fellowship outcomes to other crops.