

Annual Variety Guide '2023'



Mountain Blue High Chill





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Mountain Blue High Chill variety guide

The Mountain Blue High Chill variety guide provides comprehensive information about the current and upcoming varieties within the program. This variety guide is published annually to ensure licensees and growers have the most relevant and up-to-date information and prompt growers to question “Are the varieties I’m cultivating the most suitable option given my current conditions?” The information listed encompasses the growing conditions at Erica, Victoria.

Disclaimer:

Whilst Mountain Blue High Chill (MBHC) has taken all reasonable care to ensure the accuracy of the data/information provided in this Blueberry Variety Guide, the data/information is provided for information purposes only and shall not constitute reliance information. Growers must satisfy themselves as to the suitability of the varieties and MBHC gives no warranty or guarantee whatsoever. The yields and timing of flowering and fruiting are based on data collected from plants in the ground at Moondarra & Erica, Victoria, Australia.



Mountain Blue High Chill

Climatic data '2023'

Erica, Victoria, Australia 3825.

Location Lat -37.966272 Long 146.369376

Elevation: 439.9 meters

Time zone: Melbourne, Australia.

Average annual temperature 14.3 °Avg. Annual rainfall: 900-1100mm

Table 1: Climatic data recorded at Erica, Victoria during January-August. Data collected from Jan-April (highlighted in pink) was collected from a local weather station. Data from May-August was recorded from an iMetos 3.3 weather station based on site at Erica.

Month/Year	Max Temp (°C)	Min Temp (°C)	Avg. Temp (°C)	Precipitation (mm)	Utah Chilling Hours
Jan-23	37.1	20.9	27.9	16.2	N/A
Feb-23	39.5	19.1	27.3	28.8	N/A
Mar-23	35.8	15.7	24.1	85.4	N/A
Apr-23	27.2	14.4	20.2	70.4	N/A
May-23	18.8	2.37	9.62	47.6	343
Jun-23	18.0	1.62	8.99	83.2	436
Jul-23	16.8	1.71	8.69	30.6	546
Aug-23	20.4	2.03	9.13	47.2	490
Avg. Totals	26.7	9.73	16.99	409.4	1815





BACKGROUND

Mountain Blue High Chill is a distinctive blueberry breeding program that utilizes both Northern and Southern Highbush varieties. By incorporating MBO Southern Highbush genetics and utilizing Northern Highbush varieties, this unique program released its first four selections for licensing in 2017.

Established in 1978, **Mountain Blue** is a family-owned and operated company that produces the highest quality blueberry fruit and genetics, along with an extensive nursery and marketing service. Our aim is to achieve sustainability through innovative production practices, mechanization, and varietal improvement.

Mountain Blue's mission is to become the global leader in the production of the finest blueberry fruit and varieties. As the leading supplier of blueberry stock, Mountain Blue delivers high-quality blueberry plants to commercial growers nationwide. Through our breeding program, led by Ridley Bell, we provide world-renowned genetics in various formats tailored to meet the individual requirements of our growers.

Ridley Bell considered a world-leading expert, has been actively involved in the development of the Australian blueberry industry since its humble beginnings in 1975. His early work focused on the development of several Northern Highbush varieties. Named the 2010 NSW Farmer of the Year, Ridley continues his efforts in developing new varieties, both Northern and Southern Highbush types, including the globally recognized 'Eureka' variety.

PROGRAM PROGRESS as of August 2023

Over the past year, the MBHC breeding program has evaluated approximately 16,000 seedlings, resulting in 35 new selections. Furthermore, an additional 5,000 seedlings were planted in early January, to be assessed in the upcoming 2024 season. During the forthcoming 2023-24 season, the MBHC team will assess a total of 23,000 seedlings, ranging from hybrid Northern Highbush and Southern Highbush to full Northern Highbush cultivars. Further assessments have been conducted on the four named varieties, the upcoming selections, and our sole Rabbiteye variety, Luna. Throughout 2023, we will maintain our assessment of the current named varieties and elite cultivars, and the new selections introduced in the 2022-23 season.

PROGRAM OBJECTIVES

Throughout 2023, one of our primary focuses will be to gather data on flowering behaviour and timing as a key focal point. Furthermore, we continue to collect data on aspects such as cultivar yields, berry quality, bush characteristics, evergreening habits, degree of cold tolerance, and more. This will be crucial for varietal assessment and comparison. One of our major objectives for the 2023 crosses involves augmenting the Northern Highbush content within the program, as we have developed several hybrid varieties that exhibit good fruit quality and yield. Therefore, our aim is to strategically cross some of our high-quality Northern Highbush varieties with our exceptional hybrids. This effort is aimed at achieving a predominately Northern Highbush variety that embodies the desirable berry quality typically associated with a Southern Highbush variety.



Elite Selections



Early: Merliah & E16-49-43

These selections are currently regarded as the leading varieties within the MBHC program due to their exceptional fruit quality, high yield, and well-structured plant growth.





Merliah

Merliah is a hybrid variety, resulting from the crossbreeding of the Southern Highbush variety 'Eureka', and the Northern Highbush variety 'Duke'. Merliah is classified a medium chill variety but predominately inherits the bush characteristics of 'Eureka', maintaining its evergreen foliage throughout winter. Moreover, Merliah is considered an early fruiting variety, typically ripening around week 49, which is slightly earlier than Duke and Kalinda.

Fruit and ripening characteristics

Merliah produces large, pumpkin-shaped fruits with a light bloom, dry scar, and a prominent, flat calyx. It boasts a sweet aromatic flavour, accompanied by a subtle crunch, similar to its parent, Eureka. Table 1 showcases the fruit quality attributes of Merliah, detailing its average weight, size, brix, and firmness.

Table 1: Fruit quality characteristics of Merliah.

Variety	Merliah
Avg. Weight (g)	2.5-3.5
Avg. Size (mm)	17-20
Brix	13.5
Durofel	50-55



Image 1 & 2: Ripe fruit and open flower for Merliah.

Flowering and Pollination

Merliah flowers relatively early compared to other MBHC varieties, starting around week 34, reaching its peak at week 41, and quickly reduced by week 44 (Figure 1). Preliminary observations indicate that Merliah is a self-fertile variety.

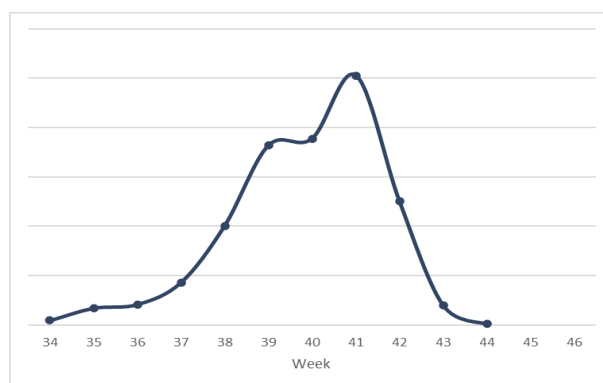


Figure 1: Open flower distribution of Merliah.

Bush Habit

Merliah exhibits a robust, evergreen bush habit, predominately inheriting its traits from its southern parent Eureka. It has an upright sprawl shape and develops strong canes which yield heavily. Throughout the cool winter period at Erica, Merliah retains its leaves and remains relatively evergreen, with some transition to shades of red.



Image 3: Merliah post-first harvest.



Mountain Blue High Chill

Harvest data

Harvest data collected at Erica and Moondarra; Victoria is as follows: Figure 2 illustrates the harvest yield of Merliah at **1.10 kg/plant**, **4.30 kg/plant**, and **5.80 kg/plant** during its first, second- and third-year harvest. This yield data was gathered from a 5-plant plot cultivated in substrate, over consecutive years as the bush matures. When compared to the other MBHC varieties, Merliah is the earliest fruiting alongside E16-49-43. Figure # displays the harvest distribution of Merliah, with production beginning in week 49, with peak harvest being between weeks 1-2, and production finishing around week 5.

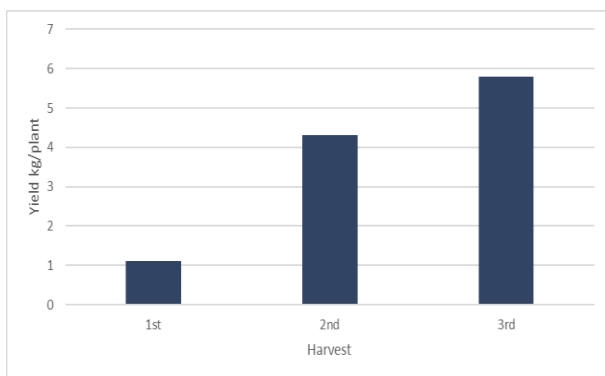


Figure 2: First, second- and third-year harvests of Merliah.

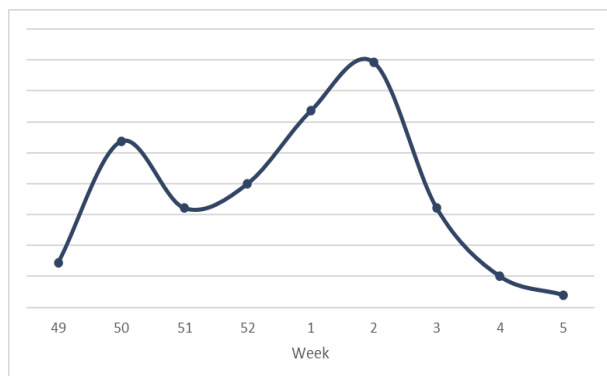


Figure 3: Harvest distribution of Merliah.

External trial data

The data collected from Merliah at various trial sites is as follows: Merliah at **Sunnyridge**, Victoria Figure 4, displays the yields of Merliah at **0.65kg/plant**, and **3.04kg/plant** during the first and second-year harvests respectively. Figure 5 outlines the harvest yields for Merliah in

the **UK** at **1.1kg/plant**, **2.14kg/plant**, **5.40kg/plant** and **7.08kg/plant** during its first, second, third and fourth harvest. Furthermore, in **Spain**, harvest yields for Merliah were **5.69kg/plant**, **3.12kg/plant** and **4.87kg/plant** during its second, third and fourth harvest.

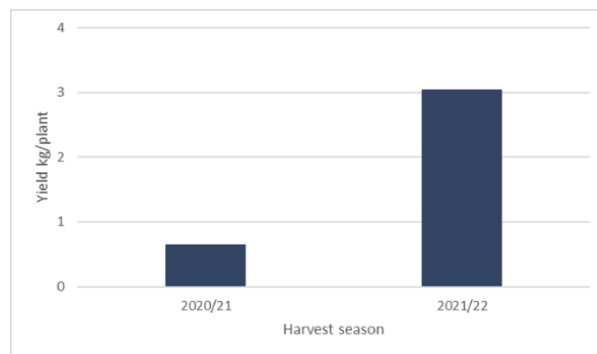


Figure 5: Harvest data collected at Sunridge, Victoria.

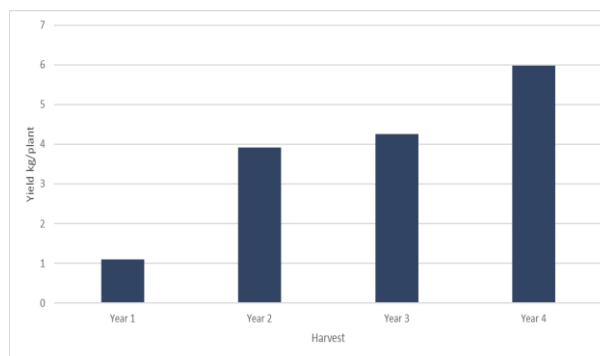


Figure 4: Harvest data collected at trial locations in the UK and Spain.



Image 4: Merliah in 28L pots in Europe



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E16-49-43

E16-49-43 is a hybrid variety, resulting from the crossbreeding of the Southern Highbush variety 'Eureka', and the hybrid selection 'NB-2-3'. It is categorised as a medium chill variety and shares much of the fruit and bush characteristics of Eureka. E16-49-43 is considered an early fruiting variety, with ripening around week 50, similar to varieties like O'Neal and Merliah.

Fruit and ripening characteristics

E16-49-43 has a sweet, pleasant flavour accompanied by a light, crisp crunch. The berries are round shape and are relatively dark in colour, with a thin coating of bloom. These fruits are of medium to large in size, with a small dry scar, and shallow calyx. The fruit is presented in generous, loose clusters which can be easily picked, and notably fruits deeply down laterals, with first impressions indicating that it could be a high-yielding variety. Table 2 showcases the fruit quality attributes of E16-49-43, detailing its average weight, size, brix, and firmness.

Table 2: Fruit quality characteristics of E16-49-43.

Variety	E16-49-43
Avg. Weight (g)	3
Avg. Size (mm)	17
Brix	13
Durofel	47



Images 5 & 6: Ripe fruit and flower of E16-49-43.

Flowering and Pollination

E16-49-43 is quick to flower compared to other MBHC varieties, initiating flowering in week 34, reaching its peak in week 40, and completing its cycle in week 43 (Figure 6).

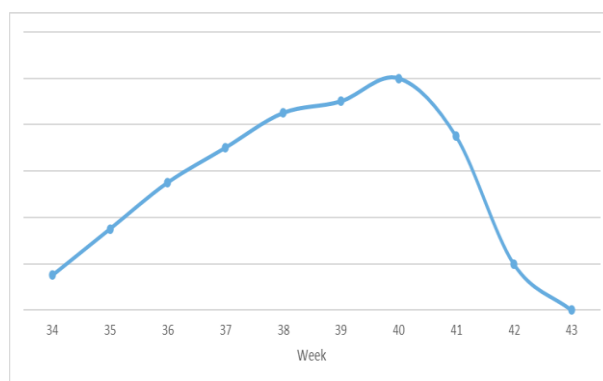


Figure 2: Open flower distribution for E16-49-43.

Bush habit

The plant is vigorous and tough, with an upright sprawl shape. Throughout the cooler periods at Erica, E16-49-43 remains relatively evergreen. It also has the tendency to quickly flower during warm periods, suggesting that its better suited to climatic regions with milder winters, with low occurrences of frosts.



Image 7: E16-49-43 post-first harvest.



Mountain Blue High Chill

Harvest data

The data collected from E16-49-43 at Erica is depicted as follows: in its initial harvest E16-49-43 yielded **1.28kg/plant**, during its first harvest respectively (Figure 7). When compared to the other MBHC varieties, E16-49-43 is one of the earliest fruiting alongside Merliah. Figure 8 displays the harvest distribution of E16-49-43, with production beginning in week 50, with peak harvest being between weeks 2-3, and production finishing around week 5.

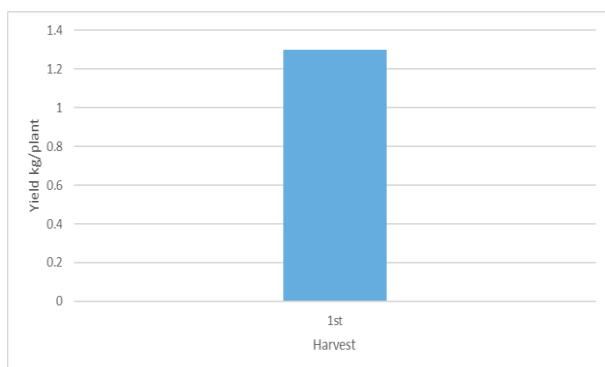


Figure 7: First year harvest for E16-49-43.

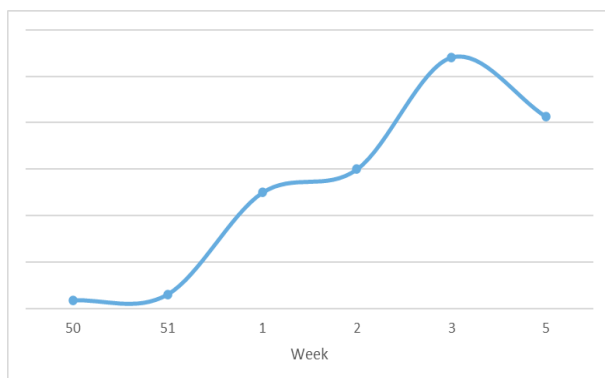
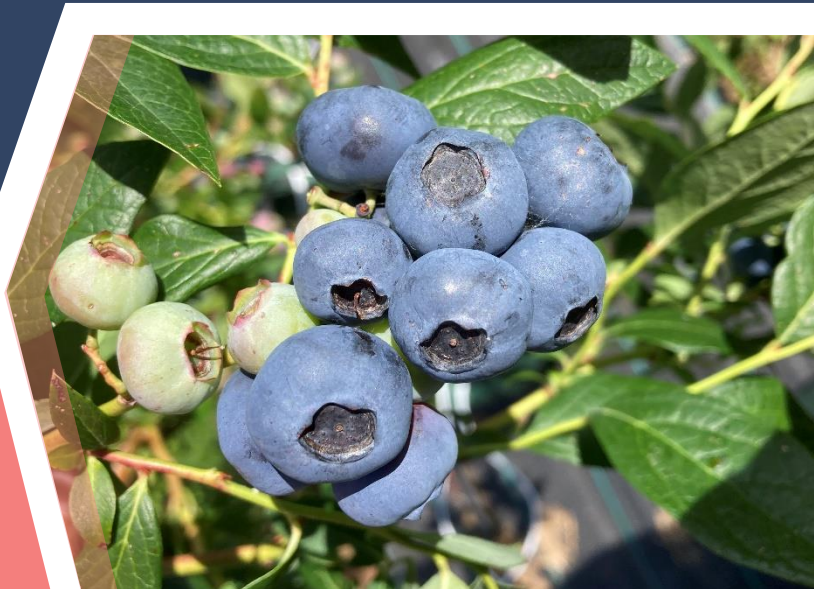


Figure 8: Harvest distribution for E16-49-43.



MBHC Selections



Early: Kalinda, E14-01-117 & E16-48-58

Mid: E16-73-97

Mid-late: NB-5-2

Late: Midnight & Luna





Kalinda

Kalinda is a hybrid variety, resulting from the offspring of the southern highbush variety 'Eureka', and the northern highbush variety 'Brigitta'. Kalinda is considered a medium-chill cultivar, predominately showing red evergreen bush characteristics. Kalinda is considered an early-fruiting variety, being a couple of weeks later than Merliah, ripening similar timing to Duke.

Fruit and ripening characteristics

Kalinda has a sweet, aromatic flavour accompanied by a nice crisp crunch, inherited from its parent Eureka. It produces medium-large fruit with a slight pumpkin shape which has a deeper calyx than Merliah. Kalinda has a small, dry picking scar, with a medium blue bloom. Its fruit hangs in loose clusters, which can be easily picked. Table 3 highlights the key fruit quality characteristics of Kalinda, including its average weight, size, brix and firmness.

Table 3: Fruit quality characteristics of Kalinda.

Variety	Kalinda
Avg. Weight (g)	2.5-3.5
Avg. Size (mm)	15-18
Brix	15
Durofel	50



Images 8 & 9: Ripe fruit and flower of Kalinda.

Flowering and Pollination

Kalinda is one of the first MBHC varieties to initiate flowering, beginning in week 33, reaching its peak in week 39-41, and completing its cycle in week 44 (Figure 9).

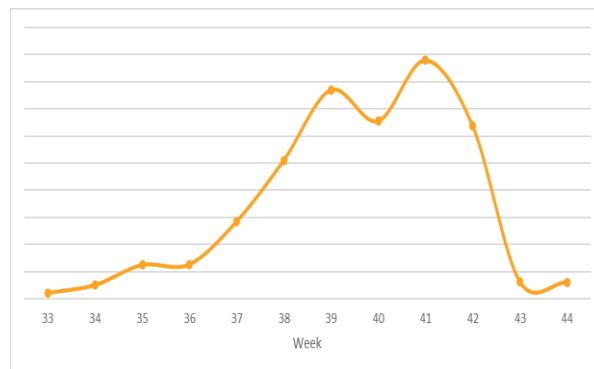


Figure 9: Open flower distribution for Kalinda.

Bush habit

Kalinda has shown to have semi-deciduous characteristics in colder climates, turning a vibrant red-evergreen colour, whilst retaining some of its leaf. Kalinda produces vigorous upright canes which if pruned correctly, can develop into an upright well-structured plant.



Image 10: Kalinda post-first harvest.



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Harvest data

Harvest data collected at Erica and Moondarra; Victoria is as follows: Figure 10 displays the harvest yield of Kalinda at **0.50 kg/plant**, **4.30 kg/plant**, and **5.70 kg/plant** during its first, second- and third-year harvest. This yield data was collected from a 5-plant plot over consecutive years as the bush matures.

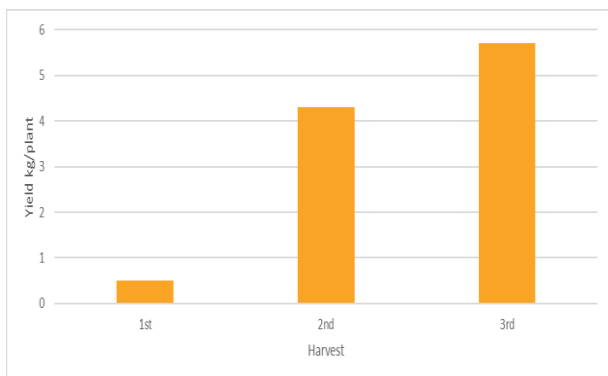


Figure 3: First, second- and third-year harvests of Kalinda.

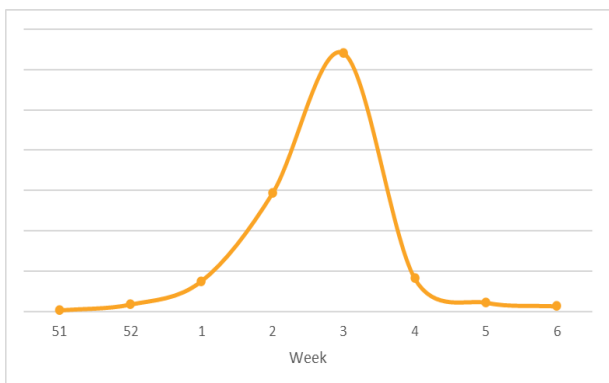


Figure 11: Harvest curve for Kalinda.

Management

Kalinda exhibits a propensity to produce, strong, upright whippy canes. As a result, tipping whilst the plant is young is necessary to ensure lateral development, producing a well-structured, open plant.

External Feedback

The data collected from multiple trial sites is as follows: Kalinda trialed at Sunnyridge (Figure 12), Victoria yielded **1.25kg/plant**, **2.77kg/plant** and **4.54kg/plant** in the first, second and third

year. In the UK (Figure 13), Kalinda yielded **0.69 kg/plant**, **1.25kg/plant**, **4.67 kg/plant** and **4.82 kg/plant** within the first, second, third and fourth years.

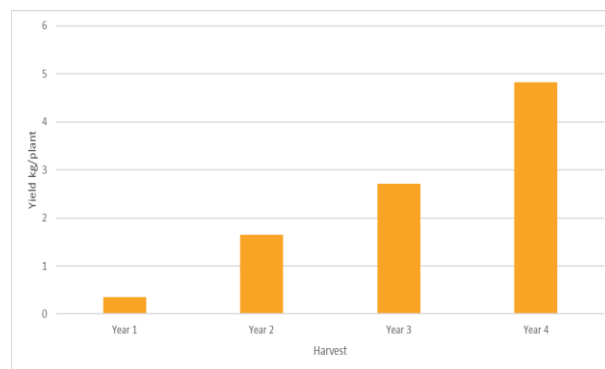


Figure 12: Yield p/plant for Kalinda in the UK.

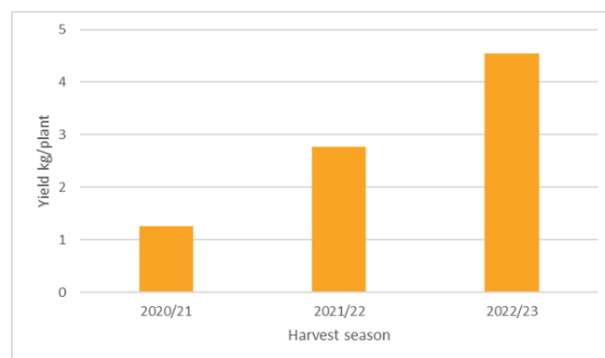


Figure 13: Yield p/plant for Kalinda over three consecutive years at Sunnyridge, VIC.



Image 11: Kalinda at Sunnyridge, VIC.



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NB-5-2

NB-5-2 is a hybrid variety, resulting from the crossbreeding of the offspring of the Southern Highbush variety 'Magnolia', and the Northern Highbush variety 'Caroline'. NB-5-2 is categorised as a medium to high-chill variety, exhibiting deciduous bush characteristics during the winter season, similar to its parent Caroline. It is classified as a mid-late season cultivar, with similar timing to variety Michelle, and ripening a week earlier than Elliott.

Fruit and ripening characteristics

NB-5-2 produces medium-sized fruit, which remains relatively consistent in size throughout the season. Possessing a unique sweet, fragrance, its flavour, profile is a unique blend of both parents Caroline and Magnolia. Caroline. The fruits have a round-flat shape, with a thick coating of bloom. Presenting themselves in loose clusters, these berries are easily picked, making this variety a potential candidate for machine harvesting. Table 4 highlights the key fruit quality characteristics of NB-5-2, including its average weight, size, brix and firmness.

Table 4: Fruit quality characteristics of NB-5-2.

Variety	NB-5-2
Avg. Weight (g)	2-3
Avg. Size (mm)	13.5-18
Brix	14
Durofel	45



Images 12 & 13: Ripe fruit and flower of NB-5-2.

Flowering and Pollination

NB-5-2 begins to flower later than most MBHC varieties, with the exception of Midnight. Its initial flowering phase begins in week 36, peaking in weeks 41-42 and completing its cycle in week 45 (Figure 14).

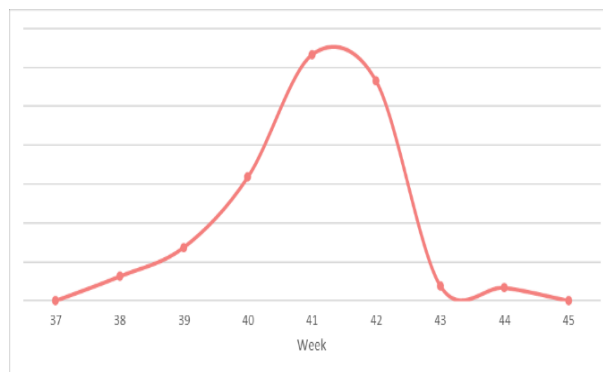


Figure 14: Open flower distribution for NB-5-2.

Bush habit

NB-5-2 produces robust canes which have a natural tendency to naturally lateral, ultimately forming a well-structured bush, with the aid of strategic pruning. During the winter period, NB-5-2 enters a complete dormancy phase, being a deciduous hybrid variety. During this period, it will shed leaf relatively quickly, a trait even more pronounced when compared to some Northern Highbush varieties like Margaret or Northland.



Image 14 & 15: NB-5-2 post-first harvest and leading into the winter period.



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Harvest data

Harvest data collected at Erica and Moondarra; Victoria is as follows: Figure 15 displays the harvest yield of NB-5-2 at **1.20 kg/plant**, **4.50 kg/plant**, and **5.90 kg/plant** during its first, second and third-year harvest. This yield data was collected from a 5-plant plot over consecutive years as the bush matures.

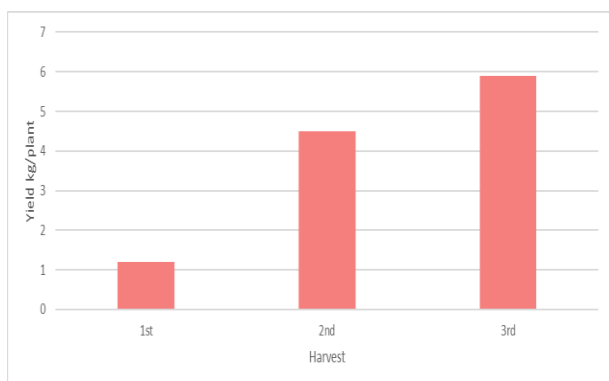


Figure 15: First, second- and third-year harvests of NB-5-2.

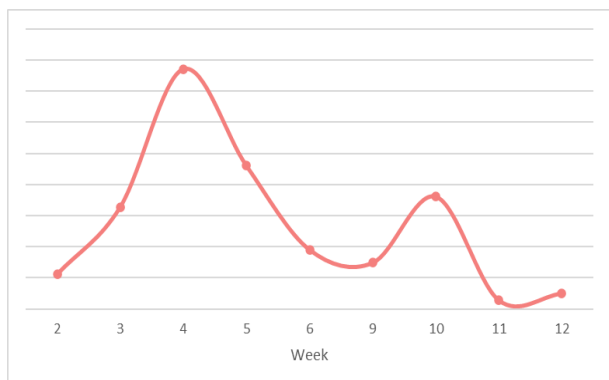


Figure 16: Harvest distribution for NB-5-2.

External trial data

The data obtained from multiple trial sites is presented as follows: At Sunnyridge, Victoria, NB-5-2 yielded **1.18kg/plant** and **2.05kg/plant** in its first and second year of harvest. In the UK (Figure 17), the yields for NB-5-2 were **0.77kg/plant**, **1.39kg/plant**, **2.27kg/plant** and **4.97kg/plant** during the first, second, third and fourth harvest years respectively (Figure 18). NB-5-2 is noted to have a mid-late seasonality at other trial sites across the globe, with its first pick being during week 26 in the UK.

smaller and softer than Merliah and Kalinda.

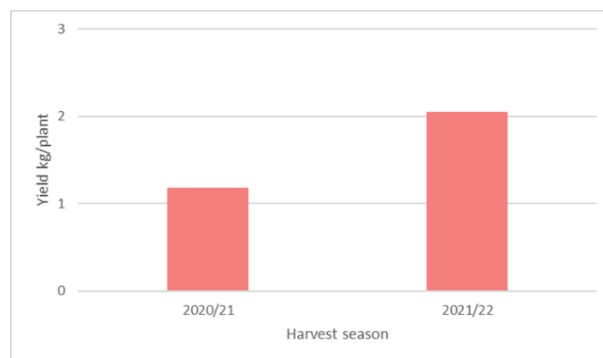


Figure 5: Yield p/plant for NB-5-2 over three consecutive years at Sunnyridge, VIC.

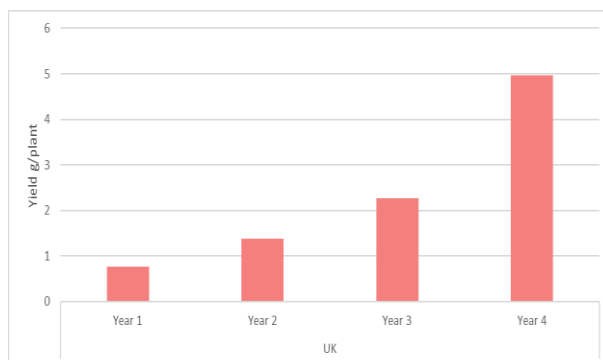


Figure 184: Yield p/plant for NB-5-2 in the UK.



Image 16: NB-5-2 in the UK.



Midnight

Midnight is a Northern Highbush variety, being the progeny of the Northern Highbush varieties ‘Elliott’, and ‘Caroline’, being selected for its sweet flavour, and seasonality. Recognized as a high-chill cultivar, Midnight showcases an exceptionally late seasonality, with first harvest being a couple of weeks later than Elliott and Aurora with its fruiting window being between February to March at Erica.

Fruit and ripening characteristics

Midnight produces large fruit characterized by its distinct pumpkin shape and striped pattern bloom. This variety has a sweet aromatic flavour similar to Caroline, however, it also has a slight acid profile, similar to Elliott, giving it a pleasant sugar/acid balance. The fruit begins quite large but does drop in size during the last couple of picks. Table 5 highlights the key fruit quality characteristics of Midnight, including its average weight, size, brix and firmness.

Table 5: Fruit quality characteristics of Midnight.

Variety	Midnight
Avg. Weight (g)	2-3
Avg. Size (mm)	15-17
Brix	13
Durofel	35



Image 17 & 18: Ripe fruit and flower bud of Midnight.

Flowering and Pollination

Midnight flowers later than all other MBHC varieties and has a narrow flowering window. The onset of its initial flowering occurs in week 42, peaking in weeks 43-44 and completing its cycle in week 46 (Figure 19).

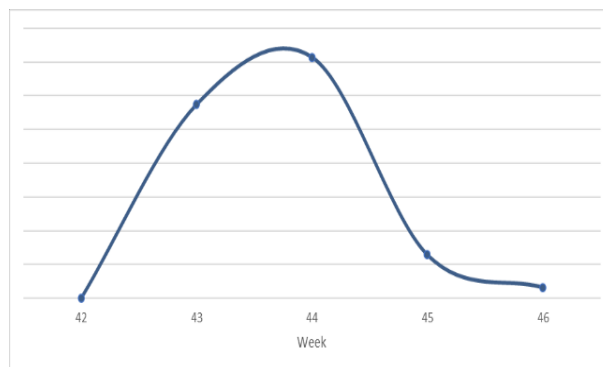


Figure 19: Open flower distribution for Midnight

Bush habit

Midnight has a deciduous nature and features an upright bush habit. Notably, it exhibits a gradual emergence from dormancy, with flowers opening during mid-late spring, being later than all other varieties at Erica. This later flowering stage of Midnight mitigates the risk of frost events in Victoria.



Image 19 & 20: Midnight post-first harvest (left) and during peak winter (right).

Harvest data

Harvest data collected at Erica and Moondarra; Victoria is as follows: Figure # illustrates the harvest yield of Midnight at **1.10 kg/plant**, **4.10 kg/plant**, and **5.60 kg/plant** during its first, second-and-third-



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year harvest. This yield data was collected from a 5-plant plot over consecutive years as the bush matures.

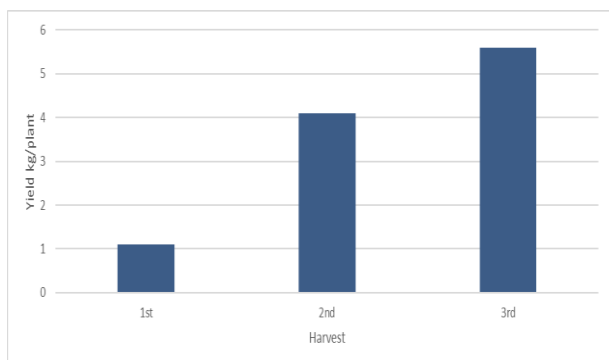


Figure 6: First, second- and third-year harvests of Midnight.

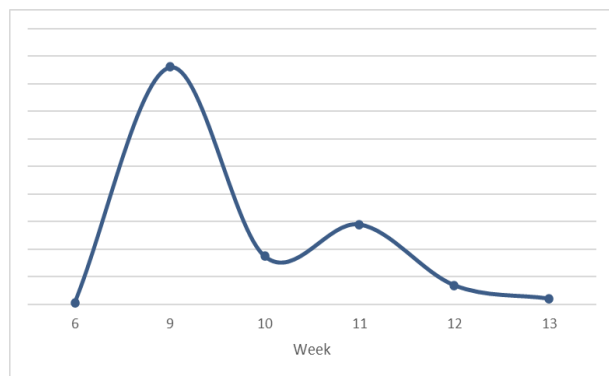


Figure 21: Harvest distribution for Midnight.

Management

True to its nature, Midnight displays typical deciduous traits, shedding its leaves relatively swiftly, maintaining its deciduous state well into the Spring season. A noteworthy trait is that Midnight appears to have a gradual deacclimation, suggesting it could be well suited for frost-prone regions.

External trial data

The data collected from multiple trial sites is as follows: At **Sunnyridge, Victoria**, Midnight yielded **0.17kg/plant**, **2.52kg/plant**, and **4.37kg/plant** respectively (Figure 22). In the **UK**, Midnight yielded **0.68kg/plant**, **0.74kg/plant**, **2.75kg/plant** and **3.10kg/plant** respectively (Figure 23). Midnight appears to be very late in other trial sites across the globe, similar to its seasonality at Erica.

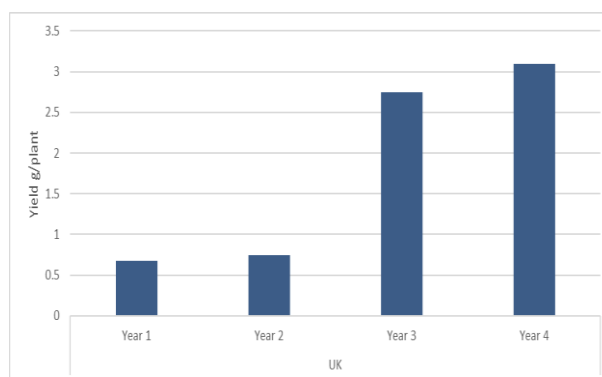


Figure 7: Yield p/plant for Midnight in the UK.

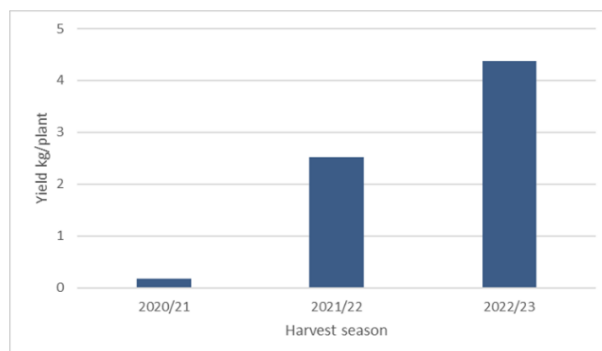


Figure 23: Yield p/plant for Midnight over three consecutive years at Sunnyridge, VIC.



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E16-48-58

E16-48-58 is a medium-chill hybrid variety, being the offspring of Eureka and NB-19-6. This selection was chosen in 2018, being selected for its sweet flavour and large size. It is shown to be a mid-season variety, having similar timing to varieties like Brigitta.

Fruit and ripening characteristics

E16-48-58 yields generous-sized fruit boasting a sweet flavour complemented by a subtle crunch. The fruits showcase a thick bloom coating and hang in loose, open clusters, which are easy to pick. Table 6 highlights the key fruit quality characteristics of E16-48-58, including its average weight, size, brix, and firmness.

Table 6: Fruit characteristics of E16-48-58.

Variety	E16-48-58
Avg. Weight (g)	3
Avg. Size (mm)	18
Brix	14
Durofel	47



Image 21 & 22: Ripe fruit and flower of E16-48-58.

Flowering and Pollination

E16-48-58 has a relatively extended flowering period, as depicted in Figure 24. With flowering initiating around week 36, reaching its peak open flower at weeks 40-41, and completing its cycle by week 43.

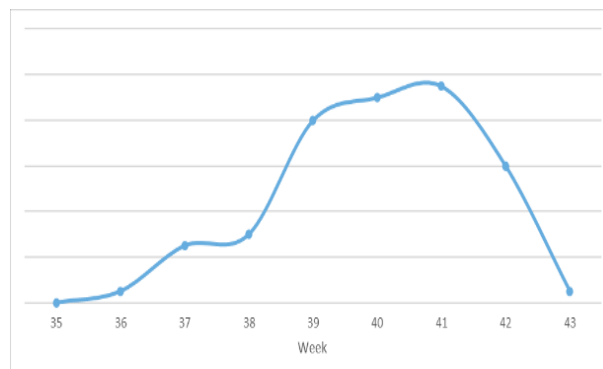


Figure 24: Open flower distribution of E16-48-58.

Bush habit

E16-48-58 is quite a vigorous variety, taking after its parent Eureka. It is an evergreen/red-evergreen variety during the winter period.



Figure 23 & 24 E16-48-58 plant post-harvest (left), and during peak winter (right).

Harvest data

The harvest data collected at Erica, Victoria is as follows: Figure 25 displays 0.90 kg/plant for a first-year harvest respectively. This yield data was collected from a 5-plant plot over consecutive years as the bush matures.



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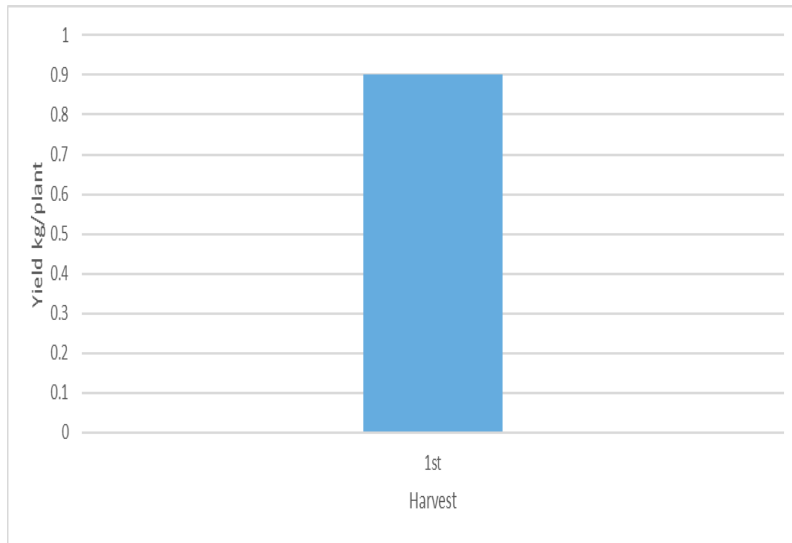


Figure 25: First-year harvest for E16-48-58

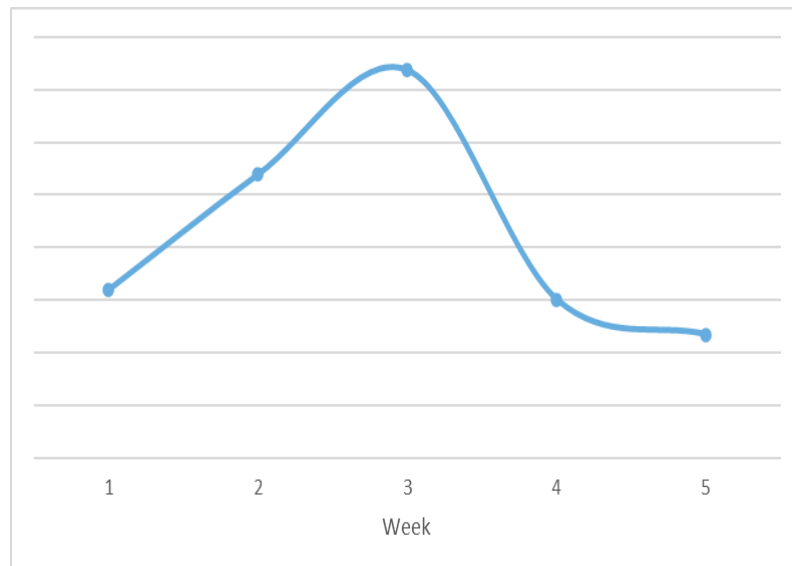


Figure 8: Harvest distribution for E16-48-58.



Image 25, 26 & 27: Plant and flower for E16-48-58



Mountain Blue High Chill

E16-73-97

E16-73-97 is a hybrid offspring from the Northern Highbush variety ‘Midnight’ and the southern highbush variety ‘Echo’. It is considered a mid-chill variety with a mid-seasonality, with early primocane fruit ripening around week 2.

Fruit and ripening characteristics

E16-73-97 is the latest among the four AMAP varieties, with fruit ripening around mid-January, and finishing around weeks 5-6. E16-73-97 produces a large primocane-style fruit that hangs in loose clusters. Like its parent Midnight, its fruit has a distinct pumpkin shape, although unlike Midnight, its fruits have a thick coating of bloom, inherited from Echo. It has a sweet, pleasant flavour, but can be quite acid if the fruit is picked too early. Table 7 highlights the key fruit quality characteristics of E16-73-97, including its average weight, size, brix, and firmness.

Table 7: Fruit quality characteristics for E16-73-97.

Variety	E16-73-97
Avg. Weight (g)	3
Avg. Size (mm)	20
Brix	13
Durofel	51



Image 28 & 29: Ripe fruit and flower of E16-73-97.

shares the trait of early bud break for the tip primocane flowers.



Image 30 & 31: E16-73-97 post first harvest and during winter.

Harvest data

The harvest data collected at Erica, Victoria is as follows: Figure 27 displays 0.90 kg/plant for a first-year harvest respectively. This yield data was collected from a 5-plant plot over consecutive years as the bush matures.

Bush habit

E16-73-97 has an upright sprawl bush habit akin to its parent, Echo, and will retain the majority of its leaves during winter. Similar to Echo, E16-73-97 also



Mountain Blue High Chill

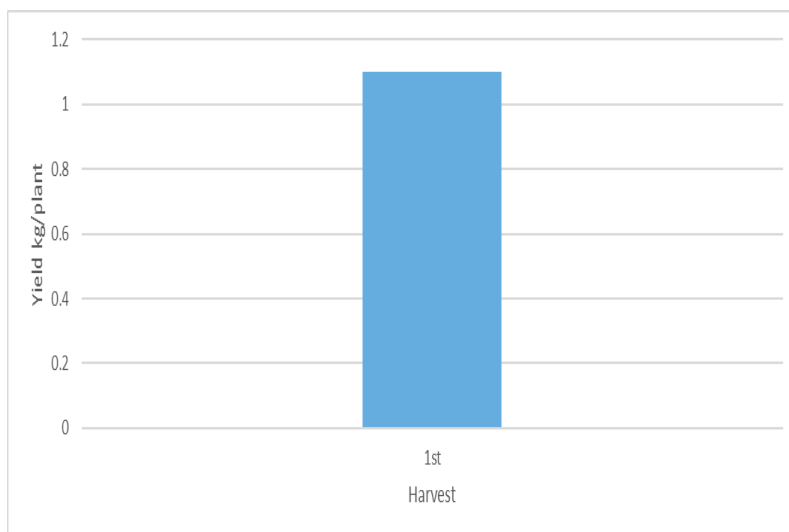


Figure 27: First-year harvest for E16-73-97.

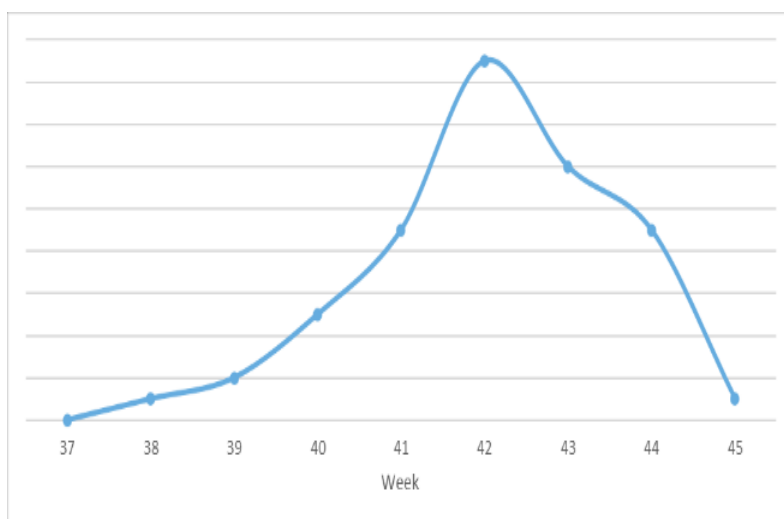


Figure 9: Open flower distribution for E16-73-97.



Image 32 & 33: Plant and flower for E16-73-97



Mountain Blue High Chill

E14-01-117

E14-01-117 is a hybrid offspring of the Northern Highbush Variety 'Ivanhoe', and the Southern Highbush variety 'Eureka' This selection is considered an early-season variety, with fruit ripening a week or two after Merliah and Kalinda.

Fruit and ripening characteristics

E14-01-117 is one of the earlier AMAP selections, producing medium-large sized fruits that have a distinct flavour similar to its parent Ivanhoe. Its fruits hang in loose clusters with a light coating of bloom and can be easily picked. Table 8 highlights the key fruit quality characteristics of E14-01-117, including its average weight, size, brix, and firmness.

Table 2: Fruit quality characteristics for E14-01-117.

Variety	E14-01-117
Avg. Weight (g)	2
Avg. Size (mm)	16
Brix	15.5
Durofel	47



Image 34 & 35: Green fruit and flower of E14-01-117

Flowering and Pollination

E14-01-117 exhibits a relatively extended flowering period, as depicted in Figure #. With flowering initiating around week 36, reaching peak open flower at weeks 40-41, and completing its cycle by week 43.

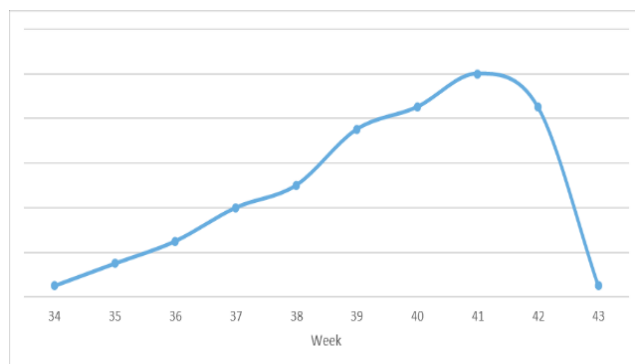


Figure 29: Open flower distribution for E14-01-117

Bush habit

E14-01-117 has an upright sprawl bush habit to its parent Eureka and remains evergreen to red-evergreen throughout the winter period.



Image 36 & 37: E14-01-117 post-first harvest and during mid-winter

Harvest data

The harvest data collected at Erica; Victoria, is as follows: Figure 31 shows 0.26 kg/plant for a first-year harvest respectively. This yield data was collected from a 5-plant plot over consecutive years as the bush matures.



Mountain Blue High Chill

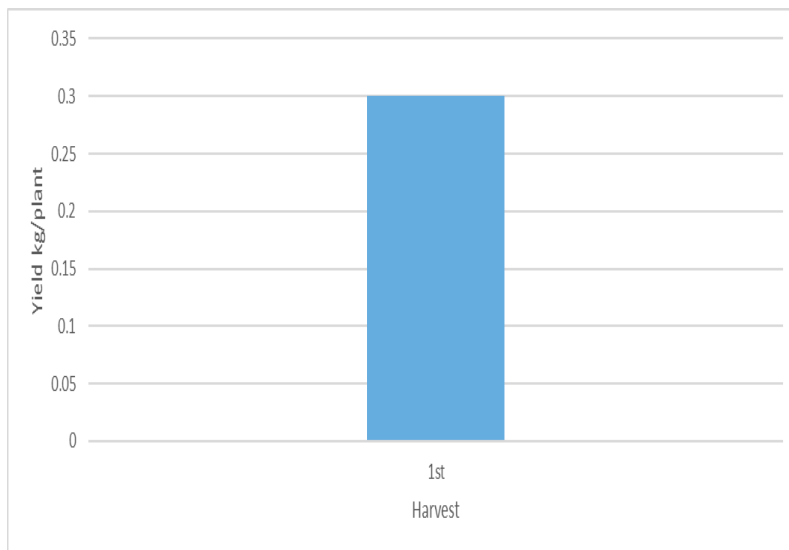


Figure 10: First-year harvest for E14-01-117

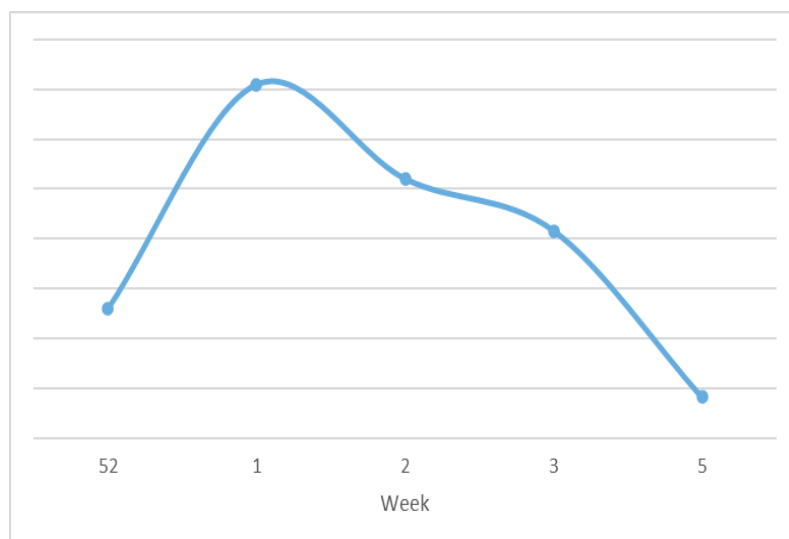


Figure 11: Harvest distribution for E14-01-117



Image 38-39 &40: Plant and flower for E14-01-117



Mountain Blue High Chill

Luna

Luna stands as the sole rabbit-eye variety within the MBHC program, originating from the cross between Centurion and Brightwell. Recognised as a late-season variety, Luna's fruit matures around the same timeframe to that of Midnight.

Fruit and ripening characteristics

Luna produces medium-sized fruit, with a unique aromatic flavour. These fruits feature a light coating of bloom and a distinct round berry shape. Table # highlights the key fruit quality characteristics of Luna, including its average weight, size, brix, and firmness.

Table 3: Fruit characteristics of Luna

Variety	Luna
Avg. Weight (g)	2
Avg. Size (mm)	15
Brix	14
Durofel	54



Figure 41 & 42: Green fruit and open flower of Luna.

Flowering and Pollination

As a rabbiteye variety, Luna flowers quite later compared to other MBHC varieties. With open flowers appearing in week 39, peaking at week 42, and concluding by week 45 (Figure #).

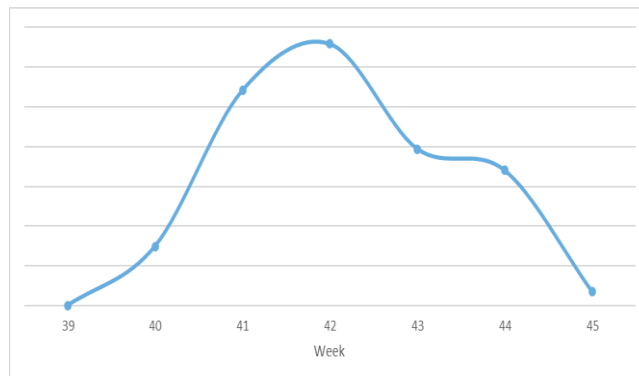


Figure 12: Open flower distribution of Luna

Bush habit

Luna has an upright sprawl bush shape which naturally produces a lot of lateral growth.



Image 43 & 44: Luna post first-harvest (left) and during winter 'July'

Harvest data

The harvest data collected at Erica, Victoria is as follows: Figure # displays 0.82 kg/plant for a first-year harvest respectively. This yield data was collected from a 5-plant plot over consecutive years as the bush matures.



Mountain Blue High Chill

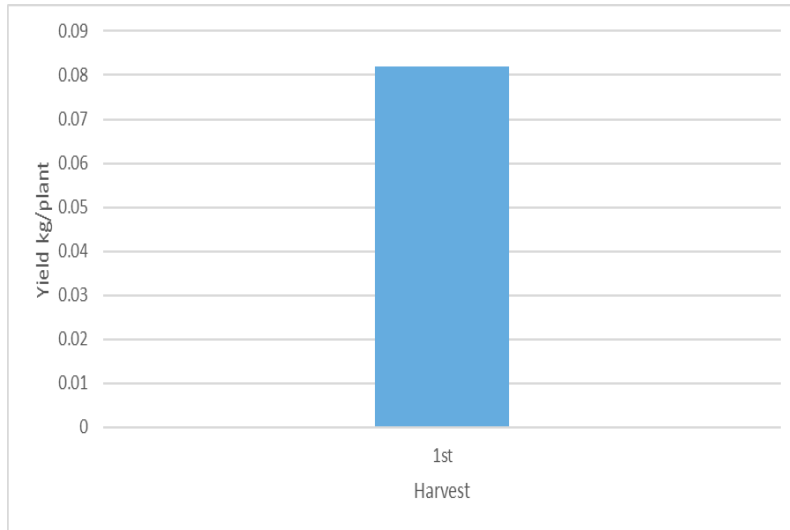


Figure 13: First-year harvest for Luna.

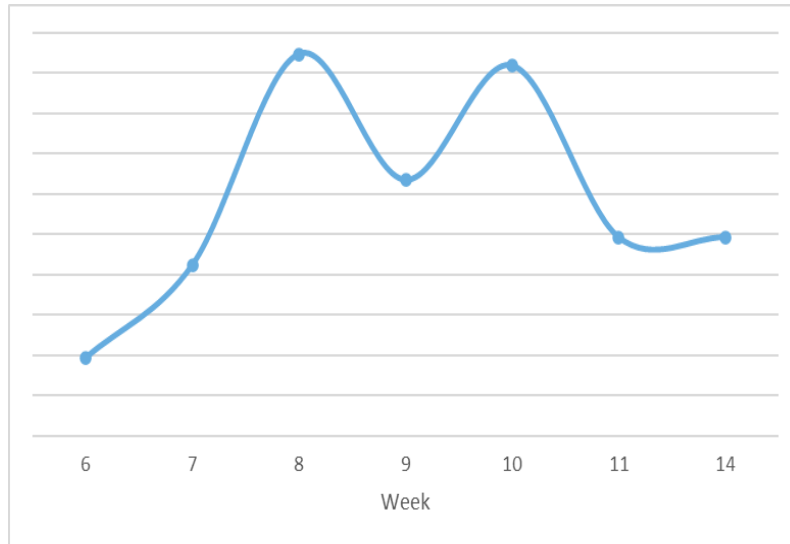


Figure 14: Harvest distribution for Luna.

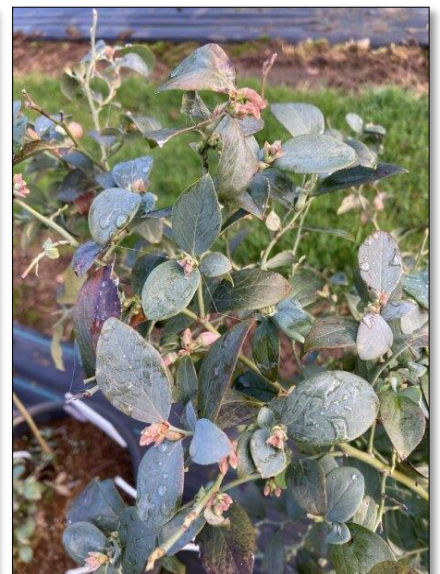


Image 45, 46 & 47: Plant and flower for Luna.



Upcoming selections

The MBHC program has made significant progress in the past couple of years, selecting 30 new seedlings for advancement during the 2022/23 season. Out of these new selections, five have been recognized as potential elite cultivars (AMAPs), while many others have been chosen for their favourable fruit and bush characteristics, or their potential as a parent.

For the upcoming 2023/24 season, we will be evaluating more than 23,000 seedlings. Many of these seedlings are descendants of some of Mountain Blues' elite SHB varieties like E. Sunrise, E. Gold, Maxx, M16-08-03, and more. We are eagerly anticipating the discovery of high-quality medium to high-chill selections in the months ahead.

As we accumulate high-quality hybrid selections in the program, spanning from early to late season, our focus is gradually shifting towards enhancing the Northern Highbush component of the program. This involves refining our exclusively Northern Highbush cultivars and conducting crosses between our higher-quality hybrids and quality pure Northern cultivars. Through these efforts, we aim to develop a predominately Northern cultivar, that possesses the exceptional fruit quality characteristics of MBO's Southern Highbush varieties.

We have planted rows of each of our named AMAP selections to facilitate a more extensive and thorough assessment. Additionally, we have set up dedicated plots for the new selections to ensure a more comprehensive evaluation.

The images listed below display the varying phenotypic appearances of the selections during the winter period, ranging from MBOs evergreening Southern Highbush varieties, cultivars that have a mixture of Northern and Southern Highbush genetics, to 100% Northern Highbush cultivars. For extremely cold climates, our observations suggest that some cultivars with an NHB content of 75% and above will be suitable for these regions.

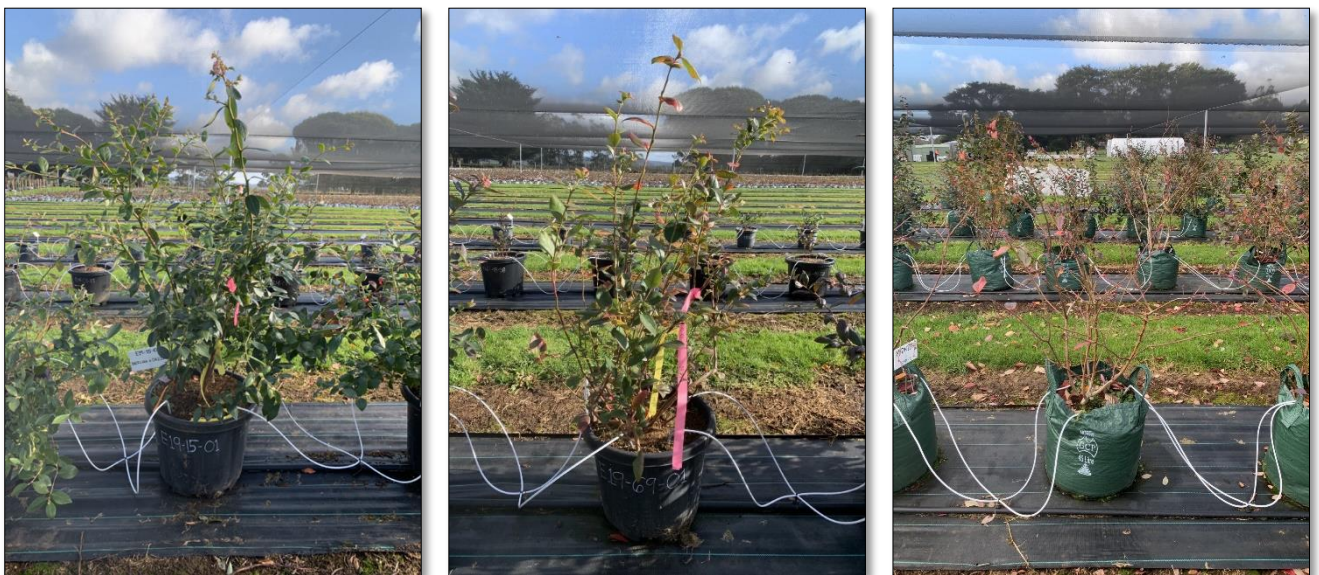


Image 48, 49 & 50: The 2022/23 selections, ranging from predominately Southern Highbush (left), to pure Northern Highbush (right).

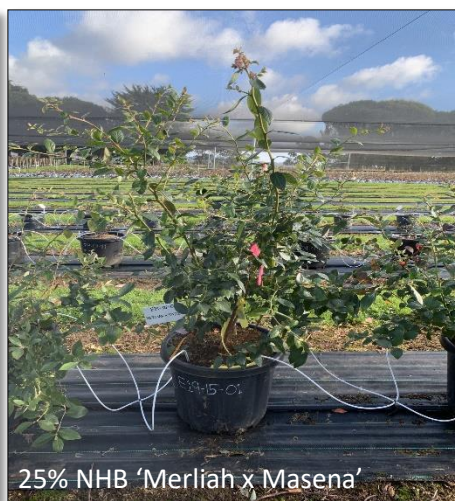


Mountain Blue High Chill

Cultivar comparison based on Northern Highbush percentage.



100% SHB 'Twilight'



25% NHB 'Merliah x Masena'



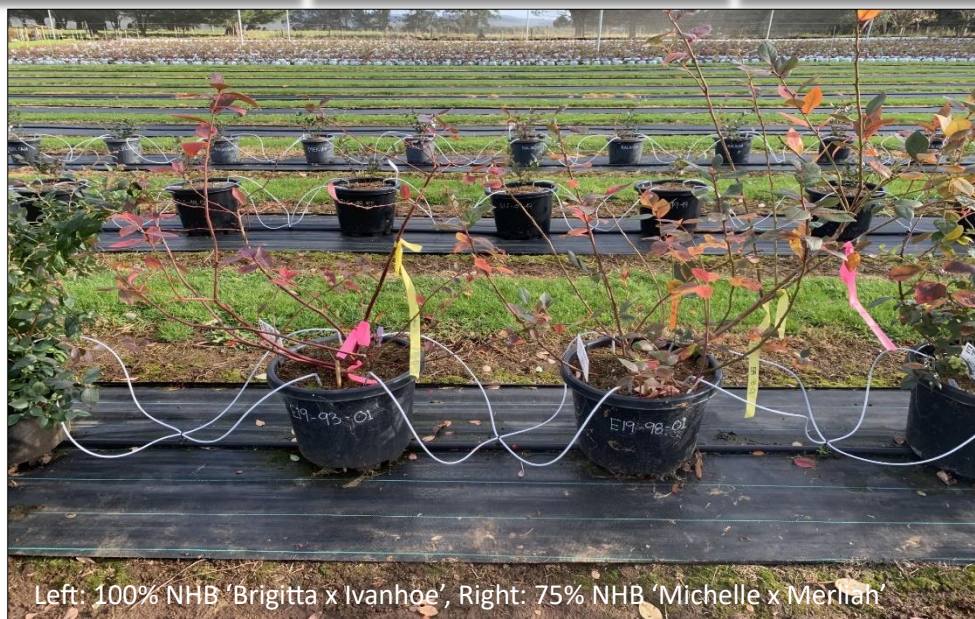
50% NHB 'NB-23-5 x NB-07-08'



75% NHB 'Michelle x Merliah'



100% NHB 'Herbert x Brigitta'



Left: 100% NHB 'Brigitta x Ivanhoe', Right: 75% NHB 'Michelle x Merliah'



Mountain Blue High Chill

Appendices

Table 4: Flower timing for the MBHC varieties.

Selection	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	Week 40	Week 41	Week 42	Week 43	Week 44	Week 45	Week 46
Kalinda	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Merliah	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
NB-5-2	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Midnight	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Luna	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
E14-01-117	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
E16-48-58	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
E16-49-43	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
E16-73-97	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red

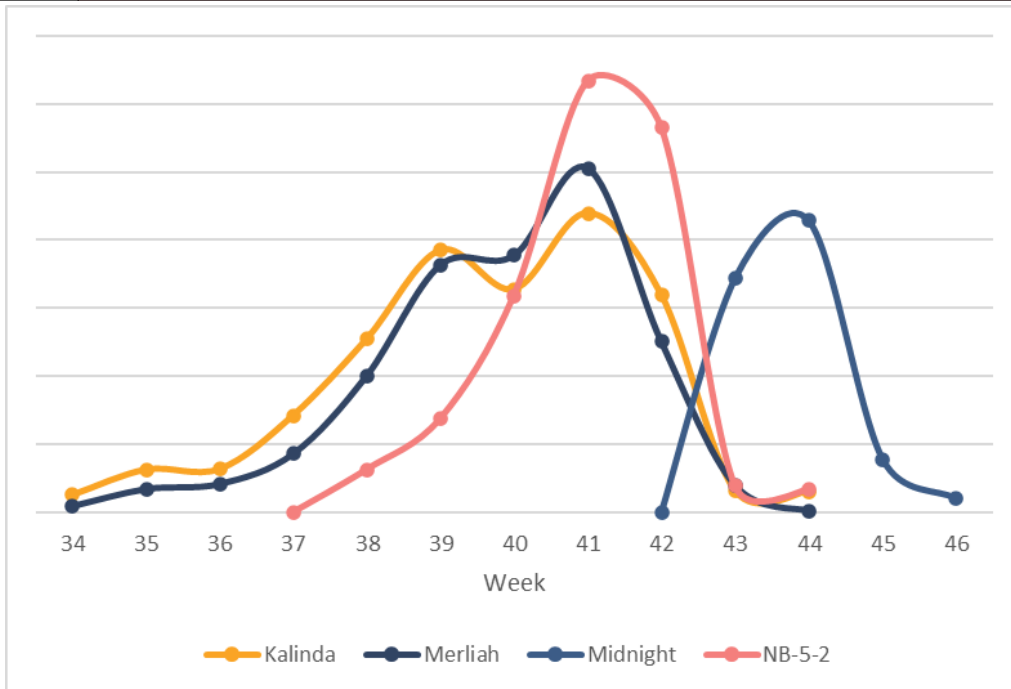


Figure 157: Open flower distribution for the four-named varieties.

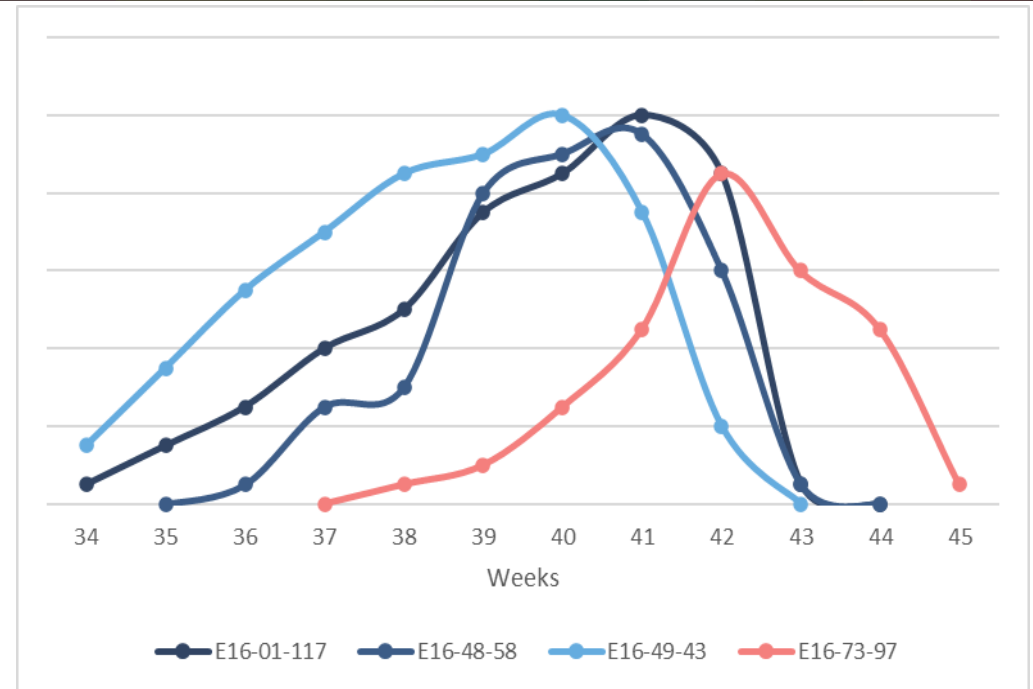


Figure 38: Open flower distribution for the four-AMAP varieties.



Mountain Blue High Chill

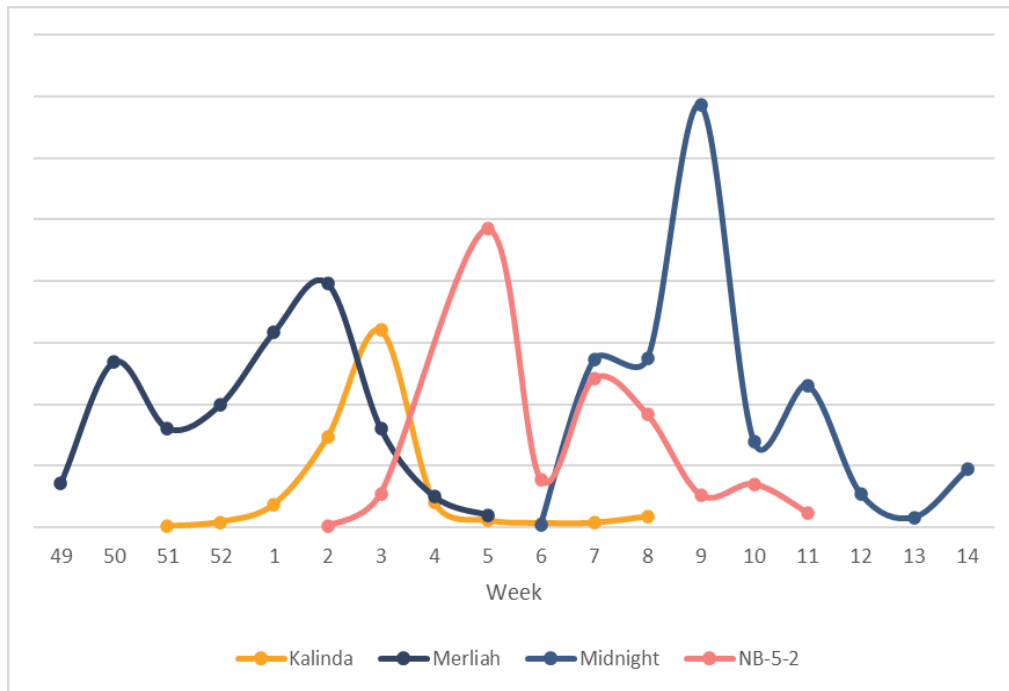


Figure 39: Harvest distribution for the four-named varieties.

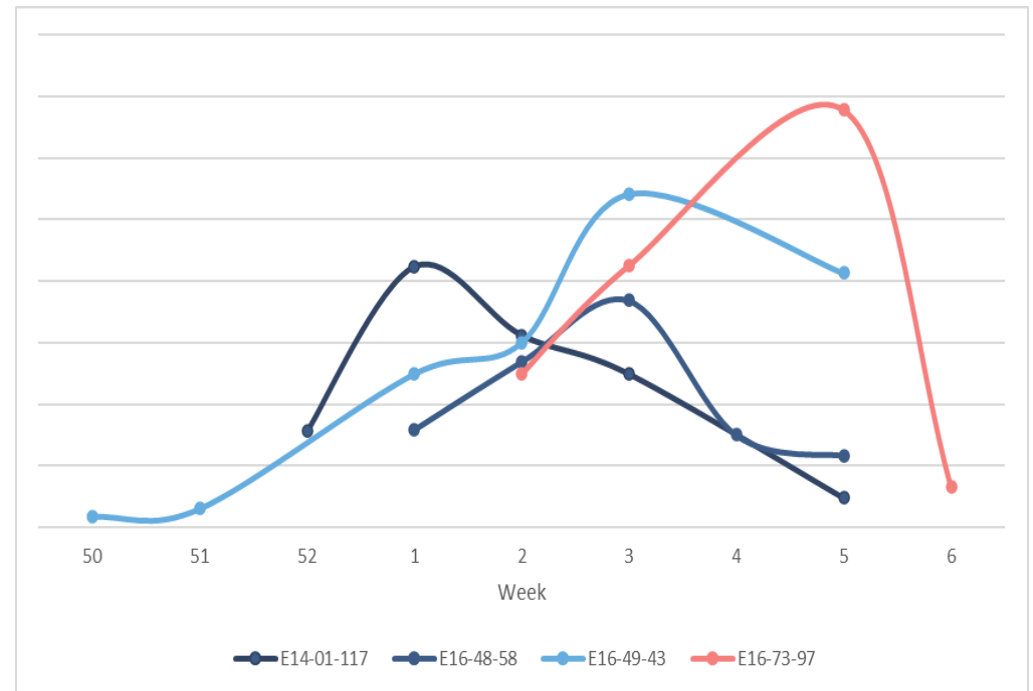


Figure 40: Harvest distribution for the four-AMAP varieties.

Table 11: Fruit characteristics of the named and AMAP varieties.

Variety	Avg. Berry Weight (g)	Avg. Size (mm)	Brix	Durofel
Merliah	2.5-3.5	17-20	13.5	50-55
Kalinda	2.5-3.5	15-18	15	50
NB-5-2	2-3	13.5-18	14	45
Midnight	2-3	15-17	13	35
E14-01-117	2	16	15.5	47
E16-48-58	3	18	14	47
E16-49-43	3	17	13	47
E16-73-97	3	20	13	51



Mountain Blue High Chill

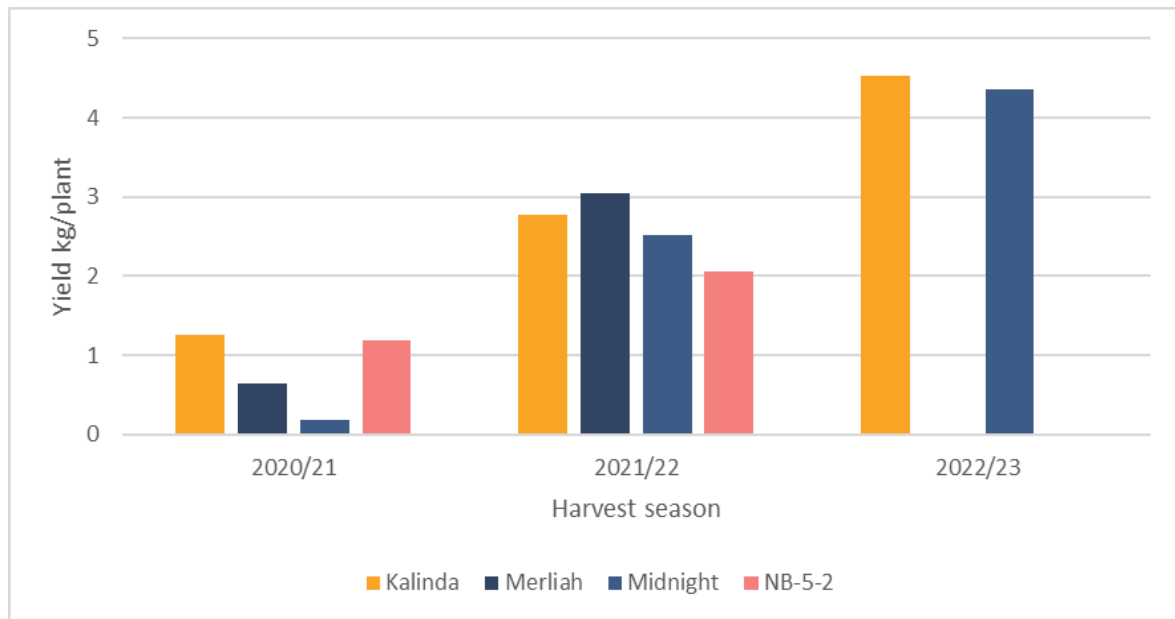


Figure 17: Named-variety harvests at Sunnyridge.

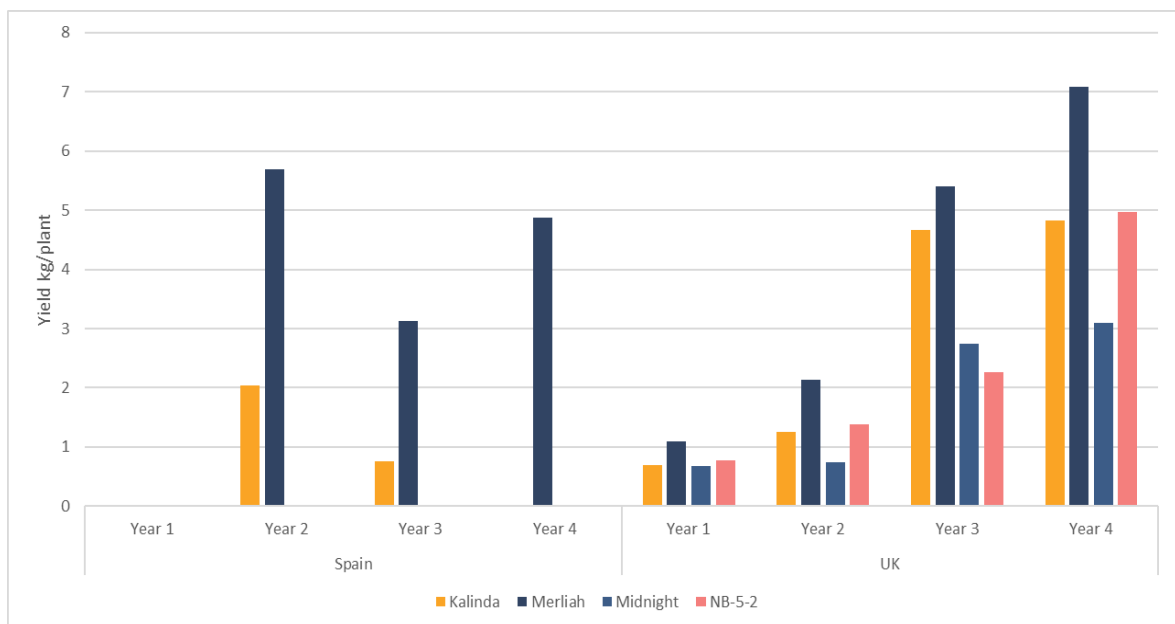


Figure 16: Named-variety harvests in Spain and the UK.

