*HORTICULTURE RESEARCH INTERNATIONAL*

*STOCKBRIDGE HOUSE*

**A REPORT TO THE HORTICULTURAL DEVELOPMENT COUNCIL,**
**18 LAVANT STREET, PETERSFIELD, HANTS, GU32 3EW**

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# HDC EARLY SUMMER CAULIFLOWER: FIELD OVERWINTERED

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## Summary

Three cultivars of cauliflower raised in Hassy 308 modules, from three sowing dates, were planted in November and December in furrows on a bed system and covered with perforated polyethylene (200 holes/$m^2$) until late March. Nitrogen fertiliser was applied at different rates in the base and top dressings. The field overwintered modules were compared with the traditional system of raising in 6 cm blocks overwinter in a cold glasshouse and planting in March. The field overwintered plants suffered from frost damage in mid December which resulted in lower yields compared with the 6 cm block. The earliest mid September sowing suffered the most frost damage, and produced a lower marketable yield with poorer quality heads than the two later sowings. The quality of all heads was excellent. Plana produced more large sized and deep heads than Alpha Jubro and Mechelse Carillon and tended to produce a higher marketable yield. The rate of nitrogen fertiliser application did not affect yield or quality. The field overwintered modules matured in early June, one week later than the 6 cm block, producing high quality heads after the winter hardy cauliflower had finished.


## Introduction

Traditionally, early summer cauliflower for early to mid June harvesting are sown into 6 cm blocks or 75/80 mm pots in early October and overwintered in glasshouses or frames. The system has many disadvantages, however: the plants are expensive to produce, the risk of disease is high, the crop is labour intensive, soil conditions can be difficult at planting and unfavourable weather often delays planting so that plants receive a check that causes buttoning and/or premature heads of poor quality. These small framed plants tend to mature in May when winter hardy cauliflower is still plentiful and therefore provide only a poor economic return.

A husbandry system is required that can provide more reliable cropping in June after the winter hardy types have finished. The field overwintering system gives the following main advantages: it can be fully mechanised, usually soil conditions are usually much better in the autumn, the crop is cheaper to grow and therefore potentially more profitable.

**Objective**

To evaluate module raised plants, sown and planted in the autumn and overwintered under perforated polyethylene crop covers compared with plants raised in 6 cm blocks and overwintered under glass and planted in the spring.

**Materials and Methods**

Site

HRI Stockbridge House, Cawood, Selby, North Yorkshire, YO8 OTZ.

Soil Type

Sandy loam of the Quorndon Series in an open sunny position.

Treatments

| | |
|---|---|
| Crop: | Cauliflower |
| Cultivars: | Alpha Jubro<br>Mechelse Carillon<br>Plana |

Sowing & Planting Dates:

| | | |
|---|---|---|
| Sown 18 September, Planted 11 November | ) | |
| Sown 25 September, Planted 21 November | ) | Hassy 308 module |
| Sown 3 October, Planted 3 December | ) | |
| Sown 18 October, Planted 27 February | - | 6 cm block |

Nitrogen Fertiliser:

| | Base Dressing (kg/ha) | Top Dressing (kg/ha) |
|---|---|---|
| Hassy 308 | 50 | 200 |
| | 100 | 150 |
| 6 cm Block | 150 | 100 |

## Design

The experimental design was a split plot design with three replicates. At the main plot level were cultivars and sowing/planting dates. Nitrogen fertiliser rates were at the sub-plot level.

## Spacing

Three rows per 1.83 m bed, 45 cm between rows x 45 cm within rows.

Culture

The field site, following winter wheat, was ploughed and bedded in late October. After soil analysis phosphorus and potassium fertilisers were applied as a base dressing according to standard ADAS recommendations. Nitrogen fertiliser was also applied as a base dressing at the appropriate rate prior to planting. A Leyli cultivator was used to incorporate the fertiliser and to create a loose tilth which allowed the transplanting machine to make 100 mm deep furrows as it planted the module raised plants in the furrow bottoms. After planting, propachlor (as Albrass at 9 l/ha) and chlorthal-dimethyl (as Dacthal at 6 kg/ha) were applied for weed control. The perforated polyethylene crop cover (200 holes/$m^2$) was laid on the beds by machine immediately after herbicide application.

The control treatment (6 cm block), was planted after the appropriate nitrogen base fertiliser had been applied, at the end of February in ideal soil conditions. A herbicide was applied as above.

The crop covers were removed from the overwintered plants on 24 March. A nitrogen fertiliser top dressing was applied at the appropriate rate according to treatments.

Records

Harvest records for maturity, yield and quality. Thirty heads were recorded from the middle row of each plot.

**Results**

**Table 1: Maturity dates for planting dates - Mean of cultivar x nitrogen rate.**

| Planting Date | 10% Cut | 50% Cut | 90% Cut | Length of Cut (days) |
|---|---|---|---|---|
| <u>Hassy 308</u> | | | | |
| 11 Nov | 6 Jun | 11 Jun | 18 Jun | 12 |
| 21 Nov | 2 Jun | 7 Jun | 14 Jun | 11 |
| 3 Dec | 2 Jun | 8 Jun | 14 Jun | 11 |
| <u>6 cm Block</u> | | | | |
| 27 Feb | 28 May | 3 Jun | 7 Jun | 10 |
| SED (22 df) | 1.2 | 1.0 | 1.0 | 1.2 |
| LSD (P = 0.05) | 2 | 2 | 2 | NS |

NS = Not Significant

The 6 cm block matured significantly earlier than all Hassy 308 plantings. Hassy 308's planted on 21 November and 3 December matured earlier than those planted on 11 November. There was no significant difference in the length of harvest period between planting dates.

**Table 2: Maturity dates for cultivars - Mean of propagation method x planting date x nitrogen rate.**

| Cultivar | 10% Cut | 50% Cut | 90% Cut | Length of Cut (days) |
|---|---|---|---|---|
| Alpha Jubro | 29 May | 4 Jun | 10 Jun | 12 |
| Mechelse Carillon | 30 May | 5 Jun | 11 Jun | 12 |
| Plana | 8 Jun | 13 Jun | 18 Jun | 10 |
| SED (22 df) | 1.1 | 0.8 | 0.9 | 1.1 |
| LSD (P = 0.05) | 2 | 2 | 2 | NS |

Plana reached 10, 50 and 90% cut significantly later than the other cultivars.

**Table 3: Maturity dates for nitrogen rates - Mean of propagation method x planting date x cultivar.**

| Nitrogen Fertiliser (kg/ha) | 10% Cut | 50% Cut | 90% Cut | Length of Cut (days) |
|---|---|---|---|---|
| Hassy 308 | | | | |
| 50 base, 200 top | 4 Jun | 9 Jun | 16 Jun | 12 |
| 100 base, 150 top | 4 Jun | 9 Jun | 14 June | 11 |
| 6 cm Block | | | | |
| 150 base, 100 top | 28 May | 3 Jun | 7 Jun | 10 |
| SED (27 df) | 1.1 | 0.9 | 0.9 | 1.1 |
| LSD (P = 0.05) | NS | NS | NS | NS |

Nitrogen fertiliser application rate had no significant effect on maturity date.

**Table 4: Marketable yield for planting dates - Mean of cultivar x nitrogen rate.**

| Planting Date | Yield (crates/ha) Class I | Class II | Total Mkt | Class I as % heads of total heads | Total Mkt as % of the no. planted (angle transformation)* |
|---|---|---|---|---|---|
| <u>Hassy 308</u> | | | | | |
| 11 Nov | 1253 | 72 | 1325 | 95 | 46 |
| 21 Nov | 1547 | 105 | 1652 | 93 | 54 |
| 3 Dec | 1558 | 113 | 1671 | 93 | 54 |
| <u>6 cm Block</u> | | | | | |
| 27 Feb | 2226 | 217 | 2443 | 91 | 76 |
| SED (22 df) | 135.5 | 39.4 | 133.5 | 2.5 | 3.1 |
| LSD (P=0.05) | NS | NS | 277 | NS | 6 |

* See Appendix I, Table 10 for actual percentages.

The 6 cm block produced a higher total marketable yield than the three overwintered module plantings. The two later module plantings: 21 November and 3 December, produced higher total marketable yields than modules planted on 11 November. All treatments produced excellent quality heads. The 6 cm block however, produced a higher percentage of marketable heads than the field overwintered modules, due to a lower number of missing plants.

**Table 5: Marketable yield for cultivars - Mean of propagation method x planting date x nitrogen rate.**

| Cultivar | Yield (crates/ha) Class I | Class II | Total Mkt | Class I as % heads of total heads | Total Mkt as % of the no. planted (angle transformation)* |
|---|---|---|---|---|---|
| Alpha Jubro | 1640 | 130 | 1770 | 92 | 59 |
| Mechelse Carillon | 1510 | 171 | 1681 | 90 | 56 |
| Plana | 1788 | 79 | 1867 | 96 | 57 |
| SED (22 df) | 117.3 | 34.1 | 115.6 | 2.2 | 2.7 |
| LSD (P = 0.05) | NS | 71 | NS | 5 | NS |

* See Appendix I, Table 11 for actual percentages.

Plana tended to produce a higher yield of Class I heads and a higher total marketable yield than the other cultivars but results were not significant. The total marketable yield of Plana had a higher percentage of Class I heads than Mechelse Carillon.

**Table 6: Marketable yield for fertiliser rates - Mean of propagation method x planting date x cultivar.**

| Nitrogen Fertiliser (kg/ha) | Yield (crates/ha) Class I | Class II | Total Mkt | Class I as % heads of total heads | Total Mkt as % of the no. planted (angle transformation)* |
|---|---|---|---|---|---|
| <u>Hassy 308</u> | | | | | |
| 50 base, 200 top | 1415 | 83 | 1498 | 94 | 51 |
| 100 base, 150 top | 1491 | 110 | 1600 | 93 | 52 |
| <u>6 cm Block</u> | | | | | |
| 100 base, 150 top | 2226 | 217 | 2443 | 91 | 76 |
| SED (27 df) | 114.5 | 29.0 | 112.2 | 2.2 | 2.6 |
| LSD (P = 0.05) | NS | NS | NS | NS | NS |

* See Appendix I, Table 12 for actual percentages.

Nitrogen fertiliser application rate had no significant effect on marketable yield or quality.

**Table 7: Head characteristics for planting dates - Mean of cultivar x nitrogen rate.**

| Planting Date | Buttons % | Size 4 % | Size 5 % | Size 6 + 7 % | Deep % | Missing % |
|---|---|---|---|---|---|---|
| | No. of heads as % of the no. planted (angle transformation)* | | | | | |
| Hassy 308 | | | | | | |
| 11 Nov | 10 | 15 | 24 | 31 | 22 | 38 |
| 21 Nov | 13 | 16 | 28 | 35 | 32 | 29 |
| 3 Dec | 10 | 18 | 27 | 35 | 32 | 29 |
| 6 cm Block | | | | | | |
| 27 Feb | 5 | 19 | 32 | 47 | 40 | 5 |
| SED (22 df) | 2.1 | 1.6 | 1.6 | 2.2 | 2.8 | 3.1 |
| LSD (P = 0.05) | NS | NS | 3 | NS | 6 | 6 |

* See Appendix I, Table 13 for actual percentages.

The 6 cm block produced more size 5 and deep heads than the overwintered modules and fewer missing heads. For overwintered modules, planting later on 21 November and 3 December produced a higher percentage of deep heads with fewer missing heads than planting on 11 November.

**Table 8: Head characteristics for cultivars - Mean of propagation method x planting date x nitrogen rate.**

| Cultivar | No. of heads as % of the no. planted (angle transformation)* | | | | | |
|---|---|---|---|---|---|---|
| | Buttons % | Size 4 % | Size 5 % | Size 6 + 7 % | Deep % | Missing % |
| Alpha Jubro | 9 | 22 | 30 | 34 | 19 | 23 |
| Mechelse Carillon | 12 | 19 | 28 | 34 | 22 | 25 |
| Plana | 8 | 11 | 25 | 43 | 53 | 28 |
| SED (22 df) | 1.8 | 1.4 | 1.4 | 1.9 | 2.5 | 2.7 |
| LSD (P = 0.05) | NS | 3 | 3 | 4 | 5 | NS |

* See Appendix I, Table 14 for actual percentages.

Plana produced a higher percentage of larger sized and deep heads than the other cultivars. There was no significant difference in the number of missing heads between cultivars.

**Table 9: Head characteristics for nitrogen rates - Mean of propagation method x planting date x cultivar.**

| Nitrogen Fertiliser (kg/ha) | No. of heads as % of the no. planted (angle transformation)* | | | | | |
|---|---|---|---|---|---|---|
| | Buttons % | Size 4 % | Size 5 % | Size 6 + 7 % | Deep % | Missing % |
| <u>Hassy 308</u> | | | | | | |
| 50 base, 220 top | 12 | 18 | 27 | 32 | 29 | 33 |
| 100 base, 150 top | 10 | 15 | 26 | 35 | 29 | 32 |
| <u>6 cm Block</u> | | | | | | |
| 100 base, 150 top | 5 | 19 | 32 | 47 | 40 | 5 |
| SED (27 df) | 2.1 | 1.5 | 1.5 | 2.0 | 2.6 | 2.6 |
| LSD (P = 0.05) | NS | NS | NS | NS | NS | NS |

* See Appendix I, Table 15 for actual percentages.

Nitrogen fertiliser application rate had no significant effect on head size or number of missing plants.

## Discussion

Results in the first year of this trial showed the highest yields from the traditional 6 cm block, overwintered under glass and planted in late February. The field overwintered modules produced lower yields due to a high percentage of missing heads.

Approximately 30% of the overwintered modules were missing as a result of frost damage. The first indications of frost damage were observed following severe weather during 8-15 December (see Appendix II). All outside leaves showed some frost damage and many plants were killed at this early stage. Of those plants which produced a marketable curd however, the quality was excellent.

The earlier sowing and planting date of the Hassy module tended to produce a lower marketable yield than the later sowing and planting dates. It also gave fewer Class I heads and 11% more missing plants. All the field overwintered modules matured up to a week later than the 6 cm block planted in February.

Overall, the cultivar Plana gave better results when field overwintered than Alpha Jubro and Mechelse Carillon. It matured slightly later in June but with a higher percentage of large sized heads and deep curds. It also tended to give a higher marketable yield.

Timing of nitrogen application had no significant effect on results.

Propachlor (as Albrass) and chlorthal-dimethyl (as Dacthal) gave excellent control of weeds in all treatments, except for minor problems with cereal volunteers.

All the cultivations of the field overwintered plants of all sowings were carried out with machinery, except for hand hoeing to remove the bigger weed. It is a cheaper system than using blocks and overwintering the plants in a glasshouse and hand planting in the spring. Results from this trial however suggest that the system is dependant on favourable weather conditions after planting as frosts in December 1991 caused serious plant losses. Experience from other trials have suggested that later frosts may be less damaging with less loss of plants.

## Conclusions

1. Sowing in late September or early October and planting in late November or early December respectively produced a higher marketable yield and better quality heads than sowing in mid September and planting in mid November.

2. The three cultivars gave generally similar results, but Plana tended to produce a higher marketable yield of better quality curds than Alpha Jubro and Mechelse Carillon.

3. The field overwintered modules matured approximately one week later than the 6 cm block planted in February.

4. The rate of nitrogen fertiliser did not affect maturity, marketable yield or quality.

5. Severe weather conditions during mid December resulted in a high percentage of missing plants which was the main cuase of reduced yield. The earliest mid September sowing suffered the greatest damage.

## Recommendations

Further trials are needed on a field scale to substantiate this year's results. Experience with different weather conditions is essential to reduce the risk to growers who are considering using this production system. In future, the outer rows of plants when grown on a bed system should also be evaluated for yield and quality, as the laying of mulches may reduce the quality of plants in these rows.

**APPENDIX I:**

**Table 10: Marketable yield for planting dates - Mean of cultivar x planting date x nitrogen rate.**

| Planting Date | No. of plants as % of the no. planted<br>Total Marketable % |
|---|---|
| Hassy 308 | |
| 11 Nov | 52 |
| 21 Nov | 64 |
| 3 Dec | 66 |
| 6 cm Block | |
| 27 Feb | 94 |

**Table 11: Marketable yield for cultivars - Mean of propagation method x planting date x nitrogen rate.**

| Cultivar | No. of plants as % of the no. planted<br>Total Marketable % |
|---|---|
| Alpha Jubro | 69 |
| Mechelse Carillon | 63 |
| Plana | 65 |

**Table 12: Marketable yield for nitrogen rates - Mean of propagation method x planting date x cultivar.**

| Nitrogen Fertiliser (kg/ha) | No. of plants as % of the no. planted<br>Total Marketable (%) |
|---|---|
| <u>Hassy 308</u> | |
| 50 base, 200 top | 60 |
| 100 base, 150 top | 62 |
| <u>6 cm Block</u> | |
| 100 base, 150 top | 94 |

**Table 13: Head characteristics for planting dates - Mean of cultivar x nitrogen rate.**

| | | No. of heads as % of the no. planted | | | | |
|---|---|---|---|---|---|---|
| Planting Date | Buttons % | Size 4 % | Size 5 % | Size 6 + 7 % | Deep % | Missing % |
| <u>Hassy 308</u> | | | | | | |
| 11 Nov | 3 | 8 | 17 | 27 | 20 | 39 |
| 21 Nov | 4 | 9 | 23 | 33 | 31 | 25 |
| 3 Dec | 3 | 11 | 20 | 34 | 30 | 24 |
| <u>6 cm Block</u> | | | | | | |
| 27 Feb | 1 | 12 | 28 | 53 | 42 | 2 |

**Table 14: Head characteristics for cultivars - Mean of propagation method x planting date x nitrogen rate.**

| Cultivar | Buttons % | Size 4 % | Size 5 % | Size 6 + 7 % | Deep % | Missing % |
|---|---|---|---|---|---|---|
| | No. of heads as % of the no. planted | | | | | |
| Alpha Jubro | 2 | 14 | 24 | 30 | 13 | 22 |
| Mechelse Carillon | 1 | 10 | 22 | 31 | 15 | 26 |
| Plana | 2 | 4 | 18 | 42 | 60 | 28 |

**Table 15: Head characteristics for nitrogen rates - Mean of propagation method x planting date x cultivar.**

| Nitrogen Fertiliser (kg/ha) | Buttons % | Size 4 % | Size 5 % | Size 6 + 7 % | Deep % | Missing % |
|---|---|---|---|---|---|---|
| | No. of heads as % of the no. planted | | | | | |
| Hassy 308 | | | | | | |
| 50 base, 200 top | 3 | 10 | 20 | 29 | 27 | 31 |
| 100 base, 150 top | 3 | 8 | 20 | 34 | 28 | 28 |
| 6 cm Block | | | | | | |
| 100 base, 150 top | 2 | 12 | 28 | 53 | 42 | 2 |

APPENDIX II: OVERWINTER WEATHER DATA

| | NOVEMBER 1991 | | | DECEMBER 1991 | | |
|---|---|---|---|---|---|---|
| | Maximum (air) (°C) | Minimum (ground) (°C) | Rain (mm) | Maximum (air) (°C) | Minimum (ground) (°C) | Rain (mm) |
| 1 | 14.9 | 9.1 | - | 8.3 | 5.0 | - |
| 2 | 12.3 | 9.4 | 3.9 | 8.0 | 5.8 | - |
| 3 | 8.6 | 6.0 | 1.8 | 7.1 | 7.1 | - |
| 4 | 8.1 | 0.6 | 3.1 | 6.0 | 3.0 | - |
| 5 | 6.6 | 3.0 | - | 6.8 | 1.8 | - |
| 6 | 12.9 | 0.5 | 0.9 | 7.9 | 4.6 | - |
| 7 | 13.4 | 5.5 | - | 1.8 | 2.6 | - |
| 8 | 10.0 | 7.5 | 0.1 | 2.0 | 4.5 | - |
| 9 | 7.5 | 3.5 | - | 0.4 | 5.8 | - |
| 10 | 10.7 | 0.6 | 0.2 | 1.9 | 5.4 | - |
| 11 | 7.6 | 3.3 | - | 1.1 | 8.1 | - |
| 12 | 8.4 | 3.2 | 3.9 | 3.2 | 7.1 | - |
| 13 | 7.1 | 2.2 | 1.1 | 5.3 | 5.5 | - |
| 14 | 7.4 | 0.2 | - | 5.6 | 1.4 | - |
| 15 | 8.6 | 2.0 | - | 1.6 | 2.0 | - |
| 16 | 3.0 | 1.6 | - | 6.6 | 1.0 | 0.2 |
| 17 | 6.8 | 2.3 | 8.2 | 10.0 | 1.5 | 4.8 |
| 18 | 9.0 | 2.2 | 2.1 | 12.4 | 5.0 | 2.8 |
| 19 | 7.5 | 5.5 | 1.2 | 12.0 | 5.3 | 2.8 |
| 20 | 6.2 | 1.9 | - | 5.5 | 1.5 | 7.5 |
| 21 | 9.8 | 1.2 | 2.9 | 14.2 | 0.8 | 1.5 |
| 22 | 10.9 | 2.4 | - | 14.1 | 4.9 | 0.3 |
| 23 | 10.2 | 5.4 | 0.2 | 13.5 | 11.7 | 5.1 |
| 24 | 9.0 | 3.1 | 1.0 | 6.3 | 2.0 | - |
| 25 | 9.8 | 3.8 | 0.5 | 10.1 | 1.8 | 3.0 |
| 26 | 11.9 | 4.0 | 0.1 | 10.1 | 1.8 | - |
| 27 | 12.3 | 1.3 | 1.3 | 8.4 | 0.5 | - |
| 28 | 11.7 | 3.5 | 1.2 | 8.2 | 0.8 | - |
| 29 | 9.9 | 8.0 | - | 8.9 | 5.1 | 0.4 |
| 30 | 6.0 | 5.2 | - | 7.1 | 5.2 | 0.3 |
| 31 | - | - | - | 10.6 | 5.4 | - |
| TOTAL | | | 33.7 | | | 28.7 |

| | JANUARY 1992 | | | FEBRUARY 1992 | | |
|---|---|---|---|---|---|---|
| | Maximum (air) (°C) | Minimum (ground) (°C) | Rain (mm) | Maximum (air) (°C) | Minimum (ground) (°C) | Rain (mm) |
| 1 | 11.4 | 8.6 | - | 3.8 | 4.9 | 0.3 |
| 2 | 12.1 | 8.0 | - | 10.2 | 4.0 | 0.7 |
| 3 | 13.0 | 8.9 | 4.0 | 10.0 | 2.5 | 6.7 |
| 4 | 7.1 | 4.4 | 6.2 | 10.4 | 2.7 | 0.2 |
| 5 | 11.0 | 3.9 | 12.5 | 10.4 | 7.5 | - |
| 6 | 11.5 | 4.0 | - | 10.9 | 5.1 | - |
| 7 | 11.4 | 5.4 | 1.3 | 8.4 | 4.6 | - |
| 8 | 11.7 | 6.5 | 6.9 | 7.4 | 0.5 | 0.1 |
| 9 | 5.4 | 4.9 | 0.1 | 10.1 | 2.2 | - |
| 10 | 4.0 | 0.6 | - | 7.3 | 1.6 | 0.1 |
| 11 | 7.0 | 3.5 | - | 8.7 | 1.6 | - |
| 12 | 6.3 | 2.5 | - | 11.8 | 0.5 | 1.5 |
| 13 | 8.5 | 1.2 | - | 11.8 | 2.9 | 0.3 |
| 14 | 8.1 | 2.9 | - | 9.6 | 3.4 | 2.0 |
| 15 | 5.2 | 2.8 | - | 7.8 | 4.0 | 0.1 |
| 16 | 7.1 | 1.1 | - | 7.7 | 2.1 | - |
| 17 | 5.9 | 1.2 | - | 5.6 | 2.1 | 2.0 |
| 18 | 8.0 | 0.1 | - | 2.2 | 1.0 | 0.9 |
| 19 | 9.5 | 2.2 | 0.1 | 5.4 | 1.2 | - |
| 20 | 5.3 | 4.6 | - | 7.6 | 0.1 | - |
| 21 | 2.4 | 0.7 | - | 9.2 | 1.6 | - |
| 22 | 1.4 | 8.2 | - | 10.9 | 4.7 | 1.7 |
| 23 | 1.4 | 7.1 | - | 11.1 | 5.0 | - |
| 24 | 1.0 | 3.3 | - | 10.6 | 4.9 | - |
| 25 | 2.1 | 5.5 | 2.3 | 10.1 | 2.9 | - |
| 26 | 4.4 | 1.9 | - | 11.8 | 0.1 | - |
| 27 | 4.3 | 5.2 | - | 13.0 | 4.5 | 2.5 |
| 28 | 2.1 | 5.6 | - | 9.5 | 0.2 | - |
| 29 | 2.1 | 5.1 | 0.5 | 9.2 | 0.2 | 1.7 |
| 30 | 2.0 | 2.2 | 1.0 | - | - | - |
| 31 | 0.8 | 2.0 | - | - | - | - |
| TOTAL | | | 34.9 | | | 20.8 |

**MARCH 1992**

| | Maximum (air) (°C) | Minimum (ground) (°C) | Rain (mm) |
|---|---|---|---|
| 1 | 9.7 | 1.3 | 1.1 |
| 2 | 10.6 | 1.3 | - |
| 3 | 13.7 | 5.7 | - |
| 4 | 15.3 | 5.8 | - |
| 5 | 10.7 | 3.6 | - |
| 6 | 12.8 | 4.5 | - |
| 7 | 12.4 | 7.8 | 1.0 |
| 8 | 12.3 | 3.5 | - |
| 9 | 10.5 | 0.4 | - |
| 10 | 10.5 | 4.6 | 4.1 |
| 11 | 11.0 | 2.6 | 0.9 |
| 12 | 10.6 | 4.0 | 3.3 |
| 13 | 7.2 | 4.6 | 0.5 |
| 14 | 7.1 | 0.1 | 5.1 |
| 15 | 9.4 | 0.0 | 0.1 |
| 16 | 12.5 | 1.0 | - |
| 17 | 13.2 | 5.6 | - |
| 18 | 11.7 | 7.6 | 0.5 |
| 19 | 12.8 | 2.5 | - |
| 20 | 14.8 | 7.7 | 3.9 |
| 21 | 9.4 | 4.4 | 2.1 |
| 22 | 10.5 | 5.0 | - |
| 23 | 8.5 | 0.2 | 1.4 |
| 24 | 10.5 | 4.3 | 1.7 |
| 25 | 8.5 | 3.5 | 2.4 |
| 26 | 8.2 | 0.4 | 2.1 |
| 27 | 5.7 | 2.0 | - |
| 28 | 8.3 | 3.1 | 0.5 |
| 29 | 9.5 | 4.6 | 7.4 |
| 30 | 8.6 | 2.9 | 11.6 |
| 31 | 10.5 | 4.2 | 4.9 |
| TOTAL | | | 54.6 |