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Raspberry cultivation with primocanes and fresh plants

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Field Day, 6 June 2024





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Content

- ✦ Motivation
- ✦ Primocane cultivation
- ✦ Trials at Delphy ISFC:
 - Double cropping
 - Fresh plants
- ✦ Results: production, type of growing, GDH, variety characteristics
- ✦ Conclusions: perspective of primocanes

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Motivation for primocane varieties

- ✦ Cost-efficient method-> starting with a relatively cheap plug-plant
- ✦ The harvest is divided into two seasons.
- ✦ High quality fruits.
- ✦ But: The harvest periods are determined in advance -> influence on price and profitability.
- ✦ With long-cane plants from cold-store, planting time and harvest period can be determined in advance.
- ✦ To know the growing value of primocanes, experience is needed about cultivation systems and variety characteristics.

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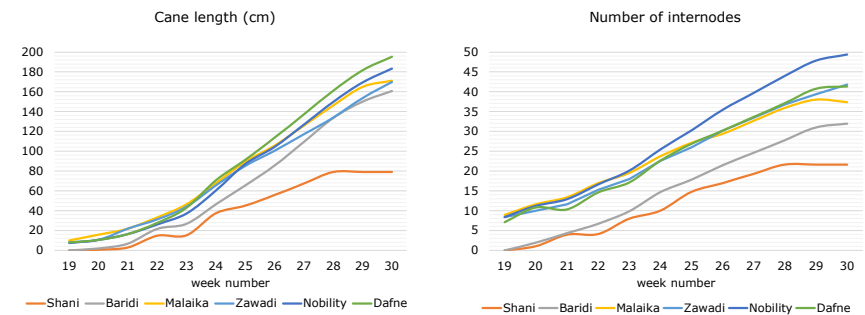
Set up of trials 2023

- ✦ Varieties:
 - Shani, Baridi (ABB132), Malaika (ABB135) and Zawadi (ABB136) from Advanced Berry Breeding
 - Nobility from Plant Sciences
 - Dafne from SantOrsola
- ✦ Planting date: 19 April 2023
- ✦ 2 plug plants in 7-liter pots
- ✦ Planting distance: 2.5 pots per m²
- ✦ Cultivation under rain shelters
- ✦ The plants received nutrition by fertigation



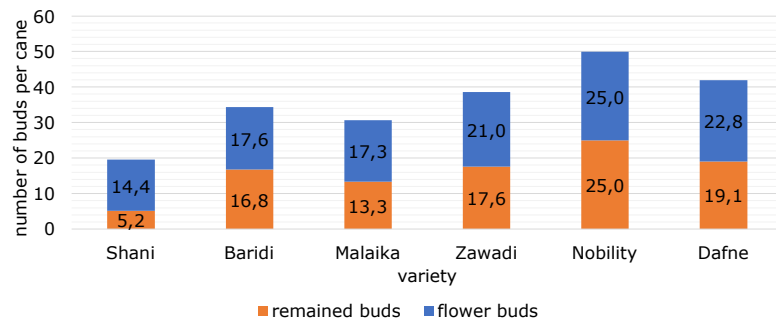
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Cane length and number of internodes



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Plant architecture

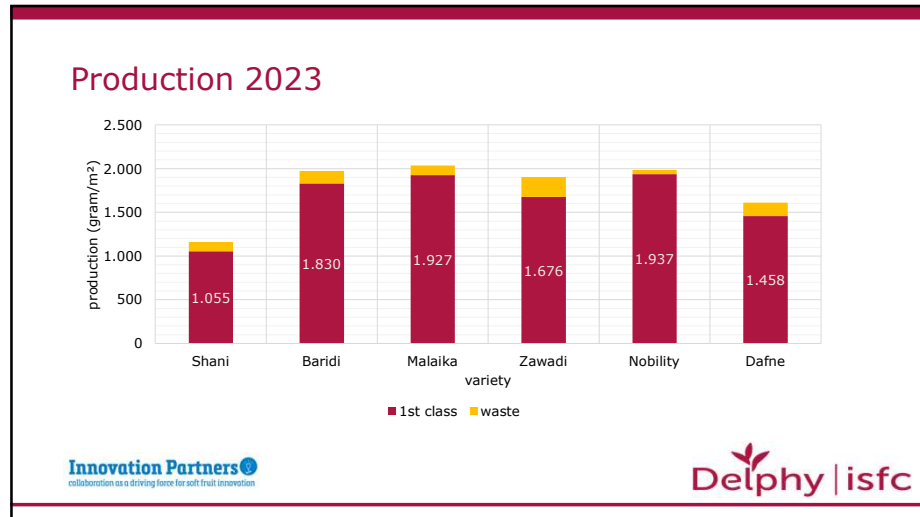


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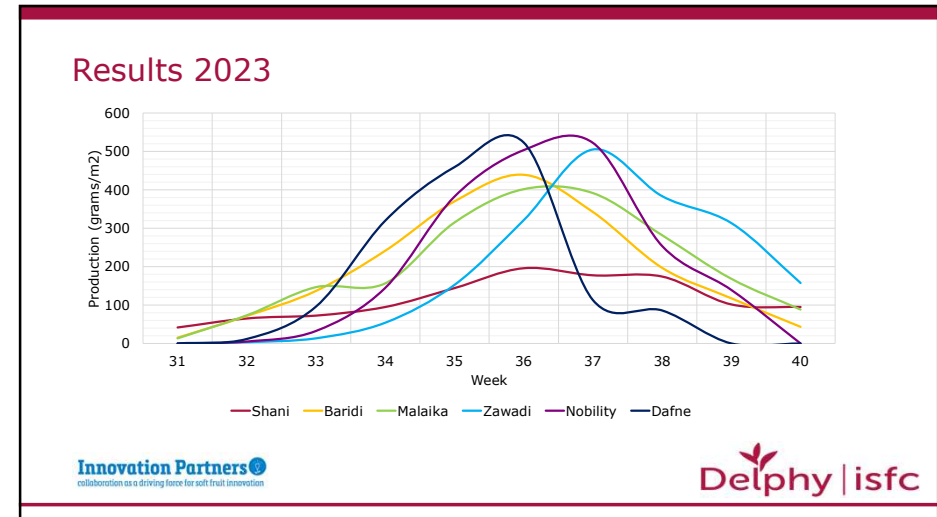
Fruits



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Mow-down on 13 March, 2024

- Only most promising varieties are used for double cropping.
- Plants are overwintered with canes.
- At beginning of March already bud development and start of growing: too early activity -> Night frost risk.
- A lot of labour was needed for creating a new plant for the second season with the desired amount of canes.

8 March, 2024

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Development after Mow down (March 8)

20 March, 2024 3 April, 2024 22 April, 2024

Baridi:
1 May, 2024
Too early flowering, too small amount of internodes

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Crops after mow down at 23 May, 2024



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Set up of trials with fresh plants at 2024

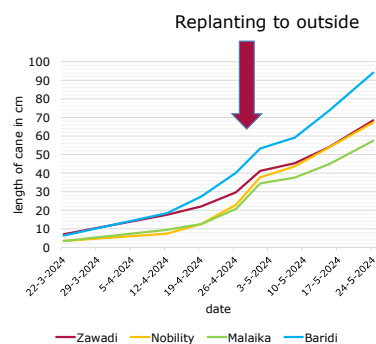
- ✦ Varieties:
 - Baridi (ABB132), Malaika (ABB135) and Zawadi (ABB136) from Advanced Berry Breeding
 - Nobility from Plant Sciences
- ✦ Planting date Greenhouse: 22 March 2024
- ✦ Planting date outside: 1 May 2024
- ✦ 2 plug plants in 4.7 and 7-liter pots
- ✦ Planting distance: 1.6 pots per m², 1.2 pots per m² (Zawadi)
- ✦ Cultivation under rain shelters
- ✦ The plants receive nutrition by fertigation



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Plug plants growth

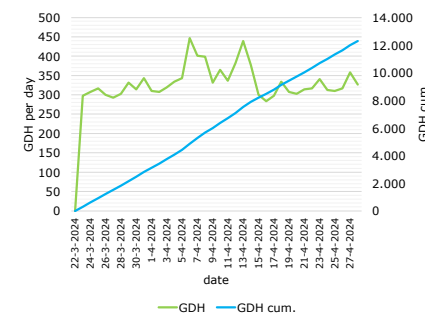
- ✦ Plants were not hardened off ('fragile greenhouse plant') when these were replanted.
- ✦ After replanting a little less height growth, but with increasing LAI plant growth increased.
- ✦ Outside growing circumstances (temperature, wind) needs to be suitable.



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Plug plants growth


- ✦ Goal: earlier start of harvest
- ✦ 13,000 GDH till replanting to outside
- ✦ In the first trial season 36,000 GDH were needed till the first harvest.
- ✦ In week 27 the first harvest is expected, this is 4 weeks earlier.



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Nobility

- Productive variety
- Nice fruits
- Average fruit weight: 6-7 gram, at the end of the harvest smaller fruits
- Peak harvest: it was completed within four weeks
- Mow-down: Large amount of root suckers, long stretched plants, currently laterals + flowering (about 10 buds from the top)
- Fresh plants:
 - very vigorous
 - strong canes
 - Healthy
 - Early flowering



27 September 2023

Plant Sciences


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Malaika (ABB135)

- Productive variety, a lot of new laterals
- Nice fruits
- Average fruit weight 7-8 gram, also in last harvest week fruits of 7 gram.
- Long production period: over seven weeks
- Mow down: Strong cane development, first flowers at top of the plants (about 3/cane), some laterals at the lower part of the cane
- Fresh plants:
 - nice upward growing canes
 - no laterals
 - no flowering so far



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Advanced Berry Breeding


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Zawadi (ABB136)

- Productive variety, start of harvest relative late
- Nice and large fruits: Average fruit weight > 8 gram, during whole harvest > 7.5 gram
- 20% plant loss due to root/stem diseases (at start of harvest)
- higher production potential if plants are healthy
- Mow down: High level of branching, a lot of laterals from the bottom, currently no flowers.
- Fresh plants:
 - High level of branching
 - First flowers at top buds



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Baridi (ABB132)

- Productive variety, nice plant architecture
- Nice fruits
- Average fruit weight 6-7 gram (at the beginning of the harvest large fruit, but the last two weeks smaller fruits)
- Too early flower initiation after mow-down in spring 2024, currently no plants anymore
- Fresh plants:
 - Strong length growth
 - Currently flowering
 - 15-18 buds
 - Laterals already present



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Only results of 2023

Shani



- ✦ The production was relatively low
- ✦ The length of the canes was rather small, a lot of laterals
- ✦ The average fruit weight was too low (on average 5-6 gram per fruit)



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Dafne



- ✦ Relative low production
- ✦ Length and strength of the canes was good
- ✦ No side shoot development
- ✦ Nice fruits; average fruit size 7-8 gram
- ✦ Too short shelf life of the fruits
- ✦ Very soft fruits



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Conclusions: Use of primocanes

- ✦ No plant losses and plant diseases due to cold storage, but disease susceptibility must be low
- ✦ Picking performance can be higher as fruits grow in an easy reachable area
- ✦ Harvest more spread:
 - long canes max. 700 gram/week
 - primo canes max. 500 gram/week
- ✦ Larger fruit size compared to long canes: higher prices?
- ✦ Suitable varieties and cultivation systems are needed

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Conclusions: Use of primo canes

- ✦ Offer cultivation possibilities
- ✦ Profitability: total sum of cultivation -> autumn + spring
- ✦ Production of season 2024 is influencing the total result of the double cropping cultivation method.
- ✦ More growing experience is needed:
 - Other primocane varieties
 - Mow down: right moment
 - Required labour
 - Fresh plants: right moment for replant to outside

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Perspective of primocanes

- ✦ With a combination of plant types and different varieties a total production period of about 12 weeks seems possible with an outside cultivation
 - Start harvest at the earliest at week 27 with fresh plug plants from greenhouse
 - End of harvest at the latest about week 40 with plug plants
- ✦ Early propagation of plug plants is only possible in greenhouse or frost-free tunnel.
- ✦ Production cultivation with fresh plants is only possible under rain shelters or in tunnels/greenhouses

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Thank you for your attention!



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Feel free to contact me for questions
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