

Italian eggplant variety trial

IN A NUTSHELL

David and Della at Everdale Farm trialed 6 varieties of eggplant to see what varieties performed well with their production methods. Their work confirmed that Annina and Nigral were the standouts at Everdale.

- Annina's abundant, striped fruits offered resilience in storage, firmness when cooked and visual appeal that masked imperfection
- Nigral met the demand for a reliable, dark purple eggplant that satisfied customer

MOTIVATION

David and Della at Everdale Farm wanted to compare how different Italian style varieties of eggplant perform in a caterpillar tunnel with landscape fabric using organic methods in southern Ontario.

In 2023 they noted disease and pest pressure in their eggplant crops and in 2024 they wanted to more formally identify varieties that performed well on their farm with their production methods.

METHODS

VARIETIES

The 2024 eggplant variety trial included six varieties transplanted into the field with four replicates in two rows. In addition to standard and market-tested Italian types such as Annina, Dancer and Nigral, the trial incorporated two experimental varieties (JSS-24-EP1 and JSS-24-EP2) supplied by Johnny's Selected Seeds. These varieties are part of Johnny's off-site trial program coordinated by Em Hofgren and Nate Gorlin-Crenshaw, which seeks grower feedback on Verticillium and Fusarium wilt resistance, yield and fruit quality. Johnny's provided approximately 45–50 seeds per variety, requesting qualitative feedback and observations of disease resistance and general performance.

FIELD LAYOUT

David and Della planted four replicate blocks of six varieties (minimum ten plants per variety) planted across two rows. They randomly assigned each variety to a plot in each replicate block.

Table 1. Eggplant varieties tested in this trial

| VARIETY | DTM | OP/F1 | SOURCE | FRUIT DESCRIPTIONS |
|----------|-----|--------------------------|----------|--|
| Dancer | 65 | F1 | Johnny's | Deep-pink Italian type. Green calyx. |
| Annina | 65 | F1 | Johnny's | Purple-striped Italian type. Bright green calyx. |
| Nigral | 65 | F1 | Johnny's | Improved Black Italian type. Green calyx. |
| Traviata | 70 | F1 | Johnny's | Glossy black fruits in the classicbell shape. Green calyx. |
| EP1 | n/a | new experimental variety | Johnny's | Firm black fruit. |
| EP2 | n/a | new experimental variety | Johnny's | Half-long eggplant with firmblack fruits. |

2024



FARMER-RESEARCHERS

David Alexander and Della Campbell, Everdale

FUNDING

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SeedChange



Eggplant trial varieties harvested at Everdale.

Figure 1. Field map of eggplant varieties

| | | | | | | | |
|---|-----------|----------|----------|--------|--------|----------|----------|
| N | NORTH BED | Annina | EP2 | Nigral | EP1 | Traviata | EP2 |
| | | Traviata | EP1 | Dancer | Dancer | Annina | Nigral |
| | SOUTH BED | Annina | Traviata | Nigral | Annina | Dancer | Nigral |
| | | EP2 | Dancer | EP1 | EP1 | EP2 | Traviata |

David and Della measured germination, early season vigour, yield, marketability, taste and texture, and overall performance (in particular how well each variety did in cold storage) for each variety in addition to information about crop management.

DATA ANALYSIS RANDOMIZED

REPLICATED TRIALS

To evaluate the eggplant varieties, we used a statistical model called analysis of variance (ANOVA) with a 95% confidence level to calculate the least significant difference (LSD). When the difference between two treatment means is greater than the LSD, we can conclude that there's a consistent difference between two treatments 95% of the time. We could make these statistical calculations because the experimental design at Everdale involved replication of the varieties being trialed.

FINDINGS

GERMINATION

Germination rates were very similar for each variety tested, however there were no replicates for germination so no confidence can be assigned to the differences.

David also noted for some varieties, they started with a limited amount of seed. He would have opted for an overseeding rate of 35% (instead of 30%) to ensure there were enough vigorous seedlings per variety to choose from for transplanting.

MARKETABILITY

Dancer and Annina showed significantly higher cumulative marketable yield. There wasn't as clear a difference among the varieties when assessed by cumulative marketable weight but Dancer produced more than EP1 with more variability among the others. These results were not due to differences in non-marketable fruit, which were negligible for all varieties and did not affect cumulative totals.

On average, the more traditional, dark purple fruits were larger than Dancer and Annina, which were more plentiful but smaller.

Another potential variable affecting fruit size, yield, and plant vigour was an unknown effect in the northern side of the north bed where all of the plants became more stunted than the other rows. This could have affected the data in relation to the more traditional, dark purple varieties which were overrepresented in this row, by chance.

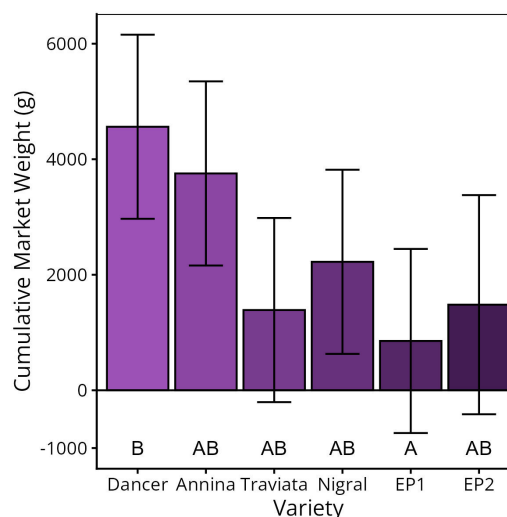


Figure 2. Eggplant cumulative weight by variety Upper case letters denote significant differences between varieties, based on the LSD. Varieties that do not share a letter are statistically different.

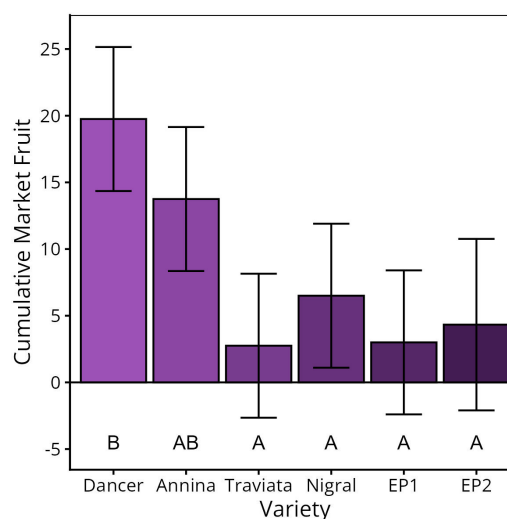


Figure 3. Eggplant cumulative yield by variety Upper case letters denote significant differences between varieties, based on the LSD. Varieties that do not share a letter are statistically different.

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Eggplant plots with stunted rows in the northern beds (right)

Table 2. Grower ratings of the eggplant varieties

| VARIETY | OVERALL RATING | FLAVOUR RATING | FLAVOUR NOTES |
|----------|----------------|----------------|--|
| Dancer | 4.5 | 4 | Bruising went deeper into flesh, fruit weeped quite a bit when salted, not bitter, delicious flavor, one staff noted that it tasted slightly smoky when cooked. |
| Annina | 5 | 5 | Firm fruit, if fruit was bruised it did not go deep into the flesh, no bitterness, tiny seeds, firm once cooked, held up the best in a staff member's eggplant parmesan. |
| Nigral | 4.5 | 5 | Nigral eggplant has a slightly sweet, but staff consistently said that it had a mild taste when cooked. I thought that it absorbed surrounding flavors quite well, while maintaining its own essence. Was sturdy when cubed. |
| Traviata | 4 | 4 | This was gorgeous. Skin or fruit not bitter, members loved the classic bell shape, which lent itself better to traditional Italian dishes like eggplant parmesan, etc.. |
| EP1* | 2 | 3.7 | Very smooth flesh with pleasant taste. Grade B was sampled, yet it was noticeable that the bruising did not penetrate the flesh deeply, and pock marks seemed to repair/isolate themselves |
| EP2* | 2 | 4 | Some people described the flavor as earthy, but when cooked, it had a nice buttery texture. Because of this, we made a giant batch of baba ghanoush for the freezer from Grade B's. |

*Though no confirmed *Verticillium* or *Fusarium* symptoms were observed during this trial year, both experimental varieties deserve further trialing because of the potential impact on growth and production due to their location within the tunnel. Both varieties received good flavour ratings overall and customer interest.

NEXT STEPS

Della shared the following about their eggplant trial:

We learned that while our traditional customers enjoy seeing different varieties and may experiment from time to time, they ultimately rely on us for staples that work in their weekly cooking. Over the years, we've tried to find the right balance, and it's clear that expecting long-time Harvest Share members to readily adopt unfamiliar crops is not realistic. Instead, we see potential in creating a dedicated section in our store featuring crops like fava beans, long squash, and specialty eggplants, tomatoes etc. This approach would give newcomers a sense of being welcomed and represented, while also inviting other customers to explore at their own pace—with the long-term goal of integration once these crops become more familiar.

WHAT WE LEARNED ABOUT EGGPLANT

From conducting this trial, David and Della dived deep into eggplant production. Here are some production notes they shared:

- Eggplant pests, such as aphids, spider mites, and whiteflies, which have caused significant damage in the past were not a significant problem for this trial. The preventative measures (crop rotation, plant selection, healthy soil, cat tunnel, drip irrigation, spacing, etc.) seemed effective. They recommend protecting young plants from flea beetles with row cover and raised tables.
- Drip irrigation and scheduling were consistent and effective. When leaves yellowed, they could rule out overwatering and address plant issues more accurately.
- They observed big differences across rows (in particular in the north bed), likely due to insufficient airflow and ventilation.
- Both rows should have been pruned sooner.

TAKE HOME MESSAGE

David and Della were excited by the results of their trial. They shared the following additional observations on the trial and thoughts on the results:

- David and Della split the management of the eggplant in the same way they manage other tasks on the farm where David manages seeding, planting, and early stages of the crop and Della manages later stages and harvest. They believe they could have improved their trial if only one person was in charge of the crop and the trial throughout the whole process for consistency.
- Including the Johnny's experimental varieties provided an opportunity to participate in early-stage breeding evaluation, strengthening the connection between on-farm research and seed innovation.
- The team noted that the trial deepened their appreciation for and observations of eggplant in the field and in the kitchen.

ACKNOWLEDGEMENTS

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