

Do strawberry varieties vary in their resistance to nematodes?

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Sting (*Belonolaimus longicaudatus*) and northern root-knot (*Meloidogyne hapla*) are the two main nematodes causing damage to strawberries in Florida. It is generally assumed that in Florida all varieties are good hosts to these nematodes, but there is no data on this. The purpose of this research is to look for differences in host status of strawberry varieties to **sting and northern root-knot nematodes**; this information will hopefully give strawberry breeders new starting points for nematode resistant varieties.



Above and below-ground symptoms

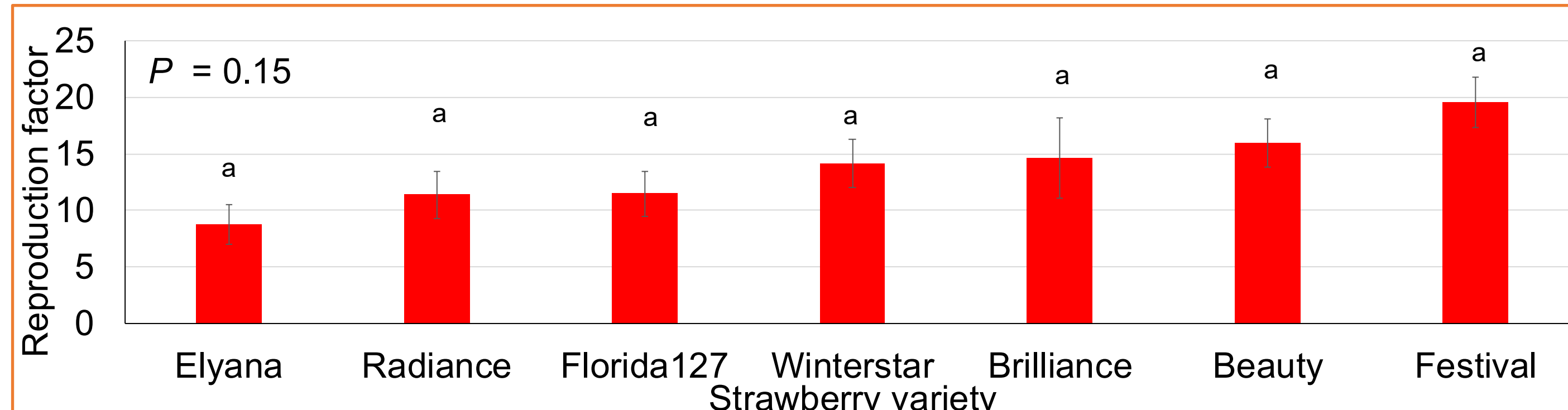


Below-ground symptoms

All strawberry varieties are good hosts to sting nematodes (greenhouse and field)

GREENHOUSE TRIAL (2019-2020)

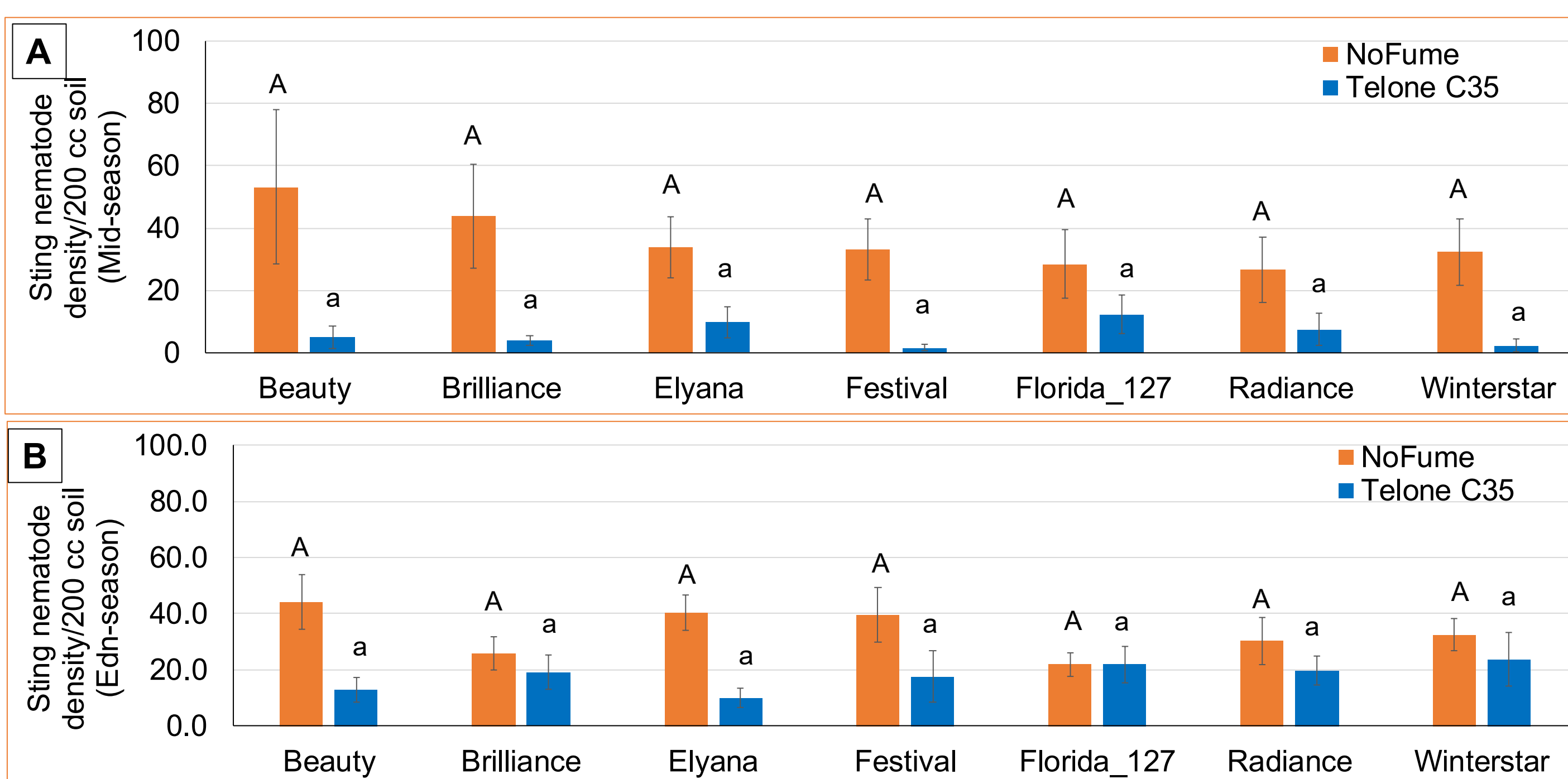
- Sting nematode was collected from an infested strawberry field in Plant City, FL and grown on sorghum sudangrass for inoculum preparation.
- Sting nematodes were extracted and inoculated to strawberry transplants (80 nematodes per pot).
- Sting nematode soil density per pot was evaluated 60 days after inoculation.



❖ **Figure 1** All tested strawberry varieties are excellent hosts to sting nematode with populations increasing by 9 to 20 times after 2 months, indicating limited potential for resistance breeding.

FIELD TRIALS (2020 - 2021 & 2021 - 2022)

- Experiments were done at the UF/GCREC in a sting nematode-infested strawberry field.
- 7 strawberry varieties were grown in fumigated (Telone C-35) and non-fumigated beds.



❖ **Figure 2.** High populations of sting nematodes found on all 7 strawberry varieties (A): Mid-season. (B): End-season (same letters indicate no significance, $P > 0.10$); fumigation reduced nematode populations early in the season; (C) picture showing non fumigated beds (N2, N3) vs fumigated beds (N4, N5)

KEY TAKEAWAY FOR GROWERS

- All tested strawberry varieties are susceptible to sting nematodes; additional screening of diverse varieties is needed to identify tolerance or resistance
- Telone C35 effectively reduced nematode pressure and improved yield, highlighting the importance of both fumigation and variety selection.

Several strawberry varieties / lines were poor hosts to root-knot (greenhouse) promise for future nematode-resistance breeding.

GREENHOUSE TRIAL (February – April 2026)

- Northern root-knot nematode (NRKN) was collected from an infested strawberry field in Plant City, FL.
- RKN eggs were extracted and inoculated onto strawberry (25 varieties); tomato 'HM1823' served as a susceptible check; each 2-L pot was inoculated with 3,000 NRKN eggs.
- Gall index, eggs per root system, and reproduction factor were assessed 60 days after inoculation

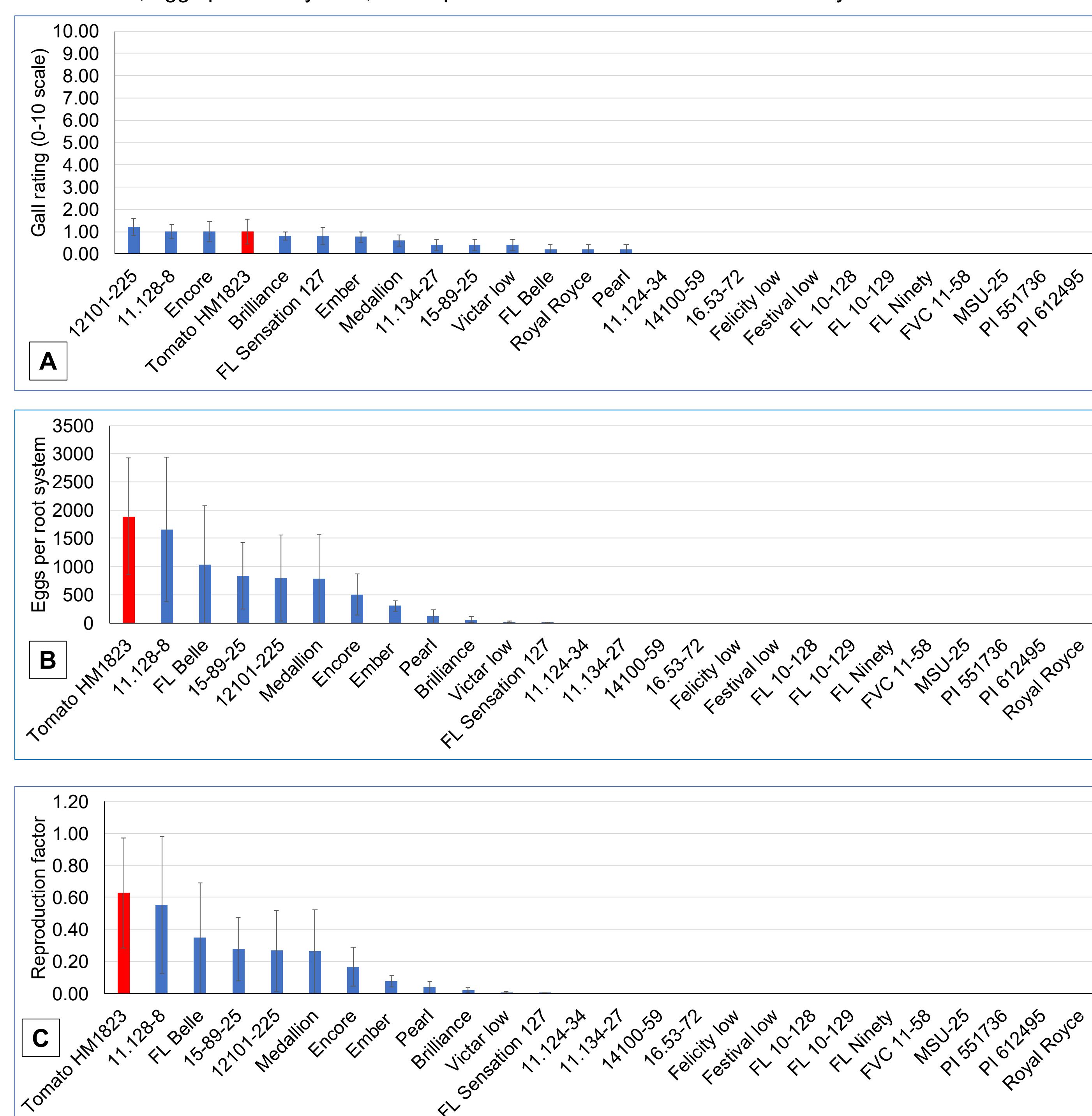


Figure 3: Damage and reproduction of northern root-knot nematode on 25 strawberry varieties / lines. (A): Root-knot damage symptoms (0-10 scale). (B): Number of eggs per strawberry root system. (C): Root-knot reproduction factor on strawberry varieties.

- Root damage (root galls) was minimal with low gall ratings (0 or 1) for all several strawberry varieties (root galls caused by NRKN are usually small)
- Tomato had the highest number of eggs per root system and reproduction rate.
- Several strawberry varieties and lines showed poor or no reproduction of NRKN and may offer good potential for future breeding efforts for nematode resistance
- Overall, nematode infection and reproduction was low, and results need to be confirmed (a second greenhouse trial is ongoing).

KEY TAKEAWAY FOR GROWERS

- Preliminary results suggest that several strawberry varieties may have resistance to northern root-knot nematode.
- Additional experiments under optimized greenhouse and field conditions are needed to confirm susceptibility and yield responses.



Florida Strawberry
Growers AssociationSM