Model Apple Plot Presentation for Soil Health Panel
Mid-Atlantic Fruit & Vegetable Convention, 2019
Twin Springs Fruit Farm
Michael and Jesse King

- Diversified growers serving 19 Farmers Markets
- Came back fulltime to the farm in late 90s/early 2000s
- Roles: Michael – Market Prep; Jesse – Production
- “Models for the Future” cooperators in Penn State Extension Beginning Farmer Grant
Barriers to establishing a new orchard

- Limited agricultural land/replant issues
- Nematodes and soil-borne diseases
- Soil health, erosion, terrain
- Problem weeds, broadleaf weeds that serve as reservoirs for viruses
Bio-Fumigation to Overcome Barriers

Model plots: 2-year rotation, sorghum sudangrass and rapeseed
Current trials: 1-year, 2 plantings of caliente
“Model for the Future”
Apple Plot
Bio-Remediation vs No Rotation

The top trellis wire is at the same height in both blocks. Measuring stick is 6 ft.

Started with 12 dagger nematodes/100 cc
Decreased to 0 tolerance level

Left: Goldrush in Model Plot
Bio-remediation for two years with sorghum sudangrass and rapeseed.
Average of 23 apples/tree in 2nd leaf

Right: No Rotation
Goldrush in adjacent block where trees were planted the spring following the removal of the prior orchard
Average of 7 apples/tree in 2nd leaf
Soil Health Considerations when Preparing Land for Planting

- Soil testing, incorporation of lime and fertilizer
- Rotation crops and cover crops
- Avoiding use of heavy equipment on wet soil; using a chisel vs moldboard plow
- Establishing a healthy stand of grass sod prior to planting trees
Climate Change Considerations/Practices

- Water conservation
- Water monitoring and management
Is Environmental Sustainability Worth the Investment?

• Yes – would choose biofumigation over chemical even if yield slightly lower
• Yes – cover and rotation crops to prevent erosion and maintain soil health