

Grower Experiences and Orchard Establishment

With Ben Wenk, Michael King, Jesse King, and Marshall Saunders



PennState Extension

Moderator: Don Seifrit, PSU Extension – Berks County

Master Gardeners

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About Our Growers



Ben Wenk



Ben Wenk is a seventh generation fruit grower in Adams County, Pennsylvania where his family owns Three Springs Fruit Farm, makers of Ploughman Cider. Ben earned an Agroecology degree from Penn State College of Ag Sciences in 2006. Shortly after, he expanded the diversity of crops grown at Three Springs to support trips to regional farmers markets and local stores and restaurants. Late 2016 saw the debut of Ploughman Cider, a new venture to express the best of our farm through fermentation.



Michael and Jesse King **Twin Springs Fruit Farm**

- 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

Marshall Saunders

- 4th Generation
- Title: Fruit Tree Sales & Field Inventory Manager
- Piney River, VA
- 180 total acres of orchard, including apples, peaches, Asian pears, and sweet cherries
- We are celebrating our 104th year in business!



In terms of the soils that you are farming, what do you think are the biggest barriers to establishing a new orchard?

Barriers to Establishing a New Orchard Answers

Marshall

- Site Selection, especially on ground that has been in orchard for 20+ years
- Soil drainage





Michael and Jesse

- **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



**What practices are you
currently using to overcome
those barriers?**

What practices are you currently using to overcome those barriers?

Marshall

- Virgin ground makes any orchard look amazing. However, like most operations we are forced to turnover preexisting orchard sites. When planting on preexisting orchard ground we must have at least a full year of a green manure crop in the ground to let the land rest and keep organic matter and topsoil around. Often times we plant a second year's worth of green manure crops. We have been experimenting more with biofumigants that seem to be effective for the dagger, root knot, and root lesion nematodes.



Mustard as Biofumigant

Marshall

- We continue to work with biofumigants as the last crop before planting due to their effectiveness of reducing nematode populations, lowering fumigation costs, and the nature of being more environmentally friendly when compared to traditional fumigation chemicals.



Weed Control

Marshall

- Additionally, we strive to keep our orchards clean of broadleaf weeds as they can host nematodes. We account for this especially right before and after planting since the broadleaf weed seeds germinate heavily after ground has been turned over. While I mention accounting for broadleaf weeds with herbicides that also brings up the topic of watching the green manure or biofumigant crop's canopy height in the previous orchard's herbicide strip versus the row middles.

Green Manure Crops

Marshall

- We always plant as many green manure crops as necessary until the herbicide strip from the preexisting orchard has minimal to no effect on the green manure crop. This lets us know the herbicide applied in the preexisting orchard should have little to no effect on the new planting.

Soil Drainage Monitoring

Marshall

- For soil drainage we document where the low lying areas exist that have standing water in normal to moderately heavy rainfall seasons before pushing the block. Once the block is pushed up we work out the low lying areas the best we can.
 - Once soil drainage is accounted for, we prefer planting on a raised bed. On raised beds we have noticed a significant reduction in tree loss due to phytophthora or wet feet.

Bio-fumigation to Overcome Obstacles



Michael and Jesse
- 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



Michael and Jesse

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

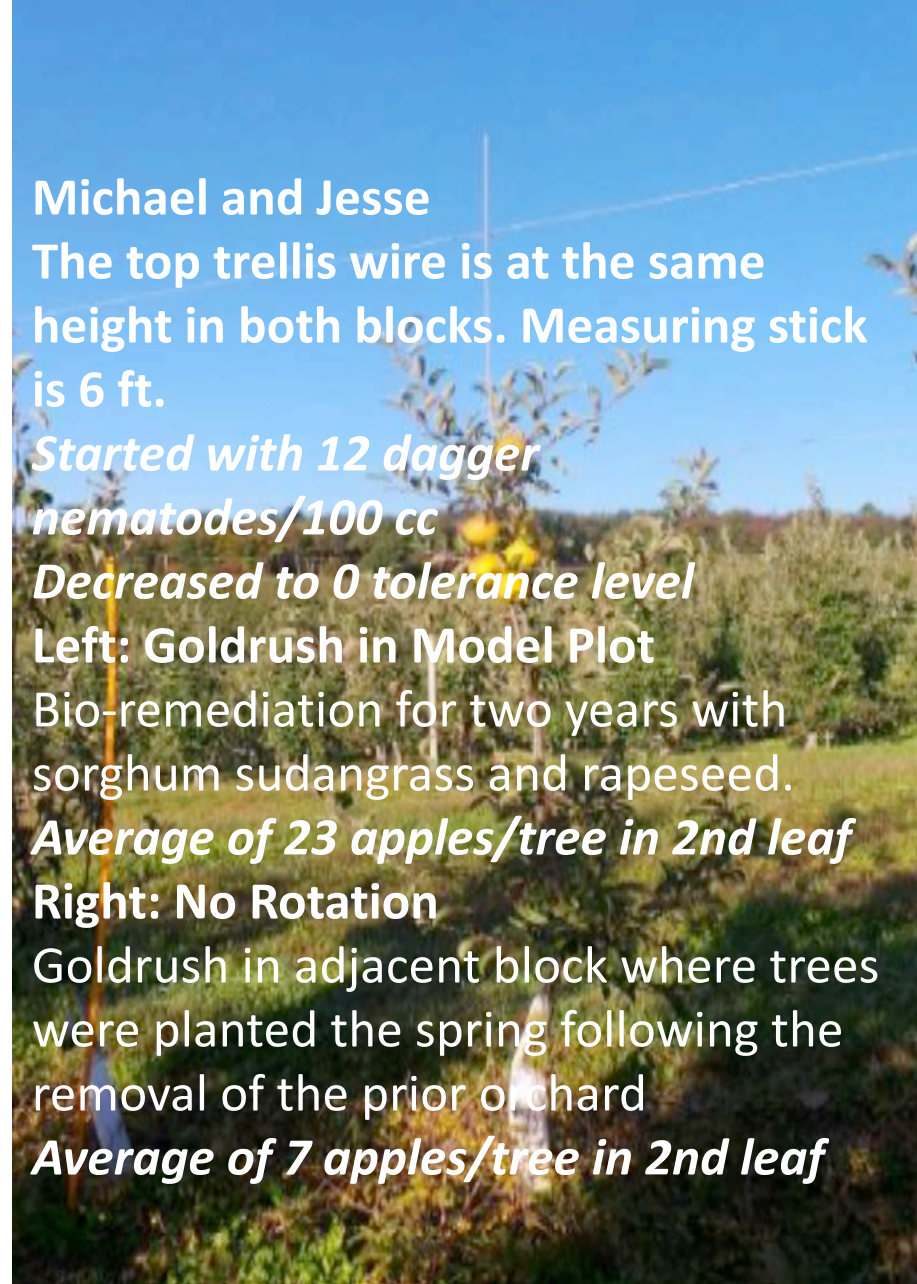
Bio-remediation for two years with sorghum sudangrass and rapeseed.

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



**Do you consider soil health
when preparing new land for
planting? If so, what practices
do you use to improve soil
health?**

Soil Health Considerations when Preparing Land for Planting

Marshall

- Absolutely! Immediately after pushing up the block we run a soil sample. Afterwards we will lime and fertilize with a custom blend that accounts for nutrient deficits, including micronutrients.



Soil Health Considerations when Preparing Land for Planting

Michael and Jesse

- 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



Do you consider climate change when preparing new land for planting? If so, what practices are you implementing?

Climate Change Considerations/Practices



Michael and Jesse

- Water conservation

- Water monitoring and
management



Climate Change Considerations/Practices

Marshall

- We are always aware of our surroundings and changes in weather patterns. The biggest ways that we account for this is strong support systems on trees, adequate soil drainage, and reducing irrigation outputs by getting adequate amounts of water to root zones.

**Would you invest in practices
that improve environmental
sustainability, even if there is
little or no increase in
productivity?**



Is Environmental Sustainability Worth the Investment?

Marshall

- Yes. This is a very important topic to Saunders Brothers and we are committed to environmental sustainability and quality. We account for soil erosion, use IPM practices for insect and disease management, and only apply what fertilizer and water that is needed for the success of a new planting. All of us thoroughly the outdoors and if we do not account for the livelihood of our environment, we and future generations will be robbed of everything mother nature has to offer.



Is Environmental Sustainability Worth the Investment?

Michael and Jesse

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



Thank you for coming!
Any further questions?





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