



Effective comparison trials in a tiny orchard

Posted by [Prairie Sundance](#)

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[Prairie Sundance](#)

[Effective comparison trials in a tiny orchard](#)

June 29, 2021 08:12PM

Registered: 2 years ago

Posts: 47

My haralson is almost scab free this year, must be because of the whey we've been spraying, or maybe it was the fermented plant gunk, or maybe it was just the drought this spring.

I'd love to do some real science in our orchard to figure out what we need to do to keep things healthy, and to share with others, but I'm having a hard time wrapping my head around designing any real study because of our orchard size. We've got 50 some odd apples, 30 or so varieties. I tried to pick mostly heritage apples with some claim to disease resistance and flavor. I could split our apple block in half, but many varieties wouldn't be represented in both sides of the study. I could not spray one of each of the apples that we have duplicates of, but that would mean breaking up any possibility of keeping the control in a "block," the rootstocks would be different, and a number of them don't have twins. Our stone fruits are even more limited, with around a dozen each of most types of fruit.

Any opinions on the best route to go or the actual value of any data from such a limited study? I've learned quite a bit from this forum and would love to give back.

FRUIT CIRCUS

SW Wisconsin zone 5a/4b

Homestead/community orchard

2ish acres with half planted in 2018-2019 with heritage apples, alternating b118, antonovka, and seedling roots

Second half planted 2021-22 with plums, cherries, apricot, peach, pears, etc...

SE slope, trees are planted in contoured berms

Native prairie species for all ground cover

Edited 1 time(s). Last edit at 06/30/2021 08:19PM by Michael Phillips.

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[Ian Graham](#)

[Re: Effective comparison trials in a tiny orchard](#)

July 04, 2021 06:38AM

Registered: 10 years ago

Posts: 59

I have a small orchard too, about 1 acre in size but a multiplicity of tree species and varieties. No two the same among the fruit trees at least, of which there are about 50 of a total of 110.

Experimental design with multiple factors is hardly possible for us.

I have proposed over in another forum that one way forward is to host a cloud drive of our orchard logs. Once we find a couple of orchards with similar geography and climate, we can compare our results, applications of holistic sprays, degree days, pest pressures, etc.

What say you?

Old 99 Farm and permaculture site

Dundas ON 5b

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[Todd Parlo](#)

[Re: Effective comparison trials in a tiny orchard](#)

December 19, 2022 03:38PM

Registered: 10 years ago

Posts: 301

Conducting research is not the protected domain of either the bona fide researcher or a particular venue. The location and size can vary. So, Prairie, any study you conduct may be of use to the forum. What Ian is addressing (I believe) is using a particular site as a complete study entity. A single set of conditions for example would not permit "controls". Let's take your haralson phenomenon and the absence of scab.

In a perfect world you alone could conduct a project where you had several distinct and well separated locations containing haralson trees. They would be the same age, same scion source, same rootstock planted in the same soil conditions, same fertilizer, rainfall, temps, altitude, aspect, orchard size, wildlife presence and any other particular. You could then create differences within each subset and record what happens and extrapolate. Does that mean you have to have such a situation? Of course not. Take a few minutes and look through some of the peer reviewed journal projects and you will discover many are surprisingly tiny in scope. Additionally many studies rely on

former studies in their assessments. So, what I have mentioned before as extremely important to a group such as ours is raw data. Provided you display for us all aspects of the orchard and growing conditions (be thorough), and carefully record the data, a project can be of merit. For instance, if 25 growers with haralson trees record scab occurrence in a given year and state all conditions and management, someone can come along 20 years later and find the set of data useful. That can be part of good science. As always the key is using care, being honest, and following good scientific protocol.

Now for the wider readership: There is a real strength in sharing experiences with fellow growers. This can be a single careful observation or include a well constructed study. If you need help designing the latter I am happy to receive a private message to help put something together with you. There are others in the forum I am sure are both willing and qualified to help. Don't be shy. Let's keep in mind what Prairie writes above..." I've learned quite a bit from this forum and would love to give back."

Edited 1 time(s). Last edit at 12/19/2022 03:57PM by Todd Parlo.

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[David Maxwell](#)

[Re: Effective comparison trials in a tiny orchard](#)

May 30, 2023 02:58AM

Registered: 11 years ago

Posts: 197

Ha! This is exactly what I encountered 8 or 9 years ago when I was trying to stir up interest in sharing observations around attack by European Apple sawfly. (This started out as a study of the efficacy of quassia amara extract for control of EAS, but became muddied by the observation that the attack rate by EAS varied dramatically by cultivar - anywhere from 3% to over 50% in the control trees). Any interest amongst the group of small growers in pooling observations of EAS damage by cultivar?

This sort of thing is something we small growers are uniquely positioned to do. And, if we don't do it, it will not be done, because nobody else has multiple cultivars. We can't do studies alone because we don't have multiple trees permitting control comparisons. The only way we can do it is to collaborate, and collect up data from multiple growers. (My recollection from my stats course many years ago is that as little as a dozen observations can yield reasonable p-values. Obviously the more observations you have, the tighter the limits are, and the more certain the differences of the means are. But with statistical jiggery-pokery, (eg. t-tests), one can draw reasonably valid conclusions. And with something like comparison of a 3% mean attack rate in one cultivar, compared 50% in another, proving a difference, even with very small numbers, is relatively easy.

[Broomholm Orchard](#)

Zone 5b in Nova Scotia

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