Nickels Soil Lab Projects_2016.2

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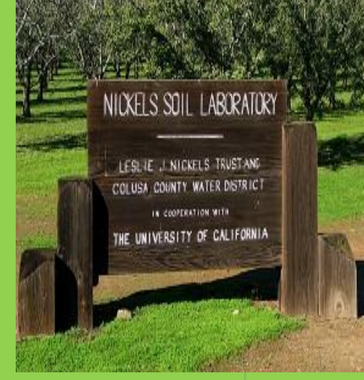


Project 4. Organic demonstration

Objective: To demonstrate certified organic almond production practices and materials in the Sacramento Valley and compare with conventionally managed trees.
Methods: Trees planted in 2006. 75% Nonpareil; 25% Fritz; every 4th tree in every row is a Fritz. 124 trees per acre. Buried drip is irrigation delivery. Eight rows conventional, 24 rows organic.

With leaf rust controlled in 7th leaf by sulfur applications ahead of rain and for mite control, yields are improved (Table 1), but now challenges include: weeds and N nutrition (see Table 2).

Table 1 Yield comparison over time.

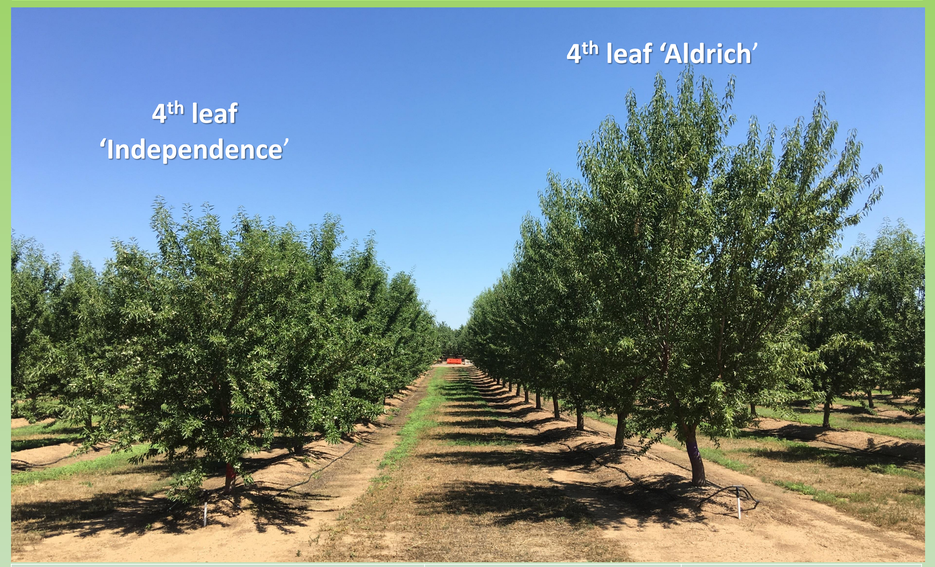
Year	Conventional (lbs./acre)	Organic (lbs./acre)
4th leaf	1076	926
5th leaf	1725	859
6th leaf	2358	894
7th leaf	2438	957
8th leaf	2971	2113
9th leaf	2450	1528
10th leaf	2630	2079
11th leaf	2198	1543

Table 2 Summer (July) leaf N, 2016.

System	2015 Nonpareil yield lbs/Ac	Kernels/oz	July leaf %N
Conventional	2198	23	2.53
Organic	1543	25	2.14

Project 5 Self-fertile vs Nonpareil + pollinizers

Objective: To compare the economic production potential of a self-fertile variety (Independence) to that of a high value Nonpareil + pollinizer combination over the life of the orchard.
Methods: Trees planted in 2013. 100% Independence compared to Nonpareil (50%) with 25% Aldrich and 25% Sonora. 145 trees per acre (20' x 15'). All trees are on Viking rootstock. All plots replicated 3x. Compost included in berms on half of the orchard, but no affect on yield in 2015 and 2016..
Results: No significant yield difference between all four varieties in 2015, but larger varieties (Nonpareil and pollinizers) showed higher yields (lba/acre) in 2016. In future, yield per % light interception will also be reported.



Variety	2015 Yield * (kernel lbs./acre)	2016 Yield * (kernel lbs./acre
Independence	534 a	745 a
Nonpareil	406 a	1076 c
Aldrich	495 a	955 bc
Sonora	378 a	896 ab

Project 6. Almond Production on Raised Beds

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Objective: Evaluate the feasibility and possible advantages of a large raised bed planting system for Nonpareil (NP) almonds
Methods: Three large bed rows were build and planted to NP in 2006 and compared to production by NP on smaller beds. In 2014, but not in 2015, NP production on the large berms was statistically more than yield from trees on smaller berms (Table 1). Questions about shading and increased tree height on large berms make this a project to repeat on a larger scale.

Standard berm vs. raised bed trees, summer, 2012. Monterey trees on smaller beds (L) compared to a Nonpareil trees on larger beds (R). All trees are on Lovell peach seedling rootstock.

	2014* Yield lbs/ac	2014* Kernels/ oz.	2015* Yield lbs/ac	2015* Kernels/ oz.
Standard Berm	2,269 a	22 a	3,059 a	25 a
Raised Bed	2,816 b	20 a	3,580 a	24 a

*Data followed by the same letter are not significantly different from other values in the same column.

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