



Citrus Sampling

March – April 2017

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Introduction

- Objectives of March – April sampling
- Sample plan & timeline
 - Analytes
- Next steps



Objectives

- Collect citrus samples from current season
 - Required immediate action
- Analyze samples for known chemicals of concern
- Archive samples for later study or repeat analysis
- Start process for independent monitoring & longer-term studies

Timeline

- Meet with Cawelo WD & others
 - Select sampling locations
 - Gain permission to enter orchards from landowners
- Develop sampling plan
 - Collection protocols
 - Determine what to measure
- Deploy to field & collect samples
 - 3/29, 3/30, 4/4

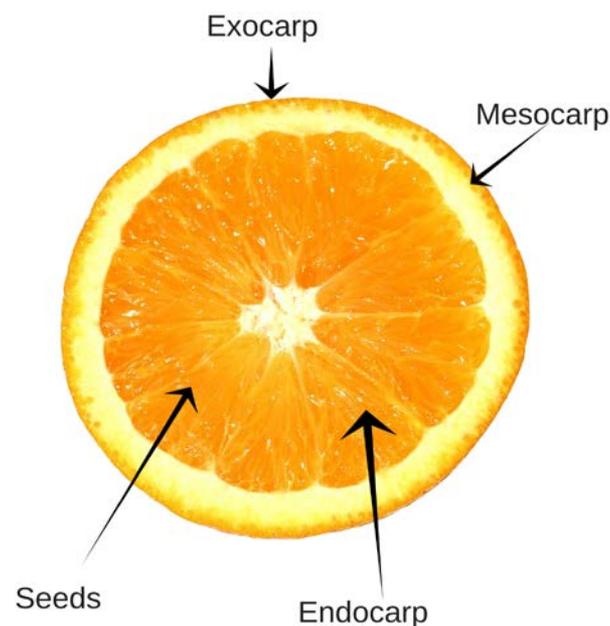
Sample Plan



- Based on existing Cawelo SAP
 - Enviro-Tox Services, Inc., Irvine, CA
- Sample locations selected based on irrigation source water & landowner cooperation & type of citrus
 - Mandarin, Naval, Valencia, lemons
 - Treated (produced water irrigated) vs. controls
- Samples collected by certified contract sampler or Regional Board staff
 - Regional Board oversight of sampling & shipping
- LBNL collected samples for archive

Sample Plan (continued)

- Fruit samples shipped to certified contract laboratory
- Analysis on edible portion of fruit
 - Peeled in laboratory
- Contract analysis for known contaminants of concern in petroleum industry
 - PAHs, BTEX, heavy metals
- Compounds found in PW
 - Methanol, acetone, chloroform





List of Organic Analytes

- 1,2,4-Trimethylbenzene
- Acetone
- Benzene
- Chloroform
- Ethylbenzene
- Methanol
- Toluene
- o-, m-, and p-Xylene
- 2-Methylnaphthalene
- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzo (a) anthracene
- Benzo (a) pyrene
- Benzo (b) fluoranthene
- Benzo (g,h,i) perylene
- Benzo (k) fluoranthene
- Bis(2-ethylhexyl) phthalate
- Chrysene
- Dibenzo (a,h) anthracene
- Fluoranthene
- Fluorene
- Indeno (1,2,3-cd) pyrene
- Naphthalene
- Phenanthrene
- Pyrene



List of Inorganic Analytes

- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium (total)
- Cobalt
- Copper
- Lead
- Lithium
- Molybdenum
- Nickel
- Selenium
- Silver
- Strontium
- Thallium
- Vanadium
- Zinc

Sampling events

- March 29 & 30, April 4
- Took samples approximate middle of grove
 - Away from roadways & equipment
- Sample composite from at least 3 trees
- Samples collected at 11 treated, 11 control locations
 - Mandarin, Naval, Valencia, lemons





Next Steps

- Receive analytical results
- Write sample & analysis report
 - Interpret results in context of irrigation practices
- Plan for future studies & monitoring activities



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