El Dorado County
West Slope Agricultural Development Feasibility Assessment

WRDMP Agricultural Advisory Group Data Review and Grower Interview Preparation Meeting

1:30 p.m. to 3:30 p.m.
February 20, 2019
Placerville, CA

Meeting Topics & Desired Outcomes

- Historical Cropping
  - Review available data
  - Reach consensus on “major crops” and historical crop acreages
- Crop “Factors”
  - Review analysis to date
  - Receive AAG input on tentative thresholds for new ag lands
- Crop Review
  - Provide an update on crop trends and factors affecting market conditions
  - Discuss crop budgets
- Grower Interviews
  - Review draft interview plan/questionnaire

Historical Cropping: Major Crop Selection Considerations

- Irrigated acreage and water use
- Farm-gate economic value
- Additional value-added activities including agritourism and direct-to-retail sales
- Recent trends in irrigated acreage, value, and markets
- Opportunity for market expansion driven by local and export market demands

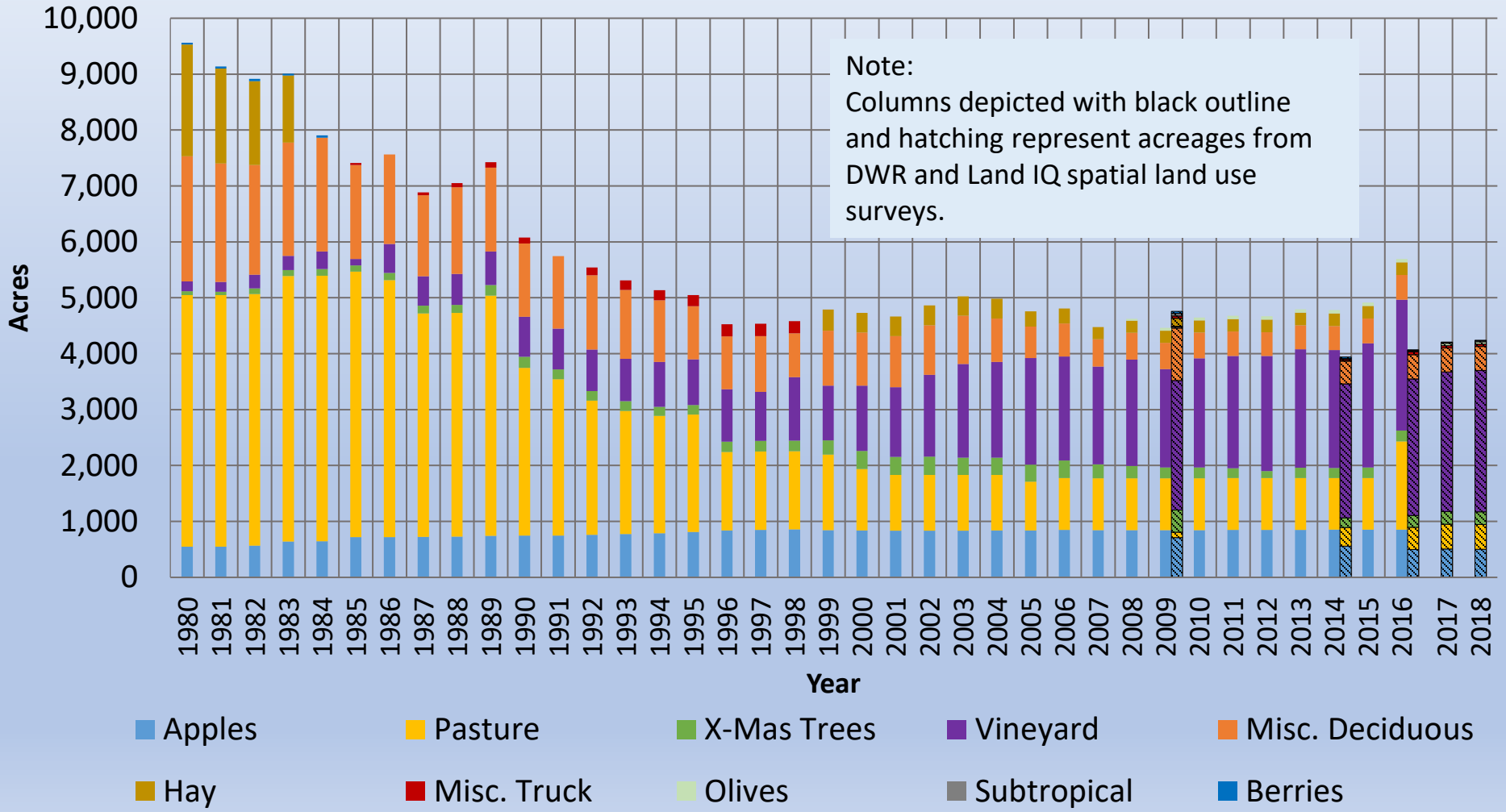
Historical Cropping: Selected Major Crops

- Five selected major crops are:
  1) Vineyards
  2) Apples
  3) Miscellaneous Deciduous (walnuts as proxy)
  4) Pasture
  5) Christmas Trees
- These crops account for 93% of the total existing West Slope cropped area (2016)
- Comments/Discussion

Historical Cropping: Data Sources & Years Available

- Annual Ag Commissioner Reports and National Agricultural Statistics Service (NASS) – 1980-2016
- DWR Land Use Survey - 2009
- Land IQ Crop Surveys – 2014, 2016-2018
- Pesticide Use Reports (PUR) – 2014-2016
- NASS Cropland Data Layer

Historical Cropping: NASS, DWR, and Land IQ Summary



Historical Cropping:
Key Crop Comparisons in Data Overlap Years

2009

Crop	Acreages		Difference	
	NASS	DWR	Acres (DWR - NASS)	%
Apples	845	604	-241	-40%
Pasture	927	93	-834	-892%
X-Mas Trees	193	399	205	52%
Vineyard	1,760	2,328	568	24%
Misc. Deciduous	468	936	468	50%

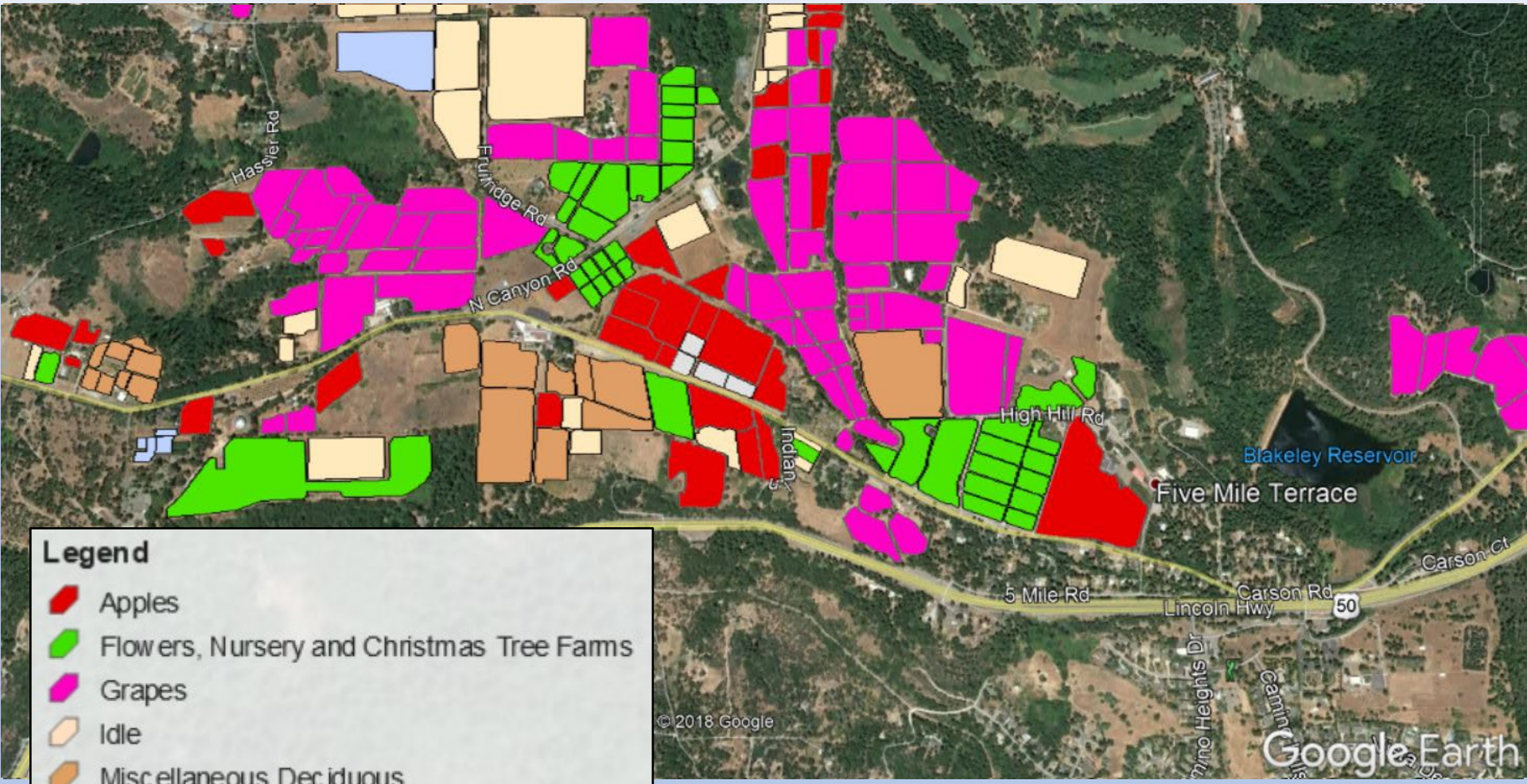
2014

Crop	Acreages		Difference	
	NASS	Land IQ	Acres (Land IQ - NASS)	%
Apples	852	511	-341	-67%
Pasture	925	329	-596	-181%
X-Mas Trees	180	186	6	3%
Vineyard	2,110	2,426	316	13%
Misc. Deciduous	426	408	-18	-4%

2016

Crop	Acreages		Difference	
	2016 NASS	2016 Land IQ	Acres (Land IQ - NASS)	%
Apples	852	398	-454	-114%
Pasture	1,580	398	-1,182	-297%
X-Mas Trees	193	210	18	8%
Vineyard	2,340	2,467	127	5%
Misc. Deciduous	443	513	70	14%

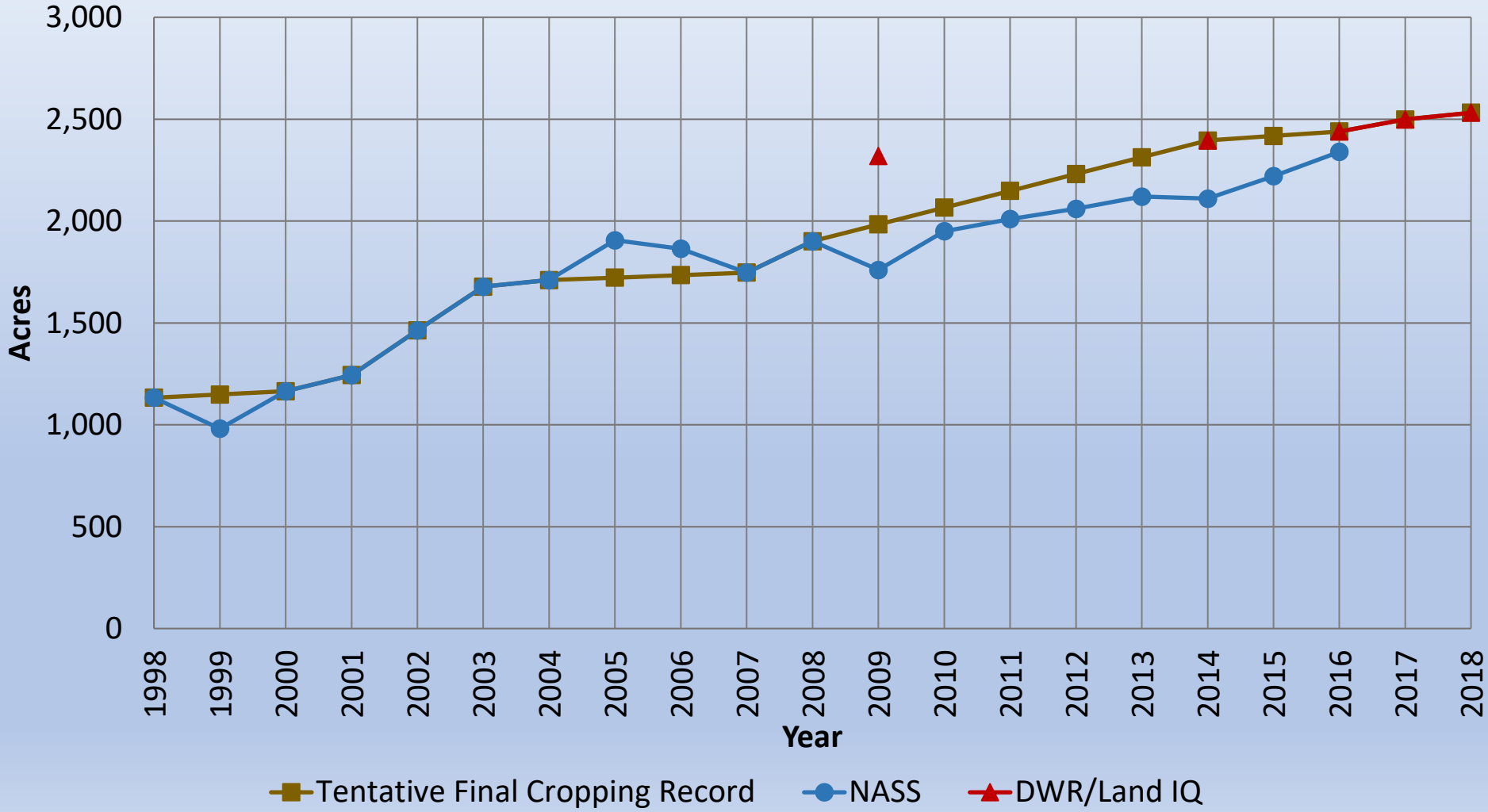
Google Earth Land IQ Review (Apple Hill Area)



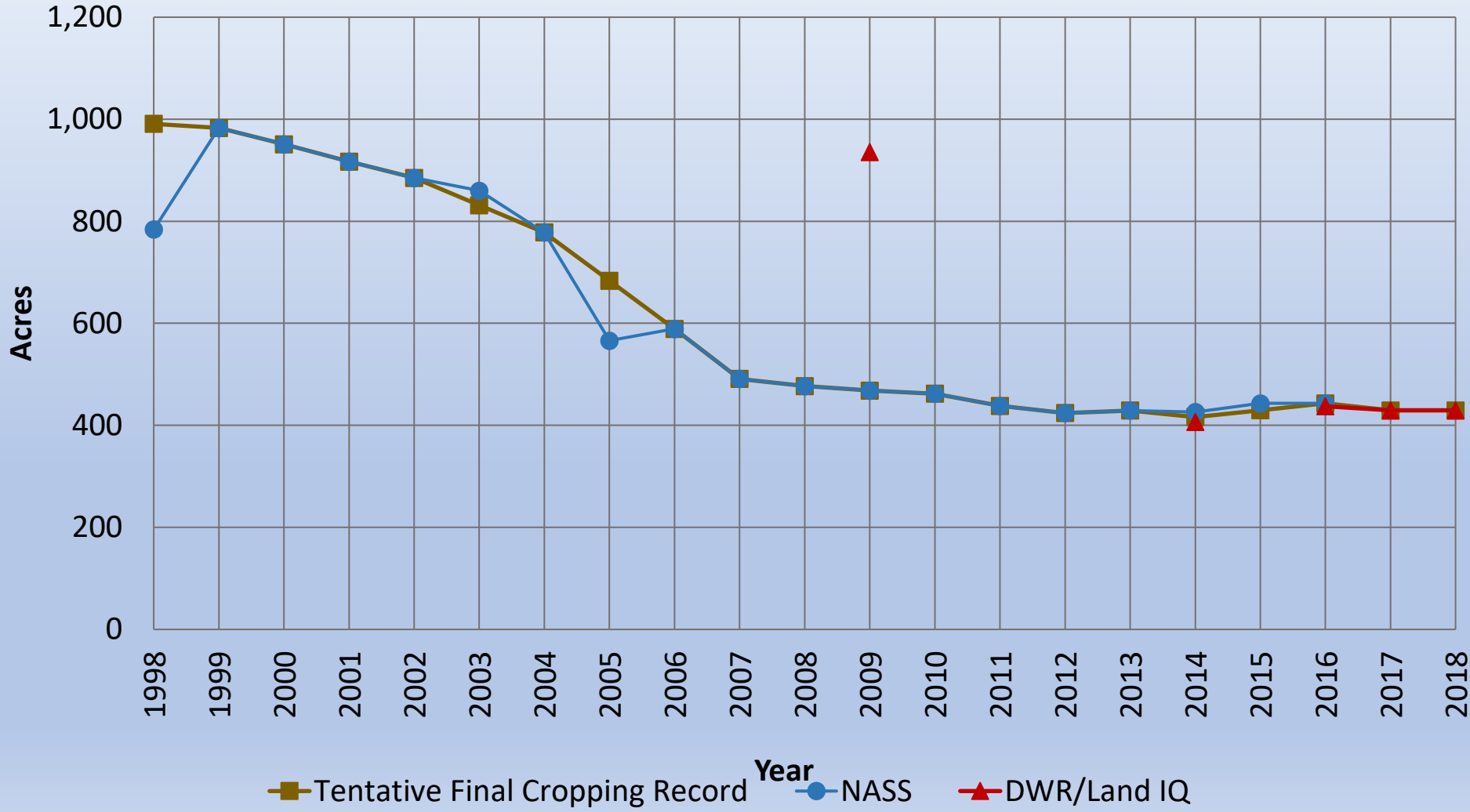
Land Use Data Quality Control and Adjustments

- Quality control measures
  - Aerial imagery inspections
  - Validation using Pesticide Use Report data
  - Consultation with Land IQ
  - Consultation with EDC Ag Commissioner's Office
- Refinements
  - About 100 acres of 'Misc. Deciduous' reclassified as 'Apples'
  - Other minor adjustments

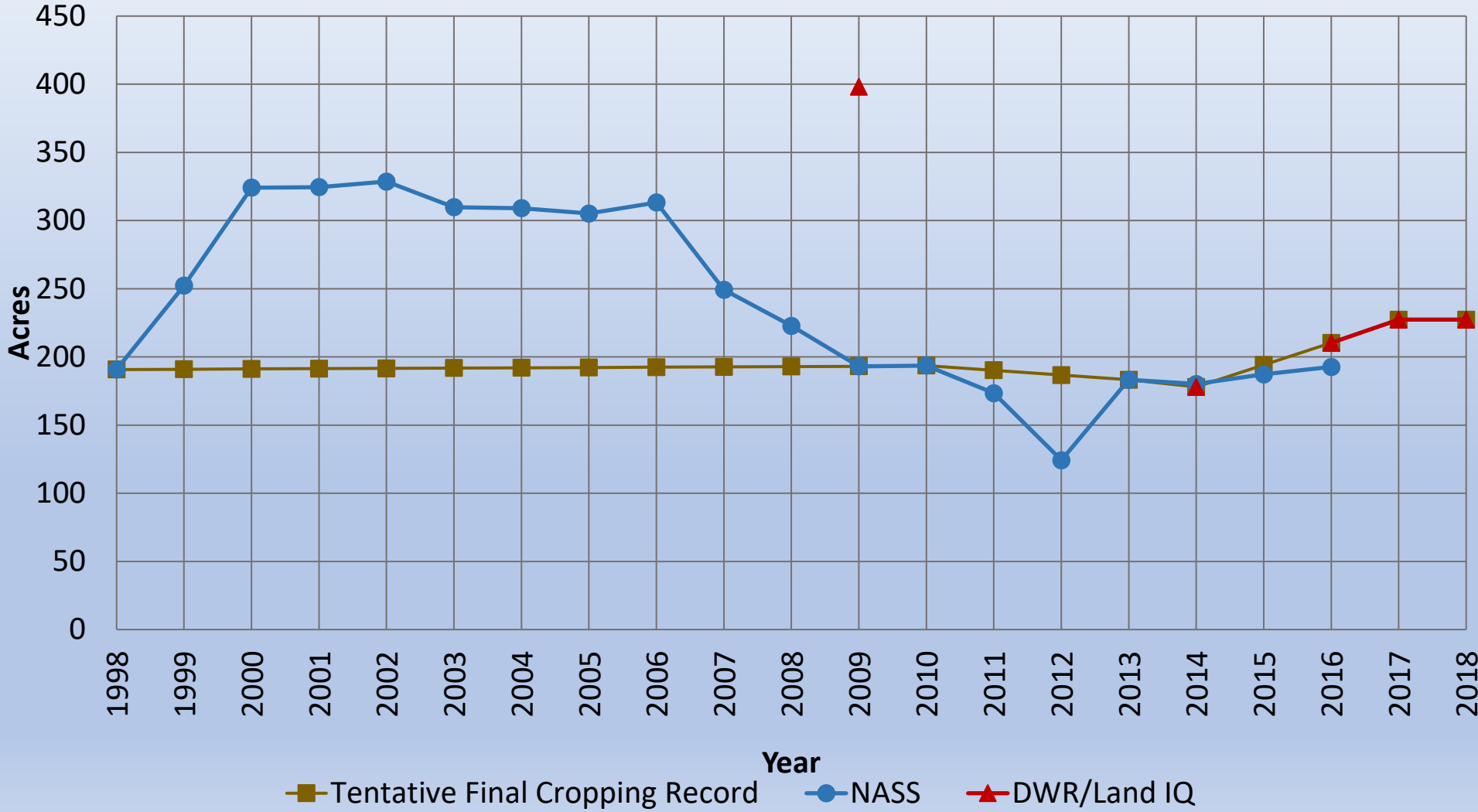
Historical Cropping: Vineyards



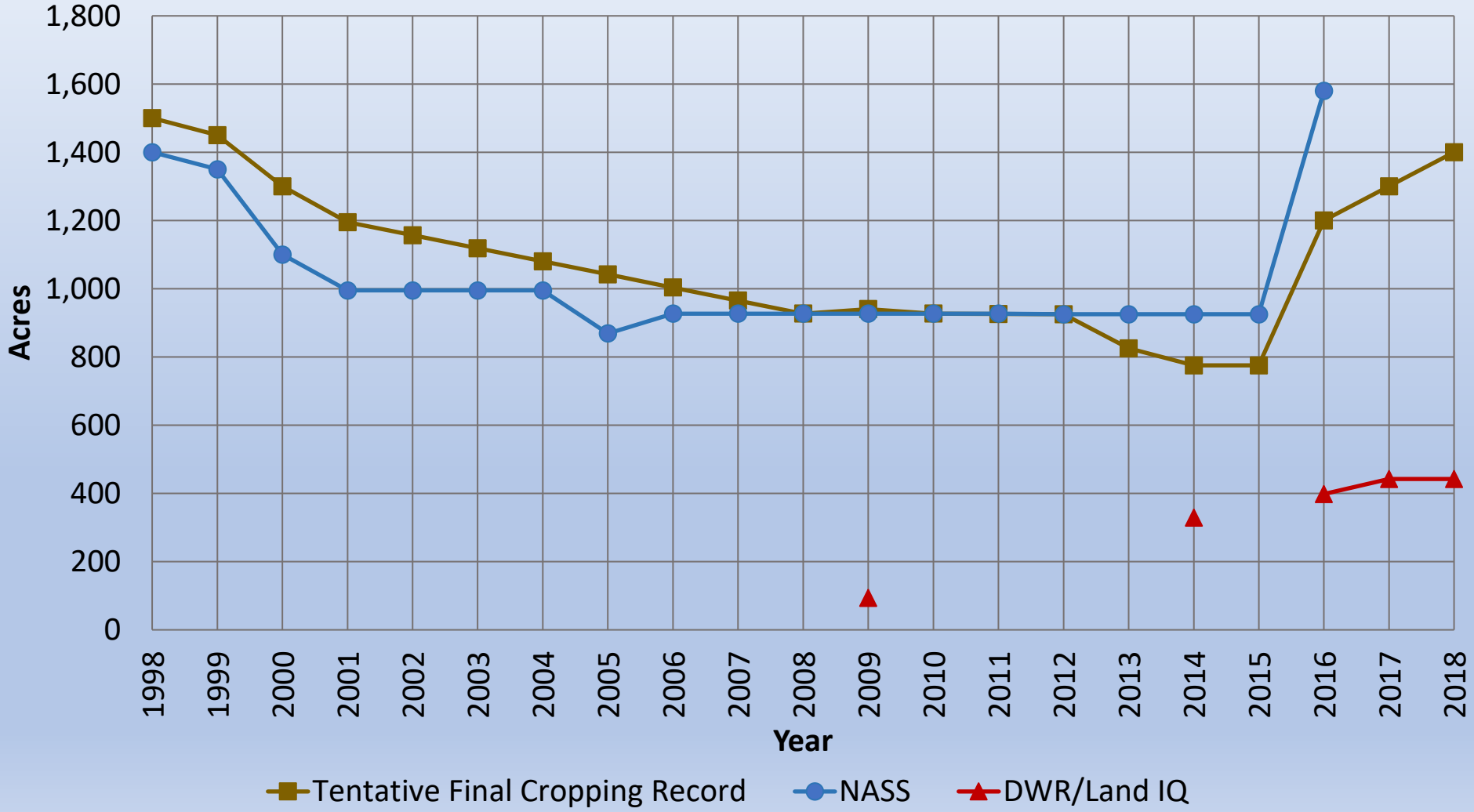
Historical Cropping: Miscellaneous Deciduous



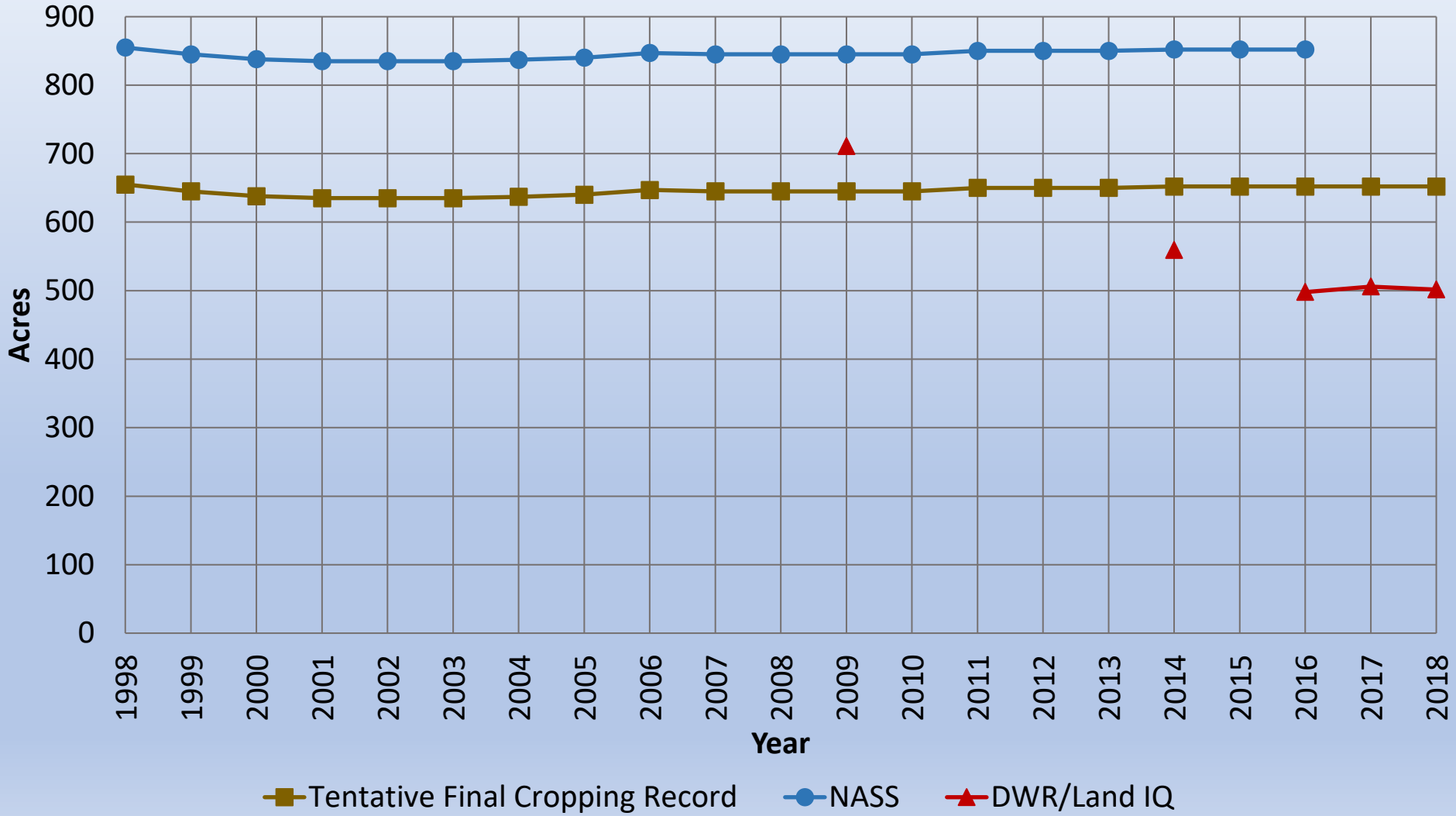
Historical Cropping: Christmas Trees



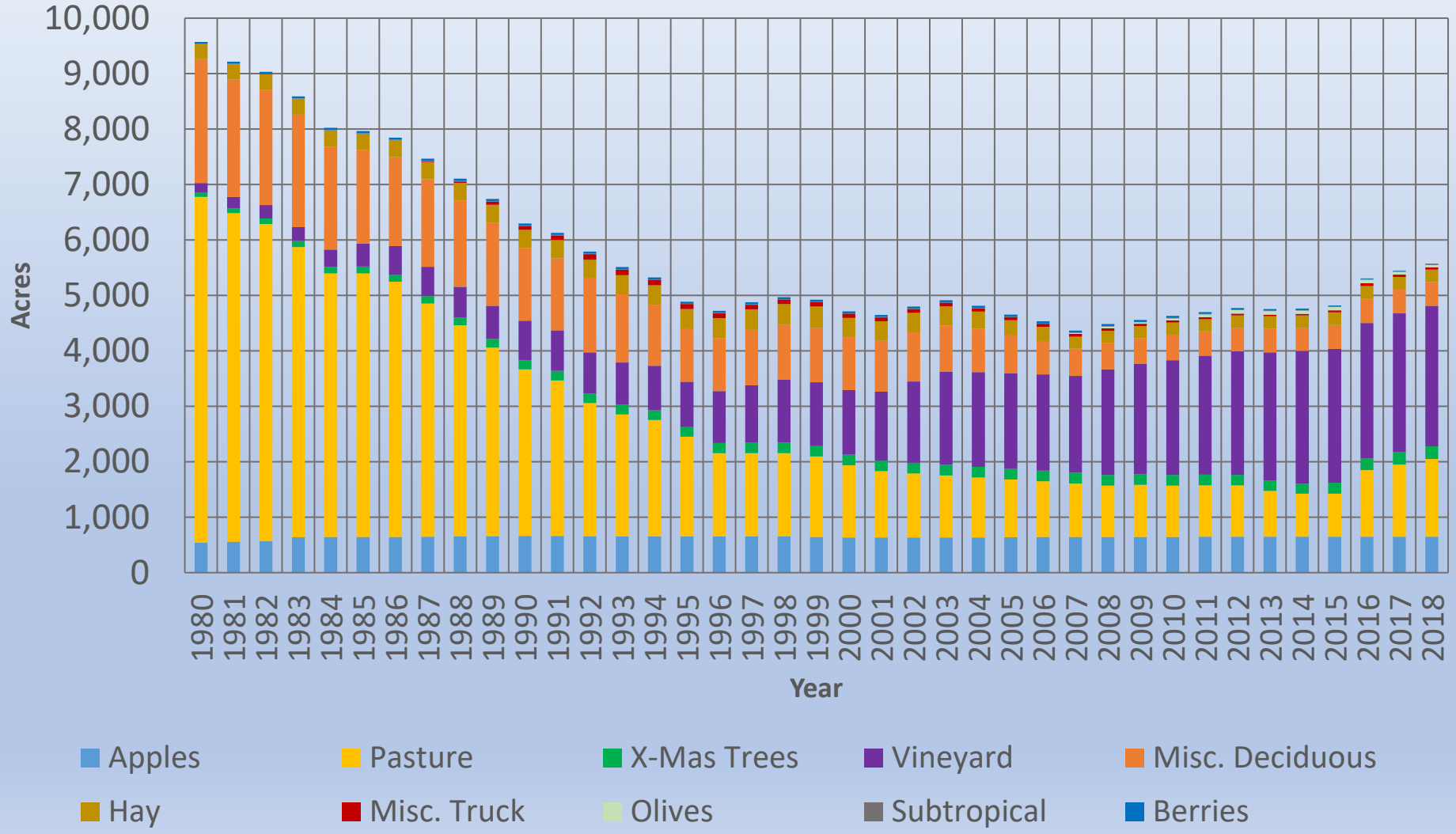
Historical Cropping: Pasture



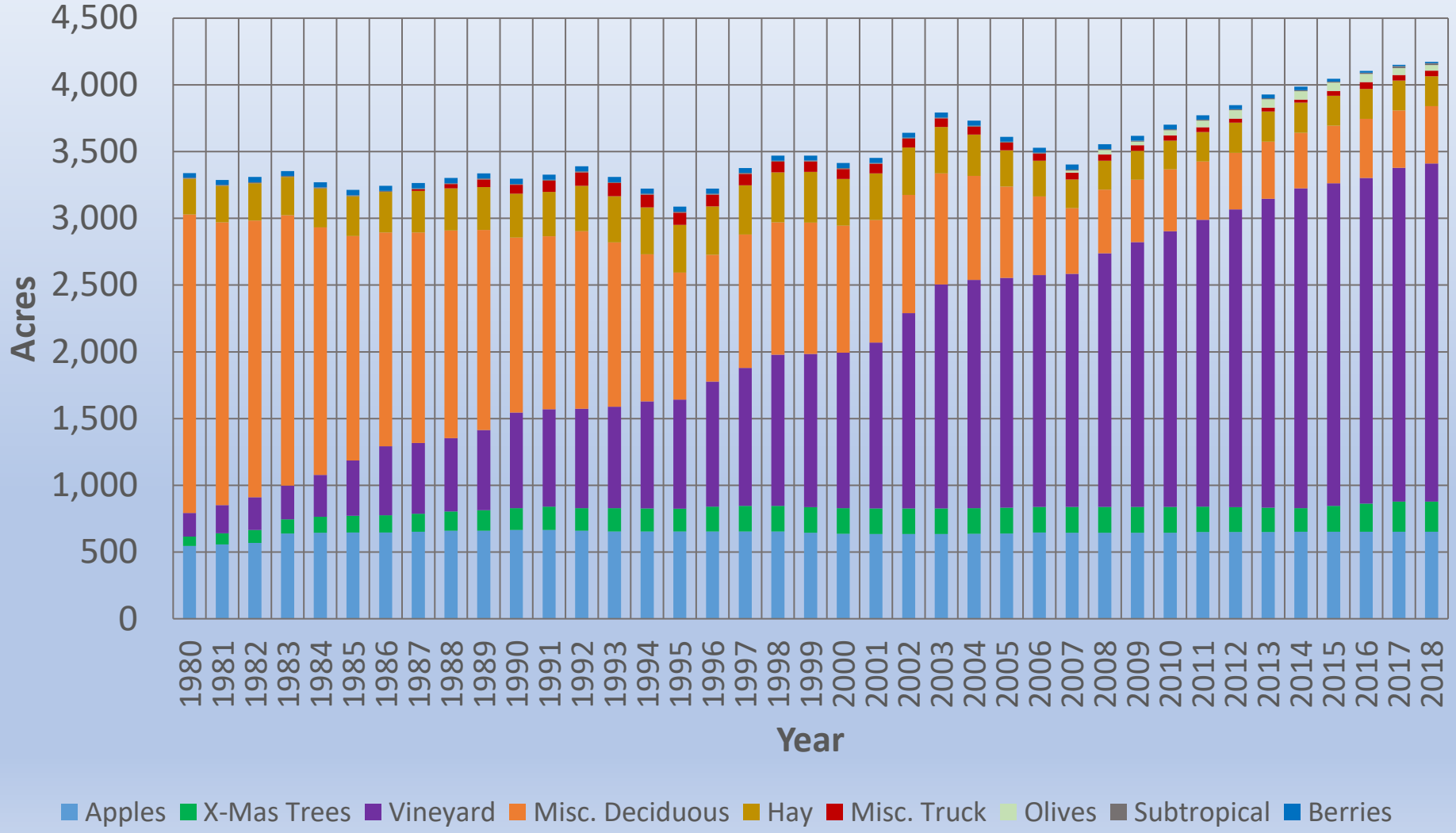
Historical Cropping: Apples



Historical Cropping: Reconciled Cropping Record



Historical Cropping: Reconciled Cropping Record (No Pasture)

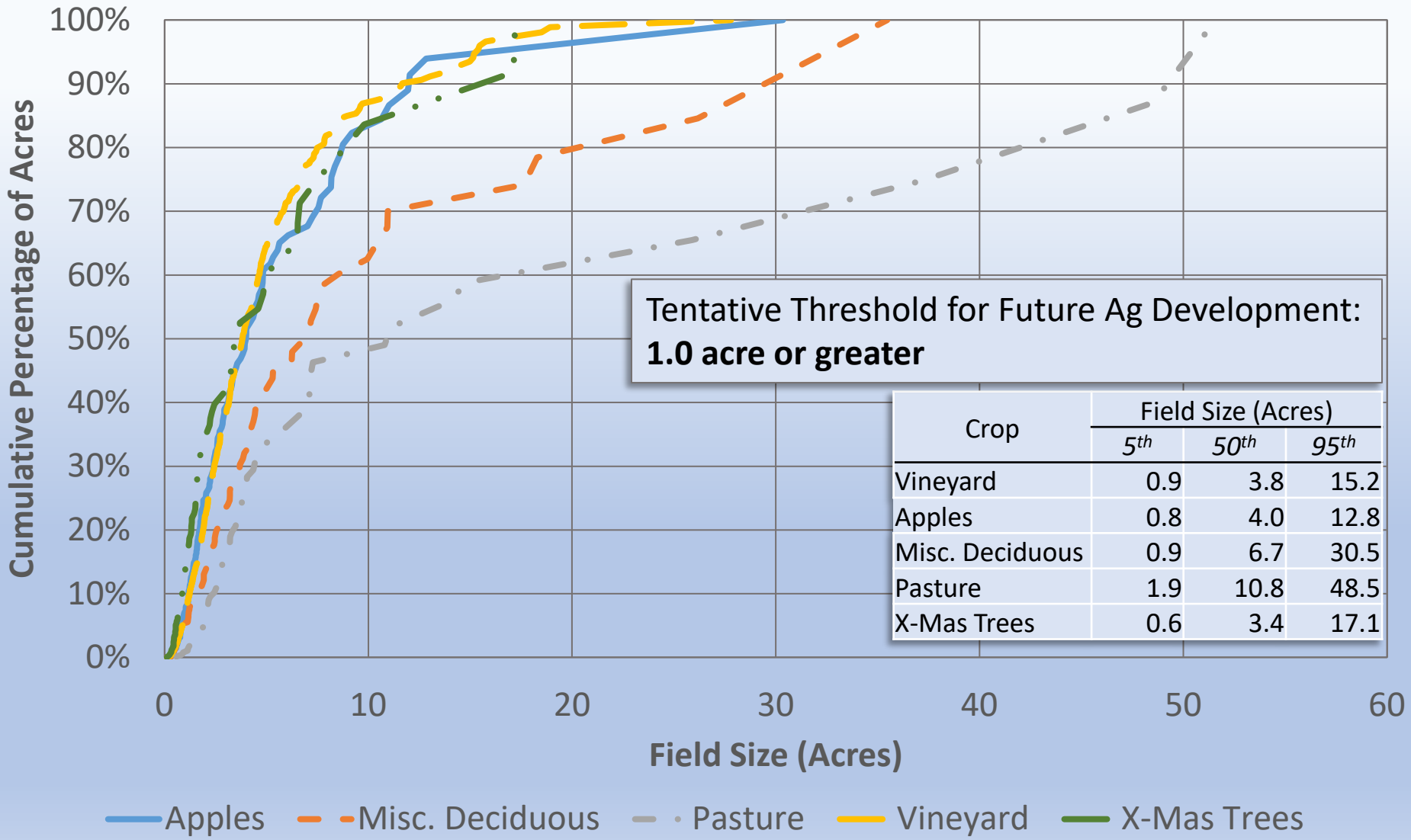


Crop Factors

- "Crop factors" describe the physical conditions under which existing West Slope crops are grown
- Understanding *existing* crop factors supports key assumptions about potential *future* expansion of West Slope agriculture
- Key crop factors:
  - ✓ Field Size
  - ✓ Elevation
  - ✓ Land Slope
  - ✓ Soil Quality
- Spatial Data Set:

Crop	Field Count	Total Acres
Vineyard	968	2,445
Apples	193	502
Misc. Deciduous	121	427
Pasture	67	398
X-Mas Trees	105	210

Crop Factors: Field Size

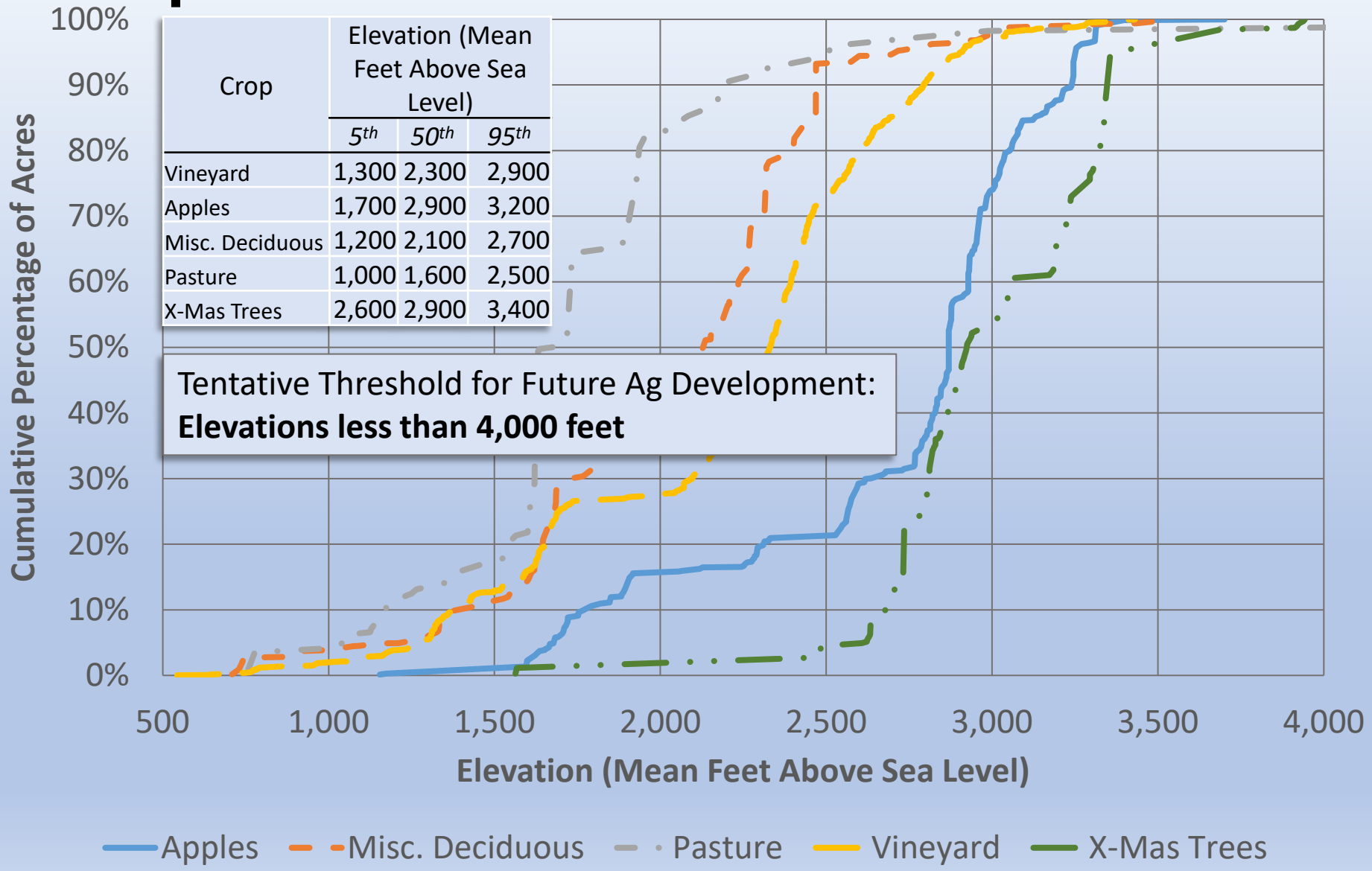


Tentative Threshold for Future Ag Development:
1.0 acre or greater

Crop	Field Size (Acres)		
	5th	*50th*	*95th*
Vineyard	0.9	3.8	15.2
Apples	0.8	4.0	12.8
Misc. Deciduous	0.9	6.7	30.5
Pasture	1.9	10.8	48.5
X-Mas Trees	0.6	3.4	17.1

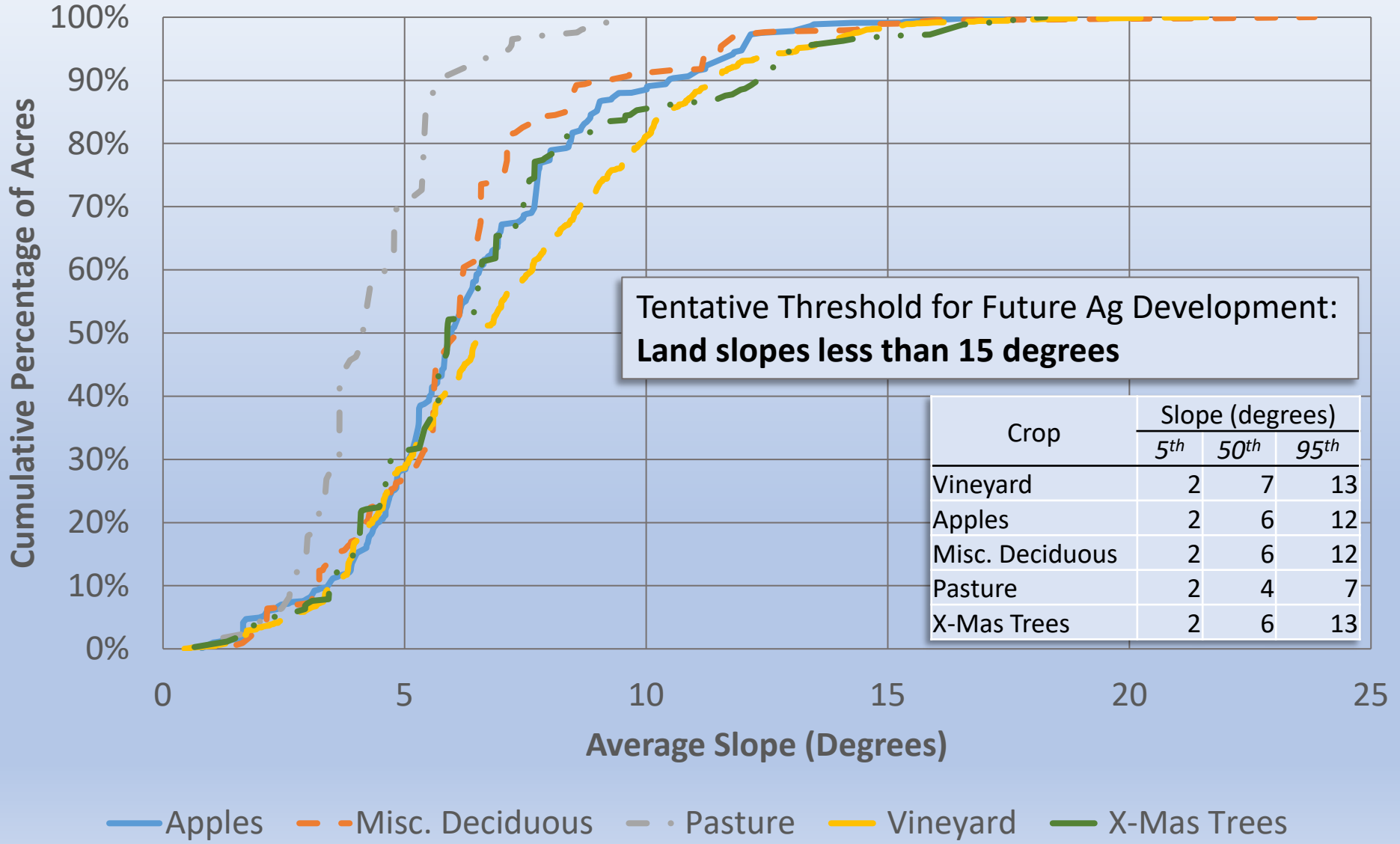
Crop Factors: Elevation

Crop	Elevation (Mean Feet Above Sea Level)		
	5th	*50th*	*95th*
Vineyard	1,300	2,300	2,900
Apples	1,700	2,900	3,200
Misc. Deciduous	1,200	2,100	2,700
Pasture	1,000	1,600	2,500
X-Mas Trees	2,600	2,900	3,400



Tentative Threshold for Future Ag Development:
Elevations less than 4,000 feet

Crop Factors: Land Slope



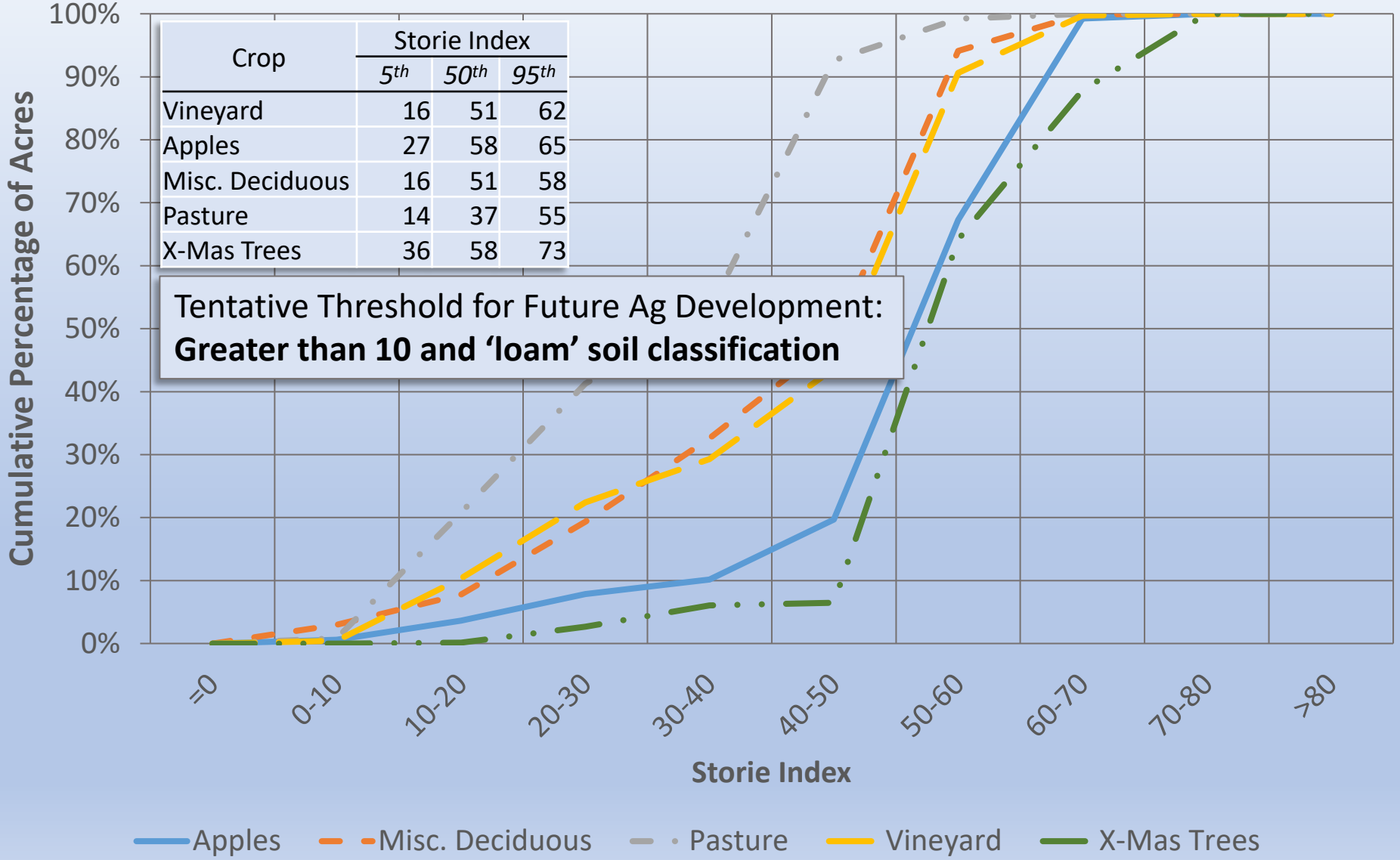
Tentative Threshold for Future Ag Development:
Land slopes less than 15 degrees

Crop	Slope (degrees)		
	5th	*50th*	*95th*
Vineyard	2	7	13
Apples	2	6	12
Misc. Deciduous	2	6	12
Pasture	2	4	7
X-Mas Trees	2	6	13

Crop Factors: Soil Quality

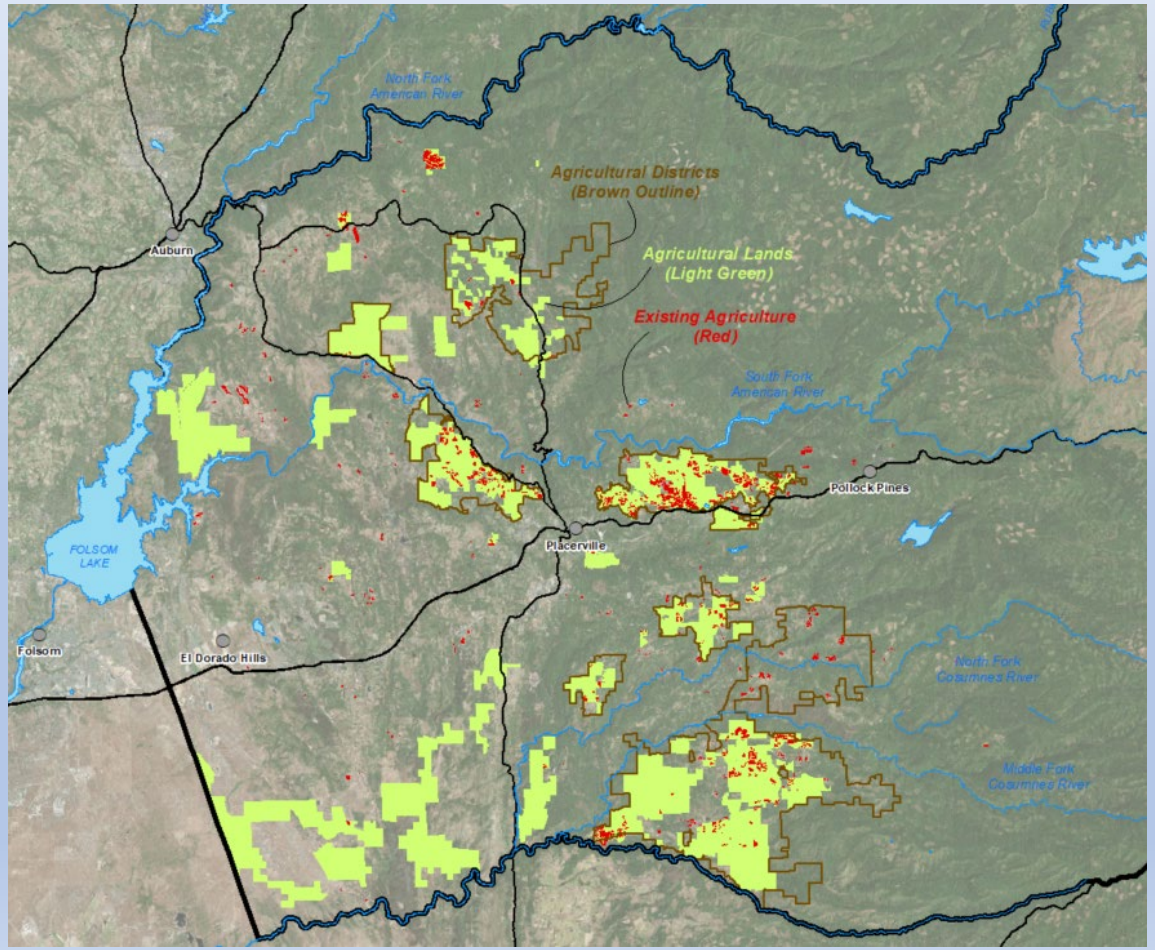
Crop	Storie Index		
	5th	*50th*	*95th*
Vineyard	16	51	62
Apples	27	58	65
Misc. Deciduous	16	51	58
Pasture	14	37	55
X-Mas Trees	36	58	73

Tentative Threshold for Future Ag Development:
Greater than 10 and 'loam' soil classification



Crop Factor Analysis Next Steps

Review EDC General Plan agricultural lands for suitability for expanded agriculture



- Brown Outline
  - Agricultural Districts (roughly 68,000 acres)
- Light Green
  - EDC General Plan agricultural lands (roughly 58,000 acres)
- Red
  - Existing Agricultural Lands (roughly 5,000 acres)
  - Land IQ 2016 dataset
- 70% of existing agriculture occurs within EDC General Plan agricultural lands

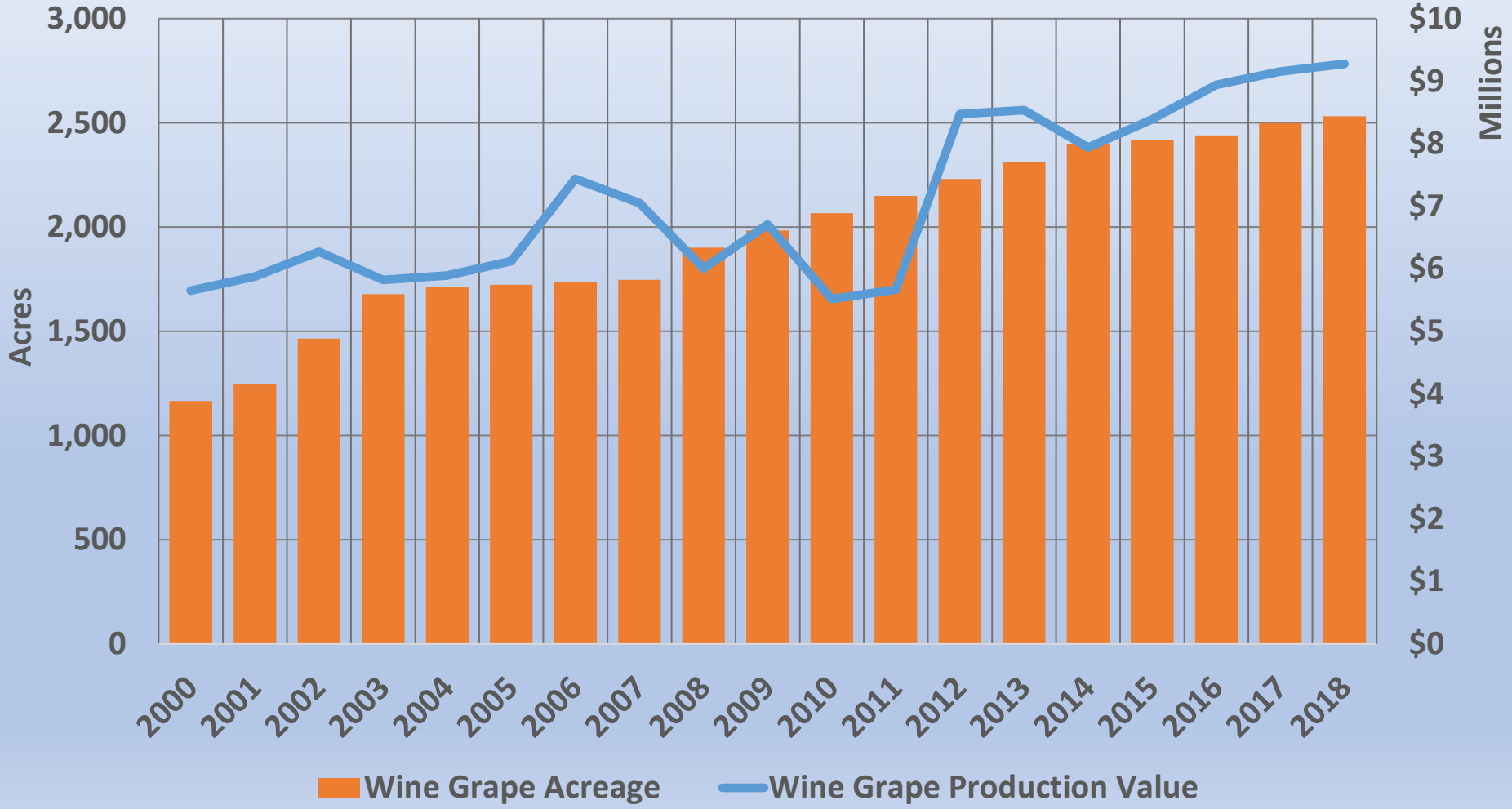
Crop Review: Market Conditions and Production Costs and Returns

- Having identified lands that are available for expanded agriculture, the next step is to determine what is economically feasible to develop
- Factors that affect market supply
  - Crop factor analysis
  - Production costs
- Factors that affect market demand
  - Real income and population growth
  - Consumer preferences for EDC products

Crop Review: Market Conditions and Production Costs and Returns

- Production practices and costs are initially based on UC Cooperative Extension crop budgets
  - Reviewed and refined through grower interviews
- Crop returns are initially based on USDA NASS
  - Value-added from agritourism
  - Direct-to-retail markets
  - Local, specialized products
- Future market conditions
  - Local demand (EDC, Reno, Sacramento, and Bay Area)
  - Export demand (out of region)

Crop Review: Wine Grape Trends

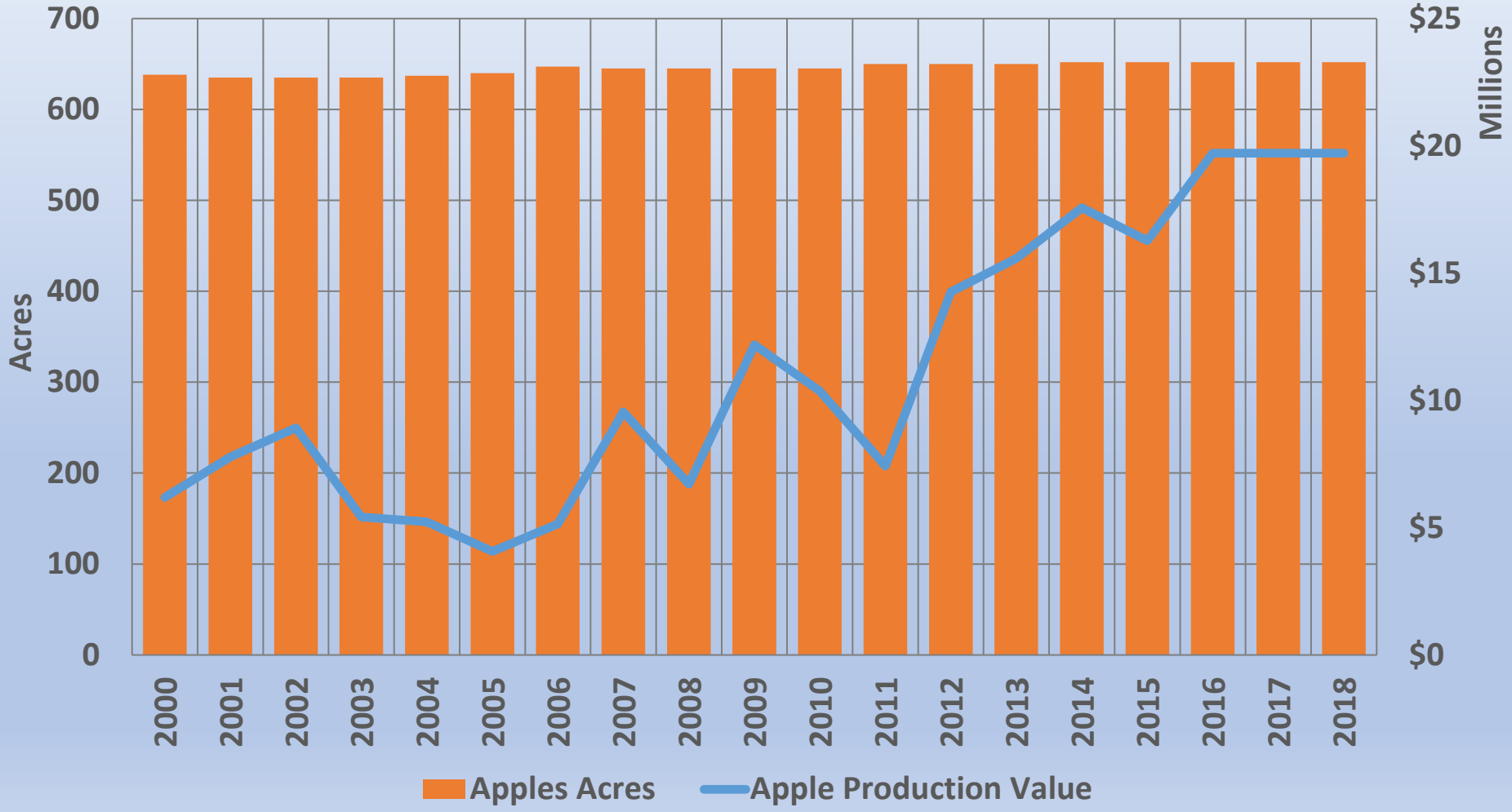


Crop Review: Wine Grape Costs and Returns

- Baseline UCCE budget
  - 2015 Sierra Nevada Foothills Wine Grape Cost Study

- Key refinements
  - Market conditions and trends for the varietals produced in EDC
  - Operation size and economies of scale
  - Owner-operated or custom services
  - Irrigation system costs
  - Vineyard establishment costs

Crop Review: Apple Trends

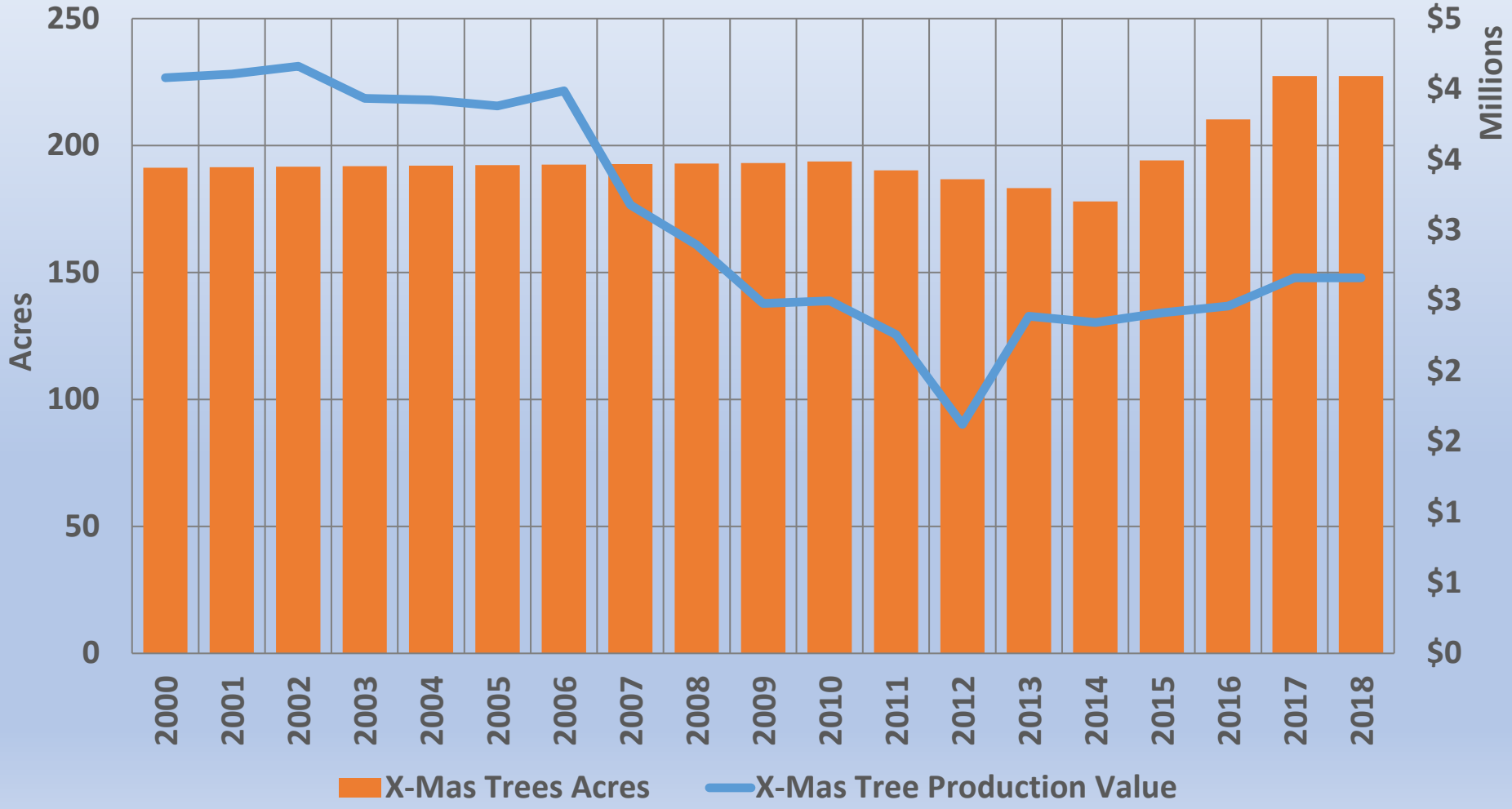


Crop Review: Apple Costs and Returns

- Baseline UCCE budget
  - 2007 Sierra Nevada Foothills Apple Cost Study

- Key refinements
  - Agritourism and related value-added activities
  - Share of apples that are imported to support local EDC agritourism
  - Irrigation system costs
  - Typical farm scale and effect on operating and equipment costs
  - Most common varieties produced in EDC

Crop Review: Christmas Tree Trends

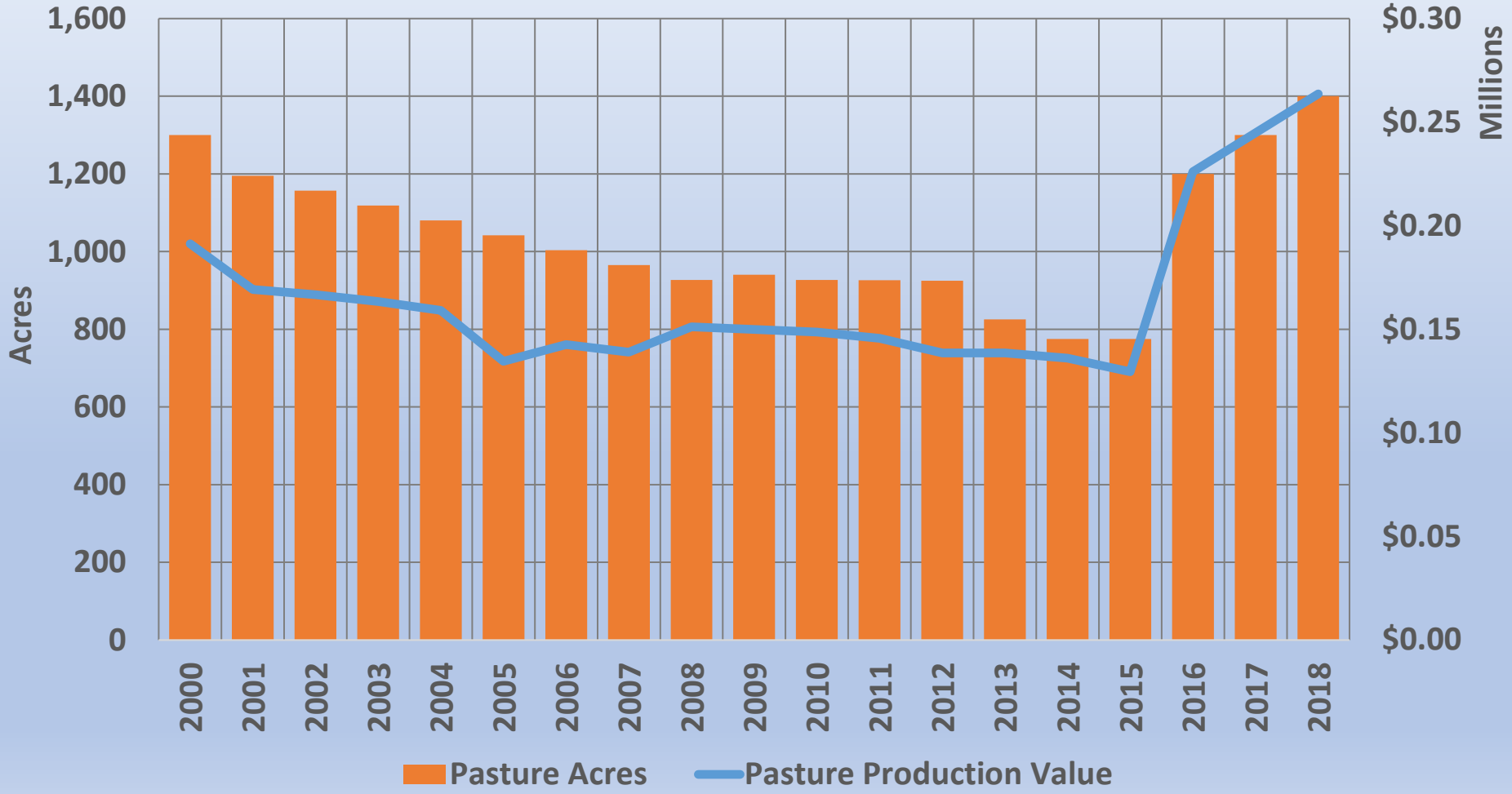


Crop Review: Christmas Tree Costs and Returns

- Baseline UCCE budget
  - 2005 UCCE Sierra Nevada Foothills Christmas Tree Cost Study

- Key refinements
  - Differences in production practices and costs between you-pick and export operations
  - Typical stand rotation length
  - Typical varieties that are produced, and trends over time
  - Irrigation system costs and irrigation requirements over the life of the stand
  - Other consumer trends affecting EDC tree demand

Crop Review: Irrigated Pasture Trends

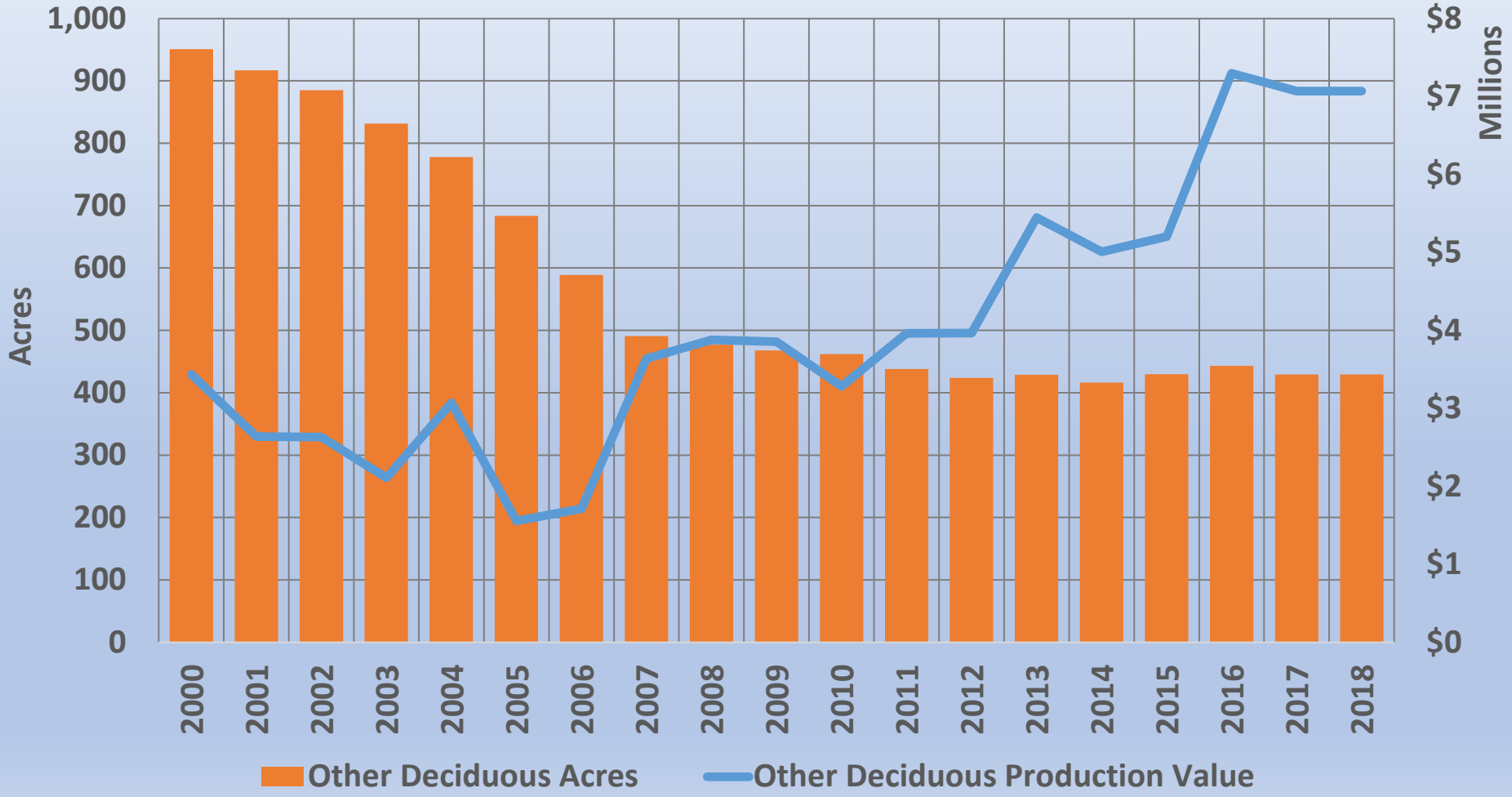


Crop Review: Irrigated Pasture Costs and Returns

- Baseline UCCE budget
  - 2015 UCCE Sacramento Valley Pasture Cost Study

- Key refinements
  - Irrigation costs
  - Responsiveness to drought conditions
  - Standard harvest and grazing practices
  - Understanding typical livestock operations and key specialty markets, and growth in key specialty markets
  - Historical response of irrigated pasture to changes in water supply availability and cost

Crop Review: Miscellaneous Deciduous Trends



Crop Review: Miscellaneous Deciduous Costs and Returns

- Baseline UCCE budget
  - 2015 UCCE Sacramento Valley Walnut Cost Study

- Key refinements
  - Understanding key regional export, international, and local market drivers
  - Ability to realize on economies of scale
  - Irrigation system costs
  - Unique features of EDC operations that differ from the valley floor including yields, pest management, and other production practices

Interviews

- Meet with approximately 15 growers to review production practices, cost, revenues, and markets for key EDC crops
  - The number of interviews was doubled based on feedback at the initial AAG meeting
- Interview structure
  - Two interviewers will meet with growers at EDCWA offices
  - Interviews are scheduled for 90 minutes each
  - Engage in a conversation about each topic listed in a questionnaire provided to the interviewee
  - All responses will be kept confidential by aggregating the data so that no single interviewee can be identified

Interview Topics

- Discuss each grower's farming operation with respect to type and scale of business structure, crops grown, and other factors
- Identify current crop yields, production practices, inputs and unit costs, and key retail markets
- Identify current agronomic and irrigation practices, applied water rates, other production practices, and supporting data
- Evaluate grower's plans to expand, intensify, or switch crops based on current and expected market opportunities in EDC and other regions
- Explore the extent to which water has been a limiting factor for agricultural development within EDC, interest in increasing surface water supplies for expansion of irrigated agriculture, and costs

Next Steps

- Schedule and conduct grower interviews
- Incorporate data and feedback from interviews into the feasibility analysis
  - Refine production budgets
  - Refine costs and market trends
  - Refine crop factors analysis
- Meet with the AAG to review preliminary findings from the interviews and solicit feedback

Thank You!
Questions and Discussion