

**Fruit quality traits and other high impact target traits for current or planned phenotyping by breeders on RosBREED Crop Reference and Pedigree sets.**

**Apple**

<b>Fruit traits</b>	<b>Wash St U (Evans)</b>	<b>Cornell (Brown)</b>	<b>U Minn (Luby)</b>
Fruit weight (g) HS, MDT	x	x	x
Fruit length and diameter (mm) HS, MDT	x	x	x
Starch-iodine rxn maturity index	x	x	x
Soluble solids (°Brix) HS	x	x	x
Acid (pH or titration) HS	x	x	x
Ground Color (L,a,b or categorical) H	x	x	x
Blush/stripe color (L,a,b) H	x		
Red blush/stripe coverage (%) H	x		x
Russet coverage (% and location) H	x		x
Lenticel prominence (rating) H	x		x
Texture-firmness (mechanical) HS, MDT	x	x	x
Texture-crispness (mechanical) HS, MDT	x	x	x
Texture-hardness/firmness HS	x	x	x
Texture-crispness HS	x	x	x
Texture-juiciness HS	x	x	x
Taste-sweetness HS	x		x
Taste-acidity HS	x		x
Flavor/aroma HS	x		x
Fruit cracking (rating) H			x
Storage decay (type and rating)	x	x	x
<b>Other Important traits</b>			
Apple scab severity (rating)			ip
Fireblight severity (rating)			ip
Harvest date	x	x	x
Preharvest dropping (rating)			x
Biennial bearing tendency (using annual crop ratings)			x

H, HS=Fruit traits evaluated at harvest, or both harvest and after 10 and 20 weeks storage.

ip=disease ratings performed if natural infection permits.

MDT=Mohr DigiTest machine (Mohr and Assoc., Richland, WA) used for analytical measurements of fruit weight, size, and texture.

<b>Cherry, Tart and Sweet</b>	<b>Tart cherry</b>	<b>Sweet cherry</b>
<b>Fruit and Pit Traits</b>	<b>Mich St U (Iezzoni)</b>	<b>Wash St U (Oraguzie)</b>
Fruit weight (g)	y	x
Fruit cheek diameter (mm)	y	x
Fruit length (mm)	y	x
Fruit shape (categorical)		x
Soluble solids (°Brix)	y	x
Acid (titration)	y	x
Skin Color (L a b readings)	y	x
Flesh color (visual rating)	x	x
Firmness (Firmtech machine rating)		x
Astringency (sensory rating)		x
Bitterness (sensory rating)		x
Cracking (present/absent)		x
Pedicle retention capacity (pull force)		x
Total anthocyanin (extracted)	x	
Pit weight (g)	x	x
Pit length (mm)	x	x
Pit width (mm)	x	x
<b>Other Important traits</b>		
Bloom time (degree days)	x	x
Cherry leaf spot (rating scale)	x	
Powdery mildew (present/absent)		x
Harvest Maturity date		x
Self fertility	x	x

y=Measured on 3 harvest days

<b>Peach</b>				
<b>Fruit and Pit Traits</b>	<b>U Ark (Clark)</b>	<b>Clemson (Gasic)</b>	<b>Tex A&amp;M (Byrne)</b>	<b>U Cal (Gradziel, Ogundiwin)</b>
Ave fruit weight, one harvest (g)	x	x	x	x
Ability for once-over harvest (rating)				x
Fruit length, one harvest (mm)	x	x	x	
Fruit width suture line, one harvest (mm)	x	x	x	
Fruit width perp to suture line, one harvest (mm)		x	x	
Fruit tip size (winter chilling indicator), one harvest (rating)			x	x
Fruit suture size, one harvest (rating)	x		x	
Soluble solids, one harvest (°Brix)	x	x	x	x
Acidity, one harvest (titration)	x	x	x	x
Fruit firmness, one harvest	x	x	x	x
Fruit firmness post harvest (2-3 days at 0°C)		x		x
Fruit dry weight, one harvest (g)			x	x
Blush Color, one harvest (L,a,b or rating)	x	x		x
Background color, one harvest (L,a,b or rating)	x	x		
Pit color, one harvest (rating for red pit)	x			x
Blush coverage (%)	x	x		
Flavor classification with acidity measures and flesh type flavor associations	x	x		
Free or cling stone; melting/nonmelting flesh	x	x	x	x
Flesh color: white, yellow, presence of red in flesh	x	x	x	x
Flesh type; non-melting, melting, other	x	x		x
Pubescence (presence or absence)	x	x		
Brown rot (rating)	ip	ip		x
Flesh bruising (rating)		x		x
Phenolic level (mg/g)		x		x
Pit weight (g)	x	x	x	x
Pit length (mm)	x	x		
Pit width (mm)	x	x		
Split pit (%)	x	x	x	x
<b>Other Important traits</b>	x	x		
Showy/non-showy flower (categorical)	x	x	x	
Crop load (rating)	x	x	x	x
Yield (rating)	x	x	x	x
Bloom date 10%, 50% or full	x	x	x	
Harvest date (20% ripe)	x	x	x	
Bacterial leaf spot (rating)	ip	x		

ip=disease ratings performed if natural infection permits.

<b>Strawberry</b>			
<b>Fruit traits</b>	<b>Mich St U (Hancock)</b>	<b>UNH (Davis)</b>	<b>USDA-OR (Finn)</b>
Fruit weight (g, mean of 3 harvests)	x	x	x
Fruit diameter (mm)	x	x	x
Fruit length (mm)	x	x	x
Cap size (mm)	x		x
Soluble solids (°Brix)	x	x	x
Acidity (titration)	x		x
pH	x		x
% drip loss (after freezing)	x		x
Appearance (rating)	x	x	x
Fruit firmness (rating)	x	x	x
% of filled achenes	x		x
External color (rating)	x	x	x
Depth of internal color (%)	x	x	x
Ease of capping (rating)	x		x
Flavor (rating)	x	x	x
Achene position (sunken/even/protruding)	x		x
Achene color (white, intermediate, red)	x	x	x
Cyanidin content		x	
Cyanidin/pelargonidin ratio		x	
<b>Other Important Traits</b>			
Period of flowering (evaluated weekly)	x	x	x
Yield over 3 harvests	x		x
Verticillium wilt		x	