

Profiles of Hard Cider Apple Varieties



by Eleanor Voigt

The Apples to Apples project evaluated 41 single-varietal ciders, pressed and fermented in the fall of 2017, at four tasting events. CIAS partnered with the UW-Madison Department of Horticulture and the Fermentation Lab in the Department of Food Science on this project. The following pages provide growers' horticultural observations of each apple variety and tasters' comments on each cider sampled at these events.

This report is organized alphabetically by variety and includes pictures of each apple, growers' observations, and tasting data describing the cider produced from each variety. More detailed information is provided for the promising varieties selected for multiple tastings. See Table 1 in the "Materials and methods" section of the *Comparing Apples to Apples* report for information on tasting methods and events in this project. The full report also provides the lab results for these ciders. The taster comments were provided by people not professionally trained as tasters, and with no specific guidance on terminology. Not all tasters provided comments. Therefore, while the taster comments are interesting, they should be considered within these limitations.

Albion Prairie Farm, Brix Cider, The Cider Farm and Cider House of Wisconsin supplied the apples for this project. The growers' notes for each variety provide observations of the trees and fruit that have not necessarily been replicated through research. Tree and fruit qualities, productivity and performance may differ with location and growing conditions. Matt Raboin of Brix Cider and Deirdre Birmingham of The Cider Farm provided observations and comments for many varieties. The notes on the varieties from the Albion Prairie Farm are from *The Illustrated History of Apples in the United States and Canada*, authored by Daniel Bussey, the previous owner of the orchard. When he writes that a tree is not subject to any particular problems, he has observed that the tree will not suffer more than an average tree under stress. He is not claiming pest or disease resistance.

The art of cider making lies in blending apple varieties to achieve characteristics such as complex, balanced flavors and an appealing color. When reading these descriptions, keep in mind that these ciders were not blends, but made from a single variety. While a single variety cider may not stand alone, as sometimes evidenced by the tasting results, combined with other varieties it could make wonderful cider.



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Antonovka	
Grower Notes - Cider House of Wisconsin	
Yellow or red, round apple with white flesh. Very cold tolerant. Good rootstock. Pink-tinged flowers.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Farm-y, homemade taste	

Bergere		
Grower Notes - Brix Cider		
This cider hailed from the apples of a wild tree found where an old orchard had been cut down in Southwest Wisconsin. The small tree bore a very heavy crop of medium-sized apples. The apples were in good condition despite no orchard care. They did show a fair amount of sooty blotch and flyspeck, which are mostly of cosmetic concern and unimportant for cider apples. The tree shows potential as a cider apple, as the fruit provides an intense bitterness that could add complexity in a blend with common dessert apples.		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs; Tasting event 4-co-op employees		
Oxidized, wood, musty, earthy, green, leathery with slight bitterness, bitter, astringent, tart, apple flavor yet still dry, dry, nice balance, lacks distinction, flat, soapy, alcohol, carbonation, carboic, acid		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Hazy, champagne, golden/pink, watery, dry, bubbly but not enough, light in color, crisp and bubbly, slight fizz	Complexity, astringency, discreetness, strong flavor towards the throat, apple flavor, fizz and bitterness	Mouthfeel, fungal, flavor absent, acidity is strong and could be too drying in excess

Berne Rose		
Grower Notes - Cider House of Wisconsin		
Red apple with green striping and firm flesh		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties		
Banana		

Blushing Gold	
Grower Notes - Cider House of Wisconsin	
Yellow apple with dirty orange-pink blush	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Thick and bland, bland	

Brown's Apple	
Grower Notes - The Cider Farm	
Vigorous with good central leader. Fire blight sensitive. Somewhat biennial. Earlier bloomer. Early harvest. Apples start to drop, but not all will drop.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 4-co-op employees	
Floral, rose-like, melon, very apple-y, pear aroma, citrus, sour, dry, crisp, complex, full-bodied, sparkly, yeasty, stale, vinegar, wormy, earthy	

Cap of Liberty	
Grower Notes - Albion Prairie Farm	
Cap of Liberty is a full, bitter-sharp cider variety from Martock, Somerset, England and was known as of 1873. The tree is moderately vigorous and somewhat 'rangy' with multiple leaders and unbranched spreading limbs. Consideration of dwarfing rootstocks might help with tree form and fire-blight pressure. It is reported that this apple does better on limestone soils. The variety is susceptible to scab, water-core, canker and apple sawfly. The apple blooms a little earlier than average. Frost pockets should be avoided. Fruit cropping is good but a little irregular. Fruit skin is yellow-green, dry and slightly rough. Cider of this apple is of good 'vintage' quality with a clean fruity taste; fermentation can be a bit slow (SG about 1055 and fairly high acid). This apple has been a good grower despite its reputation. No significant problems outside of some susceptibility to fire-blight.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs; Tasting event 4-co-op employees	
Fruity, melon-y, citrus, apple, apple undertones, pear, caramel, sour dust, sour, sour candy, sour warhead candy flavor, warhead tartness, tart, bitter, very astringent, strong, sweet, too sweet, sweet and sour, tasty, sparkly, fizzy, wine-y, acidic, acid, vinegar, yeasty, wild, sulphuric, SO2, rotten egg smell, rancid, needs sweet to balance, would be good blended with Swaar and Liberty CH	

Cap of Liberty, continued

Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Rosy, biting, bubbles, pink, pink/gold, light, nice pinkish color, best yet, pink blush orange, light, pink, bubbly, nice fizz, way too red in color but flavor is okay	Complex intensity, tart, very tart, beautiful color, sour and sweet balance	Too biting, bitter, too sweet, needs some sweet, dry

Chisel Jersey



Grower Notes - The Cider Farm

Similar in growth habits to Dabinett, but in this farm's experience more prone to fire blight. Good crop every year.

Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs

Strawberry, tannic acidity, wine-alcohol, acrid, not sweet, sour, bitter, medical, bitter, slightly sweet, would be a good component of dry cider

Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Rust color, hazy, golden, golden warm dry, yeasty/ bubbly, flat, think, wine-like, apple juice color, crisp and bubbly, slight fizz	Tannic, Pabst-like but flat, crisp, nice, bitter, slight sweet	Lingering bitter, yeasty, lacks crispness, not sweet enough, a little boring

Cinnamon Spice



Grower Notes - Albion Prairie Farm

California variety from the Bolinas – Olema Valley. Fruit is generally medium in size but can run smaller. The skin is predominantly wine-red over yellow ground color. The flesh is very rich, with a cinnamon-like flavor that lasts a long time after eating. A lovely intense flavor. The tree is somewhat to moderately vigorous with upright shoots; needs attention to training to maintain good shape. Ripens late October. The tree has survived nicely in hardiness region 4b – 5a without any particular problems.

Hard Cider Flavor Descriptions - Tasting event 1-all varieties

Unusual

Crittenden Crab	
Grower Notes - Brix Cider	
Crittenden Crab is primarily ornamental and good for birds and wildlife, due to its abundant flowers and heavy crop of bright red and yellow fruit that persists well into winter. We included it in the experiment out of curiosity, but the small fruit size would not make it viable for an orchard production system.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
No notes	

Dabinett		
Grower Notes - The Cider Farm		
Non-vigorous. Nice tree structure with good branch angles. Sensitive to fire blight. Known to be sensitive to soil K-deficiency. Good crop every year.		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs; Tasting event 3-conference		
Fruity, melon, citrus, sour, bark, malty with tannins, tannin, bitter in front and back of mouth, bitter finish, moderately bitter, high bitterness, high in alcohol and bitterness like moonshine, IPA of ciders, very dry finish, bland, low in sour and sweetness, slightly sweet, sweet, rubbery, waxy on roof of mouth, would buy in a blend, almost like a tincture, medicinal, musty, yeasty aroma, bittersweet apple, out of balance, try mixing with golden russet		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Cloudy, light gold, apple juice color, apricot, dry, golden, flat, bitter, smooth	Maltiness, alcohol content, thoroughly bitter, complexity	Bitterness, sweets, woody, no balance/ flavor, rubbery aroma, flat, tastes like soap, ABV (alcohol by volume) too high, out of balance

Driftless Cider	
Grower Notes - Brix Cider	
Wild apple tree found in Southwest Wisconsin. Brix Cider harvested several bushels of medium sized apples from the same tree, two years in a row. Apples were in good condition, despite no orchard care. The lingering astringency of the apple, plus its acidity, gives it good blending potential for complex ciders.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 4-co-op employees	
Fruity, black currant, citrus-y, "fake" apple, bitter, astringent, acidic, solvent-like, caustic, sour, slightly sour, watered down, powdery	

Fayette	
Grower Notes - Albion Prairie Farm	
<p>This apple was sourced from the Raven Island Nursery on Waldron Island, Washington. It's one of the best apples for fresh eating and is exceptional for cider because of its rich sugar-acid balance and great aroma. The fruit is medium size, yellow with orange-red blush and overall russet. The flesh is yellowish, crisp, fairly fine-textured and of excellent quality. The fruit is said to store well. Scab is not an issue nor has fire-blight been any sort of problem. The tree is an upright grower and should be trained early to maintain good tree shape. Should be better known than it is!</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
No notes	

Freedom	
Grower Notes - Cider House of Wisconsin	
<p>A reliable producer with fairly large apples. Management is pretty simple because it is a disease-resistant variety. The apples have a pretty limited shelf life, but are good for eating fresh.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
<p>Grape, apple peel, 4-EP (a phenolic compound produced by the spoilage yeast Brettanomyces that can cause desirable or undesirable flavors)</p>	

Golden Russet	
Grower Notes - Brix Cider	
<p>One of the most well known of the russeted apples, Golden Russet is often used by cider makers due to its typically high brix and rich flavor. Fruit generally ripens in October. The 30 Golden Russet trees in Brix Cider's orchard are not performing well, compared with other apple varieties. The apples for this study were picked from a tree at Seed Savers Exchange. It bore a medium crop, but many of the apples had to be discarded due to insect damage and rot.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 3-conference	
<p>Rose-like, banana, peach, apple, baked apple, apple juice/ apple candy, watery, culinary, candy hearts and Belgian beer, a bit sour, off, odd aftertaste, vinegar, chemical, estery, brett, low acetic acid</p>	

Hoople's Antique Gold	
Grower Notes - Brix Cider	
Mostly russeted apple discovered in Ohio as a "sport" of Golden Delicious. Medium sized, very flavorful apple that ripens late in the season. The tree at Seed Savers Exchange, where we harvested these apples, provided a good crop of healthy apples, without any spraying.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Vinegar, butter, brandy-like, off-aroma but good flavor	

Kandil Sinap		
Grower Notes - Cider House of Wisconsin		
Cylindrical shaped apple, color washes from red to yellow to green with white flesh. Grapefruit scent and balance of sweet and sour. Skinny tree that originated in Turkey.		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs		
Fruity, bubble gum, sour and grassy, dry, bitter, tart, fizzy, bitter, slightly bitter/sweet, astringent, bright, dry, acidic, sour, acidic, needs sweet to balance, acid, little complexity, hint of aroma		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Light and tangy, flat, clear, golden, yellow, light gold, white wine, watery, thin, flat, golden, light, smooth, apple juice color, crisp and bubbly, yellow, crisp, amber, smooth	Unusual flavor up front, bitter back end, color smoothness, apple and astringent balance, flavor intensity	Plastic aftertaste, missing a base flavor, smooth, no flavor on the front, not enough apple, too dry, acidic, one-note flavor, low complexity

Kingston Black CH	
Grower Notes - Cider House of Wisconsin	
Produces mild, bitter-sharp juice, slow to start bearing, red apple	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Smells like fake butter, dark orange color	

Kingston Black CF	
Grower Notes - The Cider Farm	
Moderately vigorous. Does not produce a good tree structure. Prone to scab and fire blight. Can be a light cropper.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Good tannin blender, good blender, floral, good, bananas	

Liberty CH		
Grower Notes - Cider House of Wisconsin		
Deep red apple, disease resistant. Crisp, juicy flesh, trouble-free management.		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs; Tasting event 4-co-op employees		
Fruity, grape, banana, little apple flavor, like white wine, anise, bitter, dry, drying, sweet, tart throughout but good intensity, sharp, sour, sour yet flavorless, sour vinegar, acidic, very acidic, only one note, bland, blah, flat, viscous, warming, light, ester-y		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Medium color, pale yellow, golden, light color, tannic finish, bubbly, bubbly but still needs more bubbles, sticky mouthfeel	Acidic, bitter, tart and bitter intensities, sour	Bland finish, sweet, similar to royal russet but not as good, needs more tartness, mouthfeel too acidic, one note

Liberty CF	
Grower Notes - The Cider Farm	
<p>Consistent cropper. Resistant to fire blight, cedar-apple rust, and scab. Easy to grow. Plum Curculio-resistant like Liberty. Harvest in early- to mid-October.</p>	
<p>Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 3-conference</p>	
<p>Floral, very floral, strong apple flavor, bittersweet apple, apple, Macintosh, citrus, fruity, tart, smooth, sweet, round, yeast, dry, flat, tastes young and flat</p>	

Major	
Grower Notes - The Cider Farm	
<p>Produces lots of branches, making it a bushy tree. Slow to produce. Late blooming. Small apples that stay green. Prone to rot and water core. Brewer note: Did not press well.</p>	
<p>Hard Cider Flavor Descriptions - Tasting event 1-all varieties</p>	
<p>Slight anise, juice, sour</p>	

Malinda	
Grower Notes - Brix Cider	
<p>A pleasantly sweet apple with a pear/citrus-like flavor. Malinda is the parent of many apples that came out of the University of Minnesota breeding program, chosen in part because of its cold hardiness. The source tree at Seed Savers Exchange bore a very heavy crop of nearly unblemished apples, even without spraying.</p>	
<p>Hard Cider Flavor Descriptions - Tasting event 1-all varieties</p>	
<p>Banana, leather, interesting flavor—could be good in a blend, flowers, nutmeg, bubbly</p>	

NY 74828-12	
Grower Notes - Cider House of Wisconsin	
Red apple	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
No notes	

NY 75413-30	
Grower Notes - Cider House of Wisconsin	
Red apple	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Peach/apricot, sour, thin	

Old Nonpariel	
Grower Notes - Brix Cider	
An old French apple variety, known to provide a fairly good crop on trees with average vigor. The tree at Seed Savers Exchange where this apple was harvested had produced a good crop of medium sized, flavorful apples that were in good condition, without any spraying.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 3-conference	
Fresh apple, fruity, sharp, crisp, tart, bitter, acidic, medicine, green/wasabi/horseradish, weak, off, too much acid—can't taste anything else, bad intensity, plain, sour	

Priscilla	
Grower Notes - The Cider Farm	
<p>Resistant to fire blight, cedar-apple rust and scab. Easy to grow. Consistent cropper. Apples can split with rainfall near harvest. Harvest in mid-September.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
No notes	

Red Delicious	
Grower Notes - Cider House of Wisconsin	
<p>Intensely red apple. Thick, bitter skin. Yellow flesh. Keeps good looks even after flavor is gone.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 3-conference	
<p>Caramel, toasted, floral, geranium, butter, interesting aromatics, nice complexity— could use some fruitiness, flavor on its own is not that good, but could be an interesting blender, off, bad, dirt, metallic, watery, thin, not much flavor, flat, light, blah, pasty</p>	

Redfield	
Grower Notes - Albion Prairie Farm	
<p>This is a 1924 cross of Wolf River x <i>Malus niedzwetskyana</i> (Russian redflesh crab) from the New York State Experiment Station at Geneva. The fruit grows to a full medium-to-large size. The skin color is very dark red and the flesh inside is reddish in the outer half (near the skin) and cream colored in the inner half (near the core). The flesh is fairly firm, dry, coarse, not aromatic and sour, but it adds a good flavor and color to ciders. The tree is a stocky, healthy grower with ornamental qualities of dark green leaves and grayish wood. This apple blooms about four days (on average) before Delicious and ripens after Delicious in late October. No particular problems growing this tree or fruit.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Too orange colored, not great appearance, rose color, sour ferment flavor	

Rosemary Russet	
Grower Notes - Albion Prairie Farm	
<p>This is an English dessert russet known as of 1831. Fruit is oblate conic, a little bit ribbed and medium in size. Skin: yellowish green with a brownish-red blush and covered with a light brown russet. The flesh is white tinged greenish to yellowish, firm, fine textured and sweet/subacid. It has a good sugar-acid balance and is aromatic. Overall, a pleasant apple for fresh eating and cider.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Cherries, acid	

Royal Russet		
Grower Notes - Brix Cider		
<p>An older English variety. Limited information is available on this uncommonly grown, russeted apple. The source tree at Seed Savers Exchange had a medium crop of smallish apples that were highly flavored.</p>		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs		
<p>Yum, would be a good component, best balance of the group, needs sweet to balance, strong fruit, wine (grape), no apple taste, green apple, grapefruit, tart, thoroughly mediocre tartness, cotton candy, dry, slightly sour, acid, slight sweet, light, good, clean</p>		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
<p>Light color, light, light yellow, pale yellow, golden, balanced mouthfeel, smooth, feels light, flat, watery, bubbles, bubbly and crisp</p>	<p>Balance, floral, sweet, good taste, tart only, dry</p>	<p>Lacks dimension, strong acid</p>

Ruppert's Sweet	
Grower Notes - Brix Cider	
<p>Wild apple tree discovered along a fence row in Southwest Wisconsin. Large, round apples. Eight or more bushels were harvested from the same tree two years in a row. The tree and the apples seemed healthy and mostly blemish-free, even with no care for the tree. The tree is broad and spreading. Apples have a sweet, nectar-like flavor. Apples stay on the tree and can be harvested into November. Cider apple tree with good potential due to its high yield under low maintenance and high brix when harvested late in the season.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
No notes	

Secor	
Grower Notes - Albion Prairie Farm	
<p>Secor is a 1906 cross of Salome x Jonathan from Iowa State and was introduced commercially in 1922. Fruit is medium to large, roundish oblate to a bit conic, with moderately bright red skin that matures to a somewhat darker purplish red and much bloom. Flesh is very firm, crisp, fairly fine textured, rich sub-acid and of very good quality. Fruit is somewhat aromatic and lends good flavor to cider as well as being an excellent fresh eating apple. The tree is an upright-spreading grower with wide-spread branching and good healthy habit. The apples ripen in October, hang well to the tree and are purported to keep from January to March with good storage conditions. No particular problems with this variety at all.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Off-flavor, strong aroma, soap, wheaty, mildew	

Somerset Redstreak	
Grower Notes - The Cider Farm	
<p>Tall, vigorous tree producing many thin, very upright branches. Branches are hard to train. Fruit is prone to rot. Not a big cropper. Biennial. Fire blight sensitive.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 3-conference	
<p>Sweet, fruity, pear, sour, clean, flat, woody, musty, bitter, drying, dusty tannin, nothing unusual, appearance cloudy (fine for that style), cloudy</p>	

St. Lawrence	
Grower Notes - Cider House of Wisconsin	
Yellow with red stripes and tender white flesh.	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Boring	

Steele Red	
Grower Notes - Albion Prairie Farm	
<p>The name Steele Red is a synonym of several varieties. This is possibly the Massachusetts variety known as Sutton or the variety known as Red Canada (both are somewhat similar). If Sutton, this is a very nice old apple that's been around since 1757. The fruit is roundish, medium to large in size with dark, purplish-red blush over a yellowish-green ground color. The flesh is yellowish, firm, fine-textured, crisp, tender, mild sub-acid and of very good quality for dessert and kitchen use. This is not a cider variety save for its good juice flavor and aromatic qualities. No tannin structure here. This apple ripens mid-October. This variety is susceptible to cedar-apple rust and scab. This apple also blooms somewhat early and is subject to biennial bearing. The tree is an upright-spreading grower and easy to manage.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Tart	

Stembridge Jersey	
Grower Notes - Albion Prairie Farm	
<p>This is a classic cider variety from Somerset, England. Small- to medium-size fruit with some tendency to drop as it ripens. This is a bittersweet variety with firm flesh; it is a nice apple overall and worth a little trouble. This apple is grown in modern English cider orchards and makes an excellent vintage cider. Ripens late September into October. Despite several fire blight outbreaks over the years, it is not highly susceptible and can survive with preventative care.</p>	
Hard Cider Flavor Descriptions - Tasting event 1-all varieties	
Mild rose	

Swaar	
Grower Notes - Brix Cider	

Swaar, which means “heavy” in Dutch, was first recorded in New York in 1805 but may go back further. It’s a dense apple that can stay onto the tree into winter, with increasing complexity and higher sugar content later in the season. The apples picked at Seed Savers Exchange for this project were probably picked too early (in October). The apples were large and in good condition without any sprays applied. There are a couple of Swaar trees planted in the Brix Cider orchard. After two years, they appear healthy, with moderate vigor, but have not yet produced a crop.

Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs

Floral, floral and tart but more to be desired, citric acid, honey, low on flavor in general, one note astringent/ bitter, bitter, bitter (alcohol), acidic and astringent—use in small amount, moderate acidity, tart up front, no flavor in the back, little sweetness but doesn’t need much, sour, sharp, heavy, drier, dry, dry but very palatable, grassy, tastes very fermented, clean/ light feel, champagne, better than others (Bergere, Oaken Pin, Chisel Jersey) but not great

Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Floral, rose water color, almost colorless, light yellow, looks like white wine, light and clear, clear, clear and clean, flat and clear, a little viscous, watery, thin, but not flat, crisp, astringent, puckering, dry, bubbly and light in flavor, more bubbly than the others but still needs more	Acidic, floral notes, floral is distinctive, bitter, nice balance of acid with slight bitter, flavor intensity, tastes like a warhead, clean taste, fizziness, everything	Low flavor, no back end flavor, bland, needs more tartness, too acidic, sour, astringency, too fermented taste, needs a stronger color, color

Thornberry	
Grower Notes - Albion Prairie Farm	

Tall, vigorous tree producing many thin, very upright branches. Branches are hard to train. Fruit is prone to rot. Not a big cropper. Biennial. Fire blight sensitive.

Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 3-conference

Sweet, fruity, pear, sour, clean, flat, woody, musty, bitter, drying, dusty tannin, nothing unusual, appearance cloudy (fine for that style), cloudy

Tremlett's Bitter		
Grower Notes - The Cider Farm		
Geneva version of Tremlett's Bitter. Tree produces a heavy crop one year and nothing the next. Easy to grow. Apples develop in clusters. Some sensitivity to fire blight. No scab.		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs		
Tart up front, bitter in back, weak—mild but balanced, not sweet, mild sweetness, sweet, but still dry, very subtle bitterness, bitter/sour, acidic, yeasty		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Light, light color, golden, light in texture and color, more bubbly than others, but not enough, bubbly, fizzy!, medicine feel	Balanced, sweet, acidity, tart, dryness, very sparkly, no off flavors	Beery, would benefit from florals, not sweet, too sweet

Unknown 1		
Grower Notes - The Cider Farm		
Vigorous. What the grower was given as scion wood may have been incorrectly identified as Ellis Bitter.		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs; Tasting event 4-co-op employees		
Floral, fruity, sour green apple taste, bittersweet apple, apple, pear, tart and bitter, sweet, honey, sugary, sour, dry, drying , bland, watery, characterless, boring, undertone/ hint of mild acidity, acidic, acid, metallic, wine-y, potential for single varietal		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Balanced, flat, golden, light yellow, light, clear, crisp, mild fizz	Herbal, floral, tart, sour flavor, dry, balanced flavor	Missing a round taste, color, boring

Unknown 2		
Grower Notes - Albion Prairie Farm		
The grower notes that what was supplied as Oaken Pin may be incorrectly identified. Oaken Pin is an English dual-purpose apple from Exmoor (c.1876), good for cider and kitchen use. Fruit is large, roundish-conic. Skin is yellow with dark orange-red streaks and a mahogany blush. The flesh is crisp, sweet, yellowish, aromatic, rich and very intense. Ripens late September into October. Adds great body and aroma to cider. The tree is moderately vigorous with no significant problems.		
Hard Cider Flavor Descriptions - Tasting event 1-all varieties; Tasting event 2-farmers and chefs; Tasting event 4-co-op employees		
Pear, apple, woody, astringent, very astringent, drying, bitter, slightly bitter, low bitterness, dry, like a dry white wine, whiskey, acrid, acid, acidic, not sweet, moderate sweetness, side of tongue off-flavor tending toward rubber, plastic, antiseptic, chemical-y, paper-y , flat, watery, boring, gassy, overripe		
Color and Mouthfeel	Strongest Attribute	Weakest Attribute
Orange, cloudy appearance, green color, apple juice color, flat, plain finish, thin, bubbly yet heavy	Slight bitterness on finish, astringency, bubbles, not bright, watery	Lingering aftertaste, aftertaste, mouthfeel, rubbery off-flavor

Commercial checks

To gather sensory data on the apples used in this study, researchers conducted four cider tastings with tasters from different demographics. Each of the 41 ciders were tasted at least once by at least six people. Each cider was assigned a randomized three-letter code so that tasters wouldn't be influenced by the varietal names. Researchers added a commercial cider as a "check" during the blind tasting as a point of reference for desirable flavor in the data collected, and these were often rated towards the top by tasters.

Classic Dry from The Cider Farm
Hard Cider Flavor Descriptions -Tasting event 1-all varieties; Tasting event 2-farmers and chefs; Tasting event 4-co-op employees
Floral, melon, vanilla, molasses, vanilla and honey, sweet, woody, moldy, sweet at first, ends with bad taste in mouth, vinegar, dead yeast, yeasty, ester-y, gassy, watery, thin

Tremlett's Commercial from The Cider Farm
Hard Cider Flavor Descriptions - Tasting event 3-conference
Melon-y, artificial, pear, caramel, rich, bitter, acidic, full, cane sugar, geranium, a bit medicinal, tart at the finish, sparkle

All apple variety images taken by Nicholas Smith of the UW-Madison Food Science Department.