Exploring Cider

Gary Awdey

Sample No. 1

Common Cider

Uncle John's Fruit House Winery
St. Johns, Michigan
"Apple Hard Cider" (2008) 6.5% abv

Commercial Division Best of Show 2009 Great Lakes International Cider & Perry Competition

Common cider is made from varieties of apples that are commonly available or from apples that produce cider similar in character to cider made from commonly available apples

Sample No. 1: Common Cider
Uncle John's Fruit House Winery "Hard Cider"

1. Harvested in season
2. Cold stored until December
3. Blend of Apples Selected
   - 40% Winter Banana
   - 30% Northern Spy, Winesap, Jonathan
   - 30% Cortland, Russet
4. Washed
5. Milled
6. Pressed to obtain sweet cider (must)
7. Sulfited
8. Innoculated with wine yeast (*S. cerevisiae*)

Sample No. 1: Common Cider
Uncle John's Fruit House Winery "Hard Cider"

9. Cool fermented
10. Yeast nutrient added only when there is evidence of H2S developing
11. Rough filter (2-1/2 micron) at completion of fermentation
12. Sorbated to inhibit yeast
13. Sweetened with sugar to optimum level determined in bench tests
14. Force carbonated
15. Bottled

Sample No. 2

English Cider

Oliver's Cider & Perry
Ocle Pychard, Herefordshire, England

"Herefordshire Dry Cider" (2008) 8.1% abv

Sample No. 2

English Cider

- Cider from most parts of England is characterized by astringency and some bitterness conferred by the fruit

- Cider fruit—cultivars selected specifically for fermentation—provide some advantages over other varieties
  - –Flavor profiles well suited for fermentation
  - –Lower nitrogen content to help control fermentation rate
  - –Astringency for mouthfeel
  - –Fruit texture that makes harvesting and juice extraction easier

- Historically it has generally been fermented to full dryness quickly to avoid infection by spoilage microorganisms that metabolize sugar to produce off flavors

Sample No. 2

English Cider

- Traditionally served still (pumped by hand pump from cask without carbonation)

- Lower sugar level in finished cider calls for fruit selection with lower acid level to maintain balance

- Lack of residual sugar suppresses the ability to sense fruitiness

Sample No. 2: English Cider
Oliver's Cider & Perry
Herefordshire Dry Cider (2008) 8.1% abv

1. Harvest in season
2. "Sweat" fruit in shallow piles to ripen and concentrate the sugar
3. Select blends of apples for individual batches
4. Mill and Press
5. Move to fermentation vessel and fit airlock
6. Ferment to full dryness with wild yeast
7. Oak barrel age for 8 months
8. Blend finished ciders for bottling
   - This cider was made from 6 barrels
   - Over 20 apple varieties went into the final blend
9. Add low metabisulfite addition at bottling as oxygen scavenger
   - About 80 ppm total sulfite
   - About 34 ppm free sulfite

Sample No. 3

Keeved English Cider

Oliver's Cider & Perry

Ocle Pychard, Herefordshire, England

"Oliver's Herefordshire Cider-Medium" (2008) 5% abv

2009 Awards

First prize:

Bottle Fermented/Conditioned categories at The Big Apple (Putley Cider and Perry Trials)

The Hereford Cider Museum International Competition

The Royal Bath & West Show (also the Arthur Davies Cup for Best Cider or Perry)

Silver medal:

Great Lakes International Cider & Perry Competition

Oliver's was one of the first of several English craft cider producers who now offer a keeved cider

Keeving

- A multi-step clarification of the must that takes place at the start of fermentation
- Removes biomass and critical yeast nutrients to stress the yeast intentionally
- Result is a slow, controlled fermentation with notable residual sugar without requiring preservatives, sterile filtration or thermal treatment
- The process is well suited to be used in conjunction with heavy bottles, corks and wire hoods to produce bottle conditioned cider
- Properly keeved cider can be bottled at higher gravities (1.020 has been found in trial-and-error by many producers to be optimum when starting at around 1.050).
  - **The same finishing gravity can lead to dangerous overpressure in an unkeeved cider!**

Steps of Keeving

1. Pectin suspended in the must is demethylated by the enzyme pectin methyl esterase (PME), turning pectin chains into negatively charged galacturonic acid
2. Calcium salt ($CaCO_3$ or $CaCl_2$) is added to provide Ca^{++} ions
3. Ca^{++} ions cross-link the pectin chains into a gel which precipitates in the must
4. Tiny CO_2 bubbles from incipient fermentation lift the gel to the surface
5. Most impurities (including spoilage microorganisms) are trapped by the gel and removed
6. Buoyancy of the small bubbles provide a slow, steady pressure that gradually squeezes the excess juice from the gel, turning it into a compact crust
7. Clear cider is separated from this *Chapeau brun* (brown cap)

Before Keeving: Cloudy Must

Keeving: Pectin Precipitates and Starts to Rise

Higher temperature and/or overly vigorous fermentation can break apart the gel, causing the keeve to fail

Starting with more pectin suspended in the must gives more structural strength to the gel, making the process easier to manage

Top View in Larger Vessel During Precipitation of the Gel

Brown cap forms as the gel rises and compacts

The must is separated from the gel and fermented slowly

Sample No. 3

Keeved English Cider

Oliver's Cider & Perry

1. Harvest in season
2. "Sweat" fruit in shallow piles to ripen and concentrate the sugar
3. Select blend of apples
   - Fruit in this cider is from trees planted in 1930
   - Bulmers Norman, Foxwhelp, Michelin, Sport of Hereford Redstreak, Binet Rouge, Dabinett, Yarlington Mill and a few other unidentified varieties
4. Mill fruit when weather is reliably cool enough to keeve
   - Temperature below maximum of 60 degrees F
   - Colder temperature is preferred, especially for higher-acid apples
5. Press to obtain cloudy, viscous must and add PME prior to keeve
6. Add calcium chloride to precipitate the pectin
7. Rack clarified must from below the brown cap that forms (or skim off cap)
8. Move to fermentation vessel and fit airlock
9. Rack and and rerack as necessary until cider is clear
10. Bottle when desired sweetness is reached (SG 1.020 when starting at 1.050)
11. Add low sulfite addition at bottling as oxygen scavenger

Sample No. 4

French Cider

Etienne Dupont

Normandy, France

”Organic Cidre Bouché Brut de Normandie” (2008) 5% abv

- French cider can range in sweetness from very sweet to fully dry
- French cider includes the use of astringent fruit but the fruit selection and blending usually target more “soft” tannin than hard (i.e. astringency with less bitterness)
- This cider was made with 100% bittersweet apples (Mettais, Binet Rouge, Frequin, Douce Moën and Bisquet) and native yeast
- Pressed SG 1.052; Bottled at 1.020
- Recommended storage temperature: 46-52 degrees F
- In the traditional French process keeving is preceded by the additional step of maceration

Maceration

•After milling the pomace is left to sit for a period of time (usually hours or overnight) before it is pressed to collect the must

•The goal is to increase the time of contact and improve mobility of the PME so the must starts with more suspended pectin

•This makes a keeve more reliable, effective and easier to manage

•Although PME from other sources is available commercially PME occurs naturally in apples and pears.

•The amount occurring naturally varies widely
  – With variety of fruit
  – With ripeness of fruit

•Optimum length of time of the maceration determined by trial and error (Matched to the temperature, type and condition of fruit)

•The process also increases darkness of the finished cider due to oxidation

Sample No. 5

Common Perry

Uncle John's Fruit House Winery

St. Johns, Michigan

"Perry" (2008) 6.5% abv

Silver at the 2009 Great Lakes International Cider & Perry Competition

- Common perry is made from varieties of pear that are commonly available.

- In this case the pear is 100% Bartlett (Williams *Bon Chretien*)

- The process is similar to that used for making common cider

- When sulfite is used slightly higher additions are required due to greater tendency to bind the sulfite (about 50 ppm higher)

Sample No. 5

Common Perry

Uncle John's Fruit House Winery
St. Johns, Michigan
"Perry" (2008) 6.5% abv

- Stable perry requires more technical skills to make than cider

- Flavor is delicate like a light white wine and is often a great surprise to those who try it for the first time because…

- It tastes about as much like fresh pear as wine tastes like fresh table grapes

  –--***unless*** *the perry-maker opts to use post-fermentation flavoring or backsweeten with unfermented pear juice to avoid disappointing consumers who expect something made from pear to have a familiar fresh pear flavor*

- This is a good example of how much pear flavor you can expect in a well made common perry that does not use post-fermentation flavoring

Sample No. 6

Traditional Perry

Oliver's Cider & Perry

Ocle Pychard, Herefordshire, England

"Oliver's Herefordshire Dry Perry" (2008) 7.1% abv

3rd at Royal Bath & West Show 2009

Silver at 2009 Great Lakes International Cider & Perry Competition

- Traditional perry is made from varieties of pear that are selected specifically for fermentation

- This perry is a blend of several perry pear varieties:

  Blakeney Red, Gin, Oldfield, Malvern Hills, Thorn, Brandy, Winnals Longdon, Butt

- This was made with wild yeast

- Oak barrel aged 8 months

- Sterile filtered, with 80ppm total/38 ppm free sulfite added at bottling as an oxygen scavenger

Sample No. 7

Traditional Perry

Oliver's Cider & Perry

Ocle Pychard, Herefordshire, England

"Oliver's Blakeney Red Perry" (2008) 5.8% abv

Bronze at the 2009 Great Lakes International Cider & Perry Competition

- Blakeney Red was widely planted in the late 19th century as a dual-purpose pear, particularly in west and southwest Gloucestershire

- A medium acid, medium tannin perry that must be milled at the correct stage of maturity in order to achieve its fullest flavor.

- One of hundreds of varieties of traditional perry pears to make it on the short list of 54 highlighted varieties following trials at the Long Ashton Research Station in the first half of the 20th century.

Sample No. 8

Hybrid Cider

Gary Awdey, Valparaiso, Indiana

”Mostly Golden Russet Cider” (2008) 8% abv

- Macerated with added PME, sulfited, “clean” keeved, fermented with commercial wine yeast
- 70% American Golden Russet
- 30% Yarlington Mill, Dabinett, & Baldwin
- Apple *eau de vie*-saturated French oak

Sample No. 9

Hybrid Cider

Gary Awdey, Valparaiso, Indiana

”Anglo-Franco-American” (2008) 4% abv

- 45% Yarlington Mill, 45% Dabinett, 10% Baldwin (low acid blend)

- Macerated with PME, sulfited before fermentation, “clean” keeved with commercial wine yeast, bottled unfiltered without preservatives

- International hybrid
  - *–US-grown fruit*
  - *–Mostly English cider apple varieties*
  - *–Updated traditional French production method*

Useful Links for Information on Cider and Cidermaking

Andrew Lea's Wittenham Hill Cider Portal http://www.cider.org.uk (Lots of good technical information)

Cider Workshop (An active UK-based Google Group) http://groups.google.com/group/cider-workshop?hl=en

Cider Digest (A forum of mostly US cidermakers and enthusiasts) http://www.talisman.com/cider

Dave's Old Time Cider (A blog with some interesting information, including a US map of cider producers) http://oldtimecider.com

Some Good Books for Getting Started

Craft Cider Making by Andrew Lea (incorporates the material in his website, as well as some other material, into a convenient 160 page volume). 2008, The Good Life Press, ISBN 978 1 904871378

Cider: Hard and Sweet (2nd Edition) by Ben Watson (a good all-around primer for getting started at cider making;184 pages) 2009, W.W. Norton & Company, ISPB 978-0-88150-819-2

Growing Cider Apples: A Guide to Good Orchard Practices by Roger Umpelby and Liz Copas (something to consider if you're thinking of growing your own cider fruit; 94 pages) 2002, Published by the National Association of Cider Makers (UK) in association with the ADAS Horticulture Research Internation (HRI) and the Farming and .wildlife Advisory Group (FWAG).

Cider and Juice Apples: Growing and Processing by R.R. Williams, Liz Copas, H. Pudwell, F. W. Beech, edited by R.R. Williams (similar to the Umpelby and Copas book but with enough difference to make both worthwhile) Printed and published by the University of Bristol Printing Unit

Cider Apple Tree Sources in the US

If you're thinking of planting some of your own or know someone who might be interested here's a good place to start your search.

Cummins Nursery
(Fingerlakes Region of NY)
http://www.cumminsnursery.com/cidervar.htm
Steve Cummins: Phone (607) 227-6147

Big Horse Creek Farms
(Appalachian Region)
http://www.bighorsecreekfarm.com
Mail:
Big Horse Creek Farm
PO Box 70
Lansing, NC 28643
Email: Oldapple@bighorsecreekfarm.com

Trees of Antiquity
Mail:
20 Wellsona Road
Paso Robles, CA 93446
Phone: (805) 467-9909
http://www.treesofantiquity.com/

Vintage Virginia Apples
Phone: (434) 297-2326
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PO Box 210
North Garden, VA 22959
http://www.vintagevirginiaapples.com/Shop.php