15-Fold increase between 2007-2014

- Value-added product with increased market growth, but still a small market share
  - Small market share ($90M) compared to beer ($100B) and wine ($35B)

Source: Alcohol and Tobacco Tax and Trade Bureau
More than 400 producers in 33 states making
More than 12 million gallons in 2014

cydermarket.com

What is hard cider?

• Hard cider: fermented apple juice (3-10% ABV)
  – 2010 VA law passed to move from 7 to 10% ABV
  – May or may not be carbonated
  – More like wine than beer
• Apple wine: made by adding sugar prior to fermentation (>10% ABV)
• Apple jack: made by freeze concentrating already fermented cider (not legal for sale)
• Apple brandy: distilled apple cider
• Hobbyists can make 50 gal/year for personal consumption, but illegal to sell without license
## Classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Percent tannin (w/v)</th>
<th>Percent malic acid (w/v)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bittersweets</td>
<td>&gt; 0.2</td>
<td>&lt; 0.45</td>
</tr>
<tr>
<td>Bittersharp</td>
<td>&gt; 0.2</td>
<td>&gt; 0.45</td>
</tr>
<tr>
<td>Sharps</td>
<td>&lt; 0.2</td>
<td>&gt; 0.45</td>
</tr>
<tr>
<td>Sweets</td>
<td>&lt; 0.2</td>
<td>&lt; 0.45</td>
</tr>
</tbody>
</table>

### English to French to American

<table>
<thead>
<tr>
<th>English</th>
<th>French</th>
<th>American (tend to be dual purpose)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown Snout</td>
<td>Bedan</td>
<td>Esopus Spitzenberg (Sharp) &lt;fireblight&gt;</td>
</tr>
<tr>
<td>Chisel Jersey</td>
<td>Binet Rouge</td>
<td>GoldRush (Sharp)</td>
</tr>
<tr>
<td>Dabinett</td>
<td>Frewin Rouge (Bittersweet)</td>
<td>Harrison (Sharp) &lt;poor yields/fireblight&gt;</td>
</tr>
<tr>
<td>Kingston Black</td>
<td>Medaille D’Or (Bittersweet)</td>
<td>Hewe’s Virginia Crab (Bittersharp?) &lt;fireblight&gt;</td>
</tr>
<tr>
<td>Porter’s Perfection</td>
<td>Michelin (Bittersweet)</td>
<td>Newton (Albemarle) Pippin (Sharp) &lt;hard to thin&gt;</td>
</tr>
<tr>
<td>Tremlett’s Bitter</td>
<td>St. Aubin</td>
<td>Stayman (Sharp)</td>
</tr>
<tr>
<td>Yarlington Mill</td>
<td>St. Martin</td>
<td>Winesap (Sharp)</td>
</tr>
</tbody>
</table>

### Partial Budget

The partial budget analysis suggests that growers would need to receive a median return of US$0.63/kg ($12/bu) at a yield of 28,245 kg/ha (600 bu/acre) to show a net change in profits when growing multipurpose apples instead of mainstream cultivars.

### Enterprise Budget

Using a US$0.79/kg ($15/bu) selling price and mature yields of 36,485 kg/ha (775 bu/acre), our enterprise budget estimated the first year establishment cost at US$35,635/ha ($14,427/acre).

Annual variable costs at maturity were US $8,080/ha ($3,271/acre), and total variable costs over 25 years were US$215,930/ha ($87,421/acre).

The Net Present Value (before taxes) was positive at year 4.
Feasibility Study
For
A Small Farm Cidery in Nelson County, VA
Prepared by:
Matson Consulting

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October, 2012

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• Matson Consulting
• 154 pages
• Market analyses
• Feasibility study
• Sensitivity analyses

Characterization of the Polyphenol Composition of 20 Cultivars of Cider, Processing, and Dessert Apples (Malus × domestica Borkh.) Grown in Virginia

1 Katherine M. Goodrich, 2 Andrew P. Nebels, 2 K. Kenneth Hurley, 2 Gregory M. Puck, and Amanda C. Stuart. 2
  1 Department of Food Science and Technology, Virginia Polytechnic Institute and State University, 301 Duck Pond Drive, Blacksburg, VA 24061, United States
  2 Virginia Tech Foundation, 2004 Kraske Hall, Virginia Tech, Blacksburg, VA 24060

• Arkansas Black*
• Granny Smith
• Harrison*
• Fuji
• Idared
• Golden Delicious
• Jonagold
• Newton (Albemarle) Pippin
• Virginia Gold
• Pilot

*donated by Albemarle Ciderworks

Blacktwig
Pink Lady
GoldRush
Red Delicious
Enterprise
Rome
York
Staymen
Suncrisp
Winesap

DO NOT REPRINT OR SHARE WITHOUT PERMISSION
New National Cider Association & Virginia Cider Association

Welcome to the United States Association of Cider Makers.

The USACH is an organization of cider and perry producers in the United States. It gathers and shares information about cider production, cider regulations, and cider apple growing, to help members improve their operations, raise awareness, and advance cider in the market.

The organization was founded in February, 2013 at “CiderCon,” the third annual gathering of Cider Makers from across the US. Board members are:

- Michael Beck from Uncle John’s Cider Mill (President)
- James Kolen from Wandering Angros Ciderworks
- Brad Pege from Colorado Cider Company (Vice President)
- Dan Rowell from Vermont Cider Company (Treasurer)
- Charlotte Shelton from Albemarle Cider Works (Secretary)
- Robert Vail from Angry Orchard, and
- Stephen Wood from Pernum Hill Ciders.

National Conference:
ciderconference.com

CIDER WEEK VIRGINIA

NOVEMBER 14-23, 2014

JOIN THE HARD CIDER REVIVAL!

LOCATIONS
AN EVENT A DAY
STAY CURRENT

ESTABLISHMENTS IN THE REGION CELEBRATING CIDER
CIDER ENTHUSIASTS CAN LEARN MORE AT TASTING, CLASSES, SPECIAL EVENTS THROUGHOUT THE WEEK.

Email Address

ciderweekva.com
An Introduction to Hard Cider in the U.S.

By the simplest definition, hard cider is fermented apple juice. In the U.S., unfermented and usually unrefined apple juice is referred to as cider or sweet cider. In many other countries, particularly in Europe, the fermented product is called cider and the unfermented product is called apple juice. In this article, we use the term cider to refer to the fermented product.

According to Alcohol and Tobacco Tax and Trade Bureau data, production of hard cider in the U.S. has, on average, increased 73% per year from 2008 to 2013. This is the largest growth in demand since the 1930s when Congress enacted prohibition and ended a more than 300-year tradition of color production in the U.S. With the increase in color sales, there is an equal interest in cider production, and a need to identify apple cultivars that are suitable for making quality cider.

Apples naturally have a sugar content between 10 and 20%, which produces ciders with a final ABV between 4 and 8%. Federal and state regulations define cider as its alcohol by volume (ABV) content, and specific amounts can differ by state. In most states, the ABV in cider must be below 7%, or the cider will be taxed at the higher rate, similar to wine. However, some states, such as Virginia allow ciders to have an ABV of up to 10%. Many commercial cider producers in the U.S. desire an ABV taxation level that more accurately reflects the alcohol level produced naturally from orchard-run fruit.

For marketing and taxation purposes, cider is often categorized by alcohol content rather than its natural apple content. Briefly, fruit is crushed, the pulp is pressed to extract the juice, and then the juice is fermented by yeast that converts sugar to alcohol. Post-fermentation sugar and acid adjustments might be made to finished ciders in order to maintain flavor profiles and product consistency.

Cider producers make sweet tasting ciders by adding sugar, juice or juice concentrate, or stopping the fermentation with high-quality filtration equipment after the fermentation process. If sugar is added to the juice prior to fermentation, the resulting product is higher in alcohol and is often called apple wine. This process of adding sugar prior to fermentation is called Chaptalization and is often used to decrease alcohol levels in cider and may be used to raise higher alcohol ciders.


APPLE PRODUCTION
Greg Peck

CIDER PRODUCTION
Molly Kelly
Amanda Stewart

MARKETING AND ECONOMICS
Gus Ferreira
Gordon Groover