



Making ice cider at home

from

THE NEW CIDER MAKER'S HANDBOOK

CLAUDE JOLICOEUR

Contents

- Concentrated apple juice
- History
- Definition
- Fermentation
- Stabilization
- Concluding remarks

Concentrated apple juice

- Principle: freeze concentration - water with sugar freezes at lower temperature
- Cryo-extraction: frozen apples - pressed while partially thawed... Either:
 - Apples frozen in trees and harvested mid-winter
 - Apples frozen in bins in cold temperature
- Cryo-concentration: frozen juice - first juice to melt has higher sugar concentration

History

- Freeze concentration is nothing new...
 - Eiswein in Germany, Ice wine in Canada
 - Apple Jack in USA
 - Lechartier in France, 1880's
- Development of modern ice cider during 1990's in Quebec:
 - Christian Barthomeuf, La Pomelière at the time and Clos Saragnat nowadays, Frelighsburg
 - Pierre Lafond, Cidrerie St-Nicolas
- First ice cider sold in stores with mention "Cidre de glace": 1999 by Lafond

History

Let the frost come to freeze them first, solid as stones, and then the rain or a warm winter day to thaw them, and they will seem to have borrowed a flavor from heaven through the medium of the air in which they hang.

Henry David Thoreau

Wild Apples, 1862

Definition of Ice Cider

Quebec regulation for ice cider:

- Concentrated juice obtained by natural cold only (note that use of freezer may give excellent ice ciders)
- Minimum starting SG 1.130 or 30 Brix (some will go as high as 36 Brix, SG 1.160)
- Minimum residual sugar 130 g/L, or SG 1.060 (some are as high as 180 g/L, SG 1.080)
- Alcohol, more than 7% ABV, but no more than 13%
- No addition of sugar, alcohol, artificial color or flavor permitted

Ice cider now international



Spain



Photo by Once Upon a Tree

England



Photo by Ferme de Billy

France



USA

Frozen apples in trees at Clos Saragnat



Photo by Clos Saragnat

Barthomeuf harvesting his apples



Photo by Clos Saragnat

Frozen apples in bins at Cidrerie St-Nicolas







Cryo-concentration from carboys at Eden Ice Cider



Photo by Eden Ice Cider

and from IBC



Photo by Eden Ice Cider

Partially thawed apples ready to press



Apples may be pressed whole (without grinding)



Small-scale cryo-concentration



Targets

Define targets in terms of amount of residual sugar and alcohol strength of the ice cider

(Note that some of these combinations don't respect the Quebec regulation, but this is OK for DIY ice cider or for an ice cider that doesn't need the “Appellation Cidre de glace”).

Ice cider combinations

Concentrated juice		Finished cider maximizing residual sugar			Finished cider maximizing alcohol		
SG	Brix	g/l R.S.	final SG	% ABV	g/l R.S.	final SG	% ABV
1.100	24	120	1.056	5.7	75	1.036	8.5
1.130	30	160	1.075	7	100	1.048	11
1.160	36	200	1.094	8.6	130	1.062	13

Special material needed?

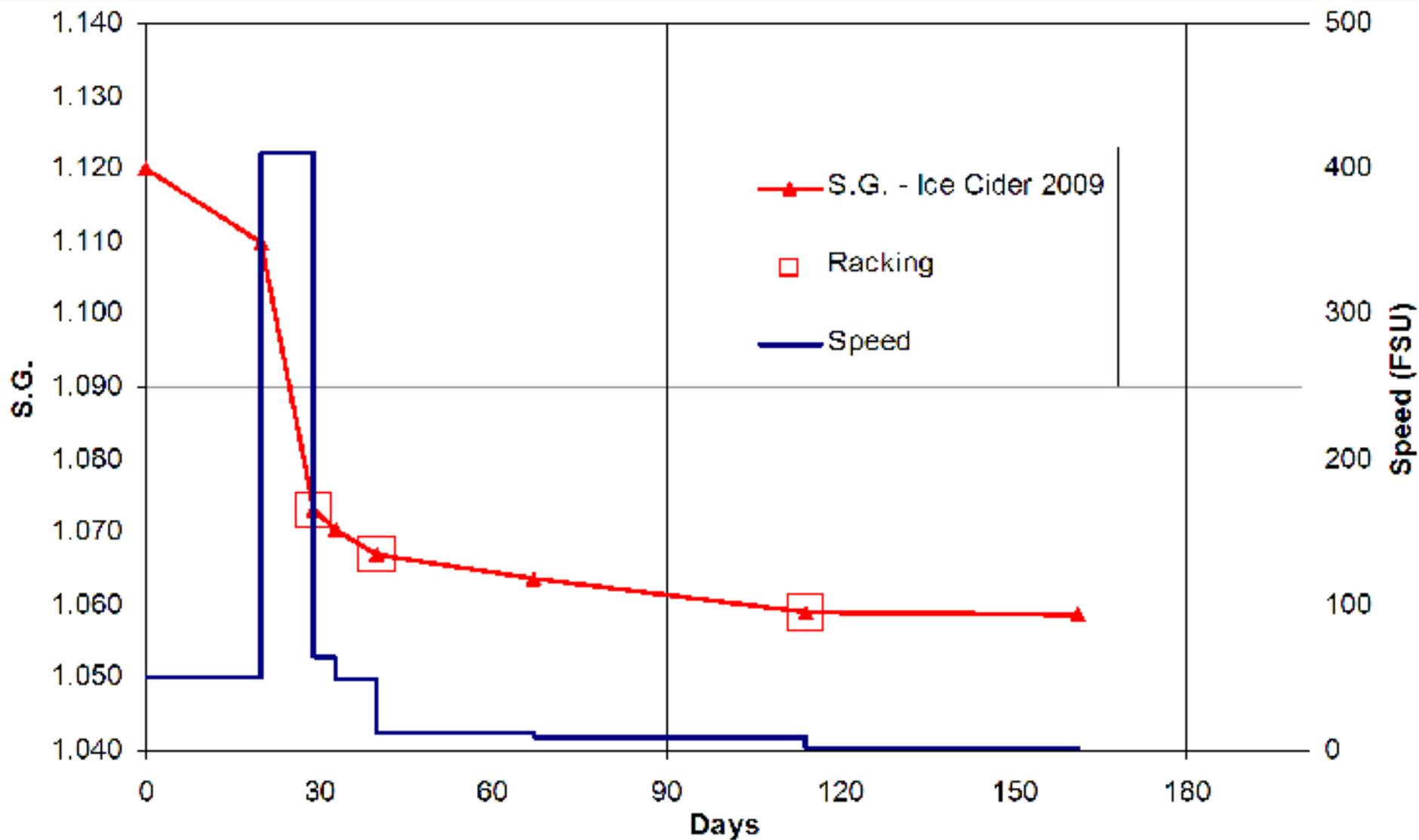
- Basic cider making material: press, buckets, carboys w/airlock, racking tube, hydrometer, bottles, sulfite, yeast.
- Check the range of the hydrometer, some stop at 1.100. Good precision / short range hydrometers highly recommended :
 - 1.050 to 1.100 for monitoring fermentation speed
 - 1.100 to 1.150 for starting gravity
- 3 gal carboy? (or even less...)

Fermentation

Keep it under control!

- Slow fermentation, cold temperature
- Yeast: select slow fermenter, acidity reducer such as 71B, partial dose, no nutrients
- Monitor speed of fermentation in terms of FSU (SG drop per 100 days)
- Stabilization racking if speed is over 200 FSU

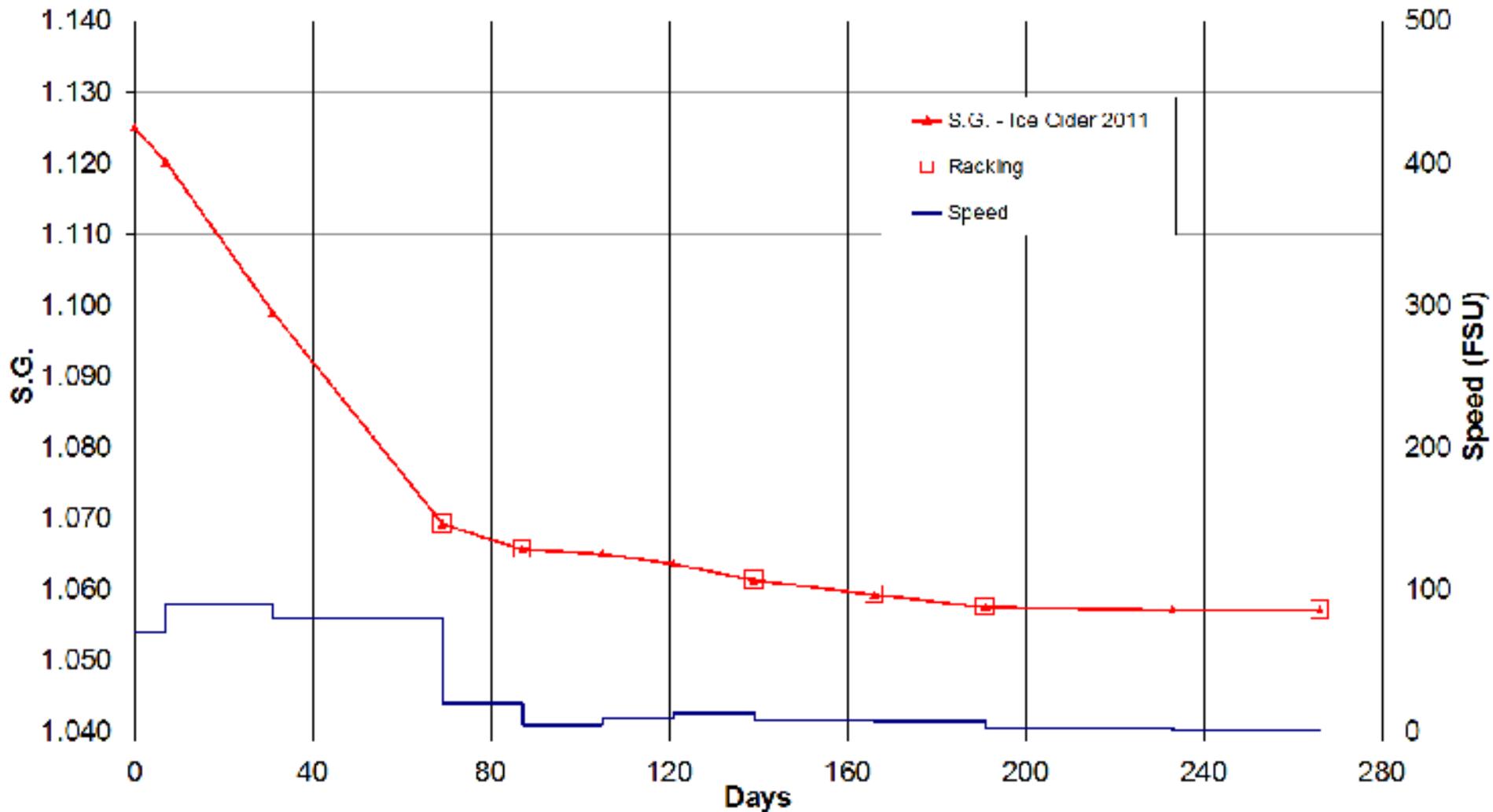
Example fermentation graph (2009)



Stopping and stabilizing the cider

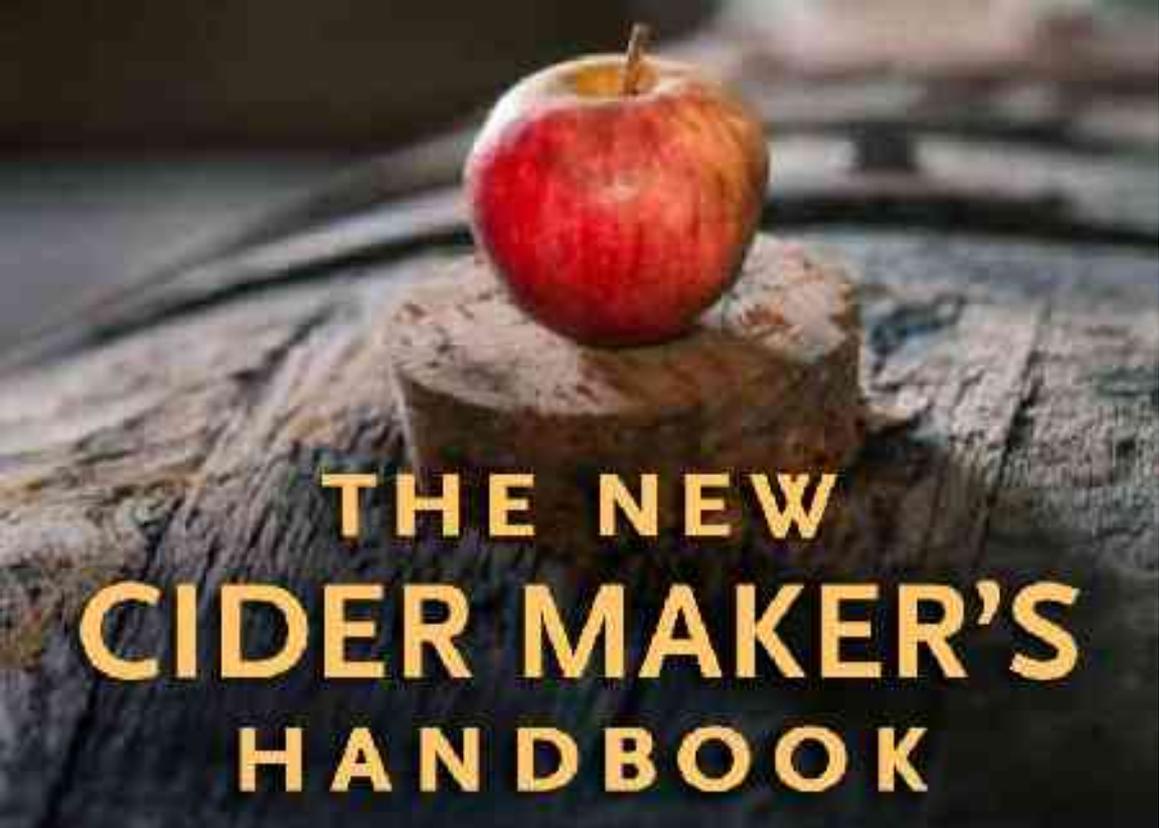
- Start procedure when SG 10 points more than target finished SG (e.g. target 1.060, start at 1.070)
- Bring cider in a cold location and rack when it has cooled
- Monitor speed and rack again 10 to 15 days later
- Monitor speed and rack as required until well stabilized near target SG
- May require between 3 and 5 rackings
- Let mature and insure the SG is well stable for at least one month (and preferably more) before bottling
- Sulfite/sorbate may be added at bottling for security

Example fermentation graph (2011) (5 rackings necessary to stabilize the cider)



Concluding remarks

- When using apples that have a low nitrogen content, it will be easier to control and stop the fermentation and stabilize the cider
 - Apples from old unfertilized standard trees
 - Late varieties
 - Fully ripe (or even slightly overripe) when frozen or pressed
- Cryo-extraction appears to give better quality
- Temperature control essential
- Good monitoring of fermentation speed, precision hydrometer with temperature correction.



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||| *A Comprehensive Guide for Craft Producers* |||



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