Apple blending for cider

By Claude Jolicoeur

Introduction

- This presentation will hopefully summarize the experience I have gained on the subject of blending in over 20 years of cider making.
- WARNING: The material presented here will sometimes differ from the accepted (or the “By the book”) way of blending and making cider.
- Note that “My way” of doing it is not necessarily the only good way!

Contents

- What are we aiming for?
- Measuring things
- Discussion on key elements
  - Sugar / Acidity / Tannin / Nitrogen
- Categories of apples
- Planning the blend

What are we aiming for?

- The best possible cider!
  - We need to consider:
    - The type of cider wanted
    - The apples available
- The ideal cider blend
- The quality of the apples

What are we aiming for?

- The ideal cider blend:
  - High sugar content
    - S.G. 1.060 or more (Brix 15 or 8% potential alcohol)
  - Moderate (or balanced) acidity
    - T.A. around 0.6 - 0.8 % as Tartaric acid
  - Tannin content according to the type of cider wanted
  - Low nutrient content (Nitrogen) for slow fermentation

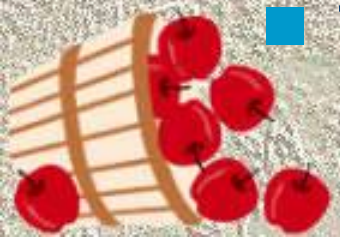
What are we aiming for?

- The highest quality of apples for cider are obtained from:
  - late maturing varieties
  - fully ripe or slightly overripe
  - from a nutrient depleted natural orchard
  - from old standard trees
  - may be scabby and wormy
- Cultural practices :
  - apples for cider should not be grown the same way as apples for fresh eating!

Cortland apples, commercial vs my orchard

Measuring things

- Making a juice sample - mini press
- measuring sugar - hydrometer / refractometer
- measuring acidity - titrable acidity kit / pH meter
- evaluating tannin - tasting (measurement possible, but more difficult)
- evaluating Nitrogen - cultural practices / size of fruits / orchard
- The importance of keeping records



Discussion on the key elements:

- Sugar
- Acidity
- Tannin
- Nitrogen

Sugar

- high sugar for alcohol
- high sugar goes with late apples - more flavor
- high sugar goes with low Nitrogen - slower fermentation
- min blend SG for a good cider is 1.050 (Brix 12.5, potential alcohol 6.2%), the more the better
- if SG lower, try to find better apples rather than raising SG by adding sugar...

Sugar

Sugar content	S.G.	Brix	% pot.Alc	comment
very low	1,040	10	5	no good for cider
low	1,050	12,5	6,2	entry level
medium	1,055	13,5	7	
high	1,060	15	7,8	good
exceptionnal	1,070	17	9	

Acidity

- It is important to keep the acidity of the blend in the range of 0.5 - 0.9 % T.A. (expressed as Tartaric acid)
- Too much acidity will give a tart cider
- Too little acidity might give problem during fermentation, also the cider will lack freshness

Acidity

- For a refreshing sparkling Champagne type, we would try to be in the upper limit of this range (i.e. 0.8% TA)
- For a flat cider, European style, we would rather try to be in the lower limit (0.55%)
- When fermentation is slow, the acidity will mellow with time through a process called malo-lactic fermentation that usually naturally occurs the following summer

Acidity

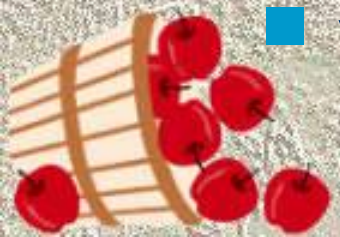
Acidity	% T.A. as Tartaric	% T.A. as Malic	pH	comment
low	0.1 - 0.4	0.1 - 0.35	3.8 +	sweets, bittersweets
medium	0.5 - 0.7	0.45 - 0.6	3.5 - 3.4	balanced, ideal
high	0.8 - 1.0	0.7 - 0.9	3.3 - 3.1	most eating apples
very high	1.0 +	0.9 +	3.0 -	most cooking apples

Tannin

- type and amount of tannins influence the type of cider
- sparkling Champagne (Common cider) type will normally have light tannin
- English or Norman types will normally have stronger tannins typically obtained from special cider apples
- bitterness and astringency are obvious sign of tannin
- you may make the distinction between hard (bitter) and soft (astringent) tannins

Nitrogen

- In his book, Andrew Lea calls Nitrogen «The forgotten element». It has an influence on the speed of fermentation as N is a yeast nutrient
- slower fermentation -> better cider
- fertilized orchard -> high nitrogen content
- early apples ferment quickly while overripe late apples ferment more slowly
- older trees give fruits with lower nitrogen
- you may reduce the N content by keeving



Categories of apples

- First choice
  - High sugar apples
  - Low acid apples
- Medium sugar apples
- Useless apples
- Special apples

Category: High sugar apples

- SG > 1.060, with medium to very high acidity
- Important to have a good supply to provide the alcohol and flavor to the cider.
- Varieties:
  - some cider apples (Porter Perfection)
  - most russets (Golden, Roxbury, Belle de Boskoop, Ashmead)
  - many high flavor late apples when well grown (King of Pippins, Sandow, Ribston, Honeygold)
  - some mild crabs (Bilodeau)

Category: Low acid apples

- TA < 0.5%, with varying amount of sugar
- Essential for blending with high sugar apples that usually contain too much acidity
- Also often rich in tannins
- Varieties:
  - sweet and bittersweet cider apples: Yarlington Mill (also high sugar), Tremlett Bitter, Bulmer's Norman
  - some wild seedlings: Douce de Charlevoix
  - most pears.

Category: Medium sugar apples

- These have low to medium sugar (SG 1.045 - 1.055), with medium to high acidity
- Will be used when there is not enough high sugar apples
- Varieties:
  - many sharp and bittersharp cider apples: Brown's Apple, Breakwell Seedling, Stoke Red
  - many late and mid-season eating apples: Frostbite/Minn 447, Honeycrisp, Lobo, Wealthy, Haralson, Alexander, Winter Banana, Freedom

Category: Useless apples

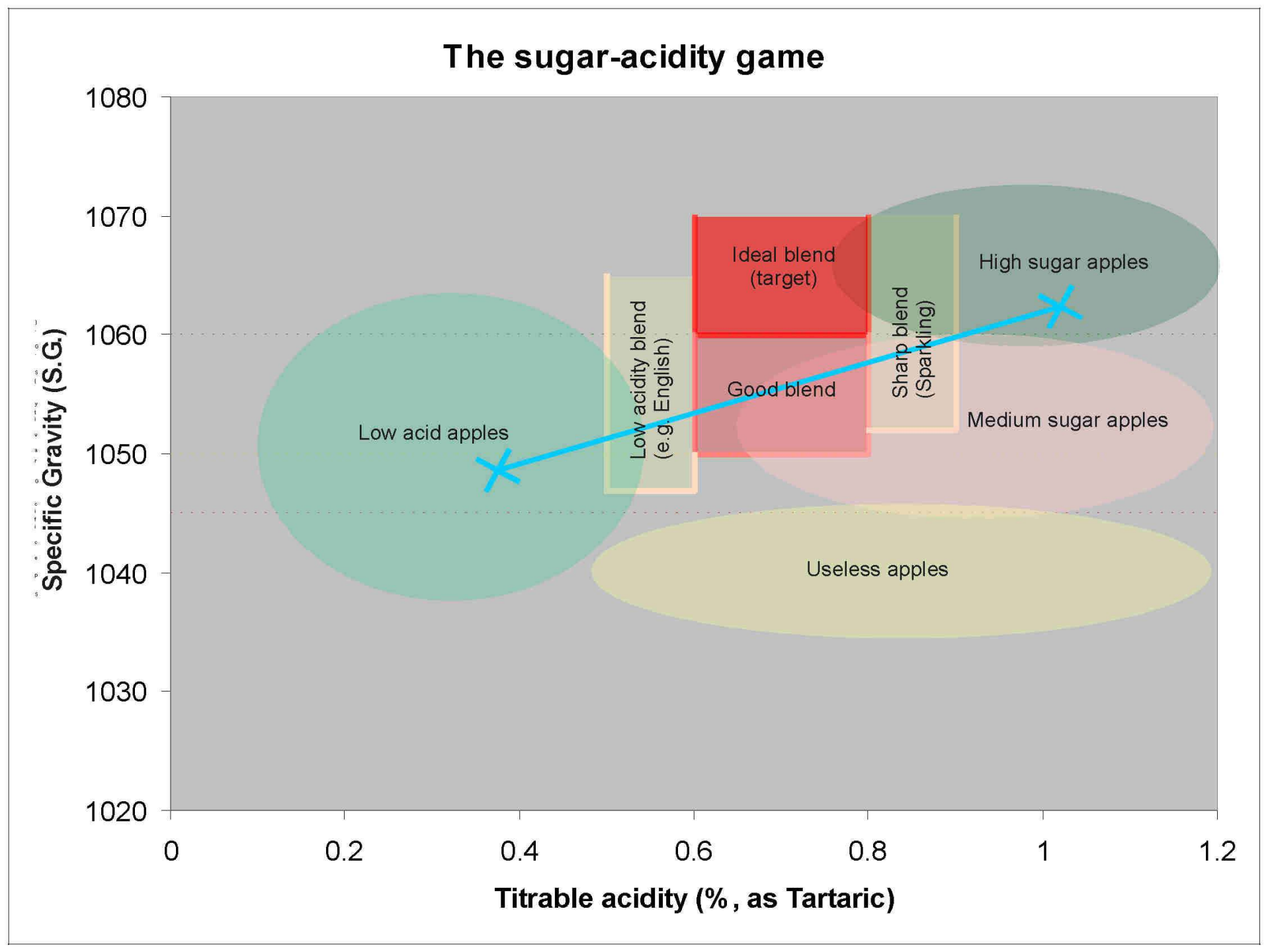
- very low sugar (SG < 1.045), high or very high acid (TA > 0.8%), high N, no tannin
- Preferable not to use those for cider - may be useful for fresh juice, or fermented for vinegar or cooking uses.
- Varieties:
  - most early season apples: Yellow Transparent, William's Pride, Redfree, Duchesse, Melba
  - most mass production eating apples: McIntosh

Category: Special apples

- There are some apples that can bring something special to the cider even if they are not in a desirable category
- Would normally need to be blended
- Dolgo (SG 1060, TA>2%) very special perfume and aroma, but acidity so high
- Kerr is fairly similar although not quite so acid
- Geneva and other redflesh are usually very low in sugar and high in acid, but can add some nice pink color

Planning the blend

- Demonstration of the « Blending Wizard »
  - Download it from: http://www.ciderworkshop.com/claudeswizard.html
- Typical case examples: High acid juice with low acid juice to obtain a balanced blend
- Special apples blending examples


The sugar-acidity game
1080
1070
1060
1050
1040
1030
1020
Specific Gravity (S.G.)
0
0.2
0.4
0.6
0.8
1
1.2
Titrable acidity (%, as Tartaric)
Ideal blend (target)
Good blend
Low acidity blend (e.g. English)
Sharp blend (Sparkling)
Low acid apples
High sugar apples
Medium sugar apples
Useless apples

Conclusion

- A great cider requires great apples, and your blend is the first and most important step
  - Search for highest possible sugar content, balanced acidity, some tannin
  - Favor late season apples from unfertilized orchards - small and ugly is beautiful!
- Promote a slow fermentation
  - always remember that the most important virtue for a cidermaker is PATIENCE
  - a great cider needs time to make itself.


The End