CALCULATING ABV OF CIDER

Much of this is derived from detailed information in Clause Jolicoeur's book (The New Cidermaker's Handbook).

The simple approach to determining ABV of cider, apart from using a published table, is to calculate using one of the following formulae.

ABV% = 130 X (OG-FG) as used by Claude Jolicoeur, or **(OG-FG)/8 as** used by Andrew Lea (Craft Cider Making).

So, a cider with OG of 1.050 and FG of 1.000 will have a calculated ABV of between 6.25% and 6.5%. depending on which formula is used. I like to use the first formula because the mental arithmetic is easy and if anything, it might slightly overstate the ABV, (i.e. it errs on the side of caution).

Depending on the actual composition of the juice, the (OG-FG) multiplying factor can be between 127 and 130, however the difference between them is only around 2.5% which is well within the bounds of accuracy required for craft cidermaking.

To quote Claude Jolicoeur *"most cidermakers are usually only interested in knowing the alcoholic strength within about 0.5 percent"*. Andrew Lea expresses similar views.

Both formulae are derived from empirical data of the sugar content and SG of juice from a range of apples. Having said that, it is also possible to derive the ABV from "first principles".

We use SG as a proxy for the sugar content of juice. However, SG is a measure of the density of juice which results from sugar and other non-fermentable compounds such as tannin, acids, etc. In practice, sugar only accounts for about 80% of the density compounds. But, of course not all compounds affect SG to the same extent so, for most cider making purposes we can use SG to reflect the sugar content of juice.

A typical juice with a SG of 1.050 might have 130g/Litre of compounds that make up its SG. But in practice, the fermentable sugar might only be around 100g/Litre or so.

When the sugar is fermented it produces roughly 50% alcohol and 50% CO_2 (it can actually be a bit less than this but we are only dealing with approximations here as it isn't practical to take into account all of the minor variables involved in cider making). So, a simple approach works quite well).

The alcohol produced from fermenting the 100 grams of sugar will be around 50 grams. As 10g of alcohol has a volume of 12.5ml, the cider wll contain something like 63ml of alcohol per litre (1000ml), i.e.around 6.3% ABV.

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