

Beyond the Cooling Tray....things to consider for a successful roast

Before we even delve into the complex world of roast development and profiles (which we will do in future issues) there are a few things we need to consider *Beyond the Cooling Tray* – as we (roasters) all know that feeling of being ‘*All Tried Out*’ churning through kg & kg of coffee trying to achieve a successful roast!

Often overshadowed by the romance of it all, roasting is very much a craft based on learnt skills that are passed down through training and tradition. And, like any craft, it takes logging some serious time and experience with the *Tools and Raw Materials* to learn and master the craft, the craft of roasting.

You can definitely learn how to turn beans brown very quickly. But can you turn them brown with the right amount of skill and understanding required to expose the true character and quality of the beans as well as put your own ‘design/stamp’ on the roast?

There are many decisions going on in roasting as well (I often say if you are not good at being decisive, don’t get into roasting!!), but it is the final decision of when to stop roasting that makes the roaster (& company) who & what they are – their style, their stamp, their signature, their point of difference.

Along the way there are gauges, timers, numbers, ratios, profiles etc. telling you many things about your roast, but it is your intimacy with the development of the bean that is the true indicator of your skill & understanding of the craft of roasting. That smell, that expansion, that colour, that crack/sound combined with the decision to end the roast and the hope that it will taste as intended.

So, how do you know where to start? Before we delve into the complexities of development and roast profiles, here are some key things I always consider about the *Tools and Raw Materials* in order to help get me on track for a successful roast (and on the way to achieving the desired end flavour):

- **Know your Green! Know your Green!! Know your Green!!!**
 - Measure the *Moisture Content* – water acts as a catalyst – knowing if a bean has high or low moisture content will help determine a starting temp & heat application in line with a particular batch size – regular moisture reading checks on your green also help to show if any big environmental fluctuations in the storage area of your green are potentially affecting the quality of your green. Ideal storage conditions are 20°C and 50% humidity. Don’t store your green near or next to your roaster! If you don’t have a moisture meter, get one asap!!, and your trader should also be able to provide you with info on moisture content initially at time of purchase.
 - Measure the *Density* – how hard or soft the bean is will also help determine a starting temp and heat application at certain parts of the roast in line with a particular batch size
 - If you have access to grading screens, ascertain the *Screen Size* of the bean – if not, ask your trader for this info – knowing the size will help confirm how the bean rolls in the drum and takes on heat throughout the roasting process...also important to know if you are pre-blending (different size beans will roast at different rates and produce a very uneven roast if you don’t try and match your screen sizes evenly)
 - Know the *Age* of your green – Past vs Fresh crop (tied into your moisture content) is essential to know for when choosing a roasting approach - if you are pre-blending your

beans, they may be the 'same origin' but if of different age/crops they will roast very differently and produce an uneven roast

- Know the *Process* – Washed vs Natural vs Pulp Natural vs Honey etc. – and the effect this will have on the roasting approach (post vs pre-blending etc.) and end flavour - definitely something to delve into in future issues...
- Know the general, expected flavour of the origin you are roasting – as this, combined with everything else you know about your *Tools & Raw Materials*, will allow you to think about how to approach a certain profile/development for that coffee - definitely something to delve into in future issues...
- **Know your Roasting Mantra/Style** – do you roast everything separately and post blend vs pre-blending/roasting – this will have a significant effect on the way you run your roasting business in its entirety – the end flavour, cost of labour, cost of materials etc. etc.
- **What number roast will it be for the day** – first vs middle vs last – the roaster will be at various levels of heat intensity throughout the roasting session & will also determine starting temps in line with the batch size and green info.
- **Record the Environmental Conditions of Roasting Room** – high humidity in particular is a fierce (life sucking) enemy of burners on a roaster (as our roasting friends in Far North QLD know too well!!) Knowing the seasonal conditions will also help show if/how any big environmental fluctuations are potentially affecting the roasting approach and quality of your green etc. Ideal green bean storage is 20°C & 50% humidity. Don't store your green near or next to your roaster!
- **Know what Roasting System/machine you are roasting on** – Conduction(eg: Probat) vs Convection (eg: Loring) vs Radiant(eg: Diedrich) – understand this in line with your green information and it will help determine optimum starting temp, batch weight, turning point, heat application for the rest of the roast.
- **Know your Roasting Machine more specifically**
 - *Type of Drum* –single wall vs double wall, solid vs perforated, mild steel vs cast iron
 - *Capacity of Drum* – 80% charge is suggested as max. capacity – allows better room for beans to roll & expand in the drum
 - *Drum Speed* – htz & rpm are different – ask the roasting machine manufacturer for recommended rpm in accordance to width/size of your drum – the motor driving the drum will then have a certain htz read out relevant to that rpm
 - *Airflow settings* – baffle vs fan speed – 2 very significant effects on the roasting process – definitely something to delve into in future issues.....
 - *Type of Burners* – indirect vs direct- trumpet vs ribbon vs waffle vs infrared etc.
 - *Type of Gas* – natural vs LPG
 - *Type of Controls* – auto vs manual - modulating vs switches/buttons vs computer controlled
 - *Flue Design* – avoid corners/bends at all costs – correct diameter, length and direction of flue is essential for creating the right amount of draw out of the flue...
 - *Correct Placement* (right in the bottom of the bean mass) and diameter (no more than 3mm thick) of *Bean Temp Probe*– essential for accurate readings
- **Have an idea of the desired Development Ratio and Weight Loss** – with this in mind it is then easier to '*follow the coffee*' as it roasts and develops in response to your control over the roaster and heat application - will be a reflection of your roasting style and intended end flavour, definitely something to delve into in future issues.....
- **Always idle the roaster consistently in-between roasts** to maintain stable heat in the drum

- **Always pre-heat (and cool down) sufficiently** Don't rush it! It should take 30-45min. for a roaster to pre-heat (and cool down) so that the exhaust temp is always hotter than the bean temp - there is no excuse that the first roast should ever be too different to the other roasts!
- **Always work/plan methodically & consistently** so if something does change/go wrong you will be able to troubleshoot where the change came from
- **Always keep thorough roasting records and cupping notes** – you will start to see patterns and learn the differences between the different beans based on the data you collect (especially when you make mistakes!). This data will really help with future roasting & green bean purchasing decisions
- **Always Taste – Taste is King!** Know what your coffee tastes like from samples/cupping/tasting beforehand so you can then translate this over into your production roast style and know where you're headed with the desired end flavour.

Now that's a lot to think about all at once in order to get a successful roast!

And that's before we even get to the topic of choosing an appropriate development and roast profile!!

So with all these awesome points now on the *Tools and Raw Materials*, we can be better armed for a successful roast - & I'm looking forward to digging into some of these in a little more detail in future issues.

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