Consumers desire safe, simple and clean healthy food. While the FDA may not have a definition for what exactly counts as a “clean label,” consumers are asking to buy them. So how do you, as a food innovator, approach this clean trend?

**Understanding the Clean Label Trend**

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**The trend:**

- The share of clean label sales has increased in the last two years, making up to 33% of total food and beverage sales last year.
- At least 93% of U.S. households have purchased a clean label product at a grocery store.
- Half of all shopping trips now include the purchase of a clean label product.

**Clean labels are generally recognized as:**

- Simple and short ingredient lists
- No chemicals, artificial preservatives, color agents or flavor agents
- Minimally processed
- Ingredients that are easy to read
- Pantry ingredients

**Why did we start ‘dirty’ in the first place?**

- Cater to our processes
- Produce food safe products.
How to bake a clean label

Baking clean label is not impossible. In fact, there are plenty of resourceful substitutes that fill in just fine. When going clean, here are areas that affect the baking industry.

1. Colors
   - Try natural colors like annatto and turmeric for yellow and orange, beetroot juice for red and algae for green can replace artificial colors.
   - Ask for gel versions as they will work best to avoid diluting your system and affecting viscosity and flavor.

2. Flavors
   - Replace artificial butter flavors with concentrated dairy products, buttermilk and yeast-based extracts.
   - Replace artificial fruit flavors with concentrated fruit powders.

3. Emulsifiers
   - Emulsifiers are tiny molecules that make interfaces like oil in water, or air in water, stable.
   - For frosting: Alpha cyclodextrins
   - For cake and frozen batter: Canola/soy lecithin, wheat protein isolates, and enzyme blends.

4. Dough Conditioners
   - Ingredients: Vital wheat gluten and enzymes like glucose oxidase, xylanase and phospholipase
   - Process: age flour for up to 14 days, and use longer fermentation times for sponges (4-8 hours).

5. Enzymes
   - Act as a natural alternative for many ingredients and functions.
   - Improve flour quality and emulsification
   - Increase water absorption and the machinability of the dough.
   - Enzyme and ascorbic acid blends have been used to replace potassium bromate, ADA, DATEM and SSL.
6. Leavening Agents

- Aluminum and phosphates in ingredients like SALP are being replaced by fast-acting baking powder systems.
- New: ‘Heat activated’ leavening system that is extremely process tolerant and not susceptible to react prematurely during the pre-baking process. It’s a sodium bicarbonate with a chloride.

7. Heat Treated Flour

- Some consumers are shying away from chlorinated flour, a key ingredient for the high ratio cakes baked in the US.
- Cake flour is usually treated with chlorine gas to modify the starch, which provides viscosity and structure to the cake batter.
- Instead, get this functionality with: heat treated flour and pregelatinized starch.

8. Fats

- Trans-fat free alternatives have been in place since regulation in 2018.
- Palm oils are common alternatives.
- Algae butter could be the next big thing.

9. Anti-mold

- Key elements to prevent mold: sanitation and water activity.
- Humectants like sugar or honey and other ingredients like salt or gums decrease water activity, making less water available for mold growth.
- Naturally-obtained sorbic acid can replace potassium sorbate. In yeasted foods, use the encapsulated form.
- Other alternatives for bread: cultured wheat, whey with vinegar, prune and raisin concentrates, rosemary extract, cinnamon and clove.

10. Antioxidants and Chelating Agents

- Try rosemary extract to replace TBHQ in icings and frostings.
- It has been used to replace it at a higher ppm, and with relatively with no change in organoleptic attributes.
11. **Starches**

- Mechanically *pregelatinized starch* can replace chemically modified starch and dextrin.
- Emulsifier replacement: The modifications provide viscosity, increasing the stability of the networks previously supported by emulsifiers.

12. **Fibers**

- *Soluble fibers*: show promising emulsifying properties.
- *Aqua faba*: used in home baking for egg replacement. It’s currently studied as a commercially viable ingredient in New Zealand.
- *Maple fiber*: has been studied and shows promising results in replacing mono and diglycerides. Instead of chemicals, it uses water under pressure and high temperature for extraction.

13. **Hydrocolloids/Gums**

- Improves viscosity and functions in batters to handle *specific gravity* issues.
- *Xanthan gum* and *Guar gum* can help replace emulsifiers.

**Ways to clean up your label through process:**

1. *Sponge and dough systems*: naturally hydrate dough to make it easier to machine.
2. Stress-free dough handling system: eliminate many dough conditioners.
3. *Thermal profiling*: a longer bake out will help dry out the baked good and reduce mold issues.
4. Easy-to-sanitize cooling system: reduce dependence on mold inhibitors.

**In Conclusion:**

- It’s all about knowing what role ingredients play in your formulas, and finding natural alternatives that fill the same role.
- Pay attention to all aspects of your process, including fermentation times, temperatures and where other ingredients and adjusted ratios can carry the weight.
- It seems the clean-label trend is here to stay. So we’ll just keep finding innovative solutions, experimenting, and baking.

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