

# Cider Production – Science, Technology & Quality Control

Do you want to further develop the skills, knowledge & understanding necessary to produce quality cider and perry for the 21<sup>st</sup> century consumer?  
Then, this is THE class to attend!

## Introduction

This advanced class builds on *Cider Making – Principles & Practice* and *Cider Making – A Foundation* and aims to provide:

- A detailed appreciation of the underlying science, microbiology and technology of cider making;
- Knowledge and understanding of hygiene and microbiological control;
- A detailed insight into the techniques and application of laboratory analysis;
- An appreciation of a range of techniques involved in product development and the application of sensory evaluation for commercial cider production.

## Who is the class for?

Although primarily aimed at those who have previously attended introductory cider making programmes such as those identified above, this class is also suitable for experienced producers and individuals from established and growing cider businesses.

## How is the class organised?

The class is made up of three seminars as detailed on the programme: (1) Microbiology & Hygiene Control. (2) Science, Technology, NPD & Lab QC. (3) Sensory Analysis. Although all three seminars are interlinked, they are available separately if required.

**Practical work** involves new product development (NPD) blending trials, laboratory analysis and expert-led sensory evaluation sessions.

## Syllabus

**Cider Microbiology & Hygiene Control:** Cider yeasts and bacteria. Microbial contamination & spoilage. Cider faults – detection, correction and prevention. Fermentation yeast selection, behaviour, management & nutrition. Application & management of malo-lactic fermentation. Pasteurisation and sterile filtration. Chemical preservation and the use of SO<sub>2</sub>. Plant & equipment sanitisation and hygienic design. Hygiene control and hygienic design. Pest control. Cleaning & disinfection. HACCP/HAQCP.

**Principles & Practices of Commercial Production:** Planning for production. Quality Assurance & Quality Control.

**Science, Processes & Technologies of Cider Production:** Juice extraction and processing – Milling and pressing. Enzymes. Concentration and use of concentrate. Fermentation biochemistry, technology and management. Maturation science, technology & control. Pumps & pumping. Fining. The chemistry of cider: phenolics and the flavour of cider.

**Product Development:** Background to NPD in cider production. Product recipes & specifications. Practical blending and product make-up trials.

**Laboratory Quality Control:** Chemical methods of analysis; microbiological analysis. Laboratory organisation, safety, management and Quality Assurance. Design of Quality Control schedules. Sampling. Data analysis and interpretation.

*The practical sessions are designed to assist the Cidermaker make choices with respect to implementation of laboratory analysis: In-house or out-sourcing.*

**Sensory Analysis:** Conduct and organisation. Cider flavour: Components & chemistry. Development of product profiles. Use of flavour wheels and attribute tables. Organoleptic faults in cider: Identification, causes & prevention. Sensory analysis: Hedonic & analytical methods.

## Class Dates & Costs

- Date: 8<sup>th</sup> – 12<sup>th</sup> December 2008
- Cost: TBA (Contact as below)

## Where is the class run and who is the tutor?

**Washington State University's Northwest Research and Extension Center (NWREC)**

16650 State Route 536,

Mount Vernon

WA 98273-4768

**Contact: Debra Lancaster** – Tel. 360-416-7605;

email: [Debra.Lancaster@skagit.edu](mailto:Debra.Lancaster@skagit.edu)

*The tutor:*

**Peter Mitchell** – a highly qualified and internationally recognised expert in cider and perry making and tasting, leads the class. With 25 years of practical experience, he is a professional trainer, a UK and USA cider competition judge and an award-winning producer in his own right.

[www.mitchell-fd.co.uk](http://www.mitchell-fd.co.uk)

