

Team Led Laboratories to Facilitate Learning



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Team Led Laboratories to Facilitate Learning

- Food processing class, general challenges, specific challenges
- Approach using team led laboratories
- Adaptation to other food science laboratories
- Essentials for success

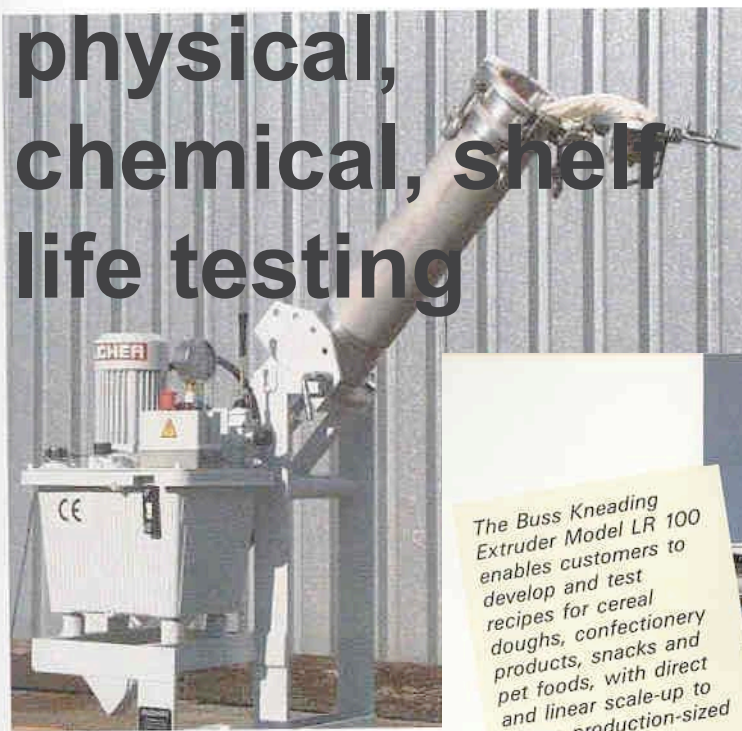


Course Objective: food processing

- To study the fundamental principles underlying preservation by food processing; to learn methods to create and maintain environmental conditions under which spoilage is eliminated or retarded.
- To learn the concepts involved in food processing by active participation in class discussions, laboratory activities, and written assignments.



Pilot processing of foods for sensory, physical, chemical, shelf life testing



The Buss Kneading Extruder Model LR 100 enables customers to develop and test recipes for cereal doughs, confectionery products, snacks and pet foods, with direct and linear scale-up to larger, production-sized machines.

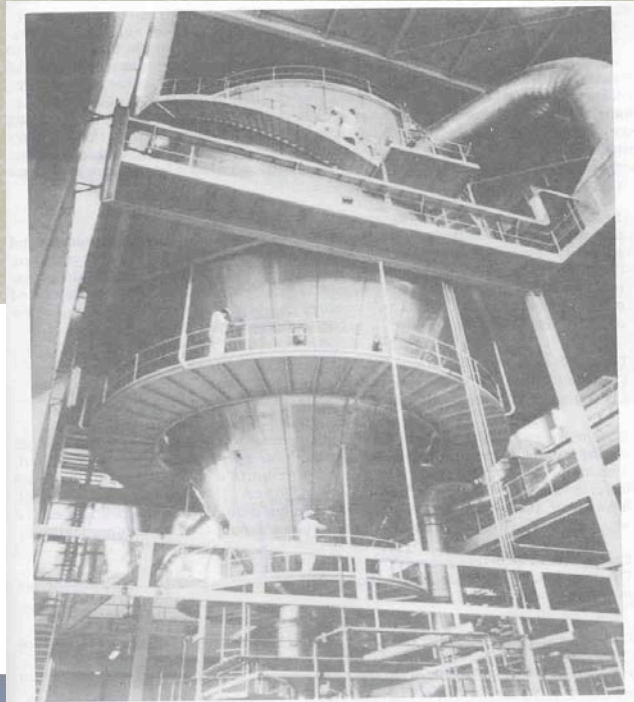
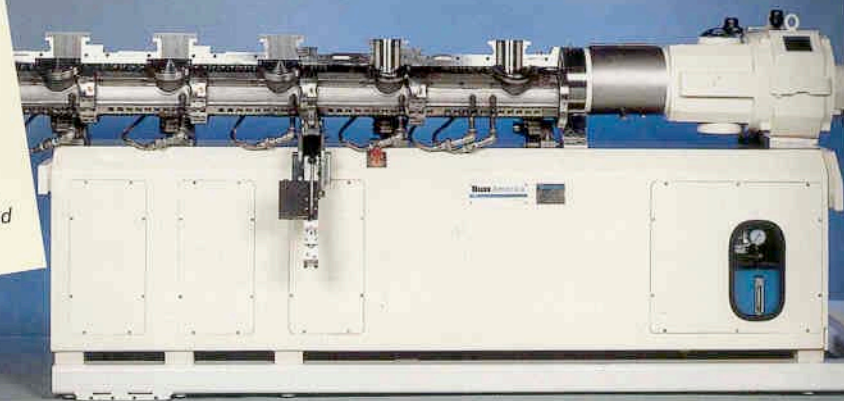


Fig. 14.9 — Spray drier. (Courtesy of De Melkindustrie Veghel).







Catalyst for change

- Larger enrollments, double lab periods
- Experienced TAs
- Lack of dedicated equipment
- Limited hands on opportunities
- IFT, accrediting professional society, emphasis on teams



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Approach using team led laboratories

- Class is divided into 4 teams for 4 labs
- Organizing team sets up the lab for the 3 participating teams
- Participating teams are responsible for performing the lab, write an exhaustive lab report as a team, write a one-page abstract individually
- Organizing team receives a group score
Participating teams receives a group and individual score



Approach using team led laboratories

- Organizing team sets up the lab for the other 3 teams, prepares a time-line, prepares the lab handout, data sheet, compiles the data, distributes lab tasks during the lab period, prepares reagents, obtains raw material, posts the final results




Approach using team led laboratories – nuts and bolts

- Organizing team meets with TA & instructor ~ 2 weeks before lab
- Half page introduction, information on resources and protocol, deadlines
- Team starts compiling lists of tasks and dividing responsibilities
- Available help times are decided



Approach using team led laboratories – nuts and bolts

- Planning and communication essential
- WebCt, email, cell phones
- Teams assigned by instructor based on questionnaire, coursework, experience, observations during “trial” labs and data analysis



Approach using team led laboratories – nuts and bolts

- Lecture/lab course includes a “Carole Leland 7 principles lecture”
- Consciousness of self, Congruence, Commitment, Collaboration, Common Purpose, Controversy with Civility, Citizenship
- IFT, industry case stories
- Good and bad examples from previous classes
- Faculty “success” stories




The seven principles lecture....



Examples of Controversy
with civility or
Consciousness of self





Approach using team led laboratories – nuts and bolts

- Participation
5%
must be earned
- Peer evaluation
comment sheets
10-30%
score plus narrative of specific contributions
- TA feedback
- Staff feedback



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Adaptations to other classes

- Food microbiology
- Others?



Essentials for success

- Pilot plant crew
- Teaching assistant
- Split level classes (teams ~3-4)
- Tolerance for ambiguity
- Flexible
- Planning and communication
- Team of instructor, TA, students and staff



Outcomes of team led labs

- Opportunity for hands on, learn the break down and set up of equipment
- Enhanced learning, experimental design
- Students enjoy the responsibility and ownership of a laboratory
- Semester to semester variation in quality of the laboratory experience was minimized
- Graduate student skills relied more on organization than experience with the course, language skills to direct a lab