CURRICULUM VITAE

GORDON YOUNG

NAME:	Gordon Stephen YOUNG
CURRENT POSITION:	Senior Food Process Engineer Food Industry Engineering (Associate of FoodStream Pty Ltd)
TERTIARY EDUCATION:	Bachelor of Engineering (Agricultural) from the University of Southern Queensland - 1980. Master of Engineering Science from the University of Melbourne - 1987. Graduate Diploma of Business (Technology Management) – 1995 Approved Person for Thermal Processing of Low Acid Foods (Qualified Cannery Person's Certificate) – 1995 Certificate IV in Assessment & Workplace Training
PROFESSIONAL ASSOCIATIONS:	Member of the Australian Institute of Food Science and Technology

AREAS OF EXPERTISE:

Food process engineering and food technology, particularly relating to:

- Thermal processing (recognised by AQIS as an "Approved Cannery Person" for the design of thermal processes)
- Drying of food products
- Education and training (industry short courses in relevant technical areas and tertiary level teaching)
- Extrusion technology for foods

CONSULTANCY EXPERIENCE INCLUDES:

- Design/validation of thermal processes for retort pouch products (including meats, rice, desserts, and seafood), and submission of thermal process applications to Dept of Agriculture Biosecurity (formerly AQIS -Australian Quarantine & Inspection Service) for export approval
- Advice on the setting up of retort systems
- Provision of industry training in retort operation, extrusion, and drying

- Manufacture/preservation of coconut products
- Design of a bulk drying system for peanuts
- Design of a belt drying system for root ginger
- Design/development of fluid bed dryers for tea processing
- Provision of technical services for the production of hot fill products
- Advice and equipment selection regarding the establishment of a mango puree processing line
- Advising on equipment used to process meat for the production of a dried mince product
- Advising on improvements to a continuous pet food dryer
- Design of a drying/storage system for macadamia nuts
- Design and equipment specification for the drying of other products including mangoes, pepper, and tea
- Development of extrusion processes for a range of products including stock and aquaculture feeds, breakfast cereals, and expanded snacks
- Improving performance of a pasta manufacturing line
- Provision of technical assistance for the production of a frozen baby food product
- Technical adviser to a joint venture project on drying of molasses (utilising microwave technology)
- Drying and heat preservation trials for mango products
- Design of systems for heating fruit for disinfestation
- Technical input into feasibility studies on establishing a processing plant to produce fruit chips (Tasmania) and general fruit processing (north Queensland)

OVERSEAS EXPERIENCE

- Troubleshooting and factory audit, condensed milk processing, Brazil

- Retort temperature distribution and process validation work in New Zealand, Thailand, and India

- Presenting Retort Supervisor's Courses in Papua New Guinea.

- Presented Thermal Process design ("Approved Persons" level) and retort Supervisor's training in Fiji 2013 (for the Pacific canning industry, organised by the Secretariat of Pacific Communities)

- Successfully organised and presented international training courses in Bangkok, Thailand:
    - "Food and Feed Extrusion Technology", 2004 to 2014 (every one to two years).
    - "Food Water Activity & Drying Technology" 2006, 2009, 2011, 2012, 2014.

- Processing of seaweed for carrageenan production in The Philippines

- Jointly organising and presenting short course on food drying technology, Bangkok 1996.

- Involvement in a project concerned with the development of low-cost heat disinfestation systems for fruit and vegetables - cooperators in Thailand and Vietnam.

PROFESSIONAL POSITIONS HELD:

Food Industry Engineering

July 1997 to present

Position Held: Director

Consultancy and training in the food processing industry in areas previously listed. Some of this work is carried out through FoodStream (see following). See www.fie.com.au.

Foodstream Pty Ltd

November 2005 to present

Position Held: Senior Food Process Engineer (also Director of FoodStream to June 2014)

One of the three founders of FoodStream. The company was formed to bring together a range of expertise relevant to food processing, enabling a more complete/comprehensive service to be offered to clients. Services available in most areas relating to food processing, including food product and process development, food preservation and quality, plant design, equipment selection, food product labelling, and food marketing. See www.foodstream.com.au.

Food Science and Technology, School of Land and Food Sciences, The University of Queensland

July 1994 to December 1999, plus on-going casual teaching

Position Held: Lecturer, Food Engineering

- Lecturing in food engineering and basic food technology.
- Responsibility for managing industry consultancies, short courses etc
- Research interests include the application of heat pump drying to the food industry (this project won the 1994 AIFST Food Innovation Award and the Industry Category of the 1993 National Energy Awards) and food extrusion
- Expertise in thermal processing (Registered by AQIS as an "Approved Cannery Person" for the design of thermal processes for low acid foods)

Queensland Department of Primary Industries, Division of Technical Services, Brisbane

June 1992 to June 1994

Position Held: Chief, Agricultural Engineering

Responsibility for the statewide management and professional supervision of agricultural and food engineering in DPI. These staff were engaged in projects involving research and extension in the following areas:

- Food process and equipment development (e.g. drying, product preparation and quality grading, waste utilisation/minimisation, process monitoring)
- Agricultural mechanisation (e.g. harvesting, tillage and seeding, conservation cropping, storage and handling)
- Waste management (in feedlots and piggeries) and animal housing (pigs and poultry)
- Aquaculture (e.g. design of facilities, energy recovery and pond heating)

During this time I also served as a Board Member of:

The Australian Agricultural Machinery Manufacturer's Association (AAMMA)
The National Centre for Engineering in Agriculture (NCEA)

Queensland Department of Primary Industries, Centre for Food Technology, Hamilton, Brisbane, Queensland

February 1987 to June 1992

Position Held: Engineer

The position was responsible for research, development and extension in food process engineering including:

- Use of heat pump dehumidifier dryers for food products. This project won a National Energy Award (1993), and the process has been widely adopted by industry.
- Investigations to improve energy efficiency of a continuous industrial ginger drier.
- Disinfestation of mangoes using microwave heating.
- Equipment for peeling and slicing mangoes. This equipment is now commercially available, including use by Golden Circle Cannery in producing canned mangoes.
- Mechanical separation of macadamia kernel fragments from the waste shell. This equipment has been commercially manufactured and sold within Australia and overseas.
- Quality grading of macadamia kernel.
- Laboratory and pilot scale equipment for a vacuum frying process.
- Efficient use of energy for on-farm milk cooling. A major output was a software based decision aid for producers.
- Coffee harvesting and processing. The harvester is now being commercially manufactured.

Department of Agriculture and Rural Affairs, Tatura, Victoria

September 1980 to February 1987

Position Held: Engineer

- Design and development of mechanical harvesting equipment, mainly for canning fruit (peaches, pears, and apricots). A production prototype harvester was produced by a private engineering company.
- Development of mechanical pruning equipment.
- Trellis structural design.

PUBLICATIONS

1. Books:

Forte, Dennis and Young, Gordon (2016) Food and Feed Extrusion Technology: An Applied Approach to Extrusion Theory. *Food Industry Engineering, Brisbane, Australia. ISBN 978-0-9945433-0-1*

Forte, Dennis. Edited by Gordon Young (2016) The Design of Food Extrusion Dies. *Food Industry Engineering, Brisbane, Australia. ISBN 978-0-9945433-2-5*

2. Refereed Papers:

Senadeera, W., Young, G.S., Wijesinghe, B. and Bhandari, B. R. (2006). Fluidization Characteristics of Moist Food Particles. International *Journal of Food Engineering 2(1)*

Senadeera, W., Bhandari, B. R., Young, G. and Wijesinghe, B. (2005). Modelling dimensional shrinkage of shaped foods in fluidised bed drying. *Journal of Food Processing & Preservation 29:109-119*

Dandamrongrak, R; Mason, R; & Young, G. (2003) The effect of pretreatments on the drying rate and quality of dried bananas. *International Journal of Food Science & Technology 38:877-882*

Senadeera, W., Bhandari, B., Young, G., Wijesinghe, B (2003) Influence of shapes of selected vegetable materials on drying kinetics during fluidised bed drying. *Journal of Food Engineering 58:277-283.*

Dandamrongrak, R; Young, G. & Mason, R. (2002) Evaluation of various pretreatments for the dehydration of banana and selection of suitable drying models. *Journal of Food Engineering 55(2):45-52*

Senadeera, W., Bhandari, B. R., Young, G. and Wijesinghe, B. (2002). Modelling dimensional shrinkage of different shaped foods in fluidised bed drying. *'**Rohana**'- The Official Journal of the University of Ruhuna..*

Bhandari, B.; D'Arcy, B. and Young, G. (2001) Flavor retention during high temperature short time extrusion process: a review. *International Journal of Food Science & Technology 36(5):453-462*.

Senadeera, W.; Bhandari, B.R.; Young, G. and Wijesinghe, B. (2000) Methods for effective fluidization of particulate food materials. *Drying Technology 18(7)1537-1557*

Senadeera, W., Bhandari, B. R., Young, G. and Wijesinghe, B. (2000). Physical properties and fluidisation behaviour of fresh green bean particulate during fluid bed drying, *Food and Bioproducts Processing, Trans IchemE*, Part C, Volume 78: 43- 47.

Kowitz, T.J., Yuliarti, O., Mason, R.L. and Young, G. (2000). In-shell drying temperature and immaturity can adversely affect the quality and composition of raw and roasted macadamia kernel. *Australian Nutgrower 14(1):5-10*

Senadeera, W.; Bhandari, B.R.; Young, G. and Wijesinghe, B. (1998) Fluidization Behaviour of Cylindrical Green Bean Particulates during Drying *Tropical Agricultural Research 10:192-202.*

Senadeera, W.; Bhandari, B.; Young, G. and Wijesinghe, B. (1998) Change of physical properties of green beans during drying and its influence on fluidization. *Drying '98*

Britnell, P., Birchall, S., Fitz-Payne, S., Young, G., Mason R. and Wood, A. (1994) The application of heat pump dryers in the Australian food industry. *Drying 94. Voliume B, Proceedings of the International Drying Symposium, Gold Coast, Australia, August 1994.*

Mason, R.; Britnell, P.; Young, G.; Birchall, S.; Fitz-Payne, S. and Hesse, B. (1994) The development and application of heat pump dryers to the Australian food industry. *Food Australia* 46(7):319 - 322.

Young, G.S. and Jolly, P.G. (1990) Microwaves: The potential for use in dairy processing. *Australian Journal of Dairy Technology* 45(1):34-37.

Young, G.S. (1987) Tree line seal for continuous mechanical harvesting of fruit. *Applied Engineering in Agriculture* 3(1):25-27.

Young, G.S. and Jerie, P.H. (1985) Structural investigation of the Tatura Trellis. *Transactions of the ASAE* 28(1):75-78,82.

Young, G.S. and Jerie P.H. (1984) A cutter bar for summer pruning Tatura Trellis Fruit Trees. *Agricultural Engineering Australia* 13(1):19-23.

Young, G.S. (1983) Wire tension and post load measuring instruments. *Agricultural Engineering Australia* 12(2):10-16.

3. Monographs and Chapters

Senadeera, W., Dandamrongrak, R., and Young, G. (2011) Experimental investigation on extruded snack products from rice and Mung bean : optimization of parameters. In Alves-Filho, Odilio, Eikevik, Trygve, & Alves, Svetlana (Eds.) Proceedings of the 5th Nordic Drying Conference (NDC 2011).

van Doore, F. and Young, G. (2004). Dynamics of the Australian Petfood Industry. Publication PRCOPIC.09, Meat & Livestock Australia

Senadeera, W., Bhandari, B. R., Young, G. and Wijesinghe, B. (2000). Physical property changes of fruits and vegetables during hot air drying. In *Drying Technology in Agriculture and Food Sciences*, pp 149- 166. Eds. A. S. Mujumdar, Science Publishers, Inc., USA.

Young, G. and Wijesinghe, B. (Eds) (1997) 'Heat Pump Drying Technology for the Food Industry' (Department of Primary Industries Information Series QI97082, Brisbane, Qld)

Young, G. (1997) Introduction to food drying. In 'Heat Pump Drying Technology for the Food Industry' (Ed G. Young and B. Wijesinghe) (Department of Primary Industries Information Series QI97082, Brisbane, Qld)

Young, G. (1997) The effect of drying conditions on the quality of dried basil. In 'Heat Pump Drying Technology for the Food Industry' (Ed G. Young and B. Wijesinghe) (Department of Primary Industries Information Series QI97082, Brisbane, Qld)

4. Other Publications

Young, G. and Forte, D (2017) Extrusion Technology – Seperceded or Super-Capable? *International Food Marketing & Technology* Vol 31 4/17.

Young, G. and Forte, D (2017) Specific Mechanical Energy (SME) in aquafeed extrusion. *Aquafeed: Advances in Processing and Formulation* 9(1)13-16.

Miladinovic, D. and Young, G. (2016) Vacuum dehydration improves physical properties of feed pellets. eFeedLink Technical Forum (http://forum.efeedlink.com/feedtech/)

Young, G. and Forte, D (2015) Extrusion of Aquafeeds. *International Aquafeed 18(2):10-12, March-April 2015.*

Senadeera, W., Bhandari, B.R., Young, G. & Wijesinghe, B. (1999). Dimensional changes of different shaped food particulates during drying. *10th World Congress of Food Science & Technology*, Sydney 3-8 October 1999. 88p.

Senadeera, W., Bhandari, B.R., Young, G. & Wijesinghe, B. (1999). Change in physical properties of green peas during fluidised bed drying. *Proceedings of the First Asian-Australian Drying Conference (ADC'99)*, Indonesia, 24-27 October 1999, 164-172.

Kowitz, T.J.; Mason, R.L. and Young, G. (1998) Ambient air temperature and relative humidity can limit the on-farm drying of macadamia nut-in-shell. *Australian Macadamia Society News Bulletin, July 1998*

Senadeera, W., Bhandari, B. R., Young, G. and Wijesinghe, B. (1998). Change of physical properties of green beans during drying and its influence on fluidization. In *Drying*'98 Volume B- Proceedings of the 11th International Drying Symposium, Halkidiki, Greece, Eds. C. B. Akitidis, D. Marinos-Kouris and G. D. Saravakos, Ziti Editions (Pub.), Thessaloniki, Greece: 1139- 1146.

Senadeera, W.; Bhandari, B.; Young, G. and Wijesinghe, B. (1998) Change of physical properties of food particulates during batch fluidised bed drying. *Australian Institute of Food Science and technology 31st Annual Convention, Melbourne.*

Smith, A.C.; Young, G. and Bhandari, B. (1996) Measuring texture of expanded corn based snacks. *Conference on Engineering in Agriculture and Food Processing, Gatton, Australia*

Young, G.; Birchall, S. and Mason, R. (1995) Heat pump drying of food products - Prediction of performance and energy efficiency. *The 4th ASEAN Science and Technology Week, Conference on Non-Conventional Energy, Bangkok, Thailand. August 1995.*

Jobin, F. and Young, G. (1994) MILKCOOL Cooling system evaluation. (Software package) *DPI Publications*.

Young, G.S. (1993) Food Drying - Basic principles and methods. *Seminar on the Development and Application of Heat Pump Driers, Brisbane, March 1993; Sydney February 1994; and AdelaideJune 1994* .

Young, G.S.; Mason, R.L.; Britnell, P.M; Birchall, S.; and Fitz-Payne, S. (1992) Dehumidifier heat pumps for process drying. *FoodTech Asia '92. International Food and Agrotechnology Conference, Singapore, June 1992*

Young, G.S.; Kuiper, A., and Hobson, P. (1992) Microwave heating for mango disinfestation. *Microwave Processing in the Food Industry Workshop and Conference, Deakin University, February, 1992.*

Young, G.S. (1991) Engineering for value added products. *Intensive Tropical Animal Production Seminar, Townsville, August, 1991* pp 29-41.

Young, G.S. and Britnell, P.M. (1990) Development of laboratory scale vacuum frying equipment. *The Institution of Engineers Australia Conference on Agricultural Engineering, Toowoomba, 11-14 November 1990* pp312-314

Franklin, T.G. and Young, G.S. (1990) A mango peeler/slicer for commercial processing. *The Institution of Engineers Australia Conference on Agricultural Engineering, Toowoomba, 11-14 November 1990* pp348-350

Wollin, A.S.; Young, G.S.; Franklin, T.G. and Walsh, P.A. (1990) Experiences in the commercialisation of agricultural engineering research. *The Institution of Engineers Australia Conference on Agricultural Engineering, Toowoomba, 11-14 November 1990* pp465-469

Young, G.S. (1990) Equipment problems. *A.I.F.S.T. Short Course on Hygiene and Sanitation in the Food Processing Plant, Brisbane 10-11 September 1990* pp70-75

Xu, Y.R.; Young, G.S.; Chong, Y.O, and J.N. Beltramini (1990) A study of diffusion concentration of juice. *18th Australasian Chemical Engineering Conference, 27-30 August, Auckland, New Zealand.*

Young, G.S., Wollin, A.S., Gibbons, R., Rankin, R., and Buhot, J. (1990) Future food processing and agricultural robotics in Queensland, Australia. *Robotics in Agriculture and the Food Industry. Proceedings of the First International Workshop, Avignon, France, June 14-15, 1990* pp29-33

Xu, Y.R., Young, G.S., and Chong, Y.O. (1989) China's dairy industry. *Asia Pacific Processing and Packaging* November 1989 pp7-10.

Young, G.S. (1988) Drying of food products. *UNESCO Regional Seminar on Alternative Energy Applications for Drying, Brisbane, May 1988.*

Young, G.S. and Jolly, P.G. (1989) Saving energy in an industrial ginger dryer. *Short course on Drying for Industry, Agriculture and Mining, Gold Coast, August, 1989.*

Young, G.S., Wollin, A.S., Scudamore-Smith, P.D. and Winston, E.C. (1988) Coffee - Engineering for a third world crop in a developed country. *Conference on Agricultural Engineering, Hawkesbury, 1988.*

Wollin, A.S., Young, G.S. and Juffs, H.S. (1988) Robots and intelligent automation: The potential for Australian agriculture and food processing industries. *Conference on Agricultural Engineering, Hawkesbury, 1988.*

Young, G.S. (1988) Operating costs of pasteurising milk. *Dairy Products* 16(1):26-31.

Gould, I.V., Young, G.S. and Godley, G.L. (1986) Mechanised fruit harvesting from the Tatura Trellis. *ASAE Paper No 86-1070.*

Young G.S. (1986) Removal of fruit for mechanical harvesting with minimal pre-detachment fruit movement. *Conference on Agricultural Engineering, Adelaide, 1986.*