

## REFERENCES

- Allen, D (1998). Excel Corp, Cargill Foods Company, Wichita, KS, USA. Personal communication.
- Andersen, J. R. (1995). Recent advances in real time measurements of meat quality and safety. Proc. ECCEAMST meeting, Roskilde, Denmark. Order from ECCEAMST, Utrecht, NL. 34-52.
- Andersen, J. R., Borggaard, C., and Barton-Gade, P. A. (1989). On-line system for measuring intrinsic colour of pork. *Proc.ICoMST* **35**, 208-211.
- Bechtel, P. (1986). Muscle as food. Academic Press, Inc., London, UK.
- Belk, K.E., Scanga, J.A., Tatum, J.D., Wise, J.W. and Smith, G.C. (1998). Simulated instrument augmentation of USDA yield grade application to beef carcasses. *J.Anim.Sci.* **76**, 522-527.
- Bendall, J. R. and Swatland, H. J. (1988). A review of the relationships of pH with physical aspects of pork quality. *Meat Science* **24**, 85-126.
- Benson, I.B. (1993). Compositional Analysis Using Near Infrared Absorption Analysis. In: Kress-Rogers, E., (Ed.), *Instrumentation and Sensors for the Food Industry*. Butterworth-Heinemann Ltd. Pp. 121-166.
- Berg, E., Forrest, J.C. and Fisher, J.E. (1994). Electromagnetic scans of pork carcasses in an on-line industrial configuration. *J.Anim.Sci.* **72**, 2642-2652.
- Berg, E. (1998a). How can meat quality be measured in the packing plant? *NPPC Pork Quality Summit Proc., Des Moines, IA*
- Berg, E., Engel, B.A. and Forrest, J.C. (1998). Pork carcass composition derived from a neural network model of electromagnetic scans. *J.Anim.Sci.* **76**, 18-22.
- Berglund A and Wold S (1997). INLR, implicit non-linear latent variable regression. *Journal of Chemometrics* **10**, 141-156.
- Borggaard, C., Madsen, N. T., and Thodberg, H. H. (1996). In-Line Image Analysis in the Slaughter Industry, Illustrated by Beef Carcass Classification. *Meat Science* **43**, 151-163.
- Brockhoff, P. M. (1994). Statistical analysis of sensory data (Ph.D. Thesis). DSR Tryk, Copenhagen, Denmark.

- Bro, R. (1995). Algorithm for finding an interpretable simple neural network solution using PLS. *Journal of Chemometrics* **9**, 423-430.
- Bro, R. (1996). Multiway calibration. Multilinear PLS, *J.Chemometrics* **10**, 47-61.
- Bro, R. (1997). PARAFAC. Tutorial and applications. *Chemometrics and Intelligent Laboratory Systems*. **28**, 149-171.
- Bro, R. (1998). Multi-way analysis in the food industry. Models, algorithms and applications. Doctoral Thesis. Chemometrics Group, Food Technology, KVL, Copenhagen, Denmark.
- Brøndum, J., Egebo, M., Agerskov, C. and Busk, H. (1998a). Carcass Grading with the Autofom Ultrasound System. *J.Anim.Sci.* **51**, 1859-1868.
- Brøndum, J. (1998b). New Sensors and Techniques for Meat Quality Measurements. *Reciprocal Meat Conference Proc.* **51**,
- Brøndum, J. (1999a). Two-dimensional Angle Measure Technique for Image Texture Analysis. *Pattern Recognition*. Submitted.
- Brøndum, J., Byrne, D.V., Bak, L., Bertelsen, G. and Engelsen, S.B. (1999b). Warmed-over Flavour in Porcine Meat - A Combined Spectroscopic, Sensory and Chemometric Study. *Meat Science*. Submitted.
- Brøndum, J., Munck, L., Henckel, P., Karlsson, A., Tornberg, E. and Engelsen, S.B. (1999c). Prediction of Water-holding Capacity and Composition of Porcine Meat with Comparative Spectroscopy. *J.Food Composition and Analysis*. Submitted.
- Brøndum, J. Munck, L and Nielsen, E. Imaging Spectroscopy in Food Quality Measurements. To be submitted for publication.
- Byrne, D.V., Bak, L.S., Bredie, W.L.P., Bertelsen, G. and Martens, M. (1999). Development of a sensory vocabulary for warmed-over flavor: part I. in porcine meat. *Journal of Sensory Studies* **14**, 47-65.
- Busk, H., Olesen, E.V. and Brøndum, J. (1999). Determination of Lean Meat in Pig Carcasses with the Autofom Classification System. *Meat Science*. Submitted.
- Caselles, V., Kimmel, R. and Guillermo, S. (1997). Geodesic Active Contours. *Int.J.of Computer Vision* **22**, 61-79.
- Cross, H.R. and Belk, K.E. (1994). Objective measurements of carcass and meat quality. *Meat Science* **36**, 191-202.
- Drainfeld, E (1994). Optimisation of Tenderisation, Ageing and Tenderness. *Meat Science* **36**, 105-121.

- Ellekjaer, M.R., Isaksson, T. and Solheim, R. (1994). Assessment of sensory quality of meat sausages using near infrared spectroscopy. *J.of Food Science*, **59** (3), 456-464.
- Fjelkner-Modig, S. and Tornberg, E. (1986). Water distribution in porcine *m. longissimus dorsi* in relation to sensory properties. *Meat Science* **17**, 213-231.
- Forrest, J. C., Sheiss, E. B., Morgan, M., and Gerrard, D. E. (1997). Pork Quality Measurement Tools - Now and in the Future. *NPPC Pork Quality Summit Proc., Des Moines, IA*, 79-96.
- Gariépy, C., Jones, S. D. M., Tong, A. K. W., and Rodrigue, N. (1994). Assessment of the Colormet fiber optic probe for the evaluation of dark cutting beef. *Food Res. Int.* **27**, 1-6.
- Garrido, M. D., Pedauy , J., Ba  n, S., L  pez, M. B., and Laencina, J. (1995). On-line methods for pork quality detection. *Food Control* **6**(2), 111-113.
- Geers, R., Decanniere, C., Ville, H., Hecke, P. van, and Bosschaerts, L. (1995). Variability within intramuscular fat content of pigs as measured by gravimetry, FTIR and NMR spectroscopy. *Meat Science*. **40** (3)
- Gerrard, D. E., Gao, X., and Tan, J. (1996). *J.of Food Science* **61**, 145-148.
- Gonzalez, R. C. and Woods, R. E. (1992). *Digital image processing*. Addison-Wesley, US.
- Greaser, M.L. (1986). Conversion of muscle to meat. In: Muscle as food, P. Bechtel (Ed.). Academic Press, 37-102.
- Hamlin, K. E., Green, R. D., Perkins, T. L., Cundiff, L. V., and Miller, M. F. (1995a). Real time ultrasonic measurement of fat thickness and longissimus muscle area: I. description of age and weight effects. *J.Anim.Sci.* **73**, 1713-1724.
- Hamlin, K. E., Green, R. D., Cundiff, L. V., Wheeler, T. L., and Dikeman, M. E. (1995b). Real time ultrasonic measurement of fat thickness and longissimus muscle area: II. Relationship between real-time ultrasound measures and carcass retail yield. *J.Anim.Sci.* **73**, 1725-1734.
- Henrion, R. (1994). N-way principal component analysis. Theory, algorithms and applications, *Chemometrics and Intelligent Laboratory Systems* **25**, 1-23.
- Herring, W. O., Kriese, L. A., Bertrand, J. K., and Crouch, J. (1998). Comparison of Four Real-Time Ultrasound Systems That Predict Intramuscular Fat in Beef Cattle. *J.Anim.Sci.* **76**, 364-370.
- Hildrum, K.I., Nilsen, B., Mielnik, B. and N  s, T. (1994). Prediction of sensory characteristics of beef by near-infrared spectroscopy. *Meat Science* **38**, 67-80.

- Höskuldsson, A (1992). The H-principle in modelling with applications to chemometrics A Chemometrics and Intelligent Laboratory Systems **23** 139-153
- Hunt, R.W.G. (1991). *Measuring colour*, 2nd edn. Ellis Horwood.
- Irie, M., Izumo, A., and Mohri, S. (1996). Rapid method for determining water-holding capacity in meat using video image analysis and simple formulae. *Meat Science*. **42** (1), 95-102.
- Irie, M. and Swatland, H. J. (1992). Assessment of porcine fat quality by fiber-optic spectrophotometry. *Asian Australasian J. Anim Science* **5**, 753-756.
- Isaksson, T., Tøgersen, G., Iversen, A. and Hildrum, K.I. (1995). Non-destructive determination of fat, moisture and protein in salmon fillets by use of near-infrared diffuse spectroscopy. *Journal of the Science of Food and Agriculture* **69**, 95-100.
- Ishii, T., Cassens, R. G., Scheller, K. K., Arp, S. C., and Schaefer, D. M. (1992). Image analysis to determine intramuscular fat in muscle. *Food-Struct.Chicago, Ill.-Scanning Microscopy International*. **11** (1)
- Jepsen, S.M., Pedersen, H.T. and Engelsen, S.B. (1999). Application of Chemometrics to Low-Field  $^1\text{H}$  NMR Relaxation Data of Intact Fish Flesh, *Journal of the Science of Food and Agriculture*, submitted.
- Kauffman, R. G. (1997). National Pork Quality Project. *NPPC Pork Quality Summit Proc., Des Moines, IA* , 123-188.
- Kempster, T, Cuthbertson, A. and Harrington, G (1982). Carcase evaluation in livestock breeding, production and Marketing. Granada, London, UK.
- Kress-Rogers, E. (1993). Instrumentation and Sensors for the Food Industry. Kress-Rogers, E., Butterworth-Heinemann Ltd., Oxford, UK.
- Kuei, C. H., Forrest, J. C., Schinkel, P., and Judge, M. D. (1990). Influence of processing stage on the predictive accuracy of total body electrical conductivity for pork carcass composition. *J.Anim.Sci*. **68**, 348-349.
- Kvaal, K., Wold, J.P., Indahl, U.G., Baardseth, P. and Næs, T. (1998). Multivariate feature extraction from textural images of bread. *Chemometrics and Intelligent Laboratory Systems* **42**, 141-158.
- Leardi R, Boggia R, Terrile M. (1992). Genetic algorithms as a strategy for feature selection. *Journal of Chemometrics*. **5** 267-281
- Liu, Y., Aneshansley, D. J., and Stouffer, J. R. (1958). Autocorrelation of ultrasound speckle and its relationship to beef marbling. *Trans. American Society of Agricultural Engineers* **36** (3)

- Liu, Y. and Stouffer, J. R. (1995). Pork carcass evaluation with an automated and computerized ultrasonic system. *J-anim-sci.Champaign, Ill.- American Society of Animal Science*. Jan **73** (1)
- Martens, H. and Næs, T. (1993). *Multivariate Calibration*, 2ed. edn. Wiley, New York.
- McCauley, J. D., Thane, B. R., and Whittaker, A. D. (1994). Fat estimation in beef ultrasound images using texture and adaptive logic networks. *Trans. American Society of Agricultural Engineers* **37** (3)
- Meseck, N.L., Gwartney, B.L., Calkins, C.R. and Miller, P.S. (1997). Influence of Sample Orientation on Prediction of Fresh Ham Lean Content by Electromagnetic Scanning. *J.Anim.Sci.* **75**, 3169.
- Mitchell, A. D., Scholz, A. M., Pursel, V. G., and Evock-Clover, C. M. (1998). Composition analysis of pork carcasses by dual-energy X-ray Absorptiometry. *J.Anim.Sci.* **76**, 2104-2114.
- Monin, G. (1998). Recent methods for predicting quality of whole meat. *Meat Science* **49**, 231-243.
- Munck, L. (1997). *Rejse over sundet - forskningens grænseoverskridene muligheder og begrænsninger*. DSR Tryk, Copenhagen, Denmark.
- Munck, L., Nørgaard, L., Engelsen, S., Bro, R. and Anderson, C.A. (1998). Chemometrics in food science - a demonstration of the feasibility of a highly exploratory, inductive evaluation strategy of fundamental scientific significance. *Chemometrics and Intelligent Laboratory Systems* **44**, 31-60.
- Næs, T., Baardseth, P., Helgesen, H. and Isaksson, T. (1996). Multivariate Techniques in the Analysis of Meat Quality. *Meat Science* **43**, 135-149.
- O'Keeffe, M. (1987). Proximate analysis of beef samples by near-infrared reflectance spectroscopy. *Proc.ICoMST* **33**, 403-405.
- Olivier, M. A., Gispert, M., Tibau, J., and Diestre, A. (1991). The measurement of light scattering and electrical conductivity for the prediction of PSE pig meat at various times post mortem. *Meat Science* **29**, 141-151.
- Ophir, J., Miller, R. K., Ponnekanti, H., Cespedes, I., and Whittaker, A. D. (1994). Elastography of beef muscle. *Meat Science* **36**, 239-350.
- Osawa, M. (1995). The measurement of meat pigments by fibre-optic reflectance spectrophotometry using the Kubelka-Munk equation. *Meat-sci.Oxford - Elsevier Science Limited.* **40**,63:77
- Ouali, A. (1990). Meat tenderisation, possible causes and mechanisms. A review. *J.of Muscle Foods*, **1**, 129-157.

- Park, B., Chen, Y. R., Hruschka, W. R., Schackelford, S. D, and Koohmaraie, M. (1998). Near-infrared reflectance analysis for predicting beef longissimus tenderness. *J.Anim.Sci.* **76**, 2115-2120.
- Perkins, T. L., Green, R. D., Hamlin, K. E., Shepard, H. H., and Miller, M. F. (1992). Ultrasonic prediction of carcass merit in beef cattle - evaluation of technician effects on ultrasonic estimates of carcass fat thickness and longissimus muscle area. *J.of Animal Science* **70**:2758.
- Ragland, K.D., Christian, L.L., baas, T.J. and Amin, V.R. (1997). Efficacy of using real-time ultrasound to predict intramuscular fat in the *longissimus* muscle of live swine. *Iowa State University, Animal Science, Swine Research Report*, ASL-1526
- Reichert, J. E. (1996). Möglichkeiten der automatischen On-line-bestimmung von qualitätsparametern bei der klassifizierung und selektion von schlachttierkörpern und teilstücken. *Fleischwirtschaft* **76**(5), 486-491.
- Russ, J. C. (1994). The Image Processing Handbook. CRC Press.
- Sather, A. P., Bailey, D. R. C., and Jones, S. D. M. (1996). Real-time ultrasound image analysis for the estimation of carcass yield and pork quality. *Can.J.Anim.Sci.* **76** (1)
- Schmitt, F., Schepers, K.-H., and Festerling, A. (1985). Evaluation of meat quality by measurement of electrical conductivity. In: Tarrant, P. V., Eikelboom, G., and Monin, G. *Evaluation and control of meat quality in pigs*. Martinus Nijhoff Publishers, Dordrecht.
- Scholz, A., Paulke, T., and Eger, H. (1995). Determining the degree of marbling in the pig. *Fleischwirtschaft* **75**(11), 1322-1324.
- Swatland, H.J. (1982). Fiber optic spectrophotometry and the wetness of meat. *J.of Food Science*, **47**, 1940:.
- Swatland, H. J. (1983). Infrared fiber optic spectrophotometry of meat. *J.Anim.Sci.* **56**(6), 1329-1333.
- Swatland, H.J. (1989). A review of meat spectrophotometry (300 to 800 nm). *Can.Inst.Food Sci.Tech.J.* **22**, 390-402.
- Swatland, H.J. (1989). Relationship between surface and internal reflectance in pork. *Can.Inst.Food Sci.Tech.* **22**, 165-169.
- Swatland, H. J. and Irie, M. (1992). Effect of wavelength on spatial measurements of light scattering for the measurement of pork quality. *J.Anim.Sci.* **70**, 2138-2143.
- Swatland, H. J. (1995a). On-Line Evaluation of Meat. Technomic, Lancaster, USA.
- Swatland, H.J. (1995b). Objective assessment of meat yield and quality. *Trends in Food Science & Technology* **6**, 117-119.

- Swatland, H. J., Madsen, N. T., and Nielsen, T. (1996). Fluorometry of connective tissue in beef, relative to direction of measurement. *Lebensm.Wiss.Technol.* **29** (5/6)
- Thodberg, H.H. (1993). The neural information system for pig carcass grading. *Neural Comp.and Applic.* **1**, 248-255.
- Tornberg, E., Andersson, A., Göransson, Å. And von Seth, G. (1993). Water and Fat distribution in pork in relation to sensory properties. In *Pork Quality: Genetic and Metabolic factors*. E. Poulanne and D.I. Demeyer, Eds. CAB International, p.239.
- Tornberg, E., Wahlgren, M., Engelsen, S. and Brøndum, J. (1999). Pre-rigor Conditions in Beef under Varying Temperature- and pH-falls, Studied With Rigometer, NMR and NIR. *J.Food Chemistry*. Submitted.
- Thyholt, K., Enersen, G. and Isaksson, T. (1998). Determination of Endpoint Temperatures in previously heat treated beef using reflectance spectroscopy. *Meat Science* **48**, 49-63.
- Waltra, P. (1989). Automated grading probes for pigs currently in use in Europe, their accuracy, cost and ease of use. In: O'Grady, J. F. *New techniques in pig carcass evaluation*. Purdoc, Wageningen.
- Whittaker, A. D., Park, B., Thane, B. R., Miller, R. K., and Savelli, J. W. (1992). Principles of ultrasound and measurement of intramuscular fat. *J.Anim.Sci.* **70**, 942-952.
- Wood, J.D. (1990). Consequences for meat quality of reducing carcass fatness. In: Woods, J.D. and Fisher, A.V., (Eds.). *Reducing fat in meat animals*, pp. 344-397. Elsevier Appl. Sci.
- Young, O.A., Barker, G.J. and Frost, D.A. (1996). Determination of collagen solubility and concentration in meat by near infrared spectroscopy. *J.of Muscle Foods* **7**, 377-387.

