

IRD Research Literature

A partial list of research findings related to the Instrumented Recording Device (IRD)

Apple

Bollen, A.F. Dela Rue, B.T. Impact analysis using video with an instrumented sphere. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6078) 9 p. Bollen, A.F. Cox, N.R. A technique for predicting the probability of bruising for use with an instrumented sphere. ASAE. Meeting. St. Joseph, Mich. : ASAE, Winter 1991. (916595) Paper / 11 p. Brown, G.K. Schulte-Pason, N.L. Timm, E.J. Impact classification using the instrumented sphere. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6001) 9 p. Brown, G.K. Bruising research with the instrumented sphere. New England fruit meetings ... Proceedings of the ... annual meeting - Massachusetts Fruit Growers' Association. North Amherst, Mass. : The Association. 1991. (97th) p. 119-126. Brown, G.K. Schulte-Pason, N.L. Timm, E.J. Burton, C.L. and Marshall, D.E. Apple packing line impact damage reduction. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1989. (89-6050) 13 p. Hyde, G.M. Zhang, W. Cavalieri, R.P. Bruise detection using the instrumented sphere and a high speed video camera. Paper - American Society of Agricultural Engineers. Winter 1990. (90-1612) 11 p. Marshall, D.E. Burgess, G.J. Damage criteria applied to apples. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6003) 17 p. Marshall, D.E. Burgess, G.J. Apple bruise damage estimation using an instrumented sphere. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. Nov 1991. v. 7 (6) p. 677-682. Pang, D.W. Studman, C.J. Banks, N.H. Apple bruising thresholds for an instrumented sphere. St. Joseph, Mich. : ASAE 1958- May/June 1994. v. 37 (3) Transactions of the ASAE. p. 893-897. Sarig, Y. Schawrtz, Y. Yaffe, D. Experiments with an instrumented sphere (IS) for the assessment of the mechanical damage incurred in an apple packing line. ASAE. Meeting. St. Joseph, Mich. : ASAE, Summer 1992. (921079) Paper / 19 p. Schulte, N.L. Brown, G.K. Timm, E.J. Apple impact damage thresholds. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. Jan 1992. v. 8 (1) p. 55-60. Sober, S.S. Zapp, H.R. Brown, G.K. Simulated packing line impacts for apple bruise prediction. Transactions of the ASAE. St. Joseph, Mich. : ASAE. Mar/Apr 1990. v. 33 (2) p. 629-636. Sober, S.S. Zapp, H.R. Brown, G.K. Simulated packing line impacts for apple bruise prediction. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1989. (89-6047) 13 p. Tennes, B.R. Zapp, H.R. Marshall, D.E. Armstrong, P.R. Bruising impact data acquisition and analysis in apple packing and handling systems utilizing the Instrumented Sphere (IS) . Annual report - Michigan State Horticultural Society. East Lansing, Mich. : The Society. 1988. (118th) p. 173-182. Tennes, B.R. Zapp, H.R. Marshall, D.E. Armstrong, P.R. Apple handling impact data acquisition and analysis with an instrumented sphere (IS) . J. Agric. Engng. Res. 1990 47:269-276.

Avocado

Timm, E.J. Brown, G.K. Impacts recorded on avocado, papaya, and pineapple packing lines. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6007) 13 p. Timm, E.J. Brown, G.K. Impacts recorded on avocado, papaya, and pineapple packing lines. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. July 1991. v. 7 (4) p. 418-422. Tennes, B.R. Zapp, H.R. Marshall, D.E. Armstrong, P.R. Apple handling impact data acquisition and analysis with an instrumented sphere. Journal of agricultural engineering research. London : Academic Press. Dec 1990. v. 47 (4) p. 269-276.

Citrus

Miller, W.M. Wagner, C. Florida citrus packingline studies with an instrumented sphere. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6006) 10 p. Miller, W.M. Wagner, C. Florida citrus packing line studies with an instrumented sphere. Applied engineering in agriculture. Sept 1991. v. 7 (5) p. 577-581. Miller, W.M , Wagner, C.J. Impact studies in Florida citrus packinghouses using and instrumented sphere. Florida State Horticultural Society. May 1992. v. 104 Proceedings of the annual meeting of the Florida State Horticultural Society. p. 125-127. Miller, W.M. Burns, J.K. Whitney, J.D. Effects of harvesting practices on damage to Florida grapefruit and oranges. St. Joseph, MI : ASAE, 1985-Mar 1995. v. 11 (2) Applied engineering in agriculture. p. 265-269. Shellie, K.C. Instrumented Sphere Used to Identify High-Impact Areas on Grapefruit Packing Lines in Texas. HortTech 7(3), Jul-Sep, 1997.

Cucumber

Marshall, D.E..Effect of laboratory impact damage on pickling cucumber quality. ASAE Tech. Paper 93-1604. American Society of Agricultural Engineers, St. Joseph, MI.Marshall, D.E..Impact measurement during pickling cucumber handling. ASAE Tech. Paper 90-6026. American Society of Agricultural Engineers, St. Joseph, MI.

Nectarine

Crisosto, C.H. Slaughter, D., Cid, L., Crisosto, G.M., Garner, D., Seguel, X., Burke, R., Saez, K. Determination of maximum maturity for stone fruit (Final year) 1996 California Tree Fruit Agreement Research Report. p. 50-64.

Onions

Bajema, R.W. Hyde, G.M. Packing line bruise evaluation for 'Walla Walla' summer sweet onions. Transactions of the ASAE. July/Aug 1995. 38(4)1167-1171. Peterson, C.L. Shropshire, G.J. Thompson, J.C. Thornton, M.K. Using the instrumented sphere for evaluating handling of sweet spanish onions. ASAE. Meeting. St. Joseph, Mich. : ASAE, Winter 1991. (916594) Paper / 12 p. Timm, E.J. Brook, R.C. Schulte-Pason, N.L. Brown, G.K. Burton, C.L. Impacts recorded on onion packing lines. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6025) 9 p. Timm, E.J. Brown, G.K. Brook, R.C. Schulte, N.L. Burton, C.L. Impact bruise estimates for onion packing lines. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. Sept 1991. v. 7 (5) p. 571-576.

Papaya

Timm, E.J. Brown, G.K. Impacts recorded on avocado, papaya, and pineapple packing lines. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6007) 13 p. Timm, E.J. Brown, G.K. Impacts recorded on avocado, papaya, and pineapple packing lines. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. July 1991. v. 7 (4) p. 418-422.

Peach

Crisosto, C.H. Metheney, P.D., Rohner, F., Garner, D.T., Duncan, R., Day, K., Hasey, J., Beede, B. Gradziel, T. Developing critical bruising thresholds for clingstone peaches. California Cling Peach Board Report 2000. 38p.Crisosto, C.H. Slaughter, D., Cid, L., Crisosto, G.M., Garner, D., Seguel, X., Burke, R., Saez, K. Determination of maximum maturity for stone fruit (Final year) 1996 California Tree Fruit Agreement

Research Report. p. 50-64. Lin, X., Brusewitz, G.H. Peach bruise thresholds using the instrumented sphere. St. Joseph, MI : ASAE, 1985- July 1994. v. 10 (4) Applied engineering in agriculture. p. 509-513. Schulte, N.L. Timm, E.J. Brown, G.K. Apple, peach and pear impact damage thresholds. ASAE. Meeting. St. Joseph, Mich. : ASAE, Summer 1990. (906002) Paper / 13 p. Schulte, N.L. Timm, E.J. Brown, G.K. 'Redhaven' peach impact damage thresholds. Alexandria, Va. : The American Society for Horticultural Science. Sept 1994. v. 29 (9) HortScience: a publication of the American Society for Horticultural Science. p. 1052-1055.

Pear

Schulte, N.L. Timm, E.J. Brown, G.K. Apple, peach and pear impact damage thresholds. ASAE. Meeting. St. Joseph, Mich. : ASAE, Summer 1990. (906002) Paper / 13 p.

Pepper

Marshall, D.E. and Brook, R.C. Reducing bell pepper bruising during postharvest handling. HorTechnology 9(2)4-8, 1999. Sargent, S.A. Brecht, J.K. Zoellner, J.J. Analyses of tomato and bell pepper packing lines using the instrumented sphere. Paper - ASAE. St. Joseph, Mich., 1990. (90-6024) 22 p. Sargent, S.A. Brecht, J.K. Zoellner, J.J. Instrumented sphere impact analyses of tomato and bell pepper packing lines. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. Jan 1992. v. 8 (1) p. 76-83. Sargent, S.A. Morgado, P. Brecht, J.K. Estimating mechanical injury for bell pepper handling operations using the instrumented sphere. The American Society for Horticultural Science. July 1991. Abstract.

Pineapple

Timm, E.J. Brown, G.K. Impacts recorded on avocado, papaya, and pineapple packing lines. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6007) 13 p. Timm, E.J. Brown, G.K. Impacts recorded on avocado, papaya, and pineapple packing lines. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. July 1991. v. 7 (4) p. 418-422.

Plum

Crisosto, C.H. Slaughter, D., Cid, L., Crisosto, G.M., Garner, D., Seguel, X., Burke, R., Saez, K. Determination of maximum maturity for stone fruit (Final year) 1996 California Tree Fruit Agreement Research Report. p. 50-64.

Potato

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(89-3029) 23 p.Orr, P.H., Glynn, M.T. Sacks, J.M. The response of potato tubers to simulated handling. St. Joseph, Mich. : ASAE 1958- July/Aug 1994. v. 37 (4) Transactions of the ASAE. p. 1217-1220.

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Sargent, S.A. Brecht, J.K. Zoellner, J.J. Analyses of tomato and bell pepper packing lines using the instrumented sphere. Paper - ASAE. St. Joseph, Mich. : The Society. Summer 1990. (90-6024) 22 p.
Sargent, S.A. Brecht, J.K. Zoellner, J.J. Instrumented sphere impact analyses of tomato and bell pepper packing lines. Applied engineering in agriculture. St. Joseph, Mich. : ASAE. Jan 1992. v. 8 (1) p. 76-83.

Packing Lines

Garcia-Ramos, F.J., Ortiz-Canavate, J., Ruiz-Altisent, M.. "Characterization of a Right Angle Transfer Point in a Fruit Packing Line. Journal of Agricultural Engineering Research, Vol. 79, No. 2, June 2001, p. 205-211. Garcia-Ramos, F.J., Barreiro, P., Ruiz-Altisent, M., Ortiz-Canavate, J., Gil, J., Homer, I.. "A procedure for testing padding materials in fruit packing lines using multiple logistic regression". Transactions of the ASAE. Vol. 45 (3) / 751-757. 2002. Keywords: Padding material, Packing line, Impact tester, Instrumented sphere, bruises, Logistic regression, fruit. Garcia-Ramos, F.J., Ortiz-Canavate, J., Ruiz-Altisent, M.. "Decelerator elements for ramp transfer points in fruit packing lines". Journal of Food Engineering. 59: 331-337. 2003. Garcia-Ramos, F.J., Ortiz-Canavate, J., Ruiz-Altisent, M.. "Reduction of mechanical damage to apples in a packing line using mechanical devices". Applied Engineering in Agriculture 19(6) 703-707. 2003. Garcia-Ramos, F.J., Ortiz-Canavate, J., Ruiz-Altisent, M.. "Evaluation and correction of the mechanical aggressiveness of commercial sizers used in stone fruit packing lines". Journal of Food Engineering 63(2): 171-176. 2004.

Sports Medicine

Rosanne Naunheim, MD., Michael McGurren, MD, John Standeven, PhD., Robert Fucetola, PhD., Carl Laurysen, MD., and Ellen Deibert, MD. Does the Use of Artificial Turf Contribute to Head Injuries? The Journal of TRAUMA Injury, Infection, and Critical Care. Volume 53, Number 4, Pages 691-694. (DOI: 10.1097/01.TA.0000025321.03986.93) J. Trauma 2002; 53: 691-694.