

1.0 BIOGRAPHICAL INFORMATION

Dr. John Cline is an Associate Professor in the Department of Plant Agriculture, University of Guelph where he conducts tree fruit physiology research on apples in Simcoe, Ontario and peaches, cherries and plums in Vineland, Ontario. John is also involved in teaching graduate and undergraduate studies at the University of Guelph, and provides extension services to the industry, growers and stakeholders.

The primary objectives of the pomology program are to investigate factors that determine yield and fruit quality of tree fruit crops, as well as environmental issues surrounding tree fruit production. Experiments include investigating the use of new, dwarfing peach and cherry rootstocks, irrigation scheduling, plant bio-regulators, and new methods to thin peaches. We are also interested in understanding the physiological basis for rain-Induced cracking of sweet cherries, as well as studying the benefits of mulches in the orchard coupled with the fate of nitrates in the groundwater.

John holds a B.Sc in soil science (University of Guelph), M.Sc in horticulture (Michigan State University), and a Ph.D in Horticulture (University of London, Wye College, UK).

2.0 EDUCATION

- 1990-1993 *Ph.D. Horticulture.* University of London (England). Research conducted at Horticulture Research International, East Malling, Kent. Emphasis: pomology, environmental plant physiology, plant water relations, whole-plant physiology and mineral nutrition. Dissertation: Factors influencing water-induced cracking of sweet cherries (*Prunus avium*).
- 1987-1990 *M.Sc. Horticulture.* Michigan State University, East Lansing, Michigan, U.S.A. Emphasis: pomology, tree fruit nutrition, water relations, modelling. Dissertation: Calcium nutrition of apple fruit. Completed April, 1990.
- 1983-1987 *B.Sc. Soil Science.* University of Guelph, Guelph, Ontario, Canada. Emphasis: soil science, plant nutrition, horticulture

3.0 PUBLICATIONS

3.1 Chapters in books

1. Andersen, E.T. and J. A. Cline. 2006. Apples. *In Celebrating a Century of Success 1906-2006, the Horticultural Experiment Station, Vineland and the University of Guelph.* A. Loughton, R. Chudyk and J. Wanner (eds). Department of Plant Agriculture, University of Guelph.

3.2 Papers, letters to editors and technical notes published in refereed journals (Career total = 31)

1. Cline, J.A., C.G. Embree, J. Hebb, D.S. Nichols. Xxxx. Performance of Prohexadione-calcium on Shoot Growth of Apple: I. Effect of Spray Adjuvants. *Canadian Journal Plant Science* xx:xx-xx [Submitted 11 May 2007, CJPS 07087; Accepted August 11, 2007].
2. Greene, D., Crassweller, R., C. Hampson, R. McNew, S. Miller, A. Azarenko, B. Barritt, L. Berkett, S. Brown, J. Clements, J. Cline, C. Embree, E. Fallahi, E. Garcia, G. Greene, T. Lindstrom, I. Merwin, J.D. Obermiller, D. Rosenburger and M. Stasiak. Multidisciplinary Evaluation of new apple cultivars: The NE-183 Regional Project 1999 Planting. *Journal of the American Pomological Society* 61(2):78-83.
3. Crassweller, R., R. McNew, D. Greene, S. Miller, A. Azarenko, B. Barritt, L. Berkett, S. Brown, J. Clements, J. Cline, W. Cowgill, C. Embree, E. Fallahi, B. Fallahi, E. Garcia, G. Greene, T. Lindstrom, I. Merwin, J. Obermiller, D. Rosenburger, and M. Stasiak. I. Growth and Yield Characteristics of Apple Cultivars in the 1999 NE-183 Regional Project Planting. *Journal of the American Pomological Society* 61(2):84-96.
4. Miller, S., R. McNew, R. Crassweller, D. Greene, C. Hampson, A. Azarenko, L. Berkett, W. Cowgill, E. Garcia, T. Lindstrom, M. Stasiak, J. Cline, E. Fallahi, and G. Greene II. Xxxx. Performance of Apple Cultivars in the 1999 NE-183 Regional Project Planting: II. Fruit Quality Characteristics. *Fruit Varieties Journal* 61(2):97-114.
5. Cline, J.A. and M.C.T Trought. xxx. Effect of Gibberellic Acid (GA₃) on Fruit Cracking and Quality of 'Bing' and 'Sam' Sweet Cherries. *Canadian Journal of Plant Science.* xx:xx-xx (Manuscript Number P06-132) Accepted for publication Jan 4, 2007
6. Robinston, T., L. Anderson, W. Autio, B.H. Barritt, J.A. Cline, R.M. Crassweller, W. Cowgill, C. Embree, D. C. Ferree, E. Garcia, G.M. Greene, C. Hampson, K. Kosola, M. Parker, R. Perry, T. Roper, and M. Warmund. 2007. A multi-comparison of Geneva 16, Geneva 41, and M.9 apple rootstocks across North America. *Acta Horticulturae* xx:xx-xx. (in press)
7. Autio, W.R., J.L. Anderson, B.H. Barritt, J.A. Cline, R.M. Crassweller, C.G. Embree, D.C. Ferree, M.E. Garcia, G.M. Greene, E.E. Hoover, S. Johnson, K. Kosola, J. Masabni, M.L. Parker, R.L. Perry, G.L. Reighard, T.L. Robinson, and M. Warmund. Xxxx. Early Performance of 'Fuji' and 'McIntosh' Apple Trees on Several Semidwarf Rootstocks in the 1999 NC-140 Rootstock Trial. *Acta Horticulturae* xx:xx-xx.
8. Autio, W.R., J.L. Anderson, B.H. Barritt, J.A. Cline, R.M. Crassweller, C.G. Embree, D.C. Ferree, M.E. Garcia, G.M. Greene, E.E. Hoover, S. Johnson, K. Kosola, J. Masabni, M.L. Parker, R.L. Perry, G.L. Reighard, T.L. Robinson, and M. Warmund. Xxxx. Early Performance of 'Fuji' and 'McIntosh' Apple Trees on Several Dwarf Rootstocks in the 1999 NC-140 Rootstock Trial. *Acta Horticulturae* xx:xx-xx.
9. Reighard, G.L., T. Beckman, R. Belding, B. Black, J. Cline, W. Cowgill, R. Godin, M. Kaps, T. Lindstrom, D. Ouellette, L. Stein, K. Taylor, C. Walsh, M. Whitting, and T. Robinson. 2006. Performance of *Prunus* Rootstocks in the 2001 NC-140 Peach Trial. *Scientific Works of the Lithuanian Institute of Horticulture and Lithuanian University of Agriculture* 25(3):327-333.

10. Marini, R.P., B.H. Barritt, G.R. Brown, J. A. Cline, W.P. Cowgill, Jr., R.M. Crassweller, P.A. Domoto, D.C. Ferree. J. Garner, G.M. Greene, C. Hampson, P. Hirst, M. M. Kushad, J. Masabni, E. Mielke, C.A. Mullins, M. Parker, R.L. Perry, J.P. Prive, G.L. Reighard, T. Robinson, C.R. Rom, T. Roper, J.R. Schupp, E. Stover, R. Unrath. 2006. Performance of 'Gala' apple on four semi-dwarf rootstocks: A ten year summary of the 1994 NC-140 semi-dwarf rootstock trial. *Journal of the American Pomological Society* 60(2):58-68.
11. Marini, R.P., B.H. Barritt, G.R. Brown, J. A. Cline, W.P. Cowgill, Jr., R.M. Crassweller, P.A. Domoto, D.C. Ferree. J. Garner, G.M. Greene, C. Hampson, P. Hirst, M. M. Kushad, J. Masabni, E. Mielke, C.A. Mullins, M. Parker, R.L. Perry, J.P. Prive, G.L. Reighard, T. Robinson, C.R. Rom, T. Roper, J.R. Schupp, E. Stover, R. Unrath. 2006. Performance of 'Gala' apple on 18 dwarf rootstocks: A ten year summary of the 1994 NC-140 semi-dwarf rootstock trial. *Journal of the American Pomological Society* 60(2):69-83.
12. Coneva, E. and J.A. Cline, 2006. Blossom thinners reduce crop load and increase fruit size and quality of peaches. *HortScience* 41(5):1253-1258
13. Coneva, E. and J.A. Cline, 2006. Gibberellin inhibits flower bud formation, reduces hand thinning, and increases fruit size of 'Redhaven' peach. *HortScience* 41(7):1596-1601.
14. Cline, J.A. 2006. Effect of Aminoethoxyvinylglycine (AVG) and Surfactants on Pre-harvest Drop, Maturity, and Fruit Quality of Two Processing Peach Cultivars. *HortScience* 41(2):377-383. *Hort Science*.
15. Autio, W., B. Robinson, B. Barritt, J. Cline, R. Crassweller, C. Embree, D. Ferree, M. Garcia, G. Green, E. Hoover, R. Johnson, K. Kosola, J. Masabni, M. Parker, R. Perry, G. Reighard, S. Seeley, and M. Warmund. 2005. Performance of 'Fuji' and 'McIntosh' apple trees after five years as affected by several dwarf rootstocks in the 1999 NC-140 apple rootstock trial. *Journal of the American Pomological Society* 59(4):202-214.
16. Autio, W., B. Robinson, B. Barritt, J. Cline, R. Crassweller, C. Embree, D. Ferree, M. Garcia, G. Green, E. Hoover, R. Johnson, K. Kosola, J. Masabni, M. Parker, R. Perry, G. Reighard, S. Seeley, and M. Warmund. 2005. Performance of 'Fuji' and 'McIntosh' apple trees after five years as affected by several semi-dwarf rootstocks in the 1999 NC-140 apple rootstock trial. *Journal of the American Pomological Society* 59(4):192-201.
17. Prive, J.-P, E. Fava, and J. Cline. 2006. Influence of Prohexadione Calcium (Apogee®) on Shoot Growth of Non-Bearing Mature Apple Trees in Two Different Growing Regions. *Can. J. Plant Science* 86(1):227-233
18. Miller, S. S., R.W. McNew, B.H. Barritt, L. Berkett, S.K. Brown, J.A. Cline, J.M. Clements, W.P. Cowgill, R.M. Crassweller, M.E. Garcia, D.W. Greene, G.M. Greene, C.R. Hampson, I. Merwin, D.D. Miller, R.E. Moran, C.R. Rom, T.R. Roper, J.R. Schupp, and E. Stover. 2005. Effect of Cultivar and Site on Fruit Quality as Demonstrated by the NE-183 Regional Project on Apple Cultivars. *HortTechnology* 15(4):886-895.
19. S. Miller, R. McNew, R. Belding, S. Brown, J. Clements, J. Cline, W. Cowgill, R. Crassweller, E. Garcia, D. Greene, G. Greene, C. Hampson, I. Merwin, R. Moran, T. Roper, J. Schupp, and E. Stover. 2003. Performance of Apple Cultivars in the 1995 NE-183 Regional Project Planting: I. Growth and Yield Characteristics. *Journal American Pomological Society*. 59(1):18-27.
20. D.S. Nichols, C. Embree, J. A. Cline, H. Ju. 2004. Blossom and Fruitlet thinners affect Crop-Load, Fruit Weight, Seed Number and Return Bloom of 'Northern Spy' Apple. *HortScience* 39(6):1309-1312.
21. Greene, D., A. Azarenko, B. Barritt, R. Belding, J. Cline, R. Crassweller, W. Cowgill, D. Ferree, E. Garcia, D. Greene, G. Greene, C. Hampson, I. Merwin, D. Miller, S. Miller, R. Moran, M. Parker, D. Rosenberger, C. Rom, T. Roper, J. Schupp, E. Stover. 2003. Five Year Summary of NE-183 Apple Cultivar Trial I. Multidisciplinary Evaluation of New Apple Cultivars: The NE-183 Regional Project. *J. American Pomological Society* 58(2):61-64.

22. S. Miller, R. McNew, R. Belding, S. Brown, J. Clements, J. Cline, W. Cowgill, R. Crassweller, E. Garcia, D. Greene, G. Greene, C. Hampson, I. Merwin, R. Moran, T. Roper, J. Schupp, and E. Stover. 2003. Performance of Apple Cultivars in the 1995 NE-183 Regional Project Planting: II. Fruit Quality Characteristics. *Journal American Pomological Society*. 58(2):65-77.
23. Hampson, C., R. McKnew, C. Rom, D. Greene, R. Moran, M. Parker, B. Belding, W. Cowgill, S. Brown, E. Stover, J. Schupp, I. Merwin, D. Miller, J.A. Cline, A. Azarenko, A. G. Greene, R. Crassweller, E. Garcia, B. Barritt, T. Roper, S. Miller, A. Biggs. 2003. Performance of 'Braeburn', 'Golden Delicious' and 'Yataka' Apple on Mark and M.9 Rootstocks at Multiple Locations Across North America, *J. American Pomological Society* 58(2):78-89.
24. Barden, J.A., J. A. Cline, M.M. Kushad, and M.L. Parker. 2002. Various measures of tree vigor and yield efficiency of apple trees in the 19990 NC-140 systems trial as influence by location, cultivar, and orchard system. *J. American Pomological Association* 56(4):208-214.
25. Marini, R.P, J.A. Barden, J.A. Cline, R.L. Perry, and T. Robinson. 2002. Effect of Apple Rootstocks on Average 'Gala' Fruit Weight at Four Locations after Adjusting for Crop Load. *Journal of the American Society for Horticultural Science* 127(5) 749-743.
26. Cline, J.A. and M. Bijl. 2002. Effect of Diurnal Spray Timing on the Thinning of Apples with Carbaryl, Accel and NAA. *Can. J. Plant Science* 82:437-441.
27. Hampson, C., K. Sanford, and J. Cline. 2002. Fruit size preference of Canadian consumer for McIntosh applies. *Can. J. Plant Sci.* 82(1):165-167.
28. Cline, J.A., D. M. Hunter, W. G. Bonn, and M. Bijl. 2001. Resistance of the Vineland Series of Apple Rootstocks to Fire Blight caused by *Erwinia amylovora*. *J. American Pomological Association* 55(4):218-221.
29. Marini, R.P., B. H. Barritt, J. A. Barden, J. Cline, R. L. Granger, M. M. Kushad, M. Parker, R. L. Perry, T. Robinson, S. Khanizadeh, and C. R. Unrath. 2001. Performance of 'Gala' Apple on Eight Dwarf Rootstocks: Ten-Year Summary of The 1990 NC-140 Rootstock Trial 55(4):197-203.
30. Marini, R.P. B. H. Barritt, J. A. Barden, J. Cline, E. E. Hoover, R. L. Granger, M. M. Kushad, M. Parker, R. L. Perry, T. Robinson, S. Khanizadeh, and C. R. Unrath. 2001 Performance of Ten Apple Orchard Systems: Ten-Year Summary of the 1990 NC-140 Systems Trial 55(4): 222-238.
31. Derkacz, M. and J. A. Cline. 2001. Effectiveness of irrigation methods in fruit production of North American orchards: Highlights of Current Research. *Akademia Techniczno-rolnicza im. Jana i Jdrzeja Śniadeckich w Bydgoszczy. Zeszyty Naukowe* 226 (45) 12-23.
32. Cline, J.A. and A. Torrenueva. 2000. Benefits of coal fly ash as a soil conditioner and liming agent for field crops in southern Ontario. *Journal of Environmental Quality* 29(Nov-Dec):1982-1989.
33. Marini, R.P., J.L Anderson, J.A. Barden, B.H. Barritt, G.R. Brown, J. A. Cline, W.P. Cowgill, Jr., P.A. Domoto, D.C. Ferree. J. Garner, G.M. Greene, C. Hampson, P. Hirst, M. M. Kushad, E. Mielke, C.A. Mullins, M. Parker, R.L. Perry, J.P. Prive, G.L. Reighard, T. Robinson, C.R. Rom, J.R. Schupp, E. Stover, R. Unrath. 2000. Performance of 'Gala' apple on four semi-dwarf rootstocks: A five year summary of the 1994 NC-140 semi-dwarf rootstock trial. *Journal of the American Pomological Society* 54:84-91.
34. Marini, R.P., J.L Anderson, J.A. Barden, B.H. Barritt, G.R. Brown, J. A. Cline, W.P. Cowgill, Jr., R.M. Crassweller, P.A. Domoto, D.C. Ferree. J. Garner, A. Gaus, G.M. Greene, C. Hampson, P. Hirst, M. M. Kushad, E. Mielke, C.A. Mullins, M. Parker, R.L. Perry, J.P. Prive, G.L. Reighard, T. Robinson, C.R. Rom, T. Roper, J.R. Schupp, E. Stover, R. Unrath. 2000. Performance of 'Gala' apple on 18 dwarf rootstocks: A five year summary of the 1994 NC-140 semi-dwarf rootstock trial. *Journal of the American Pomological Society* 54:92-107.

35. Cline, J.A., M. Meland, L. Sekse, and A.D. Webster. 1995. Rain-induced fruit cracking of sweet cherries: I. Influence of Cultivar and Rootstock on fruit water absorption, cracking and quality. *Acta Agriculturae Scandinavica*. 45:213-223
36. Cline, J.A., M. Meland, L. Sekse, and A.D. Webster. 1995. Rain-induced fruit cracking of sweet cherries: II. Influence of rain covers and rootstocks on cracking and fruit quality. *Acta Agriculturae Scandinavica*. 45:224-230
37. Cline, J.A. and E.J. Hanson. 1992. Relative humidity around apple fruit influences its accumulation of calcium. *J. Amer. Soc. Hort. Sci.* 117(4):542-546.
38. Cline, J.A, E.J. Hanson, W.J. Bramlage, R.A. Cline, and M.M. Kushad. 1991. Calcium accumulation in Delicious apple fruit. *Journal of Plant Nutrition* 14(11):1213-1222.

3.3 Papers read at conferences (indicate invited presentations) (Career total = 53)

1. Celetti, M., J. Gardner, and J. Cline, 2007. The effect of timing and rate of chemical thinners on the incidence and severity of black rot of cv. Royal Gala. 21-22 February, 2007. Ontario Fruit and Vegetable Conference, Brock University, Ontario [Poster].
2. Cline, J. A. and D. Norton. Preliminary Results on Various Approaches to Thinning Peaches Chemically. . 21-22 February, 2007. Ontario Fruit and Vegetable Conference, Brock University, Ontario **(Invited)**
3. Celetti, M., J. Gardner, and J. Cline, 2006. The effect of timing and rate of chemical thinners on the incidence and severity of Black rot of apple fruit. Great Lakes Fruit Workers Conference, Nov 9-11, Ithaca, New York.
4. Coneva, E. and J. A. Cline. 2006. Ethephon delays blossoming, reduces fruit set, and increases fruit size of 'Baby Gold 5' peaches. Abstract. Annual Meeting of the Plant Growth Regulation Society of America. 9-13 July 2006, Quebec City, Canada
5. Cline, J.A and P. Schwallier, 2006. Optimizing return bloom in tree fruit species. Intensive Workshop on Plant Growth Regulators, International Tree Fruit Association, Hershey Pennsylvania, 26 February 2006 (Invited)
6. Cline J.A and D. Norton, 2006. Apogee – A New Plant Bioregulator for Apples. 15-16 February, 2006. Ontario Fruit and Vegetable Conference, Brock University, Ontario **(Invited)**.
7. Taheri, A., J. Cline, J. Subramanian, and K.P. Pauls. 2006. An Alternative Method to Thin Peaches. 15-16 February, 2006. Ontario Fruit and Vegetable Conference, Brock University, Ontario (Poster)
8. Coneva, E. and J.A. Cline. 2006. Ethrel Delays Blossoming, Reduces Fruit Set, and Increases Fruit Size of 'Baby Gold 5' Peaches. 15-16 February, 2006. Ontario Fruit and Vegetable Conference, Brock University, Ontario (Poster)
9. Cline, J.A. 2006. Protected Production Technologies. Art Mitchell International Cherry Symposium, 19-21 January 2006. Traverse City, Michigan, USA **(Invited)**.
10. Cline, J.A. 2006. Protective Covers to Prevent Sweet Cherry Cracking: A Worldwide Review. International Orchard Show, 17-18 January, 2006. Traverse City, Michigan, USA. **(Invited)**.
11. G. Lang, F. Kappel, R. Andersen, J. Cline, G. Greene, K. Kosola, R. Perry, T. Robinson, and S. Seeley. 2005. Mid-trial report of the NC-140 regional sour cherry rootstock trial (1998) in North America. International Cherry Symposium, Bursa, Turkey. June 6-10, 2005.
12. Kappel, F. R. Andersen, J. Cline, G. Greene, G. Lang, K. Kosola, R. Perry, T. Robinson, and S. Seeley. 2005. 186 Performance of the NC-140 Regional Sweet Cherry Rootstock Trial (1998) in North America. International Cherry Symposium, Bursa, Turkey. June 6-10, 2005.
13. Cline, J. 2005. Plant Bioregulators used in Tree Fruit Production. Norfolk Fruit Growers Association, Spring Annual Meeting. March 23, 2005, Horticultural Experiment Station, Simcoe.

14. Cline, J.A. 2005. Advances in Plant Bioregulators for Apples. 16-17 February, 2005. Ontario Fruit and Vegetable Conference, Brock University, Ontario **(Invited)**.

15. Coneva, E. and J.A. Cline. 2006. Surfactants Applied as Blossom Thinners Reduce Fruit Set and Increase Fruit Size and Quality of 'Harrow Diamond' Peaches. 16-17 February, 2005. Ontario Fruit and Vegetable Conference, Brock University, Ontario **(Invited)**.
16. Cline, J.A. 2005. Research and Rain-Induced Cracking of Sweet Cherries. 16-17 February, 2005. Ontario Fruit and Vegetable Conference, Brock University, Ontario **(Invited)**.
17. Coneva, E., and J. A. Cline. 2004. Effect of Surfactants Applied as Blossom Thinners on Fruit Set and Fruit Size of 'Harrow Diamond' Peaches. Great Lakes Fruit Workers Conference, Nov 10-12, Guelph, Ontario.
18. Cline, J.A. and D. Norton. 2004. New Initiatives in Orchard Physiology and Management Systems for Peach, Cherry and Plum. 18-19 February, 2004. Ontario Fruit and Vegetable Conference, Brock University, Ontario.
19. Cline, J.A, A. Eggink, and D. Norton. 2004. Orchard Management and Physiology - Research Based Recommendations to Guide the Apple Industry. 18-19 February, 2004. Ontario Fruit and Vegetable Conference, Brock University, Ontario.
20. Cline, J.A. 2003. Moisture Management for Tree Fruit Crops **(invited)**. 18-19 February, 2003. Ontario Fruit and Vegetable Conference, Brock University, Ontario.
21. Cline, J.A. 2003. Apogee and its interaction with various chemical thinners. Annual Meeting of the Northeast Plant Growth Regulator Working Group, March 4-6, Wilkes-Barre, PA.
22. Cline, J.A. 2003. Growth control of Apples with Apogee. Annual Meeting of the Northeast Plant Growth Regulator Working Group, March 4-6, Wilkes-Barre, PA.
23. Cline, J.A. 2003. ReTain on Honeycrisp. Annual Meeting of the Northeast Plant Growth Regulator Working Group, March 4-6, Wilkes-Barre, PA.
24. Cline, J.A. 2003. ReTain on Venture Peaches. Annual Meeting of the Northeast Plant Growth Regulator Working Group, March 4-6, Wilkes-Barre, PA.
25. Cline, J.A and D. Hunter. 2002. Growth regulation effects on apples and pears for sustainable management of fire blight. Ontario Crop Protection Conference. Nov 7, 2002. Guelph, Ontario.
26. Cline, J. A. 2002. Japanese and European Plum Orchard Systems Results. Great Lakes Fruit Workers Meeting, Nov 13-15th, Port Huron, Michigan.
27. Cline, J. A. 2002. Peach Orchard Management and Physiology Research. Great Lakes Fruit Workers Meeting, Nov 13-15th, Port Huron, Michigan.
28. Prive, J-P, E. Fava, J. Cline, C Embree, D. Nichols, M. Byl. 2004. Preliminary results on the efficacy of apple trees treated with prohexadione-calcium (Apogee®) in Eastern Canada. Acta Hort XXVIth International Horticultural Congress, August 11-17th, Toronto, Ontario. Acta Hort 636: 137-144.
29. Cline, J. A, M. Bijl, and D.M. Hunter.. Fire blight and vegetative growth responses of several *Malus* rootstocks and cultivars treated with prohexadione calcium (Apogee). International Society for Horticulture Science, International Horticultural Conference, 12-17 Aug. 2002, Toronto, Canada (Poster S-13 P42).
30. Cline, J.A. 2002. Fireblight and Vegetative Growth Control Response of Several *Malus* Rootstock and Cultivars Treated with Prohexadione Calcium (Apogee). XXVIth International Horticultural Congress, August 11-17th, Toronto, Ontario. (Poster).
31. Cline, J. A. 2002. Producing Gala Apples in Ontario - A Panel Discussion. Horticultural Crops Conference, Hamilton, Ontario. Proceedings for the Ontario Horticultural Crops Conference, February 28th, 2002. **(Invited speaker)**.
32. Cline, J., K. Slingerland, H. Fraser. 2002. Tree Covers Provide Superior Protection Against Rain-Induced Fruit Cracking in Comparison with Intermittent Calcium Chloride Misting during Rain Events. 20-21 February, 2002. Annual meetings of the Niagara Peninsula Fruit and Vegetable Growers Association, Brock University, Ontario.

33. Cline, J.A and R.A. Cline. 2002. Orchard Management, Physiology and Plant Nutrition of Tree Fruits - An Advanced Workshop for Quebec Professional Horticulturalist/Consultants. Feb 11-13, St. Jean, Quebec (**Invited Speaker**).
34. Cline, J. Plant Bioregulators in Temperate Tree Fruit Production. April 3, 2001. Nova Scotia Agriculture College, Truro, N.S. (Invited Speaker)
35. Appleby, M. and J.A. Cline. Apogee® research in Ontario. Michigan Spring Horticultural Meetings. March 9th, 2001. Flint, Michigan. (Invited speaker)
36. Cline, J.A. Apogee® research in Ontario. West Central Michigan Spring Horticultural Meetings. March 7th, 2001. Ludington, Michigan. (Invited speaker)
37. Cline, J. A and M. Byl. Insight into Apogee®. Horticultural Crops Conference, Hamilton, Ontario. Proceedings for the Ontario Horticultural Crops Conference, February 13, 2001. (Invited speaker)
38. Cline, J.A. 2000. The Future of New Apple Cultivars in Ontario - Taking Stock.. Northumberland, Durham & Quinte Fruit & Vegetable Growers Assoc. - 90th Annual Meeting. Brighton, Ontario. November 20, 2000. (Invited speaker)
39. Cline, J.A. and M. Byl. Influence of source, method and timing of boron application to quality and yeild of empire apples. P. xx-xx. In G. Neilson and D. Neilson (eds). 4th International Symposium on Mineral Nutrition of Deciduous Fruit Crops, Penticton, B.C. 13-18 Aug. 2000. International Society Horticultural Science. Acta Horticulturae xx:xx-xx.
40. Cline, J.A. 2000. Honeycrisp Panel. 49th Annual Benzie-Manistee Horticultural Show. March 14-15, 2000. Thompsonville, MI. (Invited speaker)
41. Cline, J.A. 2000. New Apple Varieties for Ontario. 49th Annual Benzie-Manistee Horticultural Show. March 14-15, 2000. Thompsonville, MI. (Invited speaker)
42. Cline, J.A. 2000. Thinners and Other Plant Growth Regulators for Apples. 49th Annual Benzie-Manistee Horticultural Show. March 14-15, 2000. Thompsonville, MI. (Invited speaker)
43. Cline, J.A. 2000. Irrigation for Tree Fruit Crops - A Panel Presentation and Discussion. . ___th Annual Niagara Peninsula Fruit and Vegetable Growers Annual Convention. February 24th.(Invited speaker)
44. Cline, J.A., 1999. Prohexadione-calcium (Apogee) - An Experimental Growth Control Agent for Tree Fruits. Horticultural Crops Conference, Toronto. February 16-17th. Proceedings for the Ontario Horticultural Crops Conference 26:43-48.
45. Cline, R.A. and J.A. Cline. 2000. Irrigation for Better and More Consistent Crops. Peach and Nectarine Production in Northern Climates Conference. January 5-7, 2000. Niagara College, Glendale Campus, St. Catharines, Ontario.
46. Cline, J.A. and M. Byl. 1999. Effect of Diurnal Spray Timing on the Thinning of Apples with Carbaryl, Accel and NAA. Canadian Society for Hort. Science Annual Meeting, Charlottetown, Prince Edward Island. August 8-11, 1999
47. Cline, J.A. and G. McKenna. Beneficial Use of Zebra Mussel Shells as a Soil Conditioner, Liming agent, and Mulch. The Ninth International Zebra Mussel and Aquatic Nuisance Species Conference. April 26-30, 1999 Duluth, Minnesota. Abstract
48. Cline, J.A. 1999. Basis of yield and fruit quality of 'Empire' and 'Jonagold' in three orchard systems. International Dwarf Fruit Tree Association Meetings, February 20-24th, Hamilton, Ontario
49. Cline, J.A., 1999. Steps to Enhance the Return Bloom of Apple Trees. Ontario Horticultural Crops Conference, Toronto. February 17-18th. Proceedings for the Ontario Horticultural Crops Conference 25:30-41
50. Cline, J.A. and A. Torrenueva. 1998. Utilization of Coal Fly Ash as a Soil Conditioner and Liming Agent for Agricultural Soils in Southern Ontario. American Coal Ash Symposium.. Ontario Hydro Environmental Managers Conference, October 7, Toronto.
51. Cline, J.A., 1997. Research of New Chemical Thinners and Stop Drops for Apples. Horticultural Crops Conference, Toronto. 20 February, 1997

52. Cline, J.A., Bom., M, and D.C. Elfving. 1995. Thinning and Diametric Fruit Growth Response of Apple Trees Treated with Benzyladenine and GA4+7 (Accel), Carbaryl, and NAA. Hortscience 30(4):787. Annual Meetings of the American Society for Horticultural Science, Montreal.
53. Cline, J.A. and A.D. Webster. 1995. Protective Rain Covers Influence the Rain-Induced Cracking and Quality of Sweet Cherries. HortScience 30(4): 845. Annual Meetings of the American Society for Horticultural Science, Montreal.
54. Webster, A.D. & J.A. Cline. 1994. Cultural Methods of Alleviating Rain-induced cracking of sweet cherries. International Conference on the Cracking of Cherries. Feb 4-5, 1994. Traverse City, Michigan, United States.(Invited Presentation)
55. Cline, J.A., A.D. Webster. 1994. Water uptake and cracking susceptibility of sweet cherries in relation to stage of maturity and water temperature. International Conference on the Cracking of Cherries. Feb 4-5, 1994. Traverse City, Michigan, United States(Invited Presentation)
56. Cline, J.A and E.J. Hanson. 1989. Effect of relative humidity, modified on the tree, on apple fruit calcium levels (Abstract) Annual meetings of the American Society of Horticultural Science, Tulsa Okla

3.4 Other conference abstracts

1. Kappel, F., G. Lang, R. Andersen, A. Azarenko, J. A. Cline, R. Godin, R. Nunez-Elisea, & M. Whiting. 2005. Performance of the NC-140 Regional Sweet Cherry Rootstock Trial (1998) in North America. International Cherry Symposium, Bursa, Turkey. June 6-10, 2005.
2. Autio, W., J. Cline, R. Crassweller, C. Embree, E. Garcia, E. Hoover, K. Kosola, R. Perry, and T. 2004. Early Performance of 'McIntosh' Apple Trees on Several Dwarf Rootstocks in the 1999 NC-140 Rootstock Trial. Annual International Conference of the American Society for Horticultural Science, July 17-20, Austin, Texas.
3. Autio, W., J. Cline, R. Crassweller, C. Embree, E. Garcia, E. Hoover, K. Kosola, R. Perry, and T. 2004. Early Performance of 'McIntosh' Apple Trees on Several Semi-Dwarf Rootstocks in the 1999 NC-140 Rootstock Trial. Annual International Conference of the American Society for Horticultural Science, July 17-20, Austin, Texas.
4. Coneva, E., and J.A. Cline. 2004. Alternate Methods for Thinning Peaches for Quality Fruit (*invited*). 18-19 February, 2004. Ontario Fruit and Vegetable Conference, Brock University, Ontario.
5. Jean-Pierre Prive, John Cline, Charlie Embree, Erica Fava, Doug Nichols. 2002. Physiology and efficacy of apple trees treated with prohexadione calcium in three Canadian provinces. XXVIth International Horticultural Congress, August 11-17th, Toronto, Ontario. (Poster S12-P-??).
6. Robinson, T., I. Anderson, A. Azarenko, B. Barritt, G Brown, J. Cline, R. Crassweller, P. Domoto, C. Embree, A. Fennell, E. Garcia, A. Gaus, G. Greene, P. Hirst, E. Hoover, S. Johnson, M. Kushad, R. Moran, C. Mullins, R. Perry, C. Rom, J. Schupp, and M. Warmund. xxxx. Performance of 25 Cornell-Geneva rootstocks with 'Liberty' as the scion across North America. International Society for Horticulture Science, International Horticultural Conference, 12-17 Aug. 2002, Toronto, Canada. (Poster S12-P-85).
7. Barden, J.A., J. A. Cline, M. M. Kushad, R.P. Marini, M. Parker. 2002. Various measures of tree vigor, yield, and yield efficiency of apple trees in the 1990 NC-140 Systems Trial as influenced by location, cultivar, and orchard system.. Journal of the American Pomological Society 56 (4):208-214.
8. Marini, R.P., B. H. Barrit, J.A. Barden, J. A. Cline, E.E. Hoover, R. L. Granger, M. M. Kushad, M. Parker, R.L. Perry, T. Robinson, S. Khanizadeh, and C.R. Unrath. 2001.

Performance of ten apple orchard systems: ten-year summary of the 1990 NC-140 systems trial. *Journal of the American Pomological Society* 55 (4):222-238.

9. Robinson, T., I. Anderson, A. Azarenko, B. Barritt, G Brown, J. Cline, R. Crassweller, P. Domoto, C. Embree, A. Fennell, E. Garcia, A. Gaus, G. Greene, P. Hirst, E. Hoover, S. Johnson, M. Kushad, R. Moran, C. Mullins, R. Perry, C. Rom, J. Schupp, and M. Warmund. 2002. Performance of 25 Cornell-Geneva rootstocks with 'Liberty' as the scion across North America. International Society for Horticulture Science, International Horticultural Conference, 12-17 Aug. 2002, Toronto, Canada.

3.5 Technical reports

1. Robinson, T., L. Anderson, W. Autio, B. Barritt, J. Cline, W. Cowgill, R. Crassweller, C. Embree, E. Garcia, G. Greene, C. Hampson, K. Kosola, M. Parker, R. Perry, T. Roper, and M. Warmund. 2006. A Multi-location comparison of Geneva® 16, Geneva® 41 and M.9 Apple Rootstocks in North-America. *The Compact Fruit Tree* 39(2):22-23.
2. Autio, W.R. T.L. Robinson, T., B. Barritt, J. Cline, R. Crassweller, C. Embree, E. Garcia, E.E. Hoover, R.S. Johnson, K. Kosola, M. Parker, J. Masabni, R. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. Comparison of several dwarf rootstocks with Fuji and McIntosh as scion cultivars: 1999 Nc-140 semi-dwarf apple rootstock trials. *The Compact Fruit Tree* 39(2):24-27.
3. Autio, W.R. T.L. Robinson, T., B. Barritt, J. Cline, R. Crassweller, C. Embree, E. Garcia, G.M. Greene, E.E. Hoover, R.S. Johnson, K. Kosola, M. Parker, J. Masabni, R. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. Comparison of several dwarf rootstocks with Fuji and McIntosh as scion cultivars: 1999 Nc-140 dwarf apple rootstock trials. *The Compact Fruit Tree* 39(2):24-27.
4. Cline, J.A. 2006. Apogee® – A New Plant Bioregulator for Apples. Ontario Ministry of Agriculture Food, and Rural Affairs. Agdex 24/211. Order No. 06-045. <http://www.omafra.gov.on.ca/english/crops/facts/06-045.htm> [August 2006]
5. Autio, W.R., T.L. Robinson, B.H. Barritt, J.A. Cline, R.M. Crassweller, C.G. Embree, M.E. Garcia, E.E. Hoover, R.S. Johnson, K. Kosola, J. Masabni, M.L. Parker, R.L. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. Comparison of Several Semidwarf Rootstocks with Fuji and McIntosh as Scion Cultivars: 1999 NC-140 Semidwarf Apple Rootstock Trials. Report to the International Fruit Tree Association.
6. Autio, W.R., T.L. Robinson, B.H. Barritt, J.A. Cline, R.M. Crassweller, C.G. Embree, M.E. Garcia, E.E. Hoover, R.S. Johnson, K. Kosola, J. Masabni, M.L. Parker, R.L. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. ultivars: 1999 NC-140 Dwarf Apple Rootstock Trials. Report to the International Fruit Tree Association.
7. Cline, J.A. 2005 (ed.) Tree and Small Fruit Open House Research Guide. June 23, 2005. Simcoe Experiment Station.
8. Cline, J.A. and J. Gardner. 2005. Commercial Production of Honeycrisp Apples in Ontario. Ontario Ministry of Agriculture & Food. Agdex 211/32. Order No. 05-04
9. Cline, J.A. and D. Norton. 2004. Chemical Thinning Experiments with Benzyladenine Carbaryl, and other Blossom thinners on Empire, Royal Gala, and Red Delicious Apples in 2002. . Technical report # 04-01 to Valent BioScience Inc., USA. 16p.
10. Cline, J.A. 2003. The influence of timing and concentration of prohexadione-calcium (apogee) applied in combination with summer and dormant pruning on the growth and productivity of empire apples. Technical report # 03-01 to BASF. 24p.
11. Cline, J.A. 2003. Influence of Prohexadione Calcium (Apogee) on the Vegetative Growth of Six Apple Cultivars. Technical report # 03-02 to BASF. 12p.
12. Gardener, J. and J. Cline. 2003. Pruning of Fruit Trees. Publication 814. Ontario Ministry of Agriculture. Queen's Printer for Ontario, Toronto. 34p.
13. Robinson, T., L. Anderson, A. Azarenko, B. Barritt, G. Brown, J. Cline, R. Crassweller, P. Domoto, C. Embree, A. Fennel, D. Ferree, E. Garcia, A. Gaus, G. Greene, C. Hampson, P. Hirst,, E. Hoover, S. Johnson, M. Kushad, R. Marini, R.Moran, C. Mullins, M. Parker, R. Perry, J.P. Privé, G. Reighard. 2002.

- Performance of Cornell-Geneva rootstocks in the North American NC-140 rootstock trials. *Compact Fruit Tree* 35(4): 99-102
14. Cline, J.A., N. Miles, D. Hunter, G. Chu, and D. Hilborn. 2002. 2002 Tree Fruit Research, University of Guelph, Vineland Campus. 19 p.
 15. Cline, J.A. and K.R. Wilson. 2000. Bitter Pit Control in Apples. Ontario Ministry of Agriculture & Food. Agdex 211/690. Order No. 00-009
 16. Cline, J.A. and K.R. Wilson. 2000. Apple Rootstocks. Ontario Ministry of Agriculture & Food. Agdex 211/690. Order No. 00-007
 17. Cline, J.A. J. Warner, K.R. Wilson, and J. Zandstra. 1998. Disease Resistant Apple Cultivars. Ontario Ministry of Agriculture & Food. Agdex 211/30. Order No. 98-013
 18. Cline, J. 1998. Evaluation of ABG-3168 (ReTain™) to reduce the Preharvest Fruit Drop and Enhance the Storage Potential of Empire, McIntosh and Red Delicious Apples. 25 p.
 19. Cline, J.A. 1997. Ontario Pome Fruit Research and Services Annual Report to the Ontario Horticultural Research and Services Committee. 30 p.
 20. Cline, J.A. and M. Byl. 1997. Annual Report of Cooperative Regional Project NC-140 Rootstock Effects on Pome Fruit Trees. 7 p. Presented at the NC-140 Annual Meeting, Fayetteville, Arkansas
 21. Cline, J.A. and M. Byl. 1997 Annual Report of Cooperative Regional Project NE-183 Multidisciplinary Evaluation of New Apple Cultivars. 6p. Presented at the Annual Meeting, Fayetteville, Arkansas
 22. Cline, J.A. and M. Byl. 1997. Blossom Thinning of Apples with Endothallic Acid. 30 p.
 23. Cline, J.A., 1997. Research of New Chemical Thinners and Stop Drops for Apples. Horticultural Crops Conference, Toronto. 20 February, 1997
 24. Cline, J.A. and M. Byl. 1997 Selected Apple Research Trials at the Horticultural Research Institute of Ontario, Simcoe. 24p.
 25. Cline, J.A. 1996. Ontario Pome Fruit Research and Services Annual Report to the Ontario Horticultural Research and Services Committee. 30 p.
 26. Cline, J.A. and M. Byl. 1996. Annual Report of Cooperative Regional Project NC-140 Rootstock Effects on Pome Fruit Trees. 7 p. Presented at the Annual Meeting, Syracuse, New York
 27. Cline, J.A. and M. Byl. 1996 Annual Report of Cooperative Regional Project NE-183 Multidisciplinary Evaluation of New Apple Cultivars. 3p. Presented at the Annual Meeting, Syracuse, New York
 28. Cline, J. and M. Byl. 1996. Evaluation of TD 2337-03 0.4 S (Endothal) as a Blossom Thinner for Empire Apples
 29. Cline, J. 1996. Chemically thinning apples with Accel®. 3 p.
 30. Cline, J.A. and M. Byl 1996 Efficacy of Fruit Fix Concentrate in Comparison with Sevin, Accel, and Fruitone-N for Chemically Thinning Apples. 13 p.
 31. Cline, J.A. and M. Bom. 1996 Provincial Chemical Thinning Trials with Accel, Ammonium Thiosulphate, Fruitone-NAA and Sevin. 32 p.
 32. Cline, J.A. and M. Bom. 1995. Annual Report of Cooperative Regional Project NC-140 Rootstock Effects on Pome Fruit Trees. 7 p. Presented at the Annual Meeting, Battlecreek, Michigan
 33. Cline, J.A. and M. Bom. 1994. Annual Report of Cooperative Regional Project NC-140 Rootstock Effects on Pome Fruit Trees. 7 p. Presented at the Annual Meeting, Battle Creek, Michigan

34. Cline, J.A. 1994. Effect of Petro-Canada Dormant Spray Oil (Emulsifiable Oil) used as a Spray Adjuvant for Chemically Thinning Apples with Carbaryl, Accel, and Napthalene Acetic Acid. 23 p.
35. Cline, J.A. 1994. Evaluation of Petro-Canada Dormant Spray Oil and Superior 70 Dormant Oil in Controlling European Red Mite in Apple. 18 p.
36. Cline, J. 1994. Production of 'Northern Spy' Apples in Ontario: Statistics and Trends. 4 p.
37. Cline, J.A. and A.D. Webster. 1992. Tree covers to reduce water-induced cracking of sweet cherries. 1991-1992 Ann. Rpt. Horticulture Research International, pg 57.
38. Riekels, J.W., and J.A. Cline. 1987. Plant nutrition in vegetables. University of Guelph, Dept. of Horticulture Publication.
39. Cline, J.A. and E.B. Beauchamp. 1987. The effect of DCD, a nitrification inhibitor, on nitrogen uptake in corn (*Zea mays* L.). Ann. Rpt. Department of Land Resource Science, University of Guelph.

4.0 EXTENSION, CONTINUING EDUCATION, PUBLIC OUTREACH

Such activities include extension publications, consultations, courses, organization and participation in meetings, media interviews, field days, etc. Briefly indicate the extent of the activity. An Extension Dossier may be submitted, if appropriate.

4.1 Extension and Popular Press Publications (Career Total = 75)

1. Cline, J. A. 2007. A Gift That Will Bear Fruit: Orchard's Bequest to Create the Walter and Laura Scott Tree Fruit Research and Education Fund. Orchard Network Orchard Network 11(2): x-x.
2. Cline, J. A. 2007. A Gift That Will Bear Fruit: Orchard's Bequest to Create the Walter and Laura Scott Tree Fruit Research and Education Fund. Tender Fruit Grape Vine Newsletter. 11(2):3-4.
3. Celetti, M, J. Gardner, and J. Cline. 2006. Black Rot and Chemical Thinning. [Online] <http://www.omafra.gov.on.ca/english/crops/hort/news/orchnews/2006/on-1206a4.htm> [15 December 2006].
4. Cline, J.A. and D. Norton. 2007. Performance and Availability of the Vineland (V.) Series Apple Rootstocks. Orchard Network 11(1): 3-6.
5. Celetti, M, J. Gardner, and J. Cline. 2006. Black Rot and Chemical Thinning. Orchard Network 10(3): 6-7.
6. Gardner, J., M. Celetti, and J. Cline. 2006. Fruit Mummification – a Puzzling and Costly Problem. Orchard Network 10(2): 4-5.
7. Robinson, T., L. Anderson, W. Autio, B. Barritt, J. Cline, W. Cowgill, R. Crassweller, C. Embree, E. Garcia, G. Greene, C. Hampson, K. Kosola, M. Parker, R. Perry, T. Roper, and M. Warmund. 2006. A Multi-location comparison of Geneva® 16, Geneva® 41 and M.9 Apple Rootstocks in North-America. The Compact Fruit Tree 39(2):22-23.
8. Autio, W.R. T.L. Robinson, T., B. Barritt, J. Cline, R. Crassweller, C. Embree, E. Garcia, E.E. Hoover, R.S. Johnson, K. Kosola, M. Parker, J. Masabni, R. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. Comparison of several dwarf rootstocks with Fuji and McIntosh as scion cultivars: 1999 Nc-140 semi-dwarf apple rootstock trials. The Compact Fruit Tree 39(2):24-27.
9. Autio, W.R. T.L. Robinson, T., B. Barritt, J. Cline, R. Crassweller, C. Embree, E. Garcia, G.M. Greene, E.E. Hoover, R.S. Johnson, K. Kosola, M. Parker, J. Masabni, R. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. Comparison of several dwarf rootstocks with Fuji and McIntosh as scion cultivars: 1999 Nc-140 dwarf apple rootstock trials. The Compact Fruit Tree 39(2):24-27.
10. Cline, J.A. 2006. Apogee® – A New Plant Bioregulator for Apples. Ontario Ministry of Agriculture Food, and Rural Affairs. Agdex 24/211. Order No. 06-045. <http://www.omafra.gov.on.ca/english/crops/facts/06-045.htm> [August 2006]
11. Autio, W.R., T.L. Robinson, B.H. Barritt, J.A. Cline, R.M. Crassweller, C.G. Embree, M.E. Garcia, E.E. Hoover, R.S. Johnson, K. Kosola, J. Masabni, M.L. Parker, R.L. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. Comparison of Several Semidwarf Rootstocks with Fuji and McIntosh as Scion Cultivars: 1999 NC-140 Semidwarf Apple Rootstock Trials. Report to the International Fruit Tree Association.
12. Autio, W.R., T.L. Robinson, B.H. Barritt, J.A. Cline, R.M. Crassweller, C.G. Embree, M.E. Garcia, E.E. Hoover, R.S. Johnson, K. Kosola, J. Masabni, M.L. Parker, R.L. Perry, G.L. Reighard, S.D. Seeley, and M. Warmund. 2006. ultivars: 1999 NC-140 Dwarf Apple Rootstock Trials. Report to the International Fruit Tree Association.
13. Cline, J.A. 2006. Vegetative Growth Control in Apples. HortMatters 6(8): 13-14.
14. Cline, J.A. 2005 (ed.) Tree and Small Fruit Open House Research Guide. June 23, 2005. Simcoe Experiment Station.

15. Cline, J.A. and J. Gardner. 2005. Commercial Production of Honeycrisp Apples in Ontario. Ontario Ministry of Agriculture & Food. Agdex 211/32. Order No. 05-047
16. Cline, J.A. 2005. Apogee® – A New Growth Control Agent for Apple Growers. Orchard Network 9(2): 5-7.
17. Cline, J.A, R. Gray, and I. Nichols. 2005. Extreme Cold Temperatures Over the Past Winter Likely to Cause Winter Injury to Apple Trees. Orchard Network 9(2): 9-11.
18. Cline, J.A. 2005. Apogee® – A New Growth Control Compound Receives Canadian Registration. Orchard Network 9(2): 1-4.
19. Gardner, J. and J.A. Cline. 2005. Ten Common Misconceptions about Thinning Apples Chemically Orchard Network 9(2): 4-6.
20. Cline, J.A. 2005. Commercial Production of Honeycrisp Apples in Ontario. Ontario Ministry of Agriculture & Food. Agdex 211/32. Order No. 05-047.
21. Cline, J.A. and D. Norton. 2004. Performance of Sweet and Tart Cherry Rootstocks.. HortMatters 4(6): 8-10.
22. Cline, J.A. and D. Norton. 2004. Sweet and Tart Cherry Rootstocks for Ontario. Tender Fruit Grape Vine Newsletter. March/April 2004 8(4):10-14.
23. Coneva, E. and J.A. Cline. 2004. Blossom Thinning Peaches to Improve Fruit Quality. Tender Fruit Grape Vine Newsletter. March/April 2004 8(4):4-6.
24. Cline, J.A. and D. Norton. 2003. Columnar peach trees grown using high-density orchard systems. Fruit and Vegetable Magazine 59 (3): 16-17.
25. Cline, J.A. 2003. The importance of thinning apples chemically. Orchard Network 7(2): 4-6.
26. Cline, J. A., M. Byl, and L. Hainstock. 2003. Rootstock Performance in Ontario: III. Apple Rootstock. Orchard Network 7(1) 3-5.
27. Cline, J.A. , N. Miles, W. Lay, R. Guarnaccia, and D. Norton. 2003. Rootstock Performance in Ontario: II. Rootstocks for Peaches and Nectarines. Tender Fruit Grape Vine Newsletter. March/April 2003 7(4):7-9.
28. Cline, J.A., N. Miles, W. Lay, R. Guarnaccia, and D. Norton. 2003. Rootstock Performance in Ontario: I. Rootstocks for Sweet and Tart Cherries. Tender Fruit Grape Vine Newsletter. January/February 2003 7(3): 8-9.
29. Cline, J. A., R. Guarnaccia, and D. Norton. 2002. Peaches respond to ReTain. Tender Fruit Grape Vine Newsletter. 7(2): 3-4.
30. Cline, J.A. 2002. Honeycrisp Leaf Complex. Orchard Network 6(4) xx-xx.
31. Hainstock, L. and J. A. Cline. 2002. Cultivar Sensitivity to Spring Frosts. Orchard Network 6(2) 5-7.
32. Cline, J.A. 2002. The Importance of Thinning Apples Chemically. Canadian Fruit and Vegetable Magazine, 58: 22-23.
33. Cline, J.A. and K. Carter. 2002. Autumn and Winter Temperature Effects on Pome Fruit Yield. Orchard Network Newsletter 6(1):12-13.
34. Cline, J. 2002. Monthly ReTain Report - July 8, 2002. Valent Bioscience Fax/Email/Web Report 2 p.
35. Cline, J. 2002. Monthly ReTain Report - August 20, 2002. Valent Bioscience Fax/Email/Web Report 2 p.
36. Cline, J. 2002. Monthly ReTain Report - September 3, 2002. Valent Bioscience Fax/Email/Web Report 2 p.

4.2 Continuing Education - Scientific Meetings

1. International Society for Horticulture Science, International Horticultural Conference, 12-17 Aug. 2002, Toronto, Canada.
2. International Apple Fruit Growth and Abscission Conference. 8-11 August, 2002, Orangeville, Ontario, Canada.
3. 28 February, 2002. Growing Gala Apples in Ontario. Horticultural Crops Conference, Hamilton, Ontario.

4.3 Presentations/participation at Grower Meetings (Career Total = 55)

1. April 10, 2006. Using Apogee - A Tool for Apple Producers. OMAF/ Northumberland – Durham Spring Apple Information Day [50 growers]
2. Cline, J.A and P. Schwallier, 2006. Optimizing return bloom in tree fruit species. Intensive Workshop on Plant Growth Regulators, International Tree Fruit Association, Hershey Pennsylvania, 26 February 2006 (*Invited*)
3. Cline J.A and D. Norton, 2006. Apogee – A New Plant Bioregulator for Apples. 15-16 February, 2006. Ontario Fruit and Vegetable Conference, Brock University, Ontario (*Invited*).
4. Taheri, A., J. Cline, J. Subramanian, and K.P. Pauls. 2006. An Alternative Method to Thin Peaches. 15-16 February, 2006. Ontario Fruit and Vegetable Conference, Brock University, Ontario (Poster)
5. Coneva, E. and J.A. Cline. 2006. Ethrel Delays Blossoming, Reduces Fruit Set, and Increases Fruit Size of ‘Baby Gold 5’ Peaches. 15-16 February, 2006. Ontario Fruit and Vegetable Conference, Brock University, Ontario (Poster)
6. Cline, J.A. 2005. Protected Production Technologies. Art Mitchell International Cherry Symposium, 19-21 January 2005. Traverse City, Michigan, USA (*Invited*).
7. Cline, J.A. 2005. Protective Covers to Prevent Sweet Cherry Cracking: A Worldwide Review. International Orchard Show, 17-18 January, 2005. Traverse City, Michigan, USA. (*Invited*).
8. G. Lang, F. Kappel, R. Andersen, J. Cline, G. Greene, K. Kosola, R. Perry, T. Robinson, and S. Seeley. 2005. Mid-trial report of the NC-140 regional sour cherry rootstock trial (1998) in North America. International Cherry Symposium, Bursa, Turkey. June 6-10, 2005.
9. Kappel, F. R. Andersen, J. Cline, G. Greene, G. Lang, K. Kosola, R. Perry, T. Robinson, and S. Seeley. 2005. 186 Performance of the NC-140 Regional Sweet Cherry Rootstock Trial (1998) in North America. International Cherry Symposium, Bursa, Turkey. June 6-10, 2005.
10. Cline, J. 2005. Plant Bioregulators used in Tree Fruit Production. Norfolk Fruit Growers Association, Spring Annual Meeting. March 23, 2005, Horticultural Experiment Station, Simcoe.
11. Cline, J.A. 2005. Advances in Plant Bioregulators for Apples. 16-17 February, 2005. Ontario Fruit and Vegetable Conference, Brock University, Ontario (*Invited*).
12. Coneva, E. and J.A. Cline. 2005. Surfactants Applied as Blossom Thinners Reduce Fruit Set and Increase Fruit Size and Quality of ‘Harrow Diamond’ Peaches. 16-17 February, 2005. Ontario Fruit and Vegetable Conference, Brock University, Ontario (*Invited*).
13. Cline, J.A. 2005. Research and Rain-Induced Cracking of Sweet Cherries. 16-17 February, 2005. Ontario Fruit and Vegetable Conference, Brock University, Ontario (*Invited*).
14. November 23, 2005. Using Apogee - A Tool for Apple Producers. Essex County Associated Growers. 54th Annual Convention. Leamington, Ontario.

15. Cline, J.A. 2005. Chemical Thinnng Apples. Northumberland – Durham Apple Study Group Meeting, Wilmont Orchard. June 8, 2005.
16. Coneva, E., and J. A. Cline. 2004. Effect of Surfactants Applied as Blossom Thinners on Fruit Set and Fruit Size of 'Harrow Diamond' Peaches. Great Lakes Fruit Workers Conference, Nov 10-12, Guelph, Ontario.
17. Cline, J.A. 2004. Managing and handling new apple cultivars: Gala, Ambrosia, and Honeycrisp. East Central Fruit and Vegetable Association 94th Annual Meeting, Dec 14, 2004. Port Hope.
18. Cline, J.A. 2004. 2004 Pomology Research on Tender Fruit in Vineland. December 7, 2004. Niagara Peninsula Fruit and Vegetable Growers Association. St. Catharines.
19. Coneva, E., and J.A. Cline. 2004. Alternate Methods for Thinning Peaches for Quality Fruit (*invited*). 18-19 February, 2004. Ontario Fruit and Vegetable Conference, Brock University, Ontario.
20. Cline, J.A. 2003. Moisture Management for Tree Fruit Crops (invited). 18-19 February, 2003. Ontario Fruit and Vegetable Conference, Brock University, Ontario.
21. November 20, 2002. Water Management in Tree Fruits. Essex County Associated Growers. 52nd Annual Convention. Leamington, Ontario.
22. Cline, J. A. 2002. Producing Gala Apples in Ontario - A Panel Discussion. Horticultural Crops Conference, Hamilton, Ontario. Proceedings for the Ontario Horticultural Crops Conference, February 28th, 2002.

4.4 Grower Field Days / Station Tours

<u>Date</u>	<u>Audience</u>	<u>Topic</u>	<u>No. Attending</u>
May 15, 2007	Fruit Growers (from Southern Ontario)	Spring Apple Orchard Meeting – Simcoe (in conjunction with OMAFRA)	37
May 11, 2007	West Niagara Christian Home School Group	Tour of the gardens, lab, greenhouse - Vineland	40
August 26, 2006	Public, Growers, Industry, Politicians	Participated in the Vineland Research Station Open House – 100 Year Centenary Celebration	Estimate of 1,000
August 23, 2006	OMAFRA Crop Technology Staff	Tour of the Simcoe Research Station	Estimate 40
May 3, 2006	Growers	Peach Pruning Demonstration – Simcoe Research Station	25
Sept 31, 2005	OMAF Crop Technology Staff	Tour of Simcoe Research Station	25
August 28, 2005	Chinese Researcher Delegation	Tour of Simcoe Research Station	6

August 2, 2005	Japanese Researchers	Tour of Vineland Tree Fruit Research and Sharing of Possible Areas of Collaboration	8
June 23, 2005	Fruit Growers	Tree Fruit and Small Fruit Open House	135
June 16, 2005	Consultants	Soil quality day	40
August 25, 2004	Fruit Growers and Industry Reps	Peach, Pear and Plum Twilight Tour, University of Guelph, Vineland	75
July 16, 2003	Fruit Growers and Industry Reps	Apricot and Cherry Twilight Tour, University of Guelph, Vineland	50
August 7, 2003	Fruit Growers and Industry Reps	Irrigation, Fertigation, and Orchard Tour, University of Guelph, Simcoe	35
August 28, 2002	Fruit Growers and Industry Reps	Tree Fruit Research at the University of Guelph, Vineland	70
August 26, 2002	Fruit Growers and Industry Reps	Advanced IPM and Apple Orchard Research, University of Guelph, Simcoe	85

4.5 Media Interviews/Reports

August 3, 2002	St. Catharines Standard	Experts to relay latest on tree-fruit research.
Sept 3, 2002	Ontario Farmer	p. 27. Wild mustard emerging as enemy of soil nematodes. Peaches are being grown at higher densities with higher yields at the Vineland research Station.
Sept 2002	Niagara Farmers' Monthly	Fruit tree research focus of twilight meeting and orchard tour
Dec 2002	The Grower	Alternate Bearing of Apple Trees - Benefits of Plant Growth Regulators
December 3, 2002	Ontario Farmer	Tree fruit irrigation pays as part of establishing orchards.
August 2003	Niagara Farmers' Monthly	Speakers suggest resurrection of apricot industry
July 2003	Research Summer 2003 (UoG Publication)	Slow and steady. New growing methods could mean better fruit and a healthier environment.
Sept 2003	The Weather Network	The Effect of Adverse Weather on Apple Growing in Simcoe

Oct 2003	The Weather Network	Hail Cannons for Control Hail in Orchards
Winter 2004	Ontario Produce Farmer 5(1)6-7	Looking at the benefits of trickle irrigation (Murray Tong)
July 10, 2004	St. Catharines Standard	Fruits of their labours - The Vineland Research Station has been a vital force...
Fall 2004	Country Guide x:xx-xx	Peach trees that reach for the sky
Nov 2004	The Grower 2004 54(11) 18-19	Researchers explore upright and columnar peach tree varieties
May 2005	Ontario Farmer May 10: B3	Apple growth regulator solves two problems
June 2005	The Grower 55(6):29-30	Apogee® - A new growth control compound receives Canadian registration
July 2005	Fruit and Vegetable Magazine 61(6):3-5.	Simcoe Ag Research Station Opens Doors to Growers
August 8, 2005	Simcoe Reformer	It's a peach of an idea.
August 19, 2005	Wire service – UoG written by Peter Zorzella (edited by J. Cline)	Peaches are ready.
November 29, 2005	Ontario Farmer p. B9	Apple growers learn to use new growth regulator.
Feb 2006.	The Fruit Grower News. P 1,4	Worldwide, the scramble toward sweet cherries is on.
May 31 2006	At Guelph 50 (11): 12-13	A Century of Growth: Vineland Turns 100. Written by Andrew Vowles.

5.0 INTERNATIONAL INVOLVEMENT

Membership in Professional Societies

- Canadian Society for Horticultural Science
- American Society for Horticultural Science
- Plant Growth Regulator Society of America
- International Society for Horticultural Science
- International Fruit Tree Association
- International Crabapple Society
- American Pomological Society

East Malling Research Association

International Committees/Editorial Boards

2006 Editorial Committee, ISHS, Acta 727
2004 - 2006 Advisory Committee, American Pomological Society.
2003 Chair, North East Plant Growth Regulator Meeting Organizing Committee.
2004 Co-Chair, 2004 Great Lakes Fruit Workers Meeting, Nov 10-12, 2004.
Guelph Ontario.

6.0 SUMMARY OF SELECTED RESEARCH PROJECTS

6.1 Plant Bio-regulators to Regulate Cropping, Improve Production Efficiency and Fruit Quality

- Have made significant progress in developing reliable commercial techniques to blossom thin peaches, nectarines, and plums
- In collaboration with Dr. E. Coneva, have discovered that late autumn treatment ethephon to *Prunus persica* delays bloom the following spring by up to one week, reducing the risk of spring frosts.
- Have identified compounds, several which meet new organic standards guidelines, that can be used to blossom thin apples and peaches. Intellectual property discussions with the Office of Research have been explored.
- Have conducted research on the economics of fruit thinning that indicates losses in yield are not always offset by the increases in grower returns for fewer, but larger fruit achieved through fruit thinning.
- My research has shown that gibberellic acid sprays can be used to minimize biennial bearing of apples (GA₄₊₇) and reduce the need for hand or chemical thinning.
- Have published research that demonstrates that gibberellic acid (GA₃) inhibits the flowering of *Prunus*, a phenomenon that can be used commercially to regulate the crop load and profitability of growing peaches and cherries
- Published results on the benefit of using gibberellic acid to delay maturity, increase size and firmness, and reduce rain-induced cracking of sweet cherries.
- Discovered and published data on a new compound, prohexidione calcium (Apogee™), demonstrating its effectiveness in reducing vegetative growth of *Malus* by 40% and that it can also aid in the control of secondary fireblight (*Erwinia amylovora*).
- Completed a new colour OMAF factsheet titled “Apogee® - A New Plant Bioregulator For Apples” (2006).
- Reported and published on the benefits of aminovinylethioxyglycine (AVG) on premature fruit drop, fruit firmness, and maturity of ‘Venture’ and ‘Babygold 7’ peaches.

6.2 Identify adaptable tree fruit cultivars with a range of ripening dates useful for fresh market production

- Completed a new colour OMAF factsheet on “Commercial Production of Honeycrisp Apples in Ontario” (2006).
- Published results from our cooperative USDA NE-183 Apple Germplasm Project.
- In 2004, established a randomized and replicated peach research orchard in Simcoe to conduct research for sustainable peach production outside of the Niagara Peninsula. This fruited for the first time in 2006, providing very impressive fruit quality and yield data.
- Collaborating with Dr. Cheryl Hampson on genetic-environmental interactions that influence the performance of new advanced test apple germplasm from AAFC, Summerland.
- Contributing content regularly to OMAF Publication 360, website and newsletters on apple cultivar suitability and performance in Ontario.

6.3 Apple, Peach, Plum, and Cherry Rootstock Physiology

- Continued research for the commercial development of the Vineland series apple rootstocks through testing in USDA NC-140, and the Canadian Prairies.
- Published results on the performance of apple, cherry, and peach rootstock and rootstock/scion combinations under different orchard management systems.
- Have made recommendations on suitable rootstocks for commercial tree fruit producers.
- Completed and published several long-term experiments on the performance of several *Malus* and *Prunus* rootstocks on precocity, production, and tree growth.

6.4 Water Relations, Irrigation, Physiology of Rain-Induced Cracking of Sweet Cherries

- Have conducted and published research which compares tree covers and calcium chloride misting systems and their ability to reduce rain-induced cracking of sweet cherries.
- Elucidated the influence of soil moisture on the establishment, growth, productivity and cracking propensity of sweet cherries.
- Reported on efficient and beneficial soil management irrigation systems for tree fruit (apple and cherries).

7.0 INTERNATIONAL COLLABORATIONS AND EXPERIENCE

Britain (*May 1990 - Present*)

PhD - Horticulture Research International- East Malling (Formerly East Malling Research Station)

New Zealand (*November 1992 - January 1993*)

Research investigating the rain cracking of sweet cherries in cooperation with Dr. Mike Trought, Dr. Sandy Lang, and Ross Edwards, Marlborough Research Centre, Blenheim.

Norway (*July 1992 - September 1992*)

Research investigating the rain cracking of sweet cherries in cooperation with Dr. Mekjell Meland and Dr. Lars Sekse, Ullensvang Research Station, Lofthus

United States (*September 1987 - April 1990*)

MSc - Michigan State University