

WEED ID WORKSHOPS A SUCCESS

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The NYFVI-sponsored berry extension project hosted two workshops on weed ID in November. Western NY growers attended an on-farm meeting held in Rochester, NY, hosted by Green Acres Fruit Farm owner and NY Berry Growers' Association president Craig Michalowski.

Eastern New York growers attended a Polycom workshop linking growers from the Capital district, the Hudson Valley, Long Island and northernmost Franklin and Clinton counties. The growers from these disparate regions were interested to hear about weed problems that were shared and some that were unique to each area.



Speakers included Marvin Pritts, Cathy Heidenreich, Laura McDermott and Chris Benedict from the Department of Horticulture at Cornell, Debbie Breth from the Lake Ontario Fruit Team (LOFT) and Juliet Carroll, New York State IPM program, Geneva. Below is a summary of the presentations given at the workshops for those of you who were unable to attend.

Know Thy Enemy

The first step in any battle is to know thy enemy, in this case, the weeds. For the most part, weeds are undesirable in berry fields as they compete for water, nutrients and light, harbor pests, and are unattractive. Knowing how to identify them and then understanding their life cycles and vulnerabilities are important steps towards control. For example, if a grower uses a grass herbicide to control a problem weed, but the weed is not a true grass, then the application will have been useless. Proper weed identification allows a grower to identify the best cultural strategies for control, and to select effective herbicides and application timings.

Annual, Biennial, or Perennial?

Distinguishing between annuals, biennials, and perennials is the most compelling reason to learn weed identification as management strategies and herbicide effectiveness differ significantly between these categories. Annuals reproduce by seeds, so techniques that kill the top of the plant, prevent seed production, or inhibit seedling establishment, are effective. Biennials are not well adapted to sites that are disturbed annually in fall, winter, and early spring. Mowing increases the chances of biennial survival. Biennials are most sensitive to herbicides as young rosettes (late summer, fall, and spring). In contrast, perennials reproduce vegetatively, so additional strategies must be employed that are directed at killing roots. A preemergent herbicide that inhibits seed germination and establishment will have little impact on a stand of perennial thistles.

Grass or Broadleaf?

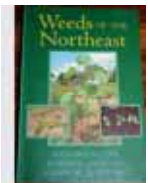
A second distinction is between grasses and non-grasses. Many herbicides are effective against only one of these categories of plants (e.g. Poast and Select against grasses; 2,4-D and Stinger against broadleaves). Sometimes these distinctions can be hard to make. For example, a sedge looks very much like a grass, but post-emergent grass herbicides will not work against sedges. In

addition, certain herbicides are only effective against certain families of plants (e.g. Stinger against composites and legumes), so knowing the weed and its family will help with herbicide selection.

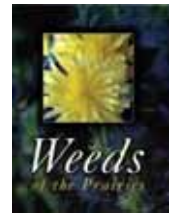
The first part of the workshop introduced growers to the basics of weed identification, such as the characteristics of plants that are used as the basis for separating species. (Did you know that the point of attachment of the grass blade to the stem is the most distinguishable characteristic across grass species?) Growers were shown several different resources that can be used to help identify weeds. Problem weeds brought by growers from their operations were identified. A list of weed identification resources follows.

Weed Identification Resources

1. **Ontario Weeds**, Publication 505, Ontario Ministry of Agriculture and Food, by Professor Jack Alex, University of Guelph, 1992. 304 pages. \$15.00 + GST. Orders can be placed by calling 1-888-466-2372 (Outside Ontario call 519-826-3700) and proceed on Ministry Telephone menu to Publications. You may fax your order to 519-826-3633. Mail orders should be addressed to Publication Order Desk, OMAF, 1 Stone Road West, Guelph, Ontario N1G 4Y2 o. Please allow approximately 14 working days for delivery.
2. **Identification Guide to the Weeds of Quebec**, Publication VT 007, by Claude Bouchard and Romain Neron, 1999, ISBN 2-89457-174-7, 264 pages. To order: Distribution de livres UNIVERS, 845, rue Marie-Victorin, Saint-Nicholas, Quebec, G7A 3S8, (418) 831-7474 or 1-800-859-7474; fax (418) 831-4021 d.univers@videotron.ca, \$16 + S&H. French version also available.
3. **Weeds of Canada and the Northern United States**, by France Royer and Richard Dickenson, University of Alberta Press and Lone Pine Publishing, 141 Athabasca Hall, Edmonton, Alberta, Canada T6G 2E8, paperback, 434 pages, 750 colour photographs and 150 line drawings, 1999 \$29.95
4. **Weeds of the Northeast**, by Richard H. Uva, Joseph C. Neal, and Joseph M. DiTomaso, Published by Comstock Publishing Associates/ Cornell University Press, Sage House, 512 East State Street, Ithaca, New York, 14850, 1997, paperback, ISBN 0-8014-8334-4, 397 pages, includes 299 weeds.
5. **Steel in the Field: A Farmer's Guide to Weed Management Tools**, edited by Greg Bowman, 1997. Discusses history of herbicide use and concurrent decline in knowledge about weed management tools. Describes techniques of using a variety of cultivation tools while minimizing erosion and soil compaction. Presents case studies of weed management systems used by farmers throughout U.S., including small and large farmers growing agronomic, horticultural and dryland crops.
6. Includes detailed drawings and explanations of many tools, including hoes, cultivators, flammers and guidance systems. 128 pp. US\$18. Sustainable Agriculture Publications, Hills Bldg., University of Vermont, Burlington, VT 05405-0082; phone (802) 656-0471; email nesare@zoo.uvm.edu. Website: metalab.unc.edu/farming-connection/weeds/resource/steelrev.htm
7. **Weed Seedling Guide**, Alberta Agriculture, Food and Rural Development, 1996 62 page booklet, spiral bound field guide with photos and descriptions of 50 seedling broadleaf and grassy weeds. [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex41?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex41?opendocument)
8. **Common Weed Seedlings of the United States and Canada**, produced by the Weed Society of America. Their web site is at <http://www.wssa.net>.



9. **1,000 Weeds of North America – An Identification Guide**, produced by the Weed Society of America. A software CD for use in identifying weeds. Available from their web site at <http://www.wssa.net>. Approximate cost \$50.
10. **Common Weed Seedlings of the North Central States**, NCRE Publication 607, by Andrew J. Chomas, James J. Kells and J. Boyd Carey, Dept. of Crop & Soil Science, Michigan State University, Bulletin Office, 10-B Ag. Hall, East Lansing Michigan, 48824-1039, (517) 355-0240, Email: marekh@msue.msu.edu, paperback, 21 pages, 1998, \$2.00 US or see website at www.weeds.iastate.edu/weednews/ncseed.htm
11. **The Biology of Canadian Weeds**, Publications 1693 & 1765, Edited and compiled by Gerald A. Mulligan, Communications Branch, Agriculture and Agrifood Canada, Ottawa K1A 0C7, 1979 & 1984, paperback, 380 & 415 pages
12. **Weeds of the Prairies**, Agdex 640-6 (previously Weeds of Alberta), Alberta Agriculture, Food and Rural Development, Publications Office, 7000-113 St., Edmonton, Alberta T6H 5T6, (780) 427-0391 or Fax (780) 422-8835, paperback, 209 pages, 375 photographs
<http://www.agric.gov.ab.ca/navigation/publications/pricedpublications/index.html>
13. **Peterson Field Guide to Wildflowers** by Roger Tory Peterson and Margaret McKenney. Available from most bookstores. This is a good pictorial guide to identification and includes some species not commonly found in agriculture but similarly may not include all agricultural weeds.



Weed Management Strategies

The second part of the workshop dealt with strategies for managing weeds. The three basic strategies are 1) eliminate weeds from a site before planting, 2) prevent weeds from being introduced into the planting, and 3) eliminate weeds when they appear. Speakers emphasized the importance of #1 and #2 because implementing #3 is labor-intensive and expensive.

Using Roundup and cover crops (such as buckwheat, sudangrass and rye) a year or two before planting is a common strategy to eliminate perennial weeds, as is growing a crop such as corn or soybeans or grain the year before planting. Many herbicides are available to control weeds in soybeans and gains, and will help clean up the field before berries. Make sure that there is no herbicide carry-over that could affect berry plant establishment.

Preventing weeds from coming into a planting is also important. Important sources of weed seeds are 1) field borders that are not mowed regularly, 2) contaminated straw used for mulching, and 3) weed seeds from deep in the soil that are brought to the surface through tillage. Ideal cultivation implements should disturb only the top inch or so of soil, rather than bring seeds to the surface. Brush hoes, Reigi weeders and finger weeders are examples of shallow cultivators.

Eliminating weeds from the field once they appear requires a significant amount of time. In fact, studies have shown that up to 70% of non-harvest labor is typically spent on weed management in strawberry fields. There are no herbicides that will eliminate all weeds and leave berry plants intact this is why it is so important to do as much as you can to eliminate weeds before planting. Selective herbicides exist, but these can still leave large categories of weeds unaffected. A combination of cultivation, mulching, hand-weeding and herbicides is required to effectively keep weeds under control.

Studies have shown that weeds early in the season of the planting year are much more damaging than weeds at the end of the season. Focusing weed control at the beginning of the season is a better investment of time than waiting until near the end of the season to begin control measures. Similarly, if weed control is excellent during the establishment year, then weeds in subsequent years will have much less of an impact on the crop.

Growers then talked about specific weed problems that they were having. Most of these weeds were perennial broadleaf weeds, similar to the perennial broadleaf berry plants growing among them. Available herbicides are not sufficiently selective to kill the weeds without damaging the crop. We discussed when to apply herbicides to have the greatest impact on the problem weed. For example, applying 2,4-D and Stinger in early September to deep-rooted perennials is more effective than applications in early spring because the herbicide is translocated into the roots at that time of the year, rather than to the shoot tips.

Tracking Your Success

The workshop ended with a presentation of TracBerry record-keeping software by Dr. Juliet Carroll, the Fruit Coordinator with New York State IPM. TracBerry makes record keeping easier for all aspects of pest control. It keeps track of the latest farm chemical information based on the most recent Cornell Guidelines. It will print the necessary EPA WPS central posting forms. TracBerry allows the farmer to customize the program to track only the chemicals and the rates that they apply. With this data, the farmer can calculate the cost of the pesticide application. This information will allow farmers to make informed decisions about the type and frequency of weed control for each crop. While it isn't possible to respond to NYS DEC pesticide reporting requirements directly from the TracBerry Software, links are being added to make the process easier. In addition to TracBerry, NYS IPM also has record keeping software for apple, grape and stone fruit. TracBerry is available for \$20 and technical support is provided by Dr. Carroll.