

PLANT & PEST ADVISORY

ORGANIC EDITION \$1.50

JULY 14, 2000



INSIDE

Selection of Liming Materials for pH Correction, Ca and Mg 1

Tracking Populations of European Corn Borer 2

Resources 3

 Book: Marketing Sustainable Ag 3

 Summit: Future of Food & Our Farms .. 3

 Book: Building Soils for Better Crops 4

 Forum: Working with Communities to Protect Farms & Forestland 4

 Grant: Opportunity Available for NE Producers 5

 New Publication: Potassium Sources for Organic Growers 5

 Program: The Garden State Agricultural Re-Engineering Initiative 5

Factsheet: Natural Pest Control - Using Beneficial Insects to Control Landscape Pests 6

Selection of Liming Materials for pH Correction, Calcium and Magnesium

Daniel Kluchinski, Mercer County Agricultural Agent and Joseph R. Heckman, Extension Specialist in Soil Fertility

In the last issue of the Plant and Pest Advisory we discussed soil pH, the measure of soil acidity or alkalinity. Plants have specific pH ranges that allow for optimum production. Acidity can be reduced (pH raised) through the use of limestone, or pH lowered by applying acidifying organic materials or elemental sulfur containing amendments.

A soil's lime requirement can be determined using several methods. One, utilized by the Rutgers Soil Testing Laboratory, is to determine soil texture and soil pH, then uses tables appropriate for the crop to be grown to determine the lime requirement. A soil's lime requirement depends on the total acidity that must be neutralized to raise pH to the desired level or target pH. For the purpose of lime recommendations this method estimates total acidity from soil texture and soil pH. The soil pH measurement must be used in combination with soil fertility test information to determine the lime requirement and the type of lime to use.

Selecting an appropriate liming material depends on the degree of pH correction and the need to replenish soil calcium and magnesium. Soil test recommendations for liming New Jersey soils should be reported in pounds of calcium carbonate equivalent per acre (lb CCE/A). Pure calcium carbonate (CaCO₃) has a CCE value of 100% and is used as the standard against which all other liming materials are measured. Since the CCE of available liming materials ranges from 40 to 179%, the amount of liming material needed to supply the recommended quantity of CCE will vary. By law, the CCE of a liming material must be stated on the product label. To calculate the corresponding application rate of a given liming material, the following formula is used:

$\text{Amount of liming material per acre} = \frac{\text{soil test CCE recommendations} \times 100}{\% \text{ CCE of liming material}}$

Selection of a liming material also is to be based on its Ca and Mg concentrations and the relative need for these nutrients in the

SEE LIME ON PAGE 2

Tracking Populations of European Corn Borer

Joseph Ingerson-Mahar, Vegetable IPM Coordinator

European corn borer is one of the more serious insect pests of vegetables in New Jersey, feeding primarily on sweet corn and peppers, but also occurring occasionally on a wide range of crops. Because of its broad host range and the amount of damage it causes, we track corn borer populations around the state.

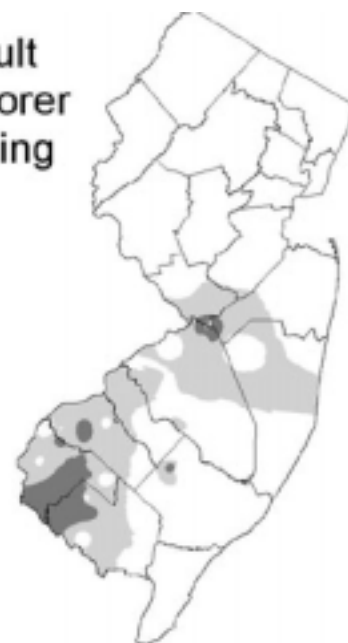
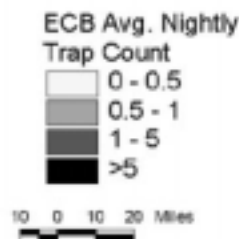
This can be done in a couple of ways. Rutgers Cooperative Extension's Vegetable Integrated Pest Management Program maintains a network of about 80 blacklight traps set on farms around the state. Each blacklight trap is geo-referenced so that with the aid of the Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA) on the Cook College campus we are able to produce computer-generated maps, such as the one on this page.

Kris Holmstrom and Sally Walker, vegetable IPM program associates, compile the blacklight trap data for both corn borer and corn earworm each Wednesday of the growing season and Marilyn Hughes of the CRSSA generates the maps. Subscribers to the Vegetable Crops edition of the Plant and Pest Advisory can see these maps weekly. They are also posted every Wednesday on the Rutgers Cooperative Extension web site at: <http://www.rce.rutgers.edu/pubs/plantandpestadvisory/index.html>. Our population data is also shared with Penn State, which includes the data in a map of the 6-state area of the mid-Atlantic region on their sweet corn pest maps.

Another way of tracking corn borer populations is to watch the degree-day accumulations in the Vegetable Crops edition Plant and Pest Advisory newsletters. The degree-day information can also be obtained from the web at: www.wx.rutgers.edu (posted Mon., Tues. & Wed. only) or through the New Jersey Department of Agriculture's NJ Weekly Digest (The Greensheet) available by mail (609 292-6385) or fax (800 328-0179). Historical blacklight trap data shows that the first generation of corn borer occurs at different degree-day accumulations from the southern to the northern portions of the state. However, the second generation is synchronized across the state at 1500 degree-days. When the base 50 degree-day accumulation for your area reaches 1450 to 1500, you know that the second-generation moths are flying and that egg masses and larvae will be appearing soon.

It also appears that if your area (mostly the southern part of the state) reaches 2500 degree-days, a third generation of corn borer appears. Fortunately this third generation causes little damage. □

Distribution of Adult European Corn Borer for the Week Ending July 12, 2000



LIME FROM PAGE 1

soil. The product label will indicate the percentage of Ca and Mg; higher content is generally indicative of a better quality limestone. Pure calcium carbonate is 40% calcium. Limestones, which contain significant amounts of Mg, are valuable in situations where Mg is needed per soil test recommendation. When the soil test Mg level is *below optimum*, it is important to choose a liming material that contains a significant concentration of Mg. If the soil level is *below optimum-very low*, or *low*, use a liming material that has a minimum concentration of 9% Mg. If the soil Mg level is *below optimum-medium*, use a liming material that has less than 3.6% Mg. In general, the need for a liming material containing Mg occurs more frequently on sandy soils.

Particle size or particle size distribution is another important factor that determines limestone quality and selection of material. There are three fineness categories of agricultural liming materials sold in New Jersey: fine, medium and coarse-sized. Fine sized liming materials are recommended when rapid neutralization of soil acidity is desired. Medium and coarse sized liming materials are best suited for maintenance of soil pH once the desired soil pH range has been attained.

For in-depth information on this and related topics, consult the following Rutgers Cooperative Extension Fact Sheets, available through your local county Extension office or on the web at www.rce.rutgers.edu.

- FS719. Soil Fertility Test Interpretation
- FS905. Agricultural Liming Materials
- FS902. Liming New Jersey Soils for Fruit Crops
- FS903. Liming New Jersey Soils for Field and Forage Crops
- FS904. Liming New Jersey Soils for Vegetable Crops □

Resources

Book: Marketing Sustainable Agriculture

Marketing Sustainable Agriculture - Case Studies and Analysis from Europe is edited and produced by the Institute for Agriculture and Trade Policy (IATP).

Innovative marketing strategies are crucial to the success of sustainable and organic agriculture. Gaining insights from successful strategies is the purpose of the publication Marketing Sustainable Agriculture: Case Studies and Analysis from Europe. This report describes marketing initiatives from six European countries through the eyes of an international group of farmers, marketers and agriculturists.

In Germany, farmers, environmentalists, and other activists grabbed media attention by staging dramatic campaigns that illustrate the disappearance of farmhouses and rural communities. Farmer and producer cooperatives dominate in Denmark, controlling most of the food processing and distribution industries and about a third of the food retail stores. In England, farmers are also retailers, establishing local farm shops that benefit the rural economy. Farmers and environmentalists in the Netherlands, unite to conserve wildlife habitats while improving farm income. From starting fires in Germany to owning their own farm shops in England, these producers are building a niche for their products and creating a direct link to consumers.

The marketing experience of European farmers and producers can provide insight and inspiration to the growing organic and sustainable agriculture movement in the North America, Europe and other industrialized countries. You can learn about these individual case studies and the themes and elements that run through them.

The important themes include the following:

- Modern marketing within oversupplied food markets
- Elements of quality and consumer trust: regionalism and trace-ability
- Alternative patterns of cooperation, ownership and control of the supply chain
- Cooperative marketing
- Public and private market incentives and disincentives

The publication is available for \$15 (includes postage and handling) from:

Institute for Agriculture and Trade Policy
2105 First Avenue South
Minneapolis, MN 55404
Phone: 612-870-3411
Fax: 612-870-4846

Summit: The Future of Our Food and Farms

A Regional Summit to Promote Agriculture, Learn about Trends in Food Distribution and Find Ways to Reduce Hunger

The second annual "The Future of Our Food and Farms" summit on November 30 and December 1, 2000- is a regional summit to promote agriculture, learn about trends in food distribution and find ways to reduce hunger.

Participants from Pennsylvania, New Jersey, Maryland, and Delaware will learn about issues affecting the food system across the region including: genetically modified organisms (GMO's), rotational grazing, school breakfast and lunch programs, USDA community food security, cooperatives, connecting producers with consumers, direct marketing of premium beef, quality of youth diets, inner-city supermarkets, women in agriculture, do the poor pay more for food, rural restorations, southern New Jersey food systems, minorities in agriculture, increasing minority youth interest in agriculture and natural resources, searching for economic equality in the food system and much more.

Who should attend? Farmers, food industry professionals, government officials, advocates for hunger prevention, policy makers, community food security activists, teachers, students interested in agriculture, natural resources, environment, food science and nutrition, extension agents, chefs, nutritionists, wholesalers, retailers, FFA, and consumers in Delaware, Maryland, New Jersey, and Pennsylvania.

For more information, contact Meredith Stone at 215-568-0830, Ext. 10 or e-mail fmtrust@libertynet.org. □

Book: Building Soils for Better Crops

Healthy soils are key to producing good harvests with minimal pest problems. Maintaining a balanced soil ecosystem, however, remains a challenge for even the most experienced farmers and gardeners.

In his new book, *Building Soils for Better Crops*, University of Vermont soil scientist Fred Magdoff unlocks the secret of building a diverse ecosystem below ground to foster healthy crops above. With co-author Harold van Es of Cornell University, Magdoff presents practical approaches to raise fertility, promote good soil tilth, improve nutrient levels and boost yields, all while reducing adverse environmental impacts.

"In addition to describing specific soil-building practices, we provide an ecological framework to help people organize their thoughts about how to improve their soils," Magdoff says. "Our goal is for readers to understand the reasons certain management practices improve soil health. This way, farmers and gardeners can customize various practices to their own particular soils and crops."

The 240-page *Building Soils* contains detailed information about the makeup of soils and the management practices that positively — or negatively — affect soils, as well as practical information, such as how to interpret soil test results. Five farmer profiles add real-life examples of profit-enhancing approaches to soil management.

Background chapters detail the basics of soil health, organic matter, nutrients and soil physical properties. Other chapters delve into management strategies and their benefits to cropping systems. Some of those strategies include: increasing soil organic matter, using appropriate tillage, incorporating animal manures, making and using composts, integrating cover crops into rotations, reducing erosion, methods to avoid and decrease soil compaction, and ways to evaluate soil health.

The book's hands-on approach makes it a natural for farmers and gardeners, who will likely see results just a season or two after changing their practices. Research has shown that planting cover crops and reducing tillage, for example, can improve soil structure in just one to two years.

Building Soils was published in June, 2000 by the Sustainable Agriculture Network, the outreach arm of the USDA-Sustainable Agriculture Research and Education (SARE) Program. Since 1988, SARE has been USDA's primary means of researching and promoting farming systems that are profitable, environmentally sound and good for communities. *Building Soils* is the third in a practical handbook series published by SAN.

To order single copies of *Building Soils for Better Crops*, call 802-656-0484, or send a check for \$19.95 plus \$3.95 for shipping and handling made out to Sustainable Agriculture Publications to SAN Publications, Hills Building, Burlington, Vt. 05405-0082. □

Forum: Working with Communities to Protect Farms and Forestland

USDA Constituent Alert: The U.S. Department of Agriculture's Policy Advisory Committee on Farmland Protection is hosting a listening forum on *Wednesday, August 9, 2000 from 9:00 a.m. to 12:00 p.m. at the Frelinghuysen Arboretum in Morristown, NJ.* The Committee is soliciting policy feedback and anecdotal information on what works and what doesn't from a community's perspective in working with federal tools designed to maintain land as farm and forestland. The input received from these forums will be synthesized into a report that USDA will issue on this subject later this year.

Public comment is being sought on the following questions:

1. What are the economic, environmental and social benefits of farms and forested lands for communities, especially those in rapidly growing regions;
2. What are the challenges that communities and individuals face in trying to maintain farms and forested lands, especially in rapidly growing areas;
3. What prospects exist to capitalize on market opportunities (e.g. direct marketing and agri-tourism) to encourage maintenance of farmland and forestland; and
4. What role could the federal government play to better support farmers and forest operators in taking advantage of these opportunities?

The forum is open and free to the public. However, those wishing to make extended comments should pre-register by contacting Ms. Mary Lou Flores at (202) 720-4525. Those who wish to submit written statements can do so by submitting 25 copies of their statements on or before August 7, 2000. Please send them to Ms. Stacie Kornegay, Natural Resources Conservation Service, P.O. Box 2890, Washington, DC 20013, Room 6013. The written form of the oral statements must not exceed 5 pages in 12-point pitch. Oral presentations should be no more than three minutes each in duration. For more information regarding the forum, contact Irene Lieberman at (732) 246-1171 x 124. □

Grant: Opportunity Available for Northeast Producers

A regional grants program is offering funding to Northeast growers interested in testing innovative production and marketing strategies, and sharing what they learn with other producers.

Applications are now available for the Northeast Region USDA-Sustainable Agriculture Research and Education (SARE) Program's 2001 Farmer/Grower Grants competition. Applications are due December 4, 2000. Growers can obtain application forms from NOFA-NJ or from Rutgers Snyder Research Farm at 908-730-9419. Applications can also be obtained on the web at www.uvm.edu/~nesare/grants, or by e-mail at nesare@zoo.uvm.edu. "This program provides an excellent opportunity for producers who want to try something a little different," says Northeast SARE Program Manager Jim Gardiner. "It helps farmers evaluate new practices and approaches, and other producers benefit by learning from grant recipients' experiences."

The goal is to help farmers shift to production and marketing practices that are profitable, environmentally sound, and beneficial to the community. Proposals can address a broad range of agricultural and farm forestry production and marketing issues.

Grant funds can be used to rent equipment, buy materials, pay for project-related services like soil testing and technical advisors, and to compensate farmers for the time they spend on the project.

The Farmer Grant Program is not intended to provide startup funds for beginning farmers, nor to support capital improvements on individual farms.

The program is very competitive. Last year, there was sufficient funding for only half the applications received. The average grant was \$4,351, although the program has awarded grants as large as \$12,000 and as small as \$300.

To be eligible for Northeast SARE funding, an applicant must be a commercial producer.

Funding decisions will be made in Feb. 2001, and funds will be available in April for the 2001 crop production season.

This year will be the ninth year that Northeast SARE has offered producer grants. Since 1993, Northeast SARE has awarded over 350 producer grants. □

New Publication: Potassium Sources for Organic Growers

The Potash Development Association has a new publication that discusses potassium management in organic systems and organic standards for potassium sources. The publication is written based on the rules for organic production in Europe but the information should be useful and of interest to organic growers in New Jersey. You may request a copy of the publication entitled "Potash for Organic Growers - Leaflet No. 23" by email: pda@farmline.com. □

Program: The Garden State Agricultural Re- Engineering Initiative

The Garden State Agricultural Re-Engineering Initiative is a voluntary educational program sponsored by Rutgers Cooperative Extension in cooperation with the New Jersey Farm Bureau and the New Jersey Department of Agriculture. Its aim is to meet the ever-increasing needs of the state's agricultural producers and their families for financial risk management education and, in so doing, increase the number of successful viable farms in New Jersey.

In order to survive in today's rapidly changing agribusiness environment, the program enable you to:

1. Conduct in-depth financial analysis of your farming operations
2. Take a deliberate and knowledgeable approach to risk management
3. Establish and maintain periodic contact with outside expertise

The following is what the program offers:

- Use of Finpack, the most comprehensive agricultural financial planning and analysis software available
- Crisis-intervention strategies for financially distressed farms
- Small-group workshops and/or one-on-one consultations
- Evaluations of agronomic management practices
- Unlimited access to computers
- Flexibility to meet your individual needs
- Complete confidentiality

For more information on the program, contact:

David Lee, Agricultural Agent
Rutgers Cooperative Extension of
Salem County
51 Cheney Rd., Suite 1
Woodstown, NJ 08098
Phone: 856-769-0090
Fax: 856-769-1439

Common beneficial insects found in New Jersey



LADY BEETLE

Feeds on: aphids, scales, mites, and mealybugs.

To attract lady beetles, plant: yarrow, golden-rod, and morning glory.

SPIDER



Feeds on: fleas, lace-bugs, and the eggs of the Japanese beetle and sod webworm.

Provide shade to draw spiders.



GROUND BEETLE

Feeds on: gypsy moths, caterpillars, weevils, and ants.

Low plants, groundcovers, and camphor weed will lure ground beetles.

GREEN LACEWING



Feeds on: aphids, whiteflies, scales, mites, and lacebugs.

This beneficial insect is attracted to yarrow and wild carrot.



HOVER FLY

Feeds on: aphids, leafhoppers, scales, mealybugs, and thrips.

Hover flies are lured to coreopsis, candytuft, and morning glory.

Beneficial insects:

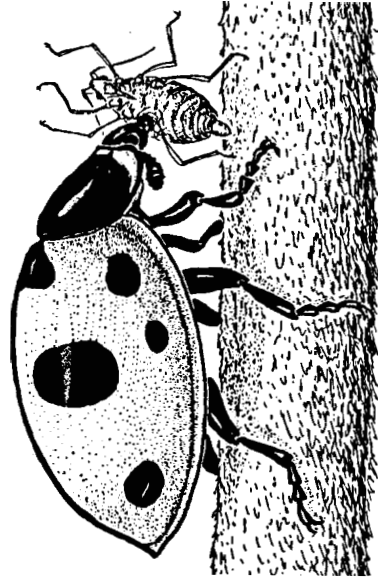
Nature's alternative to pesticides

Many property owners assume that spraying pesticides is the only reliable method to kill lawn and garden pests. There is a safer and more effective way, however, to prevent or reduce pest damage—by promoting natural populations of insects that feed on harmful pests.

Beneficial insects used in place of traditional chemical pesticides will:

- Improve the long-term health of your plants
- Save you money by reducing your reliance on costly pesticides
- Help protect the environment

Read this brochure to learn more about beneficial insects.



Desktop Publishing by Rutgers Cooperative Extension/Resource Center Services
750-9903

**RUTGERS COOPERATIVE EXTENSION
N.J. AGRICULTURAL EXPERIMENT STATION
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
NEW BRUNSWICK**

Distributed in cooperation with U.S. Department of Agriculture in furtherance of the Acts of Congress of May 8 and June 30, 1914. Rutgers Cooperative Extension works in agriculture, family and consumer sciences, and 4-H. Zane R. Hessel, Director of Extension. Rutgers Cooperative Extension provides information and educational services to all people without regard to sex, race, color, national origin, disability, or age. Rutgers Cooperative Extension is an Equal Opportunity Employer.

Natural Pest Control

Using beneficial insects to control landscape pests

by Deborah Smith-Fiola
County Agricultural Agent



What are beneficial insects?

Many types of insects destroy or damage lawns, trees, and gardens. These harmful insects include scales, Japanese beetles, mites, aphids, weevils, and many species of flies. Other species, called beneficial insects, feed upon these harmful insect pests and can significantly reduce pest populations.

Beneficial insects can be found anywhere. Some common backyard species of beneficial insects include lady beetles, lacewings, and rove beetles. Attracting these insects can reduce the infestation of harmful pests, thereby preventing or limiting damage to landscapes and gardens. The presence of beneficial insects in your landscape will also reduce or eliminate the need to use pesticides. Beneficial insects can also be purchased through catalogs.

The use of beneficial insects is one technique of **Integrated Pest Management (IPM)**, which is the employment of "environment-friendly" methods to control plant insects and disease. IPM stresses natural methods to control plant insects and diseases. For example, the use of beneficial insects and good horticultural practices can often replace the application of chemical pesticides for certain pests.

For more information on beneficial insects and other Integrated Pest Management techniques, contact the Rutgers Cooperative Extension office listed in the county government "blue pages" of your telephone directory.

This pamphlet has been made possible through the generosity of the Geraldine R. Dodge Foundation.

Mention or display of a trademark, proprietary product, or firm in text or figures does not constitute an endorsement by Rutgers Cooperative Extension and does not imply approval to the exclusion of other suitable products or firms.

How to attract beneficial insects

1. Plant flowers

The key to attracting beneficial insects is to plant a variety of flowers. Pollen and nectar from flowers (especially wildflowers) attract beneficial insects and encourage them to lay their eggs nearby.



Daisy, black-eyed Susan, sunflower, ornamental goldenrod, yarrow, aster, and Queen Anne's lace are especially effective in attracting beneficial insects. Herbs such as parsley, dill, fennel, catnip, spearmint, and thyme also attract beneficial insects.

2. Supply water

Beneficial insects need water to survive. A small water garden or a shallow dish filled with pebbles and water will attract and support beneficial insects during drought.

3. Provide shelter

Beneficial insects require nearby vegetation (e.g., woods, weeds, mulch) for protection during the warm months and shelter during the winter. Garden pathways and borders offer shelter to soil-dwelling beneficials. Hedges and foundation plantings also provide protection for beneficial insects.

4. Provide food

To attract beneficial insects, provide a pollen/nectar food source by spraying your garden and/or borders with a solution of sugar and water. You can also spray your plants with a mixture of three parts water to one part lemon-lime soda or one part yeast and one part sugar to ten parts water. These mixtures can be purchased commercially under the names "Wheat," "Bugchow," or "Formula 57."



5. Eliminate pesticides

Since beneficial insects will only stay on your property if they have enough harmful insects to feed upon, traditional pesticides should not be used. Pesticide sprays kill both beneficial insects and their food source, often causing an eventual resurgence of the pests. Less toxic pesticides such as insecticidal soap or horticultural oil can be used to knock down harmful insects, thus allowing beneficial insects that survive to continue feeding.

Recommended reading:

A Field Guide to the Insects North of Mexico, D.J. Borror and R.E. White, A. Knopf, Inc., 1980.
Rodale's Color Handbook of Garden Insects, Anna Carr, Rodale Press, 1979.
Common Sense Pest Control, William S. Olkowski, Shiela Daar, and Helga Olkowski, Taunton Press, 1991.
Rutgers Cooperative Extension Landscape IPM Manual, Deborah Smith-Fiola, Rutgers Cooperative Extension of Ocean County, 1998.

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey
Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

PLANT & PEST ADVISORY

ORGANIC EDITION CONTRIBUTORS

Rutgers Cooperative Extension Specialists

Stephen A. Garrison, Ph.D., Vegetable Crops
George Hamilton, Ph.D., Pest Management
Joseph R. Heckman, Ph.D., Soil Fertility
Bradley A. Majek, Ph.D., Weed Science
Jeremy Singer, Ph.D., Field and Forage Crops

RCE County Agricultural Agents and Program Associates

Gloucester, Michelle Infante-Casella (856-307-6450)
Hunterdon, Win Cowgill (908-788-1338)
Martha Maletta, Horticultural Consultant
Mercer, Daniel Kluchinski (609-989-6830)
Ocean, Deborah Smith-Fiola (732-349-1246)
Steven Rettke, Program Associate IPM

Vegetable IPM Program (732-932-9802)

Joseph Ingerson-Mahar, Vegetable IPM Coordinator
Kristian E. Holmstrom, IPM Program Associate
Sarah Walker, IPM Program Associate

Newsletter Production

Jack Rabin, Assistant Director, NJAES
Cindy Rovins, Editor and Designer
Mary Ann Hughes, Assistant Editor

Rutgers Cooperative Extension (RCE)
provides information and educational
services to all people without regard to sex,
race, color, national origin, disability, or age.
RCE is an Equal Opportunity Employer.

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

Use of Trade Names: No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

Reproduction of Articles: RCE invites reproduction of individual articles, source cited with complete article name, author name, followed by Rutgers Cooperative Extension, Plant & Pest Advisory Newsletter.